NARA SELECTED READINGS

Licensing Measurement & Monitoring Systems

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Preface

These selected readings are taken from over 50 years of research into the licensing measurement and monitoring systems (LMS) research literature related to the development and implementation of the early childhood program quality improvement and indicator model (ECPQIM), differential monitoring and the licensing key indicator methodology. These NARA Selected Readings should be read along with the eHandBook on Licensing Measurement and Monitoring Systems related to the NARA Licensing Curriculum.

The readings are journal publications, research reports, chapters, and papers. They range from licensing, regulatory compliance, professional development, training, technical assistance, accreditation, quality rating and improvement systems, and other early care and education quality initiatives.

Together this anthology provides the basis of the theory and research background for licensing measurement & monitoring systems, and the early childhood program quality improvement and indicator model (ECPQIM).

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Licensing Measurement and Monitoring Systems: Regulatory Science Applied to Human Services Regulatory Administration

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In the realm of human services regulatory administration, ensuring compliance with licensing requirements is crucial for maintaining quality standards and safeguarding the well-being of individuals receiving care. As regulatory agencies strive to enhance their oversight and monitoring capabilities, the integration of measurement and monitoring systems has emerged as a valuable tool.

This paper explores the significance of licensing measurement and monitoring systems and delves into the application of regulatory science in the context of human services regulatory administration. It will deal with several issues related to this topic and expand its content beyond early care and education which has been more of the focus previously.

Licensing measurement and monitoring systems play a crucial role in regulatory administration for several reasons:

- Compliance Verification: Regulatory agencies need to ensure that businesses and individuals comply with specific laws, regulations, and standards. Licensing measurement and monitoring systems provide a means to verify compliance by collecting data and measuring various parameters. These systems help regulators determine whether license holders are meeting the required standards and taking appropriate actions to mitigate risks.

- Quality Assurance: Licensing measurement and monitoring systems contribute to quality assurance efforts by assessing the performance of licensed entities. They enable regulators to monitor the quality of services and activities associated with the licensing process. By establishing measurement criteria and tracking the relevant metrics, regulators can ensure that license holders maintain the desired level of quality and meet the expectations of consumers or the public.

- Risk Management: Many industries involve inherent risks that need to be managed effectively. Licensing measurement and monitoring systems allow regulatory agencies to

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assess and monitor the risks associated with licensed activities. By continuously monitoring key indicators, regulators can identify potential risks, deviations from safety standards, or non-compliance issues. This information helps regulators take appropriate actions to minimize risks and ensure public safety.

- Data-Driven Decision Making: Licensing measurement and monitoring systems generate substantial amounts of data that can be analyzed to make informed decisions. Regulators can analyze trends, patterns, and performance metrics to identify areas of concern or improvement. Data-driven insights enable regulators to make evidence-based decisions, allocate resources effectively, and prioritize enforcement actions where they are most needed.

- Enforcement and Remediation: When non-compliance or deviations from regulations are identified, licensing measurement and monitoring systems provide evidence to support enforcement actions. Regulators can use the data collected to take appropriate enforcement measures, such as issuing warnings, imposing penalties, or revoking licenses. These systems also help in tracking the progress of remedial actions taken by license holders to address any identified issues or deficiencies.

- Transparency and Accountability: Licensing measurement and monitoring systems enhance transparency and accountability in regulatory administration. By implementing these systems, regulators can demonstrate their commitment to fair and consistent enforcement of regulations. The data collected and analyzed can be made accessible to the public, stakeholders, and policymakers, fostering trust, and allowing for external scrutiny of regulatory processes.

Licensing measurement and monitoring systems are vital in regulatory administration as they facilitate compliance verification, quality assurance, risk management, data-driven decision making, enforcement, and accountability. These systems help regulators ensure that licensed entities operate within the set standards, mitigate risks effectively, and safeguard the interests of the public.

Regulatory Science is relevant to human services regulatory administration in all industries. Regulatory science is the scientific discipline that combines various fields, including law, public policy, data analysis, and risk assessment, to inform and guide regulatory decision-making. Measurement and monitoring systems are regulatory science aids in the development and implementation of evidence-based regulations and policies.

Regulatory agencies overseeing a wide range of human services, such as healthcare facilities, child care centers, mental health institutions, and more, face several challenges in their oversight role. Some of the key challenges include:

- Diverse and Complex Landscape: The human services sector encompasses a broad range of industries, each with its unique complexities, regulations, and standards. Regulatory agencies must navigate and understand this diverse landscape to effectively oversee and enforce compliance. The sheer variety of services, settings, and stakeholders involved makes it challenging to develop uniform regulations and monitoring approaches that address the specific needs of each sector.

- Rapidly Evolving Practices and Technologies: The human services field is constantly evolving, with new practices, technologies, and treatments emerging. Regulatory agencies need to keep pace with these changes to ensure that the regulations remain relevant and up-to-date. However, this can be a challenging task, as it requires continuous monitoring, research, and adaptation of regulations to address emerging risks and advancements adequately.

- Resource Constraints: Regulatory agencies often face resource constraints in terms of staffing, funding, and technological capabilities. Insufficient resources can limit their capacity to conduct thorough inspections, investigations, and monitoring activities. Additionally, limited resources may also impact the frequency and intensity of oversight, making it difficult to identify and address compliance issues effectively.

- Compliance Variability: Human services facilities and institutions can vary significantly in terms of size, ownership, resources, and compliance history. Regulatory agencies need to develop oversight strategies that account for these variations while ensuring consistent enforcement and quality standards across the board. Balancing the need for flexibility with the need for uniformity is a constant challenge for regulatory agencies. And this becomes increasingly complex when dealing with the regulatory compliance theory of diminishing returns/ceiling effect.

- Stakeholder Engagement and Resistance: Regulatory oversight often involves engaging with various stakeholders, including facility owners, professionals, service recipients, advocacy groups, and the public. These stakeholders may have different interests, priorities, and perspectives, leading to potential conflicts or resistance to regulatory measures. Balancing the diverse viewpoints and managing stakeholder expectations is essential for effective oversight.

- Data Management and Analysis: The vast amount of data generated by human services facilities can pose challenges in terms of data management, analysis, and interpretation. Regulatory agencies need robust systems and processes to collect, store, analyze, and make sense of the data to identify trends, patterns, and areas of concern. The integration and interoperability of data systems across different sectors and agencies can be complex and time-consuming.

- Legal and Ethical Considerations: Regulatory agencies must operate within legal frameworks and adhere to ethical standards while overseeing human services. They need to strike a balance between protecting public health and safety and respecting individual rights and privacy. Navigating legal complexities, ensuring due process, and maintaining confidentiality can be challenging in an environment where ethical dilemmas may arise.

Addressing these challenges requires a proactive and adaptive approach from regulatory agencies. They need to foster collaboration with stakeholders, invest in capacity-building efforts, leverage technology for efficient data management, and engage in continuous evaluation and improvement of their oversight strategies.

Inadequate monitoring in the human services can have significant risks and consequences, highlighting the need for robust systems that ensure compliance and promote accountability. Human services encompass a wide range of sectors, including healthcare, social welfare, child protection, and criminal justice. Monitoring in these areas is essential to safeguard the well-being and rights of individuals, prevent abuses, and ensure the effective delivery of services. Here are some potential risks and consequences of inadequate monitoring:

- Abuse and neglect: Without proper monitoring, vulnerable individuals may be at a higher risk of abuse, neglect, or exploitation. For instance, in healthcare settings, inadequate monitoring can lead to medical errors, mistreatment of patients, or substandard care. Similarly, in child protection services, insufficient monitoring can result in children remaining in abusive or neglectful environments.

- Violation of rights: Inadequate monitoring can lead to violations of individuals' rights, including their civil liberties, privacy, and dignity. For example, in criminal justice systems, inadequate monitoring can result in wrongful convictions, excessive use of force, or violations of prisoners' rights. In social welfare programs, lack of monitoring can lead to discrimination, improper denial of benefits, or infringement of recipients' rights.

- Inefficiency and ineffective service delivery: Monitoring is crucial for evaluating the effectiveness and efficiency of human services. Without robust monitoring systems, it becomes challenging to identify gaps, assess performance, and make informed decisions for improvement. Inadequate monitoring may lead to wastage of resources, duplication of efforts, or the continuation of ineffective programs that fail to meet the needs of the intended beneficiaries. This is where risk assessment rules and key indicator rules play an important role in increasing the effectiveness and efficiency of the monitoring process by utilizing a more differential monitoring approach.

- Lack of accountability: Monitoring plays a vital role in ensuring accountability within human service systems. It helps identify and address instances of misconduct, malpractice, or non-compliance with regulations and standards. Inadequate monitoring can result in a lack of transparency and accountability, allowing misconduct to go unnoticed, perpetrators to go unpunished, and systemic problems to persist.

- Loss of public trust: Inadequate monitoring erodes public trust in human service systems. When people perceive that their well-being, rights, or safety are compromised due to poor monitoring, it undermines their confidence in these services. Public trust is crucial for the effective functioning of human services, as it promotes cooperation, engagement, and participation of individuals and communities.

To mitigate these risks and consequences, robust monitoring systems are essential. Such systems should include clear guidelines, regular inspections, audits, reporting mechanisms, and independent oversight bodies. They should also leverage technology and data analysis to enhance monitoring capabilities and identify patterns or anomalies. Additionally, staff training on monitoring protocols and the establishment of a culture of accountability are crucial components of an effective monitoring framework.

Inadequate monitoring in human services poses significant risks and consequences. It can lead to abuse, neglect, rights violations, inefficiencies, lack of accountability, and loss of public trust. Robust monitoring systems, incorporating clear guidelines, regular inspections, technology, and independent oversight, are necessary to ensure compliance, protect individuals, and promote accountability within human service sectors.

The integration of measurement and monitoring systems into the licensing process in human services is a crucial development that leverages technology and data analytics to track, evaluate, and verify compliance with licensing standards. These systems provide real-time monitoring capabilities, enabling early detection of non-compliance, improved transparency, and enhanced accountability. Let's delve into the details of how these systems work and the benefits they bring.

Measurement and monitoring systems in the context of human services licensing involve the use of advanced technologies, such as sensors, cameras, electronic record-keeping systems, and data analytics tools. These technologies are integrated into the licensing process to collect, analyze, and interpret relevant data in real-time. The aim is to ensure that organizations and individuals providing human services comply with the established licensing standards and regulations.

One significant advantage of integrating measurement and monitoring systems is the early detection of non-compliance. With real-time monitoring, regulatory agencies can identify potential violations promptly. For example, if a human services facility is required to maintain a specific temperature range, sensors can continuously monitor the temperature levels. If there is a deviation from the acceptable range, an alert can be triggered, enabling swift corrective action. This early detection mechanism helps prevent potential risks and harm to individuals receiving those services.

Moreover, these systems improve transparency by providing accurate and objective data. Instead of relying solely on periodic inspections or self-reported information, regulatory agencies can access real-time data collected by the monitoring systems. This data-driven approach ensures a more comprehensive and accurate assessment of compliance with licensing standards. It reduces the reliance on subjective observations and minimizes the possibility of information gaps or bias.

Furthermore, integrating measurement and monitoring systems enhances accountability for organizations and individuals providing human services. By continuously monitoring and recording data, these systems create an audit trail that can be used for accountability purposes. The collected data provides evidence of compliance or non-compliance with licensing standards, which can be used in regulatory investigations or legal proceedings if necessary. This level of accountability fosters a culture of responsibility and incentivizes compliance with licensing requirements.

The benefits of these systems extend beyond regulatory agencies. Service providers themselves can benefit from real-time monitoring by gaining insights into their own operations and performance. By analyzing the data collected, they can identify areas for improvement, optimize resource allocation, and make evidence-based decisions to enhance the quality of their services. This data-driven approach supports continuous improvement and helps providers meet and exceed licensing standards.

The integration of measurement and monitoring systems into the licensing process in human services offers significant advantages. It leverages technology and data analytics to enable real-time monitoring, early detection of non-compliance, improved transparency, and enhanced accountability. These systems provide regulatory agencies with objective data to ensure

compliance with licensing standards and promote the safety and well-being of individuals receiving human services. Simultaneously, service providers benefit from insights gained through data analysis, allowing them to optimize their operations and deliver higher quality services.

Licensing measurement and monitoring systems in human services play a crucial role in ensuring compliance with regulations, tracking licensing activities, and monitoring the quality and safety of services provided. These systems typically consist of several key components that work together to enable effective measurement and monitoring. Here are the main components:

- Comprehensive Databases: A central database is essential for storing all licensing-related information, including provider details, facility data, licensing standards, inspection reports, and compliance history. These databases provide a foundation for data collection, analysis, and reporting.

Example: The Child Care Licensing System (CCLS) developed by the Administration for Children and Families in the United States is a comprehensive database that tracks and manages child care licensing information. It allows agencies to manage licensing processes, track violations, and generate reports.

- Automated Data Collection Tools: Automation tools streamline the process of data collection by capturing information electronically, reducing manual effort, and improving accuracy. These tools can include online application forms, electronic submission of documentation, and automated notifications.

Example: The Integrated Regulatory Information System (IRIS) used by the California Department of Social Services enables online application submissions, digital document management, and automated notifications for licensing updates. It simplifies the data collection process and enhances efficiency.

- Risk Assessment Algorithms: Risk assessment algorithms help identify high-risk facilities or providers that require increased monitoring or intervention. These algorithms analyze various factors such as compliance history, complaint data, inspection results, and other relevant indicators to prioritize resources effectively.

Example: The Risk Assessment and Management Tool (RAM) implemented by the Australian Government's Department of Health is used to assess and manage risks associated with aged care services. RAM employs algorithms that analyze data on quality indicators, complaints, and non-compliance to determine risk levels and allocate resources accordingly.

- Data Visualization Platforms: Data visualization platforms present licensing data in a user-friendly and meaningful way, allowing regulatory agencies to monitor trends, identify patterns, and make data-driven decisions. These platforms often include interactive dashboards, charts, and reports.

Example: The Licensing Information System (LIS) developed by the Department of Health and Human Services in the state of Maine provides a data visualization platform that allows users to generate customized reports, view interactive charts, and track licensing compliance trends.

- Compliance Monitoring Tools: Compliance monitoring tools assist in conducting inspections, audits, and other monitoring activities efficiently. These tools can include mobile applications for inspectors to collect data on-site, electronic checklists, and automated scheduling of inspections.

Example: The Licensing Automation System (LAS) implemented by the Minnesota Department of Human Services offers mobile applications for licensing staff to perform inspections, record findings, and generate inspection reports on the go. It simplifies the monitoring process and improves accuracy.

Overall, these components work together to create effective licensing measurement and monitoring systems in human services. By leveraging comprehensive databases, automated data collection tools, risk assessment algorithms, data visualization platforms, and compliance monitoring tools, regulatory agencies can enhance their oversight capabilities, improve efficiency, and ensure the provision of high-quality services while maintaining compliance with regulations.

Licensing measurement and monitoring systems have had a significant impact on regulatory administration and the human services sector. These systems play a crucial role in enabling regulators to proactively identify potential risks, address compliance issues promptly, and ensure the safety and quality of services provided. In this response, we will discuss the impact of these systems and provide case studies and examples that illustrate the positive outcomes achieved through their implementation.

One of the primary benefits of licensing measurement and monitoring systems is their ability to provide regulators with real-time data and insights. These systems collect and analyze various metrics and indicators, allowing regulators to monitor the performance and compliance of service providers. By having access to accurate and up-to-date information, regulators can proactively identify potential risks and address them before they escalate into serious problems.

For instance, let's consider the case of a regulatory agency responsible for overseeing childcare facilities. By implementing a licensing measurement and monitoring system, the agency can track key indicators such as staff-to-child ratios, health and safety inspections, and educational programs. If the system detects any deviations from the established standards, it can alert regulators, enabling them to intervene promptly. This proactive approach helps prevent incidents and ensures that children receive appropriate care and support.

Another positive outcome of licensing measurement and monitoring systems is improved compliance management. These systems streamline the process of monitoring and assessing compliance with regulations and standards. Service providers can input data directly into the system, reducing the administrative burden and ensuring accuracy. Regulators can then use this data to identify patterns, assess compliance levels, and take appropriate actions if non-compliance is detected.

For example, let's consider the case of a regulatory agency overseeing healthcare facilities. With a licensing measurement and monitoring system in place, the agency can track indicators such as medication errors, infection rates, and patient satisfaction scores. If the system identifies a healthcare facility with consistently high medication error rates, regulators can conduct targeted inspections and work closely with the facility to implement corrective measures. This proactive approach not only improves patient safety but also helps service providers enhance the quality of care they deliver.

Furthermore, licensing measurement and monitoring systems contribute to transparency and accountability in the human services sector. These systems provide a centralized platform where regulators, service providers, and the public can access information about licensing status, compliance records, and performance metrics. By promoting transparency, these systems help build trust among stakeholders and empower individuals to make informed decisions about service providers.

For instance, in the context of elder care services, a licensing measurement and monitoring system can provide a public database that includes information on the licensing status of assisted living facilities, compliance records related to safety standards, and ratings based on resident satisfaction surveys. This enables families and individuals seeking care for their loved ones to make informed choices and select facilities that meet their specific needs.

Licensing measurement and monitoring systems have had a transformative impact on regulatory administration and the human services sector. These systems enable regulators to proactively identify potential risks, address compliance issues promptly, and ensure the safety and quality of services provided. Through case studies and examples, we have seen how these systems have improved oversight in childcare, healthcare, and elder care, leading to positive outcomes such as enhanced safety, improved compliance, and increased transparency. The

implementation of such systems has the potential to further strengthen regulatory efforts and promote the well-being of individuals receiving human services.

Licensing measurement and monitoring systems can present various challenges and considerations, including privacy concerns, data security, resource constraints, and the need for ongoing system updates and maintenance. Addressing these challenges is crucial to ensure the effective implementation and operation of these systems. Additionally, collaboration between regulatory agencies, stakeholders, and technology providers is essential to overcome these challenges and maximize the benefits of these systems.

- Privacy concerns: Measurement and monitoring systems often involve the collection and analysis of sensitive data, such as personal information or proprietary business data. It is important to establish robust privacy policies and legal frameworks to protect individuals' privacy rights and ensure compliance with relevant data protection regulations. Implementing anonymization techniques, data minimization principles, and obtaining appropriate consent can help mitigate privacy concerns.

- Data security: The storage, transmission, and analysis of measurement and monitoring data require robust security measures to prevent unauthorized access, data breaches, or cyber-attacks. Encryption, access controls, regular security audits, and adherence to industry best practices can help safeguard the data and maintain its integrity and confidentiality.

- Resource constraints: Licensing measurement and monitoring systems can pose financial and logistical challenges, particularly for smaller organizations or developing countries with limited resources. These systems may require substantial investments in infrastructure, equipment, and skilled personnel. Adequate funding mechanisms, public-private partnerships, and capacity-building initiatives can help address resource constraints and ensure broader access to these systems.

- Ongoing system updates and maintenance: Measurement and monitoring systems must be regularly updated to keep pace with evolving technologies, regulatory requirements, and scientific advancements. This necessitates ongoing maintenance, software updates, calibration, and quality control procedures. Collaboration between regulatory agencies, technology providers, and stakeholders is crucial to establish effective mechanisms for system maintenance, ensuring that the systems remain accurate, reliable, and up-to-date.

- Collaboration between regulatory agencies, stakeholders, and technology providers: Overcoming the challenges associated with licensing measurement and monitoring

systems requires a collaborative approach. Regulatory agencies should engage in constructive dialogues with stakeholders, including industry representatives, environmental organizations, and community groups. Collaboration can help address concerns, establish common standards, and promote transparency and accountability. Technology providers can contribute by developing user-friendly and interoperable systems that meet regulatory requirements while minimizing the burden on end-users.

Collaboration among regulatory agencies, stakeholders, and technology providers is critical to ensure the successful implementation of measurement and monitoring systems. By working together, these entities can develop robust policies, address privacy concerns, enhance data security, allocate necessary resources, and establish mechanisms for ongoing system updates and maintenance. This collaborative approach will maximize the effectiveness of these systems in monitoring and safeguarding various aspects of public health, environmental quality, and regulatory compliance.

Licensing measurement and monitoring systems play a crucial role in human services regulatory administration by ensuring compliance, enhancing service quality, and protecting individuals receiving care. Integrating regulatory science principles into licensing processes further strengthens these benefits.

One significant aspect of licensing measurement and monitoring systems is their ability to promote compliance. These systems provide a standardized framework for evaluating and assessing the compliance of service providers with established regulations and standards. By implementing these systems, regulatory authorities can systematically track and measure compliance levels, identify areas of non-compliance, and take appropriate actions to rectify any deficiencies. This helps maintain a high level of accountability among service providers, ensuring they adhere to the required standards and regulations.

Moreover, integrating regulatory science principles into licensing processes brings several advantages. Regulatory science applies scientific knowledge and methodologies to inform regulatory decision-making. By incorporating these principles into licensing, regulators can leverage evidence-based approaches to establish standards, design measurement tools, and set performance benchmarks. This approach promotes objectivity, transparency, and consistency in the licensing process, ensuring that decisions are based on sound scientific evidence rather than subjective judgment.

Another key benefit is the potential for improved service quality. Licensing measurement and monitoring systems enable regulators to gather comprehensive data on service providers' performance, outcomes, and service quality indicators. This information allows for a thorough assessment of service delivery, identifying strengths and weaknesses in the system. By analyzing this data, regulators can provide feedback, guidance, and support to service

providers, fostering continuous improvement in service quality. This leads to better outcomes for individuals receiving care and enhances overall service provision within the human services sector.

Furthermore, licensing measurement and monitoring systems are instrumental in protecting the well-being of individuals receiving care. These systems help identify potential risks, such as violations of safety protocols or instances of abuse or neglect. By closely monitoring service providers, regulators can swiftly respond to any issues, take necessary corrective actions, and ensure the safety and well-being of vulnerable populations. Regular monitoring also acts as a deterrent, encouraging service providers to maintain high standards and comply with regulations to avoid penalties or sanctions.

Looking ahead, the field of regulatory science and measurement and monitoring systems is continually evolving. Advances in technology, data analytics, and artificial intelligence present opportunities for further advancements in these systems. For example, the integration of real-time data collection and analysis can enhance the effectiveness and efficiency of monitoring processes. Predictive analytics and risk assessment models can help regulators proactively identify potential areas of concern and allocate resources accordingly. Additionally, the incorporation of feedback from individuals receiving care and other stakeholders can further refine measurement systems, ensuring they capture the most relevant and meaningful indicators of service quality.

In conclusion, licensing measurement and monitoring systems are vital components of human services regulatory administration. By integrating regulatory science principles, these systems promote compliance, improve service quality, and protect individuals receiving care. As regulatory science continues to evolve, the potential for further advancements in measurement and monitoring systems is promising, enabling regulators to better fulfill their mandate of safeguarding the well-being of vulnerable populations.

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Measurement Tools and Systems

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■ PREFACE

The purpose of this chapter is to acquaint the licensing administrator with the science and art of measurement as it relates to regulatory administration. It is becoming more and more critical that licensing administrators have at least a rudimentary knowledge of measurement methods. Measurement is a key element of the new information age. It is the basis for the design and implementation of information systems, either manual or automated, conducting on-site inspections, making observations, interviewing and completing complaint investigations.

This chapter provides an overview to the major types of measurement tools used within the regulatory administration field related to assessing compliance with human care licensing rules. A historical perspective will be provided followed by outlines of key definitions. The types of measurement tools and systems will be reviewed. The final section of this chapter will address the relationship between measurement and rule formulation.

The sections titled Weighting Systems and Licensing Indicator Systems are heavily influenced by the two papers written by NARA Immediate Past President Karen E Kroh, Pennsylvania, in the late 1980s on these two topics.

Past NARA Secretary and Vice President Carolynne H Stevens, Virginia, and NARA Executive Director and Past President Pauline D Koch, Delaware, served as reviewers for this chapter.

■ INTRODUCTION

Measurement within regulatory administration has changed substantially from the 1970s through the 1990s. It has moved from being very qualitative to being more quantitative in nature. The qualitative nature was depicted with long narratives obtained from in-depth observations and interviews that described a facility in detail with a listing of violations with specific rules. The observations used a running record format in which a detailed accounting of the facility was obtained. This is in contrast to an anecdotal type of record that is used a great deal in the measurement literature related to observing behaviors. This qualitative system worked well when there were few facilities to be assessed. However, as the number of human care facilities increased and licensing agency administrators felt a greater need to understand compliance trends, movement to a more quantitative measurement system has evolved.

This move to quantification of measurement began in earnest in the 1970s, in particular, with the revision of the Federal Interagency Day Care Regulations (FIDCR). The notion of an instrument based program monitoring or licensing system began to be examined by licensing agencies. Checklists and rating scales were employed, with checklists being used predominantly because of the nature of regulatory compliance. However, a few states, provinces and cities utilized rating scales to measure compliance with rules. More will be said about the differences between checklists and rating scales.

By the early 1980s with severe federal cutbacks in funding, licensing administrators found themselves with an increasing number of facilities to license but fewer funds to perform the investigative function. In response to this concern, the indicator checklist methodology was created which utilized a shortened version of the comprehensive checklist approach used by many states. Indicator systems have been developing over the past two decades and in many states are key components of their monitoring and licensing functions. The indicator system is only one form of what is known in the licensing literature as inferential inspections. However, only the indicator system will be addressed in this chapter because the other types of inferential inspections are not valid and reliable enough to meet the criteria for scientifically based measurement tools.

INTRODUCTION

A related but very different technique that complements indicator systems is the use of weighting systems to determine the relative risk of specific rules related to non-compliance. The reason for the development of weighting systems is the nature of regulatory compliance data. Because compliance data measure minimum health, safety and well-being rules, the data are highly skewed with very little variance. The use of weighting systems helps to increase the amount of variance in the regulatory data sets.

The indicator and weighting systems have not been limited to licensing systems but have also been developed for other program quality endeavors such as accreditation and national standards setting.

A very recent development, in the 1990s, is the development and use of outcome based systems for licensing. This is where a licensing agency places more emphasis on outcomes rather than processes. This is a very experimental and controversial development, particularly for the field of human care licensing.

■ DEFINITIONS

Instrument Based Program Monitoring

A movement within licensing and regulatory administration from qualitative measurement to a very quantitative form of measurement that includes the use of checklists.

Indicator System

A licensing measurement system utilizing a shortened version of a comprehensive checklist measuring compliance with rules through a statistical methodology. Only key predictor rules are included on an indicator checklist. It is a form of inferential inspections where only a portion of the full set of rules is measured.

Inferential Inspections

An abbreviated inspection utilizing a select set of rules to be reviewed. An indicator system, weighting of rules for determining a shortened inspection tool, a random selection of rules, etc. are examples of inferential inspections. The use of inferential inspections by licensing agencies was developed as a time saving technique and a technique to focus regulatory efforts on facilities that required additional inspections or technical assistance.

Checklist

A simple measurement tool that measures compliance with state rules in a yes/no format. Either the facility is in compliance with rules or not in compliance. Generally, there is no partial compliance with checklists generally.

■ DEFINITIONS

Rating Scale

A more complex measurement tool in which a Likert type of rating is employed—going from more to less, or high to low. A rating scale is always used in the development of weighting systems. It is not used in measuring compliance with rules. However, rating scales are used widely in other types of program quality assessment systems—accreditation and research tools.

Weighting System

A Likert type of measurement tool that utilizes a modified Delphi technique to determine the relative risk to individuals if there are violations with specific rules. Weighting systems are developed by sending a survey to a selected sample of persons in order for them to rank the relative risk of violation with specific rules.

Outcome Based Systems

A measurement system based upon outcomes, not processes. A facility would be assessed by the outcomes it produced with individuals. For example, the number of consumers (children or adults) developing normally, free from abuse, not in placement, involved actively in the community, etc. are outcome based measures.

■ INSTRUMENT BASED PROGRAM MONITORING

Instrument Based Program Monitoring (IPM) is a particular approach to measurement and assessment. It is in contrast to a more qualitative type of assessment (case study is an example of this type of assessment). IPM is very quantitative and is characterized by the use of checklists (see the next section for a discussion of checklists). The advantages of instrument based program monitoring are the following: cost savings, improved program performance, improved regulatory climate, improved information for policy and financial decisions and ability to make state/province comparisons.

IPM is a paradigm shift in conducting licensing inspections and licensing of facilities.

It is an approach that lends itself to automation, it is objective and it is generally systems-oriented. The IPM approach came into its own in the 1970s and has been used predominantly since then as the primary licensing measurement tool. Some individuals have argued that the IPM approach is not as effective as the more qualitative, narrative case study approach although they can't argue with its efficiency. A combination of IPM (quantitative approach) with a qualitative approach is probably most effective; however, this is very time consuming and a luxury that most state/province licensing agencies do not have, with more and more facilities to license and fewer and fewer staff to do the licensing.

■ CHECKLISTS

Checklists are the predominant means of collecting licensing data. It simplifies the process, making it very quantifiable. This is one of its strengths, but along with this simplification, a drawback is that some of the richness of the description of a particular facility is lost.

There are particular steps that need to be followed in the development of the checklist. Licensing administrators need to follow this four step process:

1) Make interpretations of the rules part of the overall manual for measurement of the comprehensive set of rules.

2) Identify the rules to be included in the checklist.

3) Consider the organization of the checklist—the flow of the investigation to the facility.

4) Decide what type of record keeping will be used—NCR paper, notebook computer in the field, etc.

■ RATING SCALES

Rating scales will not be discussed in detail because their applicability to licensing measurement is rather limited. Only in cases where a licensing administrator was interested in some form of partial compliance would rating scales make sense. The NAEYC (National Association for the Education of Young Children) accreditation system is one example of the use of a rating scale of full, partial or non-compliance with accreditation standards. While a partial compliance rating may be useful in accreditation standard measurement, it is generally not appropriate for use in licensing rule measurement.

Most licensing agencies do not use partial compliance, and the movement within the regulatory administration field is to consider partial compliance as being equivalent to non-compliance. Either a facility meets the rule or does not meet the rule. There is no middle ground.

■ WEIGHTING SYSTEMS

Weighting systems and licensing indicator systems that are described in the next section of this chapter are enhancements of the basic checklist (instrument based program monitoring) system. Weighting systems are used to increase the amount of variance in licensing compliance data. Because licensing data are nominal data ('yes' or 'no' compliance) and are generally highly in compliance, there is little variance in the data set from any particular set of rules. In order to increase the variance in data, weighting systems are used so that each rule does not have an equal weight. If you do not weight rules, by default, you have given an equal weight to each rule.

The remainder of this section describes the process for developing a licensing weighting system for use in the implementation of human care licensing rules, displays data from states that have used this approach and discusses the applicability of weighting systems for all types of human service licensing.

A licensing weighting system is a regulatory administration tool designed for use in implementing human care licensing rules. A licensing weighting system assigns a numerical score or weight to each individual licensing rule or section of a rule, based upon the relative health, safety and welfare risk to the consumers if a facility is not in compliance with the rule. The type of license issued is based on the sum of the numerical weights for each rule that is not in compliance.

The specific objectives of a licensing weighting system are:

a) To standardize decision-making about the type of license to be issued

b) To take into account the relative importance of each individual rule

c) To ensure that rules are enforced consistently

d) To improve the protection of consumers through more equitable and efficient application and enforcement of the licensing rules

WEIGHTING SYSTEMS

A licensing weighting system can and should be developed and implemented only if:

1) Regular or full licenses are issued with less than 100% compliance with rules. If a regular license is not issued unless all violations are corrected at the time of license issuance, a weighting system is not necessary. A weighting system is useful if a facility is issued a license with outstanding violations (and a plan to correct the non-compliance areas) at the time of license issuance.

2) There is a large number of licensing rules with a variation of degrees of risk associated with various rules. If there are only a few rules with equal or similar risk associated with each rule, a weighting system is not necessary. A weighting system is useful if there are many rules with varying degrees of risk.

3) A standardized measurement system or inspection instrument is used to measure compliance with licensing rules. Before developing a weighting system, a standardized measurement instrument or tool should be developed and implemented.

■ WEIGHTING SYSTEMS

Development of a Weighting System

This section will provide a step-by-step process in the development of a weighting system for licensing agency use.

1) The first step in developing a licensing weighting system is the development of a survey instrument. A licensing inspection instrument or measurement tool can be adapted into a survey tool. The survey should contain each rule or section of a rule, according to how it is measured in the inspection instrument. Survey instructions should explain the purpose of the survey and instructions for completing the survey instrument. It is suggested that survey participants rate each rule section from 1-8 based on risk to the health, safety and welfare of the clients if the rule is not met (1 = least risk; 8 = most risk).

   The survey participant should be instructed to circle their rating choice of 1, 2, 3, 4, 5, 6, 7 or 8. An example of a survey question is:

Interior stairways, outside steps, porches and ramps shall have well-secured handrails.

1 2 3 4 5 6 7 8

Low Risk High Risk

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2) Surveys should be disseminated to at least 100 individuals. If a state has more than 3,000 licensed facilities in the type of service being surveyed, consideration for surveying more than 100 individuals should be given.

   Individuals surveyed should include providers of service; provider, consumer and advocacy associations; health, sanitation, fire safety, medical, nutrition and program area professionals; licensing agency staff including policy/administrative staff and inspectors; consumers of service; and funding agency staff. In order to assure a higher survey return rate, persons selected as survey participants should be contacted prior to the survey to explain the weighting system and request their willingness to complete a survey. *(See Karen Kroh's paper for detailed graphics of Pennsylvania's survey distribution.)*

3) Survey results from each survey should be collected and entered into a computer data base spreadsheet software package. After all survey data are recorded, means or average weights for each rule or section of a rule should be calculated using SPSS—Statistical Package for the Social Sciences or SAS—Statistical Analysis System. (For detailed information on the statistical methodology employed in the development of weighting systems, see Griffin and Fiene's *A systematic approach to child care regulatory review, policy Development of a Weighting System evaluation and planning to promote health and safety of children in child care: A manual for state and local child care and maternal and child health agency staff*.)

   If there is sufficient variation in the means for each rule, the individual rule means can be rounded to the nearest whole number. Generally when comparing mean weights among the various groups surveyed there should be a similarity in rating among the groups, supporting the use of the weights as a reliable measure of risk.

4) The next step is to either (a) pilot test the weights with new licensing data for about six months or (b) apply the weights to at least 25% of historical data from the previous 12 months.

   The intent of the pilot application is to collect data to use as the database for determining statistical cut-off points for the issuance of specific types of licenses or for administration of various negative sanctions.

   A total weighted score for each facility based upon the combined weights of all violations should be calculated. Following is an example of how the scores should be calculated:

RULE VIOLATIONS	WEIGHTS
# 1	7
# 2	6
# 3	+ 8
Sum of Weights =	21

■ WEIGHTING SYSTEMS

Under the above example a perfect compliance score with non-compliance areas would be a score of "0". The higher the score, the lower the compliance would be. However, this is not congruent with the common usage of scores in which the higher score is associated with better compliance. In order to accommodate our familiarity with higher scores for the better facilities, the weighted score should be deducted from an arbitrary constant score of "100". Thus a weighted non-compliance score of "20" will convert to a positive score of "80". A facility with no violations will have a perfect score of "100". This is more intuitive to individuals as they think about scores and measurement.

Using the previous example, the final weighted score would be computed as follows:

RULE VIOLATIONS	WEIGHTS
# 1	7
# 2	6
# 3	+ 8
Sum of Weights =	21

Final calculation:

100

-21

79

5) The fifth step in the process is to compute and apply the standard deviation or the median if the data are very skewed.

The mean and standard deviation of all final weighted scores computed in the pilot application in step #4 should then be calculated. Based upon experience with implementing licensing weighting systems, it is recommended that if a final weighted score is no more than one standard deviation below the mean, a regular license should be issued. If a score is between one standard deviation below the mean and two standard deviations below the mean, a provisional license should be issued (the length of the provisional license will vary based upon the severity of the non-compliance), or intermediate negative sanctions should be administered. If a score is less then two standard deviations below the mean, no license should be issued or a more severe negative sanction should be administered.

For example, if the standard deviation is 18 and the mean is 88, following is the distribution of the weighted scores used to determine the type of license to be issued:

Score of 100 — 70	=	Regular license/no sanction
Score of 69 — 52	=	Provisional license/intermediate sanction such as warnings, administrative fines or restriction on admissions
Score of 51 and below	=	No license/severe sanction such as revocation or administrative closure

6) The final weighted scores from the pilot application should be applied to the standard deviation cut-off points to determine the type of license or negative sanction issued. These data should be studied to compare types of licenses or sanctions issued under pre-weighting vs weighting.

7) Before implementing the licensing weighting system the following additional licensing factors should be considered and incorporated as necessary into the licensing system.

   a) repeated violations from the previous licensing inspection;

   b) violation with high risk items (possibly a weight of 8.0 or above);

   c) discretion of licensing inspector to recommend variance from licensing weighting system.

8) Whenever licensing rules are amended, or at least every 5 years, the weights should be recomputed and the weighting system re-evaluated.

The licensing weighting system as described here can be used to license any type of human care facility including child care, adult care, residential care and part-day care facilities. Licensing weighting systems have been developed in Pennsylvania, Utah, Florida and Georgia.

Since the concept, development and implementation of weighting systems is relatively new to the field of licensing, the long term impact and benefits of weighting systems have not been fully realized. The potential of using weighting systems and modifications of weighting, to help standardize the implementation and enforcement of licensing rules is an exciting area of research to pursue in the field of regulatory administration.

■ LICENSING INDICATOR SYSTEMS

As mentioned in the weighting system section of this chapter, indicator checklists or licensing indicator systems are used to improve upon instrument based program monitoring (checklist) systems. The licensing indicator system is one method of assuring compliance with licensing rules in a time efficient manner. The concept has been developed and successfully implemented in several states and for different human service types. The licensing indicator system was originally developed in Pennsylvania in 1977 for use in licensing child care centers. The original intent was to develop an abbreviated licensing instrument in order to refocus licensing investigation time to assess and assist in quality enhancement activities.

From 1980-1984, the US Department of Health and Human Services funded a project to study and further develop a licensing indicator system for child day care facilities on a national level. The federally funded project, known as the Children's Services Monitoring Transfer Consortium, organized researchers, state licensing administrators and professional staff from Pennsylvania, Michigan, West Virginia, Texas, New York City and California to review and refine the existing Pennsylvania system for possible use by other states.

The licensing indicator system is now used to assist in licensing human care facilities in Pennsylvania, West Virginia, Texas, Maryland, Utah, Florida, Delaware, Georgia, Washington, Minnesota and California.

The purpose of a licensing indicator system is to increase the efficiency and effectiveness of an existing licensing system by refocusing the emphasis of the licensing process. A licensing indicator system is intended to complement, and not replace, an existing licensing measurement system. Through use of the licensing indicator system, less time is spent conducting annual inspections of facilities with a history of high compliance with the licensing rules, and more time is spent a) providing technical assistance to help facilities comply with licensing rules and b) conducting additional inspections of facilities and agencies with low compliance with licensing rules.

LICENSING INDICATOR SYSTEMS

The licensing indicator system is actually a shortened version of a comprehensive licensing inspection instrument. A small number of rules are selected based upon a statistical methodology designed for this specific purpose. The licensing indicator system uses a measurement tool, designed to measure compliance with a small number of rules, that predicts high compliance with all the rules. If a facility is in complete compliance with all of the rules measured in the licensing indicator system, high compliance with all the rules is statistically predicted. It is critical to understand that the rules for the licensing indicator system are selected statistically (the statistical technique is called the phi-coefficient and generally is set at a *p* value of .01 or higher) and not based upon value judgement (arbitrary assignment, no basis from research literature), risk assessment or frequent rule violations. The rules are selected based upon an SPSSPC+ computer software package that compares violations of facilities with high compliance versus facilities with low compliance. The rules that are most often out of compliance in low compliance facilities and in compliance in high compliance facilities will be the indicator or predictor rules.

Prerequisites for implementing a licensing indicator system

Before developing and implementing a licensing indicator system it is important that the existing licensing system is comprehensive and well established. The following are prerequisites to implementation of an indicator system:

1) Licensing rules must be comprehensive, well written and measurable. Rules are the building blocks for any licensing system. If the rules are not well written and measurable a licensing indicator system should not be pursued. Also, if the total number of rules is small, a shortened inspection tool is not valuable.

2) There must be a measurement tool designed to standardize the application and interpretation of the rules. A licensing inspection instrument designed to assure statewide consistency in the application of the rules is essential prior to implementing a licensing indicator system.

3) There should be a licensing weighting system designed to assess the relative risk to consumers if the rule is not met. This system may be a formal weighting system or a simple classification system which categorizes rules by degree of risk. An example of a high degree of risk to consumers would be the accessibility of heat sources or toxins. Having a signature in a record is an example of a low degree of risk to consumers.

4) At least one year of data on rule violations for individual facilities. These data are needed to enter into the computer software system in order to determine the rules that are the indicators or predictors of high compliance.

How to develop a licensing indicator system

The basic steps to developing a licensing indicator system include:

1) Select facilities to be used in determining the indicators. If the total number of licensed facilities is less than 200, all 200 facilities can be used. If the total number of licensed facilities exceeds 200, sampling must be done. Generally, a sample of 100 facilities or 10% is acceptable. When selecting the sample, variables of size of facilities, geographic area, urban/rural, profit/non-profit, public/private and varied compliance levels or scores must be controlled.

2) Violation data for the sampled facilities is entered into a computer software system designed for this purpose (SPSSPC+ is recommended—consult with NARA consultant Dr. Richard Fiene for the necessary syntax and computer coding for doing the analyses).

3) A list of indicator or predictor rules, based on phi coefficients, that were the best indicators of high compliance will be calculated by the computer software system. These are the rules that are most often out of compliance in low compliance facilities and in compliance in high compliance facilities.

Indicator system

Individual Rule	Groups	
	Overall High Compliance	Overall Low Compliance
In Compliance	X	
Out of Compliance		X

4) A small number of additional rules which are determined based on a licensing weighting system or relative risk are added to the statistically selected indicators. The purpose of this step is to assure face validity of the instrument. By adding a smaller number of carefully selected high-risk rules to the instrument, the licensing agency can be assured that critical rules are always measured.

5) In order to assure that full compliance with all the rules is maintained, five items selected at random should also be applied as part of the licensing indicator system. The final licensing indicator system instrument contains the indicator rules, high-risk rules and random rules. The total number of rules on an indicator checklist will vary, but will range from 20-45 items.

6) Specific criteria for use of the licensing indicator system are developed.

Criteria for use of the licensing indicator system

The development of very specific criteria for use of the licensing indicator system is perhaps the most critical step of the design process. This is the step at which the determinations are made as to when the licensing indicator system will be used. The determination of use of the system should be standardized and not based upon licensing inspector discretion.

Each licensing agency must develop its own criteria based upon its own historical licensing data and experience. Following are some criteria that may be useful:

1) The facility has had a full or regular license and no negative sanctions have been administered, within the previous two (2) years.

2) The facility has had a score or percentage of compliance above a specified threshold for the previous year.

3) All previous violations have been corrected according to the facility's plan of correction.

4) No significant validated complaints have been found within the past year.

5) The total number of consumers served has not increased by more than a specified percentage during the past year.

6) There has not been significant staff turnover at the facility/agency within the past year. This may be targeted to certain levels of staff turnover, such as direct care staff or facility directors, depending on which staff are particularly key for program stability.

7) A full inspection using the comprehensive licensing measurement instrument must be done at least every three (3) years.

Revision of the licensing indicator system

The licensing indicator system should be continually reevaluated for its effectiveness. The system should be completely revised at least every three years or upon a revision of the rules. In order to achieve the intended purpose of the licensing indicator system of refocusing the emphasis of licensing effort from facilities with high compliance to facilities with low compliance, constant review, evaluation and revision of the licensing indicator system is essential.

Other types of inferential inspection systems, of which the licensing indicator system is only one, will not be addressed in this chapter because inferential systems other than the licensing indicator system have not been determined to be statistically valid or reliable. As licensing administrators may potentially need to defend their actions in a court of law, it is essential that the methodology or technique utilized is scientifically sound. When it comes to inferential inspections only those instruments based upon an indicator or weighting methodology can stand up to this rigorous testing.

■ OUTCOME BASED SYSTEMS

This is a relatively new phenomenon in the licensing and regulatory administration field. The emphasis in this new approach is to examine outcomes rather than processes. What are the ultimate outcomes for individuals? Determine this and the argument goes—there is no need to measure processes directly.

Outcome measurement is appealing in many respects. It does focus on results, something the human services field was short on demonstrating in the 1990s. However, there is a fallacy in this approach. Results are the end product, but we always have a process to get to the end product.

Another issue is that the purpose of licensing is to prevent harm to consumers. A purely outcome-based system would potentially harm consumers who were in the facilities later determined to "fail" the outcome test. Moreover, there are two other problems:

1. Insufficient (political) agreement on what are acceptable outcomes.

2. Some outcomes will not manifest for years and/or are contaminated by other variables related to other influences on later behavior.

What makes more sense is to tie outcomes to specific regulatory processes that appear to be in a causal or at least a correlational relationship. If licensing agencies were able to clearly link specific results (outcomes) to specific rules (processes), there would be the empirical ability to focus only on those rules that produced positive results for consumers and families and eliminate all other unnecessary rules that do not produce positive outcomes for consumers and families. Specific studies could be conducted and in fact have already been conducted by university researchers. In child care, for example, low staff:child ratios, pre-service and in-service training of staff, highly qualified staff and small group size are all examples of regulatory variables that have been identified as surrogates to program quality that produce positive outcomes for children.

Outcome based or results-oriented systems will impact licensing, but the research literature demonstrates how licensing agencies can clearly link outcomes to regulatory processes that produce the outcomes. This becomes a powerful argument to legislators when this roadmap of process to outcome can be provided.

■ RELATIONSHIP BETWEEN RULES AND INSTRUMENTS

This section is included because this is one area that gets many licensing administrators into trouble. Not enough time is spent on making sure that the instruments developed are the exact reflection of the rules. This is where the interpretive rules that are part of any measurement instrument that accompanies the actual instrument should be placed. This helps to increase the reliability of the instrument and doesn't hurt the overall validity of the tool either (more on reliability and validity in the next section). Readers should refer to Chapter 2, *The Formulation of Rules,* for additional information on the definition and development of interpretive and substantive rules.

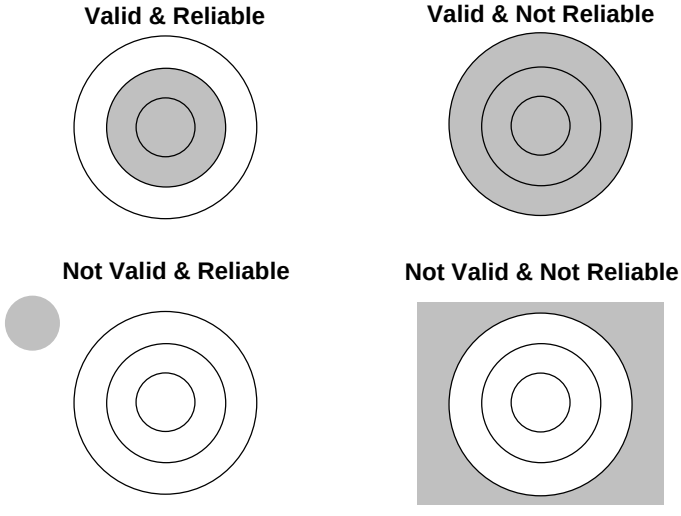
When there is not a close link between instrument development and rule formulation this only leads to headaches for licensing agencies. It may take years and not be evident until you get called into a court of law to defend your licensing system but it will happen.

The analogy of playing Russian Roulette may be useful. As licensing administrators, you are never 100% certain that all your facilities are compliant with all the rules. However, there are certain management procedures and processes that you can put in place to help. A clear link between rules and measurement tools is one of them. Since you are never 100% sure of full compliance (in other words all six chambers of the revolver are not empty—if they were, you wouldn't have Russian Roulette), you must make difficult decisions related to increasing or decreasing your chances in playing Russian Roulette. So you have the choice of having the management and procedural safeguards built in (one or two bullets in the revolver) or you don't build in the procedural safeguards (four or five bullets in the revolver). It is obvious statistically where your chances are greater in surviving a potential mishap in a licensing system.

■ RELIABILITY AND VALIDITY

The two concepts of **reliability and validity** are so critical to measurement, but are so often overlooked in the development of licensing measurement systems. In fact, it has been estimated that as many as 30 states may be using a type of inferential inspection. But only 1/3 of these states has followed the rigorous statistical methodology as outlined in the Licensing Indicator System section.

Validity and Reliability



Very simply, **validity** deals with content of the particular tool or instrument—does it serve the purpose for which it is to be used? Does it measure the rules accurately? Usually the answer to this question is easier for licensing administrators to answer. Since licensing measurement tools should be directly based upon rules, as explained in the previous section, there should not be much difficulty in establishing validity. When the tools are not based on the rules, that is when validity can be and should be called into question.

RELIABILITY AND VALIDITY

Reliability deals with the administration of the tool or instrument. Does it measure the rules consistently and in an objective manner? The answer to this question is much more difficult for licensing administrators to answer affirmatively. This poses real problems if each administration of the licensing tool is not consistent and objective. Facilities will not have the rules applied in an equal and fair manner.

Reliability testing should be done methodologically and scientifically. Inter-rater reliability should be established for the tools/checklists that are to be used in the field by licensing field staff. This is a process that has been well documented in the psychological research. This has not been the case within licensing and regulatory administration. Generally checklists are designed quickly and are never tested for reliability. This creates a problem that many of us have heard—the rules are not applied uniformly across the state/province. The reason is that the tool that is used to measure compliance is not reliable.

In order to establish reliability, licensing inspectors need to go out to facilities in pairs assessing the same facility at the same time. They then need to compare their results. Do they agree on what is in compliance and out of compliance at the particular facility? If there is not at least 90% agreement for each rule then additional interpretation of that specific rule is needed. Establishing reliability is not overly difficult nor overly time consuming; however, it will add a bit more time before staff are really ready to begin to license facilities (90% agreement on each rule and interpretative rule).

■ BALANCE BETWEEN COMPLIANCE AND PROGRAM QUALITY

An interesting development in the past five years has been the emphasis on program quality as a result of pressure from consumers, families, advocates and the general public. Consumers and other interested persons are requesting licensing agencies to ensure not only the health, safety and well-being of individuals served in facilities, but also to be concerned advocates for the overall quality of services provided at these facilities.

This increased emphasis and concern for program quality is a difficult area to address for licensing agencies. The resources to complete program quality reviews and to advocate for quality within government are not commensurate with the expectations. However, there are some strategies that can be employed to assist licensing agencies. The first and foremost will be to save time on doing licensing inspections. The indicator system described in this chapter will provide such a tool for saving time. Studies conducted over the past two decades indicate that utilizing an indicator checklist approach saves up to 50% in the on-site inspection time.

The time saved in doing licensing inspections should be used to either:

a) Conduct additional licensing inspections in new or problem facilities

b) Provide technical assistance

c) Complete program quality reviews

This could be done by utilizing a tool from accreditation in observing classrooms, or utilizing a program quality tool from the research literature *(for example, Early Childhood Environment Rating Scale).* Licensing administrators need to be certain that they have a plan to utilize this extra time or the worst fears of licensing professionals could occur. Two potential scenarios could play out. One is that the time is used to do more and more licensing inspections utilizing the indicator system on more and more facilities. The worst scenario is that staffs are cut. If a state/province can complete all its inspections in half the time, then doesn't it follow that only half the staff is needed? With a clearly articulated plan on how the licensing and program quality reviews will produce higher quality programs should help to prevent this cost cutting approach. However, this is always a fear that licensing administrators must face.

■ CONCLUSION

This *NARA Licensing Curriculum* chapter provides a brief overview to the major issues confronting licensing administrators when they consider licensing tools and measurement systems. The emphasis upon quantitative systems was reflected in this chapter because of the need to develop cost effective and efficient licensing systems as the number of facilities continues to grow with shrinking resources. Also there is a compounding effect with higher expectations on licensing agencies to be concerned more about program quality.

The chapter showed the various types of measurement tools that apply to licensing and regulatory administration. It is clear that given the nature of licensing there are certain tools more suited than others, such as checklists versus rating scales. A very detailed description of both licensing weighting and indicator systems was provided. The reason for this emphasis is that these are two very valid and reliable tools that can be used by licensing administrators in making their agencies more effective and efficient. The licensing measurement field is changing constantly as new approaches are introduced. For example, within the program evaluation field there is a move to have a better balance between quantitative and qualitative analyses. It will not be long before this initiative has its impact on the licensing measurement field as well.

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Regulatory Compliance Monitoring Paradigms and the Relationship of Regulatory Compliance/Licensing with Program Quality: A Policy Commentary

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Abstract

This policy commentary deals with two key issues within regulatory science related to the best methods for measuring regulatory compliance: Program monitoring paradigms and the relationship of regulatory compliance/licensing with program quality. Examples from program monitoring paradigms include: 1) Substantial versus Monolithic. 2) Differential Monitoring versus One size fits all monitoring. 3) "Not all standards are created equal" versus "All standards are created equal". 4) "Do things well" versus "Do no harm". 5) Strength based versus Deficit based. 6) Formative versus Summative. 7) Program Quality versus Program Compliance. 8) 100-0 scoring versus 100 or 0 scoring. 9) QRIS versus Licensing. 10) Non-Linear versus Linear. Examples from the relationship of regulatory compliance/licensing with program quality include: 1) "Do no harm" versus "Do good". 2) Closed system versus Open system. 3) Rules versus Indicators. 4) Nominal versus Ordinal measurement. 5) Full versus Partial compliance. 6) Ceiling effect versus No Ceiling effect. 7) Gatekeeper versus Enabler. 8) Risk versus Performance.

Keywords: regulatory compliance, program monitoring, licensing, program quality.

Introduction

This commentary on policy will deal with two key issues within regulatory science that need to be dealt with by licensing researchers and regulatory scientists as they think through the best methods for measuring regulatory compliance: 1) Program monitoring paradigms; 2) Relationship of regulatory compliance/licensing and program quality. The examples drawn are from early childcare and education but the key elements and implications can be applied to any field of study related to regulatory science that involves rules/regulations/standards. For the purposes of this manuscript "rules" will be used to

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describe or refer to "rules/regulations/standards".

Program Monitoring Paradigms:

This section provides some key elements to two potential regulatory compliance monitoring paradigms (Differential/Relative versus Absolute/Full) for regulatory science based upon the Regulatory Compliance Theory of Diminishing Returns (Fiene, 2019).

As one will see, there is a need within regulatory science to get at the key measurement issues and essence of what is meant by regulatory compliance. There are some general principles that need to be dealt with such as the differences between individual rules and rules in the aggregate. Rules in the aggregate are not equal to the sum of all rules because all rules are not created nor administered equally. And all rules are to be adhered to, but there are certain rules that are more important than others and need to be adhered to all the time. Less important rules can be in substantial compliance most of the time but important rules must be in full compliance all of the time (Fiene, 2019).

Rules are everywhere. They are part of the human services landscape, economics, banking, sports, religion, transportation, housing, etc... Wherever one looks we are governed by rules in one form or another. ***The key is determining an effective and efficient modality for negotiating the path of least resistance in complying with a given set of rules***[2]. It is never about more or less rules, it is about which rules are really productive and which are not. Too many rules stifle creativity, but too few rules lead to chaos. ***Determining the balance of rules is the goal and solution of any regulatory science paradigm.***

Differential/Relative versus Absolute/Full Regulatory Compliance Paradigms: this is an important key organizational element in how rules are viewed when it comes to compliance. For example, in an absolute/full approach to regulatory compliance either a rule is in full compliance or not in full compliance. There is no middle ground. It is black or white, no shades of gray as are the cases in a differential/relative paradigm. It is 100% or zero. In defining and viewing these two paradigms, this dichotomy is the organizational key element for this paper. In a differential/relative regulatory compliance paradigm full compliance is not required and emphasis on substantial regulatory compliance becomes the norm.

Based upon this distinction between differential/relative and absolute/full regulatory compliance paradigms, what are some of the implications in utilizing these two respective approaches. Listed below are the basic implications that occur when selecting either of the two approaches on program monitoring systems: differential/relative versus absolute/full regulatory compliance paradigms.

There are ten basic implications that will be addressed: 1) Substantial versus Monolithic. 2) Differential Monitoring versus One size fits all monitoring. 3) "Not all standards are created equal" versus "All standards are created equal". 4) "Do things well" versus "Do no harm". 5) Strength based versus Deficit based. 6) Formative versus Summative. 7) Program Quality versus Program Compliance. 8) 100-0 scoring versus 100 or 0 scoring. 9) QRIS versus Licensing. 10) Non-Linear versus Linear.

1) Substantial versus Monolithic: in monolithic regulatory compliance monitoring systems, it is one size fits all, everyone gets the same type of review (this is addressed in the next key element below) and is more typical of an absolute paradigm orientation. In a substantial regulatory compliance monitoring system, programs are monitored on the basis of their past compliance history and this is more typical of a relative paradigm orientation. Those with high compliance may have fewer and more abbreviated visits/reviews while those with low compliance have more comprehensive visits/reviews.

2) Differential Monitoring versus One Size Fits All Monitoring: how does this actually look in a program monitoring system. In differential monitoring (Differential/Relative Paradigm), more targeted or focused visits are utilized spending more time and resources with those problem programs and less time and resources with those programs that are exceptional. In the One Size Fits All Monitoring (Absolute/Full Paradigm), all programs get the same type/level of review/visit regardless of past performance.

3) “Not all standards are created equal” versus “All standards are created equal”: when looking at standards/rules/regulations it is clear that certain ones have more of an impact on outcomes than others. For example, not having a form signed versus having proper supervision of clients demonstrates this difference. It could be argued that supervision is much more important to the health and safety of clients than if a form isn’t signed by a loved one. In a differential/relative paradigm, all standards are not created nor administered equally; while in an absolute/full paradigm of regulatory compliance, the standards are considered created equally and administered equally.

4) “Do things well” versus “Do no harm” (this element is dealt with in the second component to this paper below as well): “doing things well” (Differential/Relative Paradigm) focuses on quality of services rather than “doing no harm” (Absolute/Full Paradigm) which focuses on protecting health and safety. Both are important in any regulatory compliance monitoring system but a balance between the two needs to be found. Erring on one side of the equation or the other is not in the best interest of client outcomes. "Doing no harm" focus is on the "least common denominator" – the design and implementation of a monitoring system from the perspective of focusing on only 5% of the non-optimal programs ("doing no harm") rather than the 95% of the programs that are "doing things well".

5) Strength based versus Deficit based: in a strength-based monitoring system, one looks at the glass as “half full” rather than as “half empty” (deficit-based monitoring system). Emphasis is on what the programs are doing correctly rather than their non-compliance with standards. A strength-based system is non-punitive and is not interested in catching programs not doing well. It is about exemplars, about excellent models where everyone is brought up to a new higher level of quality care.

6) Formative versus Summative: differential/relative regulatory compliance monitoring systems are formative in nature where there is an emphasis on constant quality improvement and getting better. In absolute/full regulatory compliance monitoring systems, the emphasis is on being the gate-keeper (more about the gate-keeper function in

the next section on regulatory compliance/licensing and program quality) and making sure that decisions can be made to either grant or deny a license to operate. It is about keeping non-optimal programs from operating.

7) Program Quality versus Program Compliance: (this element is dealt with in greater detail in the second component of this manuscript) differential/relative regulatory compliance monitoring systems focus is on program quality and quality improvement while in absolute/full regulatory compliance monitoring systems the focus in on program compliance with rules/regulations with the emphasis on full, 100% compliance.

8) “100 – 0 scoring” versus “100 or 0 scoring”: in a differential/relative regulatory compliance monitoring system, a 100 through zero (0) scoring can be used where there are gradients in the scoring, such as partial compliance scores. In an absolute/full regulatory compliance monitoring system, a 100% or zero (0) scoring is used demonstrating that either the standard/rule/regulation is fully complied with or not complied with at all (the differences between nominal and ordinal measurement is dealt with in the next section on regulatory compliance/licensing and program quality).

9) QRIS versus Licensing: examples of a differential/relative regulatory compliance monitoring system would be QRIS – Quality Rating and Improvement Systems. Absolute/full regulatory compliance systems would be state licensing systems. Many programs talk about the punitive aspects of the present human services licensing and monitoring system and its lack of focus on the program quality aspects in local programs. One should not be surprised by this because in any regulatory compliance system the focus is on "doing no harm" rather than "doing things well". It has been and continues to be the focus of licensing and regulations in the USA. The reason QRIS - Quality Rating and Improvement Systems developed in early care and education was to focus more on "doing things well" rather than "doing no harm". This is not the case in many Canadian Provinces and European countries in which they have incorporated program quality along with specific regulatory requirements.

10) Non-Linear versus Linear: the assumption in both differential/relative and absolute/full regulatory compliance monitoring systems is that the data are linear in nature which means that as compliance with rules increases positive outcomes for clients increases as well. The problem is the empirical data does not support this conclusion. It appears from the data that the relationship is more non-linear where there is a plateau effect with regulatory compliance in which client outcomes increase until substantial compliance is reached but doesn’t continue to increase beyond this level. There appears to be a “sweet spot” or balancing of key rules that predict client outcomes more effectively than 100% or full compliance with all rules – this is the essence of the Theory of Regulatory Compliance (Fiene, 2019) – substantial compliance with all standards or full compliance with a select group of standards that predict overall substantial compliance and/or positive client outcomes.

As the regulatory science and administrative fields in general continue to think about the appropriate monitoring systems to be designed and implemented, the above structure should

help in thinking through what these measurement systems' key elements should be. Both paradigms are important, contexts, but a proper balance between the two is probably the best approach in designing regulatory compliance monitoring systems.

Regulatory Compliance/Licensing and Quality

This part of the policy commentary will delineate the differences between regulatory compliance and quality. It will provide the essential principles and elements that clearly demonstrate the differences and their potential impact on program monitoring. Obviously, there is some overlap between this section and the above section dealing with regulatory compliance monitoring paradigms. When we think about regulatory compliance measurement, we are discussing licensing systems. When we think about quality, we are discussing Quality Rating and Improvement Systems (QRIS), accreditation, professional development, or one of the myriad quality assessment tools, such as the Classroom Assessment Scoring System (CLASS) or Environment Rating Scales (ERS's). All these systems have been designed to help improve the health and safety of programs (licensing) to building more environmental quality (ERS), positive interactions amongst teachers and children (CLASS), enhancing quality standards (QRIS, accreditation), or enhancing teacher skills (professional development).

There are eight basic principles or elements to be presented (they are presented in a binary fashion demonstrating differences): 1) "Do no harm" versus "Do good". 2) Closed system versus Open system. 3) Rules versus Indicators. 4) Nominal versus Ordinal measurement. 5) Full versus Partial compliance. 6) Ceiling effect versus No Ceiling effect. 7) Gatekeeper versus Enabler. 8) Risk versus Performance.

1) Let's start with the first principal element building off what was discussed in the above section, "Do No Harm" versus "Do Good". In licensing, the philosophy is to do no harm, its emphasis is on prevention, to reduce risk to children in a particular setting. There is a good deal of emphasis on health and safety and not so much on developmentally appropriate programming. In the quality systems, such as QRIS, accreditation, professional development, Environmental Rating Scales, CLASS, the philosophy is to do good, its emphasis is looking at all the positive aspects of a setting. There is a good deal of emphasis on improving the programming that the children are exposed to or increasing the skill set of teachers or improving the overall environment or interaction that children are exposed to.

2) Closed system versus Open system. Licensing is basically a closed system. It has an upper limit with full compliance (100%) with all rules. The goal is to have all programs fully comply with all rules. However, the value of this assumption has been challenged over the years with the introduction of the Regulatory Compliance Theory of Diminishing Returns (Fiene, 2019). With quality systems, they tend to be more open and far reaching where attaining a perfect score is very difficult to come by. The majority of programs are more normally distributed where with licensing rules

the majority of programs are skewed positively in either substantial or full compliance. It is far more difficult to distinguish between the best programs and the mediocre programs within licensing but more successful in quality systems.

3) Rules versus Indicators/Best Practices. Licensing systems are based around specific standards/rules/regulations that either are in compliance or out of compliance. It is either a program is in compliance or out of compliance with the specific rule. With quality systems, there is more emphasis on indicators or best practices that are measured a bit more broadly and deal more with process than structure which is the case with licensing. It is the difference between hard and soft data as many legal counsels term it. There is greater flexibility in quality systems. With this said, if we can look at other service types, such as adult-residential services, there has been some limited success with blending structural and process elements but it still remains a measurement issue on the process side.

4) Nominal versus Ordinal measurement[3]. Licensing systems are nominally based measurement systems. Either you are in compliance or out of compliance. Nothing in-between. It is either a yes or no response for each rule. No maybe or partial compliance. With quality systems, they are generally measured on an ordinal level or a Likert scale. They may run from 1 to 3, or 1 to 5, or 1 to 7. There are more chances for variability in the data than in licensing which has 1 or 0 response. This increases the robustness of the data distribution with ordinal measurement.

5) Full or None versus Gradients or Gray Area. Building off of the fourth element, licensing scoring is either full or not. As suggested in the above elements, there is no in-between category, no gradient or gray area. This is definitely not the case with quality systems in which there are gradients and substantial gray areas. Each best practice can be measured on a Likert scale with subtle gradients in improving the overall practice.

6) Ceiling effect versus No Ceiling. With licensing there is definitely a ceiling effect because of the emphasis on full 100% compliance with all rules. That is the goal of a licensing program, to have full compliance. With quality systems, it is more open ended in which a ceiling effect is not present. Programs have many ways to attain excellence.

7) Gatekeeper versus Enabler: Licensing has always been called a gatekeeper system. It is the entry way to providing care, to providing services. It is a mandatory system in which all programs need to be licensed to operate. In Quality systems, these are voluntary systems. A program chooses to participate, there is no mandate to participate. It is more enabling for programs building upon successes. There are enhancements in many cases.

8) Risk versus Performance: Licensing systems are based upon mitigating or reducing risks to children when in out of home care. Quality systems are based upon performance and excellence where this is rewarded in their particular scoring by the addition of a new Star level or a Digital Badge or an Accreditation Certificate.

There has been a great deal of discussion in the early care and education field about the relationship between licensing, accreditation, QRIS, professional development, and technical

assistance. It is important as we continue this discussion to pay attention to the key elements and principles in how licensing and these quality systems are the same and different in their emphases and goals, and about the implications of particular program monitoring paradigms and measurement strategies. For other regulatory systems outside the human services field, the same type of model can be applied positioning compliance and quality as a continuum one building off of the other because I feel that with the introduction of more quality into a regulatory context will help to ameliorate the ceiling and plateau effect of diminishing returns on performance and outcomes.

Reference:

Fiene, R. (2019). A Treatise on Regulatory Compliance. *Journal of Regulatory Science*, Volume 7, 2019

Notes:

1. This manuscript should be read along with *A Treatise on Regulatory Compliance* which is referenced above because the two articles build off one another. In the *treatise* description, the specific idiosyncrasies of regulatory compliance data and other key implications of the theory are pointed out that enhance the presentation in this article, such as the extreme nature of skewness that is present in regulatory compliance data, nominal data measurement, the differences between full and substantial regulatory compliance, designing the most cost effective and efficient differential monitoring system, and the need to dichotomize data because of the skewed nature of the data distribution.

2. The ultimate goal is the most cost effective and efficient differential monitoring system for negotiating the path of least resistance in complying with a given set of rules which will provide the proper balance of rules. This should be the goal of any regulatory science paradigm. By using the previous *Treatise* article along with this article should provide a blueprint for the regulatory science field in designing a program monitoring system to measure regulatory compliance where an emphasis on differential monitoring should occur in licensing systems and full-scale monitoring should occur in program quality systems. Another approach is to have both regulatory compliance and program quality built as a continuum in the program monitoring system similar to what Head Start is attempting.

3. There are instances in which this dichotomy is not as clear or straightforward where licensing systems do allow partial compliance as a facility has opportunities to correct non-compliances on their way to achieving full compliance with specific rules. The problem is that this is not necessarily a standardized process and it is difficult to determine if it is used often in licensing agencies' monitoring efforts.

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A Treatise on the Theory of Regulatory Compliance

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Abstract

This treatise provides some insights into certain assumptions related to regulatory compliance and the implications for regulatory researchers and policy-makers for the future development of rules and regulations. Once regulatory compliance decision making moves from requiring full compliance with all rules to a substantial regulatory compliance decision making approach, the measurement and monitoring systems employed to assess programs and facilities change dramatically.

Keywords: regulatory compliance, risk assessment, key indicators, licensing, monitoring, measurement

1. Introduction

Regulatory compliance is a sub-discipline within regulatory science that focuses on measurement, monitoring systems, risk assessment, and decision making based on regulatory compliance scoring. Regulatory compliance is dominated by nominal scale measurement, that is, either a facility is in or out of compliance with specific rules. There is no middle ground with regulatory compliance as there is with most quality measurements, which are generally made on an ordinal scale. However, some regulators feel that certain regulations are not or should not be subjected to nominal measurement.

A factor with regulatory compliance data is that they generally follow a very skewed frequency distribution, which limits analyses to non-parametric statistics. Because of the skewed data distribution, dichotomization of data is warranted, given the lack of variance in the regulatory compliance frequency distribution - the majority of facilities [1] are either in full or substantial regulatory compliance.

An assumption within regulatory compliance is that full regulatory compliance, that is, 100 percent compliance with all rules [2], is the best (i.e., risk is minimized) possible scenario for the services being delivered and assessed. It is also assumed that all promulgated rules have an equal weight in their relative impact on the desired service delivery model, although this thinking has been changing over time regarding how rules are reviewed and complied with. This short treatise will examine the past 40 years of research delving into regulatory compliance measurement, and will provide some guidance to regulatory researchers and policy-makers as they move forward with both research and policy development related to rules. The data from these research studies have led to a Theory of Regulatory Compliance that demonstrates that substantial regulatory compliance - and not full regulatory compliance - is a more effective and efficient public policy as it relates to decision making on monitoring and licensing.

The results reported herein are drawn from human services delivery systems in the United States and Canada, such as early care and education, as well as child and adult residential services. The results are from state and provincial level licensing systems involving over 10,000 facilities serving over 100,000 clients. All the data are part of an international regulatory compliance database (https://data.mendeley.com/datasets/kzk6xssx4d/1) maintained at the Research Institute for Key Indicators and the Pennsylvania State University.

2. Methods

Alternate methodologies, logic models, and algorithms were developed directly from the Theory of Regulatory Compliance once it was determined that substantial regulatory compliance produced better results than full regulatory compliance. These methodologies created a differential monitoring or targeted monitoring approach based on risk assessment, which measures client morbidity and/or mortality when individual rule

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[1]The term “facilities” is used when referring to programs and/or facilities.

[2]The term “rules” is used when referring to rules and/or regulations.

non-compliance is assessed, and the determination of key statistical predictors for overall regulatory compliance [3].

Briefly, the above methodologies provide cost-effective and efficient means for the ongoing monitoring of human service delivery systems by selecting and reviewing only those rules that either have a positive impact on clients, statistically predict overall regulatory compliance, or protect the health and safety of clients [3]. Based on regulatory compliance historical data, decisions could be made as to the frequency and depth of the reviews or inspections. Abbreviated reviews (inspections in which a subset of rules are measured), such as licensing key indicator rules or risk assessment rules, would only be done in those facilities having a history of high regulatory compliance. Those facilities with a history of high regulatory non-compliance would continue to receive full regulatory compliance reviews as they did in the past.

3. Results

Prior to 1979, it was always assumed that there was a linear relationship between regulatory compliance measures and program quality measures of human service facilities. In a study conducted in that year, which compared results from early care and education programs, in particular child care centers, this assumption did hold up when one went from low regulatory compliance to substantial regulatory compliance. However, the results from substantial regulatory compliance to full (100 percent) regulatory compliance did not show the same linear relationship. Rather, it showed that those programs that were in substantial instead of full compliance were actually scoring higher on the program quality measures.

Since 1979, this result has been replicated in many other early care and education delivery system studies, both nationally in the United States (Head Start) [1] and in several states (Georgia, Indiana, Pennsylvania) [2]. In all these studies, one finds a non-linear - rather than a linear - relationship between regulatory compliance and the overall quality of the facilities being assessed.

4. Discussion

Based on the results above, there are several assumptions within regulatory compliance that need to be reconsidered:

1. Public policies that require full (100 percent) compliance with all rules may not be in the best interest of the clients being served, nor an effective use of limited regulatory resources. Potentially, emphasis on substantial regulatory compliance may be a more effective and efficient public policy related to client outcomes when it comes to their health, safety, and quality of life. Note that substantial compliance is still very high regulatory compliance (99-97 percent compliance with all rules) and produces positive client outcomes. As stated above, regulatory compliance data are extremely skewed and not normally distributed. There is very little variance in the data and the majority of programs are in either full or substantial regulatory compliance.

2. If a jurisdiction focuses on a substantial regulatory compliance public policy it opens up many system enhancements, such as differential or targeted monitoring, risk assessment analysis, and statistical key indicator rules that have been demonstrated to be cost effective and efficient approaches to reviewing program performance. In a full regulatory compliance public policy approach, none of these system enhancements can be employed, with the possible exception of the key indicator approach as delineated in number four below.

3. If a jurisdiction takes the position that all rules are not equal, then a risk assessment or weighting approach becomes an alternative based on the assumption that certain rules place clients at greater risk of death, serious injury, or other types of harm.

4. Even if a jurisdiction does not have a licensing law that allows issuing licenses on the basis of substantial compliance, there is the possibility that key indicators could still be used for abbreviated reviews or inspections, if there is no prohibition in statute or regulation that expressly forbids the use of this approach, since key indicators statistically predict full regulatory compliance. In other words, all rules are statistically predicted to be in regulatory compliance based on the results of the key indicators. Therefore, technically, all rules have been reviewed albeit short of a full review or inspection.

5. Based on previous research, utilizing a risk assessment approach along with a key indicator approach is the most cost effective and efficient differential monitoring system model. The reason is that both predictive rules and those rules that place clients at greatest risk are always assessed when a site visit review or inspection is done. Many more jurisdictions use a risk assessment approach at this point, but there is a loss of predictive regulatory compliance by just using it.

6. Based on previous regulatory compliance history, only those facilities in high regulatory compliance would be eligible for abbreviated key indicator and risk assessment reviews, whereas those with a history of high regulatory non-compliance would continue to receive full regulatory compliance reviews. This gets at the essence of the differential monitoring approach, which is cost neutral. Regulatory resources may then be re-allocated from the abbreviated reviews to more in-depth full regulatory compliance reviews.

7. Based on the use of the key indicator and risk assessment methodologies within a differential monitoring approach, it is possible to identify over multiple jurisdictions if there are generic rules that meet the criteria of risk abatement and prediction. Such an application has occurred in the United States with the creation of early care

and education standards entitled *Caring for Our Children Basics*, published by the Administration for Children and Families, US Department of Health and Human Services (2015).

5. Conclusion

Regulatory compliance is relatively new in applying empirical evidence and basic scientific principles to its decision making. In the past, it had been dominated by case studies and long narrative reports that did not lend themselves to quantitative analysis. There is a need to more clearly apply empirical evidence and the scientific method to rule development. Certain assumptions, such as full regulatory compliance as a sound public policy, are lacking in empirical evidence. This treatise on a theory of regulatory compliance is provided for its heuristic value for both regulatory researchers and policymakers in rethinking some basic regulatory compliance assumptions. It is not about more or less, rules but finding the "right rules" that protect clients, predict overall regulatory compliance, and produce positive client outcomes.

6. Declaration of Conflicting Interest

The authors declare no conflicts of interest.

7. Article Information

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A Comparison of International Child Care and US Child Care Using the Child Care Aware – NACCRRA (National Association of Child Care Resource and Referral Agencies) Child Care Benchmarks

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This is a first of its kind study comparing the USA to other world countries utilizing the Child Care Aware – NACCRRA Child Care Benchmarks related to health and safety rules and regulations. A team of researchers analyzed the child care/early care & education rules and regulations from the USA and a selected group of countries to do a comparative analysis using the Child Care Aware – NACCRRA benchmarking scoring protocol. The results from the analyses were somewhat unexpected in that the scores between the USA and the other countries were not as statistically significant in the overall scores. However, when more specific benchmarks were compared statistically significant differences did appear in the health & safety and professional development areas.

