

DIFFERENTIAL MONITORING LOGIC MODEL AND ALGORITHM (DMLMA)[®]: A NEW EARLY CHILDHOOD PROGRAM QUALITY INDICATOR MODEL⁴ (ECPQIM⁴)[®] FOR EARLY CARE AND EDUCATION REGULATORY AGENCIES

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This Differential Monitoring Logic Model and Algorithm (DMLMA[®]) is a 4th generational Early Childhood Program Quality Indicator Model⁴ (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. 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 (see Table 1 and Figures 1 & 2).

The DMLMA[®] can be used by state agencies (child care, child residential, adult residential (just replace Child Outcomes with Adult Outcomes)), Federal agencies (Head Start, child care, Pre-K), 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 *Head Start Performance Standards* or *Caring for Our Children/Stepping Stones*. 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.

Key Elements (see Figures 1 & 2): **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, ITES, FDCRS), CLASS, or CDPES (Fiene, 2007). **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.

Once the above key elements are in place, it is then possible to look at the relationships amongst them to determine if the system is operating as it was intended. This is done through a validation (Figure 2) of the overall system and assessing the inter-correlations (Figure 1) to determine that the DM system is improving the health, safety, program quality and ultimately the overall development of the children it serves.

The DMLMA[®] provides a cross-cutting methodology that can be used in all 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 DMLMA[®] integrates all these various monitoring systems together so that the overall monitoring system can be validated as being cost effective and efficient.

STATE AGENCY PLAN (These Steps can be viewed as an overall plan as outlined in Zellman & Fiene (2012):

The **first step** in utilizing the DMLMA for a state 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. If the state does not utilize a tool or checklist or does not review all violation data than it needs to consider these changes because the DMLMA is based upon an Instrument Based Program Monitoring System (IPM) which utilizes tools/checklists to collect data on all rules.

The **second step** for the state is to compare their state's rules with the National *Health and Safety Performance Standards (Caring for Our Children)* to determine the overlap and coverage between the two. This is the first approach to validation which involves Standards review (Zellman & Fiene, 2012).

The **third step** for the state if it utilizes a Risk Assessment (RA) tool is to assess the relationship between this tool and *Stepping Stones* to determine the overlap and coverage between the two. This is a continuation of the first approach to validation which involves Standards review (Zellman & Fiene, 2012).

The **fourth step** for the state is to compare the results from the CI with the RA tools. This step is the second approach to validation which involves Measures (Zellman & Fiene, 2012). The correlation between CI and RA should be at the .50 level or higher (.50+)(see Table 1).

In the **fifth step**, if a state 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, such as the ERS's, CLASS, CDPES, etc... This is a very important step because very few empirical demonstrations appear in the research literature regarding this relationship. This step is the third approach to validation which involves Outputs (Zellman & Fiene, 2012). It would be expected that lower correlations (.30+) would be found between CI and PQ because these tools are measuring different aspects of quality such as health & safety versus caregiver-child interactions or overall classroom quality.

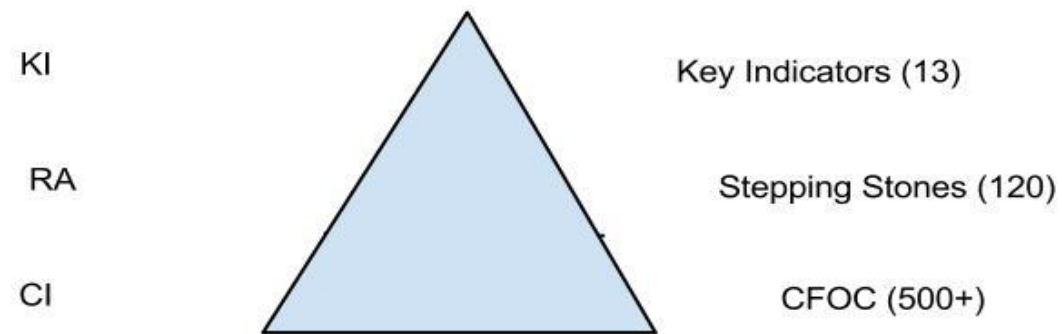
The **sixth step** is for the state to generate a Key Indicator (KI) tool from the CI data base. Please see Fiene & Nixon (1985) and Fiene & Kroh (2000) for a detailed explanation of the methodology for generating a KI tool. This step is also part of the second approach to validation which involves Measures. The correlation between the CI and KI should be very high (.70+) because the KI is a subset of predictor rules taken from the CI data base. If a state 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 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 and continues the second approach to validation (Measures). Also, this step should drive decisions within the technical assistance/training/professional development (PD) system in what resources are allocated to a particular facility. It would be expected that moderate correlations (.50+) would be found amongst RA, KI, DM, and PD.

The **eighth and final step** for the state 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 at this point have this capability on a large scale. However, as Early Learning Networks and Standards are developed, this will become more common place. This step is the forth approach to validation which involves Outcomes (Zellman & Fiene, 2012). The correlations between CI, PQ, RA, KI and CO will be on the lower end (.30+) because there are so many other variables that impact children's development other than child care facilities.

Validation is a continuous approach and is not a once and done process. States should look at their monitoring systems on an on-going basis and make the necessary adjustments as data are collected and compared in order to keep program monitoring as cost effective and efficient.

Relationship of Key Indicators (KI), Stepping Stones (RA), and Caring for Our Children
(CFOC)(CI)



The above diagram depicts the relationship amongst KI, RA, and CI in which the full set of rules is represented by CFOC - Caring for Our Children, followed by RA which are the most critical rules represented by Stepping Stones, and finally the predictive rules represented by the 13 Key Quality Indicators.

Table 1: DMLMA[®] Expected Thresholds

Key Elements	PQ	RA	KI	DM	PD	CO
CI	0.3	0.5	0.7	0.5	0.5	0.3
PQ				0.3	0.3	0.3
RA			0.5	0.5	0.5	0.3
KI				0.5	0.5	0.3
DM					0.5	
PD						0.3

RELATED PUBLICATIONS:

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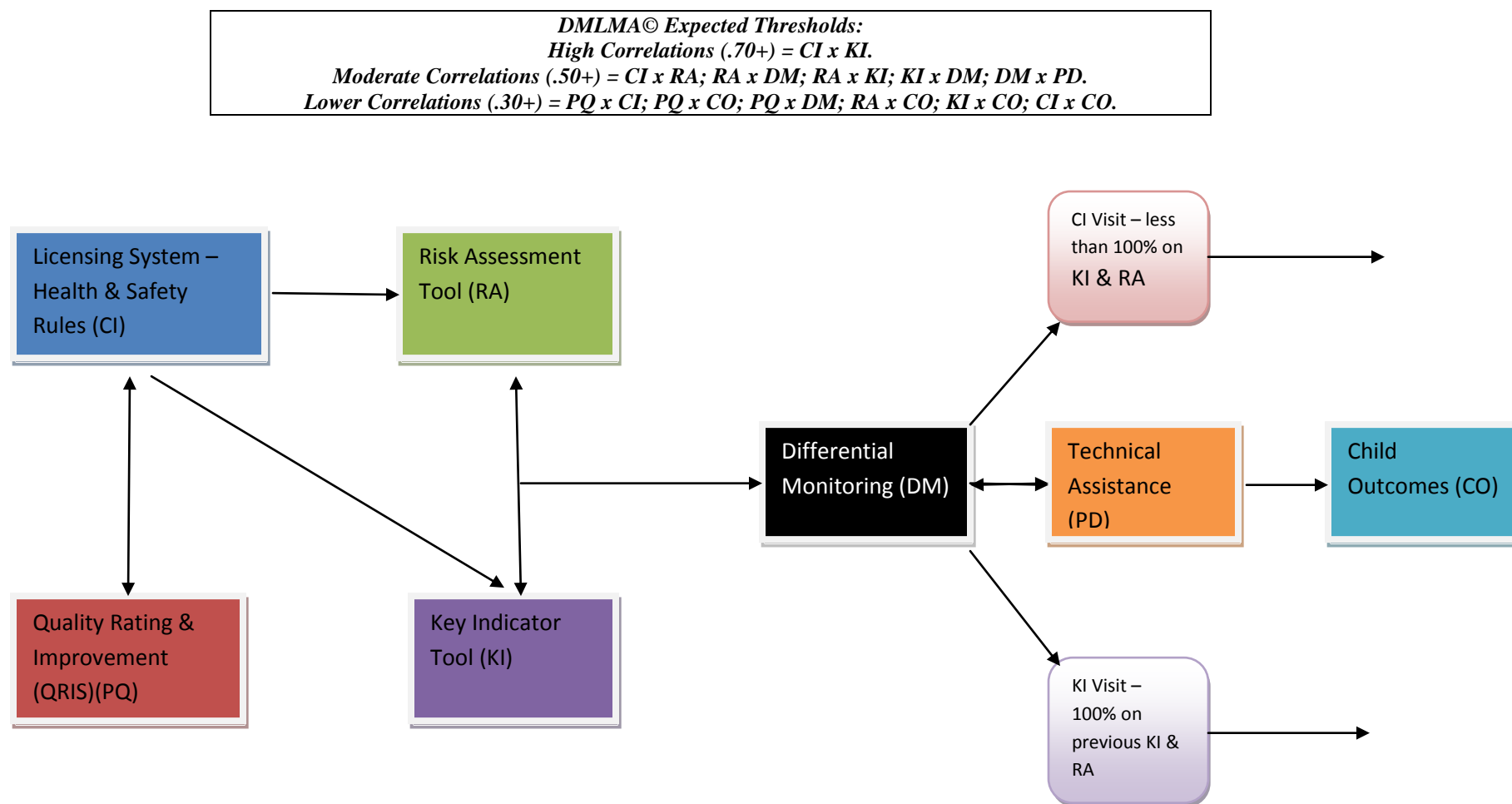
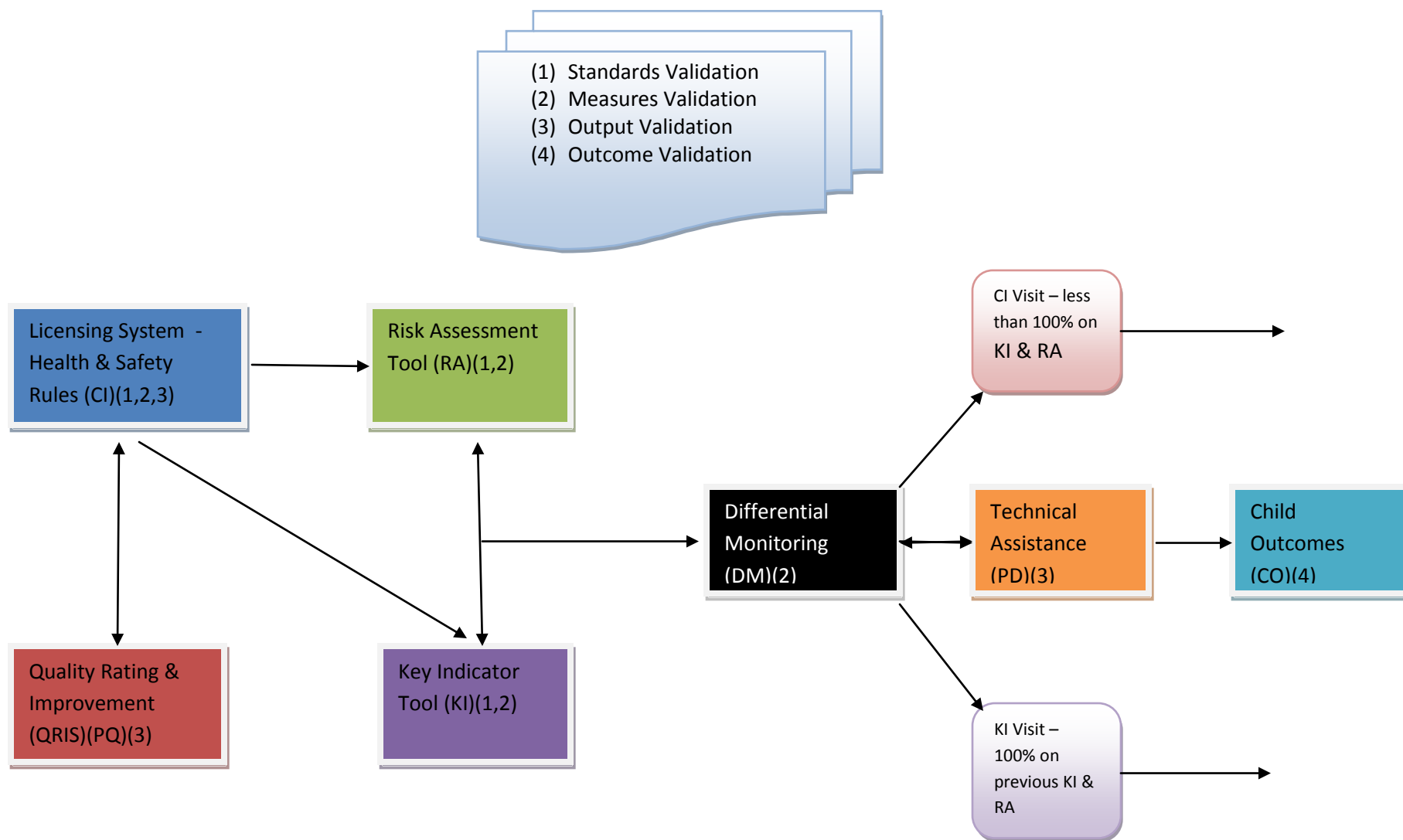
Figure 1: Differential Monitoring Logic Model & Algorithm (DMLMA)[®] Thresholds

Figure 2: Differential Monitoring Logic Model & Algorithm (DMLMA)[®] and Validation Approaches (Zellman & Fiene, 2012)

$$\sum CI \times \sum PQ \Rightarrow \sum RA + \sum KI \Rightarrow \sum DM + \sum PD \Rightarrow CO$$



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ABSTRACT

A new Early Childhood Program Quality Indicator Model (ECCPQIM⁴©) 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.

Background

This paper will introduce a Differential Monitoring Logic Model (DMLM©) which provides a new Early Childhood Program Quality Indicator Model (ECPQIM⁴©) 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 ECPQIM⁴©/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

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 ECPQIM⁴©/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 ECPQIM⁴©/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.

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.

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

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 ECPQIM⁴©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

included the algorithm and validation frameworks.

Just another brief word about the Theoretical Underpinnings for ECPQIM⁴. 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 ECPQIM⁴ 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.

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.

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

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).

Insert Tables 2 & 3 and Figure 12

For future research, it will be interesting to see if this ECPQIM⁴©/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.

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.

