Smarter Monitoring for Early Childhood Education: The DMLMA Framework
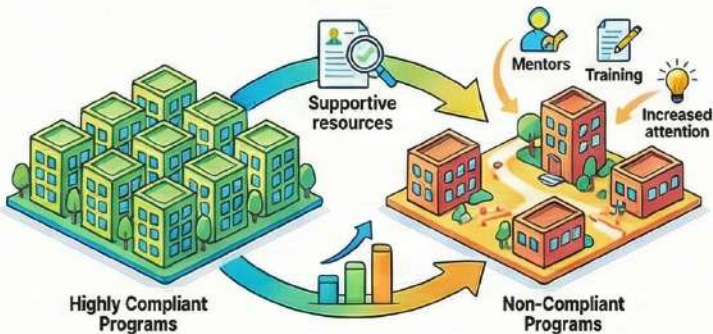
The DMLMA framework integrates various monitoring systems (licensing, risk assessment, quality ratings) into one validated model. This allows regulatory agencies to move away from inefficient, uniform monitoring and instead focus resources on programs that need the most support, ultimately improving child outcomes.

The Shift to Targeted Monitoring

Programs

The Old Way: Inefficient "One-Size-Fits-All" Monitoring

Traditional systems spend equal time on all programs, regardless of their compliance history.

Mentors Training
Supportive resources
Increased attention

Highly Compliant Programs

Non-Compliant Programs

The DMLMA Solution: A Targeted, Cost-Neutral Approach

Re-allocates resources from highly compliant programs to non-compliant programs needing more assistance.

How DMLMA Works: From Broad Rules to Predictive Indicators

Level 1: Comprehensive Standards (CI)

The complete set of all health and safety rules (e.g., Caring for Our Children: 300+ rules).

500+
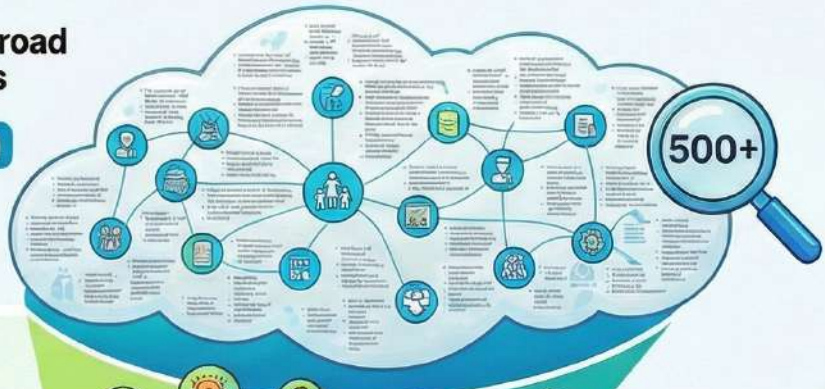
Level 2: Risk Assessment (RA)

A subset of the most critical rules essential for safety (e.g., Stepping Stones: 120 rules).

120

Emergency Preparedness · Safety Preparedness · Supervised Administration · Emergency Manage Integrasex · Supervision · Mediation Administration · Safe Prexuridion · Suk Siaxp

Level 3: Key Indicators (KI)

A small set of predictive rules that indicate overall quality (e.g., 13 indicators of Quality).

13

Teaslesx Child Interaction · Developmental Screening · Program Leadership · Program Leadership · Learning Environment

Decision Making: Differential Monitoring (DM)

Data from RA and KI determines the frequency and focus of future monitoring visits.

Low Frequency / Focused Visits

High Frequency / Intensive Support

Component Comparison & Expected Correlation

Component	Strength
Comprehensive (CI) vs. Key Indicators (KI)	0.70+ — Expected Correlation: High
Comprehensive (CI) vs. Risk Assessment (RA)	0.50+ — Expected Correlation: Moderate
Comprehensive (CI) vs. Child Outcomes (CO)	0.30+ — Expected Correlation: Lower

Smarter Regulation: A New Paradigm for Compliance

The Problem:
Traditional 'One-Size-Fits-All' Regulation

The Flawed Goal:
Chasing 100% Compliance

This approach assumes more compliance always equals better quality, which is often untrue.