Key words: Child Care Quality, Comparisons of USA and International Child Care, Child Care Regulations.

Introduction

The purpose of this paper is to compare several countries (N =20) and the United States on the Child Care Aware – formerly NACCRRA (National Association of Child Care Resource and Referral Agencies) Child Care Benchmarks that have used extensively in the USA to compare state regulatory and monitoring policy and implementation. The use of these benchmarks has been very useful in comparing states in the USA on an agreed upon series of child care benchmarks that have a great deal of support in the research literature (AAP/APHA, 2012, 2013; NACCRRA 2007, 2009, 2011). Previous research (OCED, 2006) has focused on early care and education policies in other countries which was a very important

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first step in making comparisons across countries. This paper will expand upon this comparison in order to begin applying the NACCRRA benchmarks to other countries and establish a baseline between the USA and other countries related to regulatory review and analysis. This study is important because it provides a common rubric for making comparisons between the USA and other countries that is reliable and valid (NACCRRA 2007, 2009, 2011) related to regulatory analysis. As far as the author can determine from his extensive review of the literature, similar studies of this type have not been attempted utilizing a standardized rubric created by a major national child care organization. There have been other studies completed in which comparisons were made of other countries, the OCED (2006) Starting Strong II study and report is an excellent example of this type of

DIFFERENTIAL MONITORING LOGIC MODEL & ALGORITHM (DMLMA©) (Fiene, 2012): A 4th Generation ECPQIM – Early Childhood Program Quality Indicator Model

CI x PQ => RA + KI => DM

Definitions of Key Elements:

CI = Comprehensive Licensing Tool (Health and Safety)(***Caring for Our Children***)
PQ = ***ECERS-R, FDCRS-R, CLASS, CDPES*** (Caregiver/Child Interactions/Classroom Environment)
RA = Risk Assessment, (High Risk Rules)(***Stepping Stones***)
KI = Key Indicators (Predictor Rules)*(13 Key Indicators of Quality Child Care)*(NACCRRA Benchmarks)
DM = Differential Monitoring (How often to visit and what to review)

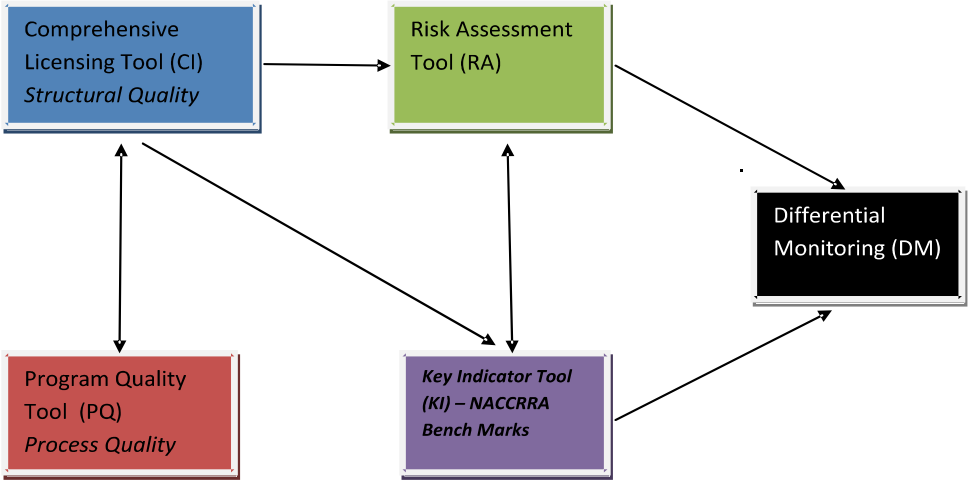

Figure 1.

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analysis and is recommended reading for anyone interested in reviewing public policy analyses.

The child care benchmarks[1] utilized in this study are based upon the following key indicators: prevention of child abuse, immunizations, staff child ratio, group size, staff qualifications and training, supervision/discipline, fire drills, medication administration, emergency plan/contact, outdoor playground, inaccessibility of toxic substances, and proper hand washing/ diapering (NACCRRA 2007, 2009, 2011). These benchmarks are more based upon the structural aspects of quality rather than on the process aspects of quality. This is an important distinction between the USA approach and the other countries approaches that becomes important in the explanation of results later in this paper.

This paper also supports and expands the development of an Early Childhood Program Quality Indicator Model (ECPQIM)(Fiene & Nixon, 1985) which is in a 4th generation (Fiene, 2013) as a differential monitoring logic model & algorithm helping to guide the program monitoring of child care/early care & education programs (see Figure 1).

Method

Data Collection Process

Data collection was done on a 100 point scale which is delineated in Appendix 1 as developed by the Child Care Aware - NACCRRA Research Team. The same scoring protocol that was utilized in developing the 2007, 2009, and 2011 Reports and comparisons of states by Child Care Aware - NACCRRA was employed in this study in comparing the average scores of the states and the 20 countries. The 100 point scale consisted of 10 child care benchmarks each worth 10 points: ACR = Staff child ratios NAEYC Accreditation Standards met (R1); GS = Group size NAEYC Accreditation Standards met (R2); Director = Directors have bachelor's degree (R3); Teacher = Lead teacher has CDA or Associate degree (R4); Pre = Initial orientation training (R5); Inservice = 24 hours of ongoing training (R6); Clearance = Background check (R7); Devel = Six developmental domains (R8); Health = Health and safety recommendations (R9); and Parents = Parent Involvement (R10).

Data Scoring

The scoring protocol employed a total raw score approach of 100 points that was used to compare the countries on the 10 child care benchmarks in the aggregate. The scoring protocol also employed a standardized scoring approach (0 to 2 points) on each of the 10 child care benchmarks utilizing the following scale: 0.0 = Does not meet the Child Care Aware – NACCRRA Benchmarks; 0.5 = Marginally meets the Child Care Aware – NACCRRA Benchmarks; 1.0 = Partially meets the Child Care Aware – NACCRRA Benchmarks; 1.5 = Substantially meets the Child Care Aware – NACCRRA

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Benchmarks; 2.0 = Fully meets the Child Care Aware – NACCRRA Benchmarks.

Data Collectors

A team of undergraduate and graduate research assistants[2] at the Pennsylvania State University were the data collectors in which each of them reviewed the child care/early childhood rules/regulations/standards from a specific country and scored the rules/regulations/standards on the Child Care Aware – NACCRRA 100 point raw score protocol and the standardized (0 – 2) scoring approach.

Data Sources

The child care regulations selected were for preschool age children only in child care center setting in the 20 countries. Geographically the governmental jurisdiction closest to the national capital was used if applicable national regulations could not be found. More than the final 20 countries selected were reviewed but several countries needed to be dropped because they did not meet the above criteria or the regulations could not be found in English. This was more a convenience sample rather than a stratified scientific sample, a limitation of this study.

Results

The results from this study and analysis were totally unexpected. The results indicated no statistically significant differences between the USA and the other countries selected (Australia, Belgium, Norway, Finland, Sweden, Ireland, United Kingdom, Italy, France, New Zealand, Mexico, Greece, Canada, Austria, Portugal, Philippines, Turkey, Pakistan, Nigeria, Denmark, and Spain – these countries were selected because of their availability of child care/early care & education rules and regulations as described previously above in Data Sources) when comparing the total scores on the 100 point scale; the USA average for all 50 states scored 58 while the 20 countries average score was 56. However, a very different scenario occurs when looking at the ten individual child care benchmarks using the standardized 0 – 2 scoring protocol. The 20 countries selected in this study scored statistically higher on the following child care benchmarks: Director ($t = 7.100$; $p < .0001$) and Teacher ($t = 7.632$; $p < .0001$) qualifications. The USA scored statistically higher on the following child care benchmarks: Health/Safety ($t = 6.157$; $p < .0001$), Staff Clearances ($t = 3.705$; $p < .01$), and Pre-Service ($t = 4.989$; $p < .001$) /In-Service training ($t = 2.534$; $p < .02$) (See Table 1 & Figure 2).

The results showed that both the USA and all other countries mean scores were 58 and 56 respectively on the 100 point scale – this is a raw scale score and not the standardized score (0 – 2 – see Table 1 and Figure 2) which was used in the comparisons for each benchmark. This is not a particularly good score if you think in terms of exams, but for states and countries with

Table 1

Mean Comparisons between USA and Twenty Countries on Child Care Aware – NACCRRA Benchmarks

Benchmark	Countries	USA	Significance
ACR (R1)	1.122	0.8462	not significant
GS (R2)	0.4063	0.5865	not significant
Director (R3)	**1.5625**	0.5	t = 7.100; p < .0001
Teacher (R4)	**1.6563**	0.4038	t = 7.632; p < .0001
Preservice (R5)	0.9375	**1.6731**	t = 4.989; p < .001
Inservice (R6)	0.6563	**1.0481**	t = 2.534; p < .02
Clearances (R7)	0.6094	**1.2404**	t = 3.705; p < .01
Development (R8)	1.6406	1.4519	not significant
Health(R9)	0.9844	**1.7404**	t = 6.157; p < .0001
Parent(R10)	1.5000	1.5385	not significant

Legend:
Child Care Aware - NACCRRA Benchmarks:
Parent = Parent Involvement (R10)
Health = Health and safety recommendations (R9)
Development = Six developmental domains (R8)
Clearances = Background check (R7)
Inservice = 24 hours of ongoing training (R6)
Preservice = Initial orientation training (R5)
Teacher = Lead teacher has CDA or Associate degree (R4)
Director = Directors have bachelor's degree (R3)
GS = Group size NAEYC Accreditation Standards met (R2)
ACR = Staff child ratios NAEYC Accreditation Standards met (R1)

Scoring:
0.0 = Does not meet Child Care Aware – NACCRRA Benchmarks.
0.5 = Marginally meets Child Care Aware – NACCRRA Benchmarks.
1.0 = Partially meets Child Care Aware – NACCRRA Benchmarks.
1.5 = Substantially meets Child Care Aware – NACCRRA Benchmarks.
2.0 = Fully meets Child Care Aware – NACCRRA Benchmarks.

vastly complex bureaucracies maybe this isn't as bad as it looks. Could it be that the USA is better than we think or is it that the USA and all other countries are providing just mediocre child care?!

The reason for using aggregate data in this study was to be consistent in how data have been collected in the USA utilizing the Child Care Aware – NACCRRA Scoring Protocol. This did delimit the potential analyses for this study and the recommendation would be made in future studies to unbundle the results so that more detailed comparisons could be made. As mentioned in the introduction, the purpose of this study was to provide an initial baseline comparison between the USA and other countries on the Child Care Aware – NACCRRA Scoring Protocol.

Discussion

The purpose of this study was to extend the Child Care Aware - NACCRRA Child Care Benchmarks Scoring Protocol to an international sample comparison. As has been done by the National Science Foundation with math and science testing, these same types of comparisons have been made with the USA not fairing all that well on the math and science comparisons.

It appears that when it comes to child care benchmarks the USA actually appears to be in better shape than many advocates and experts would have thought when compared to other countries or is it that the other countries are providing the same form of mediocre care as it relates to these child care benchmarks. Remember that these benchmarks are heavily weighted towards the structural side of quality

Legend:
Child Care Aware - NACCRRA Benchmarks:
Parents = Parent Involvement (R10)
Health = Health and safety recommendations (R9)
Devel = Six developmental domains (R8)
Clearance = Background check (R7)
Inservice = 24 hours of ongoing training (R6)
Pre = Initial orientation training (R5)
Teacher = Lead teacher has CDA or Associate degree (R4)
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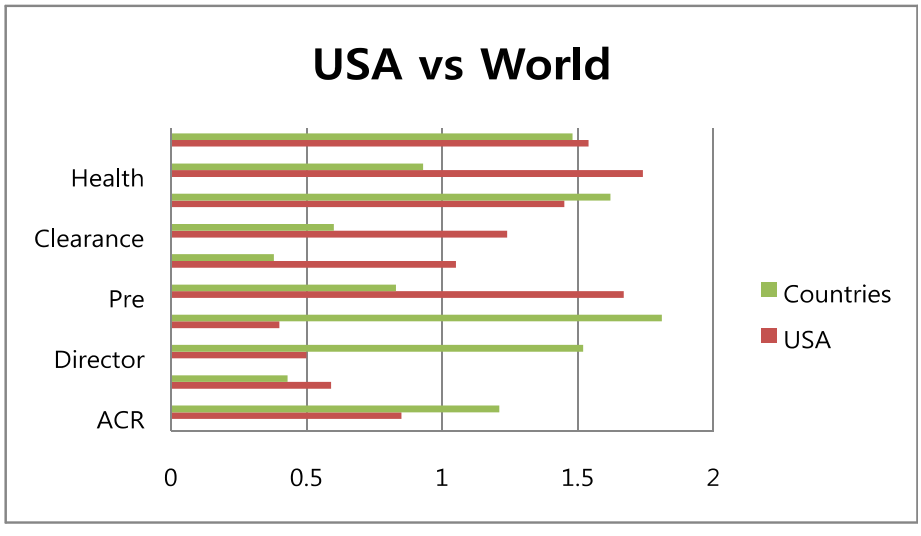

Figure 1. *Mean Comparisons between USA and Twenty Countries on Child Care Aware – NACCRRA Benchmarks*

rather than the process side of quality.

However, when the individual benchmarks are analyzed then certain patterns occur which seem very consistent with the previous research literature. The 20 countries scored higher on the staffing benchmarks while the USA scored higher on the training and health/safety benchmarks. Clearly this is an indication reflecting public policy in the other countries as versus the USA. Many other countries place more emphasis on the process aspects of quality which involve staff and staff interactions with children. The USA has focused more on the structural aspects of quality which involve health & safety especially in the state licensing of child care. These structural aspects of quality are more easily quantifiable in state rules and regulations which is the locus of control for the licensing of child care. Since the USA does not have national standards that are required (the USA does have national health and safety standards that are recommended practice, such as Caring for Our Children (2012)) as is the case in so many of the countries in this study, this may provide a possible explanation for the results of this study. It will be interesting to see how Quality Rating and Improvement Systems (QRIS) which usually have some process standards impact this overall balance of structural and process aspects of quality. This is an area that needs additional research and more in-depth analysis.

So what does this tell us. I think it is a warning call as has been put forth by Child Care Aware - NACCRRA that we still have a lot of additional work to do in improving child care, not only in the USA, but worldwide. Just as the Child Care Aware -NACCRRA Report Cards (2007, 2009, 2011) have played a role in making positive change in the child care benchmarks over time; we need to expand this reporting and change to a world wide focus. There is clearly the need to expand from the present analysis of 20 countries and the USA to other countries throughout the world and to track changes over time as Child Care Aware/NACCRRA has done.

Another area of concern within the USA and I am sure in other countries as economies have begun their slow recovery from the economic downturn of 2008 – 2010 is to do more with less. One such approach being explored in the USA is called differential monitoring which helps to re-allocate limited resources in a more cost effective and efficient manner via a risk assessment and key indicator approach. I hope that this comparison utilizing the Child Care Aware – NACCRRA Benchmarking Scoring Protocol and introducing the Early Childhood Program Quality Indicator Model/Differential Monitoring Logic Model and Algorithm (Fiene, 2013) within an international context as first steps in making that happen.

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Notes

[1] In the licensing literature these child care benchmarks are usually referred to as key indicators (Fiene, 2013). Please see Figure 1 which delineates where within a program monitoring system these benchmarks would appear and could be utilized.

[2] The following individuals played key data collection roles as research assistants in the compilation of this study: Melissa Cave, Ashley Le, Breanna Green, Corrie Podschlne, Sherrie Laporta, Ashley Edwards, Laura Hartranft, Gissell Reyes, Janet Lazur, Kayma Freeman, Jessica White, Karen Mapp, and Lindsay Bitler.

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Appendix 1

Benchmark criteria for *We Can Do Better: NACCRRA Ranking of State Child Care Center Regulations:2011 Update* were developed by Child Care Aware - NACCRRA and have been used for the 2007, 2009 and 2011 We Can Do Better reports. The rationale for each standard, including research evidence of its importance in quality care, is noted in each section of the report and in previous reports. Each of the 10 regulation benchmarks were scored with a value ranging from one to 10 points, depending on how closely the state met the benchmark, for a maximum total of 100 points. In cases where states permit several different options for complying (e.g., complying with director or teacher qualifications), the minimum allowed was used. This information was used to generate state sheets with scores for each standard.

Scoring Methods for NACCRRA Ranking of State Child Care Center Regulations (R)

Question	Scoring method
Regulation 1. Staff:child ratio requirements comply with NAEYC accreditation standards.	

6 mo	9 mo	18 mo	27 mo	3 yr	4 yr	5 yr
1:4	*1:4*	*1:4*	*1:4*	*1:9*	*1:10*	*1:10*

Number of ratios in compliance with NAEYC standards	Score
7 ratios	10
6 ratios	9
5 ratios	8
4 ratios	7
3 ratios	5
2 ratios	3
1 ratios	1

R2. Group size requirements are in compliance with NAEYC accreditation standards.

6 mo	9 mo	18 mo	27 mo	3 yr	4 yr	5 yr
8	*8*	*8*	*8*	*18*	*20*	*20*

Number of group sizes in compliance with NAEYC standards	Score
7 ratios	10
6 ratios	9
5 ratios	8
4 ratios	7
3 ratios	5
2 ratios	3
1 ratios	1

R3. Center directors are required to have a bachelor's degree of higher in early childhood education or a related field.

Director education requirement	Score
Bachelor's degree in any field	10
College directors certification	7
Any associate degree	5
CDA	5
Clock hours/less than associate degree	2
High school or less	0

R4. Lead teachers are required to have a Child Development Associate (CDA) credential or an associate degree in early childhood education or related field.

Lead teacher education requirement	Score
CDA/associate degree or better	10
State Credential	5
Clock Hours in ECE	2
High School/GED	2
Less than High School	0

R5. Lead teachers are required to have initial training, including:

- Orientation.
- Fire safety.
- Other health and safety issues.
- At least one staff member certified in first aid must be present when children are in care.
- At least one staff member who is certified in CPR must be present when children are in care.

Number of areas training is required	Score
Five areas	10
Four areas	8
Three areas	6
Two areas	4
One area	2
None	0

R6. Lead teachers are required to have 24 hours or more of annual training.

Ongoing training ≥	Score
24 Hours	10
18 hours	7
12 hours	5
6 hours	2
None	0

R7. A comprehensive background check is required for child care providers.

- Use of fingerprints to check state records.
- Check FBI records.
- Check state child abuse registry
- Check sex offender registry.
- Criminal history check.

Number of Background checks completed	Score
Five checks	10
Four checks	8
Three checks	6
Two checks	4
One check	2
None	0

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R8. Child care centers are required to offer program activities that address all six child development domains

- Language/literacy.
- Cognitive.
- Social.
- Emotional.
- Physical.
- Cultural.

Developmental domains addressed	Score
6 domains	10
5 domains	9
4 domains	7
3 domains	5
2 domains	3
1 domain	1
None	0

R9. Child care centers are required to follow 10 recommended health and safety practices.

- Immunizations.
- Guidance/discipline.
- Diapering and handwashing.
- Fire drills.
- Medication administration.
- SIDS prevention.
- Emergency preparedness.
- Playground surfaces.
- Hazardous materials.
- Incidence reporting.

Standards addressed	Score	Standards addressed	Score
10	10	5	5
9	9	4	4
8	8	3	3
7	7	2	2
6	6	1	1

Allowing corporal punishment is an automatic zero

R10. Child care centers are required to:

- Encourage parent involvement.
- Require daily or ongoing communication with parents.
- Allow parental access any time their children are in care.

Number of items required	Score
Three items	10
Two items	7
One item	3
None	0

Appendix 2

These were the countries included in these analyses: Australia, Belgium, Norway, Finland, Sweden, Ireland, United Kingdom, Italy, France, New Zealand, Mexico, Greece, Canada, Austria, Portugal, Philippines, Turkey, Pakistan, Nigeria, Denmark, Spain, and the USA which included all 50 states.

DIFFERENTIAL MONITORING LOGIC MODEL (DMLM©): A NEW EARLY CHILDHOOD PROGRAM QUALITY INDICATOR MODEL (ECPQIM^4©) FOR EARLY CARE AND EDUCATION REGULATORY AGENCIES

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ABSTRACT

A new Early Childhood Program Quality Indicator Model (ECCPQIM^4©) is described which utilizes targeted program monitoring (Differential Monitoring) via two licensing methodologies: Key Indicators and Risk Assessments. The theoretical and conceptual framework as well as a logic model are presented along with a scoring protocol that can be utilized to compare state/province and national organizations on how they are designing and implementing their program monitoring systems. A state/province/national framework/plan is presented as well as results from five (5) states (Georgia, Kansas, Illinois, Colorado, and New York) and a national organization (Office of Head Start). The five states and national organization are then compared using the Differential Monitoring Scoring Protocol (DMSP©). The Head Start program monitoring system scored a perfect 10 out of 10 in utilizing the DMSP©. Suggestions are made in how the scoring protocol could be used for making comparisons internationally and for future research in comparing various approaches.

Key Words: Program Monitoring, Differential Monitoring, Program Quality, Licensing.

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Background

This paper will introduce a Differential Monitoring Logic Model (DMLM©) which provides a new Early Childhood Program Quality Indicator Model (ECPQIM^4©) in which the major monitoring systems in early care and education are integrated conceptually so that the overall early care and education system can be assessed and validated. With this new model, it is now possible to compare results obtained from licensing systems, quality rating and improvement systems (QRIS), risk assessment systems, key indicator systems, technical assistance, and child development/early learning outcome systems (see Figures 1 & 2 for a graphical depiction of the theoretical underpinnings and actual design & logic model for the ECPQIM^4©/DMLM).

The DMLM© can be used by early care and education state/province agencies, Federal agencies, and large provider organizations where an economy of scale is required. This model can be used with state as well as national standards, such as state licensing rules/regulations and *Caring for Our Children (AAP, 2012).* Most states and Federal agencies have either some or all of the key elements of this model in their overall monitoring systems. The purpose of this model is to alter a one-size fits all monitoring system to one that is targeted, spending more time with problem programs who need additional assistance. This is a cost neutral model that is both cost effective and efficient and re-allocates resources from the compliant programs to the non-compliant programs. Presently there is not a measurement rubric for making comparisons within the USA or internationally when it comes to measuring the effectiveness and efficiency of child care and

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early care program monitoring systems. This can become a very important tool as the USA begins implementation of the re-authorization of the Child Care and Development Block Grant.

Insert Figure 1

The ECPQIM^4©/DMLM© is based very heavily in translational research and implementation science as a means of building an ongoing program monitoring system based upon the latest empirical demonstrations in the early care and education research literature. It is at the intersection of child care public policy, early care and education interventions, and empirical research. The ECPQIM^4©/DMLM© along with the scoring protocol introduced in this paper could provide a framework for making comparisons amongst states/provinces, national organizations, and countries in how they have designed and implemented their respective program monitoring of child care and early care & education systems similar to how Child Care Aware has developed a reporting format for the USA in comparing states on regulatory and oversight functions. The author reported on such a comparison in a previous study in an earlier edition of this journal (Fiene, 2013). The DMLM© framework and scoring protocol could provide a similar measurement tool for assessing child care and early childhood education program monitoring systems.

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DMLM© Key Elements (see Figure 2): **CI** = state or federal child care standards, usually rules or regulations that measure health and safety - *Caring for Our Children* (AAP, 2012) will be applicable here. **PQ** = Quality Rating and Improvement Systems (QRIS) standards at the state level; process quality measures. **RA** = risk assessment tools/systems in which only the most critical rules/standards are measured. *Stepping Stones* (NRC, 2013) is an example of this approach**. KI** = key indicators in which only predictor rules/standards are measured. The *Thirteen Indicators of Quality Child Care* (Fiene, 2002) is an example of this approach. **DM** = differential monitoring decision making in which it is determined if a program is in compliance or not and the number of visits/the number of rules/standards are ascertained from a scoring protocol**. PD** = technical assistance/training and/or professional development system which provides targeted assistance to the program based upon the **DM** results. **CO** = child outcomes which assesses how well the children are developing which is the ultimate goal of the system.

Insert Figure 2

Once the above key elements are in place, it is then possible to look at the relationships (this is depicted by the arrows that go from one box to another) amongst them to determine if the system is operating as it was intended; in other words, to determine if the DM system is improving the health, safety, program quality and ultimately the overall development of the children it serves.

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In the Methodology section, a scoring protocol (DMSP© - Differential Monitoring Scoring Protocol©) is introduced which attempts to quantify these relationships and to give us a means for making measurements and comparisons across various types of organizations.

The DMLM© provides a cross-cutting methodology that can be used in all child care/early care and education delivery systems as well as in other human services. In the past many of these monitoring systems have functioned in silos. The DMLM© integrates all these various monitoring systems together so that the overall monitoring system can be validated as being cost effective and efficient. This can be an important development as available funds become more scarce in the future as international organizations deal with fewer and fewer resources.

Methods

National/State/Provincial Agency Plan for implementing a Differential Monitoring System:

The **first step** in utilizing the DMLM© for a state/province/nation is to take a close look at its Comprehensive Licensing Tool (CI) that it uses to collect violation data on all rules with all facilities in its respective state/province/nation. If the state/province/nation does not utilize a tool or checklist or does not review all violation data than it needs to consider these changes because the DMLM© is based upon an Instrument Based Program Monitoring System (IPM)(Fiene & Nixon,1985) which utilizes tools/checklists to collect data on all rules.

The **second step** for the state/province/nation is to compare their nation's/state's/province's rules

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with the National *Health and Safety Performance Standards (Caring for Our Children*)(AAP, 2012) or an equivalent international set of standards to determine the overlap and coverage between the two.

The **third step** for the state/province/nation if it utilizes a Risk Assessment (RA) tool is to assess the relationship between this tool and *Stepping Stones* (NRC, 2013) or an equivalent international set of targeted standards to determine the overlap and coverage between the two.

The **fourth step** for the state/province/nation is to compare the results from the CI with the RA tools.

In the **fifth step**, if a state/province/nation is fortunate enough to have a QRIS – Quality Rating and Improvement System in place and has sufficient program quality (PQ) data available then they will have the ability to compare results from their CI tool with their PQ tool and validate outputs by determining the relationship between compliance with health and safety rules (CI) and program quality (PQ) measures that measure process quality. This is a very important step because very few empirical demonstrations appear in the research literature regarding this relationship.

The **sixth step** is for the state/province/nation to generate a Key Indicator (KI) tool from the CI data base. Please see Fiene & Nixon (1985) and Fiene & Kroh (2000) for a detailed explanation

of the methodology for generating a KI tool. If a state/province/nation did not want to use the KI methodology, a direct comparison could be drawn from The *Thirteen Indicators of Quality Child Care* (Fiene, 2002).

The **seventh step** for the state/nation is to use the RA and KI tools together to determine overall compliance of facilities and how often and which rules will be monitored for future visits. This is the basic component of a Differential Monitoring (DM) approach. Also, this step should drive decisions within the technical assistance/training/professional development (PD) system in what resources are allocated to a particular facility.

The **eighth and final step** for the state/nation is to compare the results from the various monitoring tools (CI, PQ, RA, KI) with any child development outcome (CO) data they collect. This is a relatively new area and few, if any, states/provinces/nations at this point have this capability on a large scale. However, as Early Learning Networks/Systems and Standards (ELS) are developed, this will become more common place.

The ECPQIM^4©DMLM© is presented without two additional items that were present in the 2012/2013 versions which are important to note. The algorithm (Fiene, 2012, 1013) and validation framework (Zellman & Fiene, 2012) are not presented because the author felt that these two components took away from a more direct presentation of differential monitoring. For those interested readers, please refer to my previous abstracts (Fiene, 2012, 2013) which

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included the algorithm and validation frameworks.

Just another brief word about the Theoretical Underpinnings for ECPQIM^4. This graphic (Figure 1) attempts to provide the relationships amongst public policy, interventions, and empirical evidence through the lens of translational research, implementation science, and program monitoring. In constructing the ECPQIM^4 concepts were borrowed from each area and integrated them in a model for monitoring early care and education programs. The graphic provides a means for displaying the relationships and potential intersections as well as the content that is important to each scientific/research field.

Figure 3 is provided as additional information regarding differential monitoring conceptually without all the details as in figure 2; and figure 4 is provided to demonstrate the impact that a state's/provincial/national licensing law can have on using the Key Indicators and Risk Assessment methodologies.

Insert Figures 3 & 4

Also, taking Figure 2 and attempting to quantify these relationships, a scoring protocol is proposed as depicted in Table 1. This can provide a numerical means of comparing various

differential monitoring systems and their relative comprehensiveness. This protocol could be a useful tool in future research for determining which combinations work best.

Insert Table 1

The next section provides the results from a national organization and five states who used the above methodology to implement their respective differential monitoring systems.

Results and Discussion

The Early Childhood Program Quality Indicator Model (ECPQIM©) and its latest iteration presented as a logic model: Differential Monitoring Logic Model (DMLM©) have been written about extensively by this author (Fiene & Nixon, 1985; Griffin & Fiene, 1996; Fiene & Kroh, 2000; Fiene, 2013). Several states and Head Start have used the model in order to re-align their program monitoring systems. This paper presents the results of those new program monitoring systems through the lenses of the ECPQIM©/DMLM© logic model display. Each particular approach used various components of the overall comprehensive national model and have been highlighted by connecting arrows. It is proposed that this approach could be applied at an international level as well.

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The interested reader should obtain a copy of the Office of Child Care's *Licensing Brief on Differential Monitoring, Risk Assessment, and Key Indicators* published by the National Center on Child Care Quality Improvements which gives additional details regarding these approaches and methodologies as well as other state examples. Please go to the following URL website: (https://childcareta.acf.hhs.gov/sites/default/files/1408_differential_monitoring_final_1.pdf). In fact, this paper builds upon that excellent *Licensing Brief*.

Let's start with Figure 5 which provides the Comprehensive National Example that depicts all the possible interconnections and gives national examples from the research literature. As one will see, it is possible for a national organization or a state/provincial agency to select the various components from the model based upon what is available in their particular organization. All do have the program compliance/licensing component (PC) but not all have fully functional program quality initiatives (PQ) or do not have the data to draw from the program quality initiatives.

The next level of components are the key indicator (KI) and risk assessment (RA) approaches or methodologies which organizations or state agencies can use alone or in tandem. One limitation in the key indicator methodology is not to use it with program initiatives if the data are not severely skewed in their data distribution as is the case with licensing data.

The last component is the resulting differential monitoring (DM) approach based upon the results

from using the key indicator and risk assessment methodologies either alone or in tandem. This is the ultimate revision of the program monitoring system in which how often and what is reviewed are answered.

All the components are highlighted (this is indicated by the arrows going from one box to another) in Figure 5 because all are possibilities to be used by a national or state agency. The examples in Figure 5 are drawn from the national research literature so *Caring for Our Children* (AAP, 2012) is the example for Program Compliance, Licensing, and the Health & Safety Comprehensive Instrument (CI). The following examples in Figures 6-11 will show some differences in how national and state agencies have developed their respective differential monitoring systems through their use of key indicator (KI) and risk assessment (RA) methodologies, and linking their licensing/program compliance (PC) and program quality (PQ) initiatives. Tables 1-3 explain the scoring protocol and provide results from the national Head Start program and five states geographically dispersed around the USA (New York, Georgia, Illinois, Kansas, and Colorado). Also see the end of the paper for an explanation of Notes a,b,c in Figure 5.

Insert Figure 5

Figure 6 provides an example from New York (NY) where the state agency is attempting to restructure their early care and education program monitoring system to have a better balance between licensing and key program quality indicators. The plan is to have licensing staff collect data from both areas which means a need to save time in the licensing reviews via key indicators and to only identify indicators of quality through a risk assessment approach. The results from these two methodologies will then be combined into a Quality Indicators Instrument to be used by licensing staff in their annual reviews.

Insert Figure 6

Figure 7 provides an example from Georgia (GA) in which the driving methodology is a risk assessment core rule review system that results in a differential monitoring system called the Annual Compliance Determination Worksheet (ACDW) approach. Key indicators are not used directly but were used as part of the risk assessment core rule development. Please note how the relationship amongst the various components is different from the NY approach delineated in Figure 6. There is a link to their program quality initiatives which proved very significant in the validation studies performed on their Core Rule differential monitoring system.

Insert Figure 7

Figure 8 presents a very different approach from the previous two approaches. In Kansas's (KS) case, the state agency was only interested in developing a key indicator approach and was not interested in risk assessment nor had the capability to tie data together from their program quality initiatives. This is noted by the arrow connections which is more minimal in this depiction. As one can see, this still is a viable option for developing a differential monitoring approach.

Insert Figure 8

Figure 9 depicts the use of both key indicator and risk assessment methodologies in Illinois (IL) with their licensing system but no data interaction with their program quality initiatives. It is proposed that both methodologies will be used together in future licensing reviews of programs which will constitute their differential monitoring system approach.

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Insert Figure 9

Figure 10 depicts the new aligned differential monitoring system being employed in Head Start (HS). Head Start has a very comprehensive system that employs various aspects from all the components in their system. The Head Start Performance Standards are very comprehensive, CLASS is used as a major process quality measure and both a key indicator (Head Start Key Indicator – Compliance (HSKI-C)) and risk assessment (Selected Compliance Measures) are utilized in their program monitoring system. The Head Start new Aligned Program Monitoring system comes closest to the comprehensive national model.

Insert Figure 10

In Figure 11 a very different scenario played out in the state of Colorado (CO) in which key indicators were developed for their QRIS system rather than for their licensing system. As mentioned earlier, when applying the key indicator methodology to Quality Initiatives one needs to be very cautious if the data distribution is not exceptionally skewed as is the case with licensing data. Some of the data were sufficiently skewed to be able to be used in generating

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quality key indicators but there were limitations noted.

Insert Figure 11

The above results clearly demonstrate how agencies can take very different approaches to designing and implementing their differential monitoring system. The next research question is to determine if agencies that have higher scores (more than 6) if they are more effective and efficient than those agencies that have lower scores (less than 5).

Conclusion

This paper presents the latest examples of national and state agencies differential monitoring approaches. It clearly demonstrates that there are many different approaches to developing and implementing differential monitoring. A key research question for the future as more states utilize the different approaches is to study if one approach is better than the next or a combination works better than most. From 40+ years of experience as a researcher and state policy analyst I would suggest that a more comprehensive approach which employs the full menu of program quality initiatives similar to the Head Start or the New York approaches will be most effective.

As mentioned in the introduction of this paper in describing the Comprehensive National Example of the DMLM© Model Tables 1-3 present a Differential Monitoring Scoring Protocol (DMSP©) that can potentially be used to compare states on how in depth their differential monitoring system is. Table 1 describes the DMSP© in narrative terms delineating the various systems that need to be in place in order to get a particular score. A score of 0 means no systems are in place or do not intersect while a score of 10 means that all of the systems are in place and intersect or are linked. Table 2 gives the points assigned to the specific systems that are part of a differential monitoring system. And Table 3/Figure 12 give the actual points assigned to the state & national examples that have been presented in this paper for ***New York (NY), Georgia (GA), Head Start (HS), Kansas (KS), Illinois (IL), and Colorado (CO)***. The total points assigned to the comprehensive model are also provided as a point of context.

There are a couple of important things to note about the DMSP© in Table 2, such as: if Key Indicators (KI) and Risk Assessment (RA) are linked, it negates KI and RA being scored separately. If KI and RA are developed separately, it is very improbable that they will not be linked but that is always a possibility, so it is listed as so. Linking Program Compliance/Licensing (PC) and Program Quality (PQ) Initiatives is a highly desirable event and is assigned a high score (4 points). Linking KI and RA is also considered a highly desirable event and is assigned a high score (4 points).

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Insert Tables 2 & 3 and Figure 12

For future research, it will be interesting to see if this ECPQIM^4©/DMLM© model has applicability from an international perspective. Some of the key elements present in USA state systems are organized very differently in other countries and would have to be adjusted. Also, it will be interesting to see if the DMSP© can be developed as a scoring systems similar to the Child Care Aware Report Card Benchmarks protocol where it will be possible to make comparisons across state and national agencies.

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Endnotes a, b, c:

The arrows going from Key Indicators (KI) and Risk Assessment (RA) to Differential Monitoring (DM) can be configured in the following ways: only KI (Kansas); only RA (don't have an example of this as of this writing) or a combination of KI and RA (Illinois) but this configuration could mean all of the KI and RA rules which would be more rules than if only KI or RA rules were selected or only those rules that overlap (KI+RA) which would be a much reduced number of rules. Or a different configuration determined by the state agency.

SENDING00: ECPQIM – DMLM – ICEP1d1 (2)aC RIKI HF

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Figure 1

The Theoretical Underpinnings for ECPQIM⁴: Early Childhood Program Quality Indicator Model©

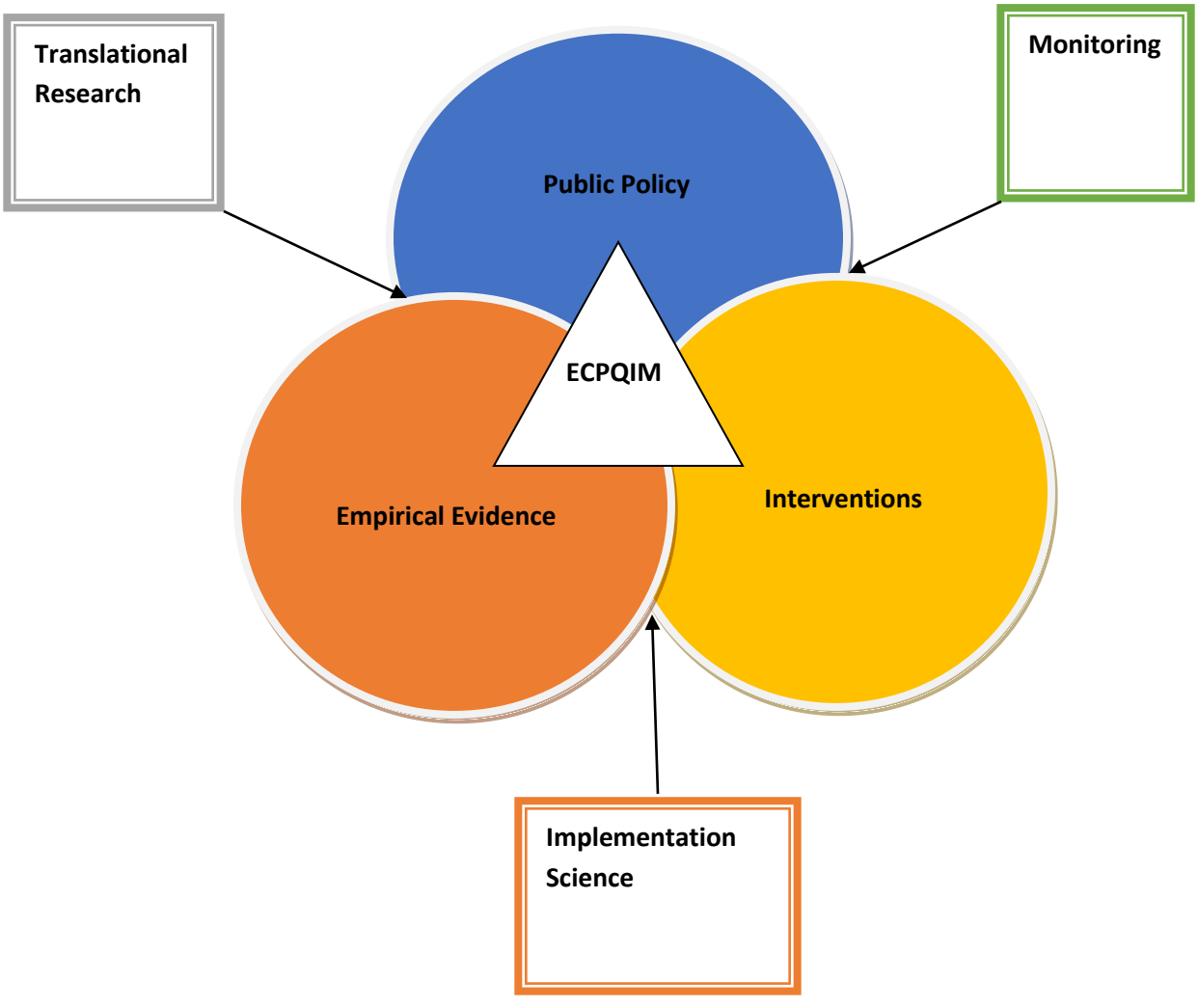

Figure 2

Early Childhood Program Quality Indicator Model (ECPQIM⁴©): Differential Monitoring Logic Model (DMLM©) Comprehensive National Example

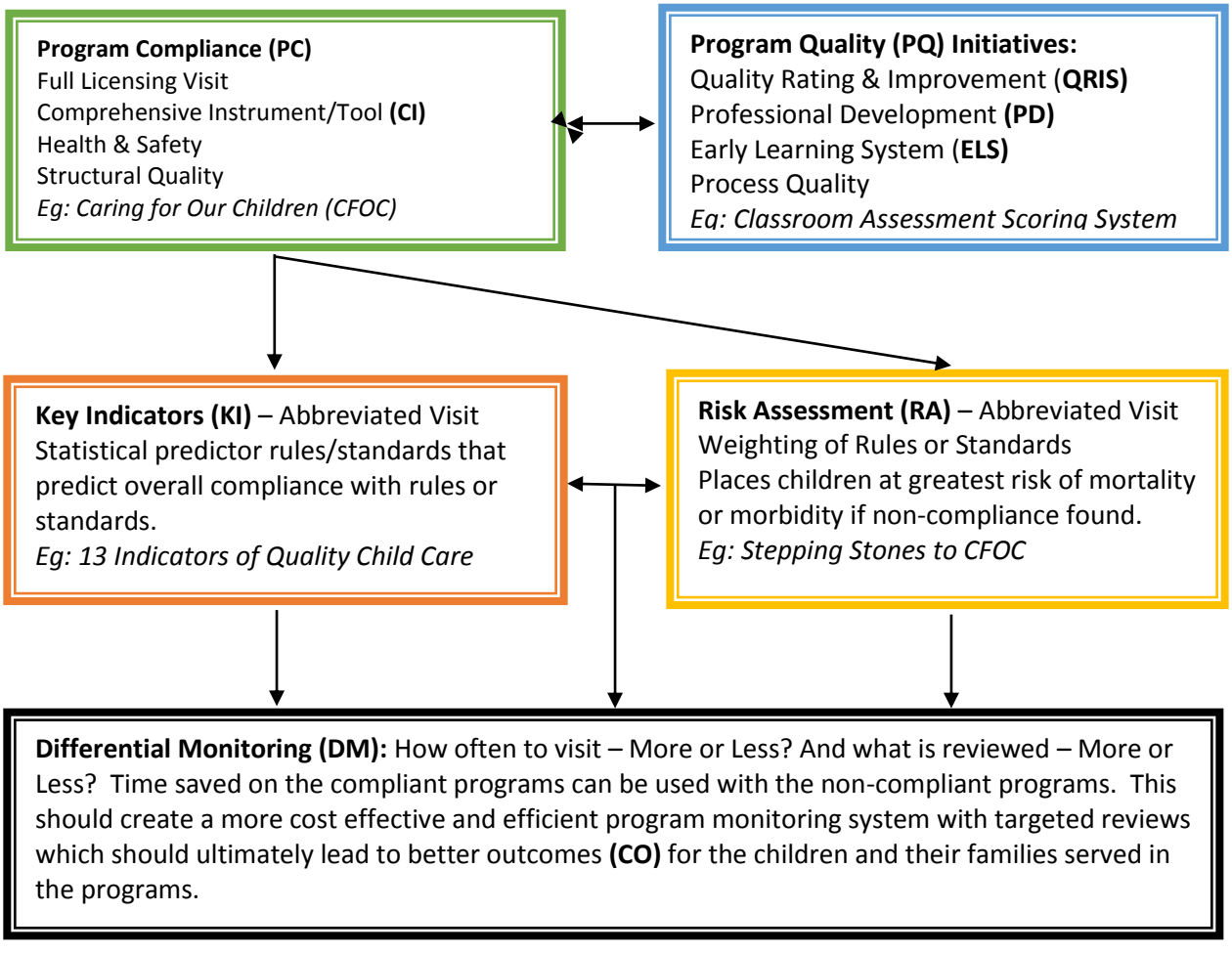

Figure 3

Licensing Rules, Compliance Reviews, Differential Monitoring, Abbreviated Tools, Risk Assessment, and Key Indicators

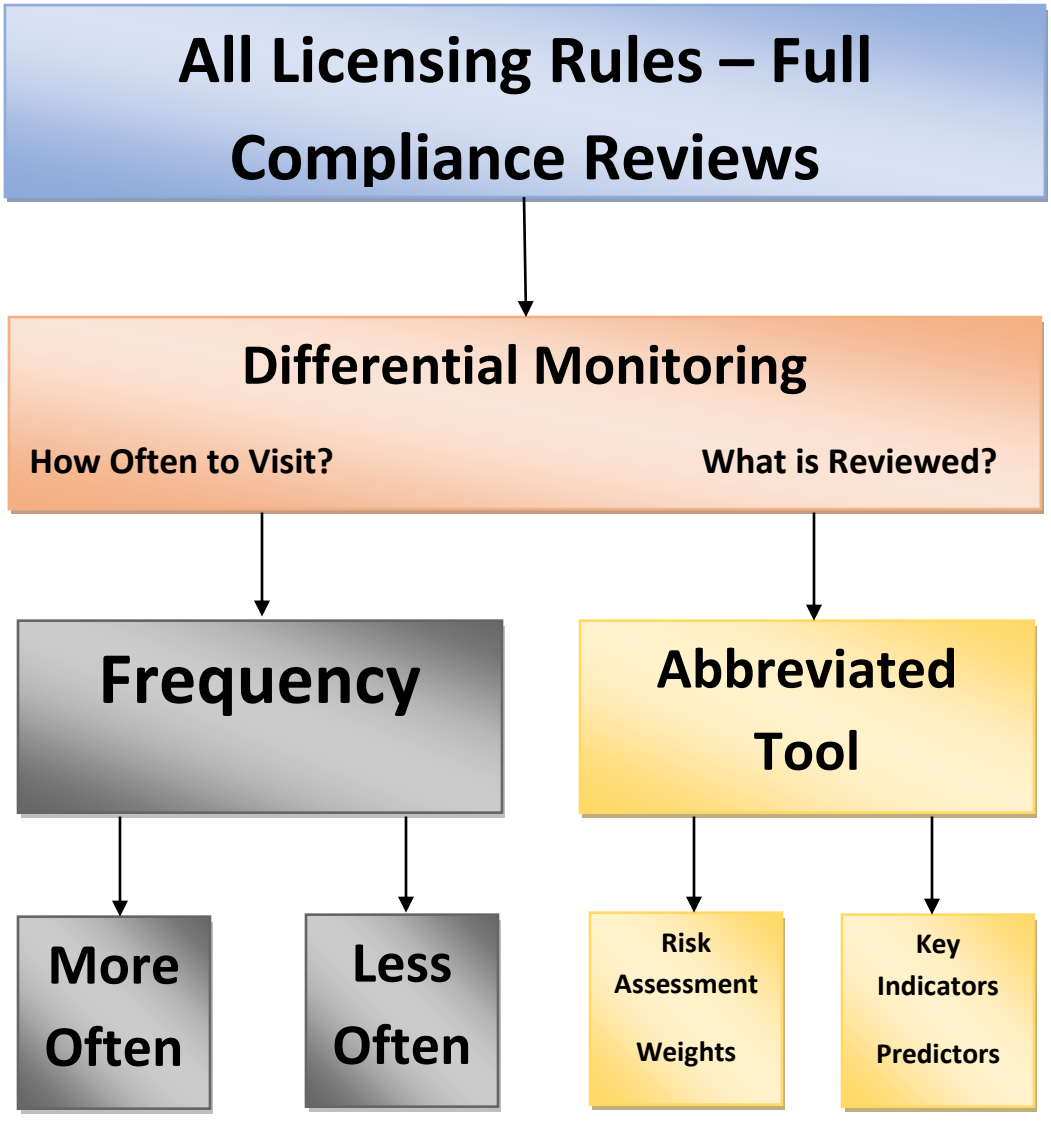

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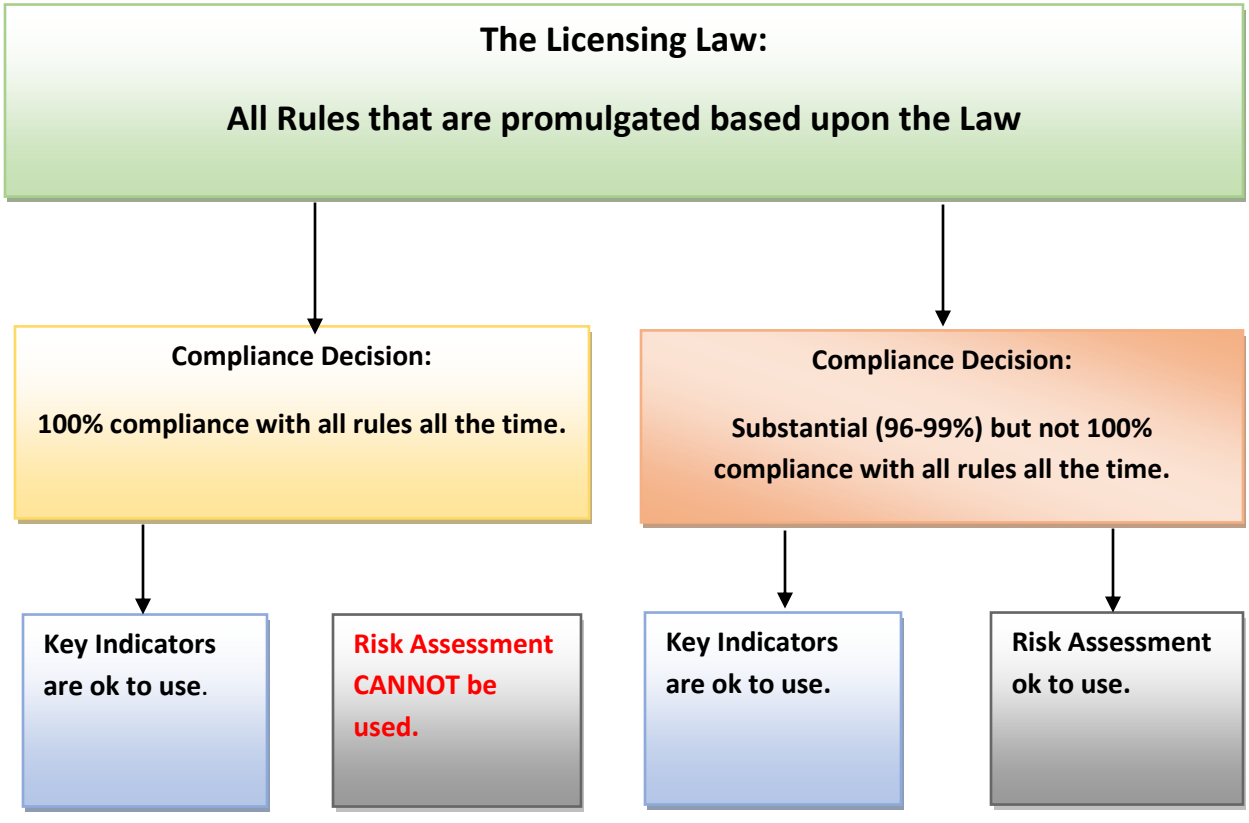
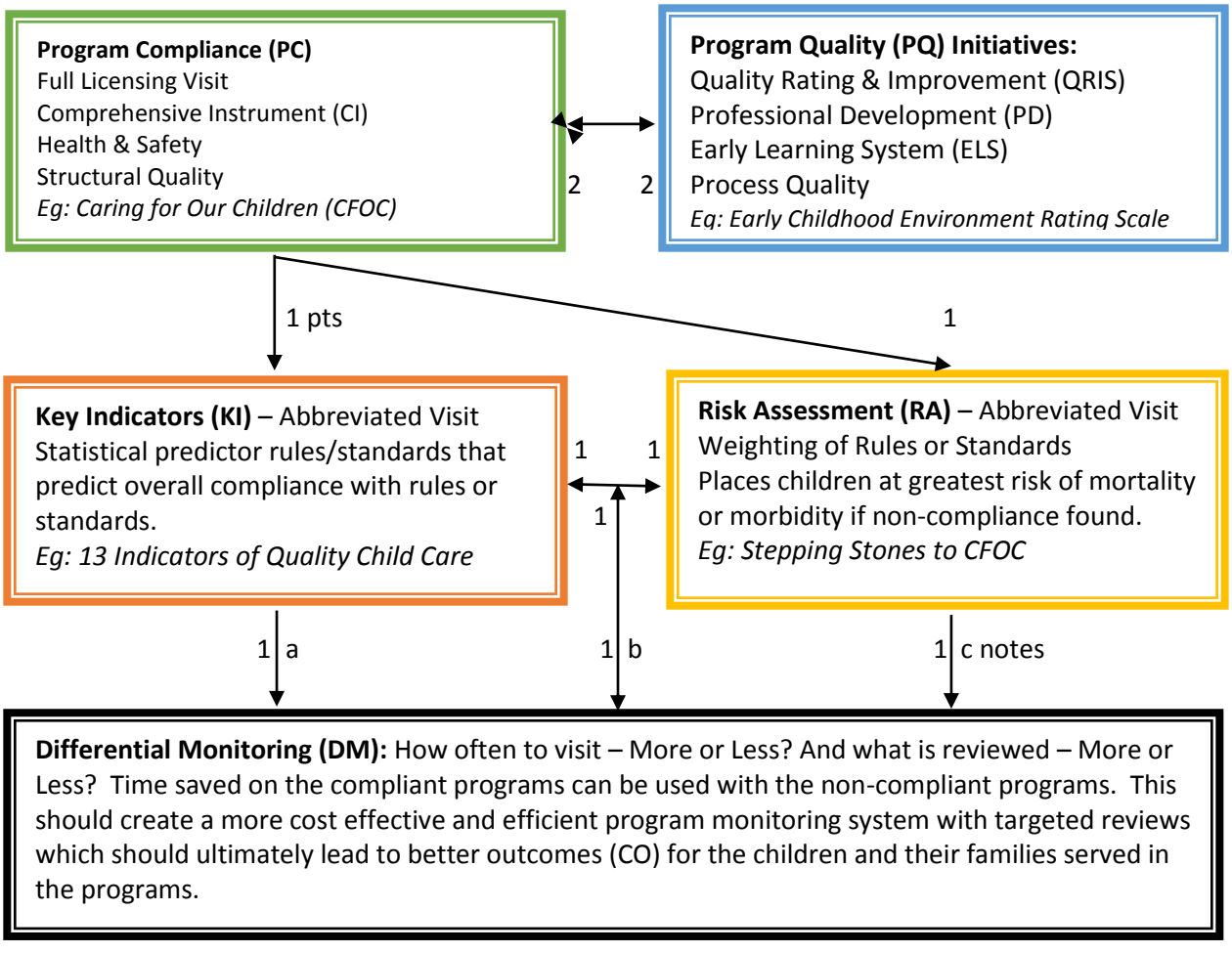
Figure 4

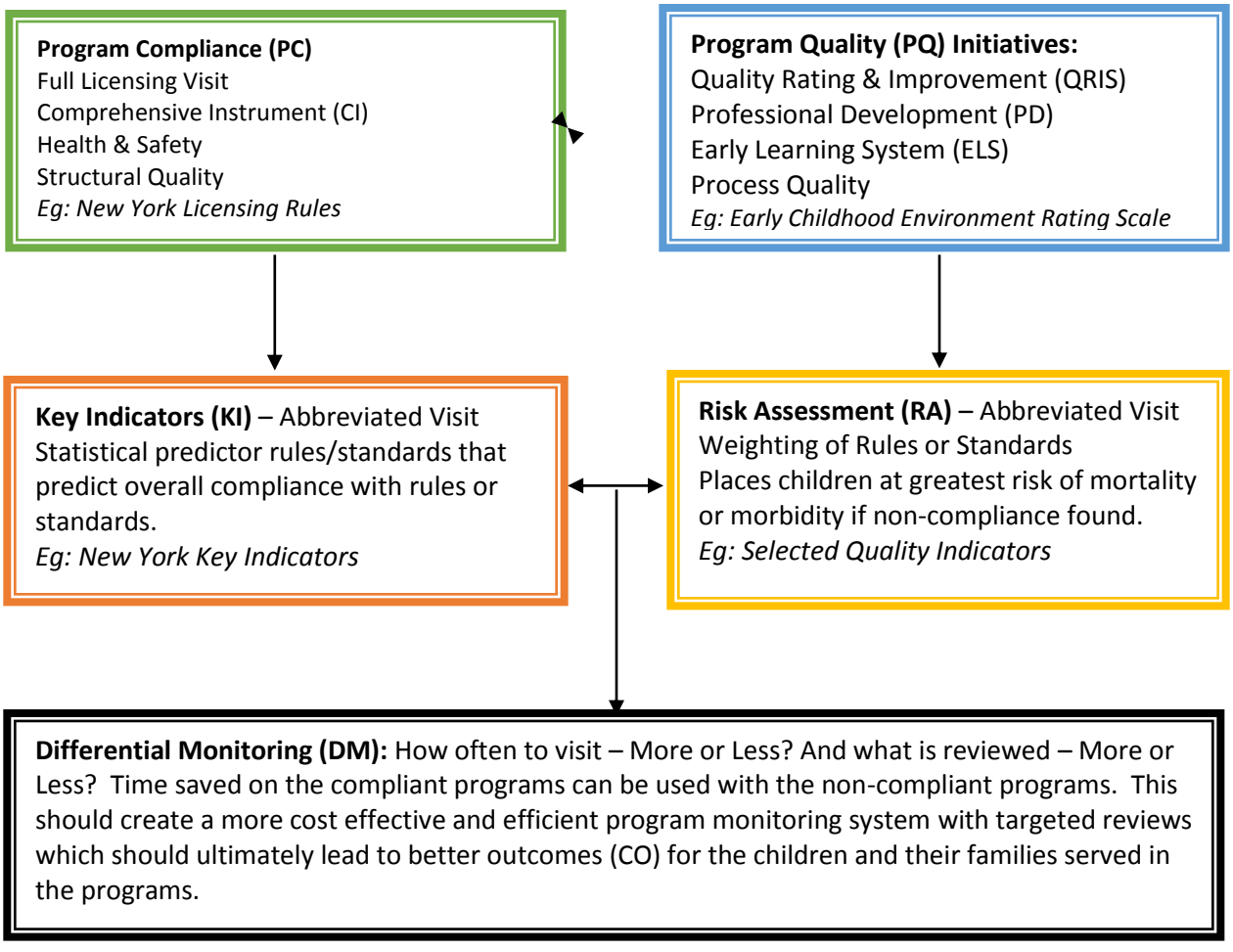
When Key Indicators and Risk Assessments Can Be Used



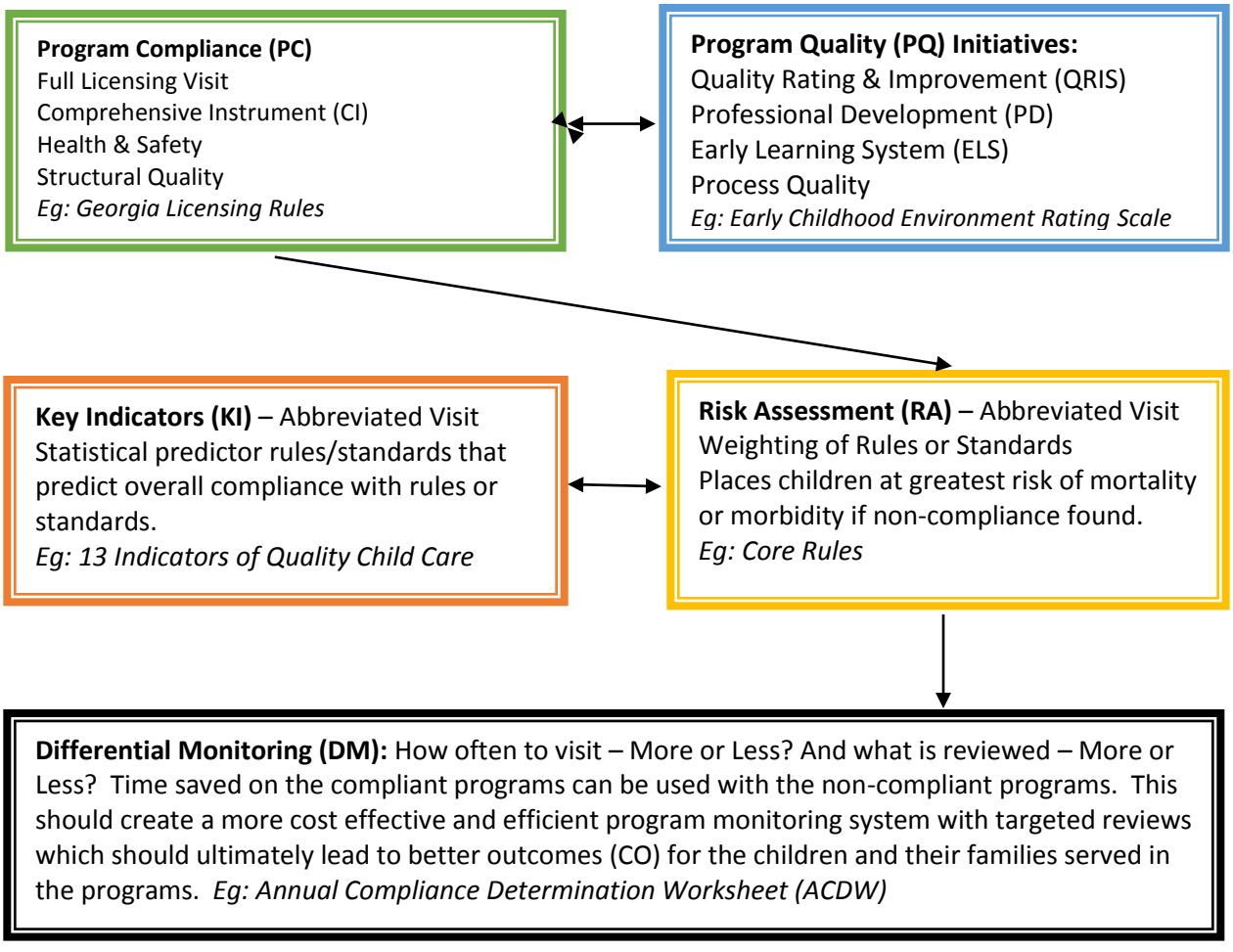
Early Childhood Program Quality Indicator Model (ECPQIM4©): Differential Monitoring Logic Model (DMLM©) Comprehensive National Scoring Protocol Example (Maximum of 10 Points)
Figure 5



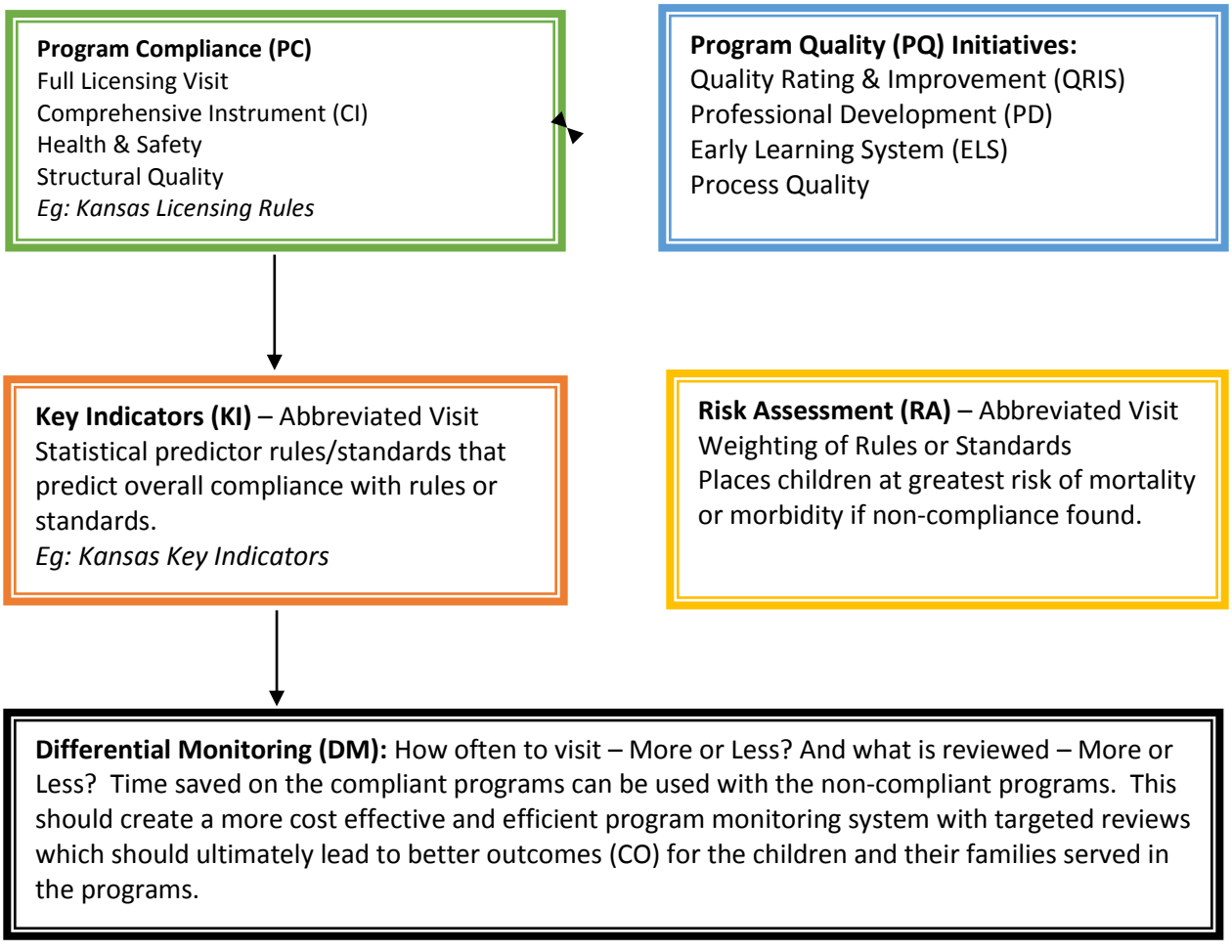
(ECPQIM4©)(DMLM©): New York Example (NY)
Figure 6



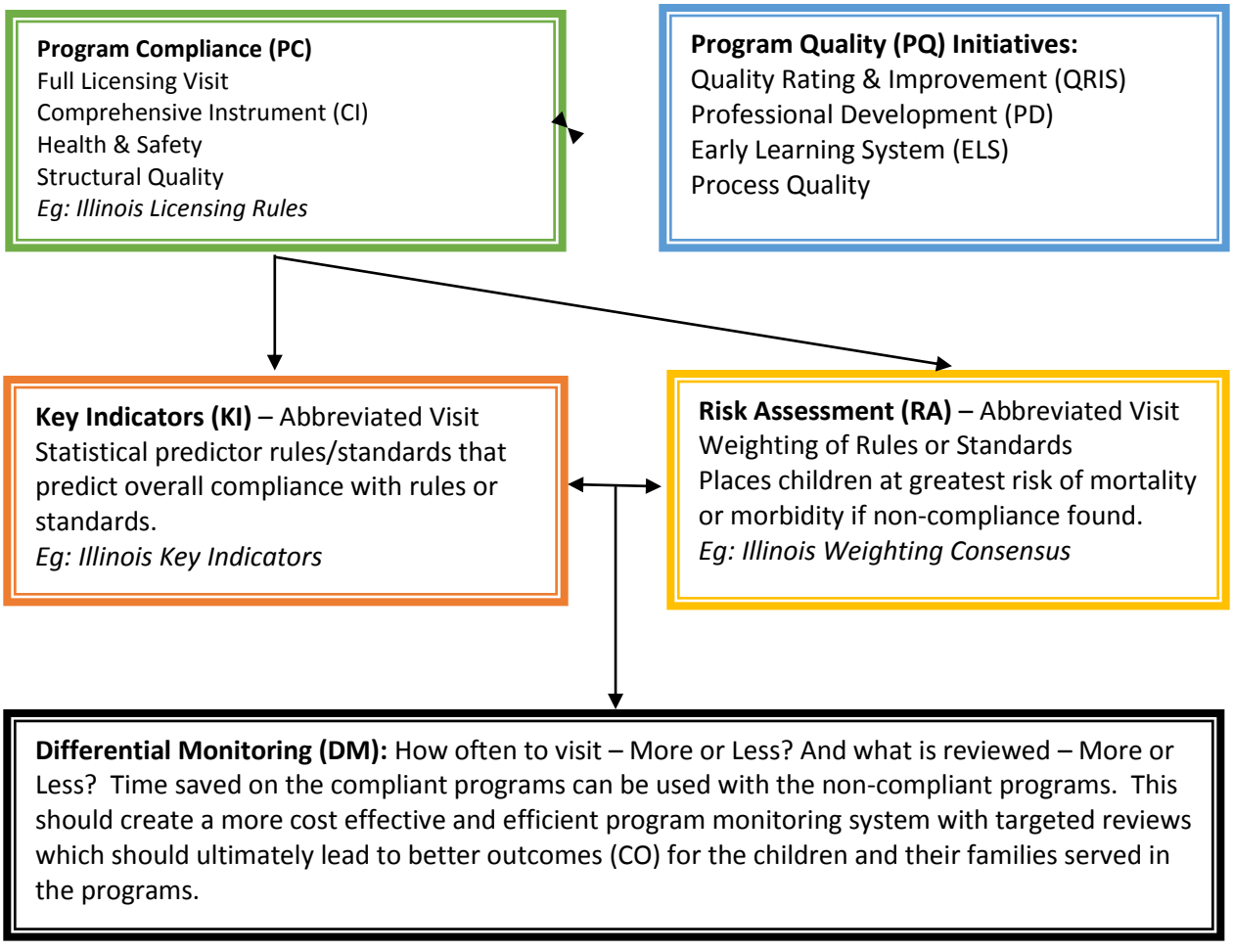
(ECPQIM4©)(DMLM©): Georgia Example (GA)
Figure 7



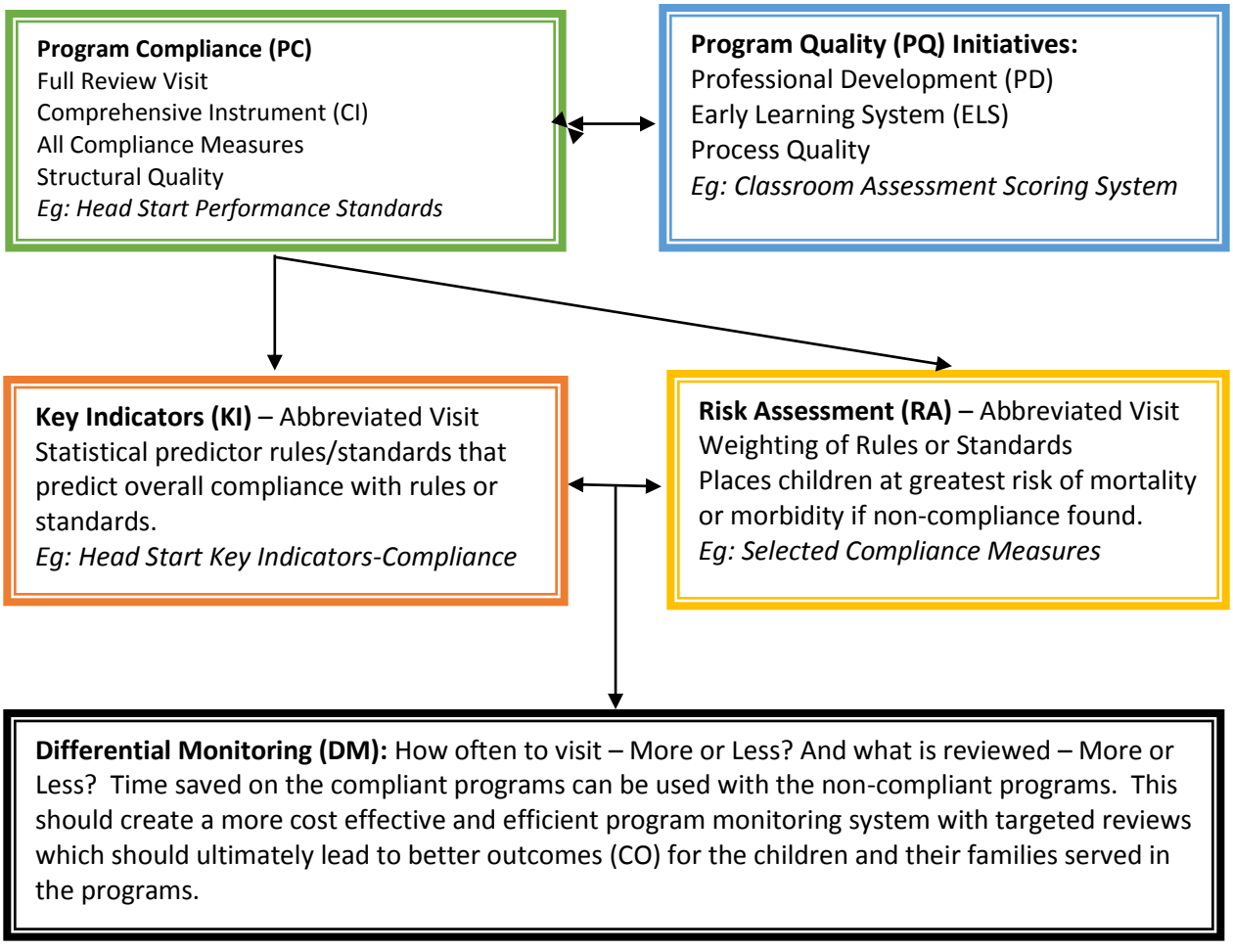
(ECPQIM4©)(DMLM©): Kansas Example (KS)
Figure 8



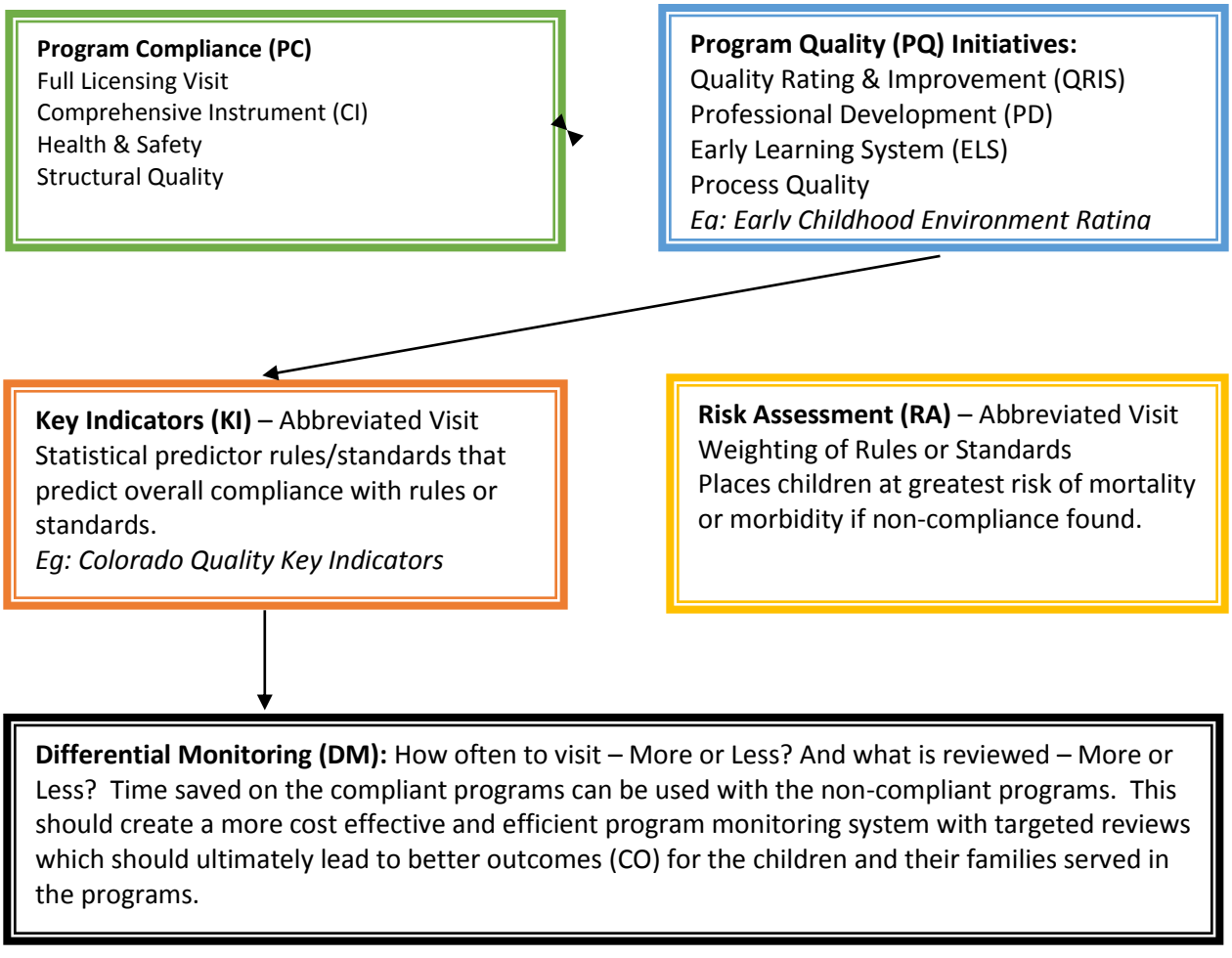
(ECPQIM4©)(DMLM©): Illinois Example (IL)
Figure 9



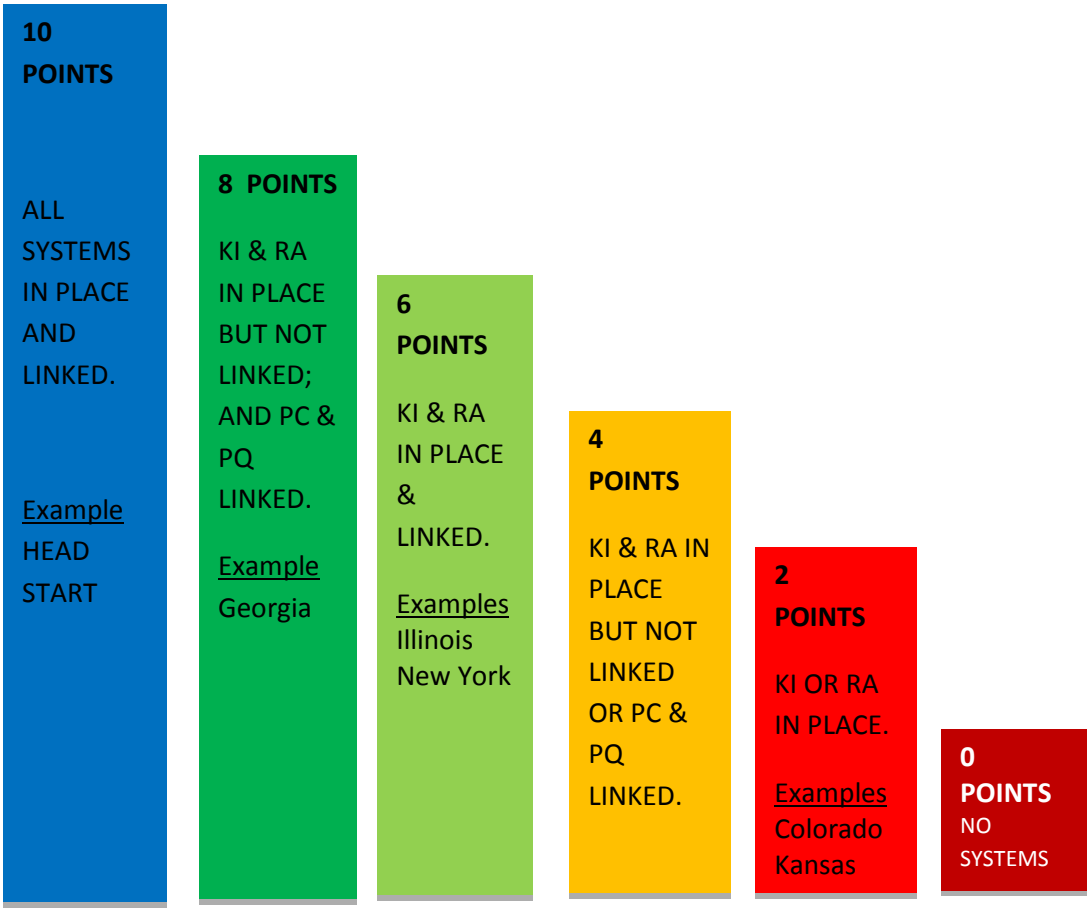
(ECPQIM4©)(DMLM©): Head Start Example (HS)
Figure 10



(ECPQIM4©)(DMLM©): Colorado Example (CO)
Figure 11



DMSP© SCORING PROTOCOL WITH STATE AND NATIONAL AGENCIES AS EXAMPLES
Figure 12



SCORING

KI = Key Indicators; RA = Risk Assessment; PC = Licensing; PQ = Program Quality Initiatives

Table 1: Differential Monitoring Scoring Protocol (DMSP)©

Score	*Systems Present*
0	No systems in place.
2	KI or RA in place and not linked.
4	(KI & RA in place but not linked) or (PC + PQ are linked).
6	(KI & RA in place) & (KI + RA are linked)
8	(KI & RA in place but not linked) & ((PC + PQ) are linked).
10	All systems in place and linked.