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Figure 1

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

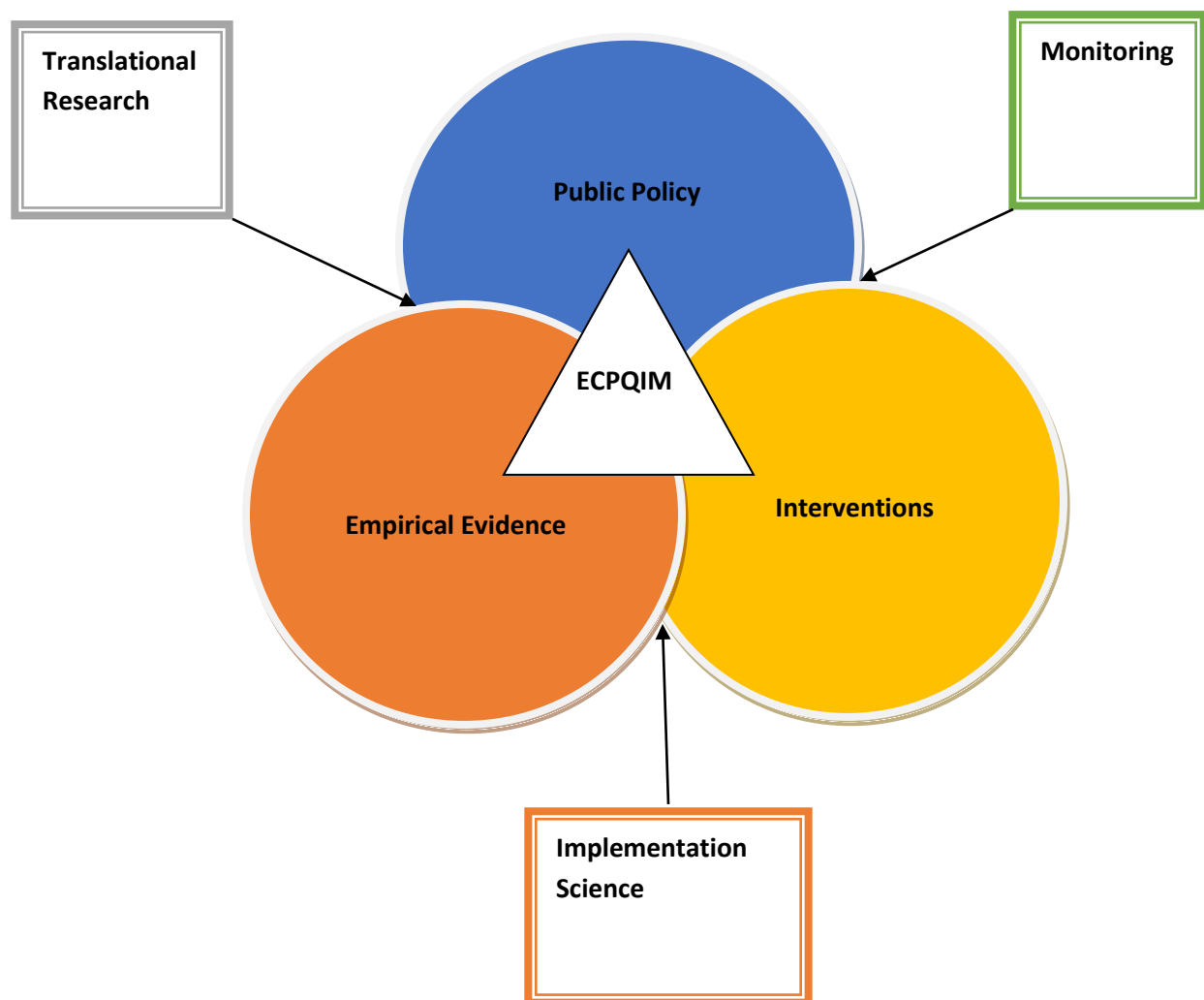


Figure 2

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

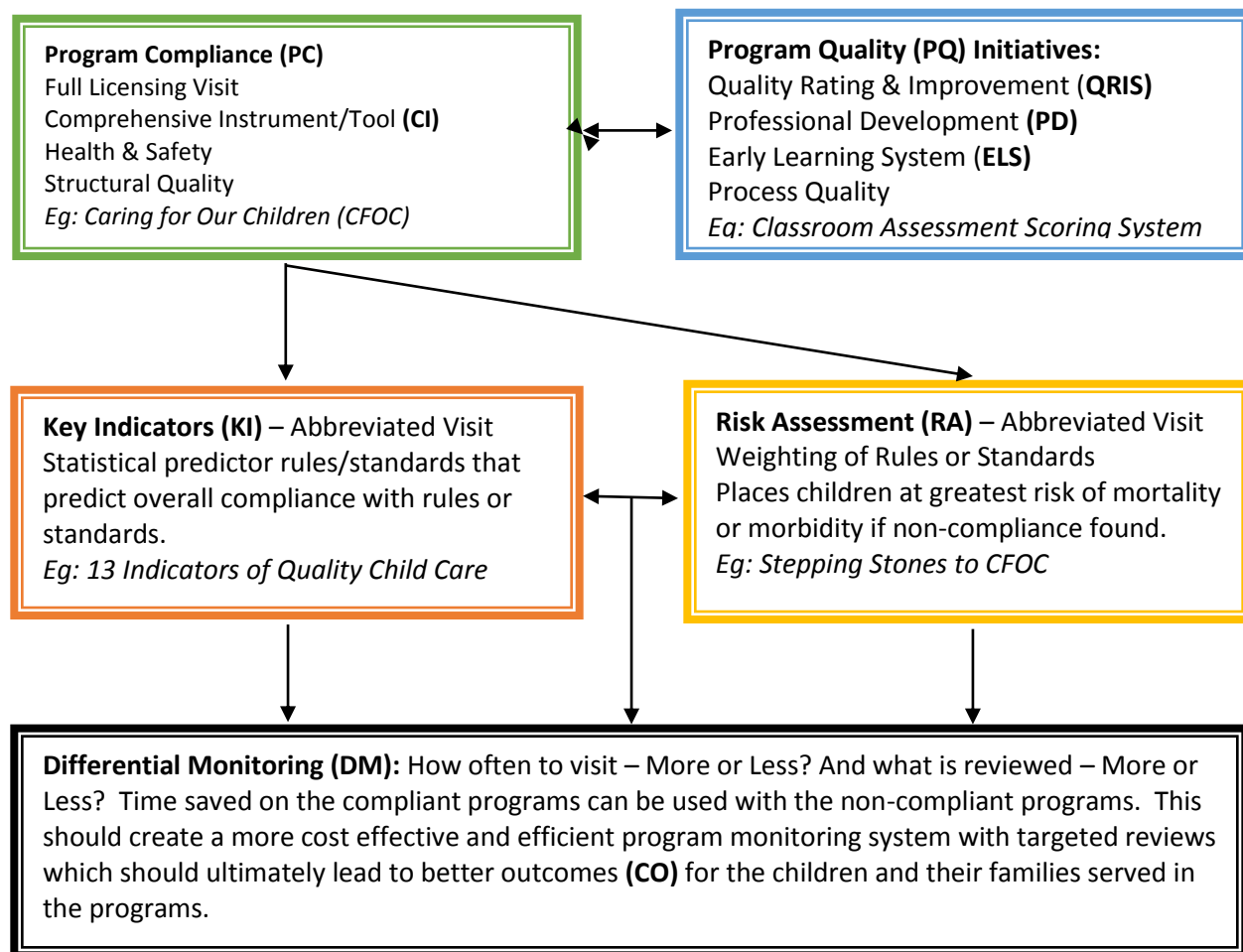


Figure 3

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

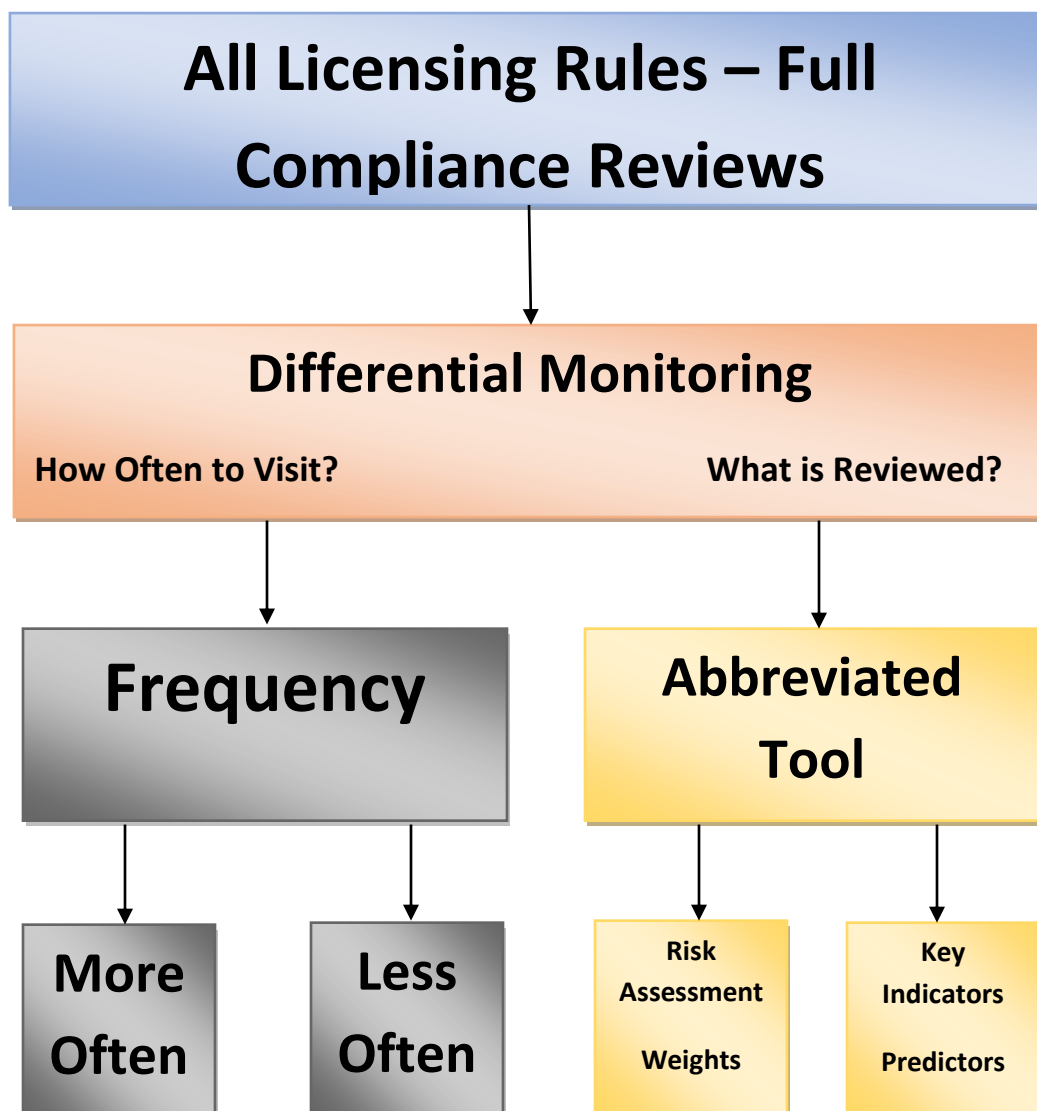
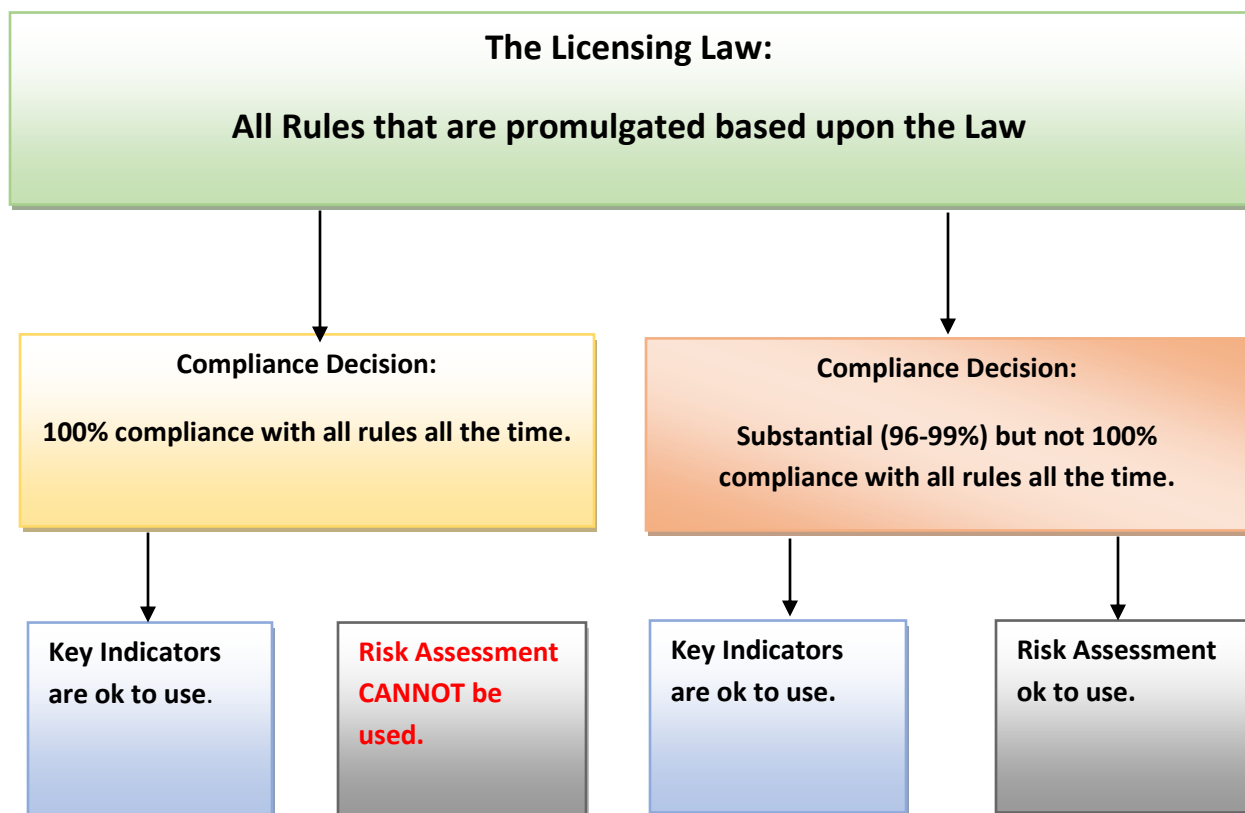