The Inefficient Method:
Uniform Monitoring

All entities get the same level of inspection, regardless of their compliance history or risk.

UNIFORM MONITORING

WASTED RESOURCES

MISSED RISKS

The Result:
Wasted Resources & Missed Risks

Limited resources are spread thin instead of being focused on the highest-risk areas.

The Solution:
Fiene's Risk-Based Approach

Fiene's Risk-Based Approach

The Core Theory:
Diminishing Returns

After achieving "substantial compliance" (~97-99%), the benefit of more effort significantly decreases

97-99%

Risk Assessment & Key Indicators

Risk Profile

Low Medium High

Low Risk High

Key Indicators

Prevent Harm (RA)
Predict Compliance (RI)

Focus on rules that **prevent harm** (RA) and statistically predict overall compliance (RI)

The Strategy:
Differential Monitoring

Tailor inspection frequency and intensity based on an entity's compliance history and risk profile.

Less frequent
'Low Risk'

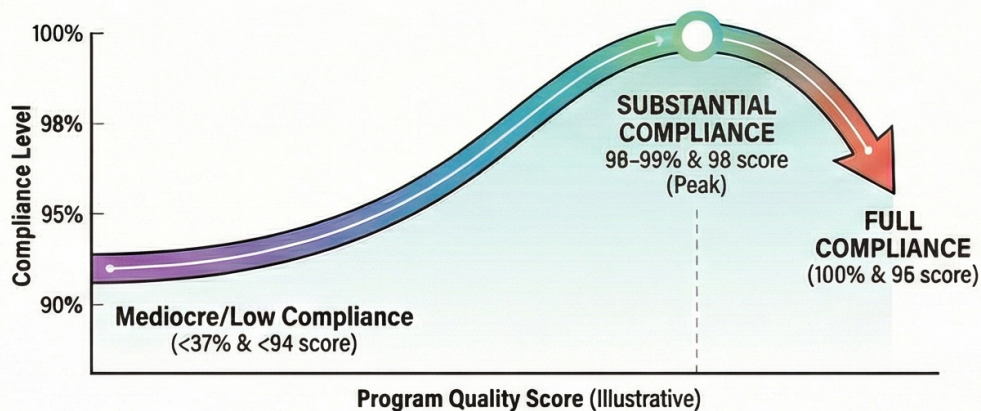Moderate monitoring
'Medium Risk'

'High Risk'

Optimized Outcomes

The Compliance Paradox: Why 100% Isn't Always Best in Childcare

For decades, it was assumed that childcare program quality increased in a straight line as regulatory compliance approached 100%. However, research reveals a surprising gap between perfect paperwork and actual quality, leading to a new paradigm for evaluating childcare services.

THE "FULL COMPLIANCE" TRAP
Quality Plateaus and Can Even Decline

Compliance Level

- 100%
- 98%
- 95%
- 90%

SUBSTANTIAL COMPLIANCE
98–99% & 98 score (Peak)

FULL COMPLIANCE
(100% & 96 score)

Mediocre/Low Compliance
(<37% & <94 score)

Program Quality Score (Illustrative)

Paperwork Over People
Staff chasing perfect scores spend more time on bureaucracy than on improving curriculum and teaching.

Skewed Data and False Results
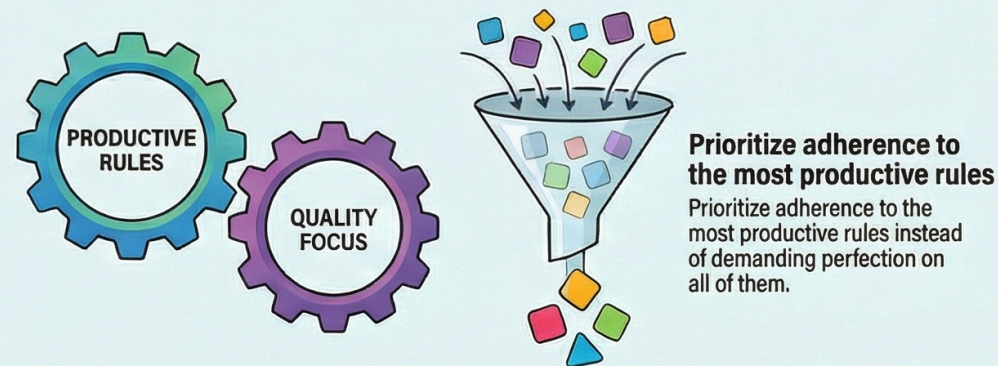An all-or-nothing approach creates unreliable data and increases the risk of incorrect assessments.