KI (Key Indicators); RA (Risk Assessment); PC (Program Compliance/Licensing); PQ (Program Quality Initiatives)

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Table 2: Differential Monitoring Scoring Protocol (DMSP)© Point Assignment

Score	*Systems Present and Point Assignment*
0	No systems in place.
2	(KI (1)) & (KI -> DM (1)) or ((RA (1)) & (RA -> DM (1))
4	(PC + PQ (4)) or (KI (1) & (KI -> DM (1)) & (RA (1) & (RA -> DM (1))
6	(KI + RA -> DM (4)) & (KI (1)) & (RA (1))
8	(KI (2) & RA (2)) & (PC + PQ (4)).
10	(KI + RA -> DM (4)) & (KI (1)) & (RA (1)) & (PC + PQ (4))

KI (Key Indicators); RA (Risk Assessment); PC (Program Compliance/Licensing); PQ (Program Quality Initiatives)

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Table 3: DMLM© SCORING PROTOCOL WITH STATE EXAMPLES

SYSTEMS (pts)	*MODEL*	*GA*	*NY*	*HS*	*IL*	*KS*	*CO*
KI (1)	*1*	-	1	1	1	1	1
RA (1)	*1*	1	1	1	1	-	-
KI + RA -> DM (4) *KI + RA (2)*	*4*	2	4	4	4	-	-
PC + PQ (4)	*4*	4	-	4	-	-	-
KI -> DM (1)	-	-	-	-	-	1	1
RA -> DM (1)	-	1	-	-	-	-	-
TOTAL (10)	*10*	8	6	10	6	2	2

GA (Georgia); NY (New York); HS (Head Start); IL (Illinois), KS (Kansas); CO (Colorado)

The Instrument Based Program Monitoring Information System and the Indicator Checklist for Child Care

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Mark Nixon
Children's Services Monitoring Transfer Consortium, Washington, D.C.

ABSTRACT: The Instrument Based Program Monitoring Information System (IPM) and the Indicator Checklist (IC) are two tools for the state management of child day care services. A methodology for monitoring interviews and site visits to child day care programs is described. An integral feature of IPM is a system of assigning weights to the questions or items so that scores reflect the relative importance of state regulations. An Indicator Checklist is a questionnaire or checklist that contains selected, predictive items from a longer, comprehensive instrument that a state uses to monitor child day care providers' conformance to state day care regulations. An Indicator Checklist contains items that have been determined to be most effective in discriminating between providers that typically receive high overall scores on the comprehensive instrument and providers that typically receive low overall scores.

For nearly half a century, state governments have accepted responsibility for ensuring that those who care for children in their home and in day care centers meet minimum requirements for health and safety. During the past decade as the amount of state and federal funds for day care have grown, states have taken an active role in monitoring (1) the ways in which day care providers administer their programs, and (2) the quality of the services provided to children for whose care the state is paying.

Nationally, day care is big business. It is estimated that currently there are more than 118,000 licensed providers who serve an estimated 1.2 million children every day. The stakes in assuring that these children are well served are high, both in terms of public health and safety and from the viewpoint of enhancing the growth and development of America's most precious resource, its children. It is estimated that $6.3 billion dollars are spent annually on day care services.[1]

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[1] Day care services include group day care centers serving 12 or more children, group day care homes serving 6–11 children, and family day care homes serving 5 or fewer children. Head Start & nursery school programs that operate for part day are included in day care services definition.

Child Care Quarterly, 14(3), Fall 1985

However, in monitoring these services, states spend less than one percent of their day care funds each year to ensure that providers comply with regulations or meet quality guidelines.

This article describes an approach in monitoring child day care services called: Instrument Based Program Monitoring (IPM). An IPM differs substantially from the more common approach to monitoring: narrative site visit reports used by most states. The narrative report approach usually includes a site visit to each provider and the preparation of a summary of observations and interpretive and evaluative comments about the monitor's findings. These reports are time consuming to prepare, and often difficult to summarize succinctly for policy makers and administrators. This article describes an alternative to the narrative site report.

Forces Changing the Regulatory Environment

The job of state agencies in program monitoring is currently changing in response to powerful forces in American society, especially at the level of state government.

First, there is the continuing need to assure parents that their children will not be subjected to unsafe day care environments and that day care providers who receive state funds are meeting the terms of their contracts with the state by providing quality services. Quality services are defined as day care services that promote sound child development principles and do not only ensure that children are in healthy and safe child care environments. Public accountability requires that the state entertain a dual purpose, one is to monitor compliance with state regulations; but secondly and equally important, there is a strong need for the state to ensure that quality child development services are supported and provided.

Gwen Morgan's (1980) work is particularly helpful in providing direction regarding the relationship between licensing and funding criteria. A Model presented by Morgan (1980) clearly delineates a regulatory continuum where day care licensing is considered as the floor to quality with accreditation as the standard of quality for which model day care programs strive. Recent efforts by the National Association for the Education of Young Children (Center Accreditation Project (1983)) and the Children's Services Monitoring Consortium (Child Development Program Evaluation Scale (1984)) have helped to support this move towards accreditation and the measurement of quality in early childhood programs. These efforts take on additional meaning given the direction from the federal government to pass as much of the responsibility for monitoring early childhood programs to the states.

Second, the fiscal cutbacks that are now occurring in many states will almost certainly increase the pressure on state agencies to operate as efficiently as possible. Cutbacks in staff across agencies are likely, even as workloads increase. These factors will force states to streamline their regulatory enforcement and monitoring efforts in all areas, including day care and children's services. A promising approach attempted in some states is moving from a licensing to a registration system. In a registration system, the locus of control for the regulatory process is shifted from the state to the provider level—the provider is responsible for assuring that s/he meets all registration requirements.

Third, the role of the state in regulating private sector organizations is changing. There are now active pressures to reduce the general level of state regulation with a view toward encouraging private market forces in the production and allocation of goods and services. Further, there is a commitment in a growing number of states to reduce the extent of the Federal Government's involvement, including federal funding and accompanying regulatory requirements, in several areas, notably human services (The moratorium placed on the Federal Interagency Day Care Requirements is a specific example which was supported by a number of states).

Fourth, many states are actively seeking ways to reduce the burden on the private sector of the compliance monitoring activities that are perfomed by the state. For those regulations that continue in force, many states will be examining approaches that simplify monitoring procedures and make them less onerous for providers. This is particularly true for day care services, which are often provided by individuals or organizations that may have little experience coping with regulations.

IPM as a Response to These Forces

One approach that states have used to cope with these forces is the development of Instrument-Based Program Monitoring Systems—(IPMs).

As the name implies, an IPM system incorporates three distinguishing characteristics: *First,* it is instrument-based. The system uses checklists or questionnaires that contain highly specific questions. These questions usually correspond directly to the state's regulations or other requirements (e.g., fiscal requirements). *Second,* it supports program monitoring. In its broadest sense, program monitoring is the management process of conducting periodic reviews

or inspections to ensure that certain activities, such as the provision of day care service, meet acceptable criteria, and the process of effecting corrective action where required. Program monitoring may include one or some conbination of:

1. Licensing reviews (Table 1 gives a listing of items taken from Pennsylvania's IPM at the licensing and minimal standards level);
2. Contract compliance reviews; and
3. Evaluations of program quality that go beyond minimum requirements to health and safety. A specific example that may be helpful is taken from the *California Child Development Program Quality Review* (1982) Instrument. What follows is a sampling of the Table of Contents:

PROGRAM QUALITY SUB SCALE

A. GOALS AND OBJECTIVES OF CHILD DEVELOPMENT PROGRAM ARE EVALUATED AT LEAST ANNUALLY BY THE STAFF AND PARENTS AND ARE MODIFIED AS NEEDED
B. TEACHING STAFF HIGHLIGHTS EACH CHILD BY SHARING INDIVIDUAL ETHNIC AND CULTURAL BACKGROUNDS—EMPHASIS IS PLACED ON CARE-GIVER OBSERVATIONS.
C. THE GOALS, OBJECTIVES, AND PROCEDURE FOR IDENTIFICATION OF CHILDREN'S NEEDS ARE EVALUATED AT LEAST ANNUALLY BY STAFF AND PARENTS (Fiene, 1984).

Third, IPM is a comprehensive system. It is part of a group of related steps such as on-site reviews, corrective action, follow-up reviews, and summarizing and reporting results that are used recurrently to accomplish the task of compliance monitoring. Program, fiscal, and statistical components can be linked quantitatively to constitute a comprehensive IPM system for day care. A new software decision support system (Watson, Fiene, & Woods, 1984) based on IPM is being developed for micro-computer technology and is being pilot tested in Michigan Department of Social Services, and Texas Department of Human Resources. When the IPM system is used in this linked fashion, it provides the basis for monitoring child day care Vendor & Voucher Delivery systems.

The advantages of an IPM system that are responsive to the changes mentioned earlier include: consistency, coverage of all regulatory areas, clear expectations simplified monitoring procedures,

TABLE 1

Pennsylvania Child Development Program Evaluation

Specific Items Within Identified General Areas

General Requirements	
1. Relevant approvals	4. Child abuse reporting procedures
2. Insurance coverage	5. Provision for special services
3. Parent participation	
Staffing Standards	
1. Qualifications of staff	staff requirements
2. Responsibilities	4. Staff health requirements
3. Adult/child ratio and minimum	
Employee Records	
1. Evidence of qualifications and references for staff	
Building & Site	
1. Appropriate indoor and outdoor square footage per child	materials
2. Characteristics of play areas	5. Cleanliness
3. Sanitary facilities	6. Screening of windows and doors
4. Storage of medicine and	7. Heating apparatus
	8. Educational materials available
Equipment	
1. Condition and placement of equipment	2. Swimming regulations
	3. Napping rules
Program for Children	
1. Evidence of written program plan with developmental activities	special needs children
2. Discipline	4. Sanitary habits developed
3. Identification and referral of	5. Infant/toddler stimulation
	6. School-age requirements
Food & Nutrition	
1. Menu requirements	3. Utensils
2. Infant formula rules	4. Special diet considerations
Transportation	
1. Vehicles all licensed and inspected	4. Restraint of children
2. Insurance coverage	5. First-aid kit materials
3. Adult/child ratio	
Child Health	
1. Requirements of health records	4. Medications
2. Emergency contact information	5. Procedure for ill children
3. Medical emergency procedures	6. First-aid requirements
Staff Health	
1. Procedures for staff illness	2. Physical requirements for infant caregivers
Procedures & Applications	
1. Pre-admission policy	3. Requirements of day care agreement
2. Requirements for child's application	
Child Records	
1. Frequency of updating records	4. Parental rights to records
2. Confidentiality	5. Procedure for release of information
3. Information to be included in child's records	6. Use of records after termination of service

and potential for cost efficiencies. With an IPM system, the same questionnaire or checklist is used with all providers, and there is less opportunity for individual bias in reporting results. Similarly, basing the questions or checklist items explicitly on the regulations or other requirements makes it possible to ensure that all areas are covered adequately. Having a clear set of questions that are known to both monitoring staff and providers reduces the possibility of misunderstandings and misinterpretations concerning the results of the review. Finally, standardized procedures for administering the questionnaire and processing the results can simplify the state's monitoring task and reduce the time, cost, and burden of monitoring both to the provider and to the state.

Four agencies (Pennsylvania's Office of Children Youth and Families, West Virginia's Office of Social Services, California's Office of Child Development, and New York City's Agency for Child Development) that are part of a consortium for improving the monitoring of children's services (Children's Services Monitoring Transfer Consortium) have experienced significant improvements in provider satisfaction with monitoring efforts and have, in some cases, achieved more efficient allocations of resources for day care and day monitoring. Pennsylvania has experienced substantial cost savings by linking the results of their IPM system to the state's fiscal and statistical information systems (See Figure 1). The state was able to set a ceiling on

Pennsylvania Model for
Day Care Management-Information-Technical Assistance System

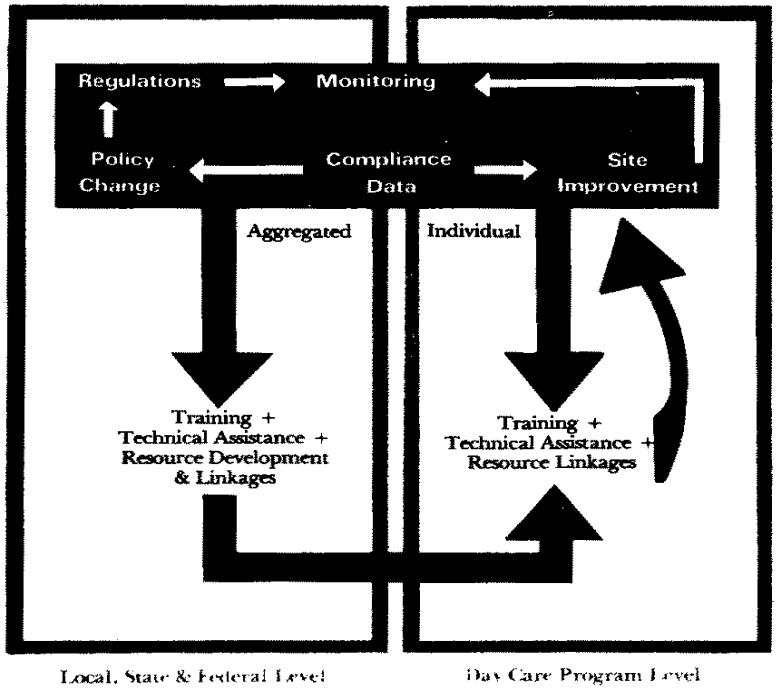

FIGURE 1

day care funding that did not jeopardize program quality, and used the funds that were formerly given to high-cost providers to improve services of other providers on a targeted basis. The state saved approximately $5 million in day care funds while maintaining the quality of day care services, and it did so without major resistance from the provider groups. California has been able with its IPM system to begin automation of its licensing and program quality instruments and linking these data with unit cost and service information on providers. In the development of the program quality instruments, a representative sample of providers from across the state played a critical role in the development and implementation of California's IPM system. These links are providing the basis for a child development, decision support system for the Office of Child Development in California.

Indicator Checklist Improves IPM Systems

Very recently, a number of states (Pennsylvania, West Virginia, Michigan, California, Texas, and New York) have begun experimenting with what has been called an "Indicator Checklist." Simply defined, an indicator checklist is a questionnaire or checklist that contains selected items or indicators from a longer, comprehensive instrument that is used as part of an IPM system. The items on the checklist are those that have been determined to be most effective in discriminating between providers that typically receive high overall scores on the comprehensive instrument or provide a high level of quality care and providers that typically receive low overall scores or provide low level of care (Figure 2).

Because of their value in distinguishing between providers who are in compliance and those that are out of compliance, the items on the in-

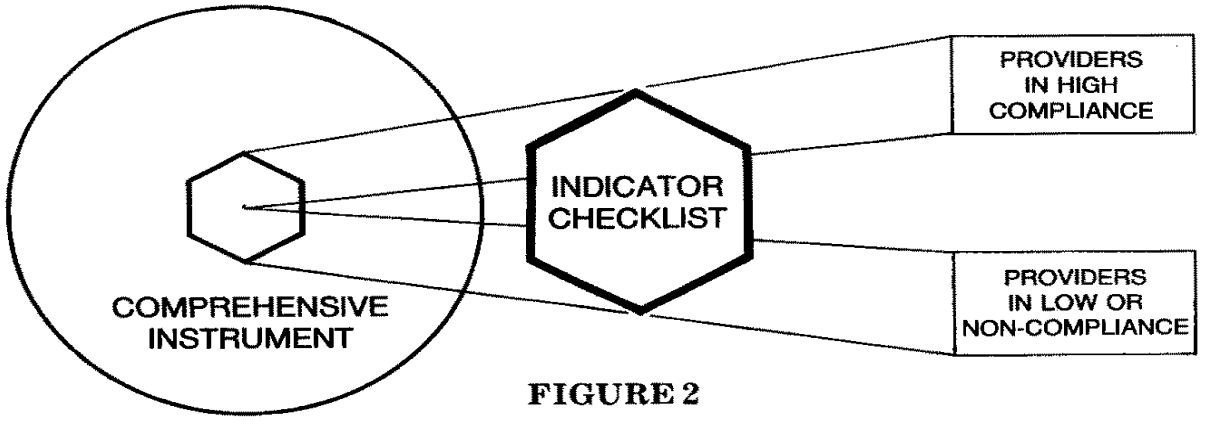

FIGURE 2

dicator checklist have been called "predictor" items. That is, they are a subset of items from the longer instrument that have a strong ability to "predict" the results that would have been obtained had the comprehensive instrument been administered to a given provider. In four of the states mentioned above, the average length of their respective Indicator Checklist's have been approximately 25 items. This compares with the average of approximately 200 items on their respective comprehensive instruments. The relationship between the scores obtained on the state's Indicator Checklists and their comprehensive instruments have been extremely high. When a Pearson's Product Correlation Coefficient was calculated on the Indicator Checklist and the comprehensive instrument for each state the correlation coefficients were always at a r=+.80 or higher (See Figure 2a for a graphic display of West Virginia's data).

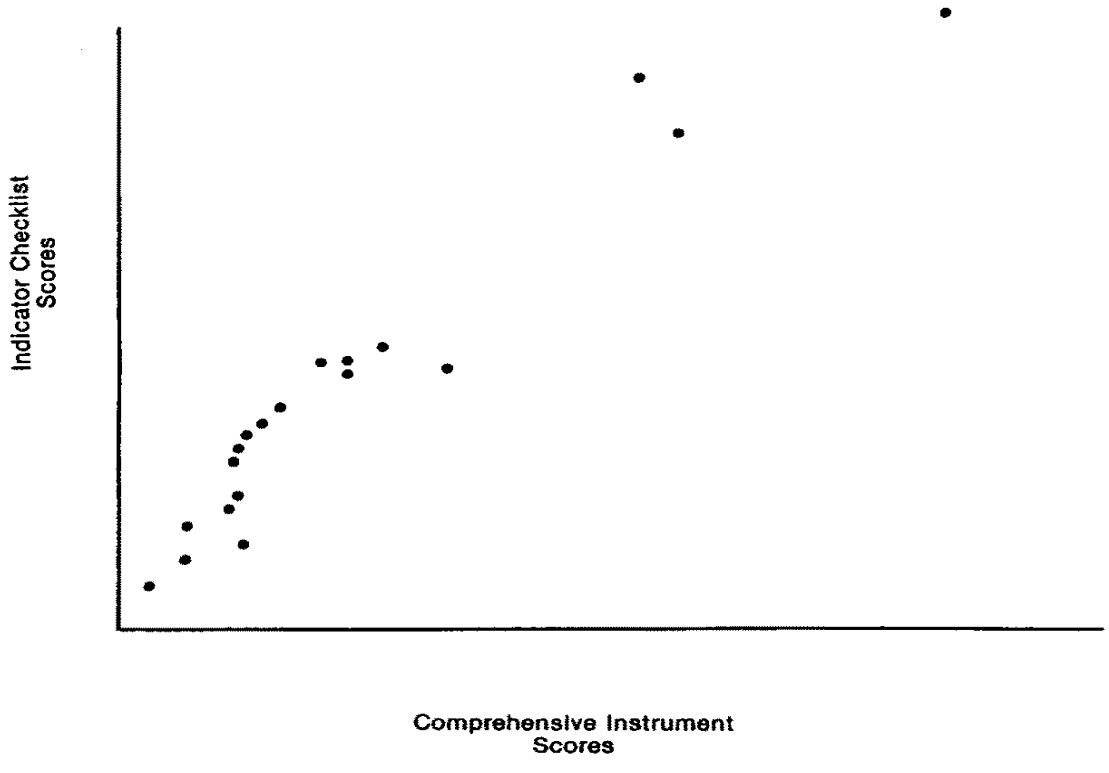

FIGURE 2a

Based on the results of Pennsylvania's, West Virginia's, California's and New York City's Indicator Checklists, certain common items were consistently showing up as predictor items that were separating those good providers from those problem providers. In other words, the following items were always in compliance for the good providers and were always out of compliance for the problem providers:

LICENSING SUBSCALE

A. GROUP SIZE AND ADULT CHILD RATIOS;

INFANTS	1 STAFF TO 5 CHILDREN 10 INFANTS IN A GROUP
TODDLERS	1 STAFF TO 4 CHILDREN 8 TODDLERS IN A GROUP
PRESCHOOLERS	1 STAFF TO 10 CHILDREN 20 PRESCHOOLERS IN A GROUP
SCHOOL AGE	1 STAFF TO 15 CHILDREN 30 SCHOOL AGE CHILDREN IN A GROUP

B. SUFFICIENT SPACE—MINIMUM OF 40 SQ FT PER CHILD;
C. EQUIPMENT IS EASILY ACCESSIBLE TO CHILDREN;
D. ALL VEHICLES ARE EQUIPPED WITH AGE-APPROPRIATE SAFETY CARRIERS;
E. CLEANING MATERIALS ARE INACCESSIBLE TO CHILDREN;
F. EMERGENCY CONTACT INFORMATION IS AVAILABLE FOR ALL CHILDREN;
G. ALL STAFF HAVE HAD PERIODIC HEALTH APPRAISALS;
H. ACTIVITIES PROMOTE:
DEVELOPMENT OF SKILLS
SELF-ESTEEM
POSITIVE SELF-IDENTITY
CHOICE OF ACTIVITIES.

(Fiene, 1984)

To most administrators and policymakers, the advantages of a shorter form will be readily apparent. The short form extends the general advantages of an IPM system in three key ways.

First, it substantially reduces the burden on providers, especially those providers that have a record of high compliance and are judged

suitable for use of the short form—it is proposed that these providers be visited once every three years using the comprehensive instrument. In the intervening years, the indicator checklist should be used.

Second, the indicator checklist approach can further reduce a state's cost of monitoring and permit the more efficient reallocation of staff resources to other activities. A cost effectiveness study conducted in West Virginia utilizing their indicator checklist resulted in a savings of 50% staff time in determining the level of compliance of providers (in dollars, this translated to $800 annually per visit saved (Peat, Marwick, & Mitchell 1983). With such a substantial savings in time, program monitors/evaluators could be freed to act more as consultants in providing technical assistance to providers.

Third, reviews of providers may be consolidated where appropriate. For example, state staff who perform fiscal/contract compliance audits of providers might be trained to administer the indicator checklist during their audit.

The total effect of maintaining a strong compliance monitoring capability that is less of a burden on providers and that achieves greater efficiency with lower cost is a higher quality monitoring system.

What is Needed to Develop an Indicator Checklist?

An indicator checklist is constructed as follows (See Figure 3):

1) Begin with an existing, comprehensive instrument that has a sufficiently large number of items so as to make greater efficiency desirable. The relative importance of each item as reflected in some kind of scoring or weighting system must have been established. Many criteria may be used for weighting the individual items. One criterion that is particularly useful for weighting purposes is the extent to which a particular item is related to health, safety, or developmental risks to children.
2) Your state should have used the comprehensive instrument long enough so that it is considered reliable for monitoring purposes; the instrument should have generated data that can be used to distinguish among providers in substantial compliance and weak or non-compliant providers.
3) With an existing, comprehensive instrument and some historical score information, it is possible to use a simple arithmetical formula (phi coefficient) to select those items from the long questionnaire that are most useful in distinguishing be-

tween good and inadequate programs. These distinguishing or "predictor" items form the basis of the indicator checklist (See Fiene & Nixon, 1983) for a detailed explanation of the formula for developing an indicator checklist).

4) The final step is to include on the short form particular questions or items from the comprehensive instrument that are of critical importance to the health and safety of children. Typically, these are items which, if violated, would be sufficient basis for denying or revoking a license for a day care program. Usually, such items are few in number. They are added to the short form with the predictor items to ensure that children will not be jeopardized by any statistical errors that might occur if only the "predictor" items were used.

From this description of the procedure for developing the shortened instrument, it is clear that the essential prerequisites for such a checklist are: 1. a long, comprehensive instrument in which state administrators have confidence; 2. items on the comprehensive instrument that are weighted to indicate their relative importance; 3. sufficient score data from use of the comprehensive instrument to differentiate among better and worse programs; and 4. state commitment to developing a short form instrument.

Specific Concerns of Administrators and Policymakers

It may be useful to address particular concerns of administrators and policymakers who may be interested in or even actively considering developing a shortened form of their state's monitoring or

Constructing The Indicator Checklist

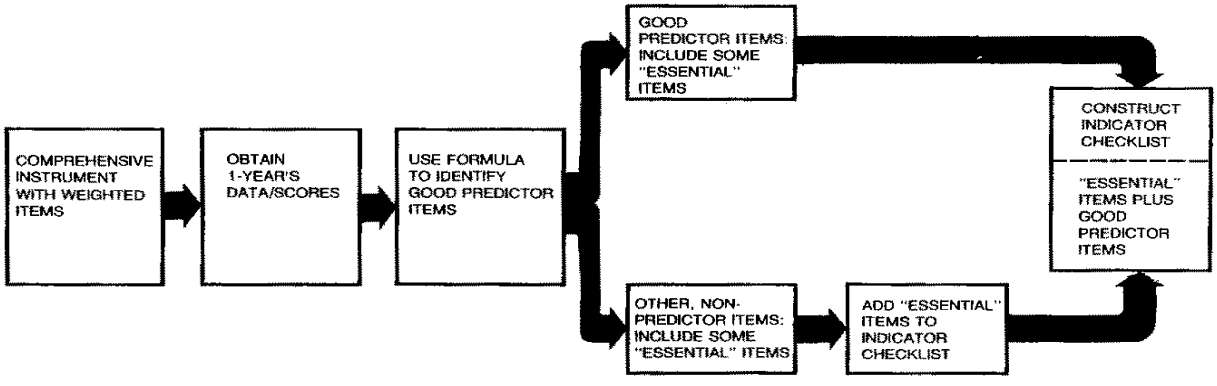

FIGURE 3

licensing questionnaire or checklist. In particular, administrators will need to know: how their state can make use of an indicator checklist; whether indicator checklists have been tried by other states; how the quality of monitoring can be ensured; and whether there are potential drawbacks.

Can My State Make Use Of An Indicator Checklist?

Practically every state that presently has some form of questionnaire or checklist can potentially profit from using a shortened form of the instrument. Naturally, if your state's instrument is already sufficiently short, then little will be gained by being more selective about questions or items to include. Many states are confronted, however, with lengthy instruments that cover a wide range of requirement areas. These states are prime candidates for short-form instruments.

Similarly, perhaps obviously, if your state does not currently have an instrument-based system, then consideration of an indicator checklist/short form is premature.

In order to develop a successful indicator checklist, it is important that the items on your state's current instrument be clearly linked to:

1. Your state's requirements (regulations); and
2. The results or outcomes that are considered desireable with respect to the providers' performance in such areas as licensing, contract monitoring, and program quality.

Unless there is a clear correspondence between intrument items and requirements, there is a danger that the items selected for inclusion on the short form will be only loosely tied to regulations and may be perceived by providers as improper or illegal. Similarly, if there is only a weak link between items on your state's comprehensive instrument and the results that you expect from providers, then the ground for selecting particular items as good predictors will not be solid enough.

Have Indicator Checklists Been Tried By Other States?

The concept of an indicator checklist may be appealing, but administrators are usually hesitant to take risks that could jeopardize systems that have been developed through years of work. It is often satisfying to know that other states have already tested the concept in practice.

At present, the indicator checklist concept is still an innovation that holds great promise but has been fully implemented in only four

states; Pennsylvania, West Virginia, New York, and California have developed an indicator checklist/short form and are testing the concept. Because the initial analyses conducted by these states suggest that the short form can work, other states such as Michigan and Texas have declared their intention to develop a shortened instrument by using these states' experiences as a guide. Clearly though, the indicator checklist/short-form methodology is still in the experimental stage.

How Can The Quality Of Monitoring Be Ensured?

Top administrators may wonder whether the shortened instrument presented here will compromise the quality of their state's current monitoring effort. Our view is that the short form will enhance current monitoring efforts by increasing the efficient and effective utilization of monitoring staff. But there are precautions that states should take in developing and using indicator checklists.

The indicator checklist/short instrument should not be used as a substitute for the comprehensive instrument, but rather as its complement. If the short form is viewed as the monitoring instrument, then there may be a tendency over time for providers to meet only the requirements covered on the short form. This situation could, indeed, compromise the quality of monitoring.

On the contrary, we would anticipate that states might keep their comprehensive instruments as the definitive set of compliance expectations and administer them for the initial review (e.g., licensing review) of a provider, and could use the indicator checklist/short form as:

1. A screening device to determine whether, for a given provider, it is necessary to administer the longer version; and
2. An interim review instrument to be used as the principal tool for providers who have a good record of compliance.

For example, the comprehensive instrument might continue to be used for "problem" providers and on a periodic basis, say, every three years for good providers. Naturally, if the short form were used with a provider and problems were discovered, then the comprehensive instrument, or some portions of it, could be administered.

Over time, as conditions change, it will be necessary to update and revise both the comprehensive and short instrument. Using the comprehensive instrument at least periodically with all providers will provide a basis for modifying the short form to reflect changing compliance patterns.

We expect that both versions of the instrument would be used by state staff who are trained and competent to assess compliance. These staff would certainly not limit themselves to using the short form if they determined, on site, that conditions warranted using the comprehensive instrument. The purpose of the indicator checklist/short form is to increase the options available to the state for monitoring in a flexible and cost-effective manner, not to put unreasonable constraints or "blinders" on monitoring staff.

What Are The Potential Drawbacks?

As with all innovations, the introduction of an indicator checklist as the basis for routine monitoring in a state may create some problems. Because so few states have introduced indicator checklists on a widespread basis, it is difficult to identify all of the concerns that may arise in practice. However, a few potential problems can be anticipated. (See Table 2).

First, some states' regulations require that all providers be reviewed every year in all regulatory areas. That is, the state insists that a comprehensive review, for example, using the comprehensive form of a state's monitoring instrument, take place for each provider. If this is the situation in your state, then the use of a shortened instrument may depend on changing the current regulatory provisions concerning the frequency and scope of reviews. A strong basis for making such a change is the cost effectiveness of the indicator checklist/short form, that is, its potential for reducing monitoring costs substantially without reducing the quality of the monitoring effort.

TABLE 2

Potential Drawbacks	Possible Solutions
• Regulatory Requirement for Annual Comprehensive Review	• Change Regulatory Requirements
• Staff Resistance	• Educate Staff
• State's Lack of Prerequisites	• Seek Assistance in Obtaining Prerequisites

Second, the state's staff who are responsible for monitoring may resist the introduction of the indicator checklist/short form. From their viewpoint, it may appear that the use of indicator checklists is a reduction in the importance of their professional roles and that the

state's cost savings may take the form of fewer jobs for day care monitors.

In our view, states may need to assure their staff that the indicator checklist/short form is not intended to reduce either the professional judgments involved or the scope of the monitoring function. As mentioned earlier, the comprehensive and short instruments must be used in a complementary way, not as substitutes, in order for the short form to have validity. If anything, the judgment of the monitors may be expanded as it becomes necessary to decide whether, in a particular case, the short instrument will be sufficient to measure compliance with state requirements, and/or program quality criteria. Monitors must be persuaded that the short form is an aid that is designed to reduce the monitors' workload for those providers with whom the short form is appropriate.

The reduction in workload may gradually change the relationship of monitors to providers from one of regulation to one of active support in improving the health and safety of the day care environment and encouraging child development. This change in the monitors' role could enable the state to make even better use of the current monitoring staff's knowledge and experience.

With respect to costs and staff reduction, there is little question that substantial decreases in workload could also result in reduced staffing levels. However, before considering cutbacks in staff, we would encourage states to consider reallocating staff time that is saved because of the short form to other monitoring activities such as technical assistance to providers involving program quality issues.

Third, a state may discover that it does not have the necessary prerequisites, described earlier, to develop and implement an indicator checklist. If your state lacks these prerequisites—in particular a comprehensive instrument, reports of scores, and a system of weighting items on the instrument—then it may be advantageous for you to examine other reports prepared by the Children's Services Monitoring Transfer Consortium that describe how these prerequisites can be met. You may be interested in obtaining the Consortium's series of Guide Books. The three volumes of this series describe in detail how to develop a comprehensive instrument from which an indicator checklist/short form can be derived.

Conclusion

The art of monitoring has evolved considerably in recent years as more highly trained staff have been given responsibility for monitoring, and as clearer procedures, such as instrument-based program monitoring, have been implemented. This evolution has con-

tributed positively to achieving the desirable outcomes of improved day care for children for which the state has developed regulations. At the same time, the evolution has, we hope, made it possible for providers to operate more effectively with the minimum necessary oversight by the state.

Instrument Based Program Monitoring Systems are now being developed in other children's services such as MH/MR services. Pennsylvania has developed its child welfare information system based on the instrument based program monitoring concept. This system meets two needs for Pennsylvania: it tracks children through its foster care system; and it complies with PL 96-272—the Adoption Assistance and Foster Care Act—a federal law. West Virginia is attempting to use the IPM methodology in monitoring its family day care home programs.

Also, a micro-computer, decision support system based on the Instrument Based Program Monitoring and Indicator Checklist methodology is being developed by the Children's Services Monitoring Transfer Consortium (CSMTC). The CSMTC is a group of states (Pennsylvania, West Virginia, California, New York, Michigan, and Texas) who have been disseminating exemplary monitoring techniques from state to state. Based on the combined efforts of these states, a generic indicator checklist that measures compliance with state regulations as well as program quality has been developed (Fiene, 1984). The CSMTC feels that this generic indicator checklist can be used by states who have not developed an instrument to assess providers, or as a model instrument to assist states in developing their own instruments.

The real potential of monitoring in achieving social goals, (such as protecting the health and safety of young children, ensuring quality child development programs, and tying these to child development outcomes), will be better realized through continuing research and development of improved monitoring procedures. It is in this context that the development of the indicator checklist represents a major advance in monitoring children's services.

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The nagging issues of quality, accessibility, and affordability

Searching for a Solution to the Child Care Trilemma

by Richard Fiene

Every day we read about child care crises: Parents cannot find adequate care. There is not nearly enough quality child care. Qualified teachers are leaving for public school jobs where they can increase their salaries by 20-30%. Staff turnover is at 30-40%. Research tells us the majority of care in the United States is mediocre at best. All these issues point to the trilemma of quality, accessibility, and affordability that has been nagging at American child care for at least the past decade or two.

A solution to the trilemma equation in child care of quality, accessibility, and affordability has been difficult to address. In their campaign for adequate compensation for early childhood staff, the National Association for the Education of Young Children has documented the loss of the most highly qualified early childhood professionals to public school early childhood programs and to other professions. Because of low wages, early childhood staff cannot live on their teaching salary alone without supplementing it with other forms of employment. This is an impassioned issue because so much is at stake — staff-child ratios, ability of parents to afford child care, and availability of sufficient care. Staff-child ratios, for certain, has been one of the sacrosanct surrogates of quality viz a viz the regulatory system and is the key to the solution of the trilemma. The research over the past 20 years clearly demonstrates the relationship between the number of children and the number of adults in a child care setting.

In the past as one alters the quality portion of the child care trilemma equation, this impacts both the accessibility and affordability portions of the equation. If the accessibility or affordability portions are altered in any way, the quality portion of the equation is changed. There is a winner on one side of the equation but there are also always losers on the other side of the equation. There has not been a viable solution in which compensation can be increased to staff with no equivalent cost increase to parents, while at the same time increasing the number of children served. This article proposes a potential solution to this nagging problem.

A new concept (trilemma solution — tying compensation to staff quality without increasing cost to parents) is being proposed. This concept needs to be well researched, it is not one that state licensing administrators should think of in terms of making changes in policy at this point. There

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are too many issues related to waiving regulations, burnout of staff, and impact on children and teachers — short term and long term — that need to be ascertained before the policy implications are discussed. As a footnote to this proposal, this concept being proposed is for preschool care and not for infant or toddler care.

Trilemma Solution: A New Concept

The potential solution to the trilemma is to begin with the quality sector. Quality of the program is tied to staff quality and the number of staff to children (the staff line item is the most costly portion of a child day care budget as well). Higher education, direct training in early childhood or child development, and more years of experience generally correlate with a higher quality level of care. The more highly qualified staff a program has, the higher the quality of the overall program.

Most regulations address the adult-to-child ratio from an absolute (linear) standpoint. There is a specific ratio based upon the ages of children served. The adult-to-child ratio does not take into account any qualifications related to staff. In fact, most states cancel out the difference in education by equating it to experience so that the following scenario plays out:

Staff Qualifications			Children-to-Adult Ratio
Education		Experience	
AA	+	4 years	10-1
BA	+	2 years	10-1
MA		none	10-1

However, another spin on the above is the following example, a staff person with a master's degree in early childhood, with 30 hours per year of in-service workshops and 10 years of experience cares for the same number of children as an entry level bachelor degree staff person, with 6 hours per year of in-service workshops and no experience:

Staff 1 = MA + 30 hours in-service + 10 years experience = 10-1 ratio

Staff 2 = BA + 6 hours in-service + no experience = 10-1 ratio

If a state were to address the adult-to-child ratio from a relative (non-linear) standpoint, taking into account the qualifications of staff, a very different scenario could occur. For example, the following could occur (for ease of presentation, only educational qualifications and years of experience are addressed here):

	Year of Experience									
Staff Qualifications	1	2	3	4	5	6	7	8	9	10
AA	10-1				10-1->11-1					11-1
BA	11-1				11-1->12-1					12-1
MA	12-1				12-1->13-1					13-1

In the research literature, more advanced degrees by themselves do not necessarily correlate with a higher level of care. Direct in-service training in ECE/CD needs to be entered into the equation. (See Figure 1.)

The implications for such a model have tremendous cost and availability enhancements. On the availability side, as ratios go higher, more children can be served. As these ratios increase, more revenue can be brought into a program which can then be used to pay for the higher qualified staff person. By using this approach, however, no additional cost of service is passed on to the parents or the program. The unit cost stays the same, only more children per qualified staff person are served.

At a practical level, taking Figure 1 into consideration, how would this really work? Let's take a classroom of 4 year olds — 10 children with a 10-1 ratio. The teacher has a master's degree with 10 years of experience and has been taking continuing education credit. The teacher has an annual salary of $20,000 per year. The unit cost for preschool care is $3,500 per year. To implement the concept, the teacher with the master's degree would be the individual we want to potentially impact in the following manner:

The ratio in the classroom would move from 10-1 to 11-1 with an additional 4 year old being allowed to enroll. It is assumed that there is sufficient space (35-40 square feet per child) for the additional child. It is also assumed that $500 of the $3,500 is for the additional cost related to having the child in the classroom. The remaining $3,000 would go to the teacher as a permanent salary increment (the center would have to agree to this) — the teacher's salary would go from $20,000 to $23,000 per year. This would be a 15% increase in salary.

By using the relative adult-child ratio as stated above, taking quality of staff into account when determining ratios, this model could provide a potential solution to the child day care trilemma of quality, accessibility, and affordability. Quality increases by having more qualified staff in those classrooms with lower ratios.

It could be argued that by having lower ratios, quality will be lowered as well. This has been demonstrated in the research literature. However, with the model presented here, this would only occur when the most highly qualified staff were in these classrooms. Higher ratios would have to be maintained in those classrooms with

Figure 1
Qualifications and Training Tied to Compensation

Staff Qualifications	Years of Experience or Number of Training Courses: 1	2	3	4	5	6	7	8	9	10
	Resultant Ratios									
AA	10-1			10-1->11-1 + $3,000 salary increase						11-1
BA	11-1 + $3,000			11-1->12-1 + $3,000						12-1 + $3,000
MA	12-1 + $3,000			12-1>13-1 + $3,000						13-1 + $3,000

No additional cost would be charged to parents. Compensation for staff increases are totally from the additional children served per classroom.

staff who have lower qualifications. More children in the end could be served. Program income would increase. The additional dollars would go to pay the higher qualified teacher. This would also help to promote a professional development system. The more highly trained, experienced, and educated teachers would be paid a higher salary based upon the additional children. Parents, however, would not have to pay more because the additional income is from more children rather than a higher unit cost.

Conclusion

As dollars become tighter, more creative regulatory policy based upon research will need to be employed. This model takes into account the latest early childhood research and suggests a revision in how states' regulatory policies related to staff-to- child ratios are determined. Research clearly shows the linkage between the quality of programs being directly influenced by staff quality and number of staff to children. This model takes this into account and addresses several issues related to affordability and accessibility at the same time. (See Figure 2.)

This concept is one that needs to be fully researched. Hopefully, researchers, center based administrators, and state policy administrators can partnership together. This concept has as many questions as it does promise and potentially as many drawbacks if not well researched. As stated earlier, and I want to emphasize this, this is not a suggestion for state licensing administrators to begin to waive staff-child ratio regulations and make this state policy. It is suggested, however, that on a limited basis within a research context this concept be tested to examine the benefits and the drawbacks. Will this impact staff turnover? Will the additional dollars be sufficient to keep our most qualified early childhood teachers in child care?

As a final footnote or afterthought to what has been proposed in this article, I want to be very clear that this proposal is an intermediate solution but not a long-term solution to solving the trilemma in child care. This is a very controversial proposal. I have had professionals argue passionately on both sides. However, given the present state of economics, I see this as a solution to hopefully keep our most qualified staff in child care until additional dollars can be found. Increased compensation not tied to staff-child ratios is the solution, but I do not see that happening realistically in the near future.

Figure 2
Child Day Care Trilemma's Potential Solution

- ✔ Links training to compensation
- ✔ Develops a professional development system
- ✔ No additional cost to parents
- ✔ Links training to quality
- ✔ Ties quality to regulations through increased responsibility
- ✔ Links quality to accessibility and affordability

Improving Child Care Quality Through an Infant Caregiver Mentoring Project

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ABSTRACT: An evaluation of a mentoring training program for infant caregivers is described. Fifty-two infant caregivers from 27 childcare center-based programs were involved in a four month long intervention in which they were paired with an experienced early childhood educator. The focus of the mentoring program was to improve the overall quality of the classroom environment, as well as making the caregivers more sensitive to the needs of the infants. The results clearly indicated that the mentoring program was very effective in improving the overall quality of the classroom, as well as making caregivers more sensitive to infants' needs.

KEY WORDS: infant caregivers; childcare; mentoring; training.

Introduction

This paper describes a child care mentoring project designed to improve the quality of infant and toddler child care programs in south central Pennsylvania. The goal of the mentoring project was to improve the quality of the child care environment and specifically the quality of caregiver-child interactions. As most caregivers in Pennsylvania only receive workshop training, the goal of this project was to compare the mentoring approach to the more typical workshop training. Mentoring is being explored because of its targeted intensive one-on-one nature in delivering training to caregivers based upon needs assessments. The project was conducted during the later half of 2000 and the beginning of 2001. The results presented in this paper are part of the pre- and post-test data collection phase (summer 2000 and winter 2000–2001) of this mentoring project. The actual mentoring intervention occurred from September through December 2000.

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Mentoring in childcare has been documented in the literature for the past 10–15 years (Breunig & Bellm, 1996; Fenichel, 1992). It has been demonstrated to be an effective mode of training/technical assistance (Breunig & Bellm, 1996). However, in the majority of studies conducted there are few, if any, demonstrations that utilize a randomized trial design (Breunig & Bellm, 1996). Many studies track the progress of the intervention group, some studies have comparison groups, but few, if any, have employed a randomized design. This research paper will describe the pre- and post-test data collected as part of a study that has employed a randomized design.

The majority of research (Clarke-Stewart, 1987; Goelman & Pence, 1987; Howes, 1987; Phillips, 1987; Kontos & Fiene, 1987; Galinsky, Howes, Kontos, & Shinn, 1994; Scarr, Eisenberg, & Deater-Deckard, 1994; Iutcovich, Fiene, Johnson, Koppel, & Langan, 1997; Helburn, 1995; Fiene, 1995, 1996; Jorde-Bloom, 1988; Love, Schochet & Meckstroth, 1986) completed on early childhood quality has focused on preschool programs, with infant toddler programs rarely as the central focus of the research. The research completed in infant toddler programs has clearly documented the mediocre level of care provided to children in these programs (Iutcovich, Fiene, Johnson, Koppel, & Langan, 1997). In the present study, we focus on the first three years of life. All the centers and the classrooms reported upon in this study serve children from birth to less than three years of age.

This report is organized as follows: a methodology section briefly describes the sample selected with basic demographic information on directors, caregivers and the programs. This is followed by a results section that provides pre- and post-test average scores for each of the assessment tools utilized in this study to measure quality, caregiver behaviors, knowledge, and organizational climate of programs. This section is followed with a discussion section and implications regarding this mentoring project.

Methods

Study Design

This study involved 52 caregivers from 27 sites in south central Pennsylvania. All programs were child care centers licensed by the Department of Public Welfare. Seven of the sites were accredited by the National Association for the Education of Young Children.

This study employed a randomized design in which a self-selected group of programs and caregivers were randomly assigned to two groups, either the mentoring group or the comparison non-mentoring

comparison/control group. Intervention model mentoring group received intensive mentoring from a seasoned early childhood professional (minimum of 5–7 years of experience in the early childhood field as both a director and teacher) from September to December 2000. The mentoring model consisted of a problem solving approach in which the mentor spent a good deal of time observing in the beginning weeks in order to develop a trusting relationship with the protégé. Once both the mentor and protégé felt comfortable then suggestions could be entertained by the mentor.

The comparison group did not receive the mentoring intervention and only had the regular workshop type variety training available to them. However, the comparison group did receive mentoring during the Spring 2001 from March to June 2001. What is of interest in this study is to determine how much the two groups have improved from the pre-test data collection because they were essentially equivalent at that point on all measures.

Programs were recruited by the Capital Area Early Childhood Training Institute, a broad based community focused training institute. Program directors were invited to attend a meeting describing the mentoring project. Of those attending, 95% agreed to participate in the project. Fifty two caregivers started the project, 14 caregivers dropped out of the project between pre- and post-test. There was an equal drop out rate from both the mentoring and the control groups.

Data from the four quality measures used for all the programs are presented in Table 1. The four measures of quality were the Infant Toddler Environment Rating Scale (ITERS), the Arnett Caregiver Observation Scale, the Knowledge of Infant Development (KIDI), and the Bloom Scales of Organization Climate.

The program directors' average age is 31 with a range from 24–53

Table 1
ITERS, Arnett, KIDI, Bloom Scale Scores

All Programs (n = 38)	Pre-Test	Post-Test	Change	Significance
ITERS	134	140	+6	ns
Arnett	30	40	+10	ns
KIDI	14	14	-0-	ns
Bloom	78	79	+1	ns

years of age. They are predominantly Caucasian (81%). Eight percent have associate degrees, 78% have bachelor's degrees, and 14% have master's degrees. They had been employed as directors in their program for an average of 31 months with a range from 1 month to 120 months. Their average pay is between $20000–25000 per year. Sixty percent have health insurance and 45% have some form of dental or life insurance. Forty-five percent are in a retirement system.

The average age of caregivers in the programs was 36 with a range from 18–68. They are predominantly Caucasian (77%). Fifty-seven percent have high school diplomas, 16% have some college credits, 5% have CDA's, 16% have associate degrees, 5% have bachelor's degrees, and 2% have master's degrees. They have been employed as caregivers in their program for an average of 34 months with a range from 1 month to 153 months. They have worked in the early childhood field as caregivers for an average of 71 months with a range from 1 month to 312 months. Their average pay is between $10000–15000 per year. Fifty percent have health insurance and 33% have some form of dental or life insurance. Thirty-three percent are in a retirement system.

The average size of the centers is 98 children with 17 staff employed either full time or part time at the program. The average weekly fee for infant care is $137.00 per week and for toddler care is $124.00 per week. The majority of staff are employed at the centers for either less than 1 year or greater than 5 years.

Results

Both the mentoring and comparison groups were tested for equivalence at the beginning of the project in the pre-test data collection phase. There were no statistically significant differences on any of these measures at the pre-test. When the programs and caregivers were measured at the post-test, positive changes occurred although none were found to be statistically significant. In the aggregate, the programs that continued with the mentoring project showed improvements in the overall quality of care.

Tables 2 through 5 present the pre- and post-test data for the intervention and control groups.

These results indicate that the mentoring group showed increases on the program quality scales (ITERS and Arnett). This increase is especially noticeable on the ITERS. Further, there was a decrease in program quality with the control group, going from a score of 137 to 132. On the Arnett scale the mentoring group increased greater than the control group (11 point increase versus a 7 point increase).

Although the above results did not reach statistical significance,

Table 2
ITERS

	Pre-Test	Post-Test	Change	Significance
Mentoring Group	134	141	+7	ns
Control Group	137	132	–5	ns

Table 3
Arnett

	Pre-Test	Post-Test	Change	Significance
Mentoring Group	29	40	+11	ns
Control Group	33	40	+7	ns

Table 4
KIDI

	Pre-Test	Post-Test	Change	Significance
Mentoring Group	14	14	-0-	ns
Control Group	14	15	+1	ns

Table 5
Bloom

	Pre-Test	Post-Test	Change	Significance
Mentoring				
Group	73	74	+1	ns
Control Group	87	91	+4	ns

when specific subscales are analyzed several show significant differences (see tables 6 and 7). Several of the subscales on the ITERS and Arnett reached statistical significance with positive changes in routines (greeting/departing, meals/snacks, nap time, diapering/toileting, health/safety practice/policy) learning activities (eye-hand coordination, active physical play, blocks, pretend play, cultural awareness), sensitivity, and appropriate discipline for the mentoring group. The only statistically significant finding with the control group was in a negative change in interactions in which the scores decreased from pre-test to post-test. Paired t-tests were used in all of these analyses for Tables 6 and 7.

Table 6
Mentoring Group

	Pre-Test	Post-Test	Significance
ITERS subscales			
Routines	36	41	.005
Listening activities	8	9	ns
Learning activities	28	31	.05
Interactions	13	13	ns
Adult needs	17	19	ns
Arnett subscales			
Sensitivity	26	31	.001
Appropriate discipline	7	9	.05

Table 7
Control Group

	Pre-Test	Post-Test	Significance
ITERS subscales			
Routines	41	42	ns
Listening activities	9	8	ns
Learning activities	29	31	ns
Interactions	15	13	.02
Adult needs	17	17	ns
Arnett subscales			
Sensitivity	28	31	ns
Appropriate discipline	6	7	ns

Discussion

These data demonstrate that the sites that were mentored improved on the ITERS and the Arnett. This is an encouraging result in that the intervention was only 4 months long. It is an important finding because the majority of mentoring projects in the past have utilized anecdotal evidence to demonstrate their effectiveness. Very few programs have conducted randomized trials of their interventions.

It is clear from the data that training/technical assistance interventions are needed in infant toddler programs because of the low scores on various program quality measures. It is also discouraging in that the control programs did not improve in which the ITERS went from 137 (pre-test) to 132 (post-test). This is a finding that will be monitored over time to see if this trend continues. Hopefully this was just an aberration in the data; however there does seem to be support when these data are compared to other studies (Iutcovich, Fiene, Johnson, Koppel, & Langan, 1997).

The public policy implications are that an intensive mentoring intervention of only four months can produce positive, although not statistically significant, changes in the overall quality of child care programs both globally and with caregiver interactions. Previous research (Johnson, 1994) has indicated that increasing the number of hours of training produces more developmentally appropriate behaviors in child care staff. Mentoring fits this model because it is an intensive one on one intervention in which the mentor and protégé are engaged in problem

solving activities to improve the overall quality of the interactions and environment of the child care program.

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Saskatchewan Differential Monitoring, Key Indicator and Risk Assessment Pilot Study

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National Association for Regulatory Administration (NARA)

June 2021

This report will provide the results of a pilot study to determine the validity and efficacy of Saskatchewan's Differential Monitoring, Key Indicator, and Risk Assessment Regulatory Compliance/Licensing System. This is the most comprehensive validation study to date which incorporates key indicators and risk assessment in tandem within a differential monitoring approach. Other validation studies have validated key indicators or risk assessment but in separate studies. Also, this validation study incorporates eligibility criteria as well as random rules in order to fully implement Saskatchewan's Differential Monitoring system.

The Province of Saskatchewan's Ministry of Education followed the full development of a differential monitoring approach by instituting a comprehensive review of their rules and standards for child care centres and homes. They then developed and instituted a key indicator tool, followed by a risk assessment set of rules. Once these were developed a series of eligibility criteria were designed to determine which programs were eligible for abbreviated reviews. Focus groups and training occurred to fully explain and obtain feedback related to the new differential monitoring approach. Based upon these criteria, a Policies and Procedures Manual was developed. Both the key indicator and risk assessment methodologies were individually validated. While the pilot study was being planned, the Province developed a Quality Indicator Tool, the Saskatchewan Early Care and Education Program Quality Indicators Tool which can be used in a tandem fashion with the licensing key indicator tool and the risk assessment rules. Now that the pilot study is completed, full implementation of the differential monitoring system should occur. All of the above referenced studies, manuals, etc. are contained within this report after this introduction, methodology, results, and conclusion sections.

Methodology

The pilot study (data were collected basically during the Winter 2020-21 (late 2020 - early 2021)) employed 100 child care centres and 70 child care homes in the study. Independent licensing staff observations were made at sites utilizing the comprehensive checklist/tool in which all rules were evaluated or the key indicator and risk assessment rules were evaluated. The results which follow were compared from the comprehensive review and the abbreviated review. These inspection reviews went through a series of pre-defined eligibility criteria to make certain that the specific program was eligible for an abbreviated inspection. Once that was determined, random rules were added to the key indicator and risk assessment rules.

The eligibility criteria were applied so that the full differential monitoring protocol could be utilized for the pilot study. These criteria were evaluated with the results from the abbreviated and comprehensive inspection reviews.

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Results

The results are broken out into Centres and then Homes.

Centres:

There were 100 centres that were evaluated. Out of the 100 centres, 13 were determined to be eligible for an abbreviated review. After the random rule review process, this number was reduced to 8. Usually abbreviated reviews can be done after eligibility criteria are applied to approximately 10 - 20% of the overall programs. Saskatchewan's results were definitely in line with this national/international average. Always keep in mind that abbreviated reviews are only for those programs that provide a high standard of care. They are not intended for all programs or for programs that are struggling.

The average non-compliance or violations for the comprehensive review was 4.93 with a range of 0 - 29 while the average non-compliance or violations for the abbreviated review was 2.82 with a range of 0 - 12. A correlation coefficient was run between the results of the comprehensive reviews and the abbreviated reviews and an $r = .91$; $p < .0001$ was determined. This result clearly demonstrates that abbreviated reviews are very effective when compared to comprehensive reviews. This very high correlation is similar to previous studies conducted in Saskatchewan, Ontario, and the states of Washington & Georgia, and the national Head Start program in the USA.

For those programs that were determined to be eligible for an abbreviated review the average non-compliance was zero (0) for both the abbreviated rules as well as the comprehensive set of rules as versus the average non-compliance for those programs that were determined to not be eligible for an abbreviated review. For non-eligible programs, the respective non-compliances for abbreviated rules an the comprehensive set of rules were 3.07 and 5.36 each being statistically significant with an ANOVA: $F = 7.47$; $p < .007$ and $F = 6.07$; $p < .02$ when compared to the eligible programs.

Homes:

There were 70 homes that were evaluated. Out of the 70 homes, 17 were determined to be eligible for an abbreviated review. After the random review process, this number was reduced to 13. Saskatchewan's results continued to be in line with national/international averages.

The average non-compliance or violations for the comprehensive review was 4.16 with a range of 0 - 27 while the average non-compliance or violations for the abbreviated review was 2.09 with a range of 0 - 11. A correlation coefficient was run between the results of the comprehensive reviews and the abbreviated reviews and an $r = .95$; $p < .0001$ was determined. This result clearly demonstrates that abbreviated reviews are very effective when compared to comprehensive reviews for homes as well as for centres.

For those programs that were determined to be eligible for an abbreviated review the average non-compliance was 0.31 for the abbreviated rules and 0.54 for the comprehensive set of rules as versus the average non-compliance for those programs that were determined to not be eligible for an abbreviated review. For non-eligible programs, the respective non-compliances for abbreviated rules and the comprehensive set of rules were 2.49 and 4.98 each being statistically significant with an ANOVA: $F = 7.89$; $p < .006$ and $F = 7.71$; $p < .007$ when compared to the eligible programs.

Conclusions

It is clear from the pilot study results that for both centres and homes, the Saskatchewan Differential

Monitoring System works very well by the relationship between the abbreviated and comprehensive review inspections. There were statistically significant results when comparing both independently collected data and there were statistically significant differences between the eligible and non-eligible programs. This study clearly demonstrates the efficacy of utilizing abbreviated inspection reviews within a differential monitoring approach (key indicator + risk assessment rules) in that it is as reliable as having completed a comprehensive inspection review.

The next step for the Province of Saskatchewan's Ministry of Education is to see about incorporating the Quality Indicators into the Differential Monitoring approach. By doing this, Saskatchewan would have a fully functional compliance + quality monitoring system providing a balance between regulatory compliance and performance which has always been the goal of differential monitoring.

Please see the following documents and reports which provide additional details for the differential monitoring approach:

- 1) Policies and Procedures Manual;
- 2) Key Indicator Report;
- 3) Risk Assessment Report;
- 4) Validation of Key Indicators and Risk Assessment Rules;
- 5 & 6) Abbreviated Checklists for Centres and Homes; and
- 7) Early Care and Education Quality Indicators.

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Saskatchewan Ministry of Education
Early Learning and Child Care Program

Policy and Procedures for Key Indicator System Use

Version 8.0
December 17, 2019

I. Purpose

The purpose of this document is to establish policy and procedures for the application and administration of the Saskatchewan Ministry of Education, Early Learning and Child Care's Key Indicator System (KIS).

II. Legal Authority

Chapter C-7.31-20(1),(2)

The minister, or a person appointed by the minister for the purpose, may enter any place or premises and conduct an inspection or inquiry for the purpose of:
(a) ensuring the safety and well-being of children receiving childcare services;
or
(b) administering this Act and the regulations.

Every licensee shall, at all reasonable times during the hours of operation of the facility:
(a) cause the facility to be open for inspection by the minister or person appointed by the minister; and
(b) cause all records relating to the operation of the facility to be available for inspection by the minister or person appointed by the minister.

III. Definitions

For purposes of this document[1], the following words and terms have the following meanings, unless the context clearly indicates otherwise:

Applicant – A corporation, co-operative, municipality, partnership or individual who seeks to obtain a license to operate a child care facility.

Inspection - The process of measuring compliance with requirements for licensure by an applicant or facility.

a. *Initial Inspection* – An inspection conducted for purposes of determining whether to license an applicant.

b. *Full Inspection* – An inspection where compliance with all applicable rules are measured.

c. *Partial Inspection* – An inspection where compliance with a subset of rules are measured.

[1] The definitions used here are for purposes of these policies and procedures only and do not supersede, replace, or modify any statutory or rule definition.

d. *Indicator Inspection* – A type of Partial Inspection where compliance with Key Indicators, Weighted-Risk rules and Random Rules are measured that is conducted in lieu of a Full Inspection.

Key Indicators (KI) – A subset of rules that predict compliance with all of the rules.

Key Indicator System (*KIS*) – A type of targeted measurement where compliance with Key Indicators is measured for purposes of determining total compliance without the need for a Full Inspection[2].

ELCCP – Early Learning and Child Care Program in the Saskatchewan Ministry of Education.

Licensee or facility - The corporation, co-operative, municipality, partnership or individual responsible for compliance with statutes and rules required for licensure.

Consultant – An agent of the ELCCP authorized to complete inspections.

Regulated Setting – The building and grounds operated by a licensee subject to compliance with applicable rules.

Rules – The requirements for licensure with which Child Care Centres, Group Family Child Care Homes, and Family Child Care Homes must comply.

Sanction – A formal penalty for noncompliance with applicable rules, including but not limited to a provisional license, amendment, suspension, emergency closure, or fined offense for contravention of any provision of the Act or regulations.

IV. Eligibility for Indicator Inspections

In order to be eligible for an Indicator Inspection, a facility must meet all of the following criteria:

1. The facility must be operating and licensed for a period of no less than two (2) consecutive years.

2. The facility must have received at least one Full Inspection following the Initial Inspection.

3. For child care centres, the same Director must have been employed at the facility for a period of no less than two (2) consecutive years.

4. A facility that has relocated, must have been in operation for a period of no less than one (1) year in the new location.

5. A family child care home that converts to a group family child care home must have been in operation for a period of no less than (1) year under the new licence category.

6. The facility may not have been subject to sanctions within the past two (2) years.

7. The facility may not have been cited for violating any of the applicable Key Indicators within the past year or since the most recent full inspection, whichever is greater, even if the facility subsequently corrected the violation(s). Key Indicator rules are listed at Appendix B.

[2] Please see Appendix A for additional information about Key Indicator Systems.

8. None of the Weighted-Risk rules listed at Appendix C were cited within the past year or since the most recent full inspection, whichever is greater, even if the facility subsequently corrected the violation(s).

9. The facility is not currently under investigation by the Early Learning and Child Care Program (ELCCP) or any other oversight agency (Child and Family Services, RCMP, or Police).

V. Procedures for Conducting Indicator Inspections

1. Determine if the facility is eligible for an Indicator Inspection based on the criteria in Section IV above.
    a. The facility will not be notified in advance that an Indicator Inspection will be conducted in lieu of a Full Inspection.

2. Prior to conducting the inspection, the consultant responsible for conducting the Indicator Inspection will select three (3) rules to be measured in addition to the KIS and Weighted-Risk rules. The additional rules are to be selected randomly using a consistent selection process; consultants shall not select rules based on personal preference, ease of compliance measurement, or similar standard. The process for selecting the three rules is listed at Appendix D.

3. Upon arrival at the regulated setting, the consultant will:

    a. Perform all standard activities for arrival based on the type of regulated setting.

    b. Conduct a brief walkthrough of the setting to identify any immediate health and safety risk or blatant rule violations.

        i. If an immediate health and safety risk is identified, the facility will no longer be eligible for an Indicator Inspection and will be subject to a Full Inspection.
        ii. If one or more blatant rule violations are identified, the facility will no longer be eligible for an Indicator Inspection and will be subject to a Full Inspection.

4. If following the walkthrough at Section 3-b above, the facility is eligible for an Indicator Inspection, the consultant will:

    a. Briefly describe the ELCCP's KIS, including the circumstances where an Indicator Inspection may cease and a Full Inspection will be conducted.

    b. Inform the facility that the facility is provisionally eligible for an Indicator Inspection, but that a Full Inspection may occur based on inspection findings;

    c. Proceed with the Indicator Inspection as described below.

5. During the course of the inspection, the consultant will measure compliance with all of the following:

    a. The KI rules;

    b. The Weighted-Risk rules; and

    c. The three (3) rules identified at Section 2 above.

If no violations of the above rules are identified, the regulated setting will be determined to be in full compliance with all rules, and the inspection will end.

If one or more violations of the above rules are identified, the Indicator Inspection will cease, and a Full Inspection will be conducted in accordance with ELCCP policy.

VI. Ongoing Activities

1. No facility may receive more than two (2) consecutive Indicator Inspections.

2. KIs will be recalculated at least every five (5) years.

3. Weighted-Risk rules will be recalculated as needed.

4. If there are amendments to the regulations and if they are deemed to be significant (KIs or Weighted-Risk Rules are eliminated or altered) by the ELCCP, recalculation of KIs and Weighted-Risk rules may occur.

VII. ELCCP Discretion

1. ELCCP is under no obligation to conduct an Indicator Inspection even if the facility meets all of the eligibility criteria at Section IV above.

2. Indicator Inspections are a privilege, not an entitlement; the decision not to complete an Indicator Inspection even if the facility meets all of the eligibility criteria at Section IV above is not subject to appeal.

3. These policies and procedures shall not be construed to reduce, limit or restrict ELCCP's authority to enforce applicable statutes and rules, and does not establish a precedent or otherwise bind ELCCP in any other action and shall not be construed as evidence of ELCCP practice, policy or interpretation with respect to any dispute or issue not addressed herein.

Appendix A
Key Indicator Systems: How they Work, why they Work, and the Benefits of Using Them

Targeted measurement tools are licensing inspection methods that increase the effectiveness and efficiency of a consultant y oversight agency without producing recurring operational costs. In other words, targeted measurement tools maximize performance while minimizing costs.

Consultant y oversight agencies nationwide are moving towards targeted measurement as an effective alternative to traditional licensing methods. Instead of measuring every rule during every inspection in every licensed setting every year, targeted measurement allows agencies to devote more resources to struggling licensees by shifting resources away from high-performing providers while still ensuring that safe, high-quality care is provided in all settings. **Key Indicator Systems**, or KIS, are a kind of targeted measurement tool.

Many people mistakenly believe that KIS identify the most "serious" rules (that is, the rules which, if violated, pose the greatest risk to children in care, e.g. leaving children unattended or water temperatures that are too hot). In actuality, KIS identify a subset of licensing rules that statistically predict compliance with the entire set of rules.

How Key Indicator Systems Work

Research has shown that some violations are usually identified during the licensing inspections, even at the most highly-compliant settings. Highly-compliant settings and settings with low compliance share some consultant y violations, but certain violations tend to appear more frequently in settings with low compliance. KIS development includes establishing what it means for a setting to be "high compliance" (few total violations during inspections) or "low compliance" (many violations during inspections), testing the statistical relationship between individual violations and overall compliance in historical inspection data, and identifying the violations that have the closest relationship between "individual" compliance and total compliance. Consider the following illustration:

Rule	High Compliance Setting	Low Compliance Setting
x	Compliant	Violation
y	Compliant	Violation
z	Violation	Violation

In this illustration, analysis of rules *x* and *y* found that high compliance settings are usually compliant with the rules, while low-compliance settings are usually not compliant with the rule. Moreover, rule *z* is usually found to be in violation at both high and low compliance settings. This tells us that rule *z* is probably not a good indicator of overall compliance, but rules *x* and *y* may be indicators of overall compliance. Next, we analyze the statistical relationship between the rules and the settings' levels of compliance to determine if rule compliance really is a good predictor of overall compliance. The results of the testing might look like this:

Rule	High Compliance Setting	Low Compliance Setting	Strength of Relationship
x	Compliant	Violation	Close relationship (Good predictor)
y	Compliant	Violation	Moderate relationship (Poor predictor)
z	Violation	Violation	No relationship (Terrible predictor)

What this means is, if a setting is in compliance with rule *x*, **then we can be very confident that the setting is in compliance with all the other rules as well**, whereas compliance with rules *y* and *z* tell us nothing about overall compliance. Knowing this, we can conduct an abbreviated inspection where only rule *x* is measured to determine overall compliance.

The above illustration is a simplified example. KIS usually identify between 20-30 rules that are good predictors of overall compliance, but the principle is the same: if there are, say, 500 rules, we can predict overall compliance by measuring compliance with only 30 of those rules.

Additionally, there are safeguards in place to ensure that KIS do not inadvertently result in harm to children in care. One such safeguard is the development of eligibility criteria for participation in an indicator (i.e. abbreviated) inspection. Not all licensed settings are eligible for KIS inspections. Factors that generally preclude indicator

inspection eligibility include a recent history of licensing enforcement action, the identification of a “serious” violation during the most recent inspection, operation of a setting by an owner for less than 2-3 years, or an open complaint of noncompliance during the scheduled inspection period. Another safeguard is expanding the inspection to include all rules in the event that a key indicator rule is found to be noncompliant during an inspection. Using the example above, if a setting was found to be out of compliance with rule *x* during an indicator inspection, the surveyor would then measure compliance will all rules to determine the full scope of noncompliance. A third safeguard is the identification of rules that will always be measured during every inspection, even if the rule is not a key indicator. For example, research has found that noncompliance with swimming or water-related rules frequently leads to harm or even death. As a result, it is recommended that such rules be measured during all inspections.

Why we know Key Indicator Systems Work

The National Association for Consultant y Administration (NARA) has been developing and refining qualitative and qualitative targeted measurement tools, especially KIS, for over 30 years. NARA’s professional services and educational curricula have been used by dozens of states and provinces for program-specific research, training, and customized technical assistance for child day and residential care settings, care settings for older adults, and care settings for persons with mental illness and intellectual disabilities. NARA’s methods are time-tested and proven to maximize agency performance without sacrificing the health and safety of persons in care. Additionally, although each state’s key indicator rules are different, independent research conducted by Dr. Richard Fiene, an early-child education professional and NARA consultant, has found patterns in key indicators of compliance/quality in childcare programs, suggesting that certain areas of consultant y oversight function as key indicators nationwide (these include: child abuse reporting and clearances, proper immunizations, staff-to-child ratio and group size, director and teacher qualifications, staff training, supervision/discipline, fire drills, administration of medication, emergency contact/plan, outdoor playground safety, inaccessibility of toxic substances, and handwashing/diapering).

The Benefits of Key Indicator Systems

Key Indicator Systems do not just benefit the licensing agency; in fact, their use benefits *all* stakeholders.

- **The consultant y oversight agency** is able to spend more time monitoring and providing technical assistance to noncompliant providers by spending less time in compliant programs.
- **Providers** benefit from shorter inspections by maintaining compliance.
- **Persons in care** enjoy a higher degree of health and safety protection.
- **The public** is assured that strong licensing continues even if resources are reduced.

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Appendix B
Key Indicator Rules

Child Care Centre Key Indicator Rules

R24. Nutrition
- 24(2)(a) Meals and snacks meet nutritional needs

R37. Attendance Records
- 37(b)(i) Obtain signature of the parent monthly to verify hours/days of the child's attendance
- 37(b)(ii) Obtain signature of the parent monthly to verify the fees charged

R41. Centre Director and Supervisor
- 41(1)(b) Supervisor to act in place of the centre director in the centre director's absence

R42. Child Care Workers
- 42(2)(b) If working for 65 hours or more per month meets or exceeds qualifications of an ECE I
- 42(2)(c) 30% of persons employed in the centre as child care workers for 65 hours or more meet or exceed the qualifications of ECE II
- 42(2)(d) A further 20% of persons employed in the centre as child care workers for 65 hours or more meet or exceed the qualifications of ECE IR43.