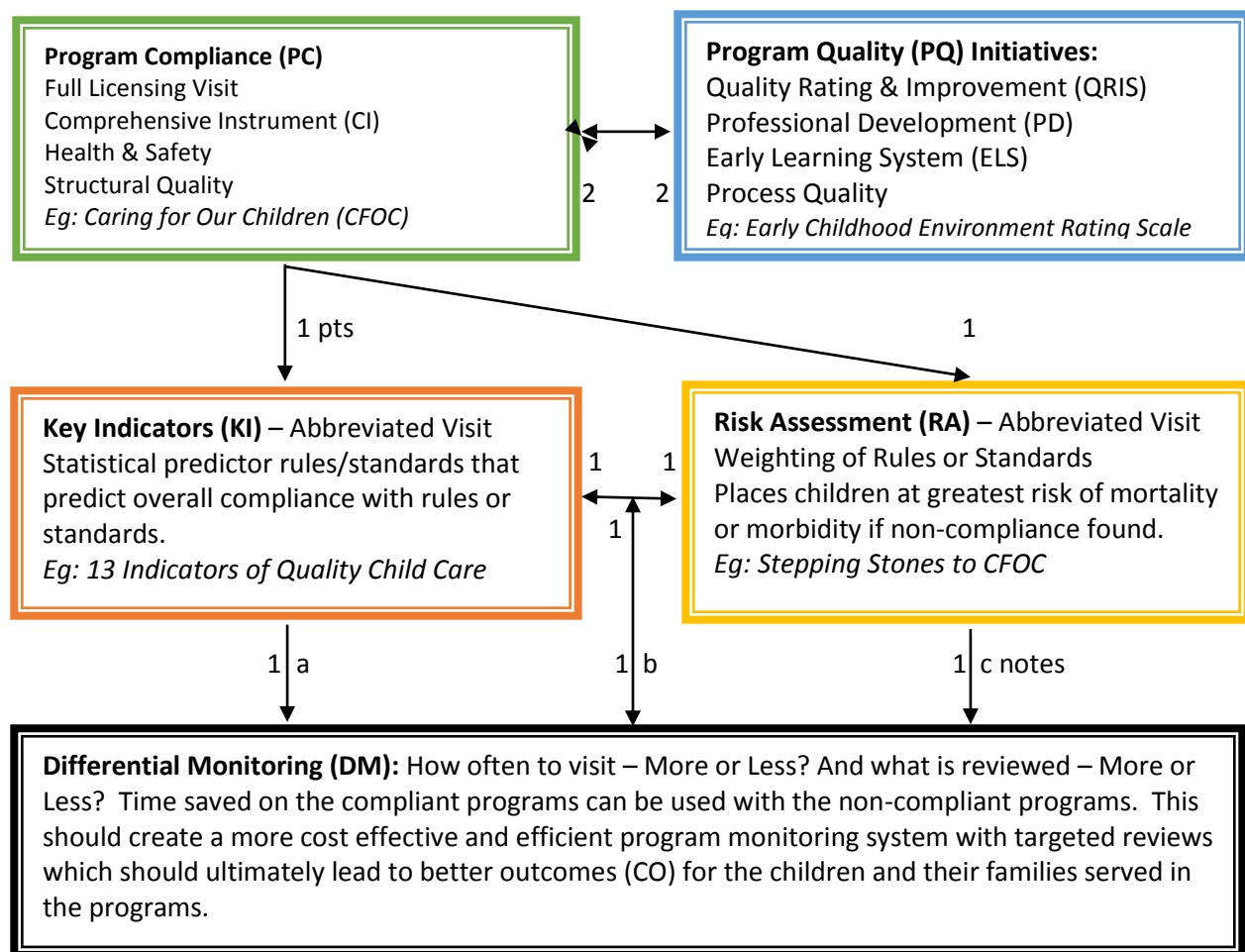
Figure 4

When Key Indicators and Risk Assessments Can Be Used

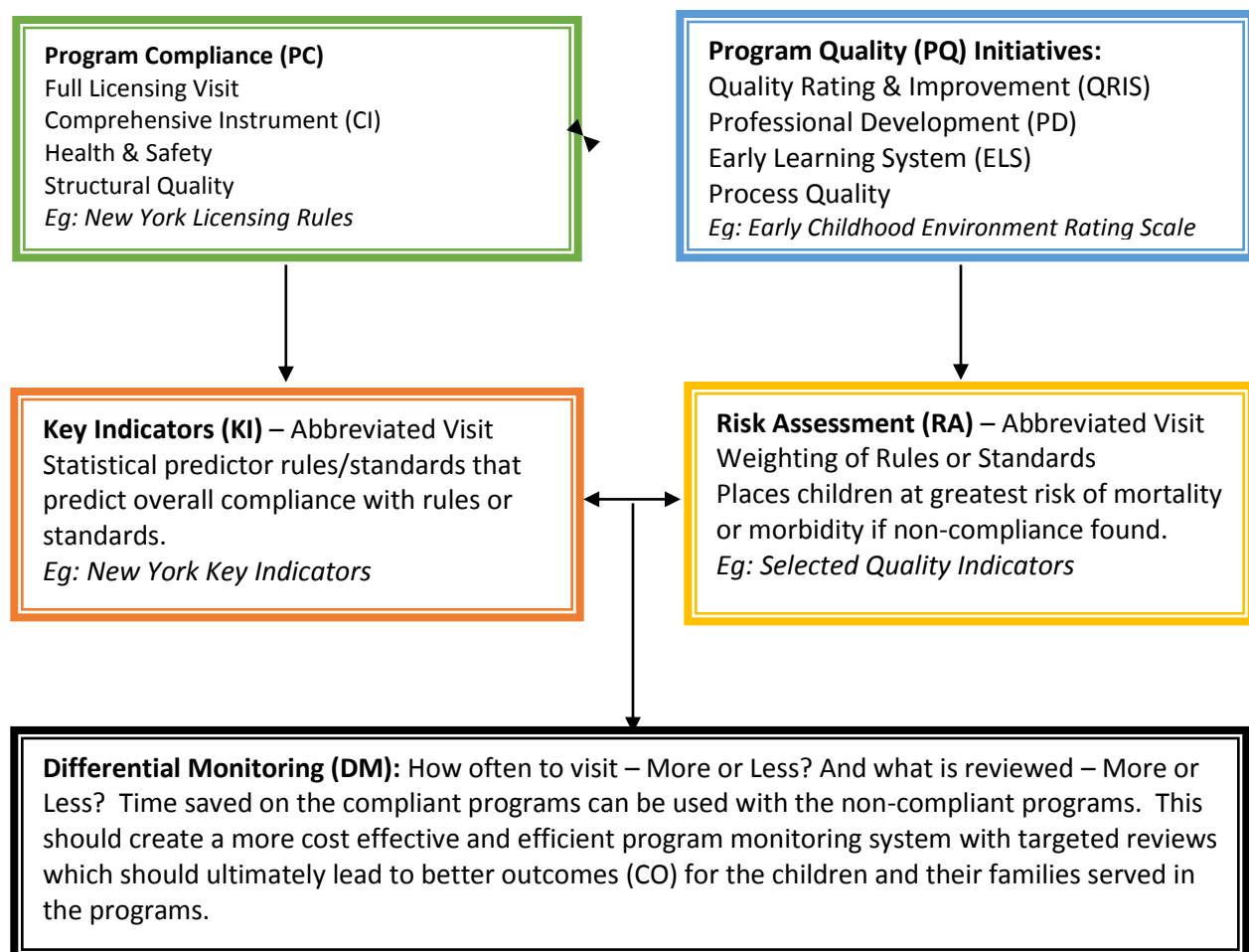


**Early Childhood Program Quality Indicator Model (ECPQIM4©):
Differential Monitoring Logic Model (DMLM©) Comprehensive National
Scoring Protocol Example (Maximum of 10 Points)**

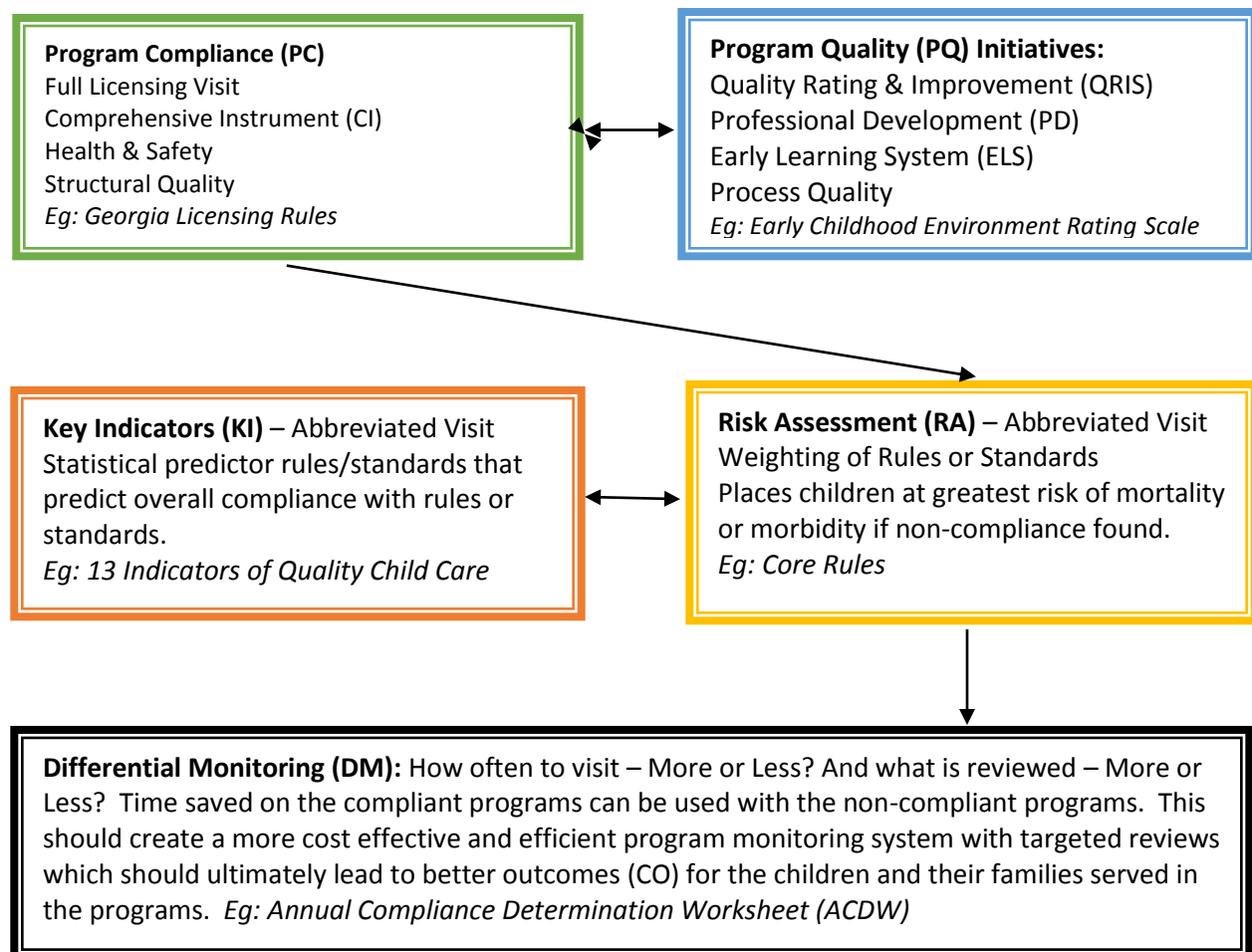
Figure 5



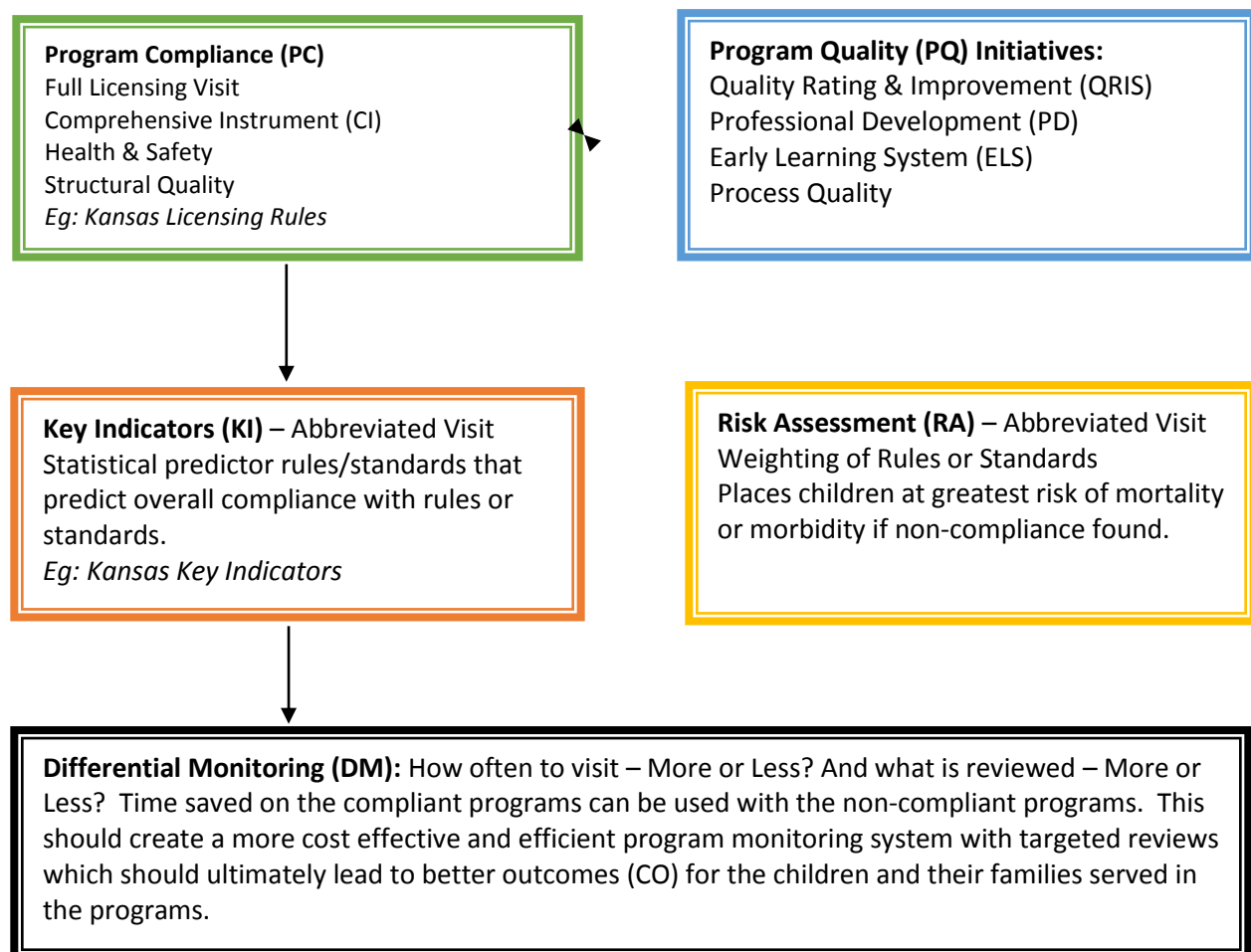
(ECPQIM4©)(DMLM©): New York Example (NY)
Figure 6



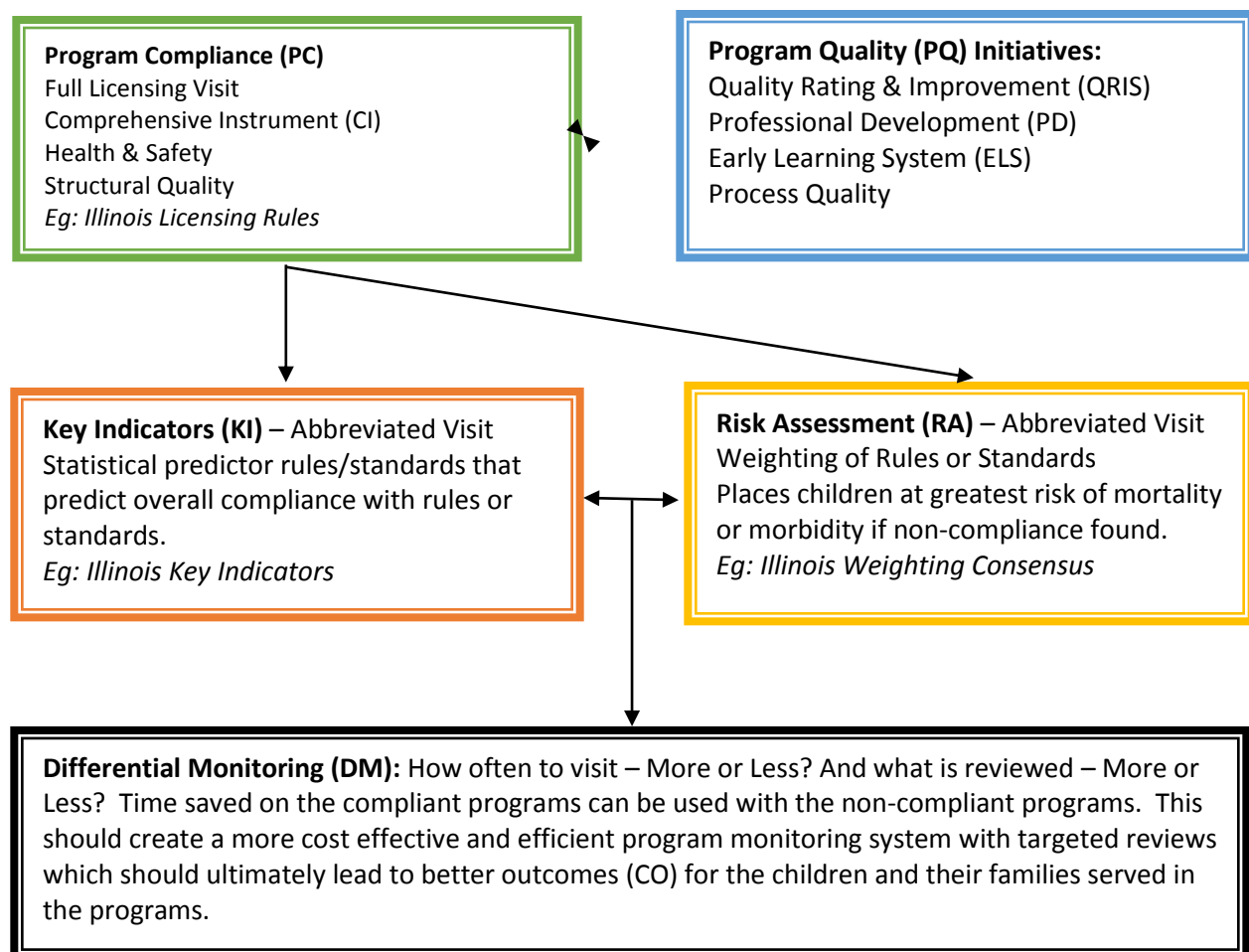
(ECPQIM4©)(DMLM©): Georgia Example (GA)
Figure 7