FALSE

Quality Plateaus and Can Even Decline
Pushing from 98% to 100% compliance does not improve—and may even harm—program quality.

A SMARTER APPROACH
Focus on "Substantial Compliance"

PRODUCTIVE RULES

QUALITY FOCUS

Prioritize adherence to the most productive rules
Prioritize adherence to the most productive rules instead of demanding perfection on all of them.

Use Differential Monitoring
Rules that statistically predict a facility's overall compliance.
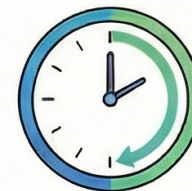
KEY INDICATORS

RISK ASSESSMENT
Rules weighted by their potential to harm a child's health and safety if broken.

50% MORE EFFICIENT REVIEWS
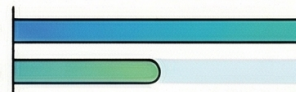
COMPREHENSIVE INSPECTIONS
Takes full time

ABBREVIATED, TARGETED REVIEWS
50%

- Comprehensive
- Targeted Reviews

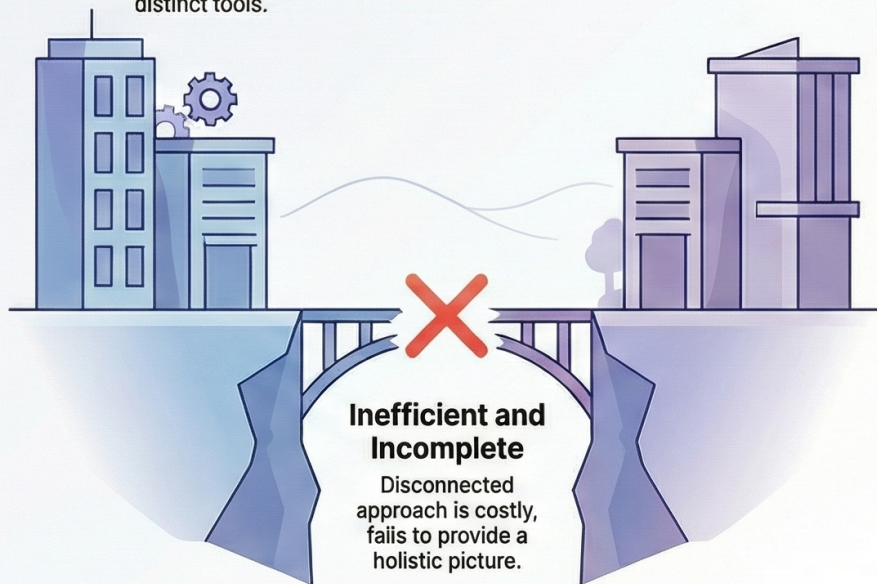Abbreviated, targeted reviews using this approach take half the time of comprehensive inspections.

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The CCEE Heart Monitor:
A Unified View of Child Care Quality

THE CHALLENGE:
A Disconnected View of Quality

Two Silos of Child Care Assessment
Structural quality (e.g., Health, Safety, Ratios) and process quality (e.g., Staff-Child Interactions) are typically measured with separate, distinct tools.

Inefficient and Incomplete
Disconnected approach is costly, fails to provide a holistic picture.

THE SOLUTION:
The CCEE Heart Monitor (CCEEHM)

**Foundation:
The Contact Hour (CH) Metric**
Measures structural quality using 6 simple questions.

Visualizing Attendance Patterns

**The 'Heart':
Program Quality Indicators (PQI)**
A single software application combines both structural and process metrics efficiently.

AI-Powered for Unbiased Assessment
Proposes using AI and video for ongoing, reliable observations.