R43. Exemption
- 43(1) May apply for exemption if unable to hire a director or supervisor whose qualifications meet requirements or child care workers whose qualifications meet the requirements

R44. First Aid and CPR
- 44(2)(a)(i) Each individual employed in the centre for 65 hours or more per month as a centre, director, supervisor or child care worker has completed a first aid course
- 44(2)(a)(ii) Each individual employed in the centre for 65 hours or more per month as a centre, director, supervisor or child care worker has completed a course in cardiopulmonary resuscitation

R45. Criminal Record Searches
- 45(1) Criminal record check for each centre employee

R47. Employee Records
- 47(b) Proof of first aid/CPR training
- 47(c) Results of criminal record check

Family Child Care Home Key Indicator Rules

R28. Hazardous Items
- 28(b) Poisonous substances locked

R31. First Aid Supplies
- 31 Appropriate and sufficient first aid supplies and inaccessible to children

R32. Portable Emergency Information
- 32 Portable record of emergency information for each child attending

R33. Taking Certain Supplies

- 33(b) Appropriate and sufficient first aid supplies

R36. Children's Records

- 36(2)(b)(ii) Names, addresses and phone numbers of person to contact in an emergency
- 36(2)(b)(iii) Names, addresses and phone numbers of the child's medical practitioner
- 36(2)(d) The child's immunization status
- 36(2)(f)(ii) Any authorization by the child's parent for an excursion involving transportation
- 36(2)(h) The agreement for services

R37. Attendance Records

- 37(b)(i) Obtain signature of the parent monthly to verify hours/days of the child's attendance
- 37(b)(ii) Obtain signature of the parent monthly to verify the fees charged

R38. Insurance

- 38(b) Insurance policy - liability coverage with respect to the transportation of children

Appendix C
Weighted Risk Rules

Child Care Centre Weighted Risk Rules

R08. Application for Licence, Renewal

- 8(1)(a) Health Inspection
- 8(1)(b) Fire Inspection

R27. Medication

- 27(1)(a) Authorization is acquired
- 27(1)(b) Written record of each dose of medication administered
- 27(1)(c) All non-emergency medications are stored in a locked enclosure
- 27(2) Oral authorization in exceptional circumstances for administering non-prescription

R28. Hazardous Items

- 28(a) Unsafe items inaccessible
- 28(b) Poisonous substances locked
- 28(c) Cover radiator
- 28(d) Cap electrical outlets

R49. Duty to Supervise

- 49 Children must be adequately supervised at all times

R52. Supervision at Centre

- 52(3) Number of child care workers present is not less than the number required by applicable staff-to-child ratio set out in (4) and (5)

Family / Group Child Care Home Weighted Risk Rules

R10. Application for Licence, Renewal – Home

- 10(e) Criminal Record Check(s)

R21. Hygiene

- 21(a) Equipment and furnishings – sanitary
- 21(b) Hygienic procedures are followed

R27. Medication

- 27(1)(a) Authorization is acquired
- 27(1)(b) Written record of each dose of medication administered
- 27(1)(c) All non-emergency medications are stored in a locked enclosure

- 27(2) Oral authorization in exceptional circumstances for administering non-prescription

R28. Hazardous Items

- 28(a) Unsafe items inaccessible
- 28(c) Cover radiator
- 28(d) Cap electrical outlets

R61. Qualifications Licensees

- 61(1) First aid (Type expiry date of certificate):
- 61(2) CPR (Type expiry date of certificate):

R64. Assistant Records

A licensee of a GFCCH - maintain records for each assistant that includes:

- 64(a) A copy of proof of training in first aid and CPR
- 64(b) The results of a criminal record check
- 64(c) Any emergency medical information
- 64(d) A copy of the proof of participation in continuing education

Appendix D
Process to Identify Random Rules

1. If it is determined that a facility is eligible for an Indicator Inspection, based on the criteria in Section IV, prior to conducting the inspection, the consultant responsible for conducting the Indicator Inspection will select three (3) rules to be measured in addition to the KIS and Weighted-Risk rules in accordance with Section V paragraph 2.
2. An “easy to use” Excel random number generator will be used to select three unique random rules.
3. The Consultant will open the Excel Random Rules Generator and select one of five tabs at the bottom for the facility type of the current Indicator Inspection which include:
    a. Child Care Centre
    b. Teen Student Support Child Care Centre
    c. Family Child Care Home
    d. Group Family Child Care Home
    e. Teen Student Support Family Child Care Home.
4. The Consultant will follow the instructions in the text box provided to generate the random rules. Clicking the button “Press Here” will generate three (3) random rules.
5. The Consultant will only click the random rule generator button once.
6. Using the appropriate Checklist for facility type (centre or home), the consultant will place an R in the column provided next to the corresponding number on the checklist to indicate that this rule must be checked during the inspection.
7. Additional rules are selected using the Excel Random Rules Generator. Consultants should not select rules based on personal preference, ease of compliance measurement, or similar standard.
8. Consultants should contact their respective Program Manager, if any issues arise in the generation of the random rules.

The Saskatchewan Key Indicator System: The First Step in Developing a Differential Monitoring Approach

Richard Fiene, Ph.D.

August 2019

The purpose of this report is to provide the Ministry of Education in the Province of Saskatchewan with the results of their key indicator study as well as trends in regulatory compliance in the Province as compared to the ECPQIM International Data Base Project. This report will provide a brief introduction and overview to licensing key indicators, overview data, licensing key indicator methodology, and the results from the study depicting the statistics as well as the key indicator rules.

The use of Licensing Key Indicator Rules is to help make an overall monitoring system more efficient and effective through a use of predictive rules/regulations. It is a component system within a differential monitoring approach which targets the types of monitoring visits to programs based upon regulatory compliance history. The other component system deals with weighted risk assessment but this system will not be addressed in this report. The following section of definitions will assist in distinguishing amongst the various systems and methodologies.

Definitions:

Risk Assessment (RA) - a differential monitoring approach that employs using only those rules, standards, or regulations that place children at greatest risk of mortality or morbidity if violations/citations occur with the specific rule, standard, or regulation.

Key Indicators (KI) - a differential monitoring approach that employs using only those rules, standards, or regulations that statistically predict overall compliance with all the rules, standards, or regulations. In other words, if a program is 100% in compliance with the Key Indicators the program will also be in substantial to full compliance with all rules, standards, or regulations. The reverse is also true in that if a program is not 100% in compliance with the Key Indicators the program will also have other areas of non-compliance with all the rules, standards, or regulations.

Differential Monitoring (DM) - this is a relatively new approach to determining the number of visits made to programs and what rules, standards, or regulations are reviewed during these visits. There are two measurement tools that drive differential monitoring, one is Weighted Risk Assessment tools and the other is Key Indicator checklists. Weighted Risk Assessments determine how often a program will be visited while Key Indicator checklists determine what rules, standards, or regulations will be reviewed in the program. Differential monitoring is a very powerful approach when Risk Assessment is combined with Key Indicators because a program is reviewed by the most critical rules, standards, or regulations and the most predictive rules, standards, or regulations. See Appendix which presents a ***Logic Model & Algorithm for Differential Monitoring (DMLMA©***)(Fiene, 2012).

Early Childhood Program Quality Indicator Model (ECPQIM) – these are models that employ a key indicator or dashboard approach to program monitoring. Major program monitoring systems in early care and education are integrated conceptually so that the overall early care and education system can be assessed and validated. With these models, it is possible to compare results obtained from licensing

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systems, quality rating and improvement systems (QRIS), risk assessment systems, key indicator systems, technical assistance, and child development/early learning outcome systems. The various approaches to validation are interposed within this model and the specific expected correlational thresholds that should be observed amongst the key elements of the model are suggested. Key Elements of the model are the following (see Appendix for details): CI = state or federal standards, usually rules or regulations that measure health and safety ***- Caring for Our Children or Head Start Performance Standards*** will be applicable here. PQ = Quality Rating and Improvement Systems (QRIS) standards at the state level; ***ERS (ECERS, ITERS, FDCRS), CLASS, or CDPES*** (Fiene & Nixon, 1985). RA = risk assessment tools/systems in which only the most critical rules/standards are measured. Stepping Stones is an example of this approach. KI = key indicators in which only predictor rules/standards are measured. The ***Thirteen Indicators of Quality Child Care*** is an example of this approach. DM = differential monitoring decision making in which it is determined if a program is in compliance or not and the number of visits/the number of rules/standards are ascertained from a scoring protocol. PD = technical assistance/training and/or professional development system which provides targeted assistance to the program based upon the DM results. CO = child outcomes which assesses how well the children are developing which is the ultimate goal of the system. Please see the Appendices for the ***Logic Model and Algorithm***.

Overview Regulatory Compliance Data (Please see the Appendices for a graphic display)

There were 152 child care centers (CCC) used in the analyses and 82 family child care (FDC) homes. There were also 137 CCC rules and 112 FDC rules used in the analyses. The cutoff scores for the high group was 0-1 violations and 7 or more violations for the low group (CCC). The cutoff scores for the high group with FDC was no violations and 6 or more violations for the low group.

The range in rule violations for specific licensing key indicators ranged from 10% to 25% for CCC. For FDC is was from 7% to 19%.

Licensing Key Indicators

The cutoff score for the phi coefficient for CCC and FDC was .40 or greater, $p < .0001$. The reason for using these thresholds is that it increases predictability and decreases the chances of false negatives. Please see the following expanded checklist for additional details and placement within the tool.

CCC Rule	*Brief Content*	*Phi Coefficient:*
242a	**Meals**	**.44**
37bi	**Attendance**	**.64**
37bii	**Fees**	**.63**
412b	**Supervisor/Director**	**.45**
422b	**ECE I**	**.49**
422c	**ECE II**	**.59**
422d	**ECE III**	**.51**
431	**Staff exempt**	**.62**
442ai	**First aid**	**.48**
442aii	**CPR**	**.48**
451	**Criminal Records**	**.42**
47b	**First aid/CPR**	**.44**
47c	**Criminal Records**	**.49**

FDC Rule	*Brief Content*	*Phi Coefficient:*
28b	**Poison Substances**	**.55**
31	**First aid supplies**	**.46**
32	**Emergency information**	**.50**
33b	**First Aid supplies**	**.41**
362bii	**Emergency contact**	**.41**
362biii	**Medical Personnel**	**.46**
362d	**Immunizations**	**.41**
362fii	**Excursions**	**.50**
362h	**Agreement**	**.41**
37bi	**Attendance**	**.50**
37bii	**Fees**	**.50**
38b	**Insurances**	**.59**

CCC detail from Expanded Checklist – Key Indicators Bold Faced and Highlighted. The full Expanded Checklist is not provided since the Licensing Key Indicators were within a truncated portion of the Checklist:

R24. Nutrition

☐24(1) Provide meals and snacks (include menu posted, children are fed every 3 hours)
Comments:

☒**24(2)(a) Meals and snacks meet nutritional needs**
Comments:

☐24(2)(b) Children are fed in appropriate manner for age and development
Comments:

R25. Food Services

☐25(a) Adequate and safe procedures - food handling, preparation, serving and storage
Comments:

☐25(b) Adequate and safe procedures - cleansing utensils
Comments:

R26. Child with Communicable Disease

☐26(a) Contact public health officer
Comments:

☐26(b) Recommendations or instructions from public health officer are followed
Comments:

R27. Medication

☐27(1)(a) Authorization is acquired
Comments:

☐27(1)(b) Written record of each dose of medication administered

Comments:

☐27(1)(c) All non-emergency medications are stored in a locked enclosure

Comments:

☐27(2) Oral authorization in exceptional circumstances for administering non-prescription (with written confirmation of authorization after)

Comments:

R28. Hazardous Items

☐28(a) Unsafe items inaccessible

Comments:

☐28(b) Poisonous substances locked

Comments:

☐28(c) Cover radiator

Comments:

☐28(d) Cap electrical outlets

Comments:

R29. Telephone, Emergency Numbers

☐29(a) Telephone in working order

Comments:

☐29(b) Emergency numbers posted

Comments:

R30. Emergency Evacuation

☐30 Develop an emergency evacuation plan and practice it monthly

Comments:

R31. First Aid Supplies

☐31 Appropriate and sufficient first aid supplies and inaccessible to children

Comments:

R32. Portable Emergency Information

☐32 Portable record of emergency information for each child attending

Comments:

R33. Taking Certain Supplies

☐33(a) Portable record of emergency information

Comments:

☐33(b) Appropriate and sufficient first aid supplies

Comments:

R34. Injuries, Unusual Occurrences *(also discuss child abuse protocol and ensure there is a copy and policies, procedures)*

☐34(a) Immediately notify parent
Comments:
☐34(b) Within 24 hours notify consultant
Comments:
☐34(c) Within seven days complete/submit report
Comments:

R35. Volunteers

☐35(1) Child care worker is present at all times when a volunteer is in attendance
Comments:

R36. Children's Records

☐36(1)(a) Keep a record for each child
Comments:
☐36(1)(b) Retain the record for a period of six years.
Comments:
☐36(2)(a) Child's name and date of birth (Child's Health Resume & Child's Emergency Information)
Comments:
☐36(2)(b)(i) Names, addresses and phone numbers of the child's parents (Child's Health Resume & Child's Emergency Information)
Comments:
☐36(2)(b)(ii) Names, addresses and phone numbers of person to contact in an emergency (Child's Health Resume & Child's Emergency Information)
Comments:
☐36(2)(b)(iii) Names, addresses and phone numbers of the child's medical practitioner (Child's Health Resume & Child's Emergency Information)
Comments:
☐36(2)(c) Any allergy, illness or other medical condition (Child's Health Resume & Child's Emergency Information)
Comments:
☐36(2)(d) The child's immunization status (Child's Health Resume & Child's Emergency Information)
Comments:
☐36(2)(e) Any medication authorization provided/any record of medication administered (Medication form)
Comments:
☐36(2)(f)(i) Any authorization by the child's parent for an excursion not involving transportation (Excursion form)
Comments:
☐36(2)(f)(ii) Any authorization by the child's parent for an excursion involving transportation (Excursion form)
Comments:
☐36(2)(g) Any report regarding an injury or unusual occurrence (Injury/Unusual Occurrence form & Minor Injury Report)
Comments:

☐36(2)(h) The agreement for services
Comments:

R37. Attendance Records (review records for past 12 months)

☐37(a) Complete and accurate monthly child attendance records
Comments:

☒**37(b)(i) Obtain signature of the parent monthly to verify hours/days of the child's attendance**
Comments:

☒**37(b)(ii) Obtain signature of the parent monthly to verify the fees charged**
Comments:

☐37(c) Forward the records to the ministry (Social Service Subsidy) each month
Comments:

R38. Insurance

☐38(a) Insurance policy - comprehensive general liability coverage and personal injury coverage
Insurer: Click or tap here to enter text.
Policy Number: Click or tap here to enter text. Expiry date: Click or tap to enter a date.
Comments:

☐38(b) Insurance policy - liability coverage with respect to the transportation of children
If do not transport children, N/A ☐
Insurer: Click or tap here to enter text.
Policy Number: Click or tap here to enter text. Expiry date: Click or tap to enter a date.
Comments:

R39. Materials to be Made Available

☐39(a) The Act
Comments:

☐39(b) The regulations
Comments:

☐39(c) Philosophy and program
Comments:

☐39(d) Child management policy
Comments:

☐39(e) Operational policies
Comments:

☐39(f) Fee schedule
Comments:

☐39(g) Any other materials that the Director may require
Identify any other information requested (If none, check N/A ☐):
Comments:

R40. Confidentiality

☐40(1)(a)(i) Personal information
Comments:

☐40(1)(a)(ii) Any record with respect to a child or a child's parent
Comments:

☐40(1)(b)(i) Not disclose without parent permission as required for health or safety of the child
Comments:

☐40(1)(b)(i) Not disclose without parent permission as required by law
Comments:

☐40(3)(a) May disclose to a collection agency the name and address of the child's parent

☐40(3)(b) May disclose to a collection agency the amount of fees owing by the parent

☐40(3)(c) May disclose to a collection agency the nature of the fees owing by the parent
Comments:

Regulations Part IV – Standards for Centres Section

R41. Centre Director and Supervisor

☐41(1)(a) Centre director is appointed and
Comments:

☒41(1)(b) Supervisor to act in place of the centre director in the centre director's absence
Comments:

☐41(2)(a) Centre director must be at least 18 years of age
Comments:

☐41(2)(b) Meets or exceeds the qualifications of an ECE III or 41(4)
Comments:

☐41(3)(a) Supervisor must be at least 18 years of age
Comments:

☐41(3)(b) Meets or exceeds qualifications of an ECE I
Comments:

R42. Child Care Workers

☐42(1) Child care worker must be at least 16 years of age
Comments:

☒42(2)(b) If working for 65 hours or more per month meets or exceeds qualifications of an ECE I
Comments:

☒42(2)(c) 30% of persons employed in the centre as child care workers for 65 hours or more meet or exceed the qualifications of ECE II
Comments:

☒42(2)(d) A further 20% of persons employed in the centre as child care workers for 65 hours or more meet or exceed the qualifications of ECE III
Comments:

R43. Exemption

☒**43(1) May apply for exemption if unable to hire a director or supervisor whose qualifications meet requirements or child care workers whose qualifications meet the requirements**

Comments:

R44. First Aid and CPR

☐44(1) At least one person is on the premises who has first aid/CPR during hours of operation

☒**44(2)(a)(i) Each individual employed in the centre for 65 hours or more per month as a centre, director, supervisor or child care worker has completed a first aid course**

Comments:

☒**44(2)(a)(ii) Each individual employed in the centre for 65 hours or more per month as a centre, director, supervisor or child care worker has completed a course in cardiopulmonary resuscitation**

Comments:

☐44(2)(b) When required to do so by the director, retakes a course in (a)

Comments:

R45. Criminal Record Searches

☒**45(1) Criminal record check for each centre employee**

Comments:

☐45(2)(a) Establish written policies with respect to criminal record checks

Comments:

☐45(2)(b) Make policies with respect to criminal record checks known to employees/potential employees

Comments:

R46. Health of Employees

☐46(4)(a) If employee may have category I or category II communicable disease, the licensee must notify public health

(b) Ensure recommendations/instructions followed.

Comments:

R47. Employee Records

☐47(a) Copy of employee's ECE certificates

Comments:

☒**47(b) Proof of first aid/CPR training**

Comments:

☒**47(c) Results of criminal record check (Note to File completed)**

Comments:

☐47(e) Copy of all medical reports for employee

Comments:

FDC Detail from Expanded Checklist - Key Indicators Bold Faced and Highlighted. The full Expanded Checklist is not provided since the Licensing Key Indicators were within a truncated portion of the Checklist:

R28. Hazardous Items

☐28(a) Unsafe items inaccessible

Comments:

☒28(b) Poisonous substances locked

Comments:

☐28(c) Cover radiator

Comments:

☐28(d) Cap electrical outlets

Comments:

R29. Telephone, Emergency Numbers

☐29(a) Telephone in working order

Comments:

☐29(b) Emergency numbers posted

Comments:

R30. Emergency Evacuation

☐30 Develop an emergency evacuation plan and practice it monthly

Comments:

R31. First Aid Supplies

☒31 Appropriate and sufficient first aid supplies and inaccessible to children

Comments:

R32. Portable Emergency Information

☒32 Portable record of emergency information for each child attending

Comments:

R33. Taking Certain Supplies

☐33(a) Portable record of emergency information

Comments:

☒33(b) Appropriate and sufficient first aid supplies

Comments:

R34. Injuries, Unusual Occurrences *(also discuss child abuse protocol and ensure there is a copy and policies, procedures)*

☐34(a) Immediately notify parent
Comments:
☐34(b) Within 24 hours notify consultant
Comments:
☐34(c) Within seven days complete/submit report
Comments:

R35. Volunteers

☐35(2) The licensee, alternate or, assistant (GF) is present when a volunteer is in attendance
Comments:

R36. Children's Records

☐36(1)(a) Keep a record for each child
Comments:
☐36(1)(b) Retain the record for a period of six years.
Comments:
☐36(2)(a) Child's name and date of birth (Child's Health Resume & Child's Emergency Information)
Comments:
☐36(2)(b)(i) Names, addresses and phone numbers of the child's parents (Child's Health Resume & Child's Emergency Information)
Comments:
☒**36(2)(b)(ii) Names, addresses and phone numbers of person to contact in an emergency (Child's Health Resume & Child's Emergency Information)**
Comments:
☒**36(2)(b)(iii) Names, addresses and phone numbers of the child's medical practitioner (Child's Health Resume & Child's Emergency Information)**
Comments:
☐36(2)(c) Any allergy, illness or other medical condition (Child's Health Resume & Child's Emergency Information)
Comments:
☒**36(2)(d) The child's immunization status (Child's Health Resume & Child's Emergency Information)**
Comments:
☐36(2)(e) Any medication authorization provided/any record of medication administered (Medication form)
Comments:
☐36(2)(f)(i) Any authorization by the child's parent for an excursion not involving transportation (Excursion form)
Comments:
☒**36(2)(f)(ii) Any authorization by the child's parent for an excursion involving transportation (Excursion form)**
Comments:
☐36(2)(g) Any report regarding an injury or unusual occurrence (Injury/Unusual Occurrence form & Minor Injury Report)

Comments:

☒**36(2)(h) The agreement for services**

Comments:

R37. Attendance Records (review records for past 12 months)

☐37(a) Complete and accurate monthly child attendance records

Comments:

☒**37(b)(i) Obtain signature of the parent monthly to verify hours/days of the child's attendance**

Comments:

☒**37(b)(ii) Obtain signature of the parent monthly to verify the fees charged**

Comments:

☐37(c) Forward the records to the ministry (Social Service Subsidy) each month

Comments:

R38. Insurance

☐38(a) Insurance policy - comprehensive general liability coverage and personal injury coverage

Insurer: Click or tap here to enter text.

Policy Number: Click or tap here to enter text. Expiry date: Click or tap to enter a date.

Comments:

☒**38(b) Insurance policy - liability coverage with respect to the transportation of children If do not transport children, N/A ☐**

Insurer: Click or tap here to enter text.

Policy Number: Click or tap here to enter text. Expiry date: Click or tap to enter a date.

Comments:

Conclusion:

The CCC and FDC key indicators represent approximately 10% of all the rules and regulations for their respective service type which is typical of the percentage of rules selected as key indicators. With these particular rules, they are not based upon risk but upon predictability in that these licensing rules statistically predict overall regulatory compliance. There is some overlap with the ***Fiene Thirteen Key Indicators*** and the ***International ECPQIM data base***, such as with Immunizations, First Aid, CPR, Criminal Records Check, and Staff Qualifications.

APPENDICES

Theory of Regulatory Compliance Algorithm (Fiene KIS Algorithm)

1) ΣR = C
2) Review C history x 3 yrs
3) NC + C = CI
4) If CI = 100 -> KI
5) If KI > 0 -> CI or if C < 100 -> CI
6) If RA (NC% > 0) -> CI
7) KI + RA = DM
8) KI = ((A)(D)) - ((B)(E)) / sqrt ((W)(X)(Y)(Z))
9) RA = ΣR1 + ΣR2 + ΣR3 + ….. ΣRn / N
10) (TRC = 99%) + (ϕ = 100%)
11) (CI < 100) + (CIPQ = 100) -> KI (10% CI) + RA (10-20% CI) + KIQP (5-10% of CIPQ) -> OU

Legend:

R = Rules/Regulations/Standards
C = Compliance with Rules/Regulations/Standards
NC = Non-Compliance with Rules/Regulations/Standards
CI = Comprehensive Instrument for determining Compliance
ϕ = Null
KI = Key Indicators; KI >= .26+ Include; KI <= .25 Null, do not include
RA = Risk Assessment
ΣR1 = Specific Rule on Likert Risk Assessment Scale (1-8; 1 = low risk, 8 = high risk)
N = Number of Stakeholders
DM = Differential Monitoring
TRC = Theory of Regulatory Compliance
CIPQ = Comprehensive Instrument Program Quality
KIPQ = Key Indicators Program Quality
OU = Outcomes
A = High Group + Programs in Compliance on Specific Compliance Measure (R1...Rn).
B = High Group + Programs out of Compliance on Specific Compliance Measure (R1...Rn).
E= Low Group + Programs in Compliance on Specific Compliance Measure (R1...Rn).
D = Low Group + Programs out of Compliance on Specific Compliance Measure (R1...Rn).
W = Total Number of Programs in Compliance on Specific Compliance Measure (R1...Rn).
X = Total Number of Programs out of Compliance on Specific Compliance Measure (R1...Rn).
Y = Total Number of Programs in High Group (ΣR = 98+).
Z = Total Number of Programs in Low Group (ΣR <= 97).
High Group = Top 25% of Programs in Compliance with all Compliance Measures (ΣR).
Low Group = Bottom 25% of Programs in Compliance with all Compliance Measures (ΣR).

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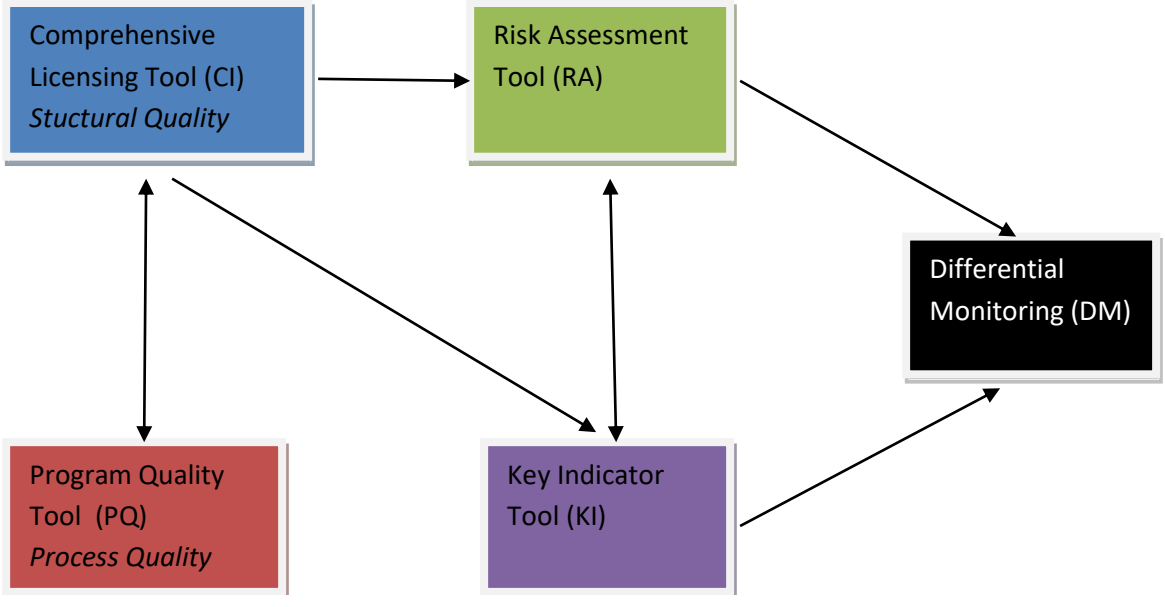
DIFFERENTIAL MONITORING LOGIC MODEL & ALGORITHM (DMLMA©) (Fiene, 2012): A 4th Generation ECPQIM – Early Childhood Program Quality Indicator Model

CI x PQ => RA + KI => DM + PD => CO

Definitions of Key Elements:

CI = Comprehensive Licensing Tool (Health and Safety)(***Caring for Our Children***)
PQ ***= ECERS-R, FDCRS-R, CLASS, CDPES*** (Caregiver/Child Interactions/Classroom Environment)
RA = Risk Assessment, (High Risk Rules)(***Stepping Stones***)
KI = Key Indicators (Predictor Rules)***(13 Key Indicators of Quality Child Care***)
DM = Differential Monitoring, (How often to visit and what to review)
PD = Professional Development/Technical Assistance/Training
CO = Child Outcomes (See Next Slide for PD and CO Key Elements)



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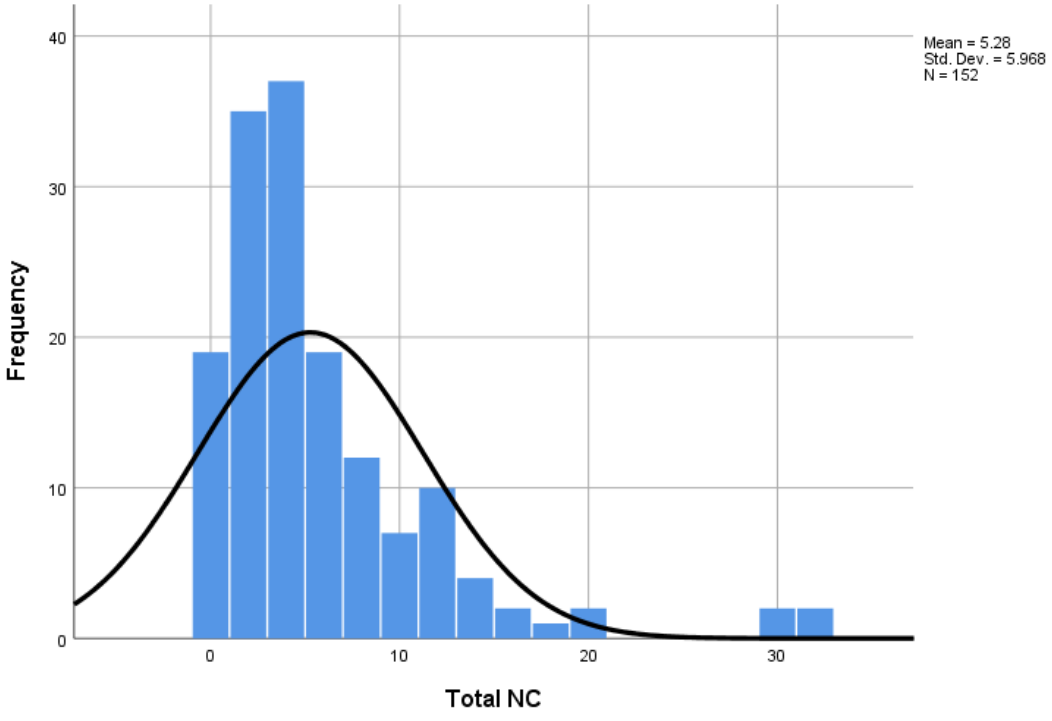
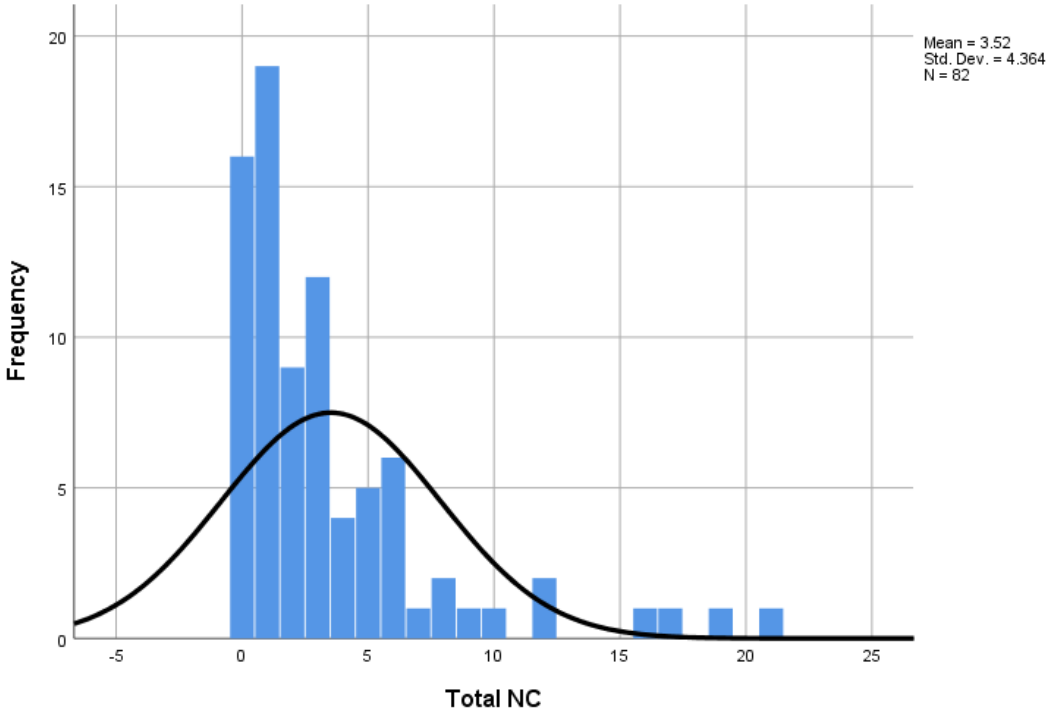
Centers Total Number of Violations



Homes Total Number of Violations



RESEARCH REPORT

Saskatchewan Weighted Risk Assessment Study

Abstract

This report provides the results from the Saskatchewan Licensing Weighted Risk Assessment Study which dealt with over 200 centre and home based stakeholders.

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The Saskatchewan Centre and Home Based Weighted Risk Assessment Study

Richard Fiene, Ph.D.

National Association for Regulatory Administration

Research Institute for Key Indicators and Penn State University

October 2019

Abstract

This report will describe the Saskatchewan Centre and Home Based Weighted Risk Assessment Study providing the detailed weights of each service type. The Weighted Risk Assessment Methodology is the other abbreviated inspection approach in Differential Monitoring. When coupled with the Licensing Key Indicator Methodology it provides a cost effective and efficient monitoring and assessment of early care and education programs.

INTRODUCTION

In licensing and regulatory administration, every regulatory requirement is important. However, anyone can recognize that some regulations pose a greater threat to children's health and safety than others. Weighted Risk Systems allow states, provinces, and other jurisdictions to qualitatively rank regulatory requirements to identify regulations that pose the greatest risk of harm to children.

A key component of Weighted Risk System development is to assign numerical "weights" to each regulatory requirement. These weights are then used to identify the most "serious" regulatory violations. This report presents the regulations that pose the most immediate threat to the health, safety, or well-being of children, and/or present the greatest risk of death or serious physical or emotional injury to children if the compliance with regulations is not met in Child Care Homes and Child Care Centres regulated by the Province.

The Province in conjunction with NARA identified a sample of stakeholders in the regulatory oversight process. Stakeholders identified included but were not limited to Provincial staff and licensees. Using an online measurement instrument, stakeholders were asked to assign a numerical "weight" to each regulation for each type of setting regulated by the Province. Numerical weights ranged from 1 ("No threat to the health, safety, or well-being of residents if the regulation is not met; individuals are not at risk in any way due to violation of regulation) to 8 ("Immediate threat to the health, safety, or well-being of residents if the regulation is not met; individuals would be in danger of death or serious physical or emotional injury if the regulation is in violation").

METHOD

The National Association for Regulatory Administration (NARA) in cooperative agreement with the Research Institute for Key Indicators LLC (RIKI) have developed and enhanced Differential Monitoring and the respective abbreviated inspections methodologies of Weighted Risk Assessment and Licensing Key Indicators.

The risk assessment methodology is very different from the key indicator methodology in that compliance history data are not utilized but rather a best practice ranking according to risk is used to determine which rules become core rules which have the greatest likelihood to place children at significant risk of morbidity or mortality. This is done by having a group of experts rank order all the rules on a Likert Scale from low risk to high risk of mortality or morbidity that non-compliance with the rule places children at. This is generally done on a 1-10 scale with 1 = low risk; 5 = medium risk; and 10 = high risk. The experts selected include but are not limited to licensing staff, policy makers, researchers, providers, advocacy groups, parents, and other significant stakeholders who will be impacted by the weighting of the rules.

Once the data are collected from all the experts, it is averaged for each rule to determine its relative rank in comparison to all the other rules. A significantly high threshold or cut off point is determined so that no more than 5-10% of the rules become core rules. These core rules can then be used in a differential monitoring approach (to be described more fully in the next section) and/or with the key indicators to complete abbreviated reviews of child welfare programs. It is recommended that such a practice of using both core rules and key indicators be used together because than the state has the benefits of both methodologies in measuring risk and being able to statistically predict overall compliance with a very short list of rules.

The remainder of this section describes the process for developing a licensing weighting/risk assessment system for use in the implementation of human care licensing rules and discusses the applicability of weighting/risk assessment system for all types of human service licensing.

A licensing weighting/risk assessment system is a regulatory administration tool designed for use in implementing human care licensing rules. A licensing weighting/risk assessment system assigns a numerical score or weight to each individual licensing rule or section of a rule, based upon the relative health, safety and welfare risk to the consumers if a facility is not in compliance with the rule. The type of license issued is based on the sum of the numerical weights for each rule that is not in compliance.

The specific objectives of a licensing weighting/risk assessment system are:

a) To standardize decision-making about the type of license to be issued
b) To take into account the relative importance of each individual rule
c) To ensure that rules are enforced consistently
d) To improve the protection of consumers through more equitable and efficient application and enforcement of the licensing rules

A licensing weighting/risk assessment system can and should be developed and implemented only if:

1) Regular or full licenses are issued with less than 100% compliance with all rules. If a regular license is not issued unless all violations are corrected at the time of license issuance, a weighting/risk assessment system is not necessary. A weighting/risk assessment system in useful if a facility is issued a license with outstanding violations (and a plan to correct the non-compliance areas) at the time of license issuance.

2) There is a large number of licensing rules with a variation of degrees of risk associated with various rules. If there are only a few rules with equal or similar risk associated with each rule, a weighting/risk assessment system is not necessary. A weighting/risk assessment system is useful if there are many rules with varying degrees of risk.

3) A standardized measurement system or inspection instrument is used to measure compliance with licensing rules. Before developing a weighting/risk assessment system, a standardized measurement instrument or tool should be developed and implemented.

Development of a Weighting/Risk Assessment System

This section will provide a step-by-step process in the development of a weighting/risk assessment system for licensing agency use.

1) The first step in developing a licensing weighting/risk assessment system is the development of a survey instrument. A licensing inspection instrument or measurement tool can be adapted into a survey tool. The survey should contain each rule or section of a rule, according to how it is measure in the inspection instrument. Survey instructions should explain the purpose of the survey and instructions for completing the survey instrument. It is suggested that survey participants rate each rule section from 1-8 based on risk to the health, safety and welfare of the clients if the rule is not met (1 = least risk; 8 = most risk).

2) Surveys should be disseminated to at least 100 individuals. If a state has more than 3,000 licensed facilities in the type of service being surveyed, consideration for surveying more than 100 individuals should be given. Individuals surveyed should include providers of service; provider, consumer and advocacy associations; health, sanitation, fire safety, medical, nutrition and program area professionals; licensing agency staff including policy/administrative staff and inspectors; consumers of service; parents; and funding agency staff. In order to assure a higher survey return rate, persons selected as survey participants should be contacted prior to the survey to explain the weighting/risk assessment system and request their willingness to complete the survey.

3) Survey results from each survey should be collected and entered into a computer data base spreadsheet software package or an online survey software. After all survey data

are recorded, means or average weights for each rule or section of a rule should be calculated. If there is sufficient variation in the means for each rule, the individual rule means can be rounded to the nearest whole number. Generally when comparing mean weights among the various groups surveyed there should be a similarity in rating among the groups, supporting the use of the weights as a reliable measure of risk.

RESULTS

The following contains the *Rule, Brief description of the Rule, and its corresponding weight*.

Centres (n = 144):

R49. Children must be adequately supervised at all times. 7.77

R44. At least one person is on the premises who has first aid/CPR during hours of operation. 7.68

15(b). A licensee must ensure all employees and volunteers who provide child care services at the facility comply with the policy on child management. 7.64

36(2)(c). Any allergy, illness or other medical condition (Child's Health Resume & Child's Emergency Information) 7.63

28(b). Store any poisonous substances at the facility in a locked enclosure. 7.59

R55. No person will smoke in a centre (includes outdoor play areas and facility excursions). 7.54

R15. A licensee must develop a written policy with respect to child management that does not permit: corporal punishment; physical, emotional or verbal abuse; denial of necessities; isolation; or inappropriate physical or mechanical restraint. 7.51

R34. If a child attending the facility sustains an injury requiring medical treatment or is involved in an unusual or unexpected occurrence, the licensee must: immediately notify the parent; 7.50

R45. Before an individual is hired as an employee in a centre, the licensee must obtain from the individual the results of a criminal record check with respect to that individual. 7.49

R28. A licensee must: Store any unsafe items at the facility in a place that is inaccessible to children. 7.48

R53. The licensee must ensure that there is at least one child care worker present to care for a group of children on a walk in the neighbourhood of the centre. 7.48

27(1)(b) ensure that a written record of each dose of medication administered is made. 7.42

R27. A licensee who agrees to administer a medication to a child attending the facility must: obtain written authorization from the parent of the child before the mediation is administered to the child. 7.41

25(b) Adequate and safe procedures are followed in the facility for cleansing utensils used for eating and drinking. 7.41

R25. Adequate and safe procedures are followed in the facility for handling, preparation, serving and storing food. 7.40

21(b) Ensure that hygienic procedures are followed by all persons in the facility. 7.38

53(2) The licensee must ensure that the number of child care workers present is not less than the number required by applicable staff-to-child ratio set out in (3) and (4). 7.37

28(c) Cover all radiators and hot pipes with non-combustible materials. 7.36

R35. Child care worker is present at all times when a volunteer is in attendance. 7.36

27(1)(c) ensure all non-emergency medications are stored in a locked enclosure. 7.36

52(3) Number of child care workers present is not less than the number required by applicable staff-to-child ratio set out in (4) and (5). 7.33

26(b) ensure that any recommendations or instructions from the public health officer with respect to that communicable disease that may affect the health or well-being of a child attending the facility are carried out. 7.31

47(c) Results of criminal record check. 7.30

54(3)(a) On an excursion, the number of child care workers present meets the staff-to-child ratio set out in subsection (4) or (6); or 54(3)(b) On an excursion the number of child care workers present meets the staff-to-child ratio set out in subsection (5) or (7). 7.27

54(8)(a) Consider the location and activities involved in the excursion and assess risks to the children. 7.25

36(2)(b)(ii) Names, addresses and phone numbers of person to contact in an emergency (Child's Health Resume & Child's Emergency Information) 7.24

R47. A licensee must maintain accurate and up-to-date records with respect to each employee that include: Proof of first aid/CPR training. 7.21

44(2)(a)(i) Each individual employed in the centre for 65 hours or more per month as a centre, director, supervisor or child care worker has completed a first aid course. 7.19

33(b) appropriate and sufficient first aid supplies. 7.19

R21. Ensure that the facility and its equipment and furnishings are maintained in a sanitary condition. 7.19

36(2)(b)(i) Names, addresses and phone numbers of the child's parents (Child's Health Resume & Child's Emergency Information). 7.19

R54. If on an excursion away from the centre, at least one child care worker and one adult, or two child care workers are present to care for the children 7.17

R32. A licensee must maintain a portable record of emergency information for each child attending. 7.17

R33. If children attending a facility are taken on an excursion from the facility, the licensee must take on the excursion: a portable record of emergency information for each child. 7.16

R31. Keep appropriate and sufficient first aid supplies at the facility at a place that is inaccessible to children 7.15

44(2)(b) When required to do so by the director, retakes a course in first aid and cardiopulmonary resuscitation. 7.15

R29. Ensure that the facility is equipped with a telephone in working order. 7.14

36(2)(e) Any medication authorization provided/any record of medication administered (Medication form) 7.13

28(d) If infants, toddlers or preschool children attend the facility, cap electrical outlets. 7.12

R58. Ensure the centre has access to sufficient kitchen and dining facilities to provide food for children attending the centre. 7.10

R36. A licensee must: (a) keep a record with respect to each child attending the facility; and (b) retain the record for a period of six years after the child ceases to attend the facility. The children's record must include: Child's name and date of birth (Child's Health Resume & Child's Emergency Information). 7.09

29(b) Ensure emergency telephone numbers are posted in a convenient location. 7.08

8(1)(b) Fire Inspection - A report from the Fire Commissioner's local assistant respecting the fire safety standards of the centre. 7.06

8(1)(a) Health Inspection - A report from the public health officer respecting the sanitation and general health and safety standards of the centre must be submitted with the application. 7.04

24(2)(b) Children are fed in appropriate manner for age and level of development. 7.04

44(2)(a)(i) Each individual employed in the centre for 65 hours or more per month as a centre, director, supervisor or child care worker has completed a course in cardiopulmonary resuscitation. 7.01

45(2)(a) A licensee of a centre must establish written policies with respect to criminal record checks. 7.00

R30. Develop an emergency evacuation plan and practice it monthly. 6.97

47(f) Any emergency medical information for employee. 6.97

52(2)(b) the licensee has made arrangements for the provision of an additional individual in the event of an emergency. 6.94

45(2)(b) A licensee of a centre must make policies with respect to criminal record checks known to employees/potential employees. 6.87

24(2)(a) Meals and snacks provided meet the nutritional needs of the children attending the facility 6.81

R26. If a licensee has reason to suspect that a child attending the facility has a category 1 or category II communicable disease, the licensee must: immediately notify the public health officer. 6.76

R59. The licensee of a centre must provide a safe outdoor play area of seven square metres per space; or At least half of the outdoor play area must be adjacent to the centre and the remainder must be within walking distance. 6.76

52(2) If there are less than nine children in attendance and there are not more than three infants/toddlers, there may be only one child care worker present at the centre if: the staff-to-child ratio does not exceed the ratio set out in subsection (5). 6.74

R46. If a licensee of a centre has reason to suspect that an employee of the centre has a category I or category II communicable disease, the licensee must: notify the public health officer; and ensure recommendations/instructions from the public health office are followed. 6.72

20(2) Provide equipment and materials that are developmentally appropriate and adequate in quality, non-toxic, washable, sturdy and safe. 6.71

R19. Provide developmentally appropriate equipment and furnishings for resting, eating, diapering, toileting and storage. 6.70

R52. The licensee must ensure that there are two persons present at centre at all times including one child care worker and one other person at least 16 years of age while children are in attendance. 6.68

R24. Provide meals and snacks for the children attending the facility who are six months of age or older. 6.60

34(b) Within 24 hours after the occurrence, the licensee must notify the consultant. 6.56

27(2) In exceptional circumstances, a licensee may administer a non-prescription medication to a child on the oral authorization of the parent of the child (with written confirmation of authorization after). 6.56

34(c) Within seven days after the occurrence, complete/submit report to the ministry. 6.45

8(1)(c) Heating Inspection - A report from a person acceptable to the Director respecting the heating system in the premises in which the centre will be operated. 6.21

R20. Provide sufficient quantities of equipment and materials for indoor and outdoor activities. 6.12

R48. Any volunteer must be 16 years of age or older. 6.08

R37. A licensee must keep complete and accurate monthly child attendance records for the facility. 5.83

36(2)(b)(iii) Names, addresses and phone numbers of the child's medical practitioner (Child's Health Resume & Child's Emergency Information) 5.47

R23. No maintenance or repair to any area of the facility will be carried out while child care services are being provided. 5.40

36(2)(d) The child's immunization status (Child's Health Resume & Child's Emergency Information) 5.35

Homes (n = 76):

10(e) The results of a criminal record check with respect to the applicant and each adult who resides in the premises in which the home will be operated. 7.29

36(2)(c) Any allergy, illness or other medical condition (Child's Health Resume & Child's Emergency Information) 7.15

R61. A licensee of a home must have successfully completed a first aid course. 7.14

15(b) A licensee must ensure all employees and volunteers who provide child care services at the facility comply with the policy on child management. 7.10

R28. Store any unsafe items at the facility in a place that is inaccessible to children. 7.10

28(b) Store any poisonous substances at the facility in a locked enclosure. 7.09

61(2) A licensee of a home must have successfully completed training in cardiopulmonary resuscitation. 7.09

R63. Before an individual is hired as an assistant in a group family child care home, the licensee must obtain from the individual the results of a criminal record check with respect to the individual. 7.05

21(b) Ensure that hygienic procedures are followed by all persons in the facility. 7.04

R68. Children attending the home are adequately supervised at all times. 7.03

R34. If a child attending the facility sustains an injury requiring medical treatment or is involved in an unusual or unexpected occurrence, the licensee must: immediately notify the parent. 7.01

R70. Ensure that the social environment promotes the safety and well-being of the children. 6.97

64(b) The results of a criminal record check. 6.89

63(2) A licensee of a group family child care home must ensure that each person employed as an assistant in the home: (b) successfully completes a first aid course within six months; Comments: (c) successfully completes training in cardiopulmonary resuscitation within six months of commencing employment if not covered under (b). 6.88

28(c) Cover all radiators and hot pipes with non-combustible materials. 6.87

27(1)(c) ensure all non-emergency medications are stored in a locked enclosure. 6.86

25(b) Adequate and safe procedures are followed in the facility for cleansing utensils used for eating and drinking. 6.83

R25. Food Services 25(a) Adequate and safe procedures are followed in the facility for handling, preparation, serving and storing food. 6.83

R21. Ensure that the facility and its equipment and furnishings are maintained in a sanitary condition. 6.78

28(d) If infants, toddlers or preschool children attend the facility, cap electrical outlets. 6.77

R27. A licensee who agrees to administer a medication to a child attending the facility must: obtain written authorization from the parent of the child before the mediation is administered to the child. 6.74

33(b) appropriate and sufficient first aid supplies. 6.71

R32. A licensee must maintain a portable record of emergency information for each child attending. 6.70

27(1)(b) ensure that a written record of each dose of medication administered is made. 6.68

26(b) Ensure that any recommendations or instructions from the public health officer with respect to that communicable disease that may affect the health or well-being of a child attending the facility are carried out. 6.68

36(2)(b)(i) Names, addresses and phone numbers of the child's parents (Child's Health Resume & Child's Emergency Information) 6.67

R29. Telephone, Emergency Numbers Ensure that the facility is equipped with a telephone in working order. 6.65

36(2)(b)(ii) Names, addresses and phone numbers of person to contact in an emergency (Child's Health Resume & Child's Emergency Information). 6.65

R64. A licensee of a group family child care home must maintain records for each assistant that includes: (a) A copy of proof of training in first aid and CPR. 6.65

R33. Taking Certain Supplies If children attending a facility are taken on an excursion from the facility, the licensee must take on the excursion: a portable record of emergency information for each child. 6.61

R15. A licensee must develop a written policy with respect to child management that does not permit: corporal punishment; physical, emotional or verbal abuse; denial of necessities; isolation; or inappropriate physical or mechanical restraint. 6.61

24(2)(b) Children are fed in appropriate manner for age and level of development. 6.59

R35. Child care worker is present at all times when a volunteer is in attendance. 6.55

R31. Keep appropriate and sufficient first aid supplies at the facility at a place that is inaccessible to children 6.51

24(2)(a) Meals and snacks provided meet the nutritional needs of the children attending the facility. 6.51

65(7) If a licensee has reason to suspect an assistant or alternate has a category I or II communicable disease, the licensee must: (a) Immediately notify the public health officer; and (b) Ensure any recommendations of instructions are followed. 6.50

R24. Provide meals and snacks for the children attending the facility who are six months of age or older. 6.49

R69. No person shall conduct any business or other activity within or from the home that might: (a) Interfere with supervision of the children; or (b) Pose a threat to the health or safety of a child. 6.47

64(d) Any emergency medical information. 6.47

36(2)(e) Any medication authorization provided/any record of medication administered (Medication form). 6.47

10(b) Fire Inspection - A report from the Fire Commissioner's local assistant respecting the fire safety standards of the premises in which the home will be operated. 6.46

27(2) In exceptional circumstances, a licensee may administer a non-prescription medication to a child on the oral authorization of the parent of the child (with written confirmation of authorization after). 6.46

R67. Provide a safe outdoor play area that is sufficient and that is: (a)Adjacent to the home; or (b) Within walking distance. 6.44

R30. Develop an emergency evacuation plan and practice it monthly. 6.41

20(2) Provide equipment and materials that are developmentally appropriate and adequate in quality, non-toxic, washable, sturdy and safe. 6.41

R65. If licensee or person living in the home has a category I or II communicable disease, or suspects he or she has a category I or II communicable disease, the licensee must: (a) Immediately notify the public health officer; and (b) Ensure any recommendations of instructions are followed. 6.39

29(b) Ensure emergency telephone numbers are posted in a convenient location. 6.37

R26. If a licensee has reason to suspect that a child attending the facility has a category 1 or category II communicable disease, the licensee must: immediately notify the public health officer. 6.33

34(b) Within 24 hours after the occurrence, the licensee must notify the consultant. 6.25

R19. Provide developmentally appropriate equipment and furnishings for resting, eating, diapering, toileting and storage. 6.19

R13. A license for a home must specify the maximum number of child care spaces that the licensee is authorized to provide in the home as licensed child care spaces or a license for a teen student support family child care home must specify the maximum number of licensed child care spaces that may be allocated as teen student support child care spaces. 6.16

R36. Children's Records A licensee must: (a) keep a record with respect to each child attending the facility; and (b) retain the record for a period of six years after the child ceases to attend the facility. The children's record must include: Child's name and date of birth (Child's Health Resume & Child's Emergency Information). 6.10

10(c) A report from a person acceptable to the Director respecting the heating system in the premises in which the home will be operated. 6.09

34(c) Within seven days after the occurrence, complete/submit report to the ministry. 5.99

R60. No licensee of a family child care home will provide more than 100 hours of care in one 24-hour period or 60(3) No licensee of a group family child care home shall provide more than 150 hours of care in one 24-hour period or 60(4) No licensee of a teen student support family child care home shall provide more than 75 hours of care in one 24-hour period. 5.83

36(2)(d) The child's immunization status (Child's Health Resume & Child's Emergency Information). 5.78

R20. Provide sufficient quantities of equipment and materials for indoor and outdoor activities. 5.74

36(2)(b)(iii) Names, addresses and phone numbers of the child's medical practitioner (Child's Health Resume & Child's Emergency Information). 5.72

R37. A licensee must keep complete and accurate monthly child attendance records for the facility. 5.47

R23. No maintenance or repair to any area of the facility will be carried out while child care services are being provided. 5.06

10(h) The applicant's health services number if requested by the director. 4.07

DISCUSSION

This report provides the results of the weighted risk assessment study in Saskatchewan conducted during 2019. It is recommended that provincial staff select only those rules that place children at greatest risk to be used along with the licensing key indicator rules as identified in a previous report authored by this researcher.

By using both in tandem, it will provide a very cost effective and efficient approach to differential monitoring.

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Validation Research Studies of Key Indicator and Risk Assessment Methodologies in the Province of Saskatchewan

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March 2020

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March 2020

Introduction

The purpose of this report is to document the validation process for the Province of Saskatchewan's Licensing Key Indicator Rules and their Risk Assessment Rules. These studies were completed in 2019-2020 and were completed with a sample of child care centres and homes in the province. The purpose of the evaluation was to determine if the measurement protocol inherent in the key indicator and risk assessment methodologies were consistent and produced the desired results. Presently the province has convened a program quality work group which when they have finished their work, it should provide guidance to undertake the other three validations of licensing systems: standards, outputs, and outcome validations (see Zellman & Fiene (2012*), Validation Framework for Quality Rating and Improvement Systems*, ACF Office of Planning, Research and Evaluation).

For the purposes of this report, this validation study will only focus on the abbreviated checklist to be utilized in the province of Saskatchewan which consists of the key indicator and risk assessment rules. Saskatchewan is one of the first jurisdictions to engage in a validation study utilizing both the key indicator and risk assessment methodologies. In the past with validation studies they have been done in validating either the key indicator or the risk assessment methodology. This study is unique and is highly recommended as an approach for other jurisdictions in moving the licensing, regulatory science, program monitoring, and evaluation fields forward.

Methodology

In this study, a sample of 38 child care centres (CCC) and 35 child care homes (FCC) were selected during a three-month time frame (Winter 2019-20). It was a convenience sample based upon when facilities were to be monitored. However, since the monitoring of facilities did not show any biases in their selection protocol, this sample can be dealt with as a valid representation of the Provence. Licensing consultants did the reviews and collected the data. Again, licensing consultants who would normally review the programs during this time frame did so. The reviews/inspections were done in tandem independent of each other with two consultants visiting a facility one doing the abbreviated

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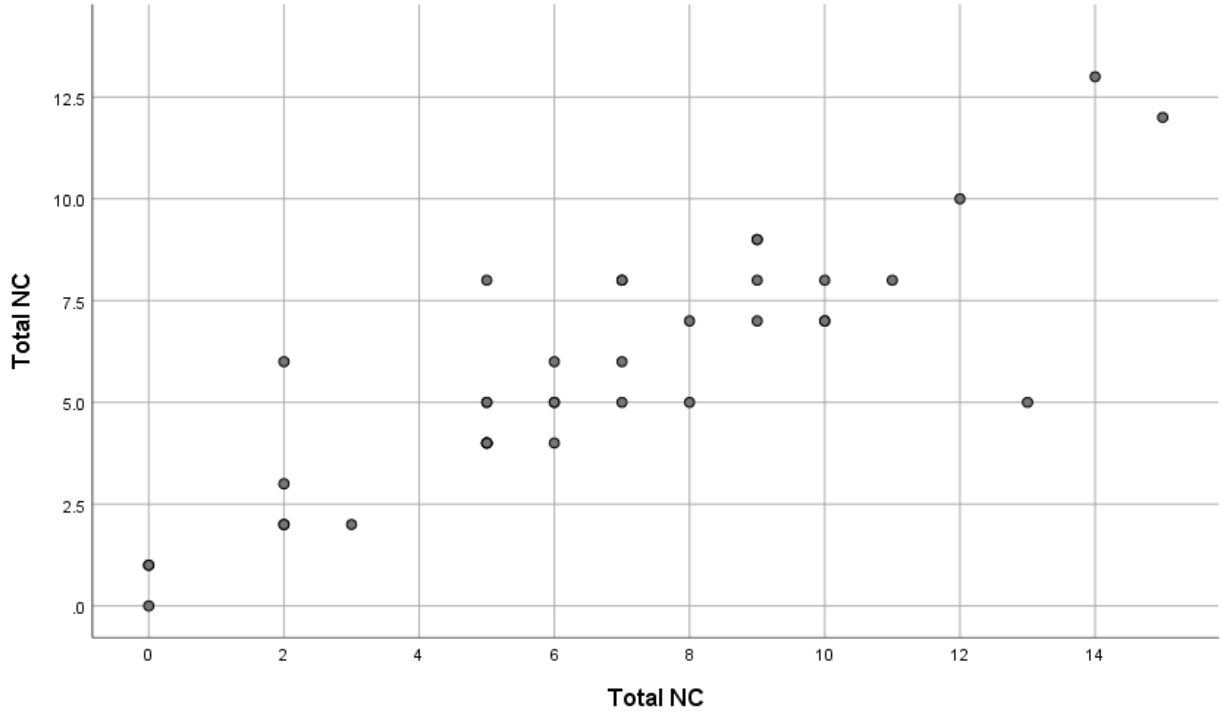
inspection/review (key indicator and risk assessment rules only), the other consultant doing the comprehensive inspection/review looking at all the rules.

Results

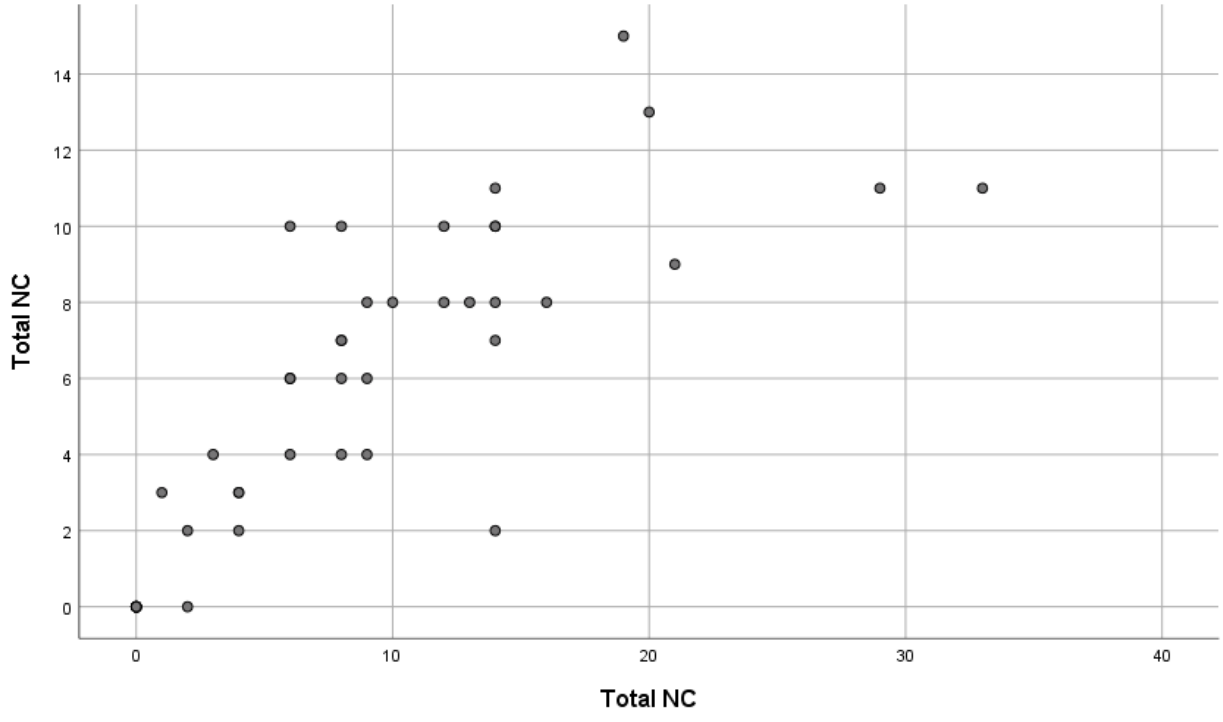
The results clearly validated the key indicator and risk assessment rules and the methodology. All the following results are statistically significant at the $p < .0001$ level with the exception of a couple of rules which are addressed in the final Discussion section of this report. The correlation between the abbreviated tool and the comprehensive tool for CCC was .86 (see Figure 1 for a graphic depiction of this relationship); while the correlation between the abbreviated tool and the comprehensive tool for FCC was .71 (see Figure 2 for a graphic depiction of this relationship). There was only one false negative in either the CCC or FCC observations in which the abbreviated tool indicated no non-compliances (NC) while 2 non-compliances (NC) were indicated on the comprehensive tool. False negative means that a program gets a perfect score on the abbreviated inspection but violations of regulatory compliance are found on the comprehensive inspection. A false positive is when no violations are found on the comprehensive inspection but violations are found on the abbreviated inspection – two cases were observed to meet this standard. There were no statistically significant differences amongst the licensing consultants scoring. Reliability IRR – Inter-Rater Reliability = .84.

Figure 1: Total CCC Non-Compliance (NC) Abbreviated Tool (Vertical Axis)/Total Non-Compliance (NC) Comprehensive Tool (Horizontal Axis)



r = .86; p < .0001

Figure 2: Total FCC NC Abbreviated Tool (Vertical Axis)/Total NC Comprehensive Tool (Horizontal Axis)



r = .71; p < .0001

The following charts (1-4) provide the correlations between the abbreviated tool and the comprehensive tool for each key indicator rule and each risk assessment rule. Chart 1 provides the results for CCC key indicator rules; Chart 2 provides the results for CCC risk assessment rules; Chart 3 provides the results for FCC key indicator rules; & Chart 4 provides the results for FCC risk assessment rules.

Chart 1: CCC Key Indicator Rules

Rule	Content of Rules	r
242a	Meals and snacks meet nutritional needs	.86
37bi	Obtain signature of parent monthly to verify hours/days of attendance	.89
37bii	Obtain signature of parent monthly to verify fee charges	.89
412b	Director and supervisor meets or exceeds the qualifications of ECEIII	.85
422b	Child care workers working for 65hrs or more/mo. meets or exceeds ECEI	.93

422c	30% of persons employed in the centre as child care workers for 65 hours or more meet or exceed the qualifications of ECE II	.94
422d	A further 20% of persons employed in the centre as child care workers for 65 hours or more meet or exceed the qualifications of ECE III	.85
431	May apply for exemption if unable to hire a director or supervisor whose qualifications meet requirements or child care workers whose qualifications meet the requirements	.82
442ai	Each individual employed in the centre for 65 hours or more per month as a centre, director, supervisor or child care worker has completed a first aid course	.93
442aii	Each individual employed in the centre for 65 hours or more per month as a centre, director, supervisor or child care worker has completed a course in cardiopulmonary resuscitation	.93
451	Criminal record check for each centre employee	.80
47b	Proof of first aid/CPR training	.85
47c	Results of criminal record check	.81

Chart 2: CCC Risk Assessment Rules

Rule	Content of Rules	r
81a	Health inspection	.93
81b	Fire inspection	.94
271a	Medication authorization is acquired	.81
271b	Written record of each dose of medication administered	1.00
271c	All non-emergency medications are stored in a locked enclosure	.65
272	Oral authorization in exceptional circumstances for administering non-prescription	1.00
28a	Unsafe items inaccessible	.52
28b	Poisonous substances locked	.76
28c	Cover radiator	1.00
28d	Cap electrical outlets	.70
49	Children must be adequately supervised at all times	1.00
523	Number of child care workers present is not less than the number required by applicable staff-to-child ratio	1.00

It is evident from Charts 1 and 2, the very strong relationship between the abbreviated key indicator and risk assessment rules and when these rules were assessed independently by a different licensing consultant during a comprehensive inspection. In moving on to Charts 3 and 4 for FCC, the results are not as quite robust but still statistically significant in all cases.

Chart 3: FCC Key Indicator Rules

Rule	Content of Rule	r
28b	Poisonous substances locked	.71
31	Appropriate and sufficient first aid supplies and inaccessible to children	.89

32	Portable record of emergency information for each child attending	.94
33b	Appropriate and sufficient first aid supplies	.71
362bii	Names, addresses and phone numbers of person to contact in an emergency	.70
362biii	Names, addresses and phone numbers of the child's medical practitioner	.83
362d	The child's immunization status (Child's Health Resume & Child's Emergency Information)	.74
362fii	Any authorization by the child's parent for an excursion involving transportation	.70
362h	The agreement for services	.48
37bi	Obtain signature of the parent monthly to verify hours/days of the child's attendance	.71
37bii	Obtain signature of the parent monthly to verify the fees charged	.83
38b	Insurance policy - liability coverage with respect to the transportation of children	.68

Chart 4: FCC Risk Assessment Rules

Rule	Content of Rule	r
10e	Criminal Record Check(s)	.85
21a	Equipment and furnishings – sanitary	.80
21b	Hygienic procedures are followed	.88
271a	Medication authorization is acquired	1.00
271b	Written record of each dose of medication administered	1.00
271c	All non-emergency medications are stored in a locked enclosure	.61
272	Oral authorization in exceptional circumstances for administering non-prescription	1.00
28a	Unsafe items inaccessible	.68
28c	Cover radiator	1.00
28d	Cap electrical outlets	.88
611	First aid certificate	1.00
612	CPR certificate	1.00
64a	A licensee of a GFCCH - maintain records for each assistant that includes: A copy of proof of training in first aid and CPR	.67
64b	The results of a criminal record check	.69
64d	Any emergency medical information	.90
64e	A copy of the proof of participation in continuing education	1.00

The FCC results appear to corroborate other findings in other jurisdictions over the years in which FCC scoring is lower than CCC scoring when it comes to reliability and validity. The results are still statistically significant in both cases but there is more consistency in the CCC scoring. This result is fairly typical. Additional research in this area will need to be done in order to ascertain the differences between CCC and FCC related to these results.

This study in Saskatchewan clearly demonstrates the efficacy of both the risk assessment and key indicator methodologies as effective and efficient approaches to utilizing an abbreviated protocol to

doing licensing inspections and determining substantial regulatory compliance. Other observations in interpreting the data analyses: The CCC key indicator rules were consistently higher in their validation scores than the risk assessment rules. The CCC key indicator rules were consistently higher in their validation scores than the FCC key indicator rules. With the FCC facilities, the risk assessment rules had higher validation scores than the key indicator rules. And finally, the risk assessment rules were consistently higher in their validation scores with FCC over the CCC facilities.

Charts 5 – 8 provide the regulatory compliance data (the number of non-compliances (NC)) with each of the key indicators and risk assessment rules for both CCC and FCC. The differences in NC for the key indicator and risk assessment rules are typical in that the key indicator rules distinguish between the highly compliant programs and those programs that have lower compliance levels. With the risk assessment rules, these are generally very heavily weighted rules where you would not find high levels of non-compliance (NC). So the results in the following charts and figure clearly demonstrate these relationships.

Figure 3 provides the regulatory compliance average number of non-compliances (NC) for both CCC and FCC with key indicator rules and risk assessment rules.

Chart 5: Non-Compliance (NC) with CCC Key Indicator Rules

Rule	Content of Rules	NC
242a	Meals and snacks meet nutritional needs	8
37bi	Obtain signature of parent monthly to verify hours/days of attendance	23
37bii	Obtain signature of parent monthly to verify fee charges	24
412b	Director and supervisor meets or exceeds the qualifications of ECEIII	4
422b	Child care workers working for 65hrs or more/mo. meets or exceeds ECEI	9
422c	30% of persons employed in the centre as child care workers for 65 hours or more meet or exceed the qualifications of ECE II	13
422d	A further 20% of persons employed in the centre as child care workers for 65 hours or more meet or exceed the qualifications of ECE III	9
431	May apply for exemption if unable to hire a director or supervisor whose qualifications meet requirements or child care workers whose qualifications meet the requirements	13
442ai	Each individual employed in the centre for 65 hours or more per month as a centre, director, supervisor or child care worker has completed a first aid course	10
442aii	Each individual employed in the centre for 65 hours or more per month as a centre, director, supervisor or child care worker has completed a course in cardiopulmonary resuscitation	10
451	Criminal record check for each centre employee	6
47b	Proof of first aid/CPR training	3
47c	Results of criminal record check	8

Chart 6: Non-Compliance (NC) with CCC Risk Assessment Rules

Rule	Content of Rules	NC
81a	Health inspection	8
81b	Fire inspection	10
271a	Medication authorization is acquired	2
271b	Written record of each dose of medication administered	0
271c	All non-emergency medications are stored in a locked enclosure	5
272	Oral authorization in exceptional circumstances for administering non-prescription	0
28a	Unsafe items inaccessible	8
28b	Poisonous substances locked	13
28c	Cover radiator	0
28d	Cap electrical outlets	5
49	Children must be adequately supervised at all times	0
523	Number of child care workers present is not less than the number required by applicable staff-to-child ratio	0

Chart 7: Non-Compliance (NC) with FCC Key Indicator Rules

Rule	Content of Rule	NC
28b	Poisonous substances locked	15
31	Appropriate and sufficient first aid supplies and inaccessible to children	14
32	Portable record of emergency information for each child attending	12
33b	Appropriate and sufficient first aid supplies	15
362bii	Names, addresses and phone numbers of person to contact in an emergency	13
362biii	Names, addresses and phone numbers of the child's medical practitioner	19
362d	The child's immunization status (Child's Health Resume & Child's Emergency Information)	17
362fii	Any authorization by the child's parent for an excursion involving transportation	14
362h	The agreement for services	12
37bi	Obtain signature of the parent monthly to verify hours/days of the child's attendance	18
37bii	Obtain signature of the parent monthly to verify the fees charged	19
38b	Insurance policy - liability coverage with respect to the transportation of children	1

Chart 8: Non-Compliance (NC) with FCC Risk Assessment Rules

Rule	Content of Rule	NC
10e	Criminal Record Check(s)	3
21a	Equipment and furnishings – sanitary	2
21b	Hygienic procedures are followed	4
271a	Medication authorization is acquired	5
271b	Written record of each dose of medication administered	3

271c	All non-emergency medications are stored in a locked enclosure	8
272	Oral authorization in exceptional circumstances for administering non-prescription	0
28a	Unsafe items inaccessible	9
28c	Cover radiator	0
28d	Cap electrical outlets	4
611	First aid certificate	0
612	CPR certificate	0
64a	A licensee of a GFCCH - maintain records for each assistant that includes: A copy of proof of training in first aid and CPR	2
64b	The results of a criminal record check	1
64d	Any emergency medical information	7
64e	A copy of the proof of participation in continuing education	6

The following figure 3 summarizes the results from the previous 4 charts into one graph showing the average regulatory non-compliance for CCC and FCC for key indicator and risk assessment rules.

Figure 3: Regulatory Compliance (Non-Compliance) in CCC & FCC for KIM – Key Indicator Rules and RAM – Risk Assessment Rules

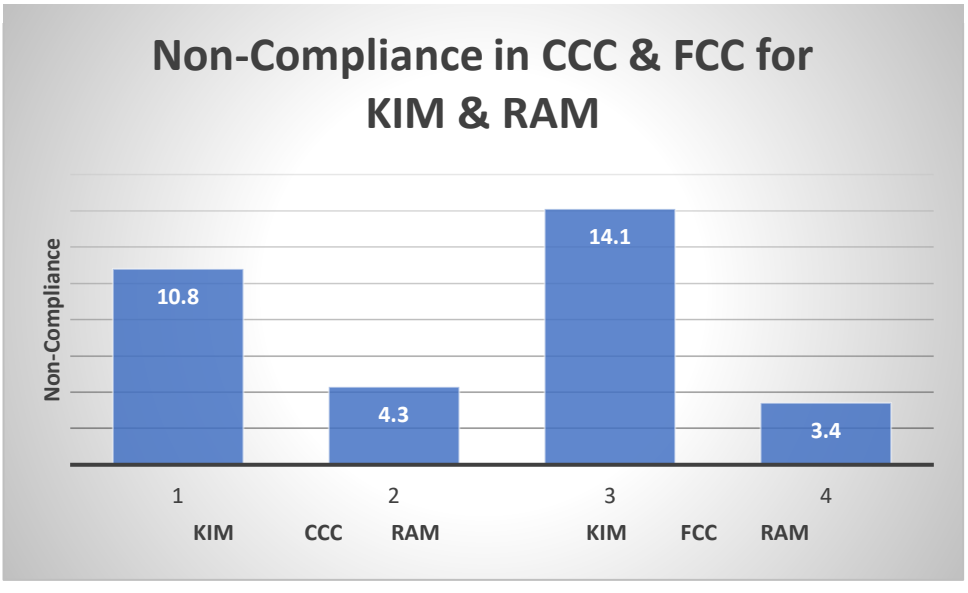


Figure 3 depicts the average differences between key indicator and risk assessment rules for both CCC and FCC facilities as discussed earlier in this report and depicted in Charts 5-8.

Discussion

There are several takeaways from this validation study in demonstrating that both key indicator rules and risk assessment rules, two abbreviated inspection approaches and examples of differential monitoring, as basically reliable and valid methods for assessing regulatory compliance in early care and education programs (child care centres (CCC) and family child care homes (FCC)). There were a couple of rules which did not reach the specific significance threshold ($p < .0001$) set for these types of validation studies: Rule 442d CCC and rule 362h FCC. But even in these cases the relationship between their presence on the abbreviated inspection tool and the comprehensive inspection tool was still statistically significant ($p < .01$).

Another interesting trend was that the CCC key indicator rules had higher validation scores and the key indicator rules had higher validation scores than the risk assessment rules. This is a result that needs to be replicated in future studies to determine why this is occurring since risk assessment rules as an approach is used approximately 2-3 times more often than the key indicator rule approach.

And lastly, the fact that there were so few false positives and negatives provides support to the validity and reliability of the two approaches. In doing this type of regulatory compliance research, false negatives are always a real concern and in 99% of the cases it was not an issue. In looking at both false positives and negatives, 96% of the cases were not an issue.

This study provides the first empirically based validation of both the key indicator and risk assessment methodologies as used within a differential monitoring or abbreviated inspection approach. It has clearly demonstrated the efficacy of these approaches when used in conjunction with each other. The study should provide guidance for future research in the regulatory science field.

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CHILD CARE CENTRE – ABBREVIATED CHECKLIST

The Child Care Regulations, 2015

Regulations Part II - Licensing Section

R08. Application for Licence, Renewal – Centre

☐8(1)(a) Health Inspection (collect documentation) - Click or tap to enter a date.
Comments:

☐8(1)(b) Fire Inspection (collect documentation) - Click or tap to enter a date.
Comments:

Regulations Part III - Standards for Facilities Section

R24. Nutrition

☐24(2)(a) Meals and snacks meet nutritional needs*
Comments:

R27. Medication

☐27(1)(a) Authorization is acquired
Comments:

☐27(1)(b) Written record of each dose of medication administered
Comments:

☐27(1)(c) All non-emergency medications are stored in a locked enclosure
Comments:

☐27(2) Oral authorization in exceptional circumstances for administering non-prescription (with written confirmation of authorization after)
Comments:

R28. Hazardous Items

☐28(a) Unsafe items inaccessible
Comments:

☐28(b) Poisonous substances locked
Comments:

☐28(c) Cover radiator
Comments:

☐28(d) Cap electrical outlets
Comments:

R37. Attendance Records (review records for past 12 months)

☐37(b)(i) Obtain signature of the parent monthly to verify hours/days of the child's attendance*
Comments:

☐37(b)(ii) Obtain signature of the parent monthly to verify the fees charged*
Comments:

Regulations Part IV – Standards for Centres Section

R41. Centre Director and Supervisor

☐41(2)(b) Meets or exceeds the qualifications of an ECE III or 41(4)*

Comments:

R42. Child Care Workers

☐42(2)(b) If working for 65 hours or more per month meets or exceeds qualifications of an ECE I*

Comments:

☐42(2)(c) 30% of persons employed in the centre as child care workers for 65 hours or more meet or exceed the qualifications of ECE II*

Comments:

☐42(2)(d) A further 20% of persons employed in the centre as child care workers for 65 hours or more meet or exceed the qualifications of ECE III*

Comments:

R43. Exemption

☐43(1) May apply for exemption if unable to hire a director or supervisor whose qualifications meet requirements or child care workers whose qualifications meet the requirements*

Comments:

R44. First Aid and CPR

☐44(2)(a)(i) Each individual employed in the centre for 65 hours or more per month as a centre, director, supervisor or child care worker has completed a first aid course*

Comments:

☐44(2)(a)(ii) Each individual employed in the centre for 65 hours or more per month as a centre, director, supervisor or child care worker has completed a course in cardiopulmonary resuscitation*

Comments:

R45. Criminal Record Searches

☐45(1) Criminal record check for each centre employee*

Comments:

R47. Employee Records

☐47(b) Proof of first aid/CPR training*

Comments:

☐47(c) Results of criminal record check (Note to File completed)*

Comments:

R49. Duty to Supervise

☐49 Children must be adequately supervised at all times

Comments:

R52. Supervision at Centre

☐52(3) Number of child care workers present is not less than the number required by applicable staff-to-child ratio set out in (4) and (5)

Comments:

ADDITIONAL REQUIREMENTS

1. _____
2. _____
3. _____
4. _____
5. _____

RECOMMENDATIONS/COMMENTS:

Click or tap here to enter text.