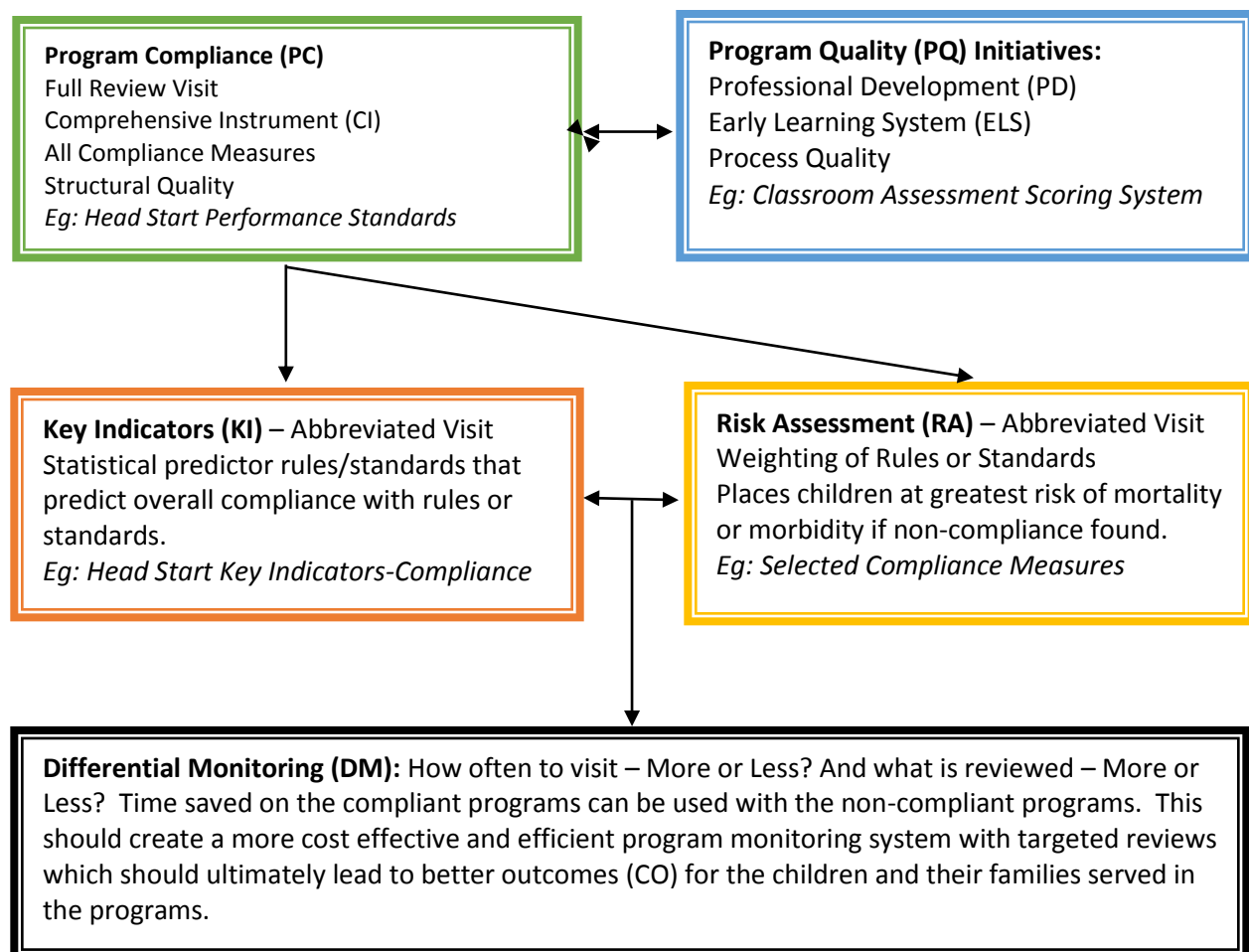
(ECPQIM4©)(DMLM©): Kansas Example (KS)
Figure 8



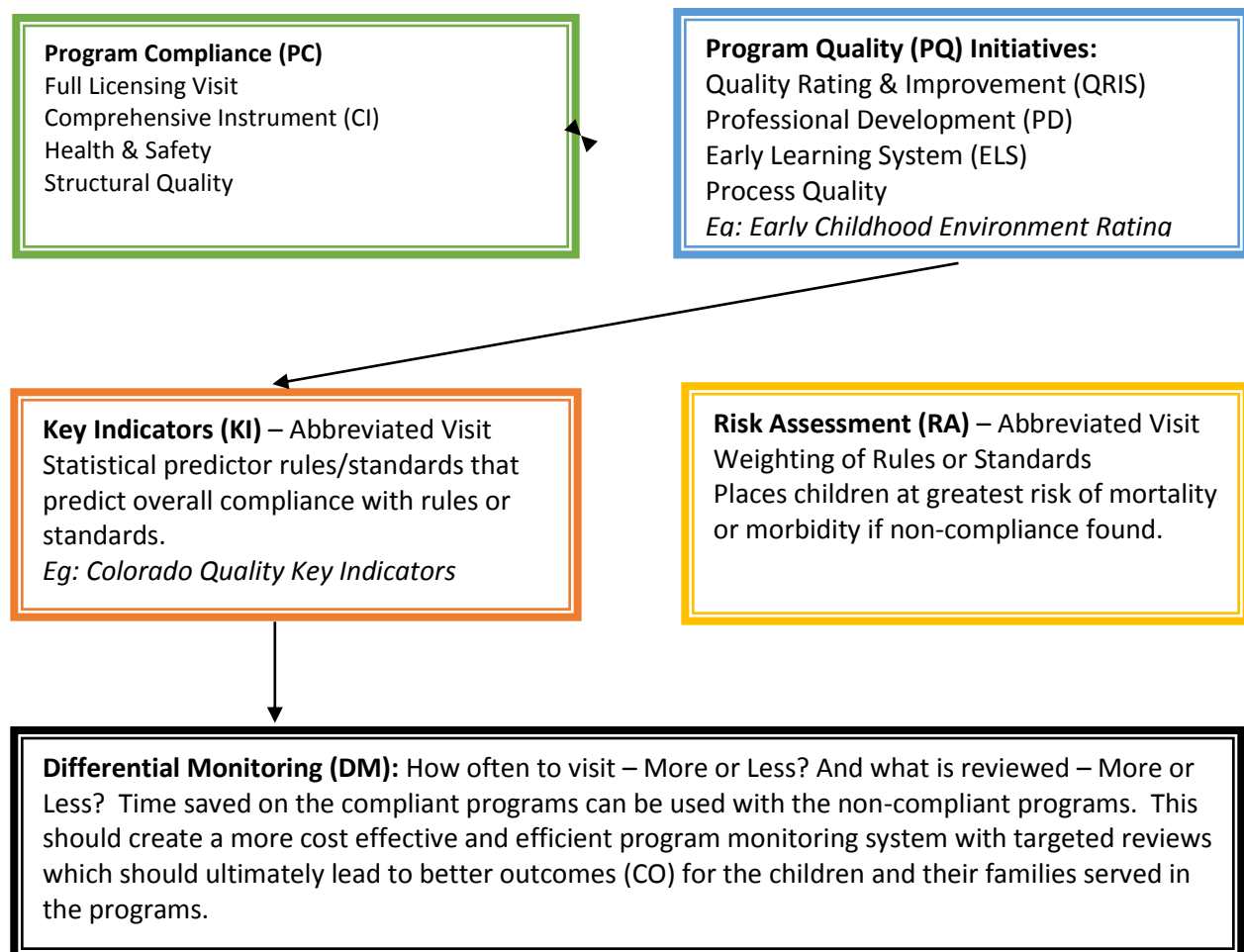
(ECPQIM4©)(DMLM©): Illinois Example (IL)
Figure 9



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

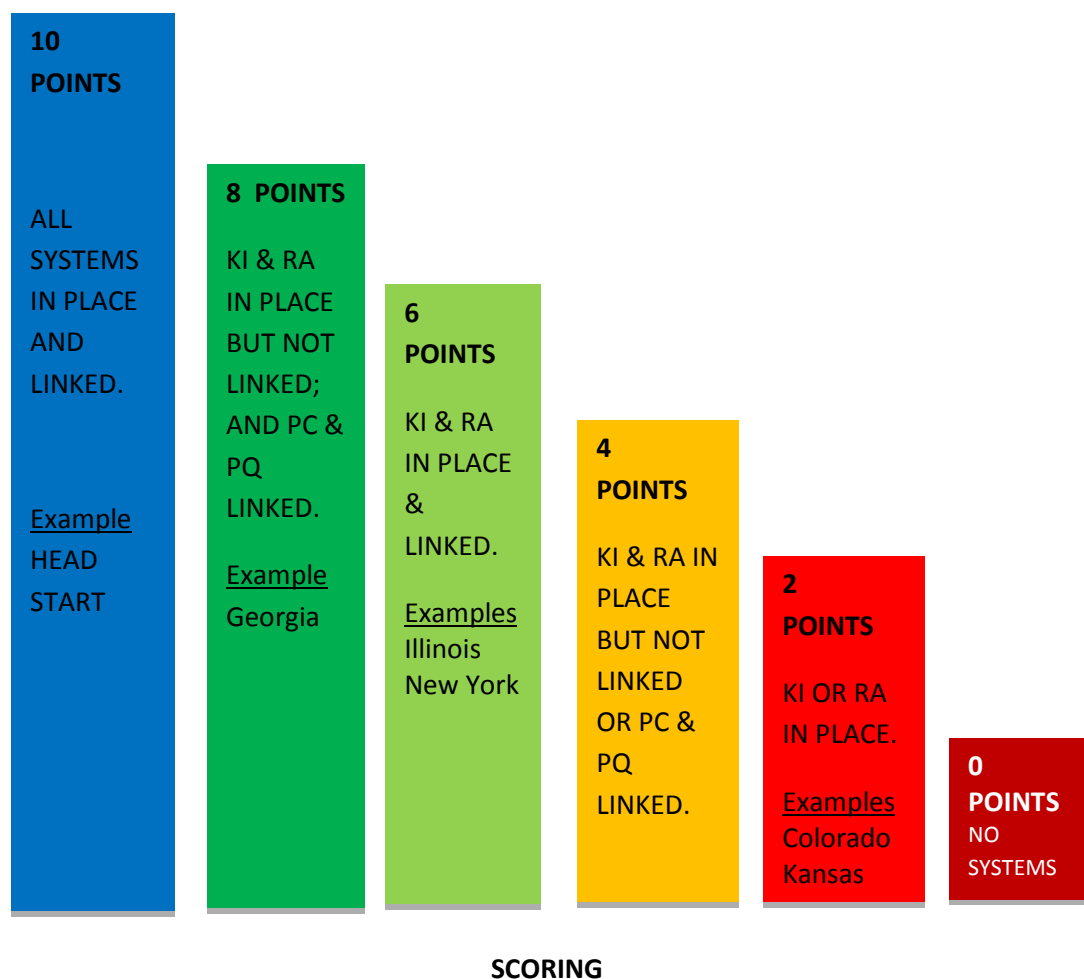


(ECPQIM4©)(DMLM©): Colorado Example (CO)
Figure 11



DMSP© SCORING PROTOCOL WITH STATE AND NATIONAL AGENCIES AS EXAMPLES

Figure 12



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

Table 1: Differential Monitoring Scoring Protocol (DMSP)©

<i>Score</i>	<i>Systems Present</i>
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)

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

<i>Score</i>	<i>Systems Present and Point Assignment</i>
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)

Table 3: DMLM© SCORING PROTOCOL WITH STATE EXAMPLES

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

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

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.

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 HSPS⁴;
- 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 data were not collected in EHS.

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

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

Content Areas	Total Violations/(Rank)				Average # of Violations/(Rank)				CM
	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 (HSKI²) 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

CLASS	Compliance Measures Content Areas							Key Indicators	
	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

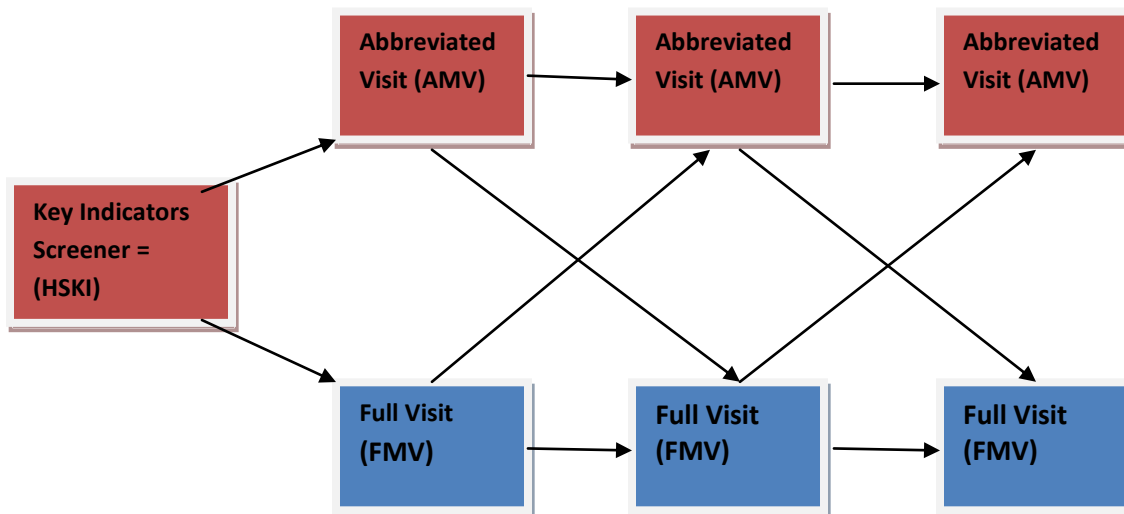
Separate Key Indicators were run for just Head Start only and Head Start/Early Head Start programs but the key indicators were only a subset of the above list, albeit a shorter list in each case. Based upon those phi coefficients, it was determined that using the above list for all Head Start only, Early 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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- Fiene & Nixon (1985). Instrument based program monitoring and the indicator checklist for child care, *Child Care Quarterly*, 14(3), 198-214.
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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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February 2013 (revised March, April 2013)

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

	<i>Providers In Compliance</i>	<i>Programs Out Of Compliance</i>	<i>Row Total</i>
<i>High Group</i>	<i>A</i>	<i>B</i>	<i>Y</i>
<i>Low Group</i>	<i>C</i>	<i>D</i>	<i>Z</i>
<i>Column Total</i>	<i>W</i>	<i>X</i>	<i>Grand Total</i>

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**

$$CI + PQ \Rightarrow RA + KI \Rightarrow DM$$

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))

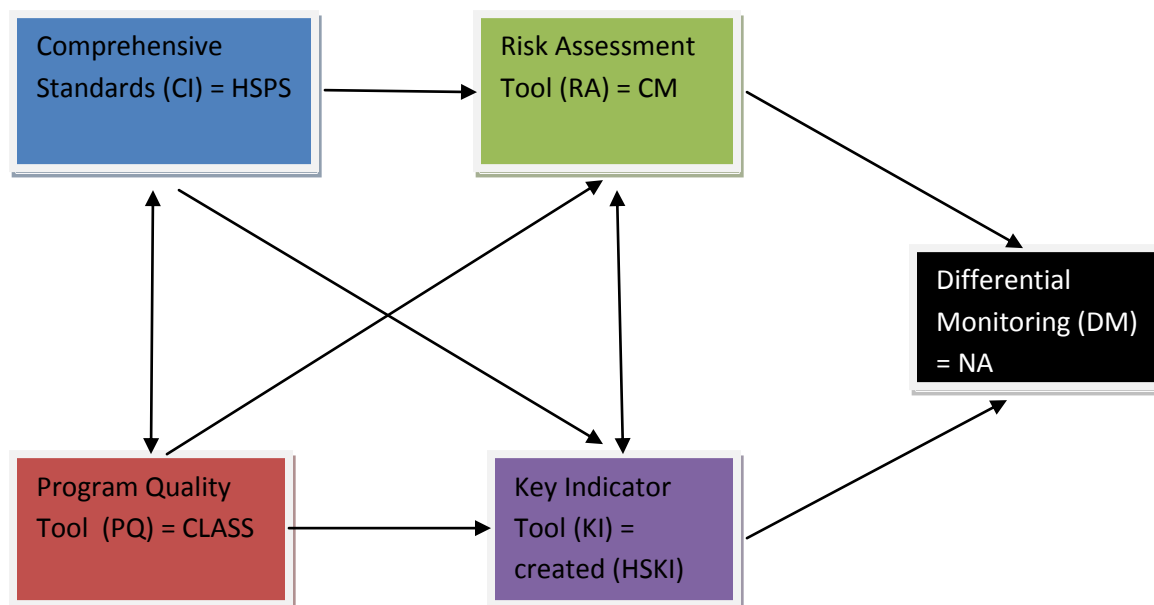
DM = Not Applicable at this time (NA) but see Figure 1 for a proposed model

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.