Contact Hours: A Smarter Metric for Child Care Safety

A simple mathematical model used to predict and monitor health and safety risks in child care centers without requiring on-site inspections.

What is the Contact Hour (CH) Metric?

A Simple Model to Measure Interaction Density.

It calculates a risk score based on the number of people and time spent together.

Predicts Risk for Illnesses & Injuries

Higher CH scores are correlated with higher risks of infectious disease spread and injuries.

Enables Efficient Virtual Monitoring

The metric can be calculated remotely, helping target limited on-site inspection resources effectively.

How It Works: From Data to Risk Assessment

Step 1: Gather Data with 6 Simple Questions

- When does the first staff arrive?
- When does the last staff leave?
- How many staff are there?
- How many children are there?
- When does the last child arrive?
- When does the first child leave?

Step 2: Calculate the CH Score

Data + Formula = Interaction Density (Trapezoid)

A formula combines the data to visualize interaction density, often shaped like a trapezoid.

How Adult-to-Child Ratios Impact the CH Score

Number of Children	CH Score (5:1 ratio)	CH Score (1B:1 ratio)	CH Score (1S:1 ratio)
5	~20	~40	~60
10	~40	~80	~120
15	~60	~120	~150+

Demonstrates how improving adult-to-child ratios significantly reduces the Contact Hour score, thereby lowering risk.
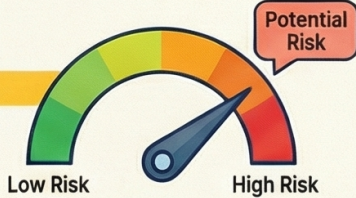
Step 3: Assess the Risk Level

Low Risk — High Risk

Potential Risk

The resulting CH score indicates potential risk, validated by studies in Washington State.

Measuring What Matters: The Contact Hour Metric for Child Care Safety
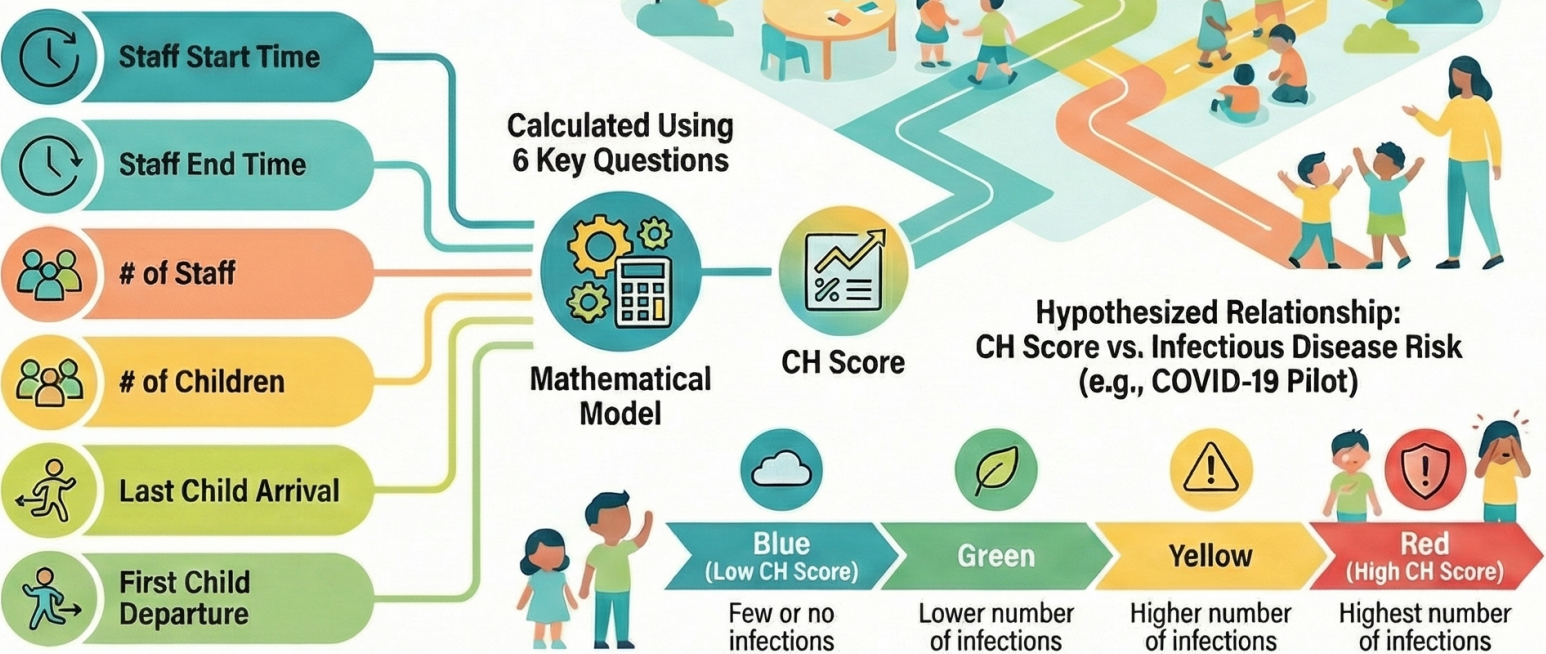
A proposed statistical tool for child care centers, moving beyond static ratios to quantify the density of adult-child interactions for a more dynamic and predictive measure of potential risks, like injuries and infectious diseases.