Early Learning and Child Care Consultant

CHILD CARE HOME – ABBREVIATED CHECKLIST

The Child Care Regulations, 2015

Regulations Part II - Licensing Section

R10. Application for Licence, Renewal – Home

☐10(e) Criminal Record Check(s) (name of household members and date CRC completed for all adults in the home):

Click or tap here to enter text. Click or tap to enter a date.
Click or tap here to enter text. Click or tap to enter a date.
Click or tap here to enter text. Click or tap to enter a date.
Click or tap here to enter text. Click or tap to enter a date.

Comments:

Regulations Part III - Standards for Facilities Section

R21. Hygiene

☐21(a) Equipment and furnishings – sanitary
Comments:

☐21(b) Hygienic procedures are followed
Comments:

R27. Medication

☐27(1)(a) Authorization is acquired
Comments:

☐27(1)(b) Written record of each dose of medication administered
Comments:

☐27(1)(c) All non-emergency medications are stored in a locked enclosure
Comments:

☐27(2) Oral authorization in exceptional circumstances for administering non-prescription (with written confirmation of authorization after)
Comments:

R28. Hazardous Items

☐28(a) Unsafe items inaccessible
Comments:

☐28(b) Poisonous substances locked*
Comments:

☐28(c) Cover radiator
Comments:

☐28(d) Cap electrical outlets
Comments:

R31. First Aid Supplies

☐31 Appropriate and sufficient first aid supplies and inaccessible to children*
Comments:

R32. Portable Emergency Information

☐32 Portable record of emergency information for each child attending*
Comments:

R33. Taking Certain Supplies

☐33(b) Appropriate and sufficient first aid supplies*
Comments:

R36. Children's Records

☐36(2)(b)(ii) Names, addresses and phone numbers of person to contact in an emergency*
(Child's Health Resume & Child's Emergency Information)
Comments:

☐36(2)(b)(iii) Names, addresses and phone numbers of the child's medical practitioner*
(Child's Health Resume & Child's Emergency Information)
Comments:

☐36(2)(d) The child's immunization status (Child's Health Resume & Child's Emergency Information)*
Comments:

☐36(2)(f)(ii) Any authorization by the child's parent for an excursion involving transportation (Excursion form)*
Comments:

☐36(2)(h) The agreement for services*
Comments:

R37. Attendance Records (review records for past 12 months)

☐37(b)(i) Obtain signature of the parent monthly to verify hours/days of the child's attendance*
Comments:

☐37(b)(ii) Obtain signature of the parent monthly to verify the fees charged*
Comments:

R38. Insurance

☐38(b) Insurance policy - liability coverage with respect to the transportation of children*
If do not transport children, N/A ☐
Insurer: Click or tap here to enter text.
Policy Number: Click or tap here to enter text. Expiry date: Click or tap to enter a date.
Comments:

Regulations PART V – Standard for Homes

R61. Qualifications Licensees

☐61(1) First aid (Type expiry date of certificate): Click or tap to enter a date.

Comments:

☐61(2) CPR (Type expiry date of certificate): Click or tap to enter a date.

Comments:

Group Family Child Care Homes

R64. Assistant Records

☐64 A licensee of a GFCCH - maintain records for each assistant that includes:

☐(a) A copy of proof of training in first aid and CPR (Type expiry date of certificate): Click or tap to enter a date.

Comments:

☐(b) The results of a criminal record check (Type date of record check and view Note to File): Click or tap to enter a date.

Comments:

☐(d) Any emergency medical information

Comments:

☐(e) A copy of the proof of participation in continuing education (Types names of workshops, dates completed and hours credited):

Comments:

ADDITIONAL REQUIREMENTS

1. _____

2. _____

3. _____

4. _____

5. _____

RECOMMENDATIONS/COMMENTS:

Click or tap here to enter text.

Early Learning and Child Care Consultant

Saskatchewan's Early Learning and Child Care Program Quality Key Indicator Instrument for Pilot Study

Ten Quality Key Indicators (QKI) make up the Saskatchewan's Early Learning and Child Care Program Quality Key Indicator Instrument. The details about each of the Quality Indicators and data collection instructions in order to obtain the necessary data to determine if a program meets the Key Quality Indicators are delineated below for each quality key indicator. Quality Key Indicators (QKI) 1 – 5 will be collected via record or document review, interviewing individuals, or observation. Quality Key Indicators (QKI) 6 – 10 will be collected via observations in the classrooms throughout the day.

This instrument is to be used as part of a pilot study to determine its efficacy, so it is very important for the data collector/assessor, you, to make ample notes on what works for you and what does not. This is NOT a final instrument but is a pilot tool to be improved upon. Ample areas have been provided for note taking. Please mark up the instrument as need be throughout your data collection. For ease of marking up the tool, there are line numbers to the left. Use these as reference guides in making your edits, comments, etc. & if you send an email with comments, use these line numbers.

Dr Rick Fiene who is the NARA Research Consultant and a research psychology/professor of psychology will be tabulating the data you collect. Dr Fiene will be assessing the reliability and validity of the tool and measure its internal consistency. If you have any questions or comments for Dr Fiene, please email him at Fiene@psu.edu.

[Initial estimated time to complete the full assessment (3.5 hours]

NOTE: *QKI 11 is a placeholder for Coaching/Reflective Supervision which is undergoing future review. It is listed as a last indicator on this instrument.*

INDICATOR 1): Number of ECE III Educators (10 minutes)

Assessors will review staff records in order to determine the number of staff who have these credentials in early childhood education. Record the number of ECEs with the appropriate qualifications and divide by the total number of ECEs in order to come up with a percent for the center.

How to Measure:

Go to the ***Staff Information Summary*** form to obtain the data for this item. There are two particular columns that will do this. Under Certification: *Certification Date and Certification Level* (Highest ECE Level Certified). The certification date should be earlier than the date of the review and the actual level of the certification. In this case, we are interested in the number of (ECEIII's). Record the number of ECEIII working at least 65 hours/month. Then record the number of total teaching staff working at least 65 hours/month below as well. Teaching staff is defined as staff who have a responsibility for working with the children and the programming. Determine the percentage by dividing the total number of staff into the total number of ECEIII Certified teaching staff, ECEIII Certified teaching staff is the numerator and the total number of teaching staff is the denominator (ECEIII/Total number of teaching staff x 100% = Percent).

Scoring:

The total number of ECEIII Certified teaching staff _____

The total number of teaching staff _____

Total ECEIII teaching staff divided by the total number of teaching staff _____ (%). Then based on the percentage, you can find the score of 1-4 as per the chart below.

Circle the Appropriate Level	***1 = 0 to 25%***	***2= 26 to 50%***	***3 = 51 to 75%***	***4 = 76 to 100%***

INDICATOR 2): Stimulating and Dynamic Environment (10 minutes)

The criteria for measuring this are drawn from ***Play and Exploration Guide.*** The program is child centred. Children are viewed as competent learners and they have the freedom to access classroom materials independently without adult intervention. The children are provided with meaningful choices through activity/learning centers. There is evidence of the children's interests and their projects in the learning environment.

How to Measure:

Below is the checklist of items that should be present in order to assess if the environment is both stimulating and dynamic for the children. You will want to observe that the following items are occurring in the classroom first. If you do not actually observe it occurring, then check the program plan to find documentation that it normally occurs but you just did not observe today. The checklist items would be found in *Play and Exploration* foundational materials.

Quality Early Learning Environments:

1. Co-teaching is evident. Y/N _____
2. Children are viewed as competent learners & are able to access materials independently. Y/N _____
3. Authentic and meaningful materials are used with children. Y/N _____
4. Children are provided with meaningful choices. Y/N _____
5. Children's work, art and photos are displayed respectfully. Y/N _____
6. Family photos are displayed in the early learning program. Y/N _____
7. Documentation of learning is displayed and discusses holistic development. Y/N _____
8. Environment reflects the culture and beliefs of the children, families and staff. Y/N _____
9. Variety of books & other print materials are available throughout the learning environment Y/N

10. A variety of writing materials are accessible to children the majority of the time. Y/N _____

11. There is evidence of the children's interests and project(s) in the learning environment.

Y/N _____

Scoring:

Total up the number of items where you recorded a "Y" above that you observed (curriculum or in classrooms), divide by 11 x 100% to come up with a percent and record here _____ %. Then based on the percentage, you can find the score of 1-4 as per the chart below.

Circle the Appropriate Level	***1 = 0 to 25%***	***2= 26 to 50%***	***3 = 51 to 75%***	***4 = 76 to 100%***

INDICATOR 3): Developmentally Appropriate Curriculum Based on Assessments of Each Child (50-60 minutes)

The key for this quality key indicator is that the program is following an individualized prescribed planning document when it comes to curriculum. It does not mean it is a canned program, in fact, it shouldn't if it is based upon the individual needs of each child's developmental assessment. The assessor will ask to see what is used to guide the curriculum. There should be a written document that clearly delineates the parameters of the philosophy, activities, guidance, and resources needed for the particular curricular approach. There should also be a developmental assessment which is clearly tied to the curriculum. The developmental assessment can be home-grown or a more standardized off-the-shelf type of assessment, the key being its ability to inform the various aspects of the curriculum. The purpose of the assessments is not to compare children but rather to compare the developmental progress of individual children as they experience the activities of the curriculum.

The following key elements should be present when assessing this quality indicator.

- 1) The program practices emergent curriculum, allowing the interests of the children to determine the learning content. The curriculum is informed by individual developmental assessments of each child in the respective classrooms.
- 2) The children and educators are co-learners in the exploration of projects.
- 3) Learning activities of the children are documented, displayed in the learning environment and used to plan further learning activities. This can be assessed developmentally.

How to Measure:

Take a sample of 10 individual children's records and consider the above three elements for EACH record. You should be asking if there is a clear link between an assessment and the developmentally appropriate curriculum so that an individualized learning approach is being undertaken and each child's developmental needs are taken into consideration. These records could be formal such as portfolios kept for each child or a more informal, anecdotal type of record keeping. The key is that there is a record that can be looked at. It is not adequate if the teacher says they do it from memory – it needs to be written down and documented.

Cross check the child's record to the actual curriculum. Record all the instances (Y's) in which this occurs. All three blocks need to be checked for each record (1-10).

Emergent Curriculum is Practiced

1 Y/N	2 Y/N	3 Y/N	4 Y/N	5 Y/N	6 Y/N	7 Y/N	8 Y/N	9 Y/N	10 Y/N

Key Element 1 +

Children and Educators are Co-learners

1 Y/N	2 Y/N	3 Y/N	4 Y/N	5 Y/N	6 Y/N	7 Y/N	8 Y/N	9 Y/N	10 Y/N

Key Element 2 +

Learning Activities are Documented and Displayed and Used to Plan Future Learning

1 Y/N	2 Y/N	3 Y/N	4 Y/N	5 Y/N	6 Y/N	7 Y/N	8 Y/N	9 Y/N	10 Y/N

Key Element 3 +

Add the above three Key Elements

All three key elements must have a Y to get an overall score of Y. If all three key elements have a Y for that individual record, then record Y in the corresponding block in the overall score.

1 Ys =	2 Ys =	3 Ys =	4 Ys =	5 Ys =	6 Ys =	7 Ys =	8 Ys =	9 Ys =	10 Ys =

= Total of All Three Key Elements

Scoring:

The number of positive records (all Ys for all three elements) where there is a crosswalk from developmental assessment to curriculum _____

Percent of positive records (all Ys) (divide the number of positive records by 10 x 100%) _____ %.

Then based on the percentage, you can find the score of 1-4 as per the chart below.

Circle the Appropriate Level	***1 = 0 to 25%***	***2= 26 to 50%***	***3 = 51 to 75%***	***4 = 76 to 100%***

INDICATOR 4): Opportunities for Staff and Families to Get to Know Each Other (10 minutes)

There should be activities both within the center as well as off site where staff and parents have opportunities to meet and greet each other. Communication with family members is documented and enables early childhood providers to assess the need for follow-up. Early childhood providers hold regular office hours when they are available to talk with family members either in person or by phone. Family members are encouraged to lead the conversation and to raise any questions or concerns.

How to Measure:

Look for the following 3 examples in policies developed by the program and determine if they have been actually carried out with families. It will be necessary to interview staff to complete this indicator if you do not find the three examples in policies:

1. The program provides communication, education, and informational materials and opportunities for families that are delivered in a way that meets their diverse needs. Y/N_____
2. The program communicates with families using different modes of communication, and at least one mode promotes two-way communication. Y/N _____
3. The program demonstrates respect and engages in ongoing two-way communication. The program respects each family's strengths, choices, and goals for their children. Y/N ___

Scoring:

Record the number of Yes's (Y's): _____ (Range: 0 – 3)(Divide by 3 x 100% = _____%). Then based on the percentage, you can find the score of 1-4 as per the chart below.

Circle the Appropriate Level	***1 = 0 to 25%***	***2= 26 to 50%***	***3 = 51 to 75%***	***4 = 76 to 100%***

INDICATOR 5): Families Receive Information on Their Child's Progress Regularly Using a Formal Mechanism (Report or Parent Conference) (10 minutes)

Based upon Indicator #3 above, the information gleaned from the developmental assessments should be the focus of the report or parent conference. Parental feedback about the assessment and how it compares to their experiences at home would be an excellent comparison point. All these interactions should be done in a culturally and linguistically appropriate way representing the parents being served.

How to Measure:

Look for the following four examples in policies developed by the program and determine if they have actually been carried out with families. Record the number of reports completed or parent conferences over the past year. It will be necessary to interview staff to complete this indicator if you cannot determine from records that the conferences or reports were actually completed.

NOTE: The examples are mutually exclusive and are not additive; the first example is the highest scored, the third example the least scored. After 1-3 are determined, then do the last example.

- 1) The program does have regularly scheduled (at least 2xs/year) parent conferences in which the children's developmental progress is discussed AND provides the family with a report of their child's developmental progress. Y/N _____ (Score 3 points). If "Yes" then go to Number 4. If "No", then go to numbers 2 and 3.

- 2) The program has regularly scheduled (at least 2xs/year) parent conferences in which the children's developmental progress is discussed, but it does not provide a report to the parents on their child's developmental progress. Y/N _____ (Score 2 points).

- 3) If the program does not have regularly scheduled (at least 2xs/year) parent conferences does it provide the family with a report of their child's developmental progress. Y/N _____ (Score 1 point). Go to Number 4.

- 4) All these interactions are done in a culturally and linguistically appropriate way representing the parents being served. Y/N _____ (Score 1 point)

Scoring:

Add up the total points based on the Ys, this will range from "0" to "4". The only way a program can receive a "4", is if a program has regularly scheduled parent conferences at least 2xs/year and provides the family with a report of their child's progress; and it is done in a culturally and linguistically appropriate way.

Record the number of points: _____ (Range: 0 - 4)

OBSERVATIONS:

For quality key indicators 6, 7 and 8, it is recommended that the licensing consultant refer to the appropriate Environmental Rating Scale (ERS) tool as a reference tool because these indicators are taken directly from these tools. It is also recommended that these be assessed/observed throughout the day and not just during key activity times. Please follow the specific instructions and examples as delineated below and in the appropriate ERS tool: ECERS 3 (Items 12 and 13) or ITERS (Item 12). These specific instructions and examples are provided within this tool for ease of administration and data collection. If there are several preschool aged classrooms randomly select one to do your observations.

INDICATOR 6): Educators Encourage Children to Communicate (20 minutes)

Assessors will need to observe this item when they do their classroom observations. Initially you can ask educators or the director how children are encouraged to communicate but in order to gather reliable and valid information regarding this question/standard, it needs to be observed in the various interactions of staff and children. Things to look for would be more back and forth conversations rather than one-way conversations where educators are telling children what to do. Look for opportunities where children can describe what they are doing, how they feel about what they are doing, and why they are doing the particular activities. Educators expand upon children's conversations. These opportunities can occur anywhere in the classroom or outside, such as in dramatic play, table top activities or on the playground. Materials should be present that encourage communication such as toy telephones, puppets, flannel boards, dolls and dramatic play props, small barns, fire stations, or dollhouses. These create a lot of conversation among children as they assume many different roles. Children also talk when there is an interested person who listens to them. The staff in a high-quality

early childhood classroom will use both activities and materials to encourage growth in communication skills.

How to Measure:

Observe the classroom for a minimum of 15 minutes. Once completed, consider where the classroom falls based on the following scale;

Score the classroom a 1 if the following occur:

- No activities used by staff with children to encourage them to communicate, for example: nontalking about drawings, dictating stories, sharing ideas at circle time, finger plays, singing songs. Y/N _____
- Very few materials accessible that encourage children to communicate. Y/N _____

Score the classroom a 2 if the following occur (If the classroom does not have all 3 indicators but has 1-2 of the indicators then score this item 1+):

- Some activities used by staff with children to encourage them to communicate. Y/N _____
- Some materials accessible to encourage children to communicate. Y/N ____
- Communication activities are generally appropriate for the children in the group. Y/N _____

Score the classroom a 3 if the following occur (If the classroom does not have both indicators but has one of the indicators then score this item 2+):

- Communication activities take place during both free play and group times, for example: child dictates story about painting; small group discusses trip to store. Y/N _____
- Materials that encourage children to communicate are accessible in a variety of interest centers, for example: small figures and animals in block area; puppets and flannel board pieces in book area; toys for dramatic play outdoors or indoors. Y/N _____

Score the classroom a 4 if the following occur (If the classroom does not have both indicators but has one of the indicators then score this item 3+):

- Staff balance listening and talking appropriately for age and abilities of children during communication activities, for example: leave time for children to respond; verbalize for child with limited communication skills. Y/N _____
- Staff link children's spoken communication with written language, for example: write down what children dictate and read it back to them; help them write note to parents. Y/N _____

Scoring:

Total up the number of "Y's" and record the appropriate level. In order for a classroom to receive a particular score, all "Y's" must be checked for the appropriate level (1 - 4) from above or partial credit given in order to obtain a "+". If there is a "+" please also mark it in the box.

Circle the Appropriate Level	***1***	***2***	***3***	***4***

INDICATOR 7): Infant Toddler Observation (if applicable) **(20 minutes)**

NOTE: If there is an infant, toddler or combined infant/toddler classroom that needs to be assessed, then use the following ITERS item directly from the ITERS Tool (Item 12), if there is not an infant toddler classroom, then skip to Indicator 8.

Conversations and questions should be used with all children, even young infants. Conversations using verbal and nonverbal turn-taking should be considered when scoring. Most conversations and questions initiated by infants will be nonverbal, such as widening of baby's eyes or waving arms and legs. Observe staff response to such nonverbal communication. For infants and toddlers, the responsibility for starting most conversations and asking questions belongs to the staff. As children

become more able to initiate communication, staff should modify their approach in order to allow children to take on a greater role in initiating conversations and asking questions. Staff should provide answers to questions used with children if child cannot answer, and as children become more able to respond, questions should start to include those that the child can answer. If there was not an infant classroom, skip this Indicator and please note that here and on the summary score sheet by marking N/A: _____

How to Measure:

Observe the classroom for a minimum of 15 minutes. Once completed, consider where the classroom falls based on the following scale;

Score the classroom a 1 if the following occurs:

- Staff never initiate turn-taking conversations with children, for example: rarely encourage baby to babble back; simple back and forth exchanges with verbal children never observed. Y/N _____
- Staff questions are often not appropriate for children or no questions are asked, for example: too difficult to answer; carry a negative message. Y/N _____
- Staff respond negatively when children can't answer questions, for example: "You should know this"; "You did not listen". Y/N _____

Score the classroom a 2 if the following occurs (If the classroom does not have all 3 indicators but has 1-2 of the indicators then score this item 1+):

- Staff sometimes initiate conversations with children, for example: babble back and forth with baby; copy baby's sounds; respond to baby's crying with verbal response; have short back and forth toddler interactions. Y/N _____

- Staff sometimes ask children appropriate questions and wait for child to respond, for example: ask baby if she likes toy and pay attention as baby smiles; ask toddler what he is eating and wait for him to think of word. Y/N _____
- Staff respond neutrally or positively to children who can't answer questions. Questions asked are sometimes meaningful to children, for example: child responds with interest; does not ignore staff questions. Y/N _____

Score the classroom a 3 if the following occurs (If the classroom does not have all 4 indicators but has 1-3 of the indicators then score this item 2+):

- Staff initiate engaging conversations with children throughout the observation, for example: show enthusiasm; use tone that attracts child's attention. Y/N _____
- Staff often personalize questions and/or conversations for individual children, for example: talk about children's families, preferences, interests; what they are playing with; what they did over weekend; child's mood; use child's name. Y/N _____
- Staff often pay attention to children's questions, verbal or nonverbal, and answer in a satisfying manner for the child. Y/N _____
- Staff ask questions in which children show interest in answering, for example: make the questions funny or mysterious; use attractive tone; meaningful and not too difficult to answer. Y/N _____

Score the classroom a 4 if the following occurs (If the classroom does not have both indicators but has one of the indicators then score this item 3+):

- Staff frequently have turn taking conversations with children throughout the observations. Many appropriate questions are used throughout the observation, during both play and routines. Y/N _____

- Staff ask children appropriate questions, wait a reasonable time for child response, and then answer if needed, for example: “Are you hungry? . . . Yes, you are!”; “Where’s the ball? . . . These it is! You found the ball”. Y/N _____

Scoring:

Total up the number of “Y’s” and record the appropriate level. In order for a classroom to receive a particular score, all “Y’s” must be checked for the appropriate level (1 - 4) from above or partial credit given in order to obtain a “+”.

Circle the Appropriate Level	***1***	***2***	***3***	***4***

INDICATOR 8): Educators Use Language to Develop Reasoning Skills (20 minutes)

Assessors will need to observe very carefully as this standard can be difficult to determine because it is tying language and cognition together. Again, this opportunity can occur in any setting in or out of the classroom because it is the basis for problem solving through the use of language. Also look for educators redirecting children’s conversations when appropriate. Staff should use language to talk about logical relationships using materials that stimulate reasoning. Through the use of materials, staff can demonstrate concepts such as same/different, classifying, sequencing, one-to-one correspondence, spatial relationships, and cause and effect.

How to Measure:

Observe the classroom for a minimum of 15 minutes. Once completed, consider where the classroom falls based on the following scale;

Score the classroom a 1 if the following occur:

- Staff do not talk with children about logical relationships, for example: ignore children's questions and curiosity about why things happen, do not call attention to sequence of daily events, differences and similarity in number, size, shape, cause and effect. Y/N _____
- Concepts are introduced inappropriately, for example: concepts too difficult for age and abilities of children, inappropriate teaching methods used such as worksheets without any concrete experiences; teacher gives answers without helping children to figure things out. Y/N _____

Score the classroom a 2 if the following occur (If the classroom does not have both indicators but has one of the indicators then score this item 1+):

- Staff sometimes talk about logical relationships or concepts, for example: explain that outside time comes after snacks, points out differences in sizes of blocks children use. Y/N _____
- Some concepts are introduced appropriately for ages and abilities of children in group, using words and experiences, for example: guide children with questions and words to sort big and little blocks or to figure out why ice melts. Y/N _____

Score the classroom a 3 if the following occur (If the classroom does not have both indicators but has one of the indicators then score this item 2+):

- Staff talk about logical relationships while children play with materials that stimulate reasoning, for example: sequence cards, same/different games, size and shape toys, sorting games, numbers and math games. Y/N _____
- Children are encouraged to talk through or explain their reasoning when solving problems, for example: why they sorted objects into different groups, in what way two pictures are the same or different. Y/N _____

Score the classroom a 4 if the following occur (If the classroom does not have both indicators but has one of the indicators then score this item 3+):

- Staff encourage children to reason throughout the day, using actual events and experiences as a basis for concept development, for example: children learn sequence by talking about their experiences in the daily routine or recalling the sequence of a cooking project. Y/N _____
- Concepts are introduced based upon children's interests or needs to solve problems, for example: talk children through balancing a tall block building, help children figure out how many spoons are needed to set a table. Y/N _____

Scoring:

Total up the number of "Y's" and record the appropriate level. In order for a classroom to receive a particular score, all "Y's" must be checked for the appropriate level (1 - 4) from above or partial credit given in order to obtain a "+".

Circle the Appropriate Level	***1***	***2***	***3***	***4***

For quality key indicators 9 and 10 it is recommended that these be assessed/observed throughout the day and not just during key activity times. These two quality key indicators should be observed in two-minute blocks over ten sequences for a total of 20 minutes. These two items should also be used with each age group you are assessing.

Initially it will be necessary to observe these two quality indicators separately but could be observed and recorded jointly once you are familiar with the tool and have done sufficient observations.

INDICATOR 9): Educators Listen Attentively When Children Speak (25 minutes)

This quality indicator focuses on the early childhood educator(s) looking directly at the children with nods, rephrases their comments, engages in conversations. Children should have the undivided attention of the specific educator they are addressing. Educators should not be looking away or pre-

occupied with others. They should be at the child's level making eye contact. The intent is to observe all children and educators in the room.

How to Measure:

Do this in timed 2-minute observations recording each time you observe this occurring. Record at least 10 different observation periods. These do not need to be consecutive in order to fully observe classrooms and educators. Please use the following scale to assess your recordings: Likert Scale (1-4) where 1 = Never/Not at All; 2 = Somewhat/Few Instances; 3 = Quite a Bit/Many Instances; 4 = Very Much/Consistently):

Make the actual recordings using the Likert Scale (1-4) above for each individual observation and record in each cell below.

Scoring:

Once all the observations are made, add up the results from the Likert Scale (1-4) and record the total number here: _____ (Range: 10 - 40)(Divide this result by 10) = _____ (1-4)(Round upward or downward to the whole number (3.7 = 4; 2.2 = 2)).

Circle the Appropriate Level	***1***	***2***	***3***	***4***

INDICATOR 10): Educators Speak Warmly to Children (25 minutes)

This quality indicator focuses on the early childhood educator(s) always engaging in a caring voice and body language with every child. Educators do not use harsh language or commands in speaking to children, but rather again are on the child's level making eye contact. Think of the way Fred Rogers

would engage his audience where you always felt you were the most important person in the world when he talked into the TV.

How to Measure:

Do this in timed 2-minute observations recording each time you observe this occurring. Record at least 10 different observation periods. Please use the following scale to make your recordings: (This item is on a Likert Scale (1-4) where 1 = Never/Not at All; 2 = Somewhat/Few Instances; 3 = Quite a Bit/Many Instances; 4 = Very Much/Consistently):

Make the actual recordings using the Likert Scale (1-4) above for each individual observation and record in each cell below.

Scoring:

Once all the observations are made, add up the results from the Likert Scale (1-4) and record the total number here: _____ (Range: 10 - 40)(Divide this result by 10) = _____ (1-4). (Round upward or downward to the whole number (3.7 = 4; 2.2 = 2)).

Circle the Appropriate Level	***1***	***2***	***3***	***4***

INDICATOR 11): Reflective Supervision Placeholder TBD.

Notes (record any notations for indicators here by noting the number of the quality indicator and any notes or comments):

After completing your observations, reviewing all documentation, and interviewing staff when necessary, please transfer all your results to the Summary Table below. If there was not an infant classroom, please note here, NO infant classrooms: _____

Key Q Indicator	***Quality Indicator Content***	***Scale***	***Potential Score***	***Actual Score***
QKI 1	**Professional Development**	**NAEYC**	**1-4**	
QKI 2	**The Environment**	**Saskatchewan**	**1-4**	
QKI 3	**Curriculum and Assessment**	**NAEYC**	**1-4**	
QKI 4	**Family Engagement I**	**QRIS**	**1-4**	
QKI 5	**Family Engagement II**	**QRIS**	**1-4**	
QKI 6	**Communication**	**ECERS**	**1-4**	
QKI 7	***Infant Classroom***	***ITERS***	***1-4 or NA***	
QKI 8	**Reasoning Skills**	**ECERS**	**1-4**	
QKI 9	**Listen Attentively**	**CIS**	**1-4**	
QKI 10	**Speak Warmly**	**CIS**	**1-4**	

Notes:

_____

_____

_____

_____

_____

All these 10 quality indicators (SKPQI) have been taken from other sources having been identified in Quality Indicator Studies from 1980 – 2020. Please refer back to the source documents for details on their creation:

ECERS, ITERS, QRIS/INQUIRE, CIS/Arnett, NAEYC, SASKATCHEWAN PLAY & EXPLORATION.

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4/1/2021

SKPQI7

The Emergence of a New Early Childhood Program Quality Tool/Scale

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The early care and education (ECE) field has been dominated by two program quality tools/scales for the past two-three decades: ERSs (ITERS, ECERS, SACERS, FCCERS) and CLASS. These scales have served the field well over the years in providing excellent observation tools for Quality Rating and Improvement Systems (QRIS) initiatives at the state level and for national programs, such as Head Start. These scales are based upon expert opinion and have a good deal of empirical research to back them up.

While these tools were being used in the above domains QRIS and Head Start, a parallel development was occurring at the licensing level in which specific statistical methodologies were developed to identify key predictor rule indicators that predicted overall regulatory compliance with the full set of rules for specific ECE programs. This avenue of research was equally successful in providing the early care and education field with a tool/scale that listed these key predictor rule indicators (NARA, 2023a).

In the past 20 years, these statistical methodologies were expanded upon and applied to accreditation, QRIS, and professional development quality initiatives. In each of these

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applications, key predictor performance indicators were identified that predicted overall performance of an ECE program.

These key predictor rule and performance indicators were combined into a new type of scale/tool that measured an ECE program at both a licensing and quality levels. Most recently this new scale/tool: The Early Childhood Education Quality Indicators Scale (ECEQIS) was pilot tested for reliability and validity in the Province of Saskatchewan's Ministry of Education by the National Association for Regulatory Administration (NARA) with resounding results (NARA, 2023b) (see Appendix 2).

The new ECEQIS is unique in that in its construction it is based upon both empirical evidence and expert opinion. All 10 indicators on the tool are generated from the key predictor rule and performance indicators statistical methodology. The ECEQIS is appended to this article for the interested reader. As one will see, it consists of only 10 items but they are from the various quality ECE initiatives present in today's ECE systems: Licensing, QRIS, Accreditation, Professional Development/Training/Technical Assistance systems. The scale is easy to use and very time efficient, being able to be completed within two hours.

The ECEQIS has been tested for reliability by having independent observers collect data independent of each other. The ECEQIS has been tested for validity by having observers collect data independent of each other utilizing the ECEQIS and the ERSs: ECERS for preschool classrooms and the ITERS for infant and toddler classrooms. In all cases the validity results were significant at $p < .0001$. The ECEQIS is a rather robust tool and is a major addition to the

ECE measurement landscape (Please see the NARA Validation Study for the details of this study and the results (NARA, 2023b) which is contained in Appendix 2).

Here is a summary of the validation study which involved 30 programs, 90 classrooms and 180 observations of infant, toddler, and preschool classrooms utilizing the ECERS/ITERS and the SKECPQI instruments. Six trained observers collected the data over a two-month period. The analyses clearly demonstrated that the new ECEQIS instrument is a valid and reliable measure of program quality. PQI #2 clearly showed its predictive power in this study. The ECEQIS and PQI #2 correlated very highly with the ITERS and ECERS. The ECEQIS appears to correlate more highly with regulatory compliance violations than the ECERS or ITERS. The ceiling/plateauing effect is not as evident with the ECEQIS as it is with ECERS/ITERS. The Regulatory Compliance Scale (RCS) is a better sorter for regulatory compliance than the violation data. There is a good deal of internal consistency within the ECEQIS Tool just as it is with the ERSs. The Regulatory Compliance Theory of Diminishing Returns was validated in comparing RCS with ECERS/ITERS. Both the ECEQIS Scale and the Regulatory Compliance Scale are introduced as new improvements to measuring quality and regulatory compliance; however, in this article only the ECEQIS tool/scale is highlighted.

All scoring and scaling are built into the scale and utilizes observation, record review and lastly interviewing if necessary. The scale is organized into two parts: 1) Record Review and 2) Observations. There is ample room for making recordings within the tool and specific charts for keeping track of results.

The ECEQIS is organized into the following more general areas: 1) Quality Staff and Programming, 2) Quality Curriculum and Assessment, 3) Sharing and Communication with Parents, 4) Encouraging Communication and Reasoning Skills in Children, 5) Caregivers who are Warm and Attentive to Children. Each general area has anywhere from 1-3 program quality indicators (please check out the ECEQIS appended to this article below in Appendix 1).

The advantages with the new ECEQIS are that it measures indicators from all the major quality initiatives that exist within ECE as of this writing. From an ECE state administrator, licensing ECE administrator, or an ECE program director, this would provide a very effective and efficient means for assessing the overall quality of my program or programs in my respective jurisdiction. The other major advantage of the ECEQIS is that in can be used in infant, toddler, and preschool classrooms by selecting particular program quality indicators over other ones. This really makes it convenient to use. Obviously, the scoring will be a tad different, but everything else about the scale remains the same.

So, I encourage you to take a look and see what you think. Try it out in your classroom and see how well it works. And if you have the time, share your results with me, my contact information is at the end of this article, I would love to see what you are finding and add it to my national database.

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References

NARA (2023a). *Key Indicator Website (https://www.naralicensing.org/key-indicators)*. National Association for Regulatory Administration: Fredericksburg, VA.

NARA (2023b). *Saskatchewan Validation of the Early Care and Education Program Quality Indicators Scale*. National Association for Regulatory Administration: Fredericksburg, VA.

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Appendix 1

Saskatchewan's Early Learning and Child Care Program Quality Key Indicator Instrument (SKECPQI)

INTRODUCTION and BACKGROUND to SKECPQI

Ten Quality Key Indicators (QKI) make up the Saskatchewan's Early Learning and Child Care Program Quality Key Indicator Instrument (SKECPQI). The details about each of the Quality Indicators and data collection instructions in order to obtain the necessary data to determine if a program meets the Key Quality Indicators are delineated below for each quality key indicator. Part 1 - Quality Key Indicators (QKI) 1 – 5 will be collected via record or document review, interviewing individuals, or observation. Part 2 - Quality Key Indicators (QKI) 6 – 10 will be collected via observations in the classrooms throughout the assessment.

These ten quality key indicators were taken from previous studies conducted over the past 40 years by Dr Richard Fiene utilizing the Regulatory Compliance Key Indicator metric (RCKIm) that he developed in the late 1970's. These QKI have held up over time and have now been coupled together into this tool and being pilot tested in the Province of Saskatchewan. The original tool was reviewed by a Provincial Ministry of Education Work Group who met during 2019-2020 and made some revisions to the original tool. All these changes are reflected in this version of the SKECPQI (2023).

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PART 1 – Record/Document Review, Interview, Observation Quality Indicators

INDICATOR 1): Number of ECE III Educators (AA and BA Level ECE Educators)

Assessors will review staff records to determine the number of staff who have these credentials in early childhood education. Record the number of ECEs with the appropriate qualifications and divide them by the total number of ECEs to come up with a percent for the center.

How to Measure:

Go to the ***Staff Information Summary*** form to obtain the data for this item. There are two columns that will do this. Under Certification: *Certification Date and Certification Level* (Highest ECE Level Certified). The certification date should be earlier than the date of the review and the actual level of the certification. In this case, we are interested in the number of (ECEIII's). Record the number of ECEIII working at least 65 hours/month. Then record the number of total teaching staff working at least 65 hours/month below as well. Teaching staff is defined as staff who have a responsibility for working with the children and the programming. Determine the percentage by dividing the total number of staff into the total number of ECEIII Certified teaching staff, ECEIII Certified teaching staff is the numerator, and the total number of teaching staff is the denominator (ECEIII/Total number of teaching staff x 100% = Percent).

Scoring for PQI 1:

The total number of ECEIII Certified teaching staff _____ (1.1)

The total number of teaching staff _____ (1.2)

Total ECEIII teaching staff divided by the total number of teaching staff _____ (%).

Then based on the percentage, you can find the score of 1-4 as per the chart below.

Circle the Appropriate Level	***1 = 0 to 25%***	***2= 26 to 50%***	***3 = 51 to 75%***	***4 = 76 to 100%***

INDICATOR 2): Stimulating and Dynamic Environment

The criteria for measuring this are drawn from ***Play and Exploration Guide.*** The program is child centered. Children are viewed as competent learners, and they have the freedom to access classroom materials independently without adult intervention. The children are provided with meaningful choices through activity/learning centers. There is evidence of the children's interests and their projects in the learning environment.

How to Measure:

Below is the checklist of items that should be present to assess if the environment is both stimulating and dynamic for the children. You will want to observe that the following items are occurring in the classroom first. If you do not actually observe it occurring, then check the program plan to find documentation that it normally occurs but you just did not observe today. The checklist items would be found in *Play and Exploration* foundational materials.

Quality Early Learning Environments (Please record all that you observe Y or N):

1. Co-teaching is evident. Y/N _____ (2.1)
2. Children are viewed as competent learners & can access materials independently. Y/N ___ (2.2)
3. Authentic and meaningful materials are used with children. Y/N _____ (2.3)
4. Children are provided with meaningful choices. Y/N _____ (2.4)
5. Children's work, art and photos are displayed respectfully. Y/N _____ (2.5)
6. Family photos are displayed in the early learning program. Y/N _____ (2.6)
7. Documentation of learning is displayed and discusses holistic development. Y/N _____ (2.7)
8. Environment reflects the culture and beliefs of the children, families and staff. Y/N _____ (2.8)
9. Variety of books & other print materials are available throughout the classroom Y/N ____ (2.9)
10. A variety of writing materials are accessible to children most of the time. Y/N _____ (2.10)
11. There is evidence of the children's interests & projects in the classroom. Y/N ___ (2.11)

Scoring for PQI 2:

Total up the number of items where you recorded a "Y" above that you observed (curriculum or in classrooms), divide by 11 x 100% to come up with a percent and record here _____ %. Then based on the percentage, you can find the score of 1-4 as per the chart below.

Circle the Appropriate Level	***1 = 0 to 25%***	***2= 26 to 50%***	***3 = 51 to 75%***	***4 = 76 to 100%***

INDICATOR 3): Developmentally Appropriate Curriculum Based on Assessments of Each Child

The key for this quality key indicator is that the program is following an individualized prescribed planning document when it comes to curriculum. It does not mean it is a canned program, in fact, it shouldn't if it is based upon the individual needs of each child's developmental assessment. The assessor will ask to see what is used to guide the curriculum. There should be a written document that clearly delineates the parameters of the philosophy, activities, guidance, and resources needed for the particular curricular approach. There should also be a developmental assessment which is clearly tied to the curriculum. The developmental assessment can be home-grown or a more standardized off-the-shelf type of assessment, the key being its ability to inform the various aspects of the curriculum. The purpose of the assessments is not to compare children but rather to compare the developmental progress of individual children as they experience the activities of the curriculum.

The following key elements should be present when assessing this quality indicator.

- 1) The program practices emergent curriculum, allowing the interests of the children to determine the learning content. The curriculum is informed by individual developmental assessments of each child in the respective classrooms.
- 2) The children and educators are co-learners in the exploration of projects.
- 3) Learning activities of the children are documented, displayed in the learning environment and used to plan further learning activities. This can be assessed developmentally.

How to Measure:

Take a sample of 10 individual children's records and consider the above three elements for EACH record. You should be asking yourself if there is a clear link between an assessment and the developmentally appropriate curriculum so that an individualized learning approach is being undertaken and each child's developmental needs are taken into consideration. These records could be formal, such as portfolios kept for each child or a more informal, anecdotal type of record keeping. The key is that there is a record that can be looked at. It is not adequate if the teacher says they do it from memory – it needs to be written down and documented.

Cross check the child's record to the actual curriculum. Record all the instances (Y's) in which this occurs. All three blocks need to be checked for each record (1-10).

Emergent Curriculum is Practiced (3.1)

1 Y/N	2 Y/N	3 Y/N	4 Y/N	5 Y/N	6 Y/N	7 Y/N	8 Y/N	9 Y/N	10 Y/N

Key Element 1 +

Children and Educators are Co-learners (3.2)

1 Y/N	2 Y/N	3 Y/N	4 Y/N	5 Y/N	6 Y/N	7 Y/N	8 Y/N	9 Y/N	10 Y/N

Key Element 2 +

Learning Activities are Documented and Displayed and Used to Plan Future Learning (3.3)

1 Y/N	2 Y/N	3 Y/N	4 Y/N	5 Y/N	6 Y/N	7 Y/N	8 Y/N	9 Y/N	10 Y/N

Key Element 3 +

All three key elements must have a Y to get an overall score of Y. If all three key elements have a Y for that individual record, then record Y in the corresponding block in the overall score.

1 Ys =	2 Ys =	3 Ys =	4 Ys =	5 Ys =	6 Ys =	7 Ys =	8 Ys =	9 Ys =	10 Ys =

= Total of All Three Key Elements (3.4)

Scoring for PQI 3:

The number of positive records (all Ys for all three elements) where there is a crosswalk from developmental assessment to curriculum _____

Percent of positive records (all Ys) (divide the number of positive records by 10 x 100%) _____ %. Then based on the percentage, you can find the score of 1-4 as per the chart below.

Circle the Appropriate Level	*1 = 0 to 25%*	*2= 26 to 50%*	*3 = 51 to 75%*	*4 = 76 to 100%*

INDICATOR 4): Opportunities for Staff and Families to Get to Know Each Other

There should be activities both within the center as well as off site where staff and parents have opportunities to meet and greet each other. Communication with family members is documented and enables early childhood providers to assess the need for follow-up. Early childhood providers hold regular office hours when they are available to talk with family members either in person or by phone. Family members are encouraged to lead the conversation and to raise any questions or concerns.

How to Measure:

Look for the following 3 examples in policies developed by the program and determine if they have been carried out with families. It will be necessary to interview staff to complete this indicator if you do not find the three examples in policies:

1. The program provides communication, education, and informational materials & opportunities for families that are delivered in a way that meets their diverse needs. Y/N_____ (4.1)
2. The program communicates with families using different modes of communication, and at least one mode promotes two-way communication. Y/N _____ (4.2)
3. The program demonstrates respect and engages in ongoing two-way communication. The program respects each family's strengths, choices, & goals for their children. Y/N ____ (4.3)

Scoring for PQI 4:

Record the number of Yes's (Y's): _____ (Range: 0 – 3) (Divide by 3 x 100% = _____%). Then based on the percentage, you can find the score of 1-4 as per the chart below.

Circle the Appropriate Level	*1 = 0 to 25%*	*2= 26 to 50%*	*3 = 51 to 75%*	*4 = 76 to 100%*

INDICATOR 5): Families Receive Information on Their Child's Progress Regularly Using a Formal Mechanism

Based upon Indicator #3 above, the information gleaned from the developmental assessments should be the focus of the report or parent conference. Parental feedback about the assessment and how it compares to their experiences at home would be an excellent comparison point. All these interactions should be done in a culturally and linguistically appropriate way representing the parents being served.

How to Measure:

Look for the following four examples in policies developed by the program and determine if they have been carried out with families. Record the number of reports completed or parent conferences over the past year. It will be necessary to interview staff to complete this indicator if you cannot determine from records that the conferences or reports were completed.

NOTE: The examples are mutually exclusive and are not additive; the first example is the highest scored, the third example the least scored. After 1-3 are determined, then do the last example.

- 1) The program does have regularly scheduled (at least 2xs/year) parent conferences in which the children's developmental progress is discussed AND provides the family with a report of their child's developmental progress. Y/N _____ (5.1) (Score 3 points). If "Yes" then go to Number 4. If "No", then go to numbers 2 and 3.
- 2) The program has regularly scheduled (at least 2xs/year) parent conferences in which the children's developmental progress is discussed, but it does not provide a report to the parents on their child's developmental progress. Y/N _____ (5.2) (Score 2 points).
- 3) If the program does not have regularly scheduled (at least 2xs/year) parent conferences, does it provide the family with a report of their child's developmental progress. Y/N _____ (5.3) (Score 1 point). Go to Number 4.
- 4) All these interactions are done in a culturally and linguistically appropriate way representing the parents being served. Y/N _____ (5.4) (Score 1 point)

Scoring for PQI5:

Add up the total points based on the Ys; this will range from "0" to "4". The only way a program can receive a "4", is if a program has regularly scheduled parent conferences at least 2xs/year and provides the family with a report of their child's progress; and it is done in a culturally and linguistically appropriate way.

Record the number of points: _____ (Range: 0 - 4)

Total Score for Part 1 = _____

PART 2 - OBSERVATIONS:

For quality key indicators 6, 7 and 8, it is recommended that the licensing consultant refer to the appropriate Environmental Rating Scale (ERS) tool as a reference tool because these indicators are taken directly from these tools. It is also recommended that these be assessed/observed throughout the assessment and not just during key activity times. Please follow the specific instructions and examples as delineated below and in the appropriate ERS tool: ECERS (Items 12 and 13) or ITERS (Item 12). These specific instructions and examples are provided within this tool for ease of administration and data collection. If there are several preschool aged classrooms randomly select one to do your observations.

INDICATOR 6): Educators Encourage Children to Communicate (Preschool Class)

Assessors will need to observe this item when they do their classroom observations. Initially you can ask educators or the director how children are encouraged to communicate but in order to gather reliable and valid information regarding this question/standard, it needs to be observed in the various interactions between staff and children. Things to look for would be more back and forth conversations rather than one-way conversations where educators are telling children what to do. Look for opportunities where children can describe what they are doing, how they feel about what they are doing, and why they are doing particular activities. Educators expand upon children's conversations.

These opportunities can occur anywhere in the classroom or outside, such as in dramatic play, tabletop activities or on the playground. Materials should be present that encourage communication such as toy telephones, puppets, flannel boards, dolls and dramatic play props, small barns, fire stations, or dollhouses. These create a lot of conversation among children as they assume many different roles. Children also talk when there is an interested person who listens to them. The staff in a high-quality early childhood classroom will use both activities and materials to encourage growth in communication skills.

How to Measure:

Observe the classroom for a minimum of 15 minutes. Once completed, consider where the classroom falls based on the following scale;
Score the classroom a 1 if the following occur:

- No activities used by staff with children to encourage them to communicate, for example: nontalking about drawings, dictating stories, sharing ideas at circle time, finger plays, singing songs. Y/N _____ (6.1)
- Very few materials accessible that encourage children to communicate. Y/N _____ (6.2)

Score the classroom a 2 if the following occur (If the classroom does not have all 3 indicators but has 2 of the indicators then score this item 1+):

- Some activities are used by staff w/children to encourage them to communicate. Y/N _____ (6.3)
- Some materials are accessible to encourage children to communicate. Y/N ____ (6.4)
- Communication activities are generally appropriate for the children in the group. Y/N _____ (6.5)

Score the classroom a 3 if the following occur (If the classroom does not have both indicators but has one of the indicators then score this item 2+):

- Communication activities take place during both free play and group times, for example: child dictates story about painting; small group discusses trip to store. Y/N _____ (6.6)
- Materials that encourage children to communicate are accessible in a variety of interest centers, for example: small figures and animals in block area; puppets and flannel board pieces in book area; toys for dramatic play outdoors or indoors. Y/N _____ (6.7)

Score the classroom a 4 if the following occur (If the classroom does not have both indicators but has one of the indicators then score this item 3+):

- Staff balance listening and talking appropriately for age and abilities of children during communication activities, for example: leave time for children to respond; verbalize for child with limited communication skills. Y/N _____ (6.9)
- Staff link children's spoken communication with written language, for example: write down what children dictate & read it back to them; help them write notes to parents. Y/N _____ (6.10)

Scoring for PQI 6:

Total up the number of "Y's" and record the appropriate level. In order for a classroom to receive a particular score, all "Y's" must be checked for the appropriate level (1 - 4) from above or partial credit given in order to obtain a "+". If there is a "+" please also mark it in the box.

Circle the Appropriate Level	***1***	***2***	***3***	***4***

INDICATOR 7): Infant Toddler Observation (if applicable) **(Infant Classroom)**

NOTE: If there is an infant, toddler or combined infant/toddler classroom that needs to be assessed, then use the following ITERS item directly from the ITERS Tool (Item 12), if there is not an infant toddler classroom, then skip to Indicator 8.

Conversations and questions should be used with all children, even young infants. Conversations using verbal and nonverbal turn-taking should be considered when scoring. Most conversations and questions initiated by infants will be nonverbal, such as widening of baby's eyes or waving arms and legs. Observe staff response to such nonverbal communication. For infants and toddlers, the responsibility for starting most conversations and asking questions belongs to the staff. As children become more able to initiate communication, staff should modify their approach in order to allow children to take on a greater role in initiating conversations and asking questions. Staff should provide answers to questions used by children if children cannot answer, and as children become more able to respond, questions should start to include those that the child can answer. If there was not an infant classroom, skip this Indicator and please note that here and on the summary score sheet by marking N/A: _____

How to Measure:

Observe the classroom for a minimum of 15 minutes. Once completed, consider where the classroom falls based on the following scale;

Score the classroom a 1 if the following occurs:

- Staff never initiate turn-taking conversations with children, for example: rarely encourage baby to babble back; simple back and forth exchanges with verbal children never observed. Y/N _____ (7.1)
- Staff questions are often not appropriate for children, or no questions are asked, for example: too difficult to answer; carry a negative message. Y/N _____ (7.2)
- Staff respond negatively when children can't answer questions, for example: "You should know this"; "You did not listen". Y/N _____ (7.3)

Score the classroom a 2 if the following occurs (If the classroom does not have all 3 indicators but has 2 of the indicators then score this item 1+):

- Staff sometimes initiate conversations with children, for example: babble back and forth with baby; copy baby's sounds; respond to baby's crying with verbal response; have short back and forth toddler interactions. Y/N _____ (7.4)
- Staff sometimes ask children appropriate questions and wait for the child to respond, for example: ask baby if she likes toy and pay attention as baby smiles; ask toddler what he is eating and wait for him to think of word. Y/N _____ (7.5)
- Staff respond neutrally or positively to children who can't answer questions. Questions asked are sometimes meaningful to children, for example: child responds with interest; does not ignore staff questions. Y/N _____ (7.6)

Score the classroom a 3 if the following occurs (If the classroom does not have all 4 indicators but has 2 or more of the indicators then score this item 2+):

- Staff initiate engaging conversations with children throughout the observation, for example: show enthusiasm; use tone that attracts child's attention. Y/N _____ (7.7)
- Staff often personalize questions and/or conversations for individual children, for example: talk about children's families, preferences, interests; what they are playing with; what they did over weekend; child's mood; use child's name. Y/N _____ (7.8)

- Staff often pay attention to children's questions, verbal or nonverbal, and answer in a satisfying manner for the child. Y/N _____ (7.9)
- Staff ask questions in which children show interest in answering, for example: make the questions funny or mysterious; use attractive tone; meaningful and not too difficult to answer. Y/N _____ (7.10)

Score the classroom a 4 if the following occurs (If the classroom does not have both indicators but has one of the indicators then score this item 3+):

- Staff frequently have turn taking conversations with children throughout the observations. Many appropriate questions are used throughout the observation, during both play and routines. Y/N _____ (7.11)
- Staff ask children appropriate questions, wait a reasonable time for child response, and then answer if needed, for example: "Are you hungry? . . . Yes, you are!"; "Where's the ball? . . . These it is! You found the ball". Y/N _____ (7.12)

Scoring for PQI 7:

Total up the number of "Y's" and record the appropriate level. For a classroom to receive a particular score, all "Y's" must be checked for the appropriate level (1 - 4) from above or partial credit given in order to obtain a "+".

Circle the Appropriate Level	***1***	***2***	***3***	***4***

INDICATOR 8): Educators Use Language to Develop Reasoning Skills (Preschool)

Assessors will need to observe very carefully as this standard can be difficult to determine because it is tying language and cognition together. Again, this opportunity can occur in any setting in or out of the classroom because it is the basis for problem solving through the use of language. Also look for educators redirecting children's conversations when appropriate. Staff should use language to talk about logical relationships using materials that stimulate reasoning. Through the use of materials, staff can demonstrate concepts such as same/different, classifying, sequencing, one-to-one correspondence, spatial relationships, and cause and effect.

How to Measure:

Observe the classroom for a minimum of 15 minutes. Once completed, consider where the classroom falls based on the following scale;

Score the classroom a 1 if the following occur:

- Staff do not talk with children about logical relationships, for example: ignore children's questions and curiosity about why things happen, do not call attention to sequence of daily events, differences and similarity in number, size, shape, cause and effect. Y/N _____ (8.1)
- Concepts are introduced inappropriately, for example: concepts too difficult for age and abilities of children, inappropriate teaching methods used such as worksheets without any concrete experiences; teacher gives answers w/o helping children to figure things out. Y/N _____ (8.2)

Score the classroom a 2 if the following occur (If the classroom does not have both indicators but has one of the indicators then score this item 1+):

- Staff sometimes talk about logical relationships or concepts, e.g.: explain that outside time comes after snacks, point out differences in sizes of blocks children use. Y/N _____ (8.3)

- Some concepts are introduced appropriately for ages and abilities of children in group, using words and experiences, for example: guide children with questions and words to sort big and little blocks or to figure out why ice melts. Y/N _____ (8.4)

Score the classroom a 3 if the following occur (If the classroom does not have both indicators but has one of the indicators then score this item 2+):

- Staff talk about logical relationships while children play with materials that stimulate reasoning, for example: sequence cards, same/different games, size and shape toys, sorting games, numbers and math games. Y/N _____ (8.5)
- Children are encouraged to talk through or explain their reasoning when solving problems, for example: why they sorted objects into different groups, in what way two pictures are the same or different. Y/N _____ (8.6)

Score the classroom a 4 if the following occur (If the classroom does not have both indicators but has one of the indicators then score this item 3+):

- Staff encourage children to reason throughout the day, using actual events and experiences as a basis for concept development, e.g.: children learn sequence by talking about their experiences in the daily routine or recalling the sequence of a cooking project. Y/N _____ (8.7)
- Concepts are introduced based upon children's interests or needs to solve problems, for example: talk children through balancing a tall block building, help children figure out how many spoons are needed to set a table. Y/N _____ (8.8)

Scoring for PQI 8:

Total up the number of "Y's" and record the appropriate level. In order for a classroom to receive a particular score, all "Y's" must be checked for the appropriate level (1 - 4) from above or partial credit given in order to obtain a "+".

Circle the Appropriate Level	***1***	***2***	***3***	***4***

For quality key indicators 9 and 10 it is recommended that these be assessed/observed throughout the observation period and not just during key activity times. These two quality key indicators should be observed in two-minute blocks over ten sequences for a total of 20 minutes. These two items should also be used with each age group you are assessing.

INDICATOR 9): Educators Listen Attentively When Children Speak

This quality indicator focuses on the early childhood educator(s) looking directly at the children with nods, rephrases their comments, engages in conversations. Children should have the undivided attention of the specific educator they are addressing. Educators should not be looking away or pre-occupied with others. They should be at the child's level making eye contact. The intent is to observe all children and educators in the room.

How to Measure:

Do this in timed 2-minute observations recording each time you observe this occurring. Record at least 10 different observation periods. These do not need to be consecutive in order to fully observe classrooms and educators. Please use the following scale to assess your recordings: Likert Scale (1-4) where 1 = Never/Not at All; 2 = Somewhat/Few Instances; 3 = Quite a Bit/Many Instances; 4 = Very Much/Consistently):

Make the actual recordings using the Likert Scale (1-4) above for each individual observation and record in each cell below.

10 Observations:

10.1	2	3	4	5	6	7	8	9	10.10

Scoring for PQI 9:

Once all the observations are made, add up the results from the Likert Scale (1-4) and record the total number here: _____ (Range: 10 - 40)(Divide this result by 10) = _____ (1-4)(Round upward or downward to the whole number (3.7 = 4; 2.2 = 2)).

Circle the Appropriate Level	***1***	***2***	***3***	***4***

INDICATOR 10): Educators Speak Warmly to Children

This quality indicator focuses on the early childhood educator(s) always engaging in a caring voice and body language with every child. Educators do not use harsh language or commands in speaking to children, but rather again are on the child's level making eye contact. Think of the way Fred Rogers would engage his audience where you always felt you were the most important person in the world when he talked to the TV.

How to Measure:
Do this in timed 2-minute observations recording each time you observe this occurring. Record at least 10 different observation periods. Please use the following scale to make your recordings: (This item is on a Likert Scale (1-4) where 1 = Never/Not at All; 2 = Somewhat/Few Instances; 3 = Quite a Bit/Many Instances; 4 = Very Much/Consistently):
Make the actual recordings using the Likert Scale (1-4) above for each individual observation and record in each cell below.
10 Observations:

10.1	2	3	4	5	6	7	8	9	10.10

Scoring for PQI 10:

Once all the observations are made, add up the results from the Likert Scale (1-4) and record the total number here: _____ (Range: 10 - 40) (Divide this result by 10) = _____ (1-4).
(Round upward or downward to the whole number (3.7 = 4; 2.2 = 2)).

Circle the Appropriate Level	***1***	***2***	***3***	***4***

SKECPQI Scoring Protocol

LEVEL	Standardized Scores	Actual Scores
High Quality	**Mixed Age: 36+** **Preschool: 32+** **Infant-Toddler: 28+**	Mixed Age: _____ Preschool: _____ Infant-Toddler: _____
High - Mid Quality	**Mixed Age: 30 – 35** **Preschool: 26 - 31** **Infant-Toddler: 22 - 27**	Mixed Age: _____ Preschool:_____ Infant-Toddler:_____
Mid – Low Quality	**Mixed Age: 20 – 29** **Preschool: 16 - 25** **Infant-Toddler: 12 - 21**	Mixed Age: _____ Preschool: _____ Infant-Toddler: _____
Low Quality	**Mixed Ages: 19 or less** **Preschool: 15 or less** **Infant-Toddler: 11 or less**	Mixed Age: _____ Preschool:_____ Infant-Toddler: _____

Note:

Additional Information regarding the psychometrics of the tool contact: Richard Fiene, Ph.D., Research Psychologist, Research Institute for Key Indicators & Penn State University. RFiene@RIKInstitute.com

10/2020; 4/2021; 1/2023; 2/2023; 3/2023 versions

After completing your observations, reviewing all documentation, and interviewing staff, when necessary, please transfer all your results to the Summary Table below. If there was not an infant classroom, please note here, no infant classroom: _____. If there was not a toddler classroom, please note here, no toddler classroom: _____. If there was not a preschool classroom, please note here, no preschool classroom: _____.

Key Q Indicator	***Quality Indicator Content***	***Scale Source***	***Potential Score***	***Actual Score***
QKI 1	Professional Development	NAEYC	1-4	1, 2, 3, 4
QKI 2	The Environment	Saskatchewan	1-4	1, 2, 3, 4
QKI 3	Curriculum and Assessment	NAEYC	1-4	1, 2, 3, 4
QKI 4	Family Engagement I	QRIS	1-4	1, 2, 3, 4
QKI 5	Family Engagement II	QRIS	1-4	1, 2, 3, 4
QKI 6	Communication (Preschool)	ECERS	1-4 or NA	1, 2, 3, 4, +, NA
QKI 7	*Infant Classroom*	*ITERS*	*1-4 or NA*	1, 2, 3, 4, +, NA
QKI 8	Reasoning Skills (Preschool)	ECERS	1-4 or NA	1, 2, 3, 4, +, NA
QKI 9	Listen Attentively	CIS	1-4	1, 2, 3, 4
QKI 10	Speak Warmly	CIS	1-4	1, 2, 3, 4

Notes:
Use ITERS if: (Infants) (B-1yr)
Use ITERS if: (Toddlers) (1yr-2yr)
Use ECERS if: (Preschoolers) (3yr+)

SKECPQI/Infant (administer QKI items 1-5, 7, 9-10) (Scores 8-32)

SKECPQI/Toddler or Preschool (administer QKI items 1-5, 7, 9-10) (Scores 8-32) or (administer QKI items 1-6, 8-10) (Scores 9-36). Mixed age group (administer QKI items 1-10) (Scores 10-40)

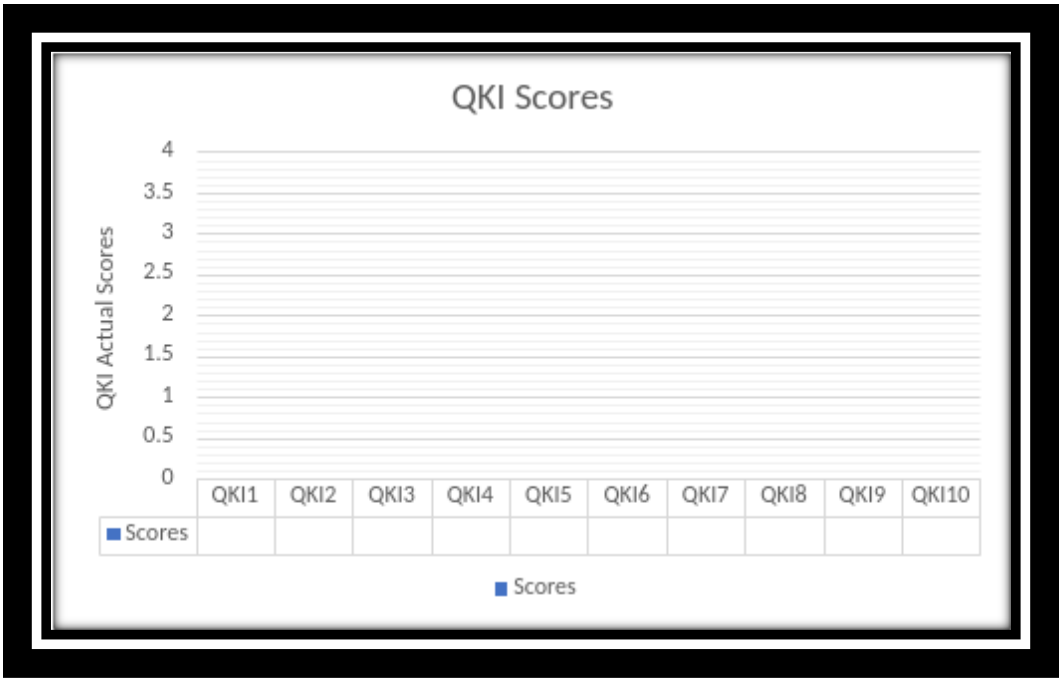
SKECPQI/Preschool (administer QKI items 1-6, 8-10) (Scores 9-36)

All the above 10 quality indicators (SKECPQI) have been taken from other sources having been identified in Quality Indicator Studies conducted by Dr Richard Fiene from 1980 – 2020. Please refer to the source documents for details on their creation: *ECERS, ITERS, QRIS/INQUIRE, CIS/Arnett, NAEYC, SASKATCHEWAN PLAY & EXPLORATION.* For additional information, reports, and publications related to these studies, please go to https://www.naralicensing.org/key-indicators Or https://rikinstitute.com/publications/

SKECPQI: SASKATCHEWAN EARLY CHILDHOOD PROGRAM QUALITY INDICATORS

CHART/GRAPH

	Scores
QKI1	
QKI2	
QKI3	
QKI4	
QKI5	
QKI6	
QKI7	
QKI8	
QKI9	
QKI10	
TOTAL	



rfiene@rikinstitute.com

QKI and key elements/sub items and comments Scoresheet:

QKI1 _____ 1.1 _____ 1.2 _____ Comments: _____

QKI2 _____ %

2.1 _____ Comments: _____

2.2 _____ Comments: _____

2.3 _____ Comments: _____

2.4 _____ Comments: _____

2.5 _____ Comments: _____

2.6 _____ Comments: _____

2.7 _____ Comments: _____

2.8 _____ Comments: _____

2.9 _____ Comments: _____

2.10 _____ Comments: _____

2.11 _____ Comments: _____

QKI3 _____ %

3.1 _____ Comments: _____

3.2 _____ Comments: _____

3.3 _____ Comments: _____

3.4 _____ Comments: _____

QKI4 _____ %

4.1 _____ Comments: _____

4.2 _____ Comments: _____

4.3 _____ Comments: _____

QKI5 _____ Points

5.1 _____ Comments: _____

5.2 _____ Comments: _____

5.3 _____ Comments: _____

5.4 _____ Comments: _____

QKI6 _____ Level

6.1 _____ Comments: _____

6.2 _____ Comments: _____

6.3 _____ Comments: _____

6.4 _____ Comments: _____

6.5 _____ Comments: _____

6.6 _____ Comments: _____

6.7 _____ Comments: _____

6.8 _____ Comments: _____

6.9 _____ Comments: _____

QKI7 _____ Level

7.1 _____ Comments: _____

7.2 _____ Comments: _____

7.3 _____ Comments: _____

7.4 _____ Comments: _____

7.5 _____ Comments: _____

7.6 _____ Comments: _____

7.7 _____ Comments: _____

7.8 _____ Comments: _____

7.9 _____ Comments: _____

7.10 _____ Comments: _____

7.11 _____ Comments: _____

7.12 _____ Comments: _____

QKI 8 _____ Level

8.1 _____ Comments: _____

8.2 _____ Comments: _____

8.3 _____ Comments: _____

8.4 _____ Comments: _____

8.5 _____ Comments: _____

8.6 _____ Comments: _____

8.7 _____ Comments: _____

8.8 _____ Comments: _____

QKI9 _____ Level

9.1 _____ Comments: _____

9.2 _____ Comments: _____

9.3 _____ Comments: _____

9.4 _____ Comments: _____

9.5 _____ Comments: _____

9.6 _____ Comments: _____

9.7 _____ Comments: _____

9.8 _____ Comments: _____

9.9 _____ Comments: _____

9.10 _____ Comments: _____

QKI10 _____ Level

10.1 _____ Comments: _____

10.2 _____ Comments: _____

10.3 _____ Comments: _____

10.4 _____ Comments: _____

10.5 _____ Comments: _____

10.6 _____ Comments: _____

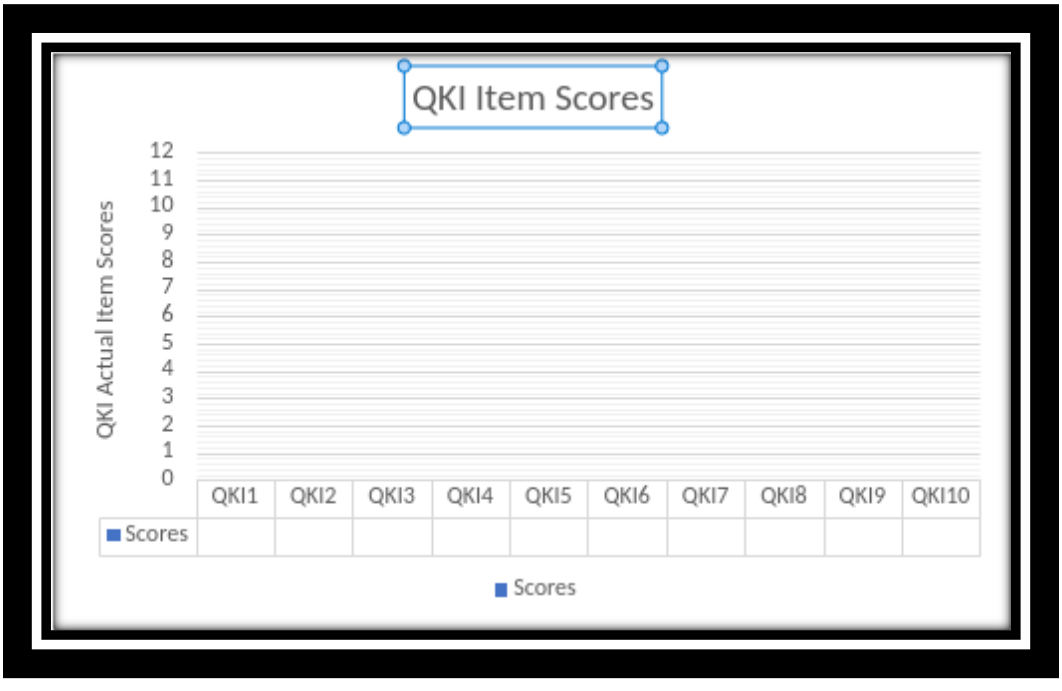
10.7 _____ Comments: _____

10.8 _____ Comments: _____

10.9 _____ Comments: _____

10.10 _____ Comments: _____

Quality Key Indicators (QKI)	Elements/Items	Data Collection
1	1.	Record Review
2	11	Policy, Records, Interviews
3	4	Policy, Records, Interviews
4	3 . . .	Policy, Records, Interviews
5	4	Policy, Records, Interviews
6	9	Observation
7	12	Observation
8	8	Observation
9	10	Observation
10	10	Observation
TOTAL	**Potential Score = 78**	**Actual Score Obtained = _____**



Appendix 2

The Saskatchewan Early Care and Education Quality Indicators (SKECPQI) Tool and Validation: The Last Piece of the Puzzle in Creating a Differential Monitoring Approach

Study Methodology and Statistical Analyses

Research Institute for Key Indicators/Prevention Research Center/Penn State University/National Association for Regulatory Administration

Abstract

This validation study involved 30 programs, 90 classrooms and 180 observations of infant, toddler, and preschool classrooms utilizing the ECERS/ITERS and the SKECPQI instruments. Six trained observers collected the data over a two-month period. The analyses clearly demonstrated that the new SKECPQI instrument is a valid and reliable measure of program quality. PQI #2 clearly showed it predictive power in this study. The SKECPQI and PQI #2 correlated very highly with the ITERS and ECERS. The SKECPQI appears to correlate more highly with regulatory compliance violations than the ECERS or ITERS. The ceiling/plateauing effect is not as evident with the SKECPQI as it is with ECERS/ITERS. The Regulatory Compliance Scale (RCS) is a better sorter for regulatory compliance than the violation data. There is a good deal of internal consistency within the SKECPQI Tool just as it is with the ERSs. The Regulatory Compliance Theory of Diminishing Returns was validated in comparing RCS with ECERS/ITERS. Both the SKECPQI Scale and the Regulatory Compliance Scale are introduced as new improvements to measuring quality and regulatory compliance.

INTRODUCTION

This article will delineate the development, piloting and validating of the Saskatchewan Early Care and Education Quality Key Indicators (SKECPQI) Tool. The purpose of the tool is to assess the overall program quality in centered based childcare programs in the Province of Saskatchewan, Canada. The evolution of the tool resulted from a multi-year effort by the Ministry of Education in the Province of Saskatchewan to build an effective and efficient differential monitoring system.

This effort in building a new differential monitoring system started in 2019 and was completed in 2023. The first component of this restructuring was the Saskatchewan Licensing Key Indicator System (2019). This was followed by the Saskatchewan Risk Assessment Rules (2019). Once these were in place and operational, a validation study was conducted to measure that the two methodologies were operating as they should (2020). A work group was initiated in 2019 and completed its work in 2020 on an Early Care and Education Quality Key Indicator Tool (SKECPQI). The tool was put on hold for 2021 because of

the pandemic and a new Canadian Federal initiative to expand childcare services across the province. The tool initiative began again in 2022. The pilot testing and validation occurred in 2023.

The work and these studies in the Province of Saskatchewan by the Ministry of Education is the first demonstration of a full-blown differential monitoring system involving licensing key indicator rules, risk assessment rules, and quality indicators. Besides the development of each tool, each of these tools have been validated as well. All this work was done as a collaborative effort between the Ministry of Education staff and the National Association for Regulatory Administration (NARA) consultant pool. Presently, Saskatchewan's overall system is the best example of a fully developed differential monitoring system for the early care and education field.

This was a monumental effort involving many individuals at the local, provincial, and national levels and many hours of data collection and analysis. All the reports are available on the NARA Website (https://www.naralicensing.org/key-indicators) and the full data set will be available via Mendeley Data Sources (https://data.mendeley.com/datasets/kzk 6xssx4d/1).

BACKGROUND HISTORY

This study and tool grew out of an interest by Saskatchewan Ministry of Education policy makers to establish a balance between regulatory compliance and program quality in the most effective and efficient manner. The Province of Saskatchewan did not have a QRIS (Quality Rating and Improvement System) in place nor plans on developing one. Generally, when a jurisdiction wants to develop a balance between regulatory compliance and program quality with rules/regulations/standards, QRIS's are generally developed and implemented.

In reviewing the research literature on regulatory science, differential monitoring has been a developing approach used by many other jurisdictions in the human service licensing field, especially in the United States and in several other Canadian Provinces. Based upon this review of the research literature and the work of the National Association for Regulatory Administration (NARA) which has been a long-term promoter of this approach and the resulting methodologies of licensing key indicators, risk assessment rules, and most recently quality indicators, a contract was entered into between the Ministry of Education and NARA.

The tool is the direct result of research into identifying licensing and quality key indicators over a 50-year (1970-2022) research effort in which specific methodologies were developed and the differential monitoring approach was tested and implemented in the 1970's. Since that time, a national database which expanded to an international database of common key indicators from jurisdictions' respective key indicator tools. These key indicators resulted in a very similar tool that Saskatchewan is using. In fact, in 2019 when the Saskatchewan work group was established, they started with that specific tool that had been developed (Fiene, 2019). During the 2019-2020 period, the work group made the tool into a more user-friendly tool for Saskatchewan childcare programs.

The big deal with utilizing the key indicator methodology is its ability to statistically predict as if one administered the full tool in question. Therefore, when one administers the first quality indicator in the Saskatchewan Early Care and Education Quality Indicator tool, it is as if they have administered a licensing based regulatory compliance instrument since the quality of staff is a statistically predictive rule (Fiene, 2002a). The same is true in administering the curriculum quality indicator because it is a

statistically predictive standard when looking at overall program quality (Fiene, 2002b). When it comes to QRIS, having communication between staff and parents and parental involvement is a statistically predictive standard for an overall set of QRIS standards (Fiene, 2014). And finally, when administering the ECERS and ITERS or the CIS quality item indicators these are all statistically predictive items for their respective scales as if you had administered the full scales (Fiene, 2002b).

So, as a state/provincial administrator, I would be interested in focusing my efforts on these indicators which reflect compliance with high quality rules/regulations/standards for early care and education. This would be my starting point. I would make sure that my standards reflected quality teachers with the necessary supports such as coaching/mentoring, an early care and education philosophy based upon an emergent curriculum where children are viewed as competent learners, developmentally appropriate curriculum and child assessments, parental and staff communication and participation, and teacher language based/communicative focus when interacting with children in a give and take manner. All this done within a warm and loving style.

An even more efficient and effective way of using the new program quality tool is to pair it with the National Center for Health and Safety in Child Care's *Parental Guide to Choosing Safe and Healthy Child Care (DHHS: Assistant Secretary's Office for Planning and Evaluation, 2019)*. This is a more aggressive and controversial approach, but it is the most efficient way of conducting monitoring visits in the most abbreviated way. However, as efficiency increases, effectiveness may decrease; so, it is a delicate balancing act. This suggested approach builds off a similar suggestion in which only using *Caring for Our Children: Basics (ACF, 2015)* a DHHS Administration for Children and Families publication would be used as the base for regulatory compliance in the United States.

Differential monitoring grew out of a need for jurisdictions to be more effective and efficient in their oversight and inspection efforts of early care and education programs. This started to occur in the late 1960's and 1970's as many more programs were being established. It was becoming clear that the old one size fits all approach to program monitoring was being overwhelmed by the increasing numbers of programs. Also, from an efficiency standpoint it did not make sense to spend the same amount of time with programs that were performing well as those that really needed additional attention. The birth of differential monitoring occurred which at that time it was called inferential inspections (Fiene & Kroh, 2000). Different terminology, same concept.