Appendix 4: Content Areas and Compliance Measures

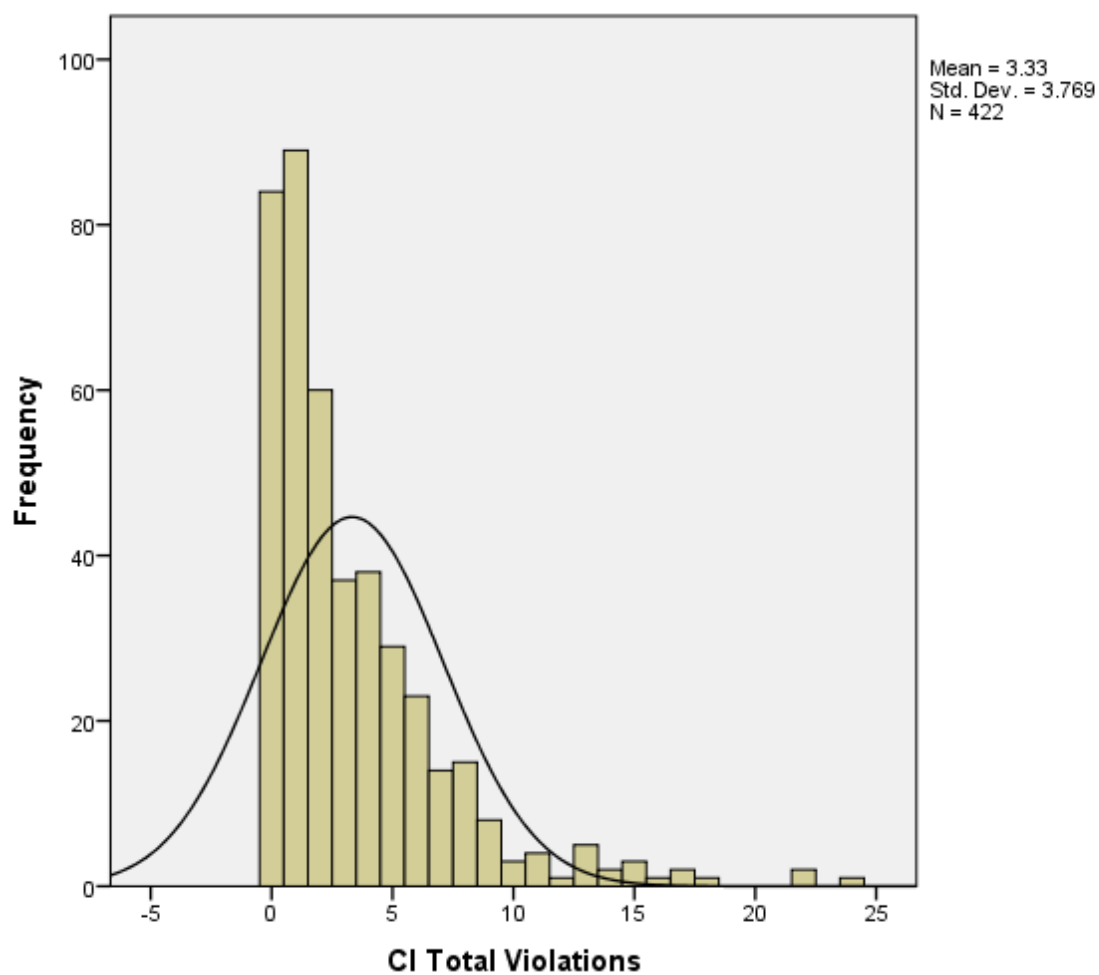
Content Areas and Compliance Measures <i>FY 2012 OHS On-Site Review Protocol (FY 2013 OHS Monitoring Protocol)</i>	Percent (%) Compliance
CDE - CHILD DEVELOPMENT AND EDUCATION	99%
1.1(2.2) The program implements a curriculum that is aligned with the Head Start Child Development and Early Learning Framework...	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%

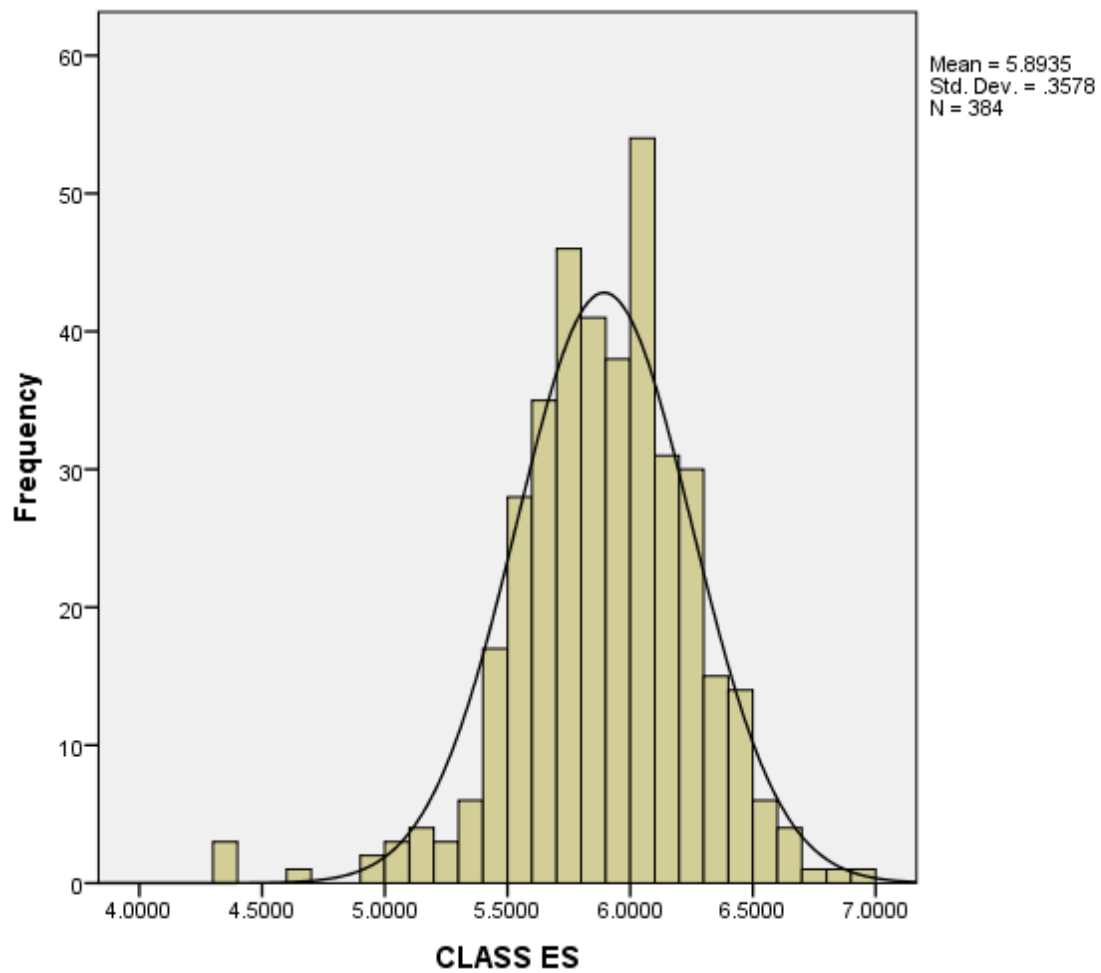
4.4(4.7) The program ensures that facilities are available for proper refrigerated storage and handling of breast milk and formula.	100%
4.5(4.8) Effective oral hygiene is promoted among children in conjunction with meals.	99%
5.1 The program ensures appropriate class and group sizes based on the predominant 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 3 rd 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%

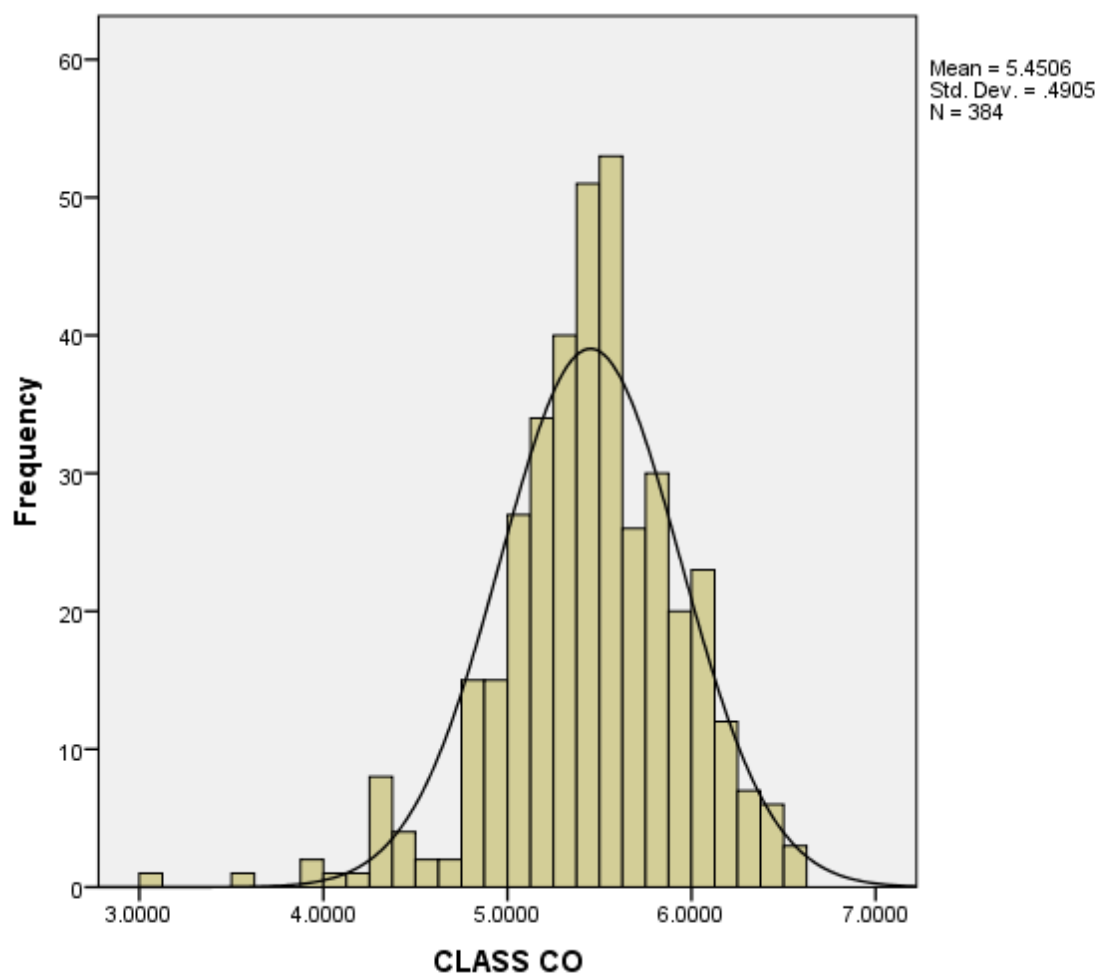
1.1 The program has a governing body....	98%
1.2 The program has established a policy council....	98%
2.1 Policy council and plicy committee members are supported by the program....	99%
2.2 The program has policies and procedures in place to ensure that member of the governing body & PAC are free.....	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%

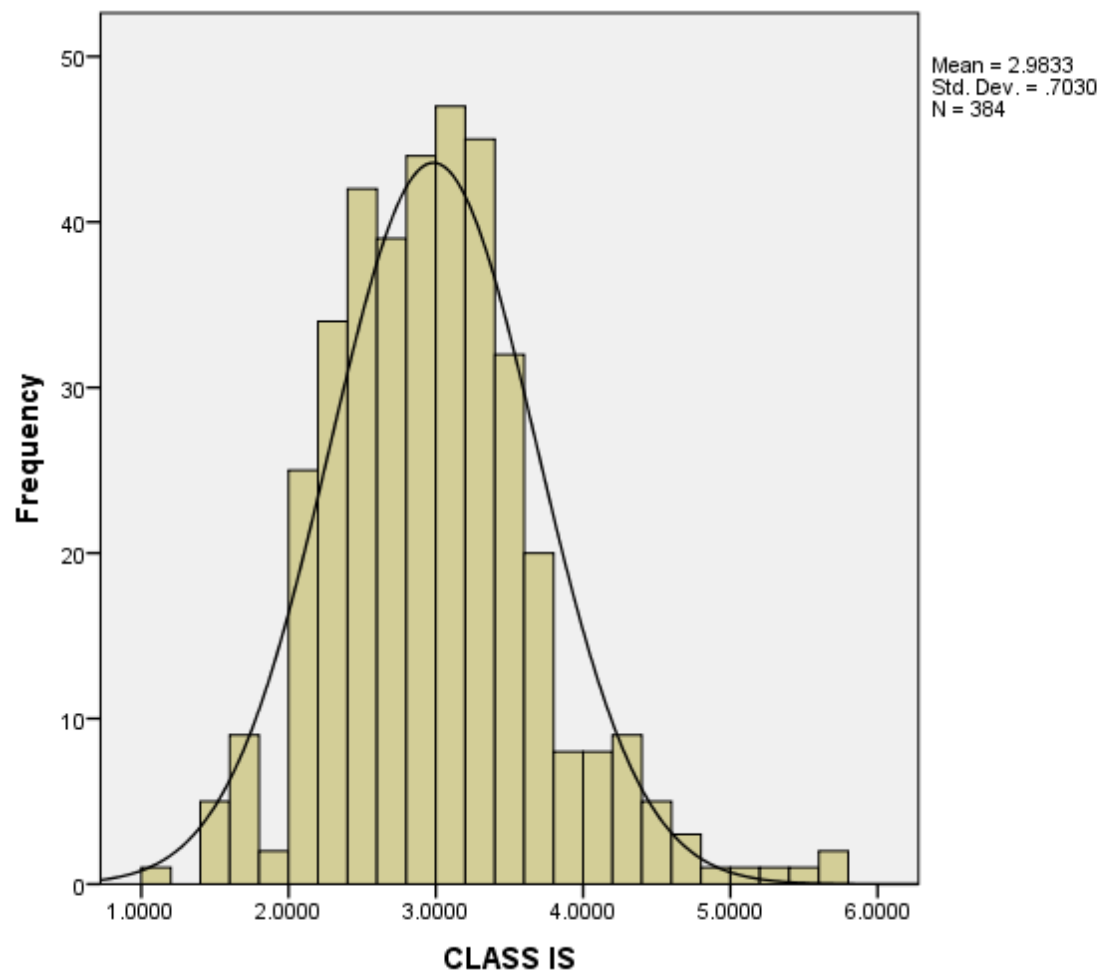
Appendix 5 – Histograms of Total Compliance Measure Violations, CLASS (IS, ES, CO) Scores and Head Start Key Indicator (HSKI) Scores

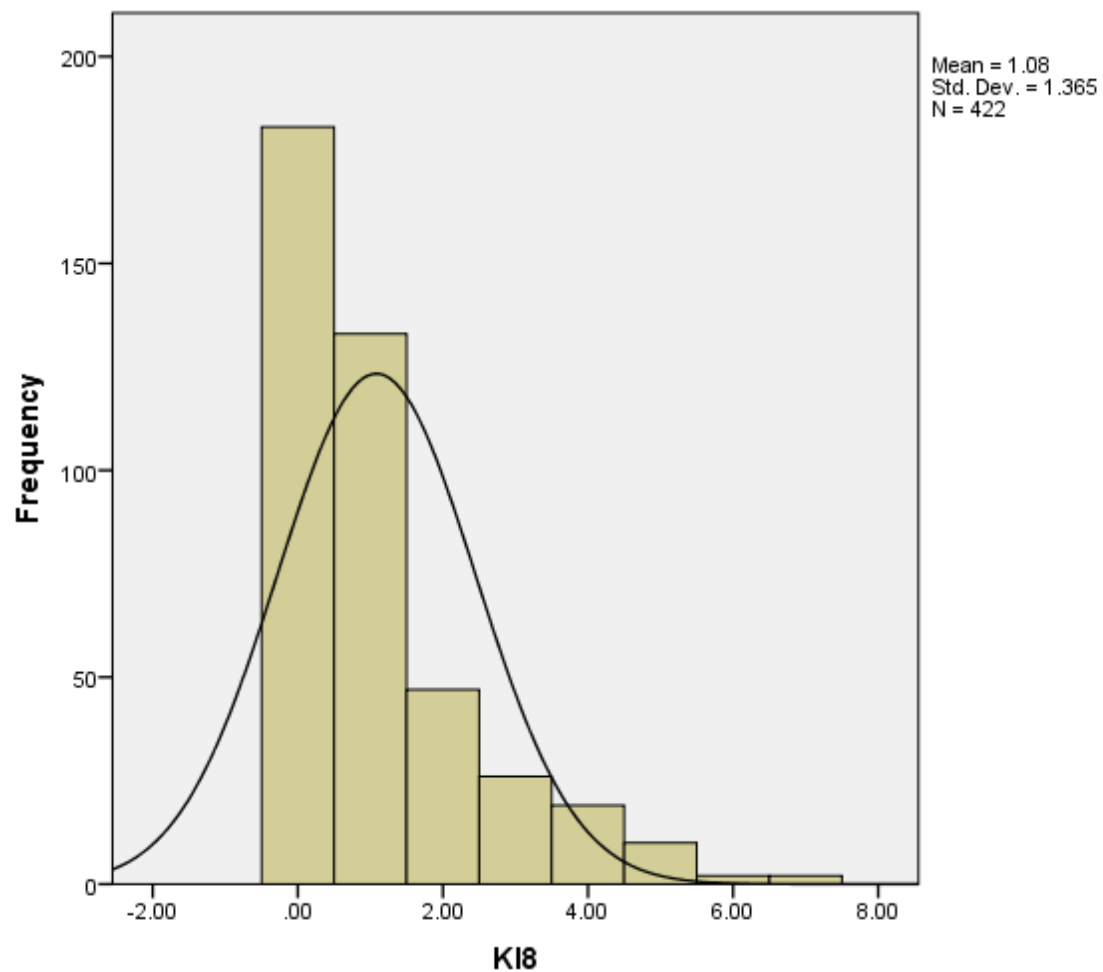
Total Compliance Measure Violations



CLASS ES Scores

CLASS CO Scores

CLASS IS Scores

Head Start Key Indicators (HSKI) Scores

Appendix 6 -

CONTENT AREA (CA) CORRELATIONS

	<u>CHS</u>	<u>ERSEA</u>	<u>FCE</u>	<u>FIS</u>	<u>GOV</u>	<u>SYS</u>
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