What is the Contact Hour (CH) Metric?

A Dynamic Measure of Interaction Density

It calculates the total exposure time between children and staff in a given space.

- Staff Start Time
- Staff End Time
- # of Staff
- # of Children
- Last Child Arrival
- First Child Departure

Calculated Using 6 Key Questions

Mathematical Model

CH Score

Hypothesized Relationship: CH Score vs. Infectious Disease Risk (e.g., COVID-19 Pilot)

Blue (Low CH Score)	Green	Yellow	Red (High CH Score)
Few or no infections	Lower number of infections	Higher number of infections	Highest number of infections

Applications & Potential of the CH Metric

A Tool with a History of Versatility

Originally for ratio compliance (1979), it was revived and piloted for COVID-19 exposure risk (2020).

- 1979 Ratio Compliance
- 2020 COVID-19 Exposure Risk
- Current Modern Approach
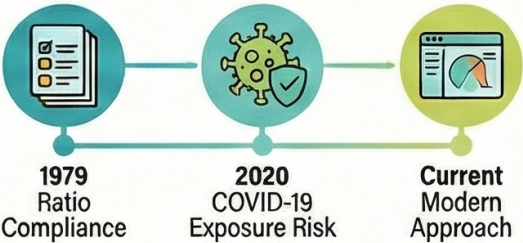
A Modern Approach to Monitoring Health & Safety

It is now proposed as a screening tool to help identify centers with higher potential risks.

The Future: Adding Space to the Equation

Future versions may include facility square footage to create a 3D risk assessment model.

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Smarter Rules, Safer Kids: A New Approach to Child Care Regulation

THE CHALLENGE: A CHILD CARE STANDOFF

Child Care Trilemma

QUALITY · ACCESSIBILITY · AFFORDABILITY

Child Care Trilemma
A constant struggle to balance Quality, Accessibility, and Affordability for families.

700+ STANDARDS
The primary guide, "Caring for Our Children" (CFOC), is comprehensive but overwhelming.

A PUSH FOR DEREGULATION
Political pressure to arbitrarily cut rules threatens child safety and program quality.

THE SOLUTION: A SCIENCE-BASED FUNNEL

REGULATORY SCIENCE OFFERS A DATA-DRIVEN PATH
This approach replaces political debate with empirical evidence and risk assessment.

STEP 1: IDENTIFY HIGH-RISK STANDARDS

STEPPING STONES: ~120 Key Protections
Risk assessment methodology reduced 700+ standards to approximately 120 key protections.