Since then, differential monitoring has two basic methodologies that have been used successfully over the years: risk assessment and key indicators. The two methodologies have the same results, shortened or abbreviated reviews but they differ in their approaches. Risk assessment as the name implies identifies specific standards that place clients/children at greatest risk or morbidity or mortality if not complied with. Key indicators are specific standards that statistically predict overall regulatory compliance with all rules. Each has their place in the differential monitoring approach depending on the jurisdictions' emphasis. Most recently, to balance the emphasis on regulatory compliance has been the introduction of quality indicators which are specific standards drawn from quality initiatives, such as professional development, program quality tools, and quality rating & improvement systems.

It is and always has been recommended that these methodologies be used together and not separately. This final study undertaken in the Province of Saskatchewan completes the cycle of doing just that in developing a fully functional differential monitoring system with key licensing and quality indicators as well as risk assessment rules.

THE STUDY DESIGN AND METHOD

The design of this study was to provide a validation study of the use of the Saskatchewan Early Care and Education Quality Key Indicators Tool. A convenience sample was selected in which a good variation of overall quality would be present. There were to be three buckets of quality: High, Middle, and Low. These would be defined via ERS scores. Because this was a validation study it was critical to have sufficient variation in the overall quality of programs to test the sensitivity of the new assessment tool.

The below table (Table 1) provided the guidance to the Saskatchewan Ministry of Education policy staff in determining how to collect the program quality data for the research pilot study related to early childhood quality indicators.

Table 1: Selection Process for Study Programs

Quality	Centers	Classrooms	Ages	Levels	ERS	SKECPQI
High	10	30	10	Infant	A	1
			10	Toddler	B	2
			10	Preschool	C	3
Middle	10	30	10	Infant	A	1
			10	Toddler	B	2
			10	Preschool	C	3
Low	10	30	10	Infant	A	1
			10	Toddler	B	2
			10	Preschool	C	3

Notes:

A = ITERS (Infants) (B-1yr)
B = ITERS (Toddlers) (1yr-2yrs)
C = ECERS (Preschoolers) (3+yrs)
1 = SKECPQI/Infant (QI items 1-5, 7, 9-10)
2 = SKECPQI/Toddler or Preschool (QI items 1-5, 7, 9-10) or (QI items 1-6, 8-10)
3 = SKECPQI/Preschool (QI items 1-6, 8-10)
SKECPQI = Saskatchewan Early Childhood Program Quality Indicators tool

A total of 6 trained data collectors were needed, 3 for the ERSs and 3 for the SKECPQI. Each observer collected data from 30 classrooms. A data coordinator was utilized who collected all the data, reviewed the scores from the various tools and sent them to NARA. The data collectors were not aware of which centers are in which group, such as High, Middle, or Low

See the Appendix for the Draft of the SKECPQI tool that was used during data collection.

As said earlier, this study involves the validation of the Saskatchewan Early Childhood Quality Indicators Tool (SKECPQI) and involved the collection of new data utilizing the new tool and collecting Early Childhood Environmental Rating Scale (ECERS/ITERS) data as well. Independent contract staff were trained in the use of the SKECPQI as well as having had training on the ECERS/ITERS and were proficiently reliable on the ECERS/ITERS.

A sample of 30 childcare programs who volunteer to be part of this study was selected with 1/3 identified as high quality, 1/3 identified as medium quality, 1/3 identified as low quality. Each program

had both the SKECPQI and the ECERS/ITERS administered to them utilizing two independent observers. The data from the SKECPQI was compared to the ECERS/ITERS to determine the relationship between the two/three scales. The research hypothesis is that there will be a positive relationship between the two/three scales in which those programs that score high on the SKECPQI will score high on the ECERS/ITERS and those that score low on the SKECPQI will score low on the ECERS/ITERS. The ECERS/ITERS will be used as the reference tool for establishing the validity of the SKECPQI.

A training program and all necessary revisions to policies and procedures was conducted as part of this project by a NARA Consultant on both phase 1 and 2. It will be determined later if the SKECPQI will be administered on an ongoing basis by contracted staff or by Ministry staff. Reporting templates were developed as part of this implementation stage. The implementation stage was evaluated to make certain that all components are in place and working as they should.

Timeline: Phase 1: 6 months; Phase 2: 9 months; Training and Implementation Phase: 12 months, will overlap with phase 1 and 2 and extend beyond both. The total time frame will be 24 months (about 2 years), this will include the final report and final evaluation of the implementation stage

RESULTS

The ECERS and ITERS were used to validate the new Saskatchewan Early Care and Education Quality Indicators Tool (SKECPQI). This is standard procedure when conducting a validation study, a recognized empirically based and accepted standard tool is used in correlational analyses to determine if the new tool is measuring the same dimensions as the standardized tool.

The target tool, the Saskatchewan Early Care and Education Quality Indicators, was to be validated against the ECERS and ITERS to determine if there was a quality relationship between the two tools.

The validation analyses involved detailed correlational analyses between the various scales to determine if a relationship existed and how strong that relationship was. But before delving into this relationship and these analyses, an additional analysis was performed given the sophisticated nature of the Saskatchewan monitoring system. Saskatchewan's Ministry of Education's designed differential monitoring system is by far the most analyzed of all jurisdictions to date, so it was suggested to take advantage of this level of detail and build in an additional series of analyses to further test the regulatory compliance theory of diminishing returns in conducting this study. By doing so, Saskatchewan joins the ranks of the Provinces of Alberta and Ontario, the US States of Georgia and Washington, and the US National Head Start program in conducting studies to either confirm or not this theory of regulatory compliance (please see the NARA website on key indicators which contains all the research reports). The following results delineate the data from that portion of the study.

As part of the data collection in addition to collecting data on the ECERS and ITERS as well as the Saskatchewan Early Childhood Program Quality Indicators scale, a summary sheet containing regulatory compliance data was also obtained on each program. These data contained essential demographic information as well as violations from the last inspection along with a rating of the program which was cross referenced to the regulatory compliance data to generate a Regulatory Compliance Scale. This Regulatory Compliance Scale (RCS) had four levels of regulatory compliance: Full, Substantial, Medium, and Low. This RCS is like the regulatory compliance structure used in the previous studies in the above-mentioned jurisdictions in the US and Canada and has been further developed as a more valid means for

measuring and analyzing regulatory compliance (Fiene, 2022). In the Fiene RCS, the following rubric was used: ***Full = 0 violations; Substantial = 1-3 violations; Medium = 4-9 violations; and Low = 10+ violations.***

The first set of analyses was to determine if a correlation existed between the RCS and the ECERS and ITERS. This was the case with the following results: RCS x ITERS for the infant classrooms = .54; $p < .002$; RCS x ITERS for the toddler classrooms = .42; $p < .03$; and RCS x ECERS for the preschool classrooms = .75; $p < .0001$.

The second level of analyses (ANOVA) was to determine if the RCS levels of Full, Substantial, Medium, and Low demonstrated any significant differences in the ECERS and ITERS. The results were the following: Infant classrooms: Low = 3.07; Medium = 4.89; Substantial = 5.06; Full = 4.69; $F = 11.43$; $p < .0001$. Toddler classrooms: Low = 3.50; Medium = 4.56; Substantial = 4.62; Full = 5.06; $F = 2.27$; $p < .11$. Preschool classrooms: Low = 2.78; Medium = 4.39; Substantial = 4.90; Full = 5.12; $F = 16.27$; $p < .0001$. Apart from the toddler classrooms, both the infant and preschool classrooms support the regulatory compliance theory of diminishing returns ceiling and plateauing effect when it comes to measuring program quality as one moves up the regulatory compliance scale.

Table 2: Regulatory Compliance Scale (RCS) and ECERS/ITERS Scores

RCS	Infant Classrooms	Toddler Classrooms	Preschool Classrooms
Low	3.07	3.50	2.78
Medium	4.89	4.56	4.39
Substantial	5.06	4.62	4.90
Full	4.69	5.06	5.12
Significance	$F = 11.43$; $p < .0001$	$F = 2.27$; $p < .11$ NS	$F = 16.27$; $p < .0001$

ECERS, ITERS for Infant classrooms, ITERS for Toddler classrooms (n = 90):

The ECERS score ranged from 1.41 to 6.00. The ITERS for infant classrooms ranged from 2.16 to 5.77; and the ITERS for toddler classrooms ranged from 2.14 to 5.90. The respective means for the ECERS, ITERS-Infant classrooms, and the ITERS-Toddler classrooms were the following: 4.09, 4.39, 4.39. The means and ranges were all consistent.

The correlations of the infant, toddler and preschool classrooms in each of the 30 facilities were the following: Infant and Toddler classrooms = .65; $p < .0001$; Infant and Preschool classrooms = .74; $p < .0001$; and Toddler and Preschool classrooms = .52; $p < .005$. The classrooms demonstrated a great deal of consistency across the various facilities which one would expect.

SKECPQI for Preschool, Infant, and Toddler Classrooms (n = 90):

The SKECPQI score ranged from 13 to 100. The SKECPQI for infant classrooms ranged from 31 to 91 (Mean=60.10); the SKECPQI for toddler classrooms ranged from 13 to 100 (Mean=55.07); and the SKECPQI for preschool classrooms ranged from 25 to 100 (Mean=57.48).

The correlations of the infant, toddler, and preschool classrooms in each of the 30 facilities were the following: Infant and Toddler classrooms = .74; $p < .0001$; Infant and Preschool classrooms = .85; $p <$

.0001; and Toddler and Preschool classrooms = .75; p < .0001. The classrooms demonstrated a great deal of consistency across the various facilities which one would hope to be the case with this type of tool or scale. Based upon these results, the inter-correlations were extremely high and show a great deal of stability and are a reliable measure of quality indicators.

SKECPQI #2 showed a great deal of promise as a standalone quality indicator. SKECPQI#2 correlated significantly with ITERS (.56; p < .0001), and ECERS (.61; p < .0001) and with the overall SKECPQI scores for infant classrooms (.88; p < .0001), toddler classrooms (.81; p < .0001), and preschool classrooms (.90; p < .0001). This quality indicator dealt with philosophy, curriculum planning and programming. This is not the first time that such an indicator was an excellent predictor. This result has been the case in other program quality studies as well (Fiene, Greenberg, Bergsten, Fegley, Carl, Gibbons, 2002b).

The SKECPQI scale demonstrated a great deal of robustness in the data distribution and a good deal of variation in the data set. These are the characteristics of a new tool that you would hope to find in the scale construction and implementation.

Regulatory Compliance Data for Each of the Programs (n = 30):

The Regulatory Compliance Scale (RCS) distributions were the following: Full = 13%; Substantial = 20%; Medium = 37%; and Low = 27%. Generally regulatory compliance data are more skewed than this distribution but because of the nature of this study, facilities were deliberately selected breaking them up into these categories/levels.

The Regulatory Compliance Scale (RCS) actual regulatory compliance violations played out in the following table, these results for the average number of violations were statistically significant (F = 3.69; p < .03):

Table 3: Regulatory Compliance Scale by the Number of Violations

RCS	Regulatory Compliance Means	Number of Facilities
Low	4.75	8
Medium	3.90	10
Substantial	1.60	5
Full	0	4

Comparing the ECERS and ITERS with SKECPQI and Regulatory Compliance (RCS) Data:

These are the correlations between RCS and SKECPQI for infants, toddlers, and preschool classrooms. RCS x PQI for the infant classrooms = .58; p < .001; RCS x SKECPQI for the toddler classrooms = .51; p < .005; and RCS x SKECPQI for the preschool classrooms = .60; p < .001. The SKECPQI clearly demonstrates its relationship with regulatory compliance. Also, when the SKECPQI is compared with regulatory compliance violation data, the correlations are higher than those obtained in comparing the ERSs to regulatory compliance violation data. And, in fact, the SKECPQI when compared with the RCS appears not to have a ceiling or plateauing effect. It would appear that the SKECPQI is measuring quality in a different way since this effect does not appear evident in the RCS distributions. This result will need to be confirmed in other studies to make certain this relationship holds up. This is a first for comparing regulatory compliance data with program quality data. In the past, either a ceiling or plateauing effect

was always present when looking at the relationship between regulatory compliance and program quality.

Here are the correlations between SKECPQIs and ERSs for infant, toddler, and preschool classrooms: PQI x ITERS for the infant classrooms = .66; $p < .0001$; PQI x ITERS for the toddler classrooms = .53; $p < .003$; and PQI x ECERS for the preschool classrooms = .66; $p < .0001$. These inter-correlations most suggest that the SKECPQI is a valid tool measuring program quality on a different dimension (quality indicators) than the ERS but measuring quality, nonetheless.

A regression analysis determined that with RCS as the dependent variable, ECERS and regulatory violations were statistically significant at the $p < .0001$ with an $R = .91$. This accounted for practically 75% of the variance in being able to determine regulatory compliance.

DISCUSSION

Last piece of the puzzle in creating a differential monitoring system, that is how this report is being characterized. The Province of Saskatchewan has undertaken all the other methodologies utilized in a differential monitoring approach (Please see the NARA website for these reports, the link is hot linked on the first page of this report). Licensing key indicators and risk assessment rules have been implemented successfully. What remained were the Quality Indicators. This report completes the full cycle of validating these last indicators.

With the completion of this validation study, the Saskatchewan Early Childhood Program Quality Indicators Scale could be adapted by other jurisdictions and utilized as a screener methodology. The reason for suggesting this approach is that all the quality indicators are taken from the Key Indicator Methodology and therefore have predictive value when it comes to determining overall quality (Fiene, 2019a). Also, the indicators are drawn from several early care and education delivery systems and quality initiatives, such as licensing, QRIS, quality scales, accreditation, and professional development.

The other significant finding from this study was the additional confirmation of the regulatory compliance theory of diminishing returns in which the results from this study are consistent with the findings from other studies conducted in Canada and the United States. This continues to be a major finding when it comes to comparing regulatory compliance with program quality and the resulting ceiling and/or plateauing effect related to quality scores. Again, from a public policy viewpoint, this finding has significant implications in how licensing decisions are or should be made.

A very interesting finding which was not expected was the fact that when the SKECPQI scores were compared with the regulatory compliance violation data the usual ceiling/plateauing effect did not emerge as in previous studies when these types of analyses were performed. This result needs further exploration to determine why this occurred. In future studies utilizing the SKECPQI, it will be necessary to do similar analyses with regulatory compliance data to ascertain if this same result occurs. At this point, it is difficult to determine if it is characteristic within the SKECPQI that is producing this result, such as a better balance between regulatory compliance and program quality. Only with further study will we be better able to determine the cause of this different result.

CONCLUSION

This article will be read with a certain amount of skepticism in that it suggests using differential monitoring on a much broader scale; however, this report is like several other validation studies conducted by NARA over the past decade which have now clearly demonstrated the validity of the differential monitoring approach. And because of these validation studies, the differential monitoring approach has been utilized by many jurisdictions and has been cited in the United States Federal Legislation that reauthorized the Child Care and Development Block Grant. In the legislation, it is suggested but not required that states entertain the use of the approach. Based upon the latest childcare licensing data, it appears that many states have attempted to utilize the approach.

This study fits with the other regulatory compliance theory reports from states and provinces that have been completed over the past decade by NARA. As mentioned in the **Results and Discussion Sections**, this study is the most comprehensive of the group since the Province of Saskatchewan developed not only risk rules and key indicator rules for licensing but also quality indicators that could be used within their differential monitoring system. This is the first demonstration of this comprehensive approach.

This study completes what was to be a three-year effort but turned into a five-year effort because of the COVID19 Pandemic. Each component of this overall project is well documented on the NARA Key Indicator website. The three major results of this study: confirmation of the regulatory compliance theory of diminishing returns, the introduction of the regulatory compliance scale and the introduction of the Saskatchewan Early Childhood Program Quality Indicators Tool/Scale are all significant contributions to the licensing research literature, but it is this last contribution that needs further development.

The Saskatchewan Early Childhood Program Quality Indicators Tool/Scale is a new program quality tool that is rather robust in measuring quality using key indicators which are taken from various quality initiative studies conducted over the past several decades. The hope is that it will continue within the early care and education field being validated by other researchers and being used to determine the relative scope of program quality in various early care and education settings. We could see the scale being utilized throughout the United States and Canada. It would be an excellent supplement to either the ERS or CLASS tools. It is a simple, straightforward tool that can be easily trained on and administered. It could provide an interesting supplement for licensing staff when they are doing their licensing reviews. In fact, it is intended to be used in conjunction with licensing key indicators and risk rule tools.

Although this was not reported in the **Results Section**, we think it is vitally important to highlight the significant contributions of the licensing staff and others who helped to develop the groupings and levels of regulatory compliance and quality. It was only because of their level of early childhood expertise and their knowledge of the programs that made the sequencing so effective and impactful as an analytical frame of reference.

One last thought is the introduction of the Regulatory Compliance Scale (RCS) as a more logical and robust rubric when comparing regulatory compliance data with program quality. This thought has been presented elsewhere as a possible improvement within licensing measurement and monitoring systems (Fiene, 2022). The scale has been piloted in the past, but this is the first formal test of it in a specific jurisdiction.

For additional information regarding this research validation study, please contact: Richard Fiene PhD, Research Psychologist & Regulatory Scientist, Research Institute for Key Indicators, Penn State University, rfiene@rikinstitute.com

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Also, check out the following websites for additional Differential Monitoring Reports: https://rikinstitute.com or https://www.naralicensing.org/key-indicators

Georgia Child Care Licensing Study: Validating the Core Rule Differential Monitoring System

Executive Summary

Richard Fiene, Ph.D.

The purpose of this study was to validate Georgia's process for determining if a state-regulated child care facility is compliant with basic state health and safety requirements. The process was developed by staff at Bright from the Start: Georgia Department of Early Care and Learning (DECAL). Currently Georgia utilizes a "Core Rule" risk assessment approach in which the health and safety rules deemed most crucial to ensure children's health and safety are used to compute a program's compliance status.

This validation study utilized a unique analytical model that compared licensing data with previous key indicator (*for readers not familiar with this term, please see the definitions on page 4 of the report*) research and ascertained if the Core Rules accurately indicated a program's overall compliance with the total population of licensing rules.

Additional statistical analyses examined if the mathematical formula used to compute compliance was an appropriate configuration of the data that discerned between those programs that adequately met basic health and safety rules (compliant) and those that did not (non-compliant). Also licensing data were compared to a representative sample of quality data collected as part of a different study to examine the correlation between compliance and quality. A Differential Monitoring Logic Model/Algorithm (*DMLMA*©) (Fiene, 2012) and a previous validation model (Zellman & Fiene, 2012) were used in the research.

One hundred and four child care centers (104 CCC) and 147 family child care (FCC) homes were assessed. Licensing data over a four-year period (2008-2012) and matching program quality data from a two-year period (2007-2008) were used in this study.

The study focused on three research questions:

1. Do the Core Rules CCCs and FCC homes serve as overall Key Indicators of compliance?
2. Does the Annual Compliance Determination Worksheet (ACDW) appropriately designate programs as compliant or non-compliant related to health and safety?
3. Are the Core Rules related to program quality?

The analysis demonstrated that the Core Rules did serve as key indicators, and these key indicators were identified for both center based and home based child care. The second analysis concluded that the ACDW computation did distinguish between compliant and non-compliant programs. Finally, the expected correlation between compliance and quality was found but only for state-funded Pre-K classrooms, not for family child care nor for preschool classrooms that were not part of the state-funded Pre-K.

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Georgia Child Care Licensing Study: Validating the Core Rule Differential Monitoring System

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February 1, 2014

This study was made possible by a grant from Bright from the Start: Georgia Department of Early Care and Learning. All opinions expressed in the report reflect the opinions of the author, not necessarily those of the Department of Early Care and Learning.

ABSTRACT

The purpose of this study was to validate Georgia's process for determining if a state-regulated child care facility is compliant with basic state health and safety requirements. The process was developed by staff at Bright from the Start: Georgia Department of Early Care and Learning (DECAL). Currently Georgia utilizes a "Core Rule" risk assessment approach in which the health and safety rules deemed most crucial to ensure children's health and safety are used to compute a program's compliance status. This validation study utilized a unique analytical model that compared licensing data with previous key indicator (*for readers not familiar with this term, please see the definitions on page 4 of the report*) research and ascertained if the Core Rules accurately indicated a program's overall compliance with the total population of licensing rules. Additional statistical analyses examined if the mathematical formula used to compute compliance was an appropriate configuration of the data that discerned between those programs that adequately met basic health and safety rules (compliant) and those that did not (non-compliant). Also licensing data were compared to a representative sample of quality data collected as part of a different study to examine the correlation between compliance and quality. A Differential Monitoring Logic Model/Algorithm (*DMLMA*©) (Fiene, 2012) and a previous validation model (Zellman & Fiene, 2012) were used in the research. Child care centers (CCC) and family child care (FCC) homes were assessed. The analysis demonstrated that the Core Rules did serve as key indicators, though this list should be reexamined. The second analysis concluded that the computation could be simplified. Finally, the expected correlation between compliance and quality was found but only in state-funded Pre-K classrooms; it was not found in preschool classrooms and could not be validated. Family child care could not be validated either. As a result of the study, recommendations were made to strengthen Georgia's system.

Acknowledgements:

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INTRODUCTION

Background of Georgia's Compliance Determination System

Similar to other states, Georgia has a licensing and monitoring system that oversees a diverse population of early care and learning programs across the state. The licensing and monitoring system of early care and learning programs is charged to Bright from the Start: Georgia Department of Early Care and Learning (DECAL), a state early education department that also oversees and administers Georgia's Pre-K Program, Child Care and Development Block Grant, the Child and Adult Care Food Program, and the Summer Food Service Program. In 2012, DECAL's licensing and monitoring system regulated approximately 6,300 early care and learning programs. The crux of this regulation is determining if the programs meet Georgia's health and safety rules. Programs that meet these rules are determined to be compliant.

In the mid 2000's, Georgia began experimenting with a process that determined whether or not a program was designated as compliant with the state's health and safety regulations by focusing on key Core Rules. These are health and safety rules deemed crucial to minimizing risk related to children's health and safety. Seventy-four rules out of the 456 that programs must follow were classified as Core Rules[1]. Core Rules are cited by severity (low, medium, high, extreme). It is important to note that this entails a risk assessment theoretical approach rather than a Key Indicator statistical approach. This means that the Core Rules were determined by content analysis rather than by a statistical procedure.

Though this system has undergone some slight revisions, this basic methodology is still in place:

1. All programs receive at least one full licensing study and one monitoring visit. At the licensing study all applicable rules are examined. At the monitoring visit, only Core Rules (or any rule that was not met at the licensing study) are examined.
2. If additional visits are conducted, the Core Rules are examined again at that time.
3. At the end of the fiscal year (June 30), each program receives a compliance determination. This determination is based on all visits (licensing study, monitoring visit, and other reviews). A standardized worksheet, Annual Compliance Determination Worksheet (ACDW), is used to make the computation that determines the designation.
4. The compliance status remains until the next determination one year later. Programs do not have an opportunity to contest the compliance determination, though programs have numerous opportunities to contest any citation.
5. At the conclusion of Fiscal Year 2012, approximately 91% of the programs were classified as compliant. A program's eligibility for certain services, acceptance into Quality Rated and Georgia's Pre-K Program, is impacted by the program's compliance determination.

Background of this Study

Since the compliance determination system has been used for several years, key policymakers at DECAL requested an external review to validate if the system was operating as intended. Are the Core Rules a sufficient subsample to measure a program's overall regulation with the state's health and safety regulations? Furthermore, does the compliance determination formula appropriately differentiate compliant programs from non-compliant programs? In other words, is the computation a viable way to make this designation? And finally, does compliance determination serve as a sufficient indicator for other aspects of quality not addressed in Georgia's health and safety rules?

The purpose of this study was to validate the aforementioned compliance determination process. This validation process utilized a unique analytical model that compared licensing data with previous key indicator research and ascertained if the Core Rules are an indication of a program's overall compliance with the total population of licensing rules. Second, additional statistical analyses examined if the mathematical formula used to compute compliance was an appropriate configuration of the data that differentiated between those programs that adequately met basic health and safety rules (compliant) and those that did not (non-compliant). Finally, licensing data were

[1] The number of Core Rules was expanded in 2012 to include increased enforcement and sanctions regarding transportation. The new Core Rules were not part of this analysis.

compared to a representative sample of quality data collected as part of a different study to examine the correlation between compliance and quality (see a further explanation of the sample in the Limitations Section of this report).

Specifically, the study addressed the following research questions:

1 **Do the Core Rules for child care centers (CCC) and family child care (FCC) homes serve as overall Key Indicators of compliance?**
2 **Does the Annual Compliance Determination Worksheet (ACDW) appropriately designate programs as compliant or non-compliant related to health and safety?**
3 **Are the Core Rules related to program quality?**

The following definitions are used in the study:

Core Rules = the rules determined to be of greatest importance and place children at greatest risk if not complied with. This approach is defined in the licensing literature as a risk assessment approach. Core Rules cover 12 regulatory areas and 74 specific rules. The Core Rules were the focal point of this validation study and are addressed in the first approach to validation – Standards and the first research question.

ACDW = Annual Compliance Determination Worksheet, the compliance decision-making system based on the Core Rules that can be used to determine the number of visits made to programs. The ACDW was the secondary focal point of this validation study and is addressed in the second approach to validation – Measures and the second research question.

Key Indicators = a differential monitoring approach that uses only those rules that statistically predict overall compliance with all the rules. In other words, if a program is 100% in compliance with the Key Indicators, the program will also be in substantial to full compliance with all rules. The reverse is also true in that if a program is not 100% in compliance with the Key Indicators, the program will also have other areas of non-compliance with all the rules. In this study, eight Key Indicators rules were identified for CCC and nine Key Indicators rules for FCC (See pages 15-16 for the specific indicators and additional detail about the methodology). These are in addition to the Core Rules.

Rule Violations or Citations = occurs when a program does not meet a specific rule and is cited as being out of compliance with that rule. These individual rule violations/citations are summed to come up with total violation/citation scores on the Core Rules and on the Licensing Studies.

Differential Monitoring = a relatively new approach to determining the number of licensing visits made to programs and to what rules are reviewed during these visits. Two measurement tools drive differential monitoring: one is a Weighted Risk Assessment, and the other is a Key Indicator checklist. Weighted Risk Assessments determine how often a program will be visited while Key Indicator checklists determine what rules will be reviewed in the program. Differential monitoring is a powerful approach when Risk Assessment is combined with Key Indicators because a program is reviewed by the most critical rules and the most predictive rules. See Figure 1 which presents a Logic Model & Algorithm for Differential Monitoring *(DMLMA©) (*Fiene, 2012).

Licensing Study = a comprehensive review of a program where all child care rules are reviewed.

Monitoring Visit = an abbreviated form of a visit and review in which only a select group (Core Rules) of child care rules are reviewed.

Program Quality **=** for the purposes of this study, quality was measured in child care centers by the *Early Childhood Environment Rating Scale-Revised (ECERS-R), Infant Toddler Environment Rating Scale-Revised (ITERS-R*) and in family child care homes by the *Family Child Care Environment Rating Scale-Revised (FCCERS-R*). The program quality measures were used as part of the third approach to validation – Outputs and the third research question.

Scoring for Licensing Variables/Data Collection Protocols:

Licensing Study = the total number of rule violations for a specific facility.

Core Rules = the total number of core rule violations.

ACDW/Compliance Designation = the annual compliance determination taken from the Annual Compliance Determination Worksheet. Compliant [C] was coded as "1" in the data base; Non-Compliant [NC] was coded as "0" in the data base.

Key Indicators = these were generated by a statistical methodology based upon the ability of the specific rule to predict full compliance with all the rules. Data from the Licensing Studies were used to make this determination of key indicator rule status.

METHODOLOGY AND ANALYTICAL FRAMEWORK

Licensing data over a four-year period (2008-2012) and matching program quality data from a two-year period (2007-2008) were used in this study. Specifically, data from 104 child care centers and 147 family child care homes were analyzed. Data from licensing studies (all rules) and monitoring visits (selected rules) were utilized. Program quality data were provided by researchers from the FPG Child Development Institute at the University of North Carolina at Chapel Hill (FPG), and the FPG research team matched these data points with the licensing data provided by DECAL (See the following website for the specific reports - ***http://decal.ga.gov/BftS/ResearchStudyOfQuality.aspx)***. All the data were analyzed by the Research Institute for Key Indicators.

Two models were used to frame the analysis: a Validation Framework that uses four approaches (Zellman & Fiene, 2012) to validating quality rating and improvement systems (QRIS) being applied to licensing systems; and a *Differential Monitoring Logic Model and Algorithm (DMLMA©)(*Fiene, 2012) were employed to answer the three research questions for this Validation Study. The validation approaches are described below; the *DMLMA©* is described at the beginning of the Findings Section of this report.

The first validation approach deals with examining the validity of key underlying concepts by assessing if basic components and standards are the right ones by examining levels of empirical and expert support. For this study, this approach used Key Indicators to validate the Core Rules since Risk Assessment and Key Indicators are differential monitoring approaches. This answers the first research question.

The second validation approach deals with examining the measurement strategy and the psychometric properties of the measures used by assessing whether the verification process for each rule is yielding accurate results. Properties of the key rules can be measured through inter-rater reliability on observational measures, scoring of documentation, and inter-item correlations to determine if measures are psychometrically sound. Cut scores can be examined to determine the most appropriate ways to combine measures into summary ratings. For this study, the second validation approach validates the use of the ACDW and Core Rules by comparing compliance decisions with the Licensing Studies. This answers the second research question.

The third validation approach deals with assessing the outputs of the licensing process by examining the variation and patterns of program level ratings within and across program types to ensure that the ratings are functioning as intended. The approach examines the relationship of program level ratings to other more broadly based program quality measures and examines alternate cut points and rules to determine how well the ratings distinguish different levels of quality. For this study, this approach used data from Core Rules and Licensing Studies and data from earlier program quality studies (Maxwell, et al., 2009a,b; 2010) for validation. This answers the third research question.

Out of the four validation approaches (See Table 8), only three were utilized in this study. ***The fourth validation approach*** deals with how ratings are associated with children's outcomes. This approach examines the relationship

between program level ratings and selected child outcomes to determine whether higher program ratings are associated with better child outcomes. This approach did not have data that could be used in this study.

FINDINGS

The *DMLMA*© (See Figure 1) provides the conceptual model for assessing the overall effectiveness of Georgia's approach using Core Rules. In the model, the two main tools are Risk Assessment and Key Indicator measurements, which are created from a statistical analysis of the comprehensive licensing tool. The comprehensive licensing tool measures compliance with all rules. For the purposes of this study the Licensing Study represents the comprehensive licensing tool while the Core Rules represent a Risk Assessment tool. For the Program Quality tools, the ECERS-R, ITERS-R and FCCERS-R were utilized from an earlier program quality study by FPG Child Development Institute at the University of North Carolina at Chapel Hill (Maxwell, et al., 2009a,b; 2010). Georgia currently does not use a Key Indicator tool (see Table 1). With the DMLMA© analytical methodology, specific correlational thresholds are expected (please refer to Figure 1 on page 14).

TABLE 1

***DMLMA*© Terminology**	**Georgia Examples and Data Sources**
Comprehensive Tool	Licensing Study
Program Quality Tool	ECERS-R and ITERS-R for CCC; FCCERS-R for FCC
Risk Assessment Tool	Core Rules
Key Indicators Tool	Not Present (Generated as part of this Study-see Tables 9/10)
Differential Monitoring Tool	ACDW Compliance Determination

Before presenting the findings for the validation approaches, some basic descriptive statistics are provided regarding the major variables in this study: Licensing Study, ACDW, Core Rules, and Key Indicators (see Table 2). The data are provided for both child care centers and family child care homes. It is clear from these basic descriptive statistics that the data distributions are very skewed in a positive fashion which means that there is very high compliance with all the major licensing variables for this study. In other words, the majority of programs are in substantial compliance with all the licensing rules and receive a compliant determination.

TABLE 2

Licensing Variable	**Mean**	**Range**	**SD**	**Skewness**	**Kurtosis**
Licensing Study (CCC)	5.51	25	5.26	1.47	2.11
ACDW (CCC)	0.75	1	0.44	-1.17	-0.64
Core Rules (CCC)	4.47	22	4.72	1.81	3.60
Key Indicators (CCC)	1.68	6	1.61	0.90	0.073
Licensing Study (FCC)	5.85	33	5.71	1.56	3.37
ACDW (FCC)	0.87	1	0.34	-2.23	3.03
Core Rules (FCC)	1.61	11	1.75	1.99	6.61
Key Indicators (FCC)	2.37	8	2.13	0.63	-0.57

Licensing Study Mean = the average number of total rule violations.
ACDW Mean = the average score for a determination of compliance (1) or non-compliance (0).
Core Rules Mean = the average number of core rule violations.
Key Indicators Mean = the average number of key indicator violations.

The findings are presented by the three validation approaches of Standards, Measures, and Outputs as well as the three research questions related to Key Indicators, Core Rules, and Program Quality.

1) **Validation of Standards (First Approach to Validation) for answering the first research question: *Do the Core Rules for child care centers (CCC) and family child care (FCC) homes serve as overall key indicators of compliance?***

In this first approach to validation which focuses on Standards, Key Indicators were generated from the Licensing Studies because Core Rules (a Risk Assessment tool) and Key Indicators are both Differential Monitoring approaches (see Figure 1). The Core Rules were compared to the Key Indicators generated by the licensing data base and there was a .49 correlation for CCC (n = 104) and .57 correlation for FCC (n = 147) which indicates a

relationship between the Core Rules and Key Indicators at a $p < .0001$ significance level (Table 3). Also, the Key Indicators were correlated with the Licensing Study data and significant results were determined with r values of .78 ($p < .0001$) for CCC ($n = 104$) and .87 ($p < .0001$) for FCC ($n = 147$). These results clearly met the expected *DMLMA*© thresholds between the key indicator rules with core rules (.50+) and licensing studies (.70+).

TABLE 3

Key Indicators with Core Rules and Licensing Study	r =	p <	n =
Key Indicators and Core Rules (CCC)	.49	.0001	104
Key Indicators and Licensing Study (CCC)	.78	.0001	104
Key Indicators and Core Rules (FCC)	.57	.0001	147
Key Indicators and Licensing Study (FCC)	.87	.0001	147

Table 3 begins to demonstrate how the Georgia Child Care Licensing system is utilizing the ***DMLMA©*** terminology from Table 1. With the generation of Key Indicators from this study, all the key elements within a differential monitoring system are present. This crosswalk to the ***DMLMA©*** will continue in Tables 4 & 5.

2) Validation of Measures (Second Approach to Validation) for answering the second research question*: Is the Annual Compliance Determination Worksheet (ACDW) a valid measure in determining the overall health and safety compliance of Georgia's early care and learning programs?*

The Core Rules and the ACDW were compared to the Licensing Study data and compliance designation to determine the validation of the ACDW scoring protocol. There was a high correlation between the number of violations on the Core Rules and the total licensing violations on the Licensing Studies ($r = .69$; $p < .0001$)(Table 4). This result helps to validate that the ACDW is actually discriminating between high compliant and low compliant providers for CCC. For FCC, there was also a high correlation between the number of violations on the Core Rules and the total licensing violations on the Licensing Studies ($r = .74$; $p < .0001$). These results meet the *DMLMA*© thresholds of .50+ for Licensing Studies and Core Rules.

When Core Rules were correlated with the ACDW compliance decisions, there was a significantly high correlation for CCC ($r = .76$; $p < .0001$) and for FCC ($r = .70$; $p < .0001$). The key element of the ACDW scoring protocol is that the Core Rules distinguish between high and low compliant providers. The CCC/Core Rules and ACDW have been validated, as well as the FCC/Core Rules and ACDW because both the correlations were above the expected *DMLMA*© threshold (.50+).

TABLE 4

Core Rules with Licensing Studies and ACDW	r =	p <	n =
Core Rules and Licensing Studies (CCC)	.69	.0001	104
Core Rules and ACDW (CCC)	.76	.0001	104
Core Rules and Licensing Studies (FCC)	.74	.0001	147
Core Rules and ACDW (FCC)	.70	.0001	147

3) Validation of Outputs (Third Approach to Validation) for answering the third research question: *Are the Core Rules correlated with program quality?*

For this approach, programs were divided into those that had an ITERS-R score, an ECERS-R score for a preschool class, and an ECERS-R score for a Georgia's Pre-K class; and those that had only an ITERS-R score and an ECERS-R score for preschool. The sample was evenly divided. Since Georgia has placed substantial resources into its Pre-K program, it was thought that this analysis might suggest if there was anything different between programs with a Georgia's Pre-K class and those without.

When the Core Rules for CCC's were compared with program quality data (ECERS-R/PS + ITERS-R), a significant correlation was not found between CCC ($r = .27$) for programs with only preschool classrooms but was found for programs with Pre-K classrooms (ECERS-R/PK + ITERS-R) ($r = .60$). When Core Rules for FCC's were compared

to the FCC program quality data (FCCERS-R), the correlations were at a much lower level (r = .17) (See Table 5). However, these results are constrained by the limited range of the data; see the Limitation Section that follows this section.

Upon closer inspection of the correlations in Table 5 for CCC, it would appear that the CCC compliance system is more valid with the state-funded Pre-K programs (.48) than with the preschool programs (.21) because the correlations between the various Environment Rating Scales (ECERS-R + ITERS-R) are significant only when compared to the respective compliance with all rules on the Licensing Studies in the programs that have Pre-K programs. In making these comparisons, programs that had both ECERS-R and ITERS-R were combined and compared to the respective Licensing Study data (these data were reversed scored in which the number of violations were subtracted from a perfect score of 100). The differences are even more significant when you compare the Environment Rating Scales and the Core Rules where the Pre-K programs' correlation between the compliance with Core Rules and Environment Rating Scales is .60 and preschool programs is .27 while the FCC is .17.

Program quality data refer to data collected in earlier studies by researchers from FPG (Maxwell, et al., 2009a,b; 2010) in which FPG collected Environment Rating Scales (ECERS-R; ITERS-R; FCCERS-R) data on a representative sample of CCC and FCC (See (h***ttp://decal.ga.gov/BftS/ResearchStudyOfQuality.aspx)*.** In comparing the program compliance and program quality data, the analyses supported the validation of the CCC for Pre-K only programs (*DMLMA*© threshold = .30+) but it was weaker for the FCC programs and not significant for preschool programs and therefore could not be validated. See Table 13 on page 17 for a further explanation of the CCC data distribution.

TABLE 5

Program Compliance and Quality Comparisons	**r =**	**p <**	**n=**
ECERS-R/PK + ITERS-R and Licensing Studies	.48	.001	45
ECERS-R/PK + ITERS-R and Core Rules	.60	.0001	45
ECERS-R/PS + ITERS-R and Licensing Studies	.21	ns	45
ECERS-R/PS + ITERS-Rand Core Rules	.27	ns	45
FCCERS-R and Licensing Studies	.19	.04	146
FCCERS-R and Core Rules	.17	.03	146

LIMITATION

The sampling for this study was based on previous studies (Maxwell, 2009a,b; 2010) completed by FPG in which program quality data were collected and analyzed. This study employed a subset of sites that were a representative sample of Georgia's child care licensing system. Not all of these sites could be used for this study because some had closed or some did not have the necessary data to make comparisons. So the sample at this point is one of convenience; however, 104 of the 173 CCC and 146 of the 155 FCC were used in this study, a significant number of the original representative sample. Also, when the Environment Rating Scales (ECERS-R, ITERS-R, FCCERS-R) scores were compared with the CCC and FCC samples, there were no significant differences (average difference was .01-.03) between the two study samples (See Table 6).

TABLE 6

Environment Rating Scale Scores	**FPG**	**This Study**
ECERS-R Pre-K Total Scale Scores	4.16	4.15
ECERS-R Preschool Total Scale Scores	3.39	3.42
ITERS-R Total Scale Scores	2.74	2.72
FCCERS-R Total Scale Scores	2.50	2.49

CONCLUSION

The CCC differential monitoring through the Core Rules/ACDW has been validated on the three approaches (Standards, Measures, and Outputs (Pre-K Program only)) and three research questions (Key Indicators, Core Rules, Program Quality (Programs with Georgia Pre-K only)) (See Table 7). The FCC differential monitoring through the Core Rules/ACDW was validated on the first validation approach (Standards) and first research question (Key Indicators); validated on the second validation approach (Measures) and second research question (Core Rules); but not validated on the third validation approach (Outputs) and third research question (Program Quality).

TABLE 7

	Correlations		
Validation Approach/Research Question	**CCC Actual (Expected*)**		**FCC Actual (Expected)**
1 STANDARDS/Key Indicators	VALIDATED		VALIDATED
Key Indicators x Core Rules	.49 (.50+)		.57 (.50+)
Key Indicators x Licensing Studies	.78 (.70+)		.87 (.70+)
2 MEASURES/Core Rules/ACDW[2]	VALIDATED		VALIDATED
Core Rules x Licensing Studies	.69 (.50+)		.74 (.50+)
Core Rules x ACDW	.76 (.50+)		.70 (.50+)
3 OUTPUTS/Program Quality	VALIDATED		NOT VALIDATED
Licensing Studies x ERS**/PK	.48 (.30+)	FCCERS	.19 (.30+)
Core Rules x ERS/PK	.60 (.30+)	FCCERS	.17 (.30+)
Licensing Studies x ERS/PS	----------		.21 (.30+)
Core Rules x ERS/PS	----------		.27 (.30+)

DMLMA© Expected r Value Thresholds in Order to be Validated (Also see Figure 1 for additional details):
High correlations (.70+) = Licensing Studies x Key Indicators.
Moderate correlations (.50+) = Licensing Studies x Core Rules; Core Rules x ACDW; Core Rules x Key Indicators; Key Indicators x ACDW.
Lower correlations (.30+) = Program Quality Tools x Licensing Studies; Program Quality x Core Rules; Program Quality x Key Indicators.

Program Quality Tools = ECERS-R, ITERS-R, FCCERS-R.

****ERS = ECERS-R + ITERS-R**
PK = Pre-K program
PS= Preschool program

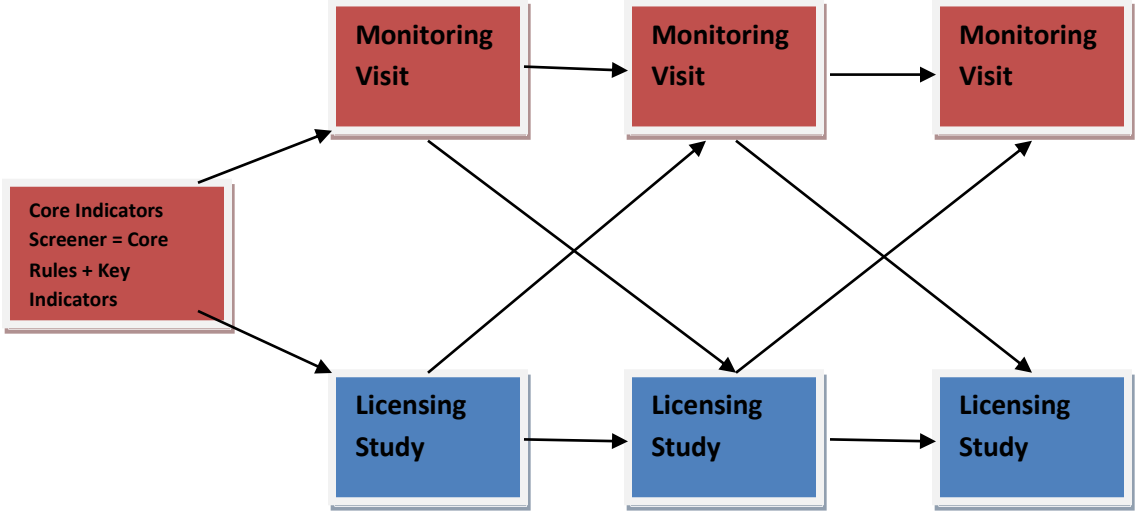
A confounding of data occurred with the first two validation approaches because the Core Rules were influenced a great deal by the National Child Care Key Indicators (NCCKI) (Fiene, 2002) where 10 of the 13 Core Rules overlapped significantly with the NCCKI. This helped to increase the correlation between the Core Rules and the Licensing Studies because the Core Rules represented both risk assessment and key indicator rules. Using both risk assessment and key indicator rules together is an ideal differential monitoring approach (Fiene, 2012). Most states use one or the other but generally not together. By including the newly generated key indicators from this study where there is also overlap with the NCCKI, it should enhance the differential monitoring approach utilized by DECAL.

[2] ACDW decisions were compared with using severity as a factor and not using it as a factor in the scoring system with Core Rules. No significant differences were found between the two scoring systems; therefore, the results in this study represent Core Rule scores without severity included since this is the simpler model.

RECOMMENDATIONS

The following recommendations[3] can be made from this Licensing Differential Monitoring Validation Study.

1) **First research question/validation recommendation:** Revise the worksheet determination scoring relative to the visiting protocol by combining the Core Rules with a Key Indicator approach so that if any of the Core Rules or Key Indicators are out of compliance, then a full compliance review (Licensing Study) should be used. The present worksheet determination scoring protocol is overly complex. Just moving to a more comprehensive review (Licensing Study) based on non-compliance with the Core Rules will simplify the scoring protocol and make determinations more straightforward. If there is full (100%) compliance with the Core Rules and Key Indicators, then the next scheduled review of the program would be an abbreviated Monitoring Visit. If there is not 100% compliance with the Core Rules and Key Indicators, then the next scheduled review of the program would be a Licensing Study reviewing all child care rules. Based upon the compliance/non-compliance scores of the Licensing Study will determine how often the program will be visited. A revised Georgia Differential Monitoring System could potentially look like the following:



Compliance Decisions:

Core Indicators *= Core Rules + Key Indicators – this becomes a screening tool to determine if a program receives a Licensing Study reviewing all child care rules or an abbreviated Monitoring visit continuing to review key indicator and core rules for their next visit.*

Core Indicators (100%) *= the next visit is a Monitoring Visit.. Every 3-4 years a full Licensing Study is conducted.*

Core Indicators (not 100%) *= The next visit is a Licensing Study where all rules are reviewed.*

Compliance *= 96%+ with all rules and 100% with Core Indicators. The next visit is a Monitoring Visit.*

Non-compliance *= less than 96% with all rules. The next visit is a Licensing Study..*

2) **Second research question/validation recommendation:** Follow the development of weighted risk assessment tools as outlined by Fiene & Kroh (2000) in the *NARA Licensing Chapter* for CCC and FCC. It has been over 20 years since Core Rules were weighted. It is recommended that Core Rules be weighted every 10 years. Doing a weighted risk assessment would help confirm that the present Core Rules are the highest risk rules.

3) **Third research question/validation recommendation:** Confirm the CCC (ERS/PS) and FCC results by conducting a more recent program quality study that reflects all the changes made within the CCC and FCC systems. Although FCC program quality and Licensing Study and Core Rules reached statistical significance, the overall correlation was too low (Licensing Studies = .19; Core Rules = .17). With the CCC system the Pre-K program demonstrated significant correlations between ERS/PK and Licensing Study (.48) & Core Rules (.60) but not the Preschool program (ERS/PS: Licensing Studies = .21; Core Rules = .27).

[3] These recommendations are drawn from the data in this study and previous studies conducted by the author in which the empirical evidence led to similar recommendations.

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TABLE 8 - FOUR APPROACHES TO VALIDATING A QRIS (Zellman & Fiene, 2012)

Approach	Activities and Purpose	Typical Questions Approach Addresses	Issues and Limitations
1. Examine the validity of key underlying concepts	Assess whether basic QRIS quality components and standards are the "right" ones by examining levels of empirical and expert support.	Do the quality components capture the key elements of quality? Is there sufficient empirical and expert support for including each standard?	Different QRISs may use different decision rules about what standards to include in the system.
2. Examine the measurement strategy and the psychometric properties of the measures used to assess quality	Examine whether the process used to document and verify each indicator is yielding accurate results. Examine properties of key quality measures, e.g., inter-rater reliability on observational measures, scoring of documentation, and inter-item correlations to determine if measures are psychometrically sound. Examine the relationships among the component measures to assess whether they are functioning as expected. Examine cut scores and combining rules to determine the most appropriate ways to combine measures of quality standards into summary ratings.	What is the reliability and accuracy of indicators assessed through program administrator self-report or by document review? What is the reliability and accuracy of indicators assessed through observation? Do quality measures perform as expected? (e.g., do subscales emerge as intended by the authors of the measures?) Do measures of similar standards relate more closely to each other than to other measures? Do measures relate to each other in ways consistent with theory? Do different cut scores produce better rating distributions (e.g., programs across all levels rather than programs at only one or two levels) or more meaningful distinctions among programs?	This validation activity is especially important given that some component measures were likely developed in low-stakes settings and have not been examined in the context of QRIS.

TABLE 8 (CONTINUED)

Approach	Activities and Purpose	Typical Questions Approach Addresses	Issues and Limitations
3. Assess the outputs of the rating process	Examine variation and patterns of program-level ratings within and across program types to ensure that the ratings are functioning as intended. Examine relationship of program-level ratings to other quality indicators to determine if ratings are assessing quality in expected ways. Examine alternate cut points and rules to determine how well the ratings distinguish different levels of quality.	Do programs with different program-level ratings differ in meaningful ways on alternative quality measures? Do rating distributions vary by program type, e.g., ratings of center-based programs compared to ratings of home-based programs? Are current cut scores and combining rules producing appropriate distributions across rating levels?	These validation activities depend on a reasonable level of confidence about the quality components, standards and indicators as well as the process used to designate ratings.
4. Examine how ratings are associated with children's outcomes.	Examine the relationship between program-level ratings and selected child outcomes to determine whether higher program ratings are associated with better child outcomes.	Do children who attend higher-rated programs have greater gains in skills than children who attend lower-quality programs?	Appropriate demographic and program level control variables must be included in analyses to account for selection factors. Studies could be done on child and program samples to save resources. Findings do not permit attribution of causality about QRIS participation but inferences can be made about how quality influences children's outcomes.

FIGURE 1- DIFFERENTIAL MONITORING LOGIC MODEL AND ALGORITHM (Fiene, 2012)
***DMLMA*© Applied to the Georgia Child Care Licensing System**

CI + PQ => RA + KI => DM

Georgia Examples:

CI = Comprehensive Tool = Licensing Study (LS – All Rules)
PQ = Program Quality Tool = Environmental Rating Scales (ERS = ECERS-R, ITERS-R, FCCERS-R)
RA = Risk Assessment Tool = Core Rules (CR)
KI = Key Indicators Tool = presently Georgia does not have a KI
DM = Differential Monitoring Tool = ACDW (Compliance/Non-Compliance Decision)

A very important concept in this validation study is that the system employed by DECAL is a risk assessment approach rather than a key indicator methodology which is based upon predictor rules. The *DMLMA*© is a new methodology assessing the effectiveness and efficiency of Differential Monitoring systems being used by state regulatory agencies and provides the conceptual model for this study.

DMLMA© Thresholds:
High Correlations (.70+) = CI x KI.
Moderate Correlations (.50+) = CI x RA; RA x DM; RA x KI; KI x DM.
Lower Correlations (.30+) = PQ x CI; PQ x RA; PQ x KI.

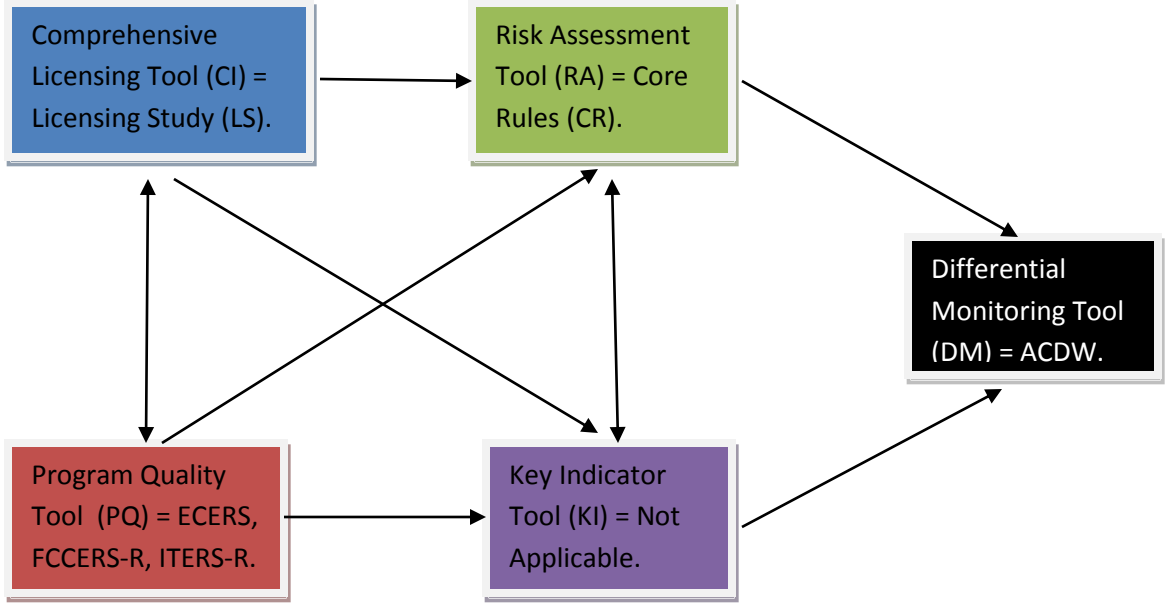

Table 9 - Listing of Key Indicators for Georgia Child Care Centers with Phi Coefficients

591-1-1-25 (3) requires that the center and surrounding premises be clean, free of debris and in good repair. (Phi = .49)

591-1-1-.25 (13) requires that hazardous equipment, materials and supplies be inaccessible to children. (Phi = .46)

591-1-1-.26 (6) requires that outdoor equipment be free of hazards such as lead-based paint, sharp corners, rust and splinters. (Phi = .44)

591-1-1-.26 (8) requires the playground to be kept clean, free of litter and hazards. (Phi = .59)

591-1-1.26 (7) requires that a resilient surface be provided and maintained beneath the fall zone of climbing and swinging equipment. (Phi = .57)

591-1-1-.36 (6)(a-c) requires the center to maintain on the vehicle current information for each child including a) center and passenger information; b) emergency medical information and c) a passenger checklist. (Phi = .49)

591-1-1-.14 (1) requires that at least 50% of the caregiver staff have current first aid and CPR training. (Phi = .49)

591-1-1-.08 (a)-(f) requires the center to maintain a file for each child while such child is in care and for one year after that child is no longer enrolled…. (Phi = .44)

Table 10 - Listing of Key Indicators for Georgia Family Child Care Homes with Phi Coefficients

290.2.3-.11(2)(C) requires that fire drills be practiced monthly and shall be documented and kept on file for one year. (Phi = .51)

290-2-3-.11 (2)(f) requires that poisons, medicines, cleaning agents and other hazardous materials be in locked areas or inaccessible to children. (Phi = .61)

290-2-3-.11 (1)(f) requires the family day care home and any vehicle used to have a first aid kit….. (Phi = .57)

290-2-3-.07 (4) requires that the provider obtain ten clock hours of training in child care issues from an approved source within the first year and thereafter on an annual basis. (Phi = .58)

290-2-3-.08 (1)(a) requires the family day care home to maintain a file for each child that includes the child's name, birth date, parents or guardian's name, home and business addresses and telephone numbers. (Phi = .63)

290-2-3-.08 (1)(b) requires that the record for each child contain the names(s), address(es) and telephone number(s) of person(s) to contact in emergencies when the parent cannot be reached. (Phi = .57)

290-2-3-.08 (1)(b) requires the family day care home to maintain a file for each child that includes the name, address and telephone number of the child's physician to contact in emergencies. (Phi = .55)

290-2-3-.08 (1)(f) requires the family day care home to maintain a file for each child that includes known allergies, physical problems, mental health disorders, mental retardation or developmental disabilities which would limit the child's participation in the program. (Phi = .51)

290-2-3-.08 (1)(c) requires the family day care home to maintain a file for each child that includes evidence of age appropriate immunizations or a signed affidavit against such immunizations; enrollment in the home may not continue for more than 30 days without such evidence. (Phi = .72)

Table 11 - Key Indicator Formula Matrix for Generating Key Indicators*

	Providers In Compliance on Rule	*Programs Out Of Compliance on Rule*	*Row Total*
*High Group***	*A*	*B*	*Y*
*Low Group****	C	D	*Z*
Column Total	*W*	*X*	Grand Total

(* This computation occurred for each licensing rule)

****

Figure 2 - Key Indicator Statistical Methodology (Calculating the Phi Coefficient)

$$\phi = (A)(D) - (B)(C) \div \sqrt{(W)(X)(Y)(Z)}$$

A = High Group + Programs in Compliance on Specific Rule.
B = High Group + Programs out of Compliance on Specific Rule.
C = Low Group + Programs in Compliance on Specific Rule.
D = Low Group + Programs out of Compliance on Specific Rule.
W = Total Number of Programs in Compliance on Specific Rule.
X = Total Number of Programs out of Compliance on Specific Rule.
Y = Total Number of Programs in High Group.
Z = Total Number of Programs in Low Group .
****High Group = Top 25% of Programs in Compliance with all Rules.***
*****Low Group = Bottom 25% of Programs in Compliance with all Rules.***

****

Table 12 – Phi Coefficient Decision Table

Phi Coefficient Range	Characteristic of Indicator	Decision
(+1.00) – (+.26)	Good Predictor	Include
(+.25) – (-.25)	Unpredictable	Do not Include
(-.26) – (-1.00)	Terrible Predictor	Do not Include

Table 13 - Comparison of the Pre-K and Preschool Programs

Compliance Level*	Pre-K ECERS-R**(N)	Preschool ECERS-R***(N)
100	4.88 (4)	3.40 (15)
99	4.13 (6)	4.35 (7)
98	4.38 (6)	3.89 (13)
97	3.99 (4)	3.15 (9)
96	4.36 (2)	3.16 (13)
95	4.60 (2)	3.53 (5)
90	3.43 (2)	2.56 (5)
80	2.56 (1)	2.38 (2)

***Compliance Level = the number of child care rule violations subtracted from 100.**

100 = Full Compliance with Rules
99-98 = Substantial Compliance with Rules
97-90 = Medium Level of Compliance with Rules
80 = Low Level of Compliance with Rules

****Pre-K ECERS-R = average score of Pre-K Program classrooms as compared to the respective compliance levels. (N) = Sample Size.**

*****Preschool ECERS-R = average score of Preschool Program classrooms as compared to the respective compliance levels. (N) = Sample Size.**

From this comparison there is more of a linear relationship between compliance levels and ECERS-R average scores for Pre-K Program classrooms than with the Preschool Program classrooms where there is more of a curvilinear or plateau effect at the upper end of compliance levels (Full Compliance). In order to attain the necessary correlational thresholds (+.30+) for validation for the third approach to validation, having a linear relationship rather than curvilinear will enhance this occurring. When a curvilinear or plateau effect occurs there is too great a likelihood that programs at a medium level of quality will be introduced into the highest (full) level of compliance. From a public policy standpoint this is an undesirable result.

The other item to note with the data distributions is that the Preschool ECERS-R data are more restricted than the Pre-K Program ECERS-R data. In other words, there is less variance in the Preschool Program ECERS-R data than in the Pre-K Program ECERS-R data.

There is an important limitation in these data that the reader must be aware of in not drawing any conclusions that the presence of a Pre-K Program classroom in any way is causing the change in licensing compliance. There is a relationship between the two but there is no assumption of causality.

Georgia Licensing Validation Technical Elements Appendix

Because of the nature of this report being a state's first attempt at fully validating it's Child Care Licensing Core Rule Differential Monitoring Approach utilizing the Zellman & Fiene (2012) Validation Framework and Fiene's DMLMA (2012) Model, certain questions surfaced regarding the terminology and the methodology being used in this report. This Technical Elements Appendix provides answers to specific questions that have been raised regarding these methodologies.

1. *How were the multiple years of data handled?*

The Licensing Study data used to make the comparisons are the facility reports that were the earliest facility observations so that these data would be closest to when the program quality data were collected. The other more recent Licensing Studies were not used in this comparison.

2. *If the Core Rules, Key Indicator, and Licensing Study values are counts of violations, how was the fact that different sites had different numbers of visits handled?*

Because only the earliest Licensing Study data was used, the number of visits were not an issue in the scoring.

3. *If the Core Rules, Key Indicator, and Licensing Study values are counts of violations, were all levels of violation risk (low, medium, high, extreme) handled the same?*

Yes, there were very few occurrences of high and extreme in the data base and also no significant differences were found when a sample of the rule violations with and without the levels of violation risk were compared. Therefore the simpler formula in which levels of violation risk were not used was selected.

4. *How did you determine the minimum correlations (DMLMA thresholds) for each analysis? Was this computed separately for this analysis or are the minimum correlations based on previous work?*

The DMLMA thresholds were determined from previous research work conducted by the author of this study on this model over the past 30 years. These were the average correlational thresholds that have been proposed for making validation determinations. The reason for utilizing the DMLMA model and thresholds is that the Zellman & Fiene (2012) Framework provides guidance in how to select specific validation approaches, what are the specific questions answered by the approach and what are the limitations of the particular approach. The DMLMA model builds upon this but provides a suggested scoring protocol by comparing correlational thresholds in a specific state to historical trends.

5. *Was Phi calculated for every rule in the licensing study? Can the full list be added to the appendix?*

Yes, Phi was calculated for every rule in the licensing study but most of them could not be computed because there was so few rule violations in the majority of the rules. This is typical of state licensing data sets and the full Phi comparisons are not depicted because it does not add any information to the state report.

6. *How did you determine which of the Licensing Study rules should be counted as Key Indicators?*

The Key Indicator statistical methodology based upon a specific cut off point for the Phi Coefficient in which the p values were .0001 or less. This is a very stringent cut off point but it has been found historically that the p values needed to be lowered as the data distributions became more skewed with programs overall compliance levels increasing over time.

7. *How were sites that had no infant/toddler (i.e., no ITERS score) handled for the third validation approach? How were sites that had only a GA Pre-K (no preschool) handled?*

For scoring purposes only those facilities that had both the ECERS and ITERS scores were used in making comparisons with the licensing data related to the third approach to validation. The GA Pre-K were scored and compared in the same way.

8. *On Table 13, why is the number of violation subtracted from 100 (rather than from the maximum possible)?*

Generally this scoring is done because it is more intuitive to think in terms of 100% in compliance as a score of "100" rather than a score of "0". This conversion is used in all state licensing reports that involve the DMLMA, Key Indicators and Risk Assessment Models.

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OFFICE OF HEAD START KEY INDICATOR PROJECT REPORT

Richard Fiene, Ph.D.

The purpose of this report is to present to the Office of Head Start (OHS) Key Indicators of their Head Start Performance Standards (HSPS) that have the ability to statistically predict substantial compliance with all Compliance Measures and ultimately the majority of HSPS's. The analytical and methodological basis of this approach is based upon a *Differential Monitoring Logic Model and Algorithm (DMLMA©)* (Fiene, 2012) (see Appendix 3). The DMLMA© is the 4th generation of an Early Childhood Program Quality Indicator Model (ECPQIM)(Fiene & Nixon, 1985; Griffin & Fiene, 1995; Fiene & Kroh, 2000). Only a portion of the *DMLMA©* model was utilized in this report which focused on key indicators, risk assessment, and program quality.

Definitions:

Risk Assessment (RA) - a differential monitoring approach that employs using only those rules, standards, or regulations that place children at greatest risk of mortality or morbidity if violations/citations occur with the specific rule, standard, or regulation.

Key Indicators (KI) - a differential monitoring approach that employs using only those rules, standards, or regulations that statistically predict overall compliance with all the rules, standards, or regulations. In other words, if a program is 100% in compliance with the Key Indicators the program will also be in substantial to full compliance with all rules, standards, or regulations. The reverse is also true in that if a program is not 100% in compliance with the Key Indicators the program will also have other areas of non-compliance with all the rules, standards, or regulations.

Differential Monitoring (DM) - this is a relatively new approach to determining the number of visits made to programs and what rules, standards, or regulations are reviewed during these visits. There are two measurement tools that drive differential monitoring, one is Weighted Risk Assessment tools and the other is Key Indicator checklists. Weighted Risk Assessments determine how often a program will be visited while Key Indicator checklists determine what rules, standards, or regulations will be reviewed in the program. Differential monitoring is a very powerful approach when Risk Assessment is combined with Key Indicators because a program is reviewed by the most critical rules, standards, or regulations and the most predictive rules, standards, or regulations. See Appendix 3 which presents a Logic Model & Algorithm for Differential Monitoring *(DMLMA©)(*Fiene, 2012).

Program Quality (PQ) **-** for the purposes of this study this was measured via the CLASS – Classroom Assessment Scoring System. The CLASS has three sub-scales (ES = Emotional Support, CO = Classroom Organization, and IS = Instructional Support). The CLASS is a tool that is identified in the research literature as measuring classroom quality similar to the ERS tools.

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Early Childhood Program Quality Indicator Model (ECPQIM) – these are models that employ a key indicator or dashboard approach to program monitoring. Major program monitoring systems in early care and education are integrated conceptually so that the overall early care and education system can be assessed and validated. With these models, it is possible to compare results obtained from licensing systems, quality rating and improvement systems (QRIS), risk assessment systems, key indicator systems, technical assistance, and child development/early learning outcome systems. The various approaches to validation are interposed within this model and the specific expected correlational thresholds that should be observed amongst the key elements of the model are suggested. **Key Elements** of the model are the following (see Appendix 3 for details): **CI** = state or federal standards, usually rules or regulations that measure health and safety - *Caring for Our Children or Head Start Performance* Standards will be applicable here. **PQ** = Quality Rating and Improvement Systems (QRIS) standards at the state level; *ERS (ECERS, ITERS, FDCRS), CLASS, or CDPES* (Fiene & Nixon, 1985). **RA** = risk assessment tools/systems in which only the most critical rules/standards are measured. *Stepping Stones* is an example of this approach**. KI** = key indicators in which only predictor rules/standards are measured. The *Thirteen Indicators of Quality Child Care* is an example of this approach. **DM** = differential monitoring decision making in which it is determined if a program is in compliance or not and the number of visits/the number of rules/standards are ascertained from a scoring protocol. **PD** = technical assistance/training and/or professional development system which provides targeted assistance to the program based upon the **DM** results. **CO** = child outcomes which assesses how well the children are developing which is the ultimate goal of the system.

The organization of this report is as follows:

1) **The first section** will provide an overall analysis the Head Start (HS), Early Head Start (EHS), and Head Start/Early Head Start (HS/EHS) programs[1,4] ;

2) **The second section** will provide analyses of the various content areas (CA) within the HSPS[4];

3) **The third section** will provide analyses of the relationship between the HSPS as measured by compliance with the Compliance Measures (CM) and the program quality scores (CLASS scores)[3];

4) **The fourth and final section** will provide the analyses that produced the key indicators (KI) and recommendations in how it could be used.[2]

The source of data for this report is all the Tri-Annual On-Site Monitoring visits for 2012 which consisted of 422 reviews of programs across the country. There were 191 Head Start (HS) only programs, 33 Early Head Start (EHS) only programs, and 198 Head Start/Early Head Start (HS/EHS) programs reviewed. This is a representative sample of Head Start and Early Head Start programs nationally representing approximately 25% of the total number of Head Start programs.

Before proceeding with the results of this study, a few clarifying and definitional terms need to be highlighted. In the *2012 edition of OHS On-Site Review Protocol* and the *2013 OHS Monitoring Protocol*, Compliance Indicators (CI) and Key Indicators (KI) are respectively mentioned. In the licensing literature, when the term "Indicators" is used it refers to standards/rules that are predictive of overall compliance with all rules/standards. However, as defined by OHS, indicators (CI/KI) are used within the context of risk assessment which means that these indicators are the standards which are most important/critical

to the OHS in their monitoring reviews. These indicators therefore are not predictive in essence. That is the focus of this report/study which is to determine which of these indicators are predictive of overall compliance with all the compliance/key indicators. This is a common misconception in the human service regulatory field where risk assessment tools and key indicator tools purposes are confused. As we move forward please keep the definitions in mind related to the distinctions and functionality of risk assessment and key indicators.

For the purposes of this study, 131 Compliance Measures (CM), organized into seven (7) Content Areas (CA), were reviewed and analyzed. The seven content areas are the following: Program Governance; Management Systems; Fiscal Integrity; Eligibility, Recruitment, Selection, Enrollment, and Attendance; Child Health and Safety; Family and Community Engagement; Child Development and Education. Ten CM's were from Program Governance (GOV), 10 were from Management Systems (SYS), 22 were from Fiscal Integrity (FIS), 11 were from Eligibility, Recruitment, Selection, Enrollment, and Attendance (ERSEA), 34 were from Child Health and Safety (CHS), 16 were from Family and Community Engagement (FCE), and 28 were from Child Development and Education (CDE)[4].

Section 1 - Head Start (HS), Early Head Start (EHS), and Head Start/Early Head Start (HS/EHS) programs

In order to determine if analyses needed to be performed separately on Head Start (HS), Early Head Start (EHS), and Head Start/Early Head Start (HS/EHS) combined programs, the first series of analyses were performed to determine if any statistically significant differences existed amongst these three groups. This is a very important first analysis because it will help to determine the stability of the sample selected and of the overall system. In other words, is there a good deal of consistency across all service types: HS, EHS, and HS/EHS.

Based upon Table 1, no statistically significant differences were determined amongst the three groups (HS, EHS, HS/EHS) with Compliance Measures (CM) or CLASS (ES, CO, IS) Scores indicating that using the full 422 sample and not having to do separate analyses for the three groups was the correct analytical framework. However, where it is appropriate, any statistically significant differences amongst the various program types will be highlighted.

Table 1 – Head Start, Early Head Start, & Head Start/Early Head Start With CM and CLASS/ES, CO, IS

Program Type	CM(N)	CLASS/ES(N)	CLASS/CO(N)	CLASS/IS(N)
Head Start (HS)	3.72(191)	5.88(186)	5.43(186)	2.97(186)
Early Head Start (EHS)	2.67(33)	-----*	-----*	-----*
Head Start (HS/EHS)	3.07(198)	5.91(198)	5.47(198)	3.00(198)
Totals	**3.33(422)**	**5.89(384)**	**5.45(384)**	**2.98(384)**
Statistical Significance	**NS**	**NS**	**NS**	**NS**

CM = Compliance Measures (Average Number of Violations)
CLASS/ES = CLASS Emotional Support Average Score
CLASS/CO = CLASS Classroom Organization Average Score
CLASS/IS = CLASS Instructional Support Average Score
NS = Not Significant
N = Number of Programs
****CLASS data were not collected in EHS.***

The average number of violations with the Compliance Measures for Head Start (3.72), Early Head Start (2.67) and Head Start/EHS (3.07) was not significant in utilizing a One-Way ANOVA. There were 191 Head Start (HS) programs, 33 Early Head Start (EHS) programs, and 198 Head Start (HS/EHS) programs.

Comparisons were also made with Head Start and Head Start/EHS on the various CLASS sub-scales (ES = Emotional Support, CO = Classroom Organization, and IS = Instructional Support) and no significant differences were found between these two groups. The EHS (n = 33) was not used because CLASS data were not collected in these programs.

The practical implication of the above results is that the same monitoring tools and the resulting Head Start Key Indicator (HSKI) to be developed as a result of this study can be used in the three main types of programs: Head Start, Early Head Start, and Head Start/EHS. There is no need to have separate tools.

Section 2 - Content Areas

The second series of analyses was to look more closely at the 7 content areas (CA) to measure demographically any differences amongst the various areas. In order to do this a weighted average had to be determined in order to compare the various areas because of the differences in the number of Compliance Measures (CM) used in each content area. Table 2 provides the results of these analyses. For the total sample of 422 sites, Management Systems (SYS) Content Area (CA) had the highest number of violations with the Compliance Measures (CM) with 359. The SYS/CA also had the highest average number of violations with 35.90 because there were only 10 CM. For the total sample of 422 sites, the lowest number of violations was in the Family and Community Engagement (FCE) Content Area (CA) with 48 violations with CM. It also had the lowest average number of violations with 3.00.

For the Head Start only sites (n = 191), a similar distribution as with the total sample (n = 422) is depicted in which Management Systems (SYS) Content Area (CA) had the highest number of violations with the Compliance Measures (CM) with 192. The SYS/CA also had the highest average number of violations with 19.20 because again there were only 10 CM. The lowest number of violations was in the Family and Community Engagement (FCE) Content Area (CA) with 20 violations with CM. It also had the lowest average number of violations with 1.25.

For the Early Head Start only (n = 33) and the Head Start/Early Head Start (n = 198) sites, the ranking of the various Content Areas changed somewhat with the total number of violations and the average number of violations from the Total Sample (n = 422) and the Head Start only (n = 191) sites but not dramatically. For example, the Family and Community Engagement (FCE); Child Development and Education (CDE); and the Eligibility, Recruitment, Selection, Enrollment, and Attendance (ERSEA) Content Areas switched rankings in which it had the fewest total violations and the average number of violations (see Table 2).

Table 2 – Comparing Content Areas and Program Types

	Total Violations/(Rank)				Average # of Violations/(Rank)				CM
Content Areas	**TOT**	**HS**	**EHS**	**HS/EHS**	**TOT**	**HS**	**EHS**	**HS/EHS**	**#**
FCE	48(1)	20(1)	2(1)	26(2)	3.00(1)	1.25(1)	0.125(1)	1.63(2)	16
ERSEA	62(2)	37(2)	6(3)	19(1)	5.64(3)	3.36(3)	0.545(3)	1.73(3)	11
CDE	91(3)	43(3)	5(2)	43(3)	3.25(2)	1.54(2)	0.179(2)	1.54(1)	28
GOV	150(4)	94(4)	6(3)	50(4)	15.00(6)	9.40(6)	0.600(4)	5.00(5)	10
FIS	255(5)	114(5)	23(7)	118(5)	11.59(5)	5.18(5)	1.045(6)	5.36(6)	22
CHS	333(6)	151(6)	22(6)	160(7)	9.79(4)	4.44(4)	0.647(5)	4.71(4)	34
SYS	359(7)	192(7)	20(5)	147(6)	35.90(7)	19.20(7)	2.000(7)	14.70(7)	10

CONTENT AREAS (CA):
FCE = FAMILY and COMMUNITY ENGAGEMENT
ERSEA = ELIGIBILITY, RECRUITMENT, SELECTION, ENROLLMENT, and ATTENDANCE
CDE = CHILD DEVELOPMENT AND EDUCATION
GOV = PROGRAM GOVERNANCE
FIS = FISCAL INTEGRITY
CHS =CHILD HEALTH AND SAFETY
SYS = MANAGEMENT SYSTEMS

TOT = TOTAL NUMBER OF SITES, FULL SAMPLE OF 422 SITES
HS = HEAD START ONLY PROGRAMS
EHS = EARLY HEAD START ONLY PROGRAM
HS/EHS = HEAD START AND EARLY HEAD START COMBINED PROGRAMS
CM = NUMBER OF COMPLIANCE MEASURES

TOTAL VIOLATIONS = ALL THE VIOLATIONS FOR A SPECIFIC CONTENT AREA.
AVERAGE # OF VIOLATIONS = THE TOTAL VIOLATIONS FOR A SPECIFIC CA DIVIDED BY THE NUMBER OF COMPLIANCE MEASURES FOR THAT SPECIFIC CONTENT AREA.
RANK = HOW EACH CONTENT AREA COMPARES TO THE OTHER CONTENT AREAS FOR THE RESPECTIVE PROGRAM TYPE.

For the total sample (n = 422), other CA's had different configurations between the total number of violations and the average number of violations as demonstrated by CHS – Child Health and Safety in which there was a total of 333 violations but the average number of violations was 9.79 because there were 34 Compliance Measures (CM). Program Governance (GOV) had 150 total violations and a weighted-average of 15 violations with 10 CM. Child Development and Education (CDE) had 91 total violations and a weighted-average of 3.25 violations. Fiscal Integrity (FIS) had 255 total violations and a weighted-average of 11.59 violations. And lastly, Eligibility, Recruitment, Selection, Enrollment, and Attendance (ERSEA) had 62 total violations and a weighted-average of 5.64 violations.