	<u>TOT</u>	<u>HSKI</u>
CDE	.51**	.42**
CHS	.70**	.81**
ERSEA	.49**	.33**
FCE	.30**	.22**
FIS	.50**	.14**
GOV	.57**	.37**
SYS	.78**	.72**

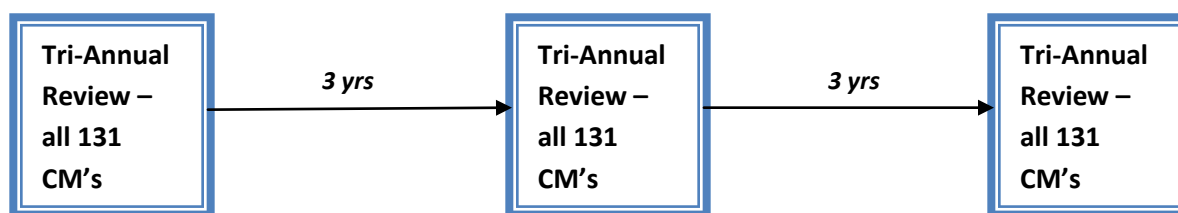
TOT = Total Compliance with all Compliance Measures.

HSKI = Total Compliance with the Head Start Key Indicators.

Appendix 7 – Figure 2 – DMLMA Potential Impact on Tri-Annual Head Start Program Reviews

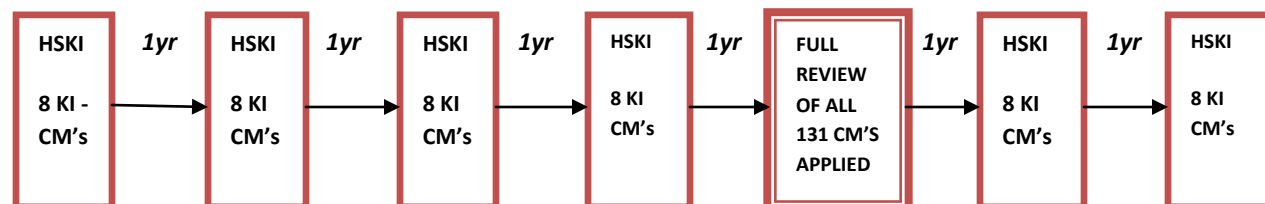
Present Head Start Monitoring System:

All programs receive the same Tri-Annual Reviews regardless of Compliance History:

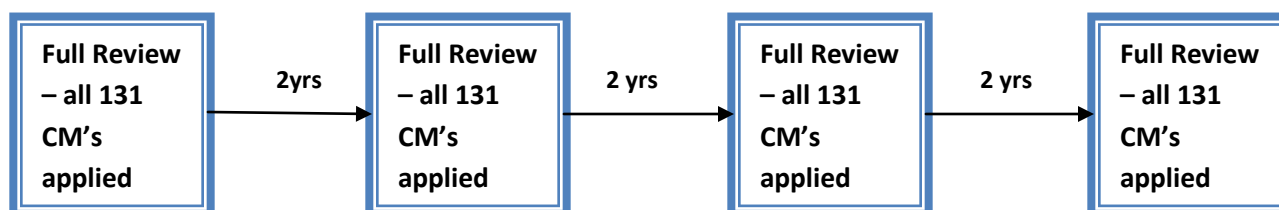


Proposed DMLMA System with Key Indicators (KI):

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.

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 framework (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.

Georgia Child Care Licensing Study: Validating the Core Rule Differential Monitoring System

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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 framework (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 child care licensing system.

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Special thanks are extended to DECAL staff who had the vision to conduct this validation study: Bobby Cagle, Commissioner; Kay Hellwig, Assistant Commissioner for Child Care Services; Kristie Lewis, Director of Child Care Services; and Dr. Bentley Ponder, Director of Research & Evaluation. Also, researchers at the University of North Carolina, Chapel Hill, Frank Porter Graham Child Development Institute, Dr. Donna Bryant and Dr. Kelly Maxwell who made this study so much more significant by sharing program quality data from earlier studies they completed in Georgia.

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 Rules¹. 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 Tables 9-12 and Figure 2 on 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://dec.al.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

<i>DMLMA</i> © 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 (<http://dec.al.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-R and 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

Validation Approach/Research Question	<u>Correlations</u>	
	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

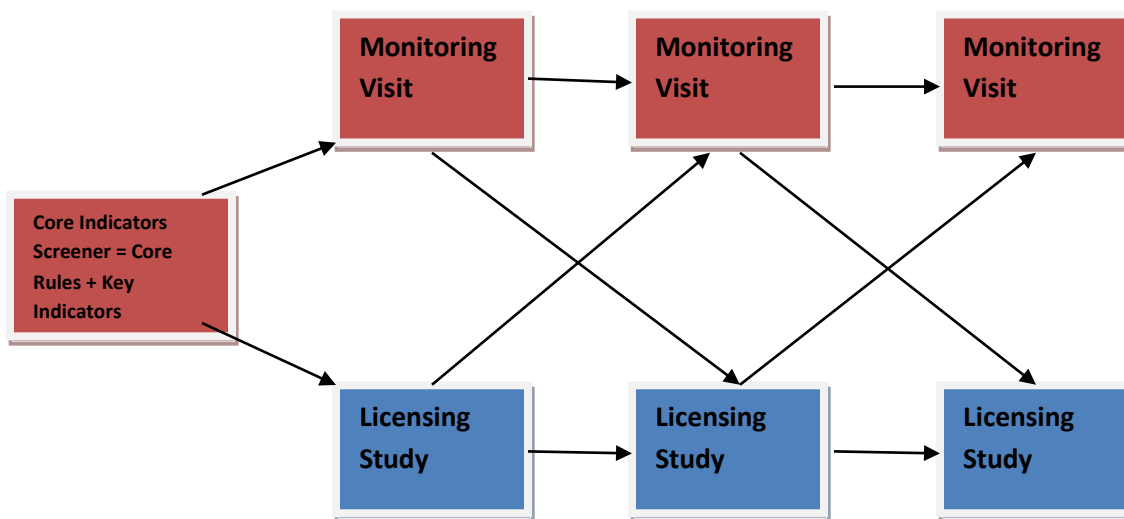
A confounding of data occurred with the first two validation approaches because the Core Rules were influenced a great deal by the National Child Care Key Indicators (NCCKI) (Fiene, 2002) where 10 of the 13 Core Rules overlapped significantly with the NCCKI. This helped to increase the correlation between 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 recommendations³ 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
<i>1. Examine the validity of key underlying concepts</i>	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.
<i>2. Examine the measurement strategy and the psychometric properties of the measures used to assess quality</i>	<p>Examine whether the process used to document and verify each indicator is yielding accurate results.</p> <p>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.</p> <p>Examine the relationships among the component measures to assess whether they are functioning as expected.</p> <p>Examine cut scores and combining rules to determine the most appropriate ways to combine measures of quality standards into summary ratings.</p>	<p>What is the reliability and accuracy of indicators assessed through program administrator self-report or by document review?</p> <p>What is the reliability and accuracy of indicators assessed through observation?</p> <p>Do quality measures perform as expected? (e.g., do subscales emerge as intended by the authors of the measures?)</p> <p>Do measures of similar standards relate more closely to each other than to other measures?</p> <p>Do measures relate to each other in ways consistent with theory?</p> <p>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?</p>	<p>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.</p>

TABLE 8 (CONTINUED)

Approach	Activities and Purpose	Typical Questions Approach Addresses	Issues and Limitations
<i>3. Assess the outputs of the rating process</i>	<p>Examine variation and patterns of program-level ratings within and across program types to ensure that the ratings are functioning as intended.</p> <p>Examine relationship of program-level ratings to other quality indicators to determine if ratings are assessing quality in expected ways.</p> <p>Examine alternate cut points and rules to determine how well the ratings distinguish different levels of quality.</p>	<p>Do programs with different program-level ratings differ in meaningful ways on alternative quality measures?</p> <p>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?</p>	<p>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.</p>
<i>4. Examine how ratings are associated with children's outcomes.</i>	<p>Examine the relationship between program-level ratings and selected child outcomes to determine whether higher program ratings are associated with better child outcomes.</p>	<p>Do children who attend higher-rated programs have greater gains in skills than children who attend lower-quality programs?</p>	<p>Appropriate demographic and program level control variables must be included in analyses to account for selection factors.</p> <p>Studies could be done on child and program samples to save resources.</p> <p>Findings do not permit attribution of causality about QRIS participation but inferences can be made about how quality influences children's outcomes.</p>

FIGURE 1- DIFFERENTIAL MONITORING LOGIC MODEL AND ALGORITHM (Fiene, 2012)
DMLMA© Applied to the Georgia Child Care Licensing System

$$CI + PQ \Rightarrow RA + KI \Rightarrow DM$$

Georgia Examples:

CI = Comprehensive Tool = Licensing Study (LS – All Rules)

PQ = Program Quality Tool = Environmental Rating Scales (ERS = ECERS-R, ITTERS-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.

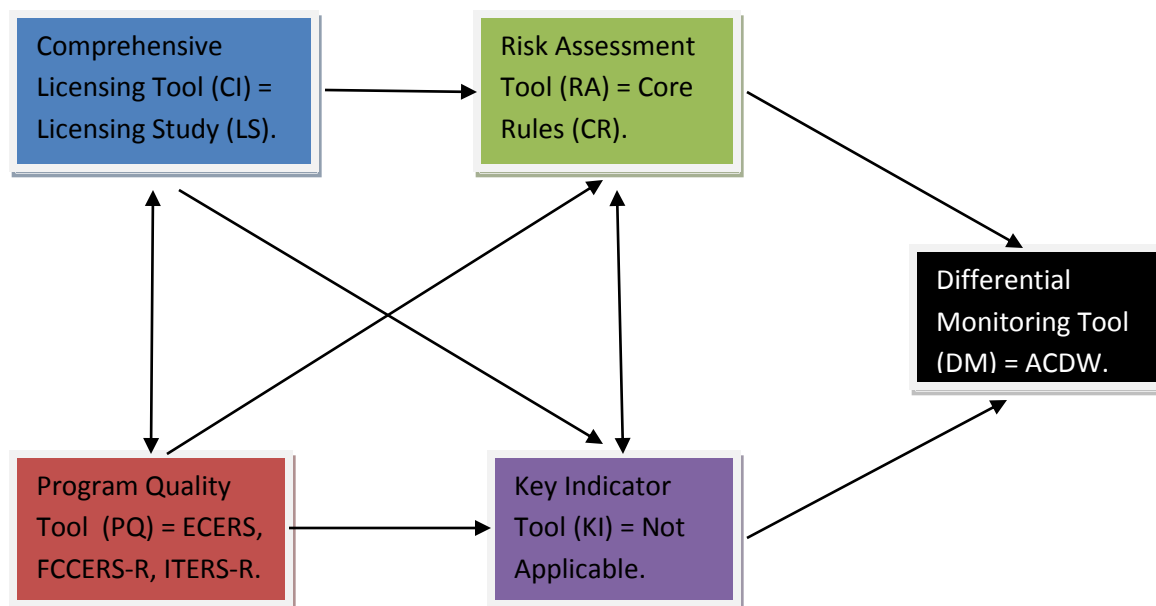


Table 9 - Listing of Key Indicators for Georgia Child Care Centers with Phi Coefficients

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*

	<i>Providers In Compliance on Rule</i>	<i>Programs Out Of Compliance on Rule</i>	<i>Row Total</i>
High Group**	A	B	Y
Low Group***	C	D	Z
Column Total	W	X	Grand Total

(* This computation occurred for each licensing rule)

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.*

Figure 2 - Key Indicator Statistical Methodology (Calculating the Phi Coefficient)

$$\phi = (A)(D) - (B)(C) \div \sqrt{(W)(X)(Y)(Z)}$$

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 its 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 Methodologies/Models.

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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,

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	<i>Providers In Compliance or Top 25%</i>	<i>Programs Out Of Compliance or Bottom 25%</i>	<i>Row Total</i>
<i>Highest level (top 20-25%)</i>	<i>A</i>	<i>B</i>	<i>Y</i>
<i>Lowest level (bottom 20-25%)</i>	<i>C</i>	<i>D</i>	<i>Z</i>
<i>Column Total</i>	<i>W</i>	<i>X</i>	<i>Grand Total</i>

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*

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 level¹.

<i>Figure 2: Criterion 5 Family Partnerships</i>	<i>Providers In Compliance or Top 10%¹</i>	<i>Programs Out Of Compliance or Bottom 10%</i>	<i>Row Total</i>
<i>Highest Star level</i>	<i>11</i>	<i>0</i>	<i>11</i>
<i>Lowest Star level</i>	<i>0</i>	<i>10</i>	<i>10</i>
<i>Column Total</i>	<i>11</i>	<i>10</i>	<i>21</i>

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

upon the chart in Figure 5, it is best to have a Phi Coefficient approaching +1.00 since the data are more normally distributed² 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 compliance³. 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.

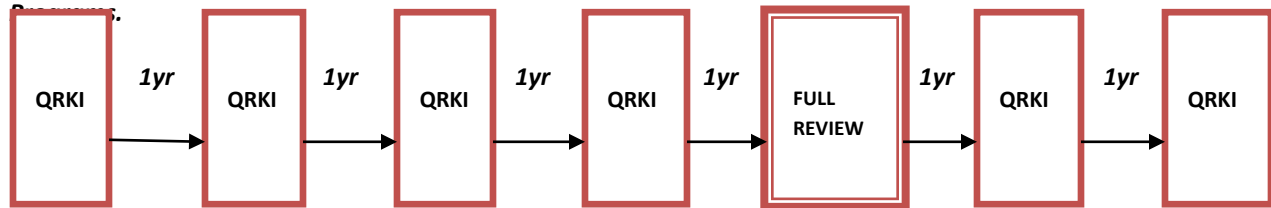
Figure 5 – Thresholds for the Phi Coefficient (Fiene & Nixon, 1983, 1985)(Fiene, 2014)

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.

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



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 quality⁴. 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 designation⁵ 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.*

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%).