STEP 2: PINPOINT PREDICTIVE "KEY INDICATORS"

CARING FOR OUR CHILDREN BASICS (CFOCB): ~65 Core Standards
Further analysis identified ~65 core standards that predict overall compliance and safety.
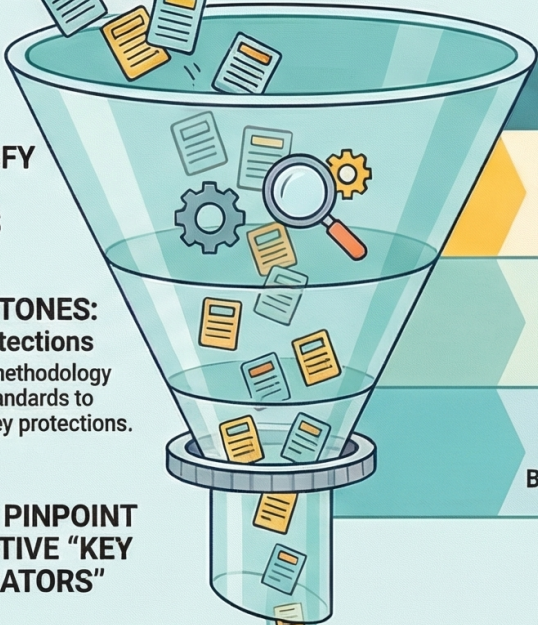
DOCUMENT / PHASE	# OF STANDARDS	PRIMARY METHODOLOGY
Caring for Our Children (CFOC)	700+	Comprehensive Best Practices
Stepping Stones	~120	Risk Assessment
Caring for Our Children Basics (CFOCB)	~65	Key Indicator Identification

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From Rules to Results: A Smarter Way to Measure Child Care Quality

The Two Faces of Quality

A Smarter Approach to Monitoring

Structural Quality: The Foundation

Process Quality: The Interaction

Breakthrough: The Theory of Regulatory Compliance

New Method: From Uniform to Differential Monitoring

The Result: Integrated & Predictive Oversight

1:4

100% Compliance

Substantial Compliance

100% Compliance

Substantial Compliance

Uniform Monitoring

Differential Monitoring

Differential Monitoring

PREDICTIVE

1:6

Structural Quality: The Foundation

Focuses on countable health and safety rules like staff-child ratios and group sizes.

Process Quality: The Interaction

Measures nuanced teacher-child interactions, emotional climate, and opportunities for learning.

Breakthrough: The Theory of Regulatory Compliance

Showed that "substantial compliance," not 100%, is a better predictor of overall quality.

Uniform Monitoring

Checking every rule

Differential Monitoring

Focus on key indicators that predict overall compliance

Key Quality Indicators (KQIs) now integrate both structural and structural and process measures for efficiency.

The Measurement Dilemma

Structural rules have a "ceiling effect," making it hard to distinguish high performers.

A Better Way to Measure Regulatory Compliance

THE PROBLEM: An Absolute "Yes/No" System

0 / OFF
(Non-Compliant)

1 / ON
(Compliant)

All-or-Nothing Compliance

The old system measures compliance as all-or-nothing. A program is either 100% compliant or not, with no room for nuance.
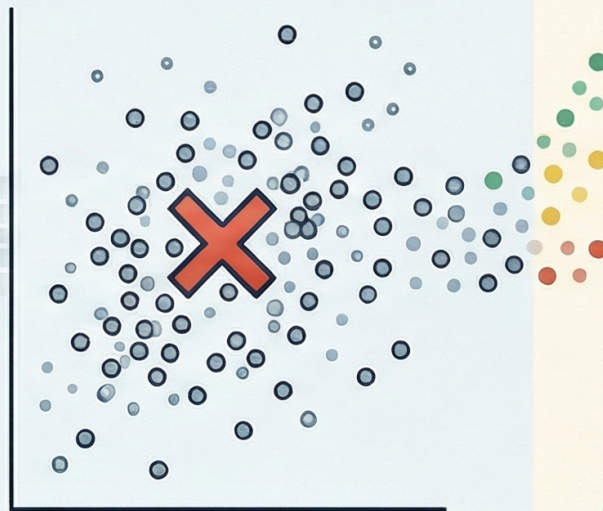
No Correlation to Quality

More compliance doesn't equal higher quality. Research shows that simply counting violations does not reliably predict a program's quality. Data shows a scattered, uncorrelated relationship.

THE SOLUTION: A Graded Regulatory Compliance Scale (RCS)