The Head Start only (HS = 191), Early Head Start only (EHS = 33), and the Head Start/Early Head Start (HS/EHS = 198) programs followed a similar pattern as with the total sample (n = 422). This indicates a great deal of consistency in the sample drawn. See Appendix 4 for violation data for all 131 Compliance Measures.

The practical implication of the above findings is that certain Content Areas (SYS, GOV, FIS) may need additional exploration by OHS because of their high rates of non-compliance with the Compliance Measures.

Section 3 – Program Quality

This section provides comparisons between the Compliance Measures (CM) data and the CLASS (ES, CO, IS) data. This is a very important section because there is always the concern that compliance with the HSPS has no relationship to program quality as measured by the CLASS. In Table 3, correlations were run between the CM data and the CLASS scores for Emotional Support (ES), Classroom Organization (CO), and Instruction Support (IS) for the Head Start only and the Head Start/Early Head Start programs. The EHS only programs were not included because CLASS data are not collected on these programs. The results are very positive and statistically significant in most cases. It is also important to note the very positive correlation between the Head Start Key Indicators (HSKI[2]) and CLASS. This result supports using the HSKI in monitoring Head Start.

Table 3 – Relationship Between Compliance Measures (CM), KI, and CLASS (ES, CO, IS) Scores

	Compliance Measures Content Areas								Key Indicators
CLASS	**CM**	***FCE***	***ERSEA***	***CDE***	***GOV***	***FIS***	***CHS***	***SYS***	**KI**
CLASS/ES	.22**	.13*	.15**	.15**	.11*	.05	.23**	.17**	.27**
CLASS/CO	.19**	.13*	.11*	.16**	.04	.06	.21**	.15**	.25**
CLASS/IS	.20**	.10	.12*	.12*	.13*	.06	.18**	.11*	.17**

CM Violations = Total Compliance Measure Violations

CONTENT AREAS (CA):
FCE = FAMILY and COMMUNITY ENGAGEMENT
ERSEA = ELIGIBILITY, RECRUITMENT, SELECTION, ENROLLMENT, and ATTENDANCE
CDE = CHILD DEVELOPMENT AND EDUCATION
GOV = PROGRAM GOVERNANCE
FIS = FISCAL INTEGRITY
CHS =CHILD HEALTH AND SAFETY
SYS = MANAGEMENT SYSTEMS

CLASS/IS = Average CLASS IS (Instructional Support) Score
CLASS/ES = Average CLASS ES (Emotional Support) Score
CLASS/CO = Average CLASS CO (Classroom Organization) Score

KI = Key Indicators Total Score

*** p < .01***
*** p < .05***

See Appendix 6 & 6A for the inter-correlations amongst all the Content Areas, HSKI, and Total Compliance with Compliance Measures.

These results are very important but it is equally important to look more specifically at the distribution of the Compliance Measures (CM) scores and their relationship to the CLASS data (see Appendix 5 for detailed graphic distributions and Appendix 6 & 6A for the inter-correlations amongst all the CA). When this is done a very interesting trend appears (see Table 3a) in which a definite plateau occurs as the scores move from more violations or lower compliance with the Compliance Measures (25-20 to 3-8 CM Violations) to fewer violations or substantial compliance with the Compliance Measures (1-2 CM Violations) and full compliance with the Compliance Measures (Zero (0) CM Violations).

Table 3a – Aggregate Scores Comparing CM Violations with CLASS Scores

CM Violations		IS	ES	CO	Number/Percent
0	(Full Compliance)	3.03	5.99	5.59	75/19%
1-2	(Substantial Compliance)	3.15	5.93	5.50	135/35%
3-8	(Mid-Compliance)	2.87	5.85	5.37	143/40%
9-19	(Lower Compliance)	2.65	5.71	5.32	28/6%
20-25	(Lowest Compliance)	2.56	5.52	4.93	3/1%
Significance		**F = 4.92; p < .001**	**F = 4.918; p < .001**	**F = 4.174; p < .003**	

CM Violations = Compliance Measure Violations (lower score = higher compliance)(higher score = lower compliance)
IS = Average CLASS IS (Instructional Support) Score
ES = Average CLASS ES (Emotional Support) Score
CO = Average CLASS CO (Classroom Organization) Score
#/% = Number of programs and Percent of programs at each level of compliance

When comparing these groupings in Table 3a the results from a One Way ANOVA were significant ($F = 4.92$; $p < .001$) for the CLASS/IS Scores. The average CLASS/IS Score when there were no CM Violations was 3.03. The average CLASS/IS Score when there were 1-2 CM Violations was 3.15. The average CLASS/IS Score when there were 3-8 CM Violations was 2.87. The average CLASS/IS Score when there were 9-19 CM Violations was 2.65. And finally, the average CLASS/IS Score when there were 20-25 violations was 2.56. The results were very similar with the CLASS/ES and CLASS/CO scores as well in which the results from a One Way ANOVA were statistically significant for the CLASS/ES ($F = 4.918$; $p < .001$) and for the CLASS/CO ($F = 4.174$; $p < .003$). These results clearly demonstrate that being in full or substantial compliance with the Compliance Measures correlates with more positive scores on the CLASS. Approximately 55% of the Head Start programs are at the full or substantial compliance level.

The practical implication of the above findings is that placing equal emphasis on full as well as substantial compliance with the Compliance Measures could be an acceptable public policy decision.

Section 4 – Head Start Key Indicators (HSKI)

The fourth and final section of this report is in some ways the most important since this is the focus of the study: developing statistically predictive Key Indicator (KI) Compliance Measures (CM) – the Head Start Key Indicators (HSKI).

These are the statistically predictive Key Indicators based upon the KI methodology, correlations with the CLASS/ES, CO, IS, and correlations with the CM Total Violation scores. Table 4 lists the results while Appendix 1 has the specific KI's content specified. Appendix 2 depicts the KI Formula Matrix. Only those Compliance Measures (CM) that had significant results on three of the five correlations were selected to be Head Start Key Indicator Compliance Measures (HSKI).

The methodology used to generate the Compliance Measure Key Indicators sorted the top 20% of programs in compliance and compared this group to the bottom 27% of programs in compliance. The middle 53% of programs were not used in order to determine the Key Indicators. These cut off points

were determined by the compliance distribution in which 20% of the programs were in 100% compliance while 27% of the programs had compliance scores of 95% or less.

Table 4 – Head Start Key Indicator (HSKI) Compliance Measures (CM) and CLASS and Total Violations

HSKI/CM (2013)	Phi	CLASS/ES	CLASS/CO	CLASS/IS	Total Violations
CDE4.1	.28***	.10*	ns	ns	.30***
CHS1.1	.39***	.15**	.16**	ns	.39***
CHS1.2	.33***	.18**	.15**	.10*	.36***
CHS2.1	.49***	.18**	.15**	ns	.54***
CHS3.10	.39***	.11*	.11*	ns	.24***
GOV2.1	.31***	.11*	ns	ns	.46***
SYS2.1	.47***	.15**	.16**	.14**	.55***
SYS3.4	.58***	.13*	.10*	ns	.36***

Phi = the phi coefficient which statistically predicts compliance with the full set of CM's.

CLASS/ES = correlations between the specific CM and this specific scale of the CLASS.
CLASS/CO = correlations between the specific CM and this specific scale of the CLASS.
CLASS/IS = correlations between the specific CM and this specific scale of the CLASS.

Total Violations = correlations between the specific CM and the total number of CM violations for each program.

** p < .05*
*** p < .01*
**** p < .001*
ns = not significant

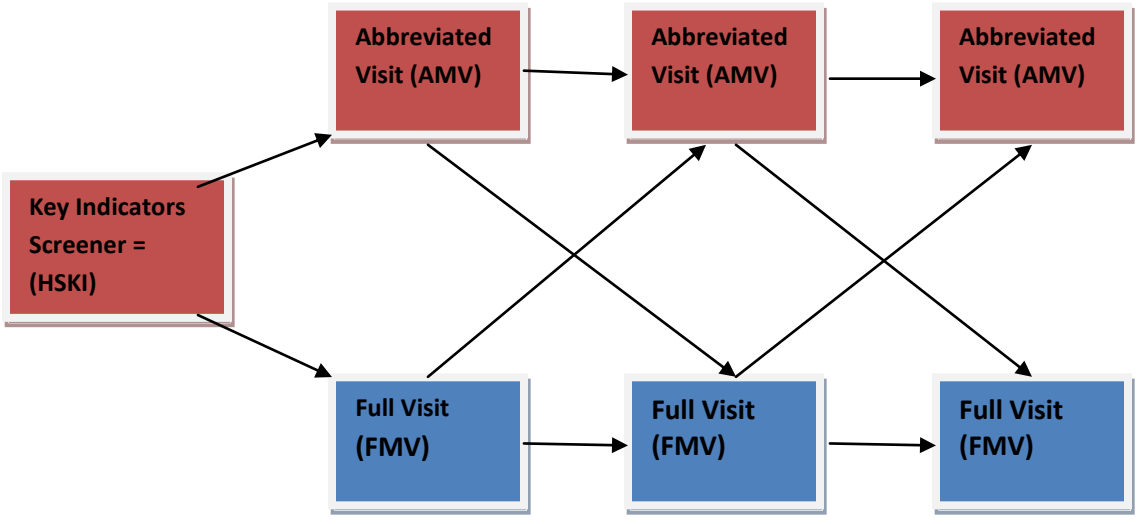
Separate Key Indicators were run for just Head Start only and Head Start/Early Head Start programs but the key indicators were only a subset of the above list, albeit a shorter list in each case. Based upon those phi coefficients, it was determined that using the above list for all Head Start only, Early Head Start, and Head Start/Early Head Start was a more efficient and effective way to monitor all the programs with one list of indicators rather than having separate key indicators for program types. The separate phi coefficients run for Head Start only and Head Start/Early Head Start programs did not show any significant differences because they were sub-samples of the overall sample drawn.

Section 4A – Suggested Use of the HSKI for Head Start Program Monitoring

Now that Key Indicators have been generated, the next question is how to use HSKI in the program monitoring of Head Start. A possible way in which the HSKI could be used would be the following (see Figure 1) in which a differential monitoring approach could be used:

All programs would be administered the HSKI. If there is full (100%) compliance with the Head Start Key Indicators (HSKI) then the next scheduled review of the program would be an Abbreviated Monitoring Visit (AMV). If there is not 100% compliance with the Head Start Key Indicators (HSKI) then the next scheduled review of the program would be a Full Monitoring Visit (FMV) in which all Compliance Measures are reviewed. Based upon the results of the FMV a determination could be made regarding a compliance or non-compliance decision (see Figure 1) and how often the program will be visited.

Figure 1 – Head Start Key Indicator (HSKI) Compliance Measures Differential Monitoring Model



Compliance Decisions:

Head Start Key Indicators (HSKI) – this becomes a screening tool to determine if a program receives an AMV OR FMV visit.

***HSKI (100%)** = For the next visit, an Abbreviated Monitoring Visit (AMV) is conducted. Every 3-4 yrs a full Monitoring is conducted.*

***HSKI (not 100%)** = For the next visit, a Full Monitoring Visit (FMV) is conducted and all CMs are reviewed.*

***Compliance** = 98%+ with all CMs which indicates substantial to full compliance and 100% with HSKI. For the next visit, an Abbreviated Monitoring Visit (AMV) is conducted.*

***Non-compliance** = less than 98% with all CMs which indicates low compliance. For the next visit a Full Monitoring Visit (FMV) is conducted.*

Moving to a differential monitoring system could provide a cost effective and efficient model for Head Start program monitoring. This revision to the Head Start program monitoring system would combine a risk assessment and key indicator approach (see Appendix 3) in determining what compliance measures to review, how often, and how comprehensive a review should be utilized. It would continue to focus on the most critical compliance measures that statistically predict overall compliance with the full complement of compliance measures.

See Appendix 7 – Figure 2 for how the above differential monitoring system could impact the present Head Start Tri-Annual Review Monitoring System. In this appendix, a cost neutral monitoring system is proposed based upon the above DMLMA/Key Indicator Model.

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Footnotes

1) PIR Dashboard Key Indicators could not be generated because the PIR data demonstrated little statistical predictive ability to be useful for discriminating between high and low compliant programs or program quality with the exception of staff having CDA's.

2) The correlation between Compliance Measures (CM) and the statistically predictive Key Indicators (HSKI) was .77 which exceeds the expected correlation threshold.

3) The correlations between the CLASS/ES, CO, IS and Key Indicators were the following: .27, .25, .17 respectively. The correlations between KI and ES and CO were higher than the correlations between CM and ES, CO as reported earlier in this report. The correlation between IS and CM was higher .20 than KI and IS (.17).

4) Because this study spans the 2012 Review Protocol and 2013 Monitoring Protocol, Compliance Indicators and Compliance Measures are used interchangeably with a preference given to using Compliance Measures (CM) in this report. There are 139 Compliance Indicators; 115 Compliance Measures, but for the purposes of this study 131 Compliance Measures were available in the 2012 Head Start data base drawn for this study.

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Appendix 1 – Head Start Key Indicators (HSKI) Compliance Measures Content

CM	Content	Regulations/Law
CDE4.1*	The program hires teachers who have the required qualifications, training, and experience.	1304.52(f), 645A(h)(1), 648A(a)(3)(B)(i), 648A(a)(3)(B)(ii), 648A(a)(3)(B)(iii)
CHS1.1	The program engages parents in obtaining from a health care professional a determination of whether each child is up to date on a schedule of primary and preventive health care (including dental) and assists parents in bringing their children up to date when necessary and keeping their children up to date as required.	1304.20(a)(1)(ii), 1304.20(a)(1)(ii)(A), 1304.20(a)(1)(ii)(B)
CHS1.2	The program ensures that each child with a known, observable, or suspected health, oral health, or developmental problem receives follow-up and further testing, examination, and treatment from a licensed or certified health care professional.	1304.20(a)(1)(iii), 1304.20(a)(1)(iv), 1304.20(c)(3)(ii)
CHS2.1	The program, in collaboration with each child's parent, performs or obtains the required linguistically and age-appropriate screenings to identify concerns regarding children within 45 calendar days of entry into the program, obtains guidance on how to use the screening results, and uses multiple sources of information to make appropriate referrals.	1304.20(a)(2), 1304.20(b)(1), 1304.20(b)(2), 1304.20(b)(3)
CHS3.10	Maintenance, repair, safety of facility and equipment	1304.53(a)(7)
GOV2.1*	Members of the governing body and the Policy Council receive appropriate training and technical assistance to ensure that members understand information they receive and can provide effective oversight of, make appropriate decisions for, and participate in programs of the Head Start agency.	642(d)(3)
SYS2.1	The program established and regularly implements a process of ongoing monitoring of its operations and services, including delegate agencies, in order to ensure compliance with Federal regulations, adherence to its own program procedures, and progress towards the goals developed through its Self-Assessment process.	1304.51(i)(2), 641A(g)(3)
SYS3.4	Prior to employing an individual, the program obtains a: Federal, State, or Tribal criminal record check covering all jurisdictions where the program provides Head Start services to children; Federal, State, or Tribal criminal record check as required by the law of the jurisdiction where the program provides Head Start services; Criminal record check as otherwise required by Federal law	648A(g)(3)(A), 648A(g)(3)(B), 648A(g)(3)(C)

**** FY 2013 Office of Head Start Monitoring Protocol (October 26, 2013) Compliance Measures***

Appendix 2: Key Indicator Formula Matrix for HSKI – Head Start Key Indicators

	Providers In Compliance	*Programs Out Of Compliance*	*Row Total*
High Group	***A***	***B***	***Y***
Low Group	**C**	**D**	***Z***
Column Total	***W***	***X***	**Grand Total**

Key Indicator Statistical Methodology (Calculating the Phi Coefficient):

$$\phi = (A)(D) - (B)(C) \div \sqrt{(W)(X)(Y)(Z)}$$

A = High Group + Programs in Compliance on Specific Compliance Measure.
B = High Group + Programs out of Compliance on Specific Compliance Measure.
C = Low Group + Programs in Compliance on Specific Compliance Measure.
D = Low Group + Programs out of Compliance on Specific Compliance Measure.

W = Total Number of Programs in Compliance on Specific Compliance Measure.
X = Total Number of Programs out of Compliance on Specific Compliance Measure.
Y = Total Number of Programs in High Group.
Z = Total Number of Programs in Low Group.

High Group = Top 20% of Programs in Compliance with all Compliance Measures.
Low Group = Bottom 27% of Programs in Compliance with all Compliance Measures.

Phi Coefficient Range	Characteristic of Indicator	Decision
(+1.00) – (+.26)	**Good Predictor**	**Include on HSKI**
(+.25) – (0)	**Too Easy**	**Do not Include**
(0) – (-.25)	**Too Difficult**	**Do not Include**
(-.26) – (-1.00)	**Terrible Predictor**	**Do not Include**

Appendix 3

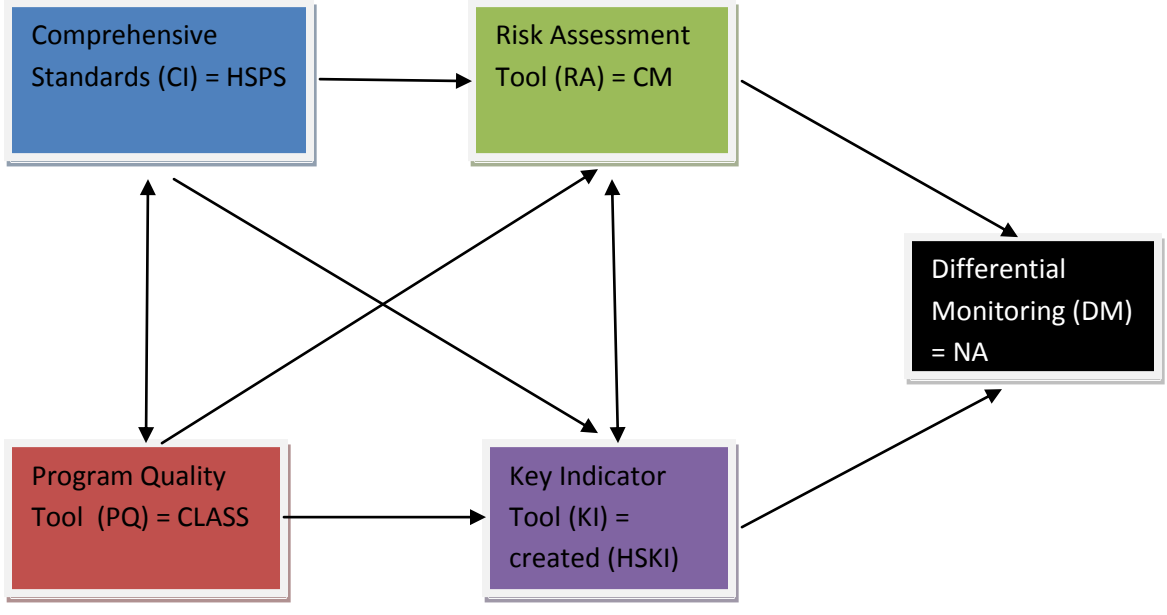
DIFFERENTIAL MONITORING LOGIC MODEL AND ALGORITHM (Fiene, 2012) *DMLMA©* Applied to the Office of Head Start Program Monitoring Compliance System

CI + PQ => RA + KI => DM

Head Start Examples:

CI = Head Start Performance Standards (HSPS)
PQ = CLASS ES, IS, CO (CLASS)
RA = Compliance Measures (CM)
KI = Key Indicators (generated from this study = Head Start Key Indicators (HSKI))
DM = Not Applicable at this time (NA) but see Figure 1 for a proposed model

DMLMA© Thresholds:
High Correlations (.70+) = CI x KI.
Moderate Correlations (.50+) = CI x RA; RA x DM; RA x KI; KI x DM.
Lower Correlations (.30+) = PQ x CI; PQ x RA; PQ x KI.



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Appendix 4: Content Areas and Compliance Measures

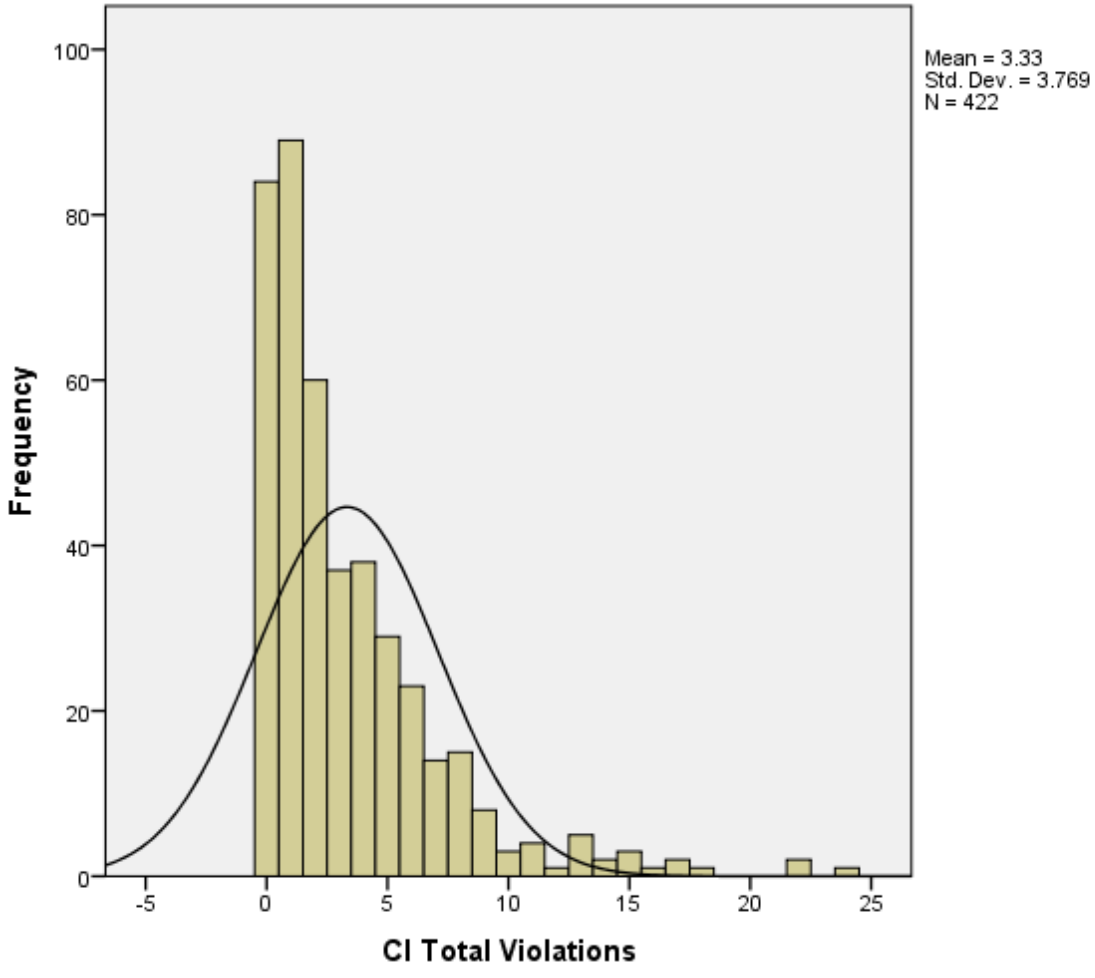
Content Areas and Compliance Measures ***FY 2012 OHS On-Site Review Protocol (FY 2013 OHS Monitoring Protocol)***	**Percent (%) Compliance**
CDE - CHILD DEVELOPMENT AND EDUCATION	**99%**
1.1(2.2) The program implements a curriculum that is aligned with the Head Start Child Development and Early Learning Framework…	99%
1.2 The program implements a curriculum that is evidence-based…	99%
1.3(2.1) The curriculum is comprehensive….	99%
2.1 The program implements an infant toddler curriculum….	99%
2.2 The program develops secure relationships in out of home care settings for infants and toddlers…	100%
2.3 The program implements an infant/toddler curriculum that encourages trust….	100%
2.4 The program encourages the development of self-awareness, autonomy…..	100%
2.5 The program fosters independence.	100%
2.6 The program enhances each child's strengths by encouraging self control….	99%
2.7 The program plans for routines and transitions…..	99%
2.9 The program encourages respect for others feelings and rights.	99%
2.10 The program provides opportunities for children to engage in child-initiated…..	100%
2.11 Nutrition services contribute to children's development and socialization…..	100%
3.1 The program uses information from screenings, ongoing observations…..	99%
3.3 The programs' nutrition program is designed and implemented to meet the nutritional needs….	98%
3.4(CHS4.5) Meal and snack periods are appropriately scheduled….	99%
3.5(3.2) Services provided to children with identified disabilities are designed to support…..	100%
3.6(3.3) The program designates a staff member or consultant to coordinate services for children w/disabilities…	100%
3.7(3.4) The program has secured the services of a mental health professional…..	97%
3.8(3.5) The program's approach to CDE is developmentally and linguistically appropriate….	99%
4.1 The program establishes goals for improving school readiness…..	98%
4.2 The program uses self assessment information on school readiness goals…..	99%
4.3 The program demonstrates that children who are dual language learners…..	100%
5.1(4.1) The program hires teachers who have the required qualifications, training, & experience.	92%
5.2 The program ensures that family child care providers have the required qualifications….	100%
5.3 The program ensures that all full time Head Start employees who provide direct education….	96%
5.4 The program ensures that home visitors have the required qualifications, training….	99%
5.5 When the majority of children speak the same language…..	99%
CHS - CHILD HEALTH AND SAFETY	**97%**
1.1 The program engages parents in obtaining from a health care professional a determination of whether each child….	89%
1.2 The program ensures that each child with a known, observable, or suspected health, oral health…..	92%
1.3 The program involves parents, consulting with them immediately when child health or developmental problems…..	100%
1.4 The program informs parents and obtains authorization prior to all health procedures….	98%
1.5 The program has established procedures for tracking the provision of health services.	97%
1.6 The EHS program helps pregnant women, immediately after enrollment in the program, access through referrals…..	100%
1.7 Program health staff conduct a home visit or ensure that a health staff member visits each newborn within 2 weeks of birth….	97%
2.1 The program, in collaboration with each child's parent, performs or obtains the required screenings….	84%
2.2 A coordinated screening, assessment, and referral process for all children….	98%
2.3 The program, in partnership with the LEA or Part C Agency, works to inform and engage parents in all plans for screenings….	99%
3.1 Facilities used for center based program options comply with state and local licensing….	100%
3.2 The program ensures that sufficient equipment, toys, materials, and furniture are provided….	97%
3.3 Precautions are taken to ensure the safety of children.	99%
3.4 The program ensures that medication is properly stored and is not accessible to children.	98%
3.5 The program ensures that no hazards are present around children.	89%
3.6 The program ensures that sleeping arrangements for infants do not use soft bedding materials.	99%
3.7 All infant and toddler toys are made of non-toxic materials and sanitized regularly.	99%
3.8 The program has adequate usable indoor and outdoor space.	99%
3.9 Outdoor play areas are arranged to prevent children from getting into unsafe or unsupervised areas…..	100%
3.10 The program provides for maintenance, repair, safety, and security of all Head Start facilities and equipment.	85%
3.11 The program's facilities provide adequately for children with disabilities…..	100%
4.1 Staff, volunteers, and children wash their hands with soap and running water.	98%
4.2 Spilled bodily fluids are cleaned up and disinfected immediately….	100%
4.3 The program adopts sanitation and hygiene practices for diapering……	99%

4.4(4.7) The program ensures that facilities are available for proper refrigerated storage and handling of breast milk and formula.	100%
4.5(4.8) Effective oral hygiene is promoted among children in conjunction with meals.	99%
5.1 The program ensures appropriate class and group sizes based on the predominant age of the children.	99%
5.2 The program ensures that no more than eight children are placed in an infant and toddler space…..	99%
6.1 The program's vehicles are properly equipped.	99%
6.2 At least one bus monitor is aboard the vehicle at all times.	99%
6.3 Children are released only to a parent……	99%
6.4 Each bus monitor, before duty, has been trained on child boarding and exiting procedures……	99%
6.5 The program ensures that persons employed to drive vehicles receive the required behind the wheel training….	99%
6.6 Specific types of transportation assistance offered are made clear to all prospective families…	100%
ERSEA – ELIGIBILITY, RECRUITMENT, SLECTION, ENROLLMENT, AND ATTENDANCE	**98%**
1.1 The program developed and implemented a process that is designed to actively recruit families…..	99%
1.2 The program has a systematic process for establishing selection criteria……	99%
1.3 The program has established and implemented outreach and enrollment policies and procedures….	99%
2.1 Program staff verified each child's eligibility……	94%
2.2 The program enrolls children who are categorically eligible…..	99%
2.3 The American Indian or Alaskan Native programs ensure that the children who meet the following requirements….	100%
3.1 Actual program enrollment is composed of at least 10 percent children with disabilities.	96%
3.2 The program enrolled 100% of its funded enrollment…..	98%
3.3 The program has documentation to support monthly enrollment data …..	98%
4.1 When monthly average daily attendance in center based programs falls below 85%, the causes of absenteeism….	99%
4.2 The program ensures that no child's enrollment or participation in the Head Start program is contingent on payment of a fee.	99%
FCE – FAMILY AND COMMUNITY ENGAGEMENT	**99%**
1.1(1.2) Program staff are familiar with the backgrounds of families and children…..	100%
1.2(1.3) A strength based and family driven collaborative partnership building process is in place…..	100%
1.3(1.4) The program provides resources and services for families' needs, goals, and interests…..	99%
2.1 The program provides opportunities for parents to enhance their parenting skills…..	99%
2.2 Parents and staff share their respective concerns and observations about their individual children…..	99%
2.3 On site mental health consultation assists the program in providing education to parents……	97%
3.1 Program staff plan, schedule, and facilitate no fewer than two staff parent conferences……	98%
3.2(1.1) The program is open to parents during all program hours….	99%
3.3(3.2) In home based settings, programs encourage parents to be integrally involved in their children's development.	99%
3.4(3.3) Programs provide opportunities for children and families to participate in literacy services……	99%
3.5(3.4) The program builds parents' confidence to advocate for their children by informing parents of their rights…..	99%
4.1 The program has procedures to support successful transitions for enrolled children…..	99%
4.2 The program initiates transition planning for each EHS enrolled child at least 6 months prior to the child's 3rd birthday….	99%
5.1 The program has established and maintains a health services advisory committee.	97%
5.2 The program has taken steps to establish ongoing collaborative relationships with community organizations….	100%
5.3 The program coordinates with and has current interagency agreements in place with LEA's…..	98%
FIS – FISCAL INTEGRITY	**97%**
1.1 The program's financial management systems provide for effective control…..	94%
1.2 The program sought and received prior approval in writing for budget changes….	99%
1.3 The program minimized the time elapsing between the advancement of funds from the Payment Management System….	100%
1.4 The program used Head Start funds to pay the cost of expenses….	99%
1.5 The program has obtained and maintained required insurance coverage for risks and liabilities.	99%
2.1 Financial reports and accounting records are current, accurate, complete….	98%
2.2 Monthly financial statements, are provided to program governing bodies and policy groups….	97%
3.1(3.1) The program has procurement procedures that provide all requirements specified in the applicable statutes…..	95%
3.2(3.1) Contracts and delegate agency agreements are current, available, signed, and dated…..	96%
4.1 Original time records are prepared and properly signed by the individual employee & approved…..	97%
4.2 Head Start or EHS grant funds are not used as any part of the monetary compensation….	99%
4.3 Total compensation for personal services charged to the grant are allowable and reasonable….	98%
5.1 The grantee has implemented procedures to determine allowability, allocability, and reasonableness of costs…..	95%
5.2 Indirect cost charges are supported by a negotiated and approved indirect cost rate.	100%
5.3 If the grantee is required to allocate costs between funding sources, the program utilizes a method for allocating costs….	97%
5.4 The financial records of the grantee are sufficient to allow verification that non-Federal participation is necessary…..	90%
5.5(5.3) The grantee can demonstrate that all contributions of non-Federal share are necessary and reasonable…..	98%
5.6(5.4) During each funding period reviewed the grantee charged to the award only costs resulting from obligations….	98%
6.1(6.1;6.2) For grantees that own facilities purchased or constructed using Head Start grant funds, documentation is available….	97%
6.2(6.1;6.2) The grantee meets property management standards for equipment purchased using HS funds…..	94%
6.3(6.1;6.2) Grantees that entered into a mortgage or other loan agreement using collateral property complied with Federal regs….	97%
6.4(6.1;6.2) The amount which the grantee may claim a cost or non-Federal share contribution……	96%
GOV – PROGRAM GOVERNANCE	**96%**

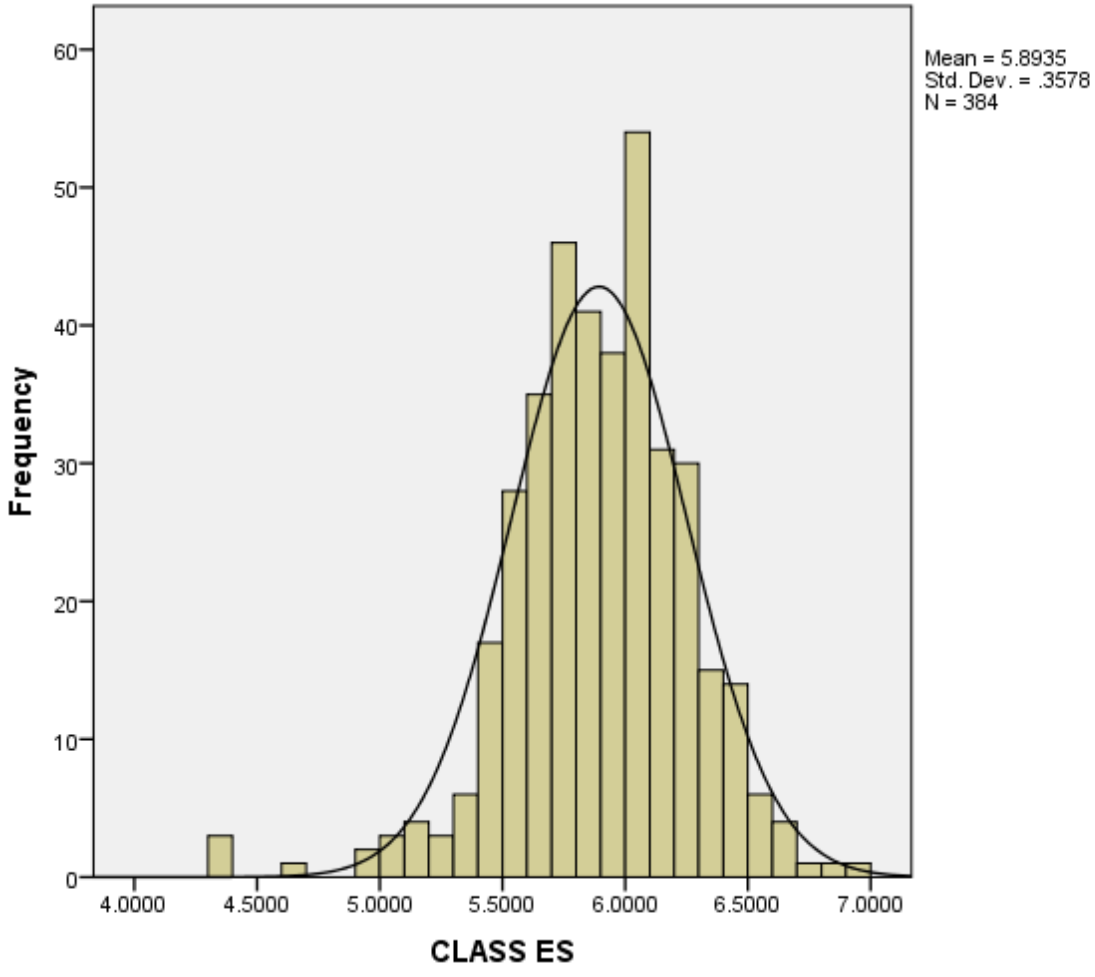
1.1 The program has a governing body….	98%
1.2 The program has established a policy council….	98%
2.1 Policy council and plicy committee members are supported by the program….	99%
2.2 The program has policies and procedures in place to ensure that member of the governing body & PAC are free…..	97%
3.1(2.1) Members of the governing body and the PAC receive appropriate training and TA……	94%
3.2(2.2) The governing body performs required activities and makes decisions pertaining to program administration….	95%
3.3 The governing body approves financial management, accounting, and reporting policies…..	99%
3.4 The governing body reviews and approves all of the program's major policies……	95%
3.5(2.4) The PAC approves and submits decisions about identified program activities to the governing body.	98%
4.1(3.1) Governing body and PAC members r3egulatly receive and use information about program planning…..	88%
SYS – MANAGEMENT SYSTEMS	**91%**
1.1 The program routinely engages in a process of systematic planning that utilizes the results of the community assessment….	97%
1.2(5.1) At least annually, the program conducts a self assessment of program effectiveness….	97%
2.1(5.2) The program established and regularly implements a process of ongoing monitoring of its operations and services….	86%
2.2 The program established and maintains a record keeping system regarding children, families, and staff…..	92%
2.3 The program publishes and makes available to the public an annual report…..	88%
3.1 The program has established an organizational structure that provides for adequate supervision…..	97%
3.2 The program develops and implements written standards of conduct…..	97%
3.3 The program ensures that each staff member completes an initial health examination…..	90%
3.4 Prior to employing an individual, the program obtains: criminal record check….	66%
4.1 The program has mechanisms for regular communication among all program staff….	98%

Appendix 5 – Histograms of Total Compliance Measure Violations, CLASS (IS, ES, CO) Scores and Head Start Key Indicator (HSKI) Scores

Total Compliance Measure Violations



CLASS ES Scores



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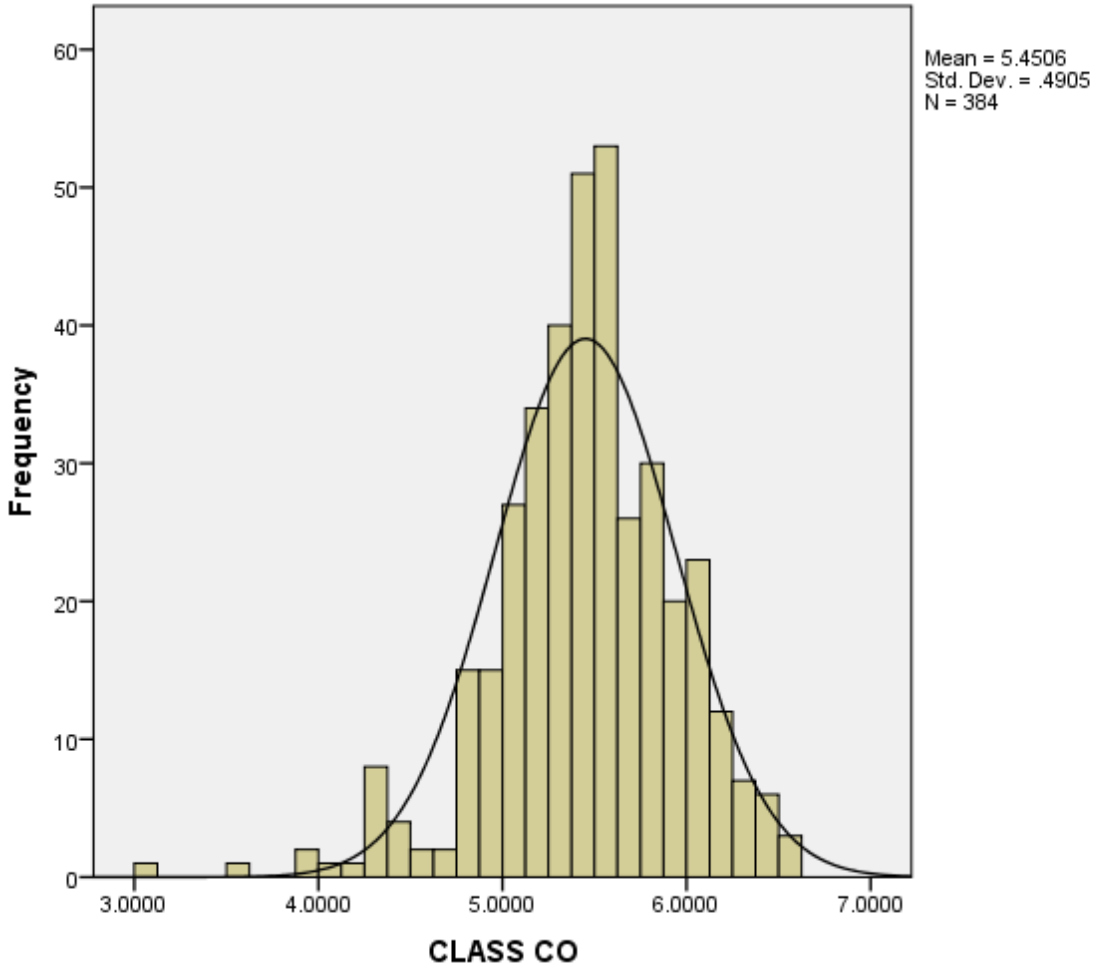
CLASS CO Scores



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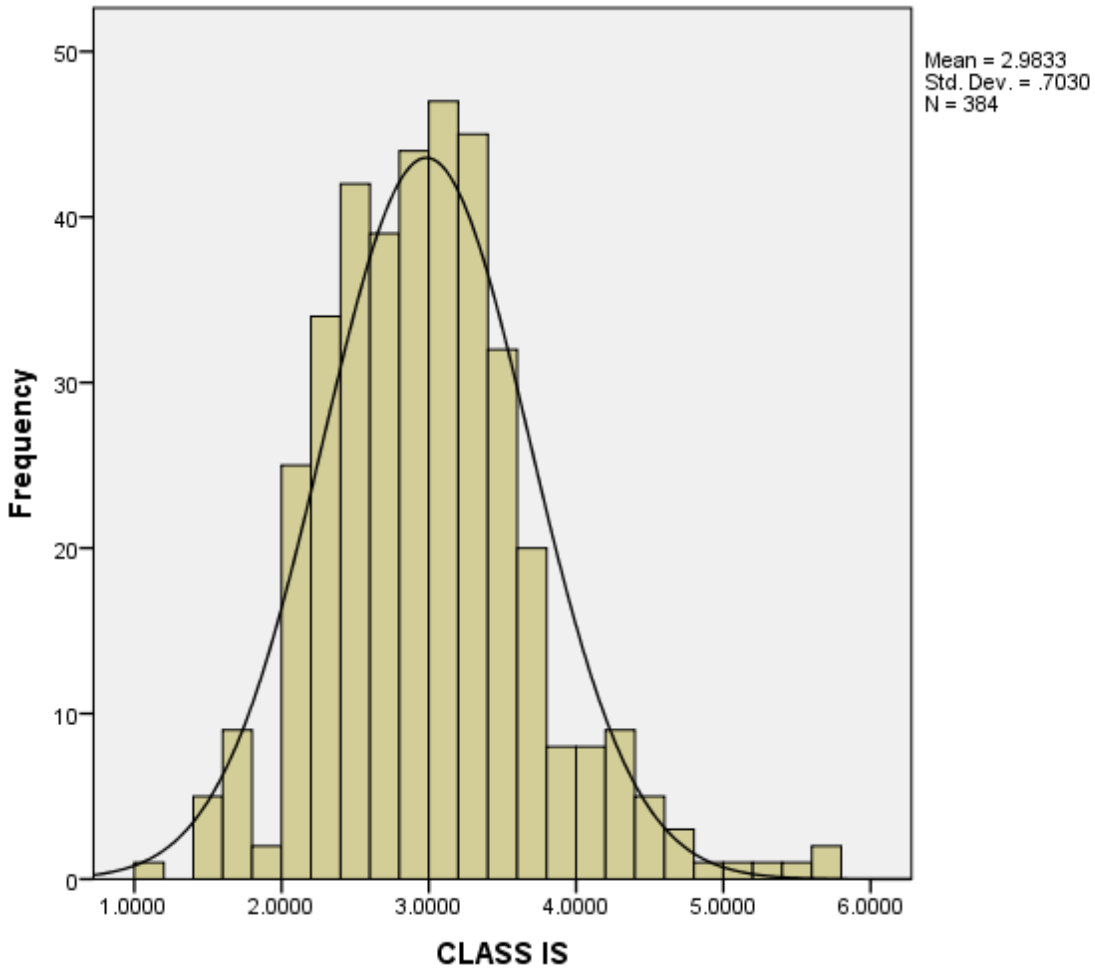
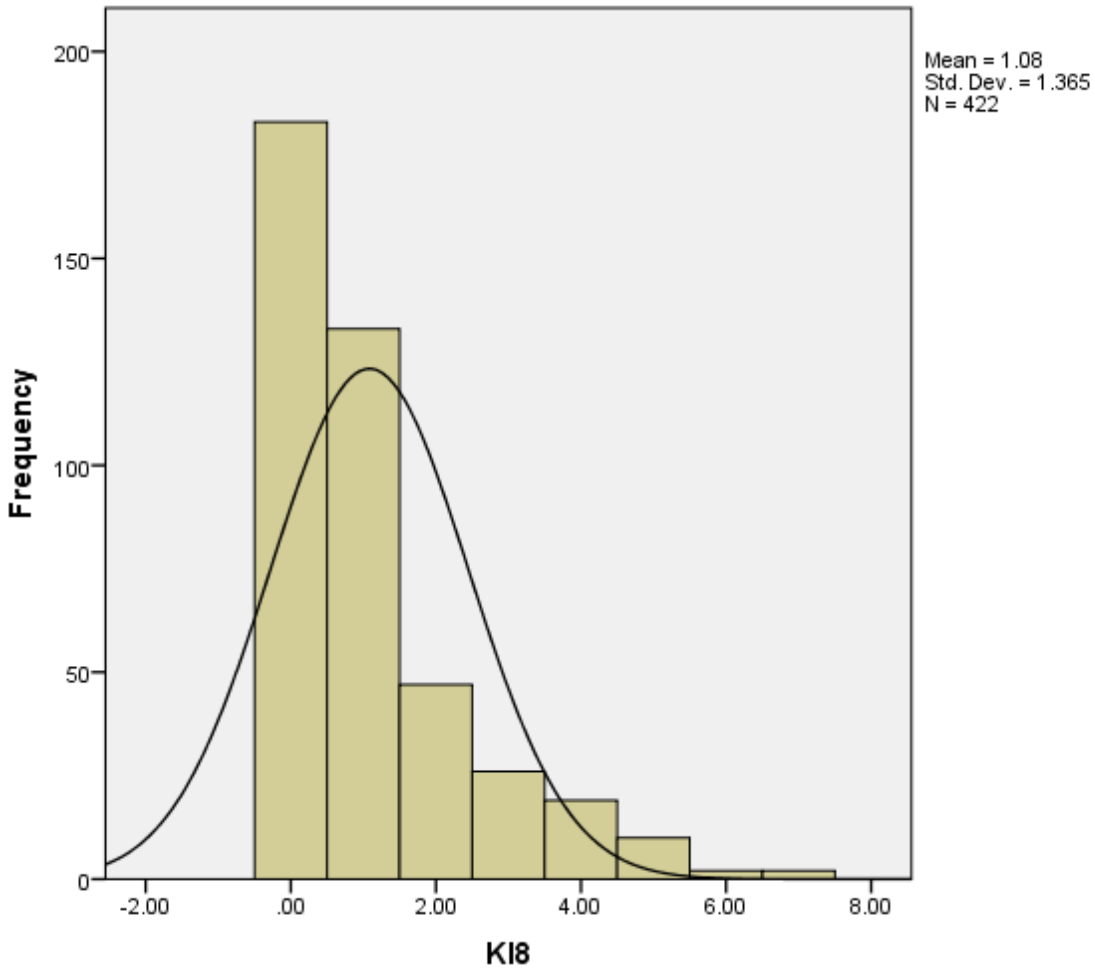
CLASS IS Scores



Head Start Key Indicators (HSKI) Scores



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Appendix 6 -

CONTENT AREA (CA) CORRELATIONS

	CHS	ERSEA	FCE	FIS	GOV	SYS
CDE	.33**	.26**	.06	.14**	.13*	.33**
CHS		.29**	.18**	.09	.25**	.51**
ERSEA			.15**	.10*	.27**	.38**
FCE				.01	.17**	.23**
FIS					.13*	.23**
GOV						.38**

** P < .05*

*** P < .01*

CONTENT AREAS (CA):
FCE = FAMILY and COMMUNITY ENGAGEMENT
ERSEA = ELIGIBILITY, RECRUITMENT, SELECTION, ENROLLMENT, and ATTENDANCE
CDE = CHILD DEVELOPMENT AND EDUCATION
GOV = PROGRAM GOVERNANCE
FIS = FISCAL INTEGRITY
CHS =CHILD HEALTH AND SAFETY
SYS = MANAGEMENT SYSTEMS

Appendix 6A – Total Compliance with Compliance Measures, HSKI, and Content Area Correlations

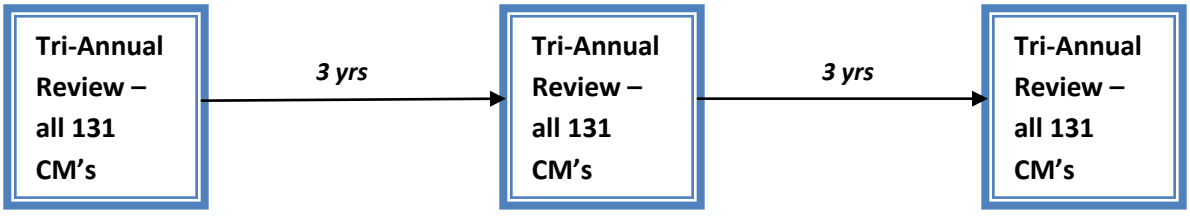
	TOT	HSKI
CDE	.51**	.42**
CHS	.70**	.81**
ERSEA	.49**	.33**
FCE	.30**	.22**
FIS	.50**	.14**
GOV	.57**	.37**
SYS	.78**	.72**

TOT = Total Compliance with all Compliance Measures.
HSKI = Total Compliance with the Head Start Key Indicators.

Appendix 7 – Figure 2 – DMLMA Potential Impact on Tri-Annual Head Start Program Reviews

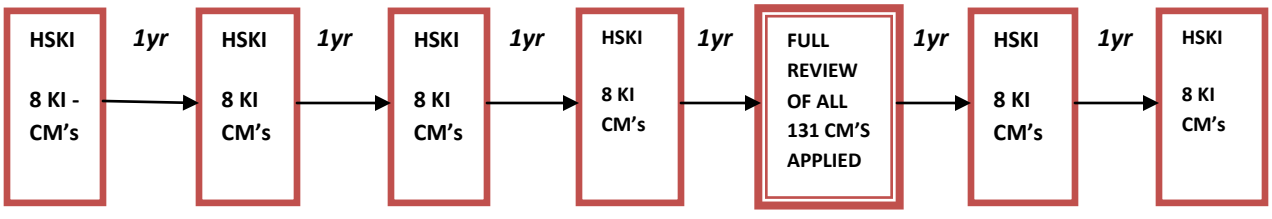
Present Head Start Monitoring System:

All programs receive the same Tri-Annual Reviews regardless of Compliance History:

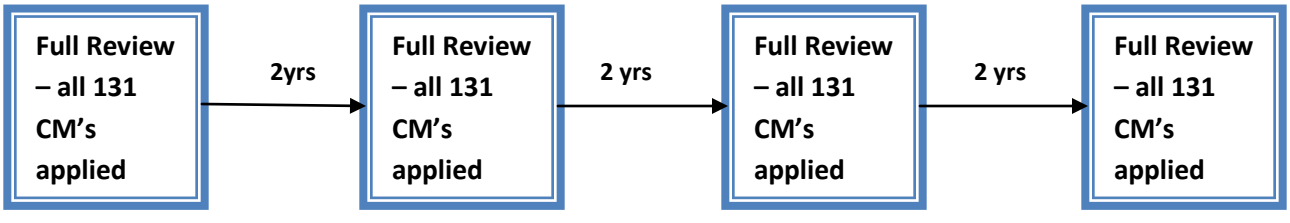


Proposed DMLMA System with Key Indicators (KI):

100% Compliance with the Head Start Key Indicators (HSKI):



If less than 100% with the Head Start Key Indicators (HSKI):



The above proposed change is cost neutral by re-allocating monitoring staff from doing only Tri-Annual Reviews on every program to doing abbreviated monitoring via the HSKI on the highly compliant programs with periodic comprehensive full monitoring less frequently (this would change if a program did not continue to be 100% in-compliance with the HSKI), and only doing more comprehensive full monitoring on those programs with low compliance with the Compliance Measures and/or less than 100% compliance with the HSKI. Once a program was in the high compliance group they would be eligible for the HSKI abbreviated monitoring.

However, the real advantage in this proposed change is the increased frequency of targeted or differential monitoring of all programs.

DMLMA Algorithm with Key Indicators applied to Head Start Tri-Annual Reviews:

Six (6) Years example:

Present Head Start Monitoring System:

(Tri-Annual Visits)(Compliance Measures)(Percent of Programs(%)) = Total Effort
(3)(131)(100) = 39300
Total Effort = ***39300***

Revised Head Start Monitoring DMLMA with Key Indicators System:

100% Compliance with HSKI:
(Number of Monitoring Visits)(Compliance Measures)(Percent of Programs*(%)) = Total Effort
Abbreviated Monitoring Visits using Key Indicators: (6)(8)(43*) = 2064
Full, Comprehensive Monitoring Visit using all Compliance Measures: (1)(131)(43*) = 5633

Less than 100% Compliance with HSKI:
(Number of Monitoring Visits)(Compliance Measures)(Percent of Programs**(%)) = Total Effort
Full, Comprehensive Monitoring Visits using all Compliance Measures: (4)(131)(57**) = 29868

100% Compliance with HSKI + Less than 100% Compliance with HSKI = Total Effort:
Total Effort = 2064 + 5633 + 29868 = ***37565***

---

*This was the actual percent of Head Start Programs that met the criteria of 100% compliance with HSKI in this study.
**This was the actual percent of Head Start Programs that did not meet the criteria of 100% compliance with HSKI in this study.

It would be expected that the total population of Head Start programs would have a similar percent as was found in this representative sample (43% = 100% compliance with HSKI and 57% = less than 100% compliance with HSKI). This representative sample for this study constituted approximately 25% of all Head Start programs nationally.

National Association for Regulatory Administration

Validation of Washington State's Child Care Risk Assessment and Licensing Decision Making Tiered System

Richard Fiene, Ph.D.
Research Psychologist & Senior Research Consultant

June 2020

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Washington State Department of Children, Youth, and Families Child Care Risk Assessment Licensing Measures and Outputs Validation Study Final Report

Richard Fiene, Ph.D.

National Association for Regulatory Administration

Research Institute for Key Indicators & Penn State University

June 2020

This report will provide the results of several cohorts from a large-scale validation study of Washington State's Department of Children, Youth and Families child care Risk Assessment Licensing Decision Making Tiers System (RALDMTS). The validation involves two key components: 1) Validation of the measurement strategy used to determine the licensing decision making for child care centers and family child care homes; 2) Validation of the licensing system in juxtaposition to the program quality measures (ERS & CLASS) as part of their QRIS – Quality Rating and Improvement System utilized in Washington.

The data set involves several cohorts drawn from licensing reviews in 2019 – 2020. The data reported in this report is from late 2019 through early 2020 and involved 385 sites. It was driven by the QRIS visiting and assessment schedule.

Let me start by saying that licensing/regulatory compliance data are very different from other data in how they get distributed and therefore should be analyzed. Licensing/regulatory compliance data are grouped into 4 basic buckets: Full regulatory compliance, substantial regulatory compliance, mid-range, and non-optimal regulatory compliance. Obviously full regulatory compliance means 0 violations or 100% compliance with all rules. Substantial regulatory compliance means 1-3 violations with all rules, while low compliance means 10 or move violations with all rules. A middle regulatory compliance range means 4-9 violations with all the rules.

The data were well distributed and fit into the above four (0 - 3) buckets very nicely. Based upon comparing the licensing data to the "Tiers" and "Actions" variables, the licensing decision making system has been validated with high correlations between the licensing data, the Tiers, Risk Assessment Matrix, and the proposed Actions (see Charts 1 and 2).

With the comparisons between the licensing data and the Environmental Rating Scales (ERS), the licensing data showed the typical "regulatory compliance law of diminishing returns" where the ERS scores were highest with the substantial regulatory compliance range rather than the full regulatory compliance level. In other words, there is not a linear relationship between moving from low to full regulatory compliance and program quality. Programs that are in substantial regulatory compliance and not full regulatory compliance had higher program quality scores. Obviously, the low regulatory compliance programs had also low program quality scores. There is a linear relationship between regulatory compliance and program quality in moving from low regulatory compliance to the middle and substantial regulatory compliance levels (see Chart 3). On the basis of the results of this study, the Washington State DCYF's Risk Assessment Licensing Decision Making Tiers System has been validated at both the measures and output levels. In a previous analysis, the standards that make up the DCYF's Risk Assessment Licensing Decision Making Tiers System have also been validated (see Stevens, 2018).

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Chart 1: Tiers By Proposed Actions

	Tiers	1	2	3	4
Proposed	**None**	312	0	0	0
Actions	**Tech Assist**	14	43	5	0
	Safety Plan	0	1	2	1
	Civil Penalty	0	4	15	4

R = .80; p < .0001

Chart 2: Risk Assessment Matrix (RAM) By Regulatory Compliance (RC) Levels & Licensing Decision Tiers

	Tiers	Actions	Immediate	Short Term	Long Term	RC
RAM	.52*	.50*	.62*	.66*	.41*	.88*

* P < .01

Chart 3: Regulatory Compliance Levels By Program Quality Scores (ERS Average Scores)

Licensing Bucket	Legend	Compliance	Programs	ERS Aver Score
0	Full	0 violations	82	4.07*
1	Substantial	1-2 violations	69	4.28*
2	Middle	3-10 violations	163	4.17*
3	Low	11+ violations	71	3.93*

* P < .01

There are some additional significant relationships to report which occurred in the second cohort but were not observed in the first cohort but that was because the total number of sites were fewer in the first cohort. The second cohort had over twice as many sites where data were collected. Here are some of the significant relationships observed between the Quality Rating and Improvement System (QRIS) and regulatory compliance (RC) and the RAM licensing decision making:

- **QRIS x RAM: X^2 = 35.243; p < .009**
- **QRIS x RC: X^2 = 27.761; p < .001**

Significant relationships between Environmental Rating Scales (ERS) and Licensing Decision Tiers (Tiers).

- **ERS x Tiers: F = 5.085; p < .002, where Tier1 = 4.16; Tier2 = 4.10; Tier3 = 3.68; Tier4 = 3.58**
- **ERS x QRIS: F = 26.534; p < .0001, where QRIS1= 3.89; QRIS2= 3.32; QRIS3 = 4.14; QRIS4 = 4.62**

There were interesting demographic and descriptive data such as the following.

- **Regulatory compliance ranged from 0 to 55 violations.**
- **QRIS Levels: 1 = 1%; 2 = 7%; 3 = 78%; 4 = 10%**
- **Licensing Tiers: 1 = 81%; 2 = 12%; 3 = 6%; 4 = 1%**

The following tables (Tables 1-9) and graphs (Graphs 1-3) contain the detail of the above summary analyses and the risk assessment licensing decision making tier system.

Table 1: Regulatory Compliance: Number of Violations

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	85	21.1	21.1	21.1
	1	43	10.7	10.7	31.8
	2	29	7.2	7.2	39.0
	3	36	8.9	8.9	47.9
	4	27	6.7	6.7	54.6
	5	22	5.5	5.5	60.0
	6	21	5.2	5.2	65.3
	7	23	5.7	5.7	71.0
	8	17	4.2	4.2	75.2
	9	14	3.5	3.5	78.7
	10	11	2.7	2.7	81.4
	11	13	3.2	3.2	84.6
	12	7	1.7	1.7	86.4
	13	8	2.0	2.0	88.3
	14	9	2.2	2.2	90.6
	15	6	1.5	1.5	92.1
	16	4	1.0	1.0	93.1
	17	4	1.0	1.0	94.0
	18	4	1.0	1.0	95.0
	19	3	.7	.7	95.8
	20	1	.2	.2	96.0
	21	1	.2	.2	96.3
	22	1	.2	.2	96.5
	23	2	.5	.5	97.0
	24	1	.2	.2	97.3
	25	3	.7	.7	98.0
	27	2	.5	.5	98.5
	30	1	.2	.2	98.8
	32	1	.2	.2	99.0
	33	1	.2	.2	99.3
	40	1	.2	.2	99.5
	45	1	.2	.2	99.8
	55	1	.2	.2	100.0
	Total	403	100.0	100.0	

The above table (Table 1) provides the frequency distribution for regulatory compliance (NC) for the Washington State ECE sites that were in cohort 2. From the distribution it clearly demonstrates how skewed the data are where the majority of sites (practically 50% of the sites) are either in full or substantial regulatory compliance with Washington licensing rules/regulations.

The following Table (Table 2) puts Table 1 results into the key buckets for regulatory compliance analysis: 1 = Low Regulatory Compliance (11 violations or greater); 2 = Med Regulatory Compliance (3-10 violations); 3 = Substantial (Subst) Regulatory Compliance (1-2 violations); and 4 = Full Regulatory Compliance (0 violations).

Table 2: Regulatory Compliance Buckets

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Low	75	18.6	18.6	18.6
	2 Med	171	42.4	42.4	61.0
	3 Subst	72	17.9	17.9	78.9
	4 Full	85	21.1	21.1	100.0
	Total	403	100.0	100.0	

This grouping of regulatory compliance bucketing becomes very important in subsequent analyses because of the nature of these data. As has been stated earlier in this report, regulatory compliance data when compared to program quality data is not a linear relationship. To be sensitive to the non-linear nature of the data, these buckets or groupings of data become very significant.

Table 3 depicts the Tiered Licensing Decision Making. In Washington State's Tiered Licensing decision Making System 1 = Continued licensing; 2 = Technical Assistance; 3 = Safety Plan; 4 = Civil Penalty.

Table 3: Licensing Decision Making Tiers

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	326	80.9	81.3	81.3
	2	48	11.9	12.0	93.3
	3	22	5.5	5.5	98.8
	4	5	1.2	1.2	100.0
	Total	401	99.5	100.0	
Missing	System	2	.5		
Total		403	100.0		

The majority of programs are recommended for continued licensing (80%), while the other 20% will receive more intervention.

The next table (Table 4) depicts the Risk Assessment Matrix Levels (RAM1-9). The last section of this report provides the specific methodology and how RAM1-9 and Tiers are linked together in the Washington State Licensing Risk Assessment and Licensing Decision Making Tiers System.

Table 4: Risk Assessment Matrix (RAM1-9)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	92	22.8	22.8	22.8
	4.00	62	15.4	15.4	38.2
	5.00	106	26.3	26.3	64.5
	6.00	62	15.4	15.4	79.9
	7.00	3	.7	.7	80.6
	8.00	27	6.7	6.7	87.3
	9.00	51	12.7	12.7	100.0
	Total	403	100.0	100.0	

It is interesting to note that not all cells of the matrix are filled. RAM2 & 3 have no sites in their cells. This is something that will need further exploration but it appears since these are at the lower risk levels that regulatory non-compliance is less likely.

The next three table (Tables 5-7) deal with the relative risk level of regulatory non-compliance based upon a weighting of the specific rule/regulation. Weights of 8, 7 and some 6 are of immediate concern, while weights of 4, 5 and most 6 are of short term concern, and weights of 1, 2, and 3 are of long term concern.

Table 5: Immediate Concern

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	325	80.6	80.6	80.6
	1	63	15.6	15.6	96.3
	2	12	3.0	3.0	99.3
	3	2	.5	.5	99.8
	6	1	.2	.2	100.0
	Total	403	100.0	100.0	

In 20% of the regulatory non-compliance did the rule/regulation rise to being of immediate concern.

Table 6 depicts the non-compliance for the short term rules/regulations. These are rules that are not the highest risk rules but they are not the least weighted rules either. They fall somewhere in between. There is a higher level of regulatory non-compliance with these rules.

Table 6: Short Term Concern

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	94	23.3	23.3	23.3
	1	52	12.9	12.9	36.2
	2	37	9.2	9.2	45.4
	3	35	8.7	8.7	54.1
	4	22	5.5	5.5	59.6
	5	27	6.7	6.7	66.3
	6	27	6.7	6.7	73.0
	7	23	5.7	5.7	78.7
	8	12	3.0	3.0	81.6
	9	15	3.7	3.7	85.4
	10	14	3.5	3.5	88.8
	11	7	1.7	1.7	90.6
	12	5	1.2	1.2	91.8
	13	7	1.7	1.7	93.5
	14	4	1.0	1.0	94.5
	15	4	1.0	1.0	95.5
	16	2	.5	.5	96.0
	17	1	.2	.2	96.3
	19	3	.7	.7	97.0
	20	2	.5	.5	97.5
	21	1	.2	.2	97.8
	22	2	.5	.5	98.3
	24	1	.2	.2	98.5
	25	1	.2	.2	98.8
	26	1	.2	.2	99.0
	27	1	.2	.2	99.3
	35	1	.2	.2	99.5
	37	1	.2	.2	99.8
	47	1	.2	.2	100.0
	Total	403	100.0	100.0	

There is a good deal of a range in regulatory non-compliance with these rules as depicted in Table 6.

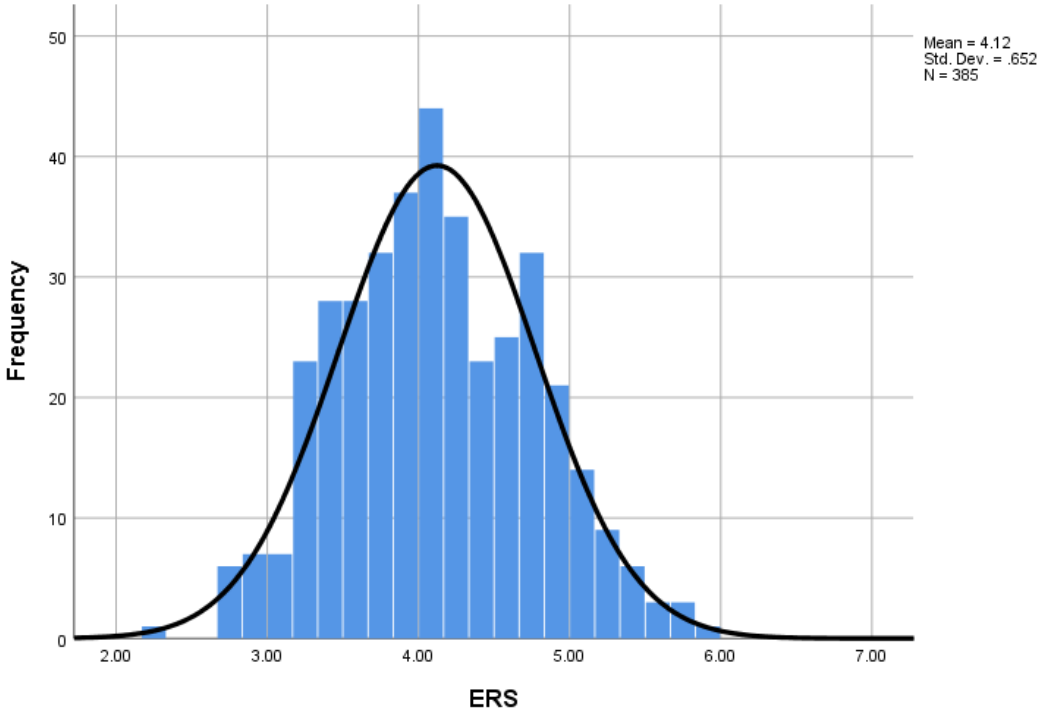
Table 7 which contains the regulatory non-compliance with long term concern rules and regulations which are the lowest weighted/risk rules. The distribution is between the immediate concern and the short term concern rules when it comes to regulatory non-compliance.

Table 7: Long Term Concern

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	224	55.6	55.6	55.6
	1	95	23.6	23.6	79.2
	2	36	8.9	8.9	88.1
	3	21	5.2	5.2	93.3
	4	13	3.2	3.2	96.5
	5	9	2.2	2.2	98.8
	6	1	.2	.2	99.0
	7	1	.2	.2	99.3
	9	1	.2	.2	99.5
	11	1	.2	.2	99.8
	20	1	.2	.2	100.0
	Total	403	100.0	100.0	

The following graphs (Graphs 1-3) depict the distributions of ERS and CLASS scores.

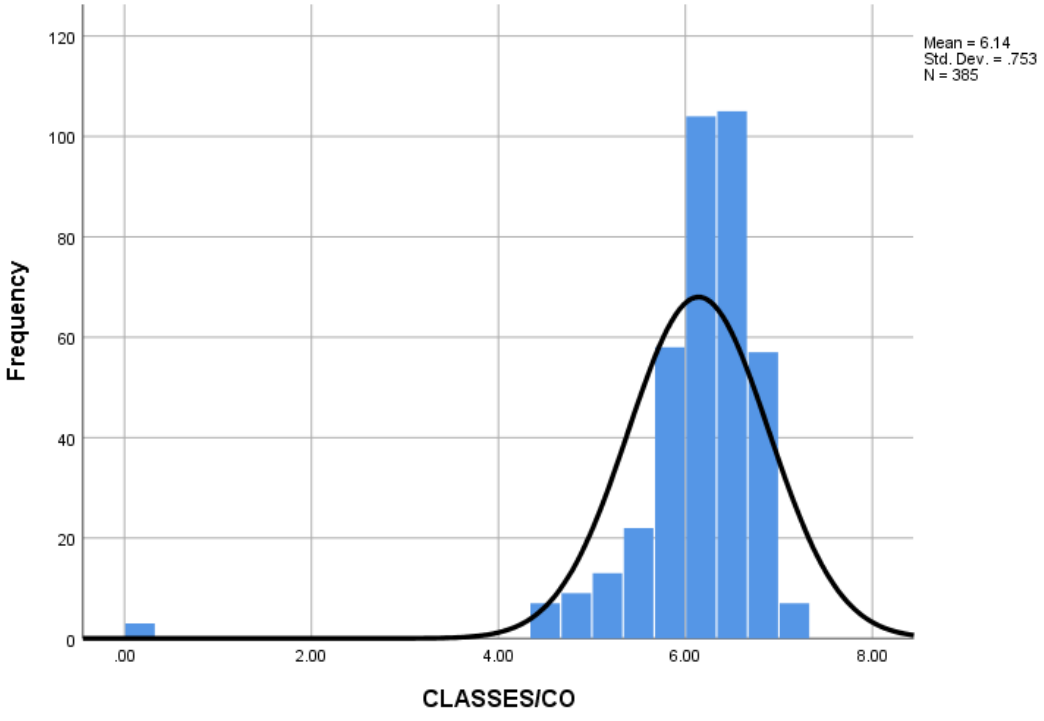
Graph 1 – ERS Scores



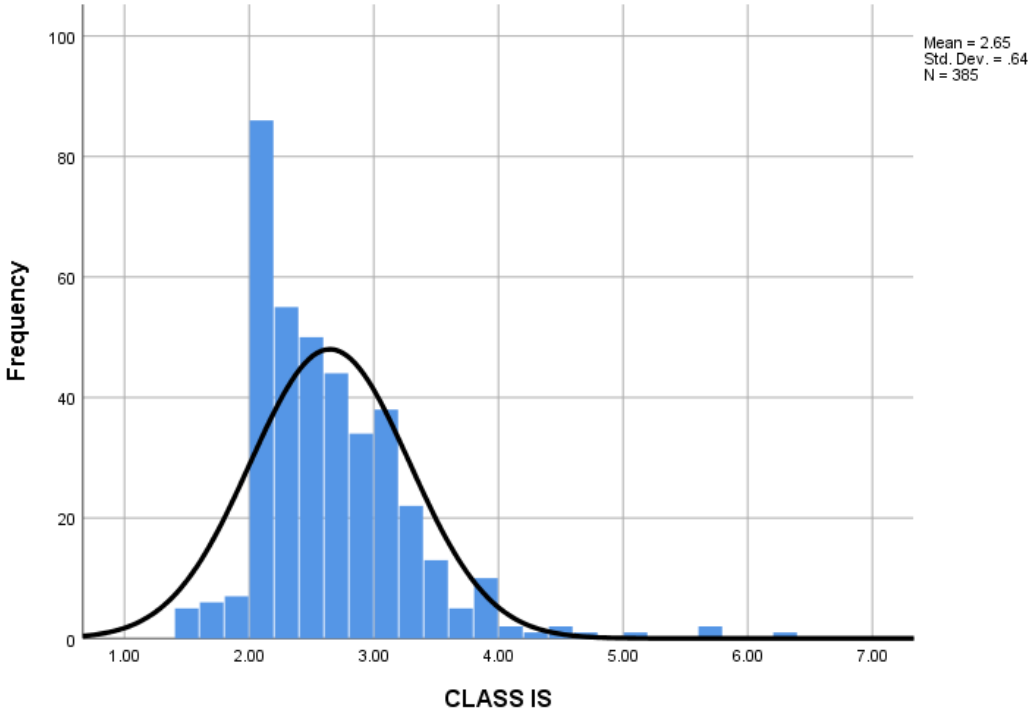
Graph 2 depicts the CLASS/CO scores. Note the difference in the distribution in these scores as versus

the ERS scores in Graph 1. Also note that the N has dropped to 385 sites. This is because not all 403 sites had ERS or CLASS tools administered.

Graph 2: CLASS/CO Scores



Graph 3: CLASS/IS Scores



Again please note the distribution of the CLASS/IS scores and compare it to the CLASS/CO and ERS data score distributions (Compare Graphs 2 & 3 with Graph 1).

Table 8 provides the frequency counts and distribution of the QRIS Levels from 1 to 4 where 4 is the highest level.

Table 8: QRIS

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Lowest	2	.5	.5	.5
	2	29	7.2	7.5	8.1
	3	315	78.2	81.8	89.9
	4 Highest	39	9.7	10.1	100.0
	Total	385	95.5	100.0	
Missing	System	18	4.5		
Total		403	100.0		

Table 9 provides the descriptive statistics for all the variables described above so the reader can see the characteristics of the respective data distributions and how they vary.

Table 9: Descriptive Statistics for all Variables

Variables	N	Range	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
NC	403	55	5.93	7.061	2.474	.122	9.739	.243
Immediate	403	6	.25	.592	3.856	.122	24.745	.243
Short	403	47	4.77	5.854	2.640	.122	11.131	.243
Long	403	20	.94	1.720	4.823	.122	40.946	.243
QRIS	385	3	3.02	.445	-.284	.124	3.779	.248
ERS	385	3.64	4.1225	.65207	.120	.124	-.386	.248
CLASSES/CO	385	7.00	6.1411	.75260	-4.514	.124	33.019	.248
CLASS IS	385	4.97	2.6481	.63985	1.658	.124	5.546	.248
RAM1-9	403	8.00	4.8089	2.56860	-.051	.122	-.811	.243
Tiers	401	3	1.27	.617	2.449	.122	5.592	.243
TRC-RCL	403	3.00	2.4144	1.01946	.304	.122	-1.033	.243
Valid N (listwise)	383							

This section describes the Washington State Risk Assessment and Licensing Decision Making Tiered System which was validated in this report.

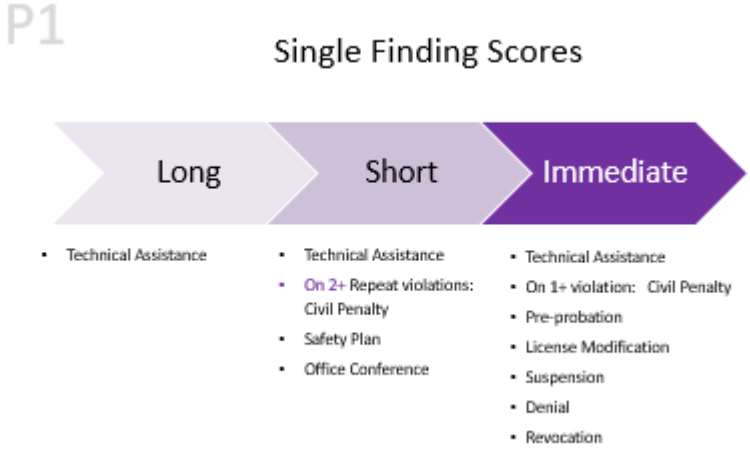
The Washington State System combines the use of risk assessment and licensing decision making matrices. In the past, risk assessment matrices have been used to determine the frequency of monitoring and licensing visits and scope of reviews based upon individual rule severity/risk factors. These data have not been aggregated to determine what type of licensing decisions should be made based upon prevalence, probability or regulatory compliance history data.