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 skewed⁶ 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, et al, 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.*

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, et al, 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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REFERENCES AND ADDITIONAL RELATED READINGS REGARDING DIFFERENTIAL MONITORING, RISK ASSESSMENT, AND KEY INDICATOR METHODOLOGIES:

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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

$$CI \times PQ \Rightarrow RA + KI \Rightarrow DM + PD \Rightarrow CO$$

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*)

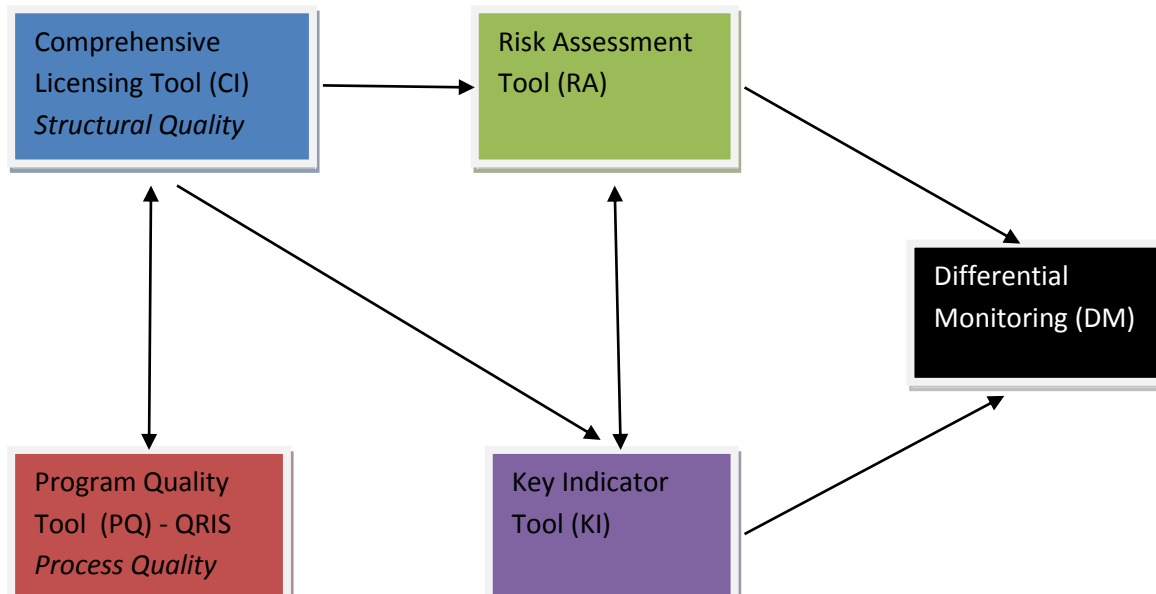
RA = Risk Assessment, (High Risk Rules) (*Stepping Stones*)

KI = Key Indicators (Predictor Rules) (*13 Key Indicators of Quality Child Care*)

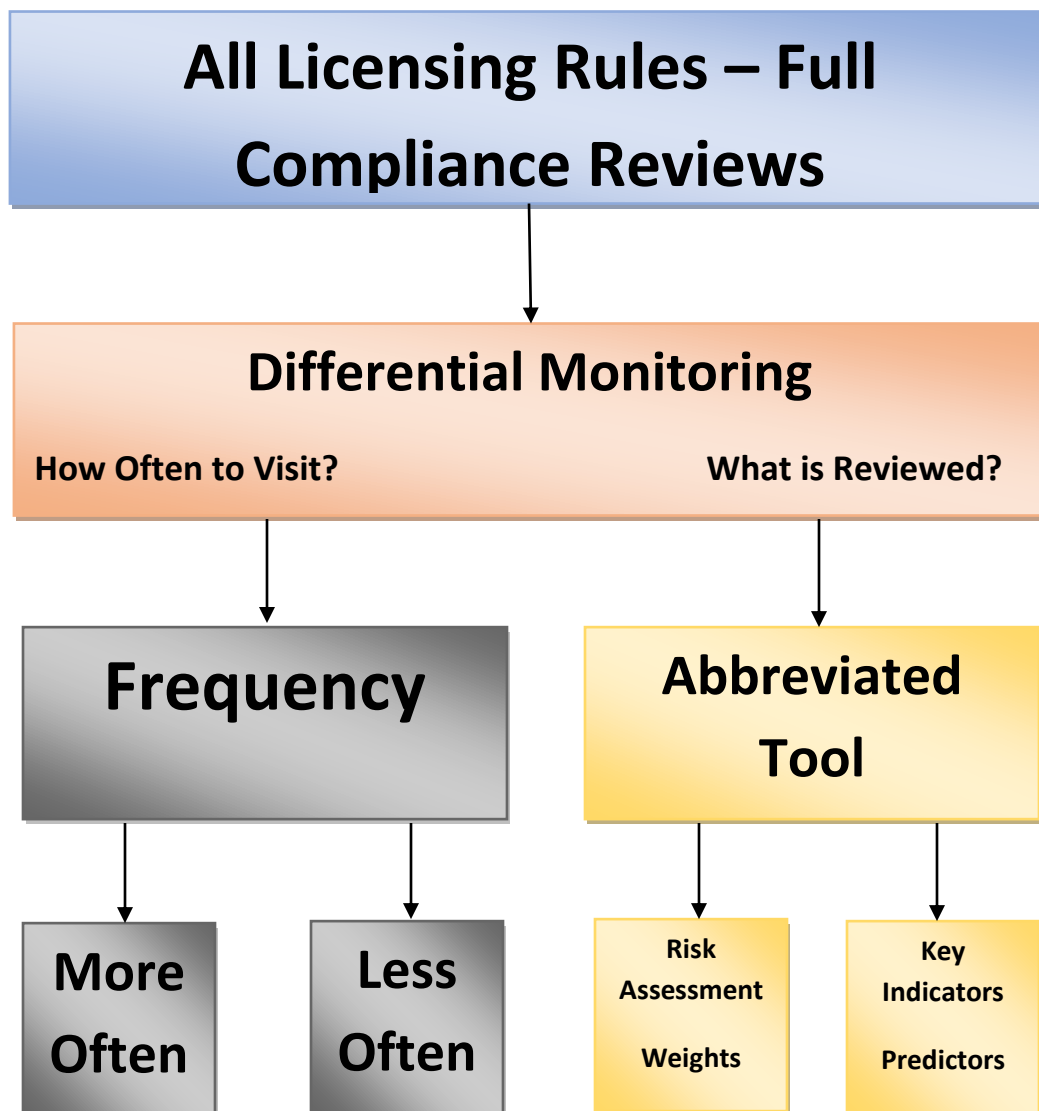
DM = Differential Monitoring (How often to visit and what to review)

PD = Professional Development/Technical Assistance/Training (Not pictured but part of Model)

CO = Child Outcomes (Not pictured but part of Model)

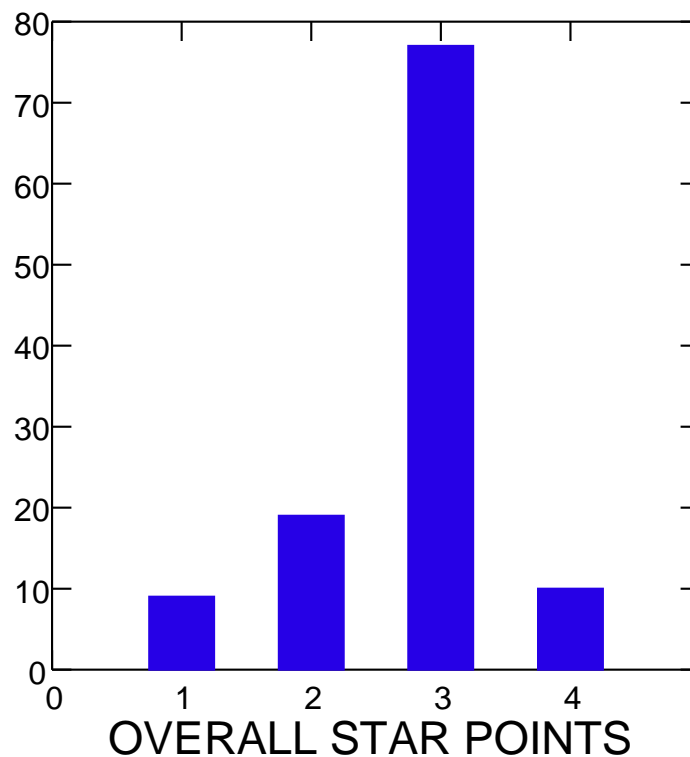


Appendix – Figure 9 - Licensing Rules, Compliance Reviews, Differential Monitoring, Abbreviated Tools, Risk Assessment, and Key Indicators



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.

Figure 11

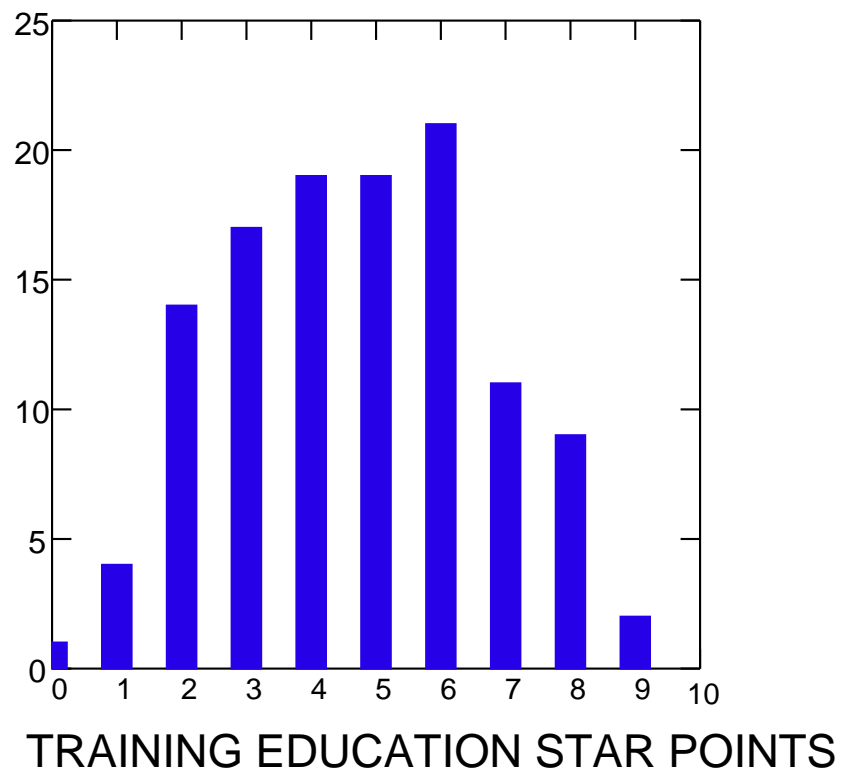


Figure 12

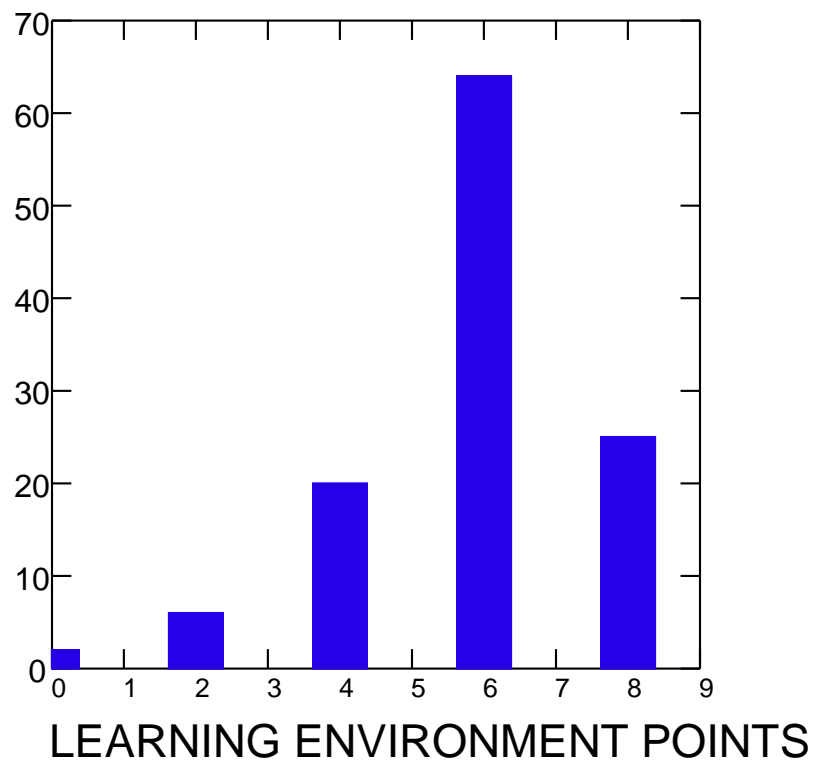


Figure 13

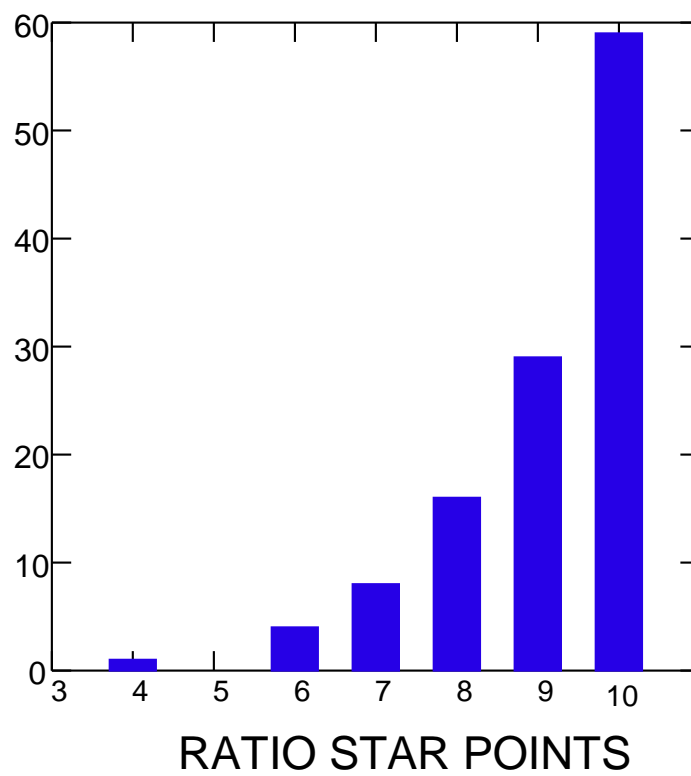


Figure 14

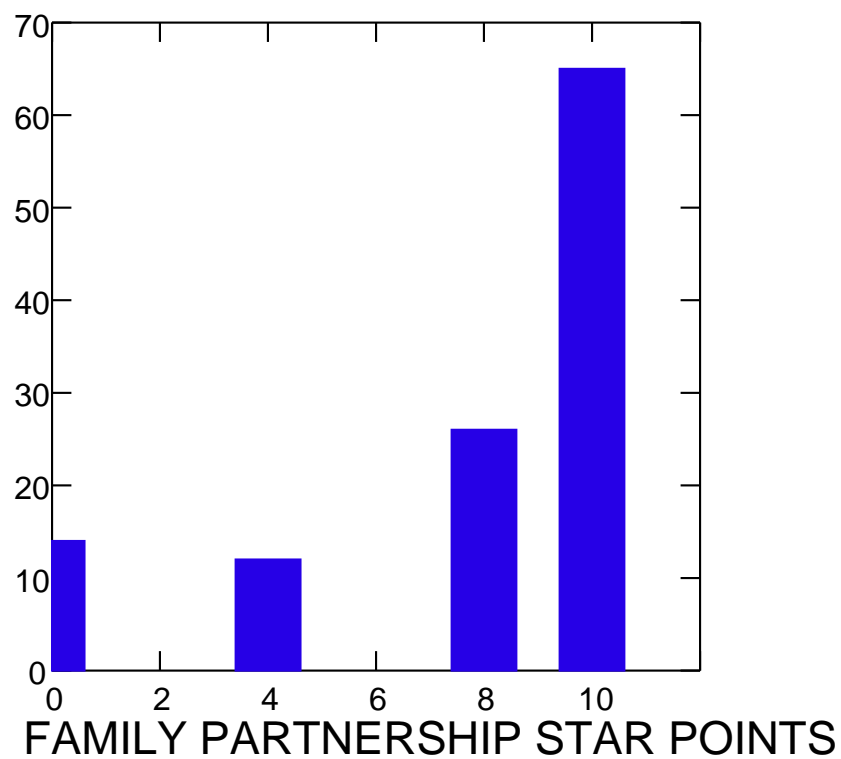


Figure 15

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.

Figure 15b

<u>Adult-Child Ratio/Group Size</u>	<u>Phi</u>	<u>Significance</u>
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

<u>Criteria</u>	<u>Mean</u>	<u>Median</u>	<u>Skewness</u>
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

OREGON'S STEPPING STONES¹ 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

<u>SS</u>	<u>RULES</u>	<u>PERCENT</u>	<u>CONTENT AREA/RISK FACTOR</u>
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
<u>10</u>	<u>7</u>	<u>70</u>	<u>POLICIES</u>
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

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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> A. MEAL SERVICE, SEATING, SUPERVISION B. FOOD BROUGHT FROM HOME C. KITCHEN AND EQUIPMENT D. FOOD SAFETY

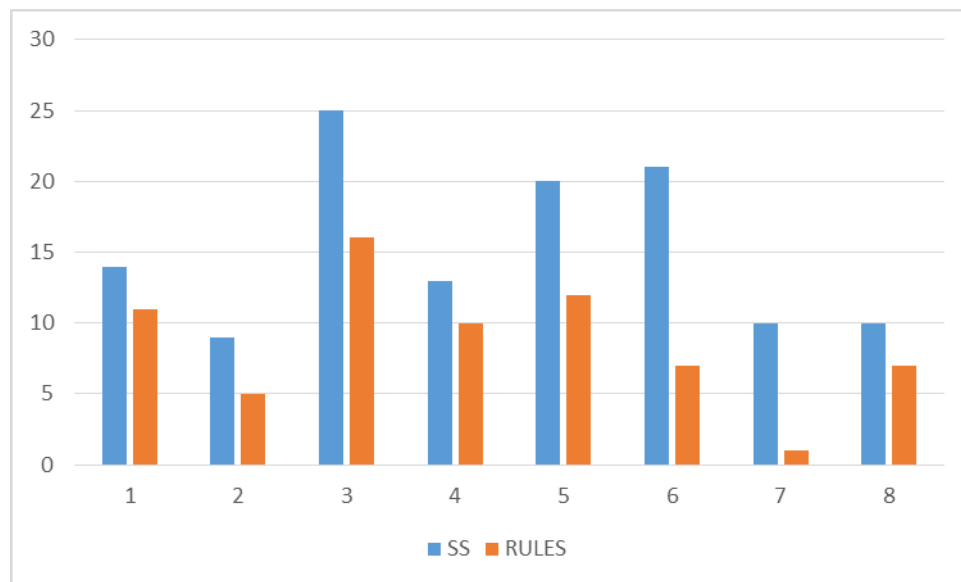
	<ul style="list-style-type: none"> E. MEALS FROM OUTSIDE VENDORS OR CENTRAL KITCHEN F. NUTRITION LEARNING EXPERIENCES FOR CHILDREN G. NUTRITION EDUCATION FOR PARENTS
5. FACILITIES, SUPPLIES, EQUIPMENT, AND ENVIRONMENTAL HEALTH	<ul style="list-style-type: none"> A. GENERAL LOCATION, LAYOUT, AND CONSTRUCTION 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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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

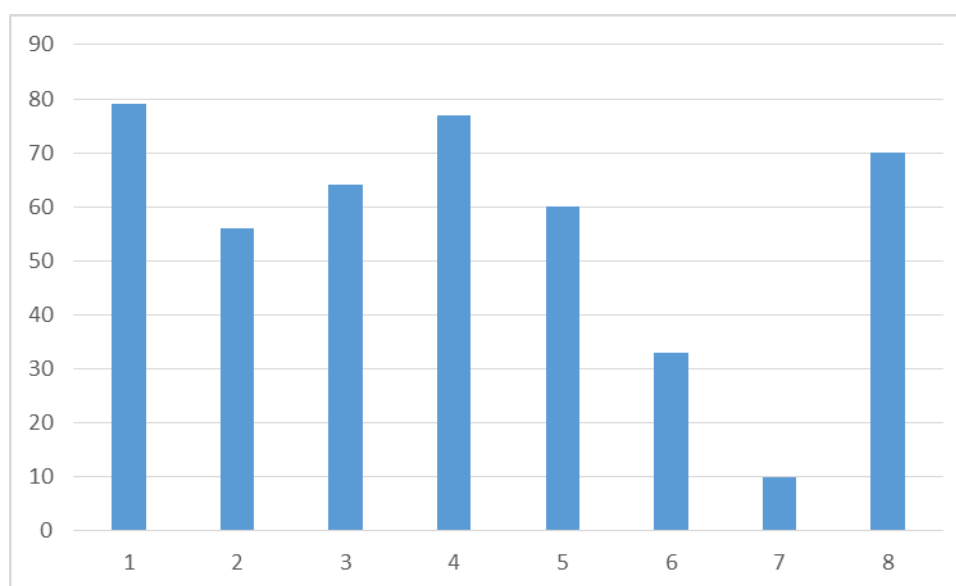
6 = PLAY AREAS/PLAYGROUNDS AND TRANSPORTATION

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



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

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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Stepping Stones (3rd Edition) Key Indicators**Richard Fiene, Ph.D.****April 2013**

This short paper will present the Key Indicators as they appear in *Stepping Stones* (3rd edition). It provides the statistically predictive standards (Key Indicators) that could determine overall compliance with *Stepping Stones* (AAP, APHA, NRC, 2013) and *Caring for Our Children* (AAP, APHA, NRC, 2011) based upon the statistical methodology (Fiene & Nixon, 1985). But before delineating the Key Indicators a few definitions need to be provided to put these key indicators in perspective.

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. *Stepping Stones* (3rd edition) is an example of a risk assessment approach.

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. The key indicators put forth in this paper are an example of the approach.

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 Fiene's Logic Model & Algorithm for Differential Monitoring (DMLMA©)(Fiene, 2013).

Early Childhood Program Quality Indicator Model (ECPQIM)(Fiene, 2013; Fiene & Kroh, 2000; Griffin & Fiene, 1995; Fiene & Nixon, 1985) – this definition is provided to place the results of this paper into the larger program monitoring systems perspective. ECPQIM 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 (Zellman & Fiene, 2012) 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: **CI** = Comprehensive Instrument - 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. 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* (Fiene, 2003) 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. Technical assistance/training and/or professional development system which provides targeted assistance to the program based upon the Differential Monitoring results. And finally, child outcomes which assesses how well the children are developing which is the ultimate goal of the system.

The Key Indicators from *Stepping Stones* (3rd Edition)¹

1.1.1.2 - Ratios for Large Family Child Care Homes and Centers

1.3.1.1 - General Qualifications of Directors

1.3.2.2 - Qualifications of Lead Teachers and Teachers

1.4.3.1 - First Aid and CPR Training for Staff

1.4.5.2 - Child Abuse and Neglect Education

2.2.0.1 - Methods of Supervision of Children

3.2.1.4 - Diaper Changing Procedure

3.2.2.2 - Handwashing Procedure

3.4.3.1 - Emergency Procedures

3.4.4.1 - Recognizing and Reporting Suspected Child Abuse, Neglect, and Exploitation

3.6.3.1 - Medication Administration

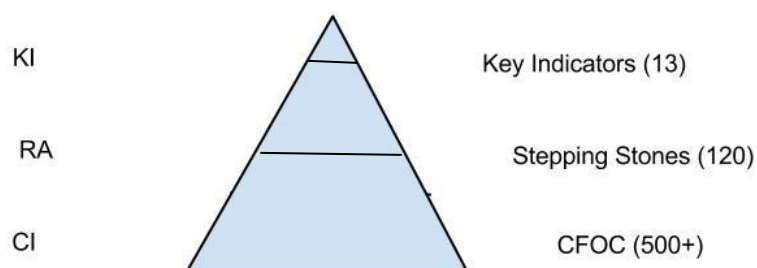
5.2.7.6 - Storage and Disposal of Infectious and Toxic Wastes

6.2.3.1 - Prohibited Surfaces for Placing Climbing Equipment

7.2.0.2 - Unimmunized Children

9.2.4.5 - Emergency and Evacuation Drills/Exercises Policy

Relationship of Key Indicators (KI), Stepping Stones (RA), and Caring for Our Children (CFOC)(CI)



The above diagram depicts the relationship amongst KI, RA, and CI in which the full set of rules is represented by CFOC - Caring for Our Children, followed by RA which are the most critical rules represented by Stepping Stones, and finally the predictive rules represented by the 13 Key Quality Indicators.

Just as there has been three editions of *Caring for Our Children* and *Stepping Stones*, this paper and the resulting Key Indicators represents the third edition of Key Indicators for early care and education. The first two editions are represented in the publications by Fiene & Nixon (1985) and Fiene (2003) respectively (see the reference list below).

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Notes:

- 1 Please see *Stepping Stones (3rd edition)* and *Caring for Our Children (3rd edition)* for the details of each Key Indicator.
- 2 For the reader who is interested in learning more about the DMLMA/ECPQIM model, please refer to these publications which are available through the following website:

<http://RIKinstitute.wikispaces.com>

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The Relationship of Licensing, Head Start, Pre-K, QRIS, Accreditation, and Professional Development and their Potential Impact on Child Outcomes

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ABSTRACT

This short paper will provide some thoughts about the various public policy initiatives/systems to improve early care and education, such as licensing, Head Start, Pre-K, QRIS, accreditation, and professional development and their potential impact on child outcomes. Early care and education is at a major crossroads as a profession in attempting to determine which quality initiatives have the greatest impact on children. Results are starting to come in from early studies which may provide some guidance as policy makers begin making decisions about where to focus their limited funding resources.

Improving early care and education programs has a long public policy history as we attempt to find the most cost effective and efficient means for attaining this lofty goal. There have been many ups and downs over the years where funding was adequate and when it was not, but our desire to accomplish this goal has always been front and center. Now, as a profession, we are at somewhat of a cross-roads in determining which of the many quality initiatives appear to have the greatest impact on children's development. When I refer to children's development, I am looking at the whole child from the perspective of a child's developmental status as well as the child's health and safety.

Presently we have many quality initiatives to look at which is a very good thing since at times in the past we did not always have so many choices. Probably the one constant throughout the history of early care and education in the past century has been licensing or regulations/rule formulation. Some many argue that licensing is not a quality initiative but I would suggest that licensing has many of the structural aspects of quality that have been identified in the research literature. The other quality initiatives I will discuss have really started and been implemented in the very later part of the 20th century so we are talking about a relatively new science when we think about having its intended impact on children. Also, I am talking about large public policy initiatives rather than highly structured, single focused research studies involving small samples of children.

Let's start with licensing since this system has been present for the longest period of time. The purpose of licensing is to act as the gatekeeper to the early care and education field in which only those providers who meet specific standards, generally called rules or regulations are permitted to operate and care for children. The rules are dominated by health and safety concerns with less emphasis on curriculum planning and staff-child interactions. The rules measure more structural aspects of quality than the process aspects of quality; dealing with what attorney's call the "hard data" rather than the "soft data".

Since licensing rules allow entry into the early care and education field to provide services usually the rules are not overly stringent with the majority of providers being in high compliance if not full compliance with all the rules. This would be expected since these are basic health and safety standards. And in fact when one looks at compliance data, it is extremely skewed with the majority of providers having very high compliance scores with relatively few violations of the rules. However, this does introduce a certain difficulty in using these data for decision making purposes at an aggregate level because so many providers score at a high level it becomes increasingly difficult to distinguish between the really excellent providers and the somewhat mediocre providers. Another way of looking at this skewing of the data is to term it as a plateau effect in which there is very little variance at the upper ends of the compliance spectrum. This is a major issue with skewed data and basic standards which is an important consideration with licensing but will also be an important consideration when one looks at the other quality initiatives to be addressed shortly.

Because of this plateau effect with licensing data, it may explain much of the lack of relationships found between compliance with rules and any types of outcomes related to children's outcomes and provider's overall quality. However, with licensing data and making comparisons to children's outcomes we should be looking at general health data such as immunization status and safety data such as the number of injuries at programs with varying levels of compliance with health and safety rules.

A significant development over the past two decades has been the development of national health and safety standards with the publication of Caring for Our Children (CFOC3) and Stepping Stones (SS3). Although these standards are not required but are only recommended practice that provides guidance to states as they revise their rules, these two documents have been embraced by the licensing/regulatory administration field. Although unlikely, if not impossible, to comply with all the CFOC3 standards, it would be interesting to compare states on this set of standards which may add a good deal of variance to the basic health and safety data that has been missing with licensing rules.

The next system to look at is the national Head Start program. Out of the major programs that are national in scope, Head Start has a long history of providing services to low income children and their families. Head Start Performance Standards are definitely more stringent than licensing rules but not as stringent as accreditation standards. Based upon Head Start's more stringent

standards and the additional supports that are part of its program, Head Start generally scores higher on program quality tools (e.g., CLASS or ERS) than licensed child care in states.

With Head Start programs, we at times find skewing or plateauing of data when we compare compliance with the Head Start Performance Standards (HSPS) and program quality tools such as the CLASS. However, this is dependent upon the various subscales within the CLASS in which the plateauing of data does not occur all of the time. I think that has a lot to do with the HSPS being fairly stringent standards as compared to state licensing rules in general.

A program that has gotten a good deal of support at the state level are Pre-K programs. These programs come with stricter standards than licensed child care with an emphasis on the professional development of staff. There is more concern about the process aspects of quality which focus more on teacher-child interactions. This emphasis on teacher-child interaction has paid off in which these programs generally are high performers when you compare Pre-K funded classrooms to licensed child care classrooms. In fact, Pre-K funding appears to have a positive impact on licensed child care in raising overall quality scores on the ECERS-R for all classrooms in programs that receive Pre-K funding even if some of the classrooms are not the direct beneficiaries of the funding. This is a very significant finding because we knew that Pre-K funding increased the quality of care in classrooms receiving those funds, but now, it appears that there is a spillover effect to all classrooms co-located with Pre-K funded classrooms. I must admit that I was initially skeptical when Pre-K funding was first proposed because I thought it would take funding and the focus away from improving licensed child care at the state level; but it appears that the advocates for Pre-K were right in their assertion that Pre-K would increase the quality of all early care and education which includes licensed child care.

A more recent entry into the state funding scene are QRIS (Quality Rating and Improvement Systems) which build upon licensing systems, are voluntary, and have substantial financial incentives for participating in this quality improvement system. It is too early to really determine if QRIS is having the intended impact because the program is so new (50% of states have a QRIS), and the penetration rate is usually below 50% in any given state (remember the system is voluntary). However, in the few studies done, the results are mixed. It does appear that programs which move up the various star levels do increase the quality of care they provide; but in a most recent study looking at child outcomes, no relationship was found between increasing levels of compliance with QRIS standards and how well children did in those programs with the exception of CLASS scores in which teacher-child interactions were measured and emphasized – here there were significant relationships between higher scores on the CLASS and child outcomes.

Accreditation systems come in many varieties but there are only three that I know of in which empirical studies have been done to validate their systems: NAEYC, NECPA for centers and NAFDC for homes. Also reliability testing has been done in each of these systems.

Accreditation is a rigorous self-study that really improves programs through the self-study

process. This should come as no surprise because we have known for some time that program monitoring all by itself leads to program improvements. Now when you couple that with technical assistance you see even more improvement. Accreditation is usually the other pillar of a QRIS system with licensing being the first pillar. The QRIS standards fill the gap from licensing to accreditation. Accreditation is a voluntary system just as in most cases with QRIS. However, in accreditation we are reaching less than 10% of the programs with the majority of these attaining NAEYC accreditation. NECPA and NAFDC have much smaller market shares.

The last system to be addressed is the professional development systems that have been established in all states. This is one quality improvement initiative that has 100% penetration in all states. It is usually tied to QRIS through technical assistance and mentoring (coaching). When it focuses on mentoring rather than workshops, it has demonstrated its effectiveness in changing teachers behaviors in how they interact with children in their care in a very positive fashion. This is very important because the research literature is clear about the importance of the teacher-child interaction when it comes to child outcomes. Professional development runs the gamut from pre-service (University based programs) to in-service (training, technical assistance, mentoring, coaching) programming for teachers and directors.

So where does this leave us when policy makers begin to try to determine which quality improvement initiatives should be invested in to start with, which to increase in funding, and maybe even which ones should be defunded. I think there are some trends we need to begin to look at, such as the following:

- 1) Having stringent and rigorous standards is very important. The more that we do not, the more opportunities for mediocre programs to score artificially higher on whatever scale that is used. This is evident with licensing data where the data are significantly skewed with a major plateau effect at the upper end of compliance rules/regulations.
- 2) Emphasis on teacher-child interaction needs to be paramount in our quality improvement initiatives. Working with teachers through mentoring/coaching appears to be most effective in changing teachers' behaviors in interacting more positively with children.
- 3) Making sure we are measuring the right outcomes. Match health and safety standards with health and safety outcomes for children. Match developmental outcomes for children with standards that emphasize positive teacher-child interactions.
- 4) Building upon #1 above, find what the key indicators are with all the data that we collect. We are spending too much time in looking at too many things which in many cases are simply just not the right things to look at. As states' data systems become more sophisticated, and they are, this will be easier to do. Let's begin to utilize the data we have already collected.