Washington State's HB 1661 redesigned the FLCA process as a way to appeal and forgive non-immediate health and safety risks rather than simply being a report of compliance findings. As a result, weights were used to assign risk categories to regulations in accordance to the mandate definition of immediate health and safety regulations:

- **Weights 8, 7 and some 6 = immediate concern**
- **Weights 4, 5 and most 6 = short term concern**
- **Weights 1, 2, and 3 = long term concern**

Single violations of regulations can be considered independently or based on how many time it has been violated over a four-year period when considering licensing actions. For example, a violation within the short term concern category could be subject to a civil penalty when violated the second (or potentially the 3rd) time in a four-year period. Whereas, a violation in the immediate concern category could be subject to a civil penalty or more severe action upon the first violation. (See Graphic for Step 1).

Step 1:



A more difficult task is assigning initial thresholds for the overall finding score. It is this second step (Step 2) where we need to consider probability and severity side by side as depicted in Chart 1 below which is generally considered the standard Risk Assessment Matrix in the licensing research literature:

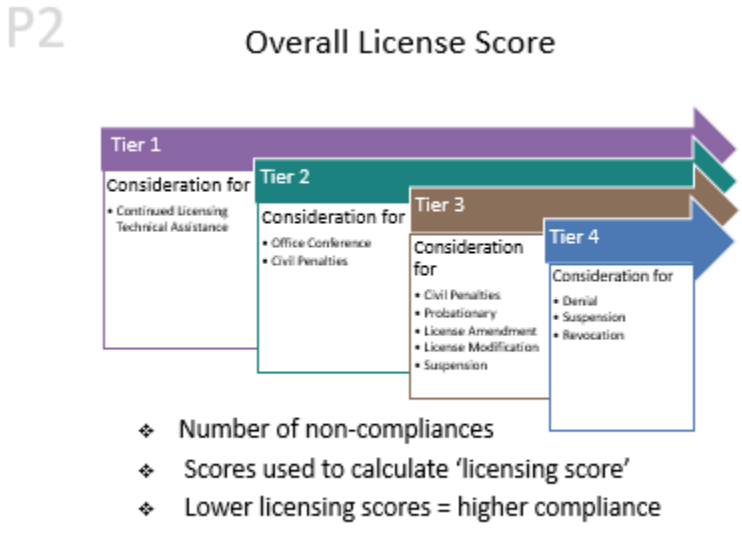
Step 2:

Chart 1 – Risk Assessment Matrix

		Probability/	Prevalence		
	Levels	High	Medium	Low	Weights
Risk/	High	*9*	*8*	*7*	*7-8*
Severity	Medium	*6*	*5*	*4*	*4-6*
	Low	*3*	*2*	*1*	*1-3*
	# of Rules	*8 or more*	*3-7*	*2 or fewer*	

The next step (Step 3) is to build in licensing decisions using a graduated Tiered Level system as depicted in the following figure. In many jurisdictions, a graduated Tiered Level system is used to make determinations related to monitoring visits (frequency and scope) and not necessarily for licensing decisions.

Step 3:



Step 4 involves combining steps 1 and 2 into a revised risk assessment matrix as depicted in the following chart:

Step 4:

Risk Assessment (RA) Matrix Revised

	Levels	High	Medium	Low
Risk/Severity	Immediate	9	8	7
	Short-term	6	5	4
	Long-term	3	2	1
			Probability	
	Regulatory Compliance (RC): # of Rules out of compliance and In compliance	8+ rules out of compliance. 92 or less regulatory compliance.	3-7 rules out of compliance. 93 – 97 regulatory compliance.	2 or fewer rules out of compliance. 98 – 99 regulatory compliance.

The last step (Step 5) is to take steps 3 and 4 and combine them together into the following charts which will provide guidance for making licensing decisions about individual programs based upon regulatory compliance prevalence, probability, and history as well as rule risk/severity data.

Step 5:

Licensing Decision Making Matrix*

Tier 1 = (1 – 2) RA Matrix Score

Tier 2 = (3) RA Matrix Score
Tier 3 = (4 – 5) RA Matrix Score

Tier 4 = (6 – 9) RA Matrix Score

***Regulatory Compliance (RC)(Prevalence/Probability/History + Risk/Severity Level**

Tier 1 = ((RC = 93 – 97) + (Low Risk)); ((98 – 99) + (Low Risk)) = Tier 1

Tier 2 = (RC = 92 or less) + (Low Risk) = Tier 2

Tier 3 = ((RC = 93 – 97) + (Medium Risk)); ((98 – 99) + (Medium Risk)) = Tier 3

Tier 4 = (RC = (92 or less) + (Medium Risk)) = Tier 4; ((93 -97) +(High Risk)) = Tier 4; ((98 – 99) + (High Risk)); ((92 or less) + (High Risk)) = Tier 4+

Qualistar Rating Key Indicator Study

Richard Fiene, Ph.D.

June 17, 2014

ABSTRACT

This report provides an analysis of Colorado's quality rating system, the Qualistar Rating, for generating key indicators. Key indicators have been used a great deal in the licensing literature but this is a first time analysis in utilizing this methodology in a QRS (Quality Rating System) or a QRIS (Quality Rating and Improvement System). The key indicator methodology is described in detail applying it to QRS/QRIS. The results clearly indicate that the strongest key indicators are within the Family Partnerships component of the Qualistar Rating; however there are some major limitations to utilizing this methodology with QRS/QRIS.

INTRODUCTION

The Qualistar Rating, administered by Qualistar Colorado, is one of the longest continuously running QRS in the United States. Presently over 50% of states have QRS/QRIS and the research on these program quality rating & improvement systems has increased over the years. One area of research that has been gaining momentum most recently is ascertaining the most effective and efficient delivery system for a QRS/QRIS as the number of early care and education programs participating in QRS/QRIS continues to increase. This report provides an overview to the topic and introduces an option that has been used in the human services/child care licensing field in identifying key indicators of overall compliance with standards. The purpose of the key indicator methodology is to focus monitoring visits on those standards that have the ability to predict overall compliance with the full set of QRS/QRIS standards. The key indicator methodology is part of a program monitoring approach called Differential Program Monitoring which was developed to help streamline the program monitoring of early care and education programs (please see the Appendix for two graphics which help to depict this relationship (Figures 8/9). It was first applied in child care licensing (Fiene & Nixon, 1985) but has been used in many other service types, such as: Head Start Performance Standards (Fiene,

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2013a), National Accreditation (Fiene, 1996), and child and adult residential programs (Kroh & Melusky, 2010). The methodologies are based upon statistical protocols that have been developed in the tests and measurements literature in which an abbreviated set of items is used to statistically predict as if the full test was applied. This methodology has been used in regulatory analysis and is now being proposed for use in Quality Rating and Improvement Systems (Fiene, 2013b). This study and report is the first demonstration of its use with QRS.

TECHNICAL ASPECTS OF THE KEY INDICATOR METHODOLOGY

This section provides the technical and statistical aspects of the key indicator methodology. It will provide the specific methodology for generating the key indicators for the Qualistar Rating.

One of the first steps is to sort the data into high and low groups, generally the highest and lowest ratings can be used for this sorting. In very large states such as Colorado this is done on a sampling basis. Frequency data will be obtained on those programs in the top level (usually top 20-25%) and the bottom level (usually the bottom 20-25%). The middle levels are not used for the purposes of these analyses. These two groups (top level & the bottom level) are then compared to how each program scored on each item within the specific assessment tool (see Figure 1). An example from the Qualistar Rating database is provided in Figure 2 (see Figure 2).

Figure 1	***Providers In Compliance or Top 25%***	***Programs Out Of Compliance or Bottom 25%***	***Row Total***
Highest level (top 20-25%)	***A***	***B***	***Y***
Lowest level (bottom 20-25%)	**C**	**D**	***Z***
Column Total	***W***	***X***	***Grand Total***

Because of the differences in the data distribution for the Qualistar Rating, the above cutoff points had to be more stringent with the respective cutoff points for the high and low groups because the majority of the programs were at the Star 2 and 3 levels. In comparing these data to past licensing distributions (see Fiene, 2013d), it would be expected that the majority of programs would be at a Star 1 level, but that was not the case with this sample. Rather than using a 20-25% cut off point, it was changed to 10% to accommodate this difference. Figure 2 depicts that all programs that were in the top 10% were in the highest rating while the bottom 10% were in the lowest rating. The data depicted in Figure 2 are taken from the *Family*

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Engagement Standard 5 – The program provides opportunities for staff and families to get to know one another. The reason for selecting this particular standard is that it demonstrates a perfect Phi Coefficient in discriminating between the highest level and the lowest level[1].

Figure 2: ***Criterion 5 Family Partnerships***	***Providers In Compliance or Top 10%[1]***	***Programs Out Of Compliance or Bottom 10%***	***Row Total***
Highest Star level	***11***	***0***	***11***
Lowest Star level	**0**	***10***	***10***
Column Total	***11***	***10***	**21**

Once the data are sorted in the above matrix, the following formula (Figure 3) is used to determine if the standard is a key indicator or not by calculating its respective Phi Coefficient. Please refer back to Figure 1 for the actual placement within the cells and Figure 2 for the data within the cells. The legend (Figure 4) below the formula shows how the cells are defined.

Figure 3 – Formula for Phi Coefficient

$$\phi = (A)(D)-(B)(C) \div \sqrt{(W)(X)(Y)(Z)}$$

Figure 4 – Legend for the Cells within the Phi Coefficient

A = High Group + Programs in Compliance on Specific Compliance Measure.
B = High Group + Programs out of Compliance on Specific Compliance Measure.
C = Low Group + Programs in Compliance on Specific Compliance Measure.
D = Low Group + Programs out of Compliance on Specific Compliance Measure.

W = Total Number of Programs in Compliance on Specific Compliance Measure.
X = Total Number of Programs out of Compliance on Specific Compliance Measure.
Y = Total Number of Programs in High Group.
Z = Total Number of Programs in Low Group.

Once the data are run through the formula in Figure 3, the following chart (Figure 5) can be used to make the final determination of including or not including the item as a key indicator. Based

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upon the chart in Figure 5, it is best to have a Phi Coefficient approaching +1.00 since the data are more normally distributed[2] than is the case with licensing data.

Continuing with the chart in Figure 5, a Phi Coefficient between +.75 and -.25 indicates that the indicator is unpredictable in being able to predict overall compliance with the quality rating assessment tool. Either a false positive in which the indicator appears too often in the low group as being in compliance, or a false negative in which the indicator appears too often in the high group as being out of compliance[3]. This can occur with Phi Coefficients above +.75 but it becomes unlikely as they approach +1.00, although there is always the possibility that other standards/rules/regulations could be found to be out of compliance (this was demonstrated in a study conducted by the author (Fiene, 2013c). Another solution is to increase the number of key indicators to be reviewed but this will cut down on the efficiency which is desirable and the purpose of the key indicators.

The last possible outcome with the Phi Coefficient is if it is between -.26 and -1.00, this indicates that the indicator is a terrible predictor because it is doing just the opposite of the desired. The indicator would predominantly be in compliance with the low group rather than the high group so it would be statistically predicting overall non-compliance. This is obviously undesirable.

Figure 5 – Thresholds for the Phi Coefficient (Fiene & Nixon, 1983, 1985)(Fiene, 2014)

Phi Coefficient Range	Characteristic of Indicator	Decision
(+1.00) – (+.76)	Good Predictor	Include
(+.75) – (-.25)	Unpredictable	Do not Include
(-.26) – (-1.00)	Terrible Predictor	Do not Include

The key indicators should then only be used with those programs that have attained the highest rating. It is not intended for those programs that have attained lower ratings. However, even with those programs that have attained the highest rating, periodically a full, comprehensive review using the full set of standards for Qualistar Colorado should occur (see Figure 6 for a graphical depiction). It is intended that a re-validation of the key indicators occur on a periodic basis to make certain that the key indicators have not changed because of differences in compliance with standards history. This is an important and necessary step for the program to engage in to ascertain the overall validity and reliability of the assessment system. Also there should not have been any major changes in the program while the key indicators are being administered, such as the director leaving or a large percentage of teachers leaving or enrollment increasing significantly, or a change in the licensing or accreditation status of the program.

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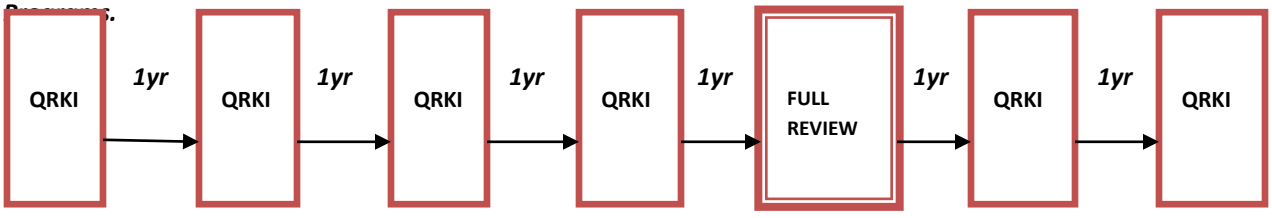
Figure 6 - Proposed DMLMA System with Key Indicators (KI)

Use of Qualistar Rating Key Indicators (QRKI) for Monitoring with a Full Review every 4th Year for Star 4 Programs.



This model is taken from the licensing literature and as will be pointed out in the Limitations and Conclusion Sections may not necessarily be appropriate for QRS/QRIS systems depending on a state's QRS/QRIS data distribution. It is provided for illustrative purposes.

RESULTS

The results reported in this section are based upon a sample selected from the overall Qualistar Rating database from its most recent monitoring reviews (N = 117). This was a representative sample of the program's QRS.

There are five components of the Qualistar Rating: Learning Environment, Family Partnerships, Training and Education, Adult to Child Ratios and Group Size, and Accreditation. See Figures 10-14 in the Appendix for the graphical depictions of the data distributions for the five major criteria. The data distributions are provided because a pre-requisite for calculating the key indicator Phi Coefficients is the dichotomization of data with a skewed data distribution. Figures 10-14 display how much the data are skewed.

The Qualistar Rating is a zero-to-4 star system, with 4 stars indicating the highest level of quality[4]. Eleven programs were rated at the Star 1 level, 19 programs were rated at the Star 2 level, 77 programs were rated at the Star 3 level, and 10 programs were rated at the Star 4 level for a total of 117 programs included in these analyses. There were no programs in the sample that earned less than one star.

Based upon the key indicator methodology described in the previous section, the only Qualistar Rating standards that reached key indicator designation[5] were the following: *Family Partnership Standard/Criterion 5 = The program provides opportunities for staff and families to get to know one another; Family Partnership Standard/Criterion 7 = Families receive information on their child's progress on a regular basis, using a formal mechanism such as a report or parent conference and Family Partnership Standard/Criterion 8 = Families are included in planning and decision making for the program.*

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Figure 7 – Key Indicators with Phi Coefficients

	Phi	Significance
Family Partnership Standard/Criterion 5	**1.00**	**.001**
Family Partnership Standard/Criterion 7	**0.86**	**.001**
Family Partnership Standard/Criterion 8	**0.83**	**.001**

There were many other significant correlations (Family Partnerships and Adult-to-Child Ratios and Group Sizes) obtained but none reached the cutoff threshold of .76+ for the Phi calculations. These other correlations are reported in the Appendix after the descriptive graphical displays in Figures 15, 15a, 15b. The Phi Coefficients for the other Criteria (Learning Environment, Training and Education, and Program Accreditation) were not calculated because the data distributions were not skewed as was the case with Family Partnerships and Adult-to-Child Ratios and Group Sizes (see Figures 10-14).

LIMITATIONS

There are two major limitations to this study, 1) the first deals with the statistics being used to generate the key indicators; 2) the second deals with the key indicator methodology.

The first limitation has to do with dichotomization of data which should only be used with very skewed data. Data skewness always occurs with licensing data because of the nature of the data, health and safety protections (the majority of programs are always in compliance with the respective rules). However, this appears to not always be the case with QRS/QRIS data which deals with more program quality aspects of facilities and shows greater variation in the data. If this is the case then dichotomization of data is not appropriate and should not be utilized in order to generate key indicators.

The second limitation of this study is if the key indicator methodology and differential monitoring approaches are appropriate for QRS/QRIS. In Figure 6 above and in the conclusion to this report below, there is a scenario where it can be used but Qualistar Colorado and each state must determine if this is an appropriate approach for their respective program. For example, key indicators will not work in a block model and with a point-system model may generate very limited time savings if the data distribution is normally distributed and there are very few programs at the highest star level. In licensing data base distributions there is always a large number of programs to select from in the highest compliance levels (usually a minimum of 25%).

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CONCLUSION/FUTURE RESEARCH/DISCUSSION/RECOMMENDATIONS

This study is the first of its kind in generating key indicators for a QRS based upon the analyses performed with the Qualistar Rating data base. It potentially demonstrates that the use of the key indicator methodology with QRS/QRIS could be feasible and warranted in order to focus limited program monitoring resources in a most efficient and effective manner keeping the above stated limitations in mind as stated in the previous Limitations Section. In the future, Qualistar Colorado may want to pilot an approach utilizing a small group of programs and could focus resources on the Family Partnership/Engagement standards on an ongoing basis between comprehensive reviews as depicted in Figure 6 above for Star 4 programs. The time saved here could then be redistributed to spending more time with the Star 1 programs.

It will be timely to see other states and programs who are interested in generating key indicators if they have Family Partnership/Engagement standards as part of their respective QRS/QRIS to determine if these standards reach the same threshold for key indicator designation as has occurred in this study. It will also be interesting to see if any other state's criteria/standards data distributions are similar to what has been found in the Qualistar Rating or not.

However, as highlighted in the Limitations Section, states and programs need to consider if the key indicator methodology and the resultant differential monitoring model is really warranted and appropriate for their respective QRS/QRIS's. As has been the case with Colorado's Qualistar Rating, only two of the five major criteria: Family Partnerships and Adult-Child Ratio/Group Size were determined to be good candidates for the key indicator Methodology in which the data were skewed[6] enough to warrant dichotomization. The other three major criteria: Learning Environment, Training and Education, and Program Accreditation were determined not to be sufficiently skewed to warrant dichotomization. This sets up a decision making system in which only 40% of the criteria are being used and severely limits the overall predictability of the key indicators selected. Could the other criteria be used to generate key indicators? Of course, but dichotomization of data should not be done when data are not highly skewed (MacCallun, etal, 2002). *Yes, we were successful in generating Key Indicators for the Qualistar Rating but within a limited scenario in how they should be used*. The results are not equivalent to what has been found and utilized in the licensing literature where the licensing data are always highly skewed. If a state or program find that all their standards are skewed in a similar way to licensing data then dichotomization of data and the generation of key indicators is warranted.

A recommendation to Colorado's Qualistar and other programs and states where they find the data from their standards more normally distributed that they not use a key indicator approach. The key indicator approach remains a reliable and valid methodology for licensing but only in very special and limited cases will it be an appropriate monitoring approach for more program quality focused systems, such as QRS/QRIS and accreditation. *For those QRS/QRIS systems where the standards are more normally distributed, the recommendation would be to continue to use the full set of QRS/QRIS standards and not use an abbreviated set of standards.*

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NOTES:

1. For analytical purposes, the top 10% of programs received an average score of 8 points or higher on a 10 point scale and the bottom 10% of programs received an average score of 2 points or less on a 10 point scale.

2. The reason for pointing out the need to have a higher Phi Coefficient than what has been reported previously (Fiene & Nixon, 1983, 1985) is the fact that the dichotomization of data should only be used with skewed data and not normally distributed data because it will accentuate differences. However, since the purpose of the dichotomization of data is only for sorting into a high and low group, it would appear to be acceptable for this purpose (MacCallun, etal, 2002. On the practice of dichotomization of quantitative variables, *Psychological Methods, 7, 1,* 19-40.).

3. These results would show an increase in cells B and C in Figure 1 which is undesirable; it should always be the case where A + D > B + C for key indicators to maintain their predictive validity.

4. The following point values equate to the various Star levels in the Qualistar Rating System (for detailed information regarding the QRS system please see the following document: *Qualistar Colorado – Qualistar Rating Criteria Chart*, November 2012):

Provisional = 0 – 9 points or Learning Environment score of 0
Star 1 = 10 - 17 points
Star 2 = 18 - 25 points
Star 3 = 26 - 33 points
Star 4 = 34 - 42 points

Qualistar Rating Criteria Chart:
Learning Environment = points are awarded based on average classroom scores on the ERS Scales. (Score of component: 1 – 10)
Family Partnerships = points are awarded based on how well programs communicate with collaborate with, and involve families. Score of component: 1 – 10)
Training and Education = points are awarded to teachers & center administrators based on their professional development level and amount of experience, with criteria separated by position. Score of component: 1 – 10
Adult-to-Child Ratios & Group Size = points are awarded based on the average adult-to -child ratio and group size in each classroom. Score of component: 1 – 10
Program Accreditation = points are awarded for receiving and maintaining national program accreditation through an approved organization. Score of component: 0 or 2 points

The reader needs to keep in mind that Qualistar Colorado is not a state agency but rather a private non-profit agency.

5. The three Family Partnership Standards were met at the Star 4 level always or most of the time (see Figure 2).

6. The respective skewness figures are the following: Family Partnership = -1.425; Adult-Child Ratio/Group Size = -1.506; Learning Environment = -0.946; Training and Education = 0.028; Program Accreditation = 7.548. See Figure 16 for basic descriptive statistics for these Criteria.

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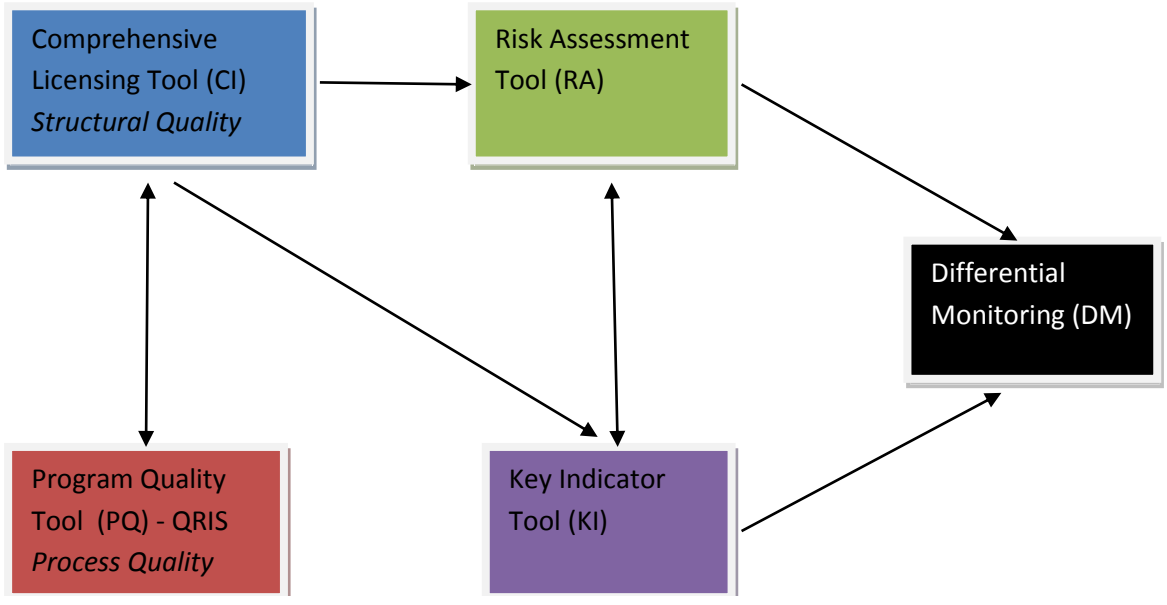
Appendix – Figure 8

DIFFERENTIAL MONITORING LOGIC MODEL & ALGORITHM (DMLMA©) (Fiene, 2012): A 4th Generation ECPQIM – Early Childhood Program Quality Indicator Model

CI x PQ => RA + KI => DM + *PD => CO*

Definitions of Key Elements:

PC = Program Compliance/Licensing (Health and Safety) (***Caring for Our Children***)
PQ = QRIS/Accreditation/Caregiver/Child Interactions/Classroom Environment Quality (***ERS/CLASS/PAS/BAS***)
RA = Risk Assessment, (High Risk Rules) (***Stepping Stones***)
KI = Key Indicators (Predictor Rules***) (13 Key Indicators of Quality Child Care***)
DM = Differential Monitoring (How often to visit and what to review)
PD = Professional Development/Technical Assistance/Training (Not pictured but part of Model)
CO = Child Outcomes (Not pictured but part of Model)



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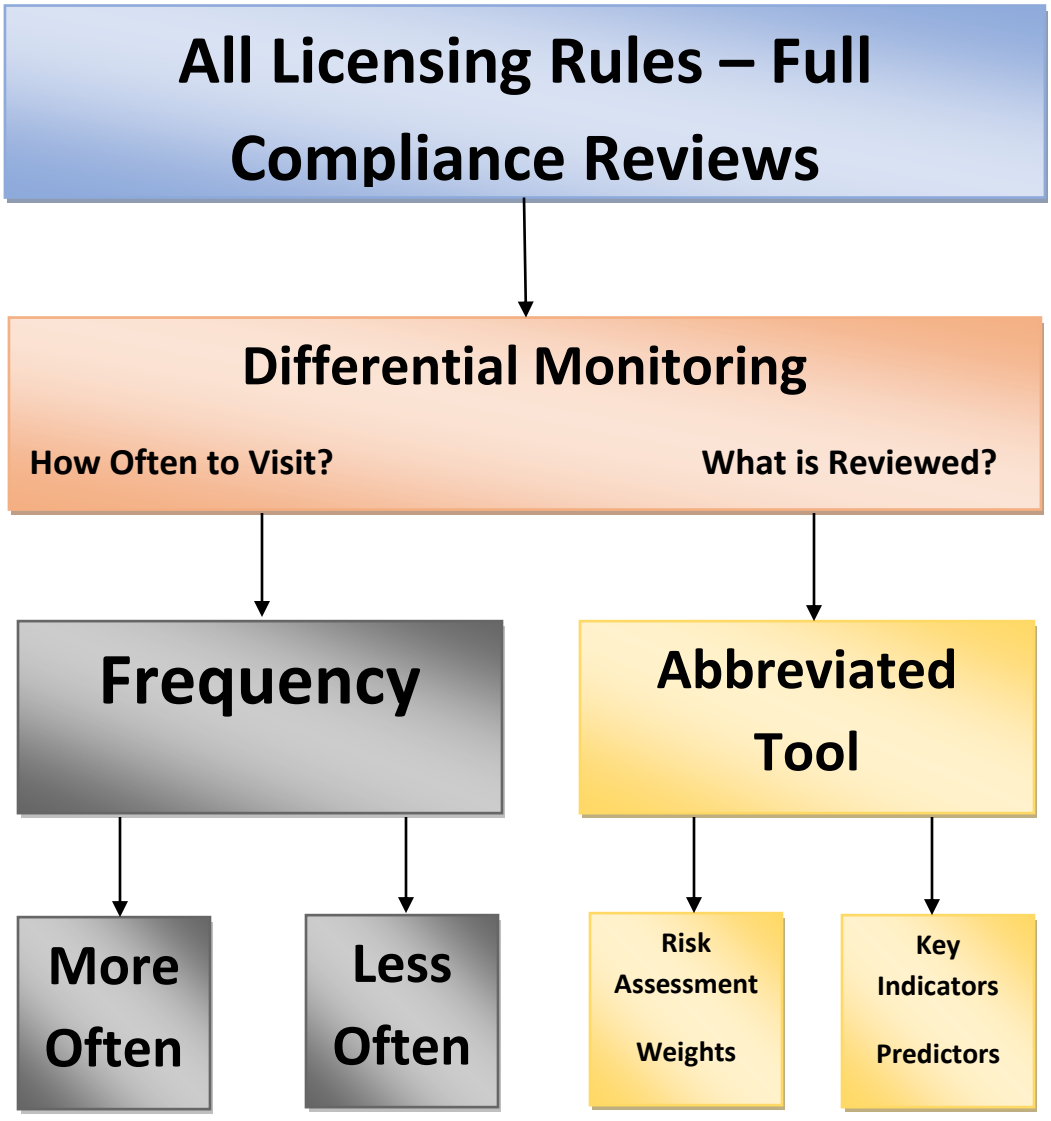
Appendix – Figure 9 - Licensing Rules, Compliance Reviews, Differential Monitoring, Abbreviated Tools, Risk Assessment, and Key Indicators



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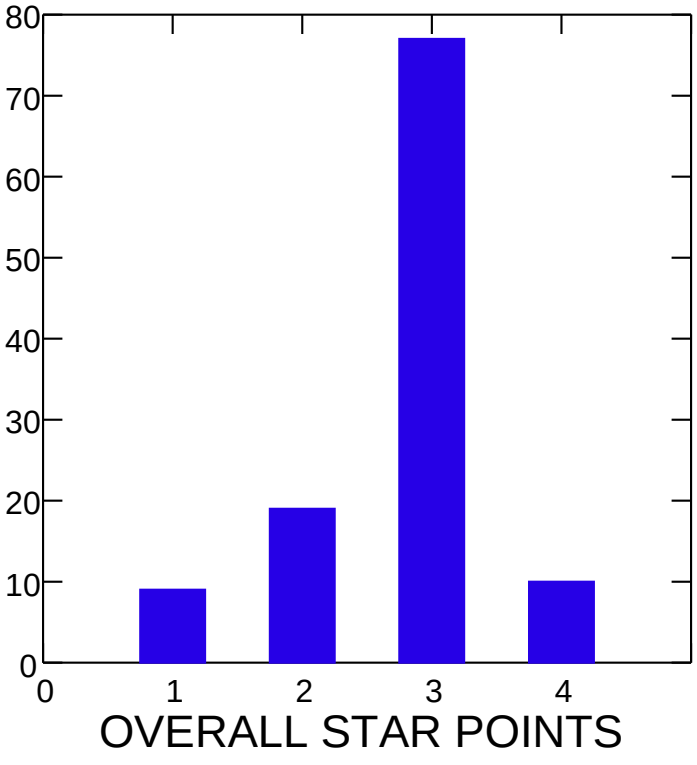
APPENDIX

Figure 10



Figures 10-14 depict the data distributions for overall Star points as well as for the major criteria/standards (Training & Education, Learning Environment, Adult-to-Child Ratios & Group Size, and Family Partnerships). Figures 13-14 clearly demonstrate how these respective criteria/standards are extremely skewed data distributions while Figures 10-12 show a more normally distributed data pattern. This is important for which standards can be dichotomized and phi coefficients generated. Dichotomization of data should only be used with skewed data which is the case in figures 13-14. It is not appropriate with the data distributions in figures 10-12. Also see Figure 16 for additional descriptive statistics for the specific criteria.

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Figure 11

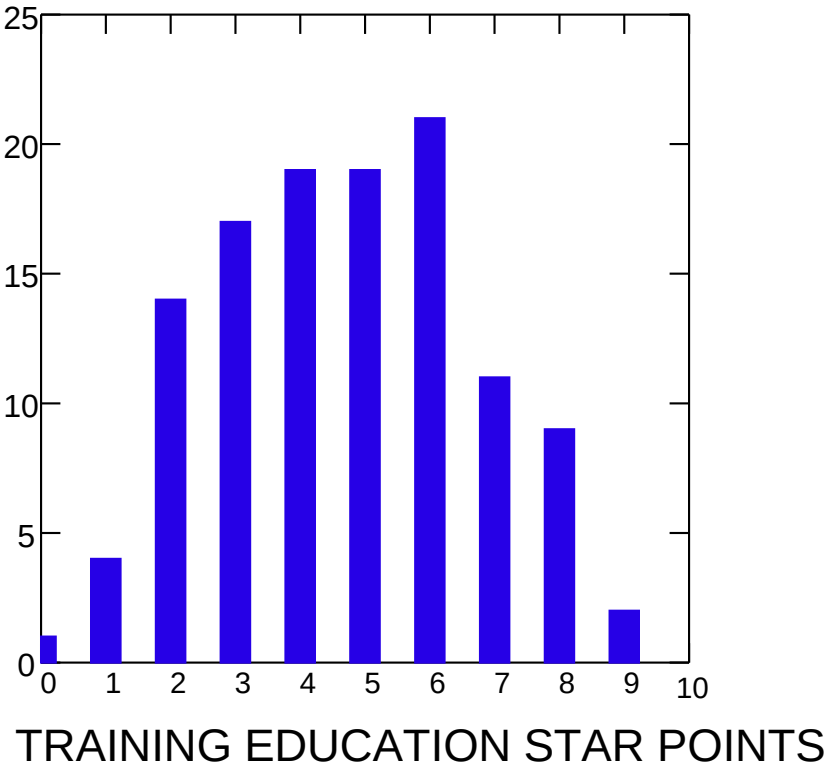

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Figure 12

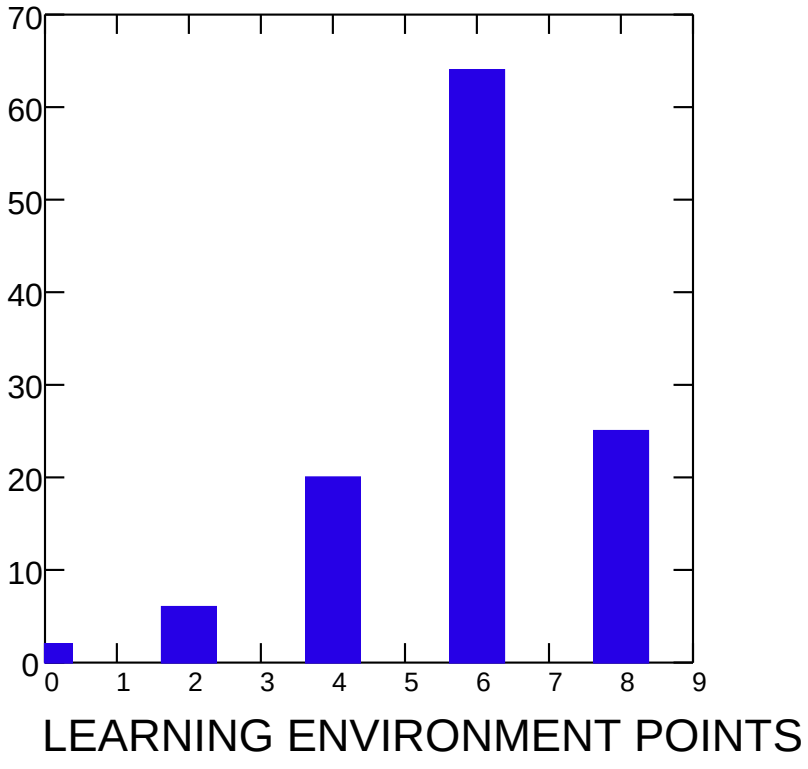

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Figure 13

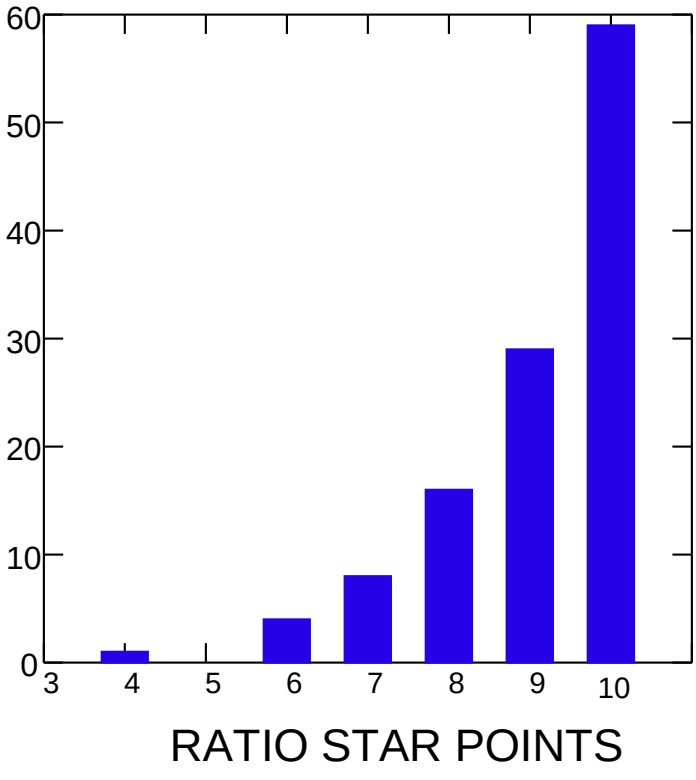

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Figure 14

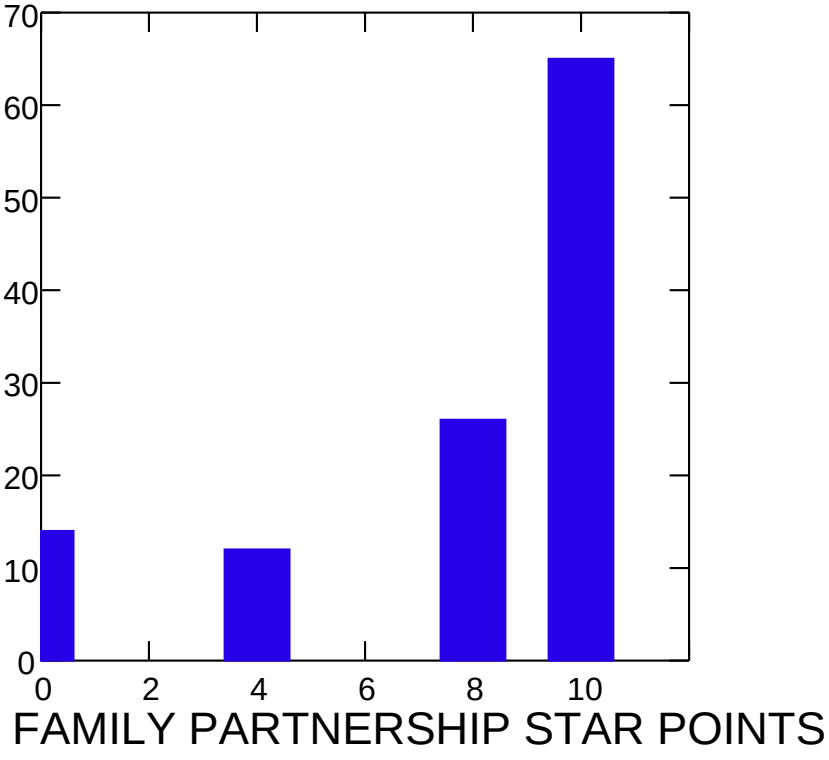

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Figure 15

Selected Relationships amongst the Standards/Criteria and Star Level

Standards/Criteria	Correlation (r)
Family Partnerships x Star Level	.80****
Learning Environment x Star Level	.68***
Training/Education x Star Level	.54**
Adult-Child Ratio/Group Size x Star Level	.46*
Program Accreditation x Star Level	.11

* p < .05
** p < .01
*** p<.001
**** p < .0001

Figure 15a

Family Partnership Criteria	Phi	Significance
Criterion 1	.23	ns
Criterion 2	.53	.02
Criterion 3	.46	.04
Criterion 4	.46	.04
Criterion 5	1.00	.001
Criterion 6	.46	.04
Criterion 7	.86	.001
Criterion 8	.83	.001
Criterion 9	.72	.001
Criterion 10	.60	.006
Criterion 11	.46	.04
Criterion 12	.53	.02
Criterion 13	.21	ns
Criterion 14	.46	.04
Criterion 15	.39	ns
Criterion 16	.75	.001
Criterion 17	.60	.006

Legend:
Criteria 1 – 7 involve the program providing information to families.
Criteria 8 – 15 involve families in planning, communicating and decision making for the program.
Criteria 16 – 17 involve a written plan and evaluating the program's family partnerships.

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Figure 15b

Adult-Child Ratio/Group Size	Phi	Significance
Adult-Child Ratios	.58	.0001
Group Size	.33	.02

Family Partnerships and Adult-Child Ratio/Group Size standards/criteria phi coefficients were generated because of the skewed data distributions. Phi coefficients were not generated for Learning Environment, Training and Education or Program Accreditation because the data were not sufficiently skewed or showed no variability at all in their respective distributions.

Figure 16

Basic Descriptive Statistics for Criteria

Criteria	Mean	Median	Skewness
Family Partnerships	7.7	10	-1.425
Adult-to-Child Ratios & Group Size	9.1	10	-1.506
Learning Environment	5.8	6	-0.946
Training and Education	4.7	5	0.028
Program Accreditation	0.0	0	7.548
Total Star Level	2.7	3	-1.213

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OREGON'S *STEPPING STONES*[1] RISK FACTORS ANALYSIS

The purpose of this analysis is to provide Oregon OCC with a basic risk factor analysis comparing its child care center rules to ***Stepping Stones (SS)*** standards. This analysis will delineate, based upon ***Stepping Stones'*** major content areas (chapters from ***Caring for our Children (CFOC)***), where there may be gaps in their child care center rules.

This analysis is a summary look at the comparison between ***Stepping Stones*** and Oregon's Rules; it is now intended to be an in-depth crosswalk between the two sets of standards and rules. In order to do that type of analysis, ***Fiene's Stepping Stones to Validate State Rules Template*** (2013) is the suggested source to use.

Table 1 provides the comparisons between ***Stepping Stones*** and the Oregon Child Care Center Rules in which a search of the rules was done to determine if the specific ***SS*** standard was present or not. Every time the search contained a match, it was recorded as a "1". When there was no match, it was recorded as a "0".

Table 1 – Comparison of *Stepping Stones (SS)* Standards and Oregon Child Care Center Rules

SS	RULES	PERCENT	CONTENT AREA/RISK FACTOR
14	11	79	STAFFING
9	5	56	PROGRAM ACTIVITIES FOR HEALTHY DEVELOPMENT
25	16	64	HEALTH PROMOTION/PROTECTION
13	10	77	NUTRITION AND FOOD SERVICE
20	12	60	FACILITIES, SUPPLIES, EQUIPMENT, ENVIRON HEALTH
21	7	33	PLAY AREAS/PLAYGROUNDS AND TRANSPORTATION
10	1	10	INFECTIOUS DISEASES
10	7	70	POLICIES
122	69	56.125	TOTAL

Legend for Table 1:

Nominal scaling to determine if the Oregon CCC Rules have any reference to the specific SS3 Standard.

It is scored 1/0 where 1 = Present and 0 = Absent. Percent is the total number of "1". Higher the percent the better.

SS = STEPPING STONES STANDARDS

RULES = OREGON CHILD CARE CENTER RULES

PERCENT = RULES/SS

CONTENT = RISK FACTOR/SS/CFOC CHAPTER

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This comparison was completed on the major chapter headings in ***Stepping Stones*** and ***Caring for our Children*** as delineated in the Content/Risk Factor Column in Table 1. The following table (Table 2) provides the detail of the contents of each content area/risk factor.

Table 2 – Major Content/Risk Factor Areas (1-8) and Specific Content for Each Area

1. STAFFING	A. CHILD:STAFF RATIO AND GROUP SIZE B. RECRUITMENT AND BACKGROUND SCREENING C. DIRECTOR'S QUALIFICATIONS D. TEACHER'S QUALIFICATIONS E. PRE-SERVICE TRAINING F. ORIENTATION TRAINING G. FIRST AID AND CPR TRAINING H. STAFF HEALTH
2. PROGRAM ACTIVITIES FOR HEALTHY DEVELOPMENT	A. PROGRAM ACTIVITIES FOR INFANTS, TODDLERS, PRESCHOOLERS, AND SCHOOL AGE CHILDREN B. SUPERVISION AND DISCIPLINE C. HEALTH INFORMATION SHARING D. HEALTH EDUCATION FOR CHILDREN E. HEALTH EDUCATION FOR STAFF F. HEALTH EDUCATION FOR PARENTS
3. HEALTH PROMOTION AND PROTECTION	A. DAILY HEALTH CHECK B. ROUTINE HEALTH SUPERVISION C. PHYSICAL ACTIVITY AND LIMITING SCREEN TIME D. SAFE SLEEP E. ORAL HEALTH F. DIAPERING AND CHANGING SOILED CLOTHING G. HAND HYGIENE H. EXPOSURE TO BODY FLUIDS I. EMERGENCY PROCEDURES J. CHILD ABUSE AND NEGLECT K. INCLUSION/EXCLUSION DUE TO ILLNESS L. CARING FOR CHILDREN WHO ARE ILL M. MEDICATIONS
4. NUTRITION AND FOOD SERVICE	A. MEAL SERVICE, SEATING, SUPERVISION B. FOOD BROUGHT FROM HOME C. KITCHEN AND EQUIPMENT D. FOOD SAFETY

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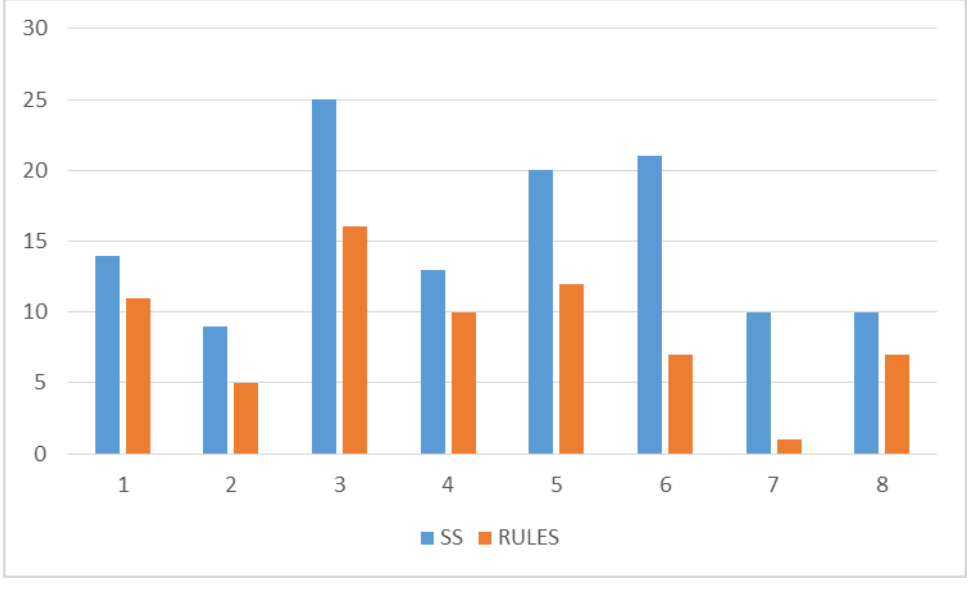
	E. MEALS FROM OUTSIDE VENDORS OR CENTRAL KITCHEN F. NUTRITION LEARNING EXPERIENCES FOR CHILDREN G. NUTRITION EDUCATION FOR PARENTS
5. FACILITIES, SUPPLIES, EQUIPMENT, AND ENVIRONMENTAL HEALTH	A. GENERAL LOCATION, LAYOUT, AND CONSTRUCTION OF THE FACILITY B. SPACE PER CHILD C. EXITS D. STEPS AND STAIRS E. EXTERIOR AREAS F. VENTILATION, HEATING, COOLING, AND HOT WATER G. LIGHTING H. NOISE I. ELECTRICAL FIXTURES AND OUTLETS J. FIRE WARNING SYSTEMS K. WATER SUPPLY AND PLUMBING L. SEWAGE AND GARBAGE M. INTEGRATED PEST MANAGEMENT N. PREVENTION AND MANAGEMENT OF TOXIC SUBSTANCES O. TOILET AND HANDWASHING AREAS P. DIAPER CHANGING AREAS Q. SLEEP AND REST AREAS
6. PLAY AREAS/PLAYGROUNDS AND TRANSPORTATION	A. PLAYGROUND SIZE AND LOCATION B. USE ZONES AND CLEARANCE REQUIREMENTS C. PLAY AREA AND PLAYGROUND SURFACING D. INSPECTION OF PLAY AREAS AND EQUIPMENT E. ACCESS TO AND SAFETY AROUND BODIES OF WATER F. POOL EQUIPMENT AND MAINTENANCE G. WATER QUALITY OF POOLS H. TRANSPORTATION SAFETY
7. INFECTIOUS DISEASES	A. HOW INFECTIONS SPREAD B. IMMUNIZATIONS C. RESPIRATORY TRACT INFECTIONS D. ENTERIC (DIARRHEAL) INFECTIONS AND HEPATITIS A VIRUS (HAV) E. SKIN AND MUCOUS MEMBRANE INFECTIONS

	F. BLOODBORNE INFECTIONS G. HERPES VIRUSES H. INTERACTION WITH STATE OR LOCAL HEALTH DEPARTMENTS
8. POLICIES	A. HEALTH POLICIES B. EMERGENCY/SECURITY POLICIES AND PLANS C. TRANSPORTATION POLICIES D. PLAY AREA POLICIES E. FACILITY RECORDS/REPORTS F. CHILD RECORDS G. STAFF RECORDS

Table 2 provides you with the specific content as it relates to the risk factors. Figures 1 and 2 as well as Table 3 will provide the comparison between ***SS*** standards and Oregon's child care center rules by these content areas/risk factors.

Figure 1 does this comparison by listing for each content area/risk factor the frequency count where there is a match between rules and standards.

Figure 1 – Comparing Stepping Stones (SS) Standards and Oregon's Child Care Center Rules



Legend for Figure 1:

1 = STAFFING

2 = PROGRAM ACTIVITIES FOR HEALTHY DEVELOPMENT

3 = HEALTH PROMOTION/PROTECTION

4 = NUTRITION AND FOOD SERVICE

5 = FACILITIES, SUPPLIES, EQUIPMENT, ENVIRON HEALTH

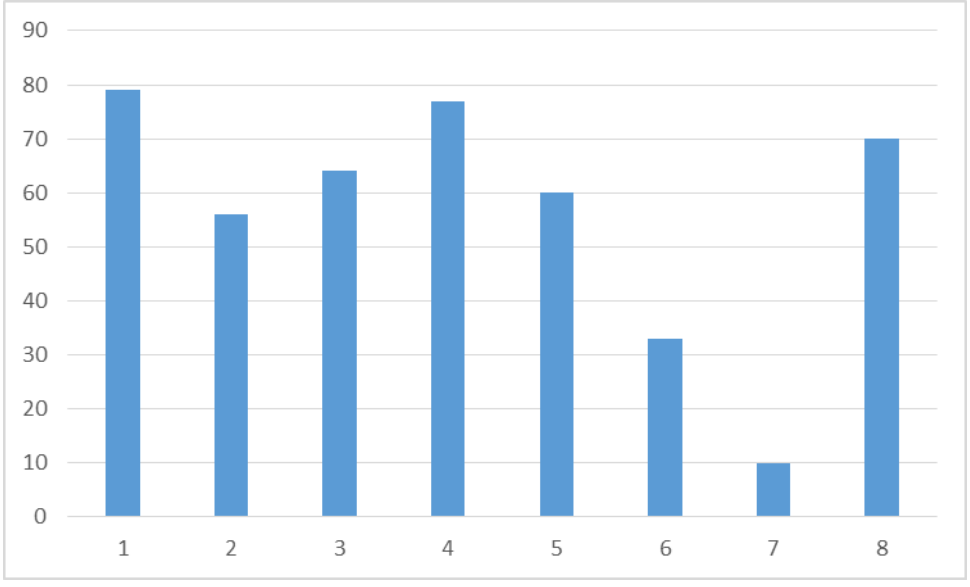
6 = PLAY AREAS/PLAYGROUNDS AND TRANSPORTATION

7 = INFECTIOUS DISEASES

8 = POLICIES

Figure 2 takes the data from Table 1 and Figure 1 and expresses the content areas/risk factors in the form of percents in which the percents represent the number of times the Oregon child care center rules and the ***Stepping Stones*** standards match.

Figure 2 – Percent of *Stepping Stones* Standards in Oregon's Child Care Center Rules



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2 = PROGRAM ACTIVITIES FOR HEALTHY DEVELOPMENT

3 = HEALTH PROMOTION/PROTECTION

4 = NUTRITION AND FOOD SERVICE

5 = FACILITIES, SUPPLIES, EQUIPMENT, ENVIRON HEALTH

6 = PLAY AREAS/PLAYGROUNDS AND TRANSPORTATION

7 = INFECTIOUS DISEASES

8 = POLICIES

It is evident from Table 1 and Figures 1 and 2 that the two areas where the greatest gap between the ***Stepping Stones*** standards and Oregon's child care center rules is in the Infectious Diseases and Play Areas/Playgrounds and Transportation content areas/risk factors with a match rate of 10% and 33% respectively. The highest match rates are with the Staffing (79%) and Nutrition & Food Service (77%).

Based upon the above results there are some recommendations to be made where Oregon Office of Child Care staff may want to focus their attention for future rule formulation in the infectious diseases and the play area/playgrounds & transportation content areas.

Notes:

1 The reason for using ***Stepping Stones*** rather than ***Caring for our Children*** is that ***Stepping Stones*** are the selected standards from ***CFOC*** that place children at greatest risk of mortality and morbidity if the standards are not complied with.

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Contact Hours as a New Metric Replacing Group Size and Staff-Child Ratios as well as a New Metric for COVID19 Thresholds

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May 2021

The purpose of this paper is to propose Contact Hours as a new metric replacing staff child ratios and group size as well as using it as a new threshold measure for COVID19 thresholds. This paper will attempt to validate the key parameters for testing out the Contact Hour (CH) methodology in a series of facilities to determine its efficacy. The pilot validation study will determine if this CH methodology has any merit in being able to measure regulatory compliance with adult-child ratios. Since monitoring of facilities will not be occurring during the COVID19 pandemic are there ways to measure the research question in the previous sentence. Yes there is and it is based upon the Contact Hour (CH) methodology and involves asking the following six questions (The six questions should be asked of each grouping that is defined by a classroom or a well-defined group within each classroom tied to a specific adult-child ratio.):

1. **When does your first teaching staff arrive or when does your facility open (TO1)?**
2. **When does your last teaching staff leave or when does your facility close (TO2)?**
3. **Number of teaching/caregiving staff (TA)?**
4. **Number of children on your maximum enrollment day (NC)?**
5. **When does your last child arrive (TH1)?**
6. **When does your first child leave (TH2)?**

After getting the answers to these questions, the following formulae can be used to determine contact hours (CH) based upon the relationship between when the children arrive and leave (TH) and how long the facility is open (TO):

(1) CH = ((NC (TO + TH)) / 2) / TA;

(2) CH = (NC x TO) / TA;

(3) CH = ((NC x TO) / 2) / TA;

(4) CH = (NC^2) / TA

Where: CH = Contact Hours; NC = Number of Children; TO = Total number of hours the facility is open (TO2 - TO1); TA = Total number of teaching staff, and TH = Total number of hours at full enrollment (TH2 - TH1).

By knowing the number of contact hours (CH) it will be possible to rank order the exposure time of adults with children. Theoretically, this metric could then be used to determine that the greater contact hours is correlated with the increased non-regulatory compliance with adult-child ratios as determined in the below table on page 2.

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Table 1: Contact Hour (CH) Conversion Table (RS Model(1.0)) (Fiene, 2020©)

Taking into Account Exposure Time and Density

Group Size, Staff Child Ratio, Number of Children and Staff

<---------- Adult-Child Ratios (Relatively Weighted Contact Hours) ---------->

NC	CH	1:1	2:1	3:1	4:1	5:1	6:1	7:1	8:1	9:1	10:1	11:1	12:1	13:1	14:1	15:1
1	8	**8**	8	8	8	8	8	8	8	8	8	8	8	8	8	8
2	16	**8**	**16**	16	16	16	16	16	16	16	16	16	16	16	16	16
3	24	**8**	12	**24**	24	24	24	24	24	24	24	24	24	24	24	24
4	32	**8**	**16**	16	**32**	32	32	32	32	32	32	32	32	32	32	32
5	40	**8**	13	20	20	**40**	40	40	40	40	40	40	40	40	40	40
6	48	**8**	**16**	**24**	24	24	**48**	48	48	48	48	48	48	48	48	48
7	56	**8**	14	19	28	28	28	**56**	56	56	56	56	56	56	56	56
8	64	**8**	**16**	21	**32**	32	32	32	**64**	64	64	64	64	64	64	64
9	72	**8**	14	**24**	24	36	36	36	36	**72**	72	72	72	72	72	72
10	80	**8**	**16**	20	27	**40**	40	40	40	40	**80**	80	80	80	80	80
11	88	**8**	15	22	29	29	44	44	44	44	44	**88**	88	88	88	88
12	96	**8**	**16**	**24**	**32**	32	**48**	48	48	48	48	48	**96**	96	96	96
13	104	**8**	15	21	26	35	35	52	52	52	52	52	52	**104**	104	104
14	112	**8**	**16**	22	28	37	37	**56**	56	56	56	56	56	56	**112**	112
15	120	**8**	15	**24**	30	**40**	40	40	60	60	60	60	60	60	60	**120**
16	128	**8**	**16**	21	**32**	32	43	43	**64**	64	64	64	64	64	64	64
17	136	**8**	15	23	27	34	45	45	45	68	68	68	68	68	68	68
18	144	**8**	**16**	**24**	29	36	**48**	48	48	**72**	72	72	72	72	72	72
19	152	**8**	15	22	30	38	38	51	51	51	76	76	76	76	76	76
20	160	**8**	**16**	23	**32**	**40**	40	53	53	53	**80**	80	80	80	80	80
21	168	**8**	15	**24**	28	34	42	**56**	56	56	56	84	84	84	84	84
22	176	**8**	**16**	22	29	35	44	44	59	59	59	**88**	88	88	88	88
23	184	**8**	15	23	31	37	46	46	61	61	61	61	92	92	92	92
24	192	**8**	**16**	**24**	**32**	38	**48**	48	**64**	64	64	64	**96**	96	96	96
25	200	**8**	15	22	29	**40**	40	50	50	67	67	67	67	100	100	100
26	208	**8**	**16**	23	30	35	42	52	52	69	69	69	69	**104**	104	104
27	216	**8**	15	**24**	31	36	43	54	54	**72**	72	72	72	72	108	108
28	224	**8**	**16**	22	**32**	37	45	**56**	56	56	75	75	75	75	**112**	112
29	232	**8**	15	23	29	39	46	46	58	58	77	77	77	77	77	116
30	240	**8**	**16**	**24**	30	**40**	**48**	48	60	60	80	80	80	80	80	**120**

This table is based upon the assumptions that the child care is 8 hours in length (TO) and that the full enrollment is present for the full 8 hours (TH). This is unlikely to ever occur but it gives us a reference point to measure adult child contact hours in the most efficient manner. Based upon the relationship between TO and TH based upon the algorithms, select from one of the formulae from the previous page (formulae 1 - 4) to determine how well the actual Relatively Weighted Contact Hours (RWCH) match with this table. If the RWCH exceed the respective RWCH in this table, then the facility would be over ratio on ACR standards, in other words, they would be overpopulated.

(RS Model = 1.0)

(TT Model = 0.5)

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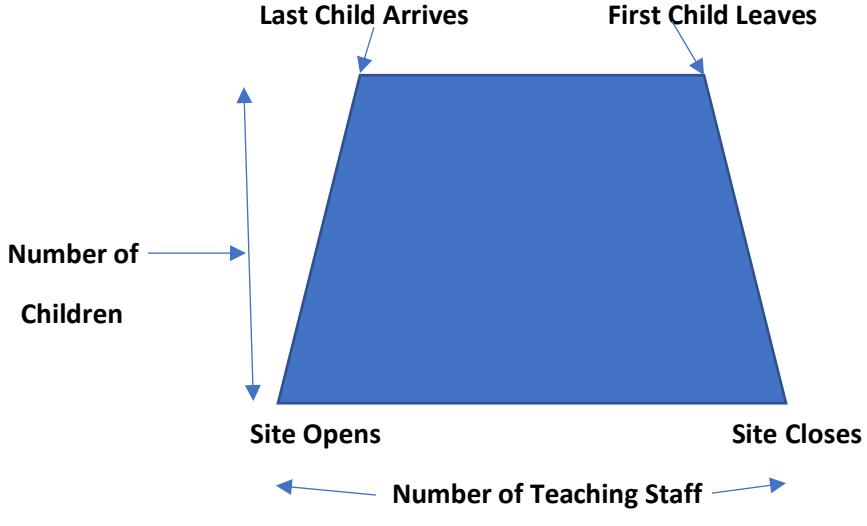
Sample/Data Collection Methods

Child care attendance data was explored and collected in partnership with the Washington State Department of Children, Youth, and Families (DCYF). A convenient sample of center and school age providers was initially identified through the use the state subsidy electronic payment system. All providers who accept Working Connections Child Care subsidies are required to use and track child attendance using an electronic attendance system. Providers may use and electronic sign in and out system provided by the state or opt to use another system. For this validation process, the sample was identified from the attendance tracking system provided and operated by DCYF and was inclusive of providers who use the system to track attendance of both subsidy and private pay children. The search resulted in approximately 100 providers within the State of Washington who have opted to use the electronic check-in system for all children regardless of payment type.

The sample was prioritized by identifying a single week since the Covid-19 outbreak began and from there the highest attendance day for that week was chosen for each provider. From this narrowed data set, it was determined the exact time the last child for the chosen day checked in, when the first child left, how many children were in attendance that day and the regular operating hours of the center or school age program. Because the attendance tracking system does not also track staffing attendance, it was necessary to contact each provider by phone in order to gather data inclusive of when the first staff arrived and when the last staff left and the total staff working that day. All responses were voluntary. Additionally, providers confirmed operating hours (many had been temporarily adjusted due to lowered demand during the gubernatorial stay at home order). Finally, providers reported if a child or staff member had tested positive for Covid-19. Of the 100 phone calls, the final sample was inclusive of 88 licensed providers statewide. Twelve providers either did not answer the call or opted to not answer the questions.

Figure 1: Contact Hour Diagram Paradigm and Schematic



The above diagram (Figure 1) depicts how the number of staff and children help to construct the contact hour formula. Depending on when the children arrive and leave could change the shape from a trapezoid to a rectangle or square or triangle. Please see the following potential density distributions which could impact these changes in the above contact hour diagram (Figure 1).

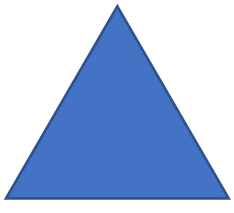
Potential Density Distributions
Taking into Account Number of Children, Staff, and Exposure Time

Here are some basic key relationships or elements related to the Contact Hour (CH) methodology.

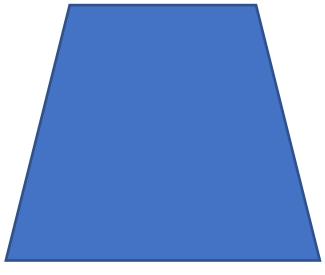
- RWCH = ACR
- CH = GS = NC
- NC and CH are highly correlated
- ACR and GS are static, not dynamic
- CH makes them dynamic by making them 2-D by adding in Time (T)
- ΣACR = GS
- GS = total number of children NC
- ACR = children / adult

ACR = Adult Child Ratio, GS = Group Size, RWCH = Relatively Weighted Contact Hours, NC = Number of Children.

Possible Density Displays of Contact Hours (Horizontal Axis = Time (T); Vertical Axis = NC):



This density distribution should result in the lowest CH but probably not very likely to occur. Essentially what would happen is that full enrollment would be a single point which means that the last child arrives when the first child is leaving. Very unlikely but possible. (TT Model Reference(0.5))



This density distribution is probably the most likely scenario when it comes to CH in which the children gradually, albeit rather steeply, arrive at the facility and also leave the facility gradually. They don't all show up at the same time nor leave at the same time. However, the arriving and leaving will be a rather close time frame. (TT Model)

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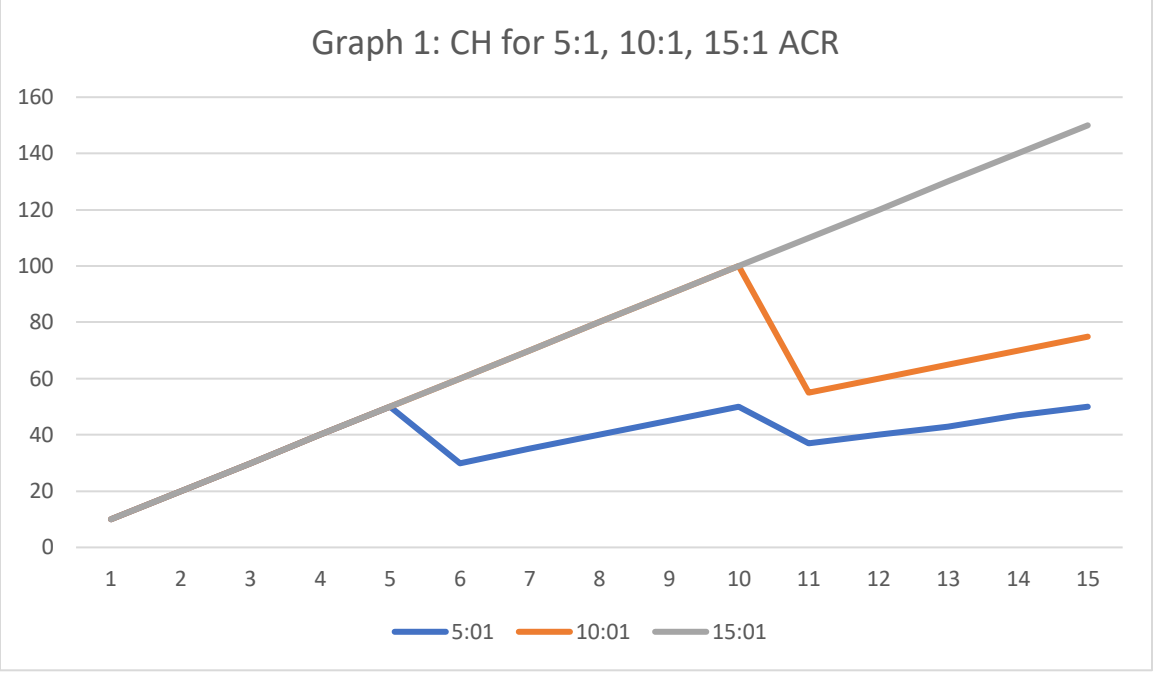
This scenario is unlikely but is used as the reference point for CH because it provides the most efficient model. This is where all the children arrive and leave at the same time. Very unlikely, but I guess it could happen. The important element here is its efficiency in that all contact hours are covered, so although a lesser amount of CH is not as efficient it does demonstrate compliance with ACR and GS which is one of the purposes of CH. As the bottom two distributions will demonstrate, CHs above this level would either depict a program that is open for an extended time or where there are too many children present and the facility is out of compliance with GS and/or ACR. (RS Model Reference(1.0))

This distribution would indicate that the facility is open for an extended time and exceeds the number of total CH as depicted in the reference square standard. Although not out of compliance with GS or ACR, this could become a determining factor when looking at the potential overall exposure of adults and children when we are concerned about the spread of an infectious diseases, such as what happened with COVID19. Are facilities that high CH because of a scenario distribution of this type more prone to the spread of infectious diseases? (RS Model)

This depiction clearly indicates a very high CH and non-compliance with ACR and GS. This is the reason for designing the CH methodology which was to determine these levels of regulatory compliance as its focus. (RS Model)

There is some overlap in the RWCH (Table 1 on page 2) in moving across the various levels, that occurs because of the change in group size (GS) where an overall group size (GS) could influence the overall CH by increasing NC.

The below graph (Graph 1) depicts the contact hours (CH) for three different adult to child ratios (ACR) 5:1, 10:1 and 15:1 to demonstrate the relationship between CH & ACR as the number of children (NC) increases. CH is along the vertical axis, with NC along the horizontal axis.



This graphic (Graph 1) depicts how with the addition of staff, the CH drop off accordingly.

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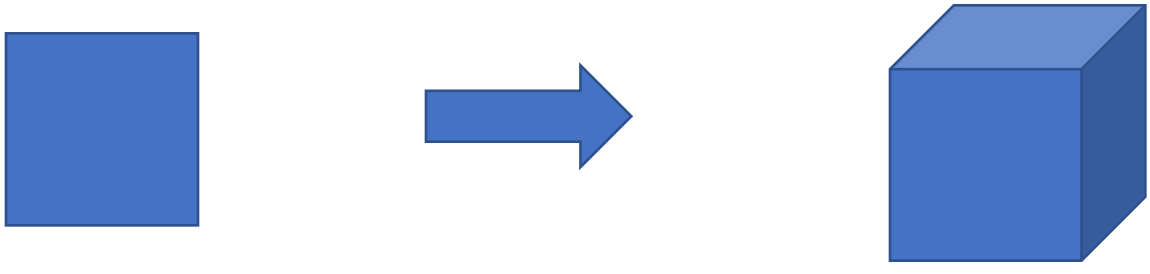
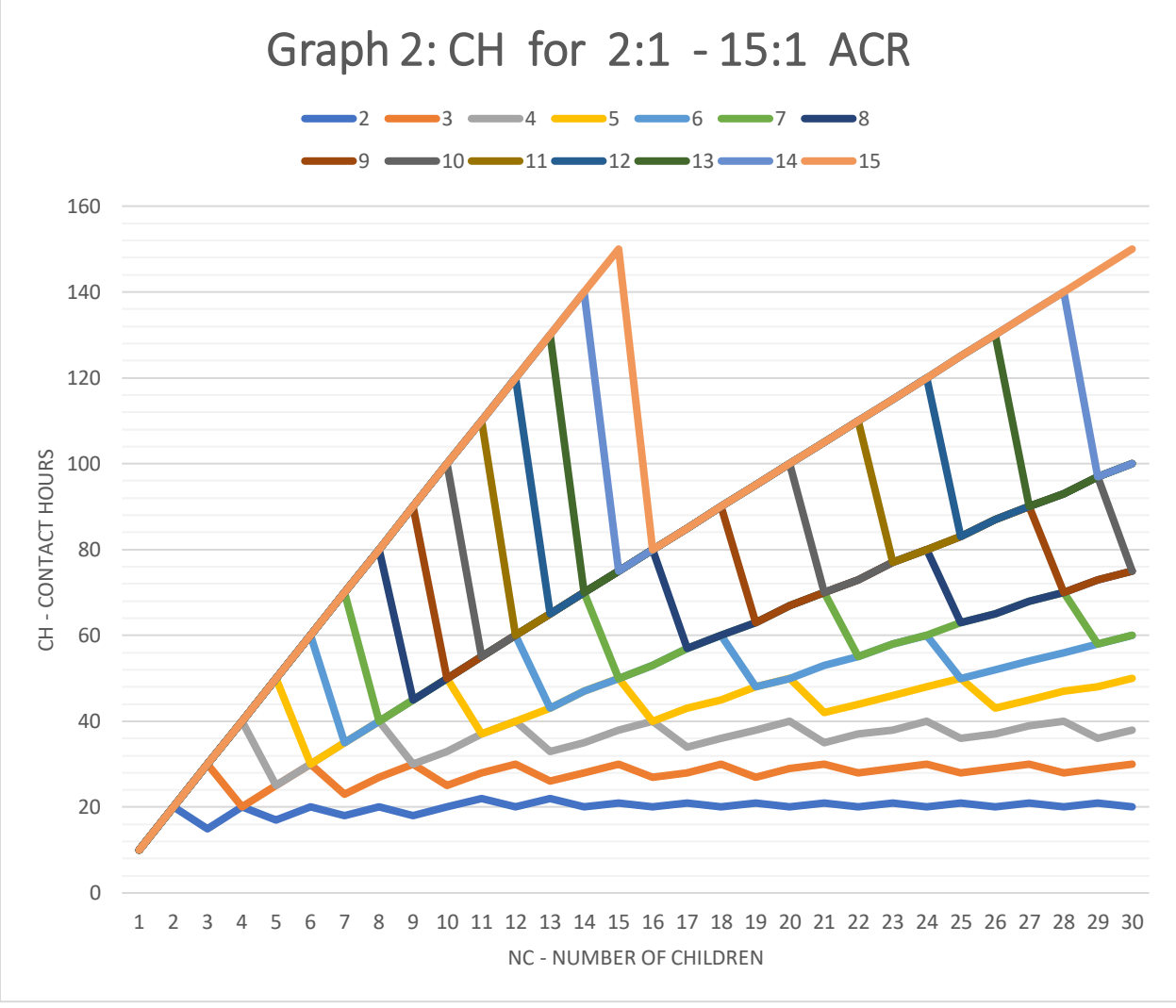
A possible extension or the next level to the CH methodology is to move from 2-D to 3-D and make the CH block format rather than area format. It could be used to describe the trilemma of accessibility, affordability and quality more fully. It could be a means for determining the unit cost at a much finer level and could then be used to make more informed decisions about the real cost of services.

Or another way of moving to 3-D is to include the square footage of the classroom or facility which would then provide a space metric along with time exposure and density metrics.



The move from 2-D (GS, ACR) to 3-D (GS, ACR, Quality or SQFT) and its potential impacts on the density distributions. Utilizing SQFT as a distancing/space dimension does help to mitigate the increased CH.

The following graph (Graph 2) depicts the Contact Hours (CH) for all the various Adult-Child ratios (ACR) in the Table on page 2 of this paper and how CH change with the number of children (NC).



From the above graph (Graph 2) it clearly shows how CHs vary with the number of children present. Please note the various slopes of the respective lines for each of the ACRs. As can be seen, once the lines begin to fluctuate, the CHs are entering into a zone of higher rate of exposure based on the ACRs. This demonstrates that the lower the ratio the more stable the CH line.

This is a listing of the algorithms for determining which formula (1-4 from page 1) & which model (RS or TT) to use in order to calculate the Contact Hours (CH). NC = Number of Children; TO = Total number of hours facility is open; TH = Total number of hours at full enrollment; TA = Total number of adult staff:

If TO = TH = NC, then (NC x TO)/TA = CH (RS Model)

If TH < TO, then ((NC (TO + TH))/2)/TA = CH; or If TH = 0, then ((NC x TO)/2)/TA = CH (TT Model)

If TO = TH < NC, then (NC x TH)/TA = CH (RS Model)

If TO = TH > NC, then (NC x TO)/TA = CH (RS Model)

Based upon the Washington State data, the Contact Hour methodology was validated in being able to act as a screener with those programs that would have exceeded the required staff child ratios. As can be seen through the data the more contact hours a staff person has with more children increases the probability of infection rates; when educators spend less time with lower amounts of children there is a lower chance of infection and vice versa. These data demonstrate how this methodology was used to assist in predicting appropriate child to adult ratios during an outbreak or pandemic by identifying safety thresholds of adult child ratios in licensed early learning facilities. The following spreadsheet plays out several scenarios with the actual data from Washington State early learning sites. For individuals interested in using the below spreadsheet in their respective jurisdiction, please contact the authors for the actual templates[1].

This provides evidence to support the use of this methodology in determining staff child ratio virtually as well as identifying when those ratios allow for in-person inspections or indicate when it is more appropriate to conduct virtual inspections. The authors do want to caution licensing administrators in that the results from this methodology is not to substitute for on-site observations when they are possible. It is intended as a screening tool to determine in a very overarching way how to target limited observational visits. The methodology is based upon statistical probabilities which have demonstrated in this pilot study to be highly reliable and valid but they are not full proof. So with any programs where there is any doubt, the agency should follow up with a direct observational inspection. Finally, agencies may want to consider using medical and geographical outbreak data in conjunction with this methodology to refine the results given the unique nature of the various infectious diseases.

In using the actual data from Washington State in the following spreadsheet, please note that the potential spread of the virus is mitigated the most greatly in the results in Green while Yellow and Red provide less mitigation and begin to place the adults and children at greater risk. Examples are provided for both the RS (1.0) and TT (0.5) Models

As a footnote to this study, a follow-up is to introduce distance/spacing via square footage (SQFT) to the Contact Hour formula. The results indicate a significant mitigation effect on increased Contact Hours when the available square footage is increased. This addition will be used in future studies to ascertain its relative impact on the Contact Hour formulas as indicated in the following revision.

CH2 = (((NC (TO + TH)) / 2) / TA) / (SQFT);

CH2 = ((NC x TO) / TA) / (SQFT);

CH2 = (((NC x TO) / 2) / TA) / (SQFT);

CH2 = ((NC^2) / TA) / (SQFT)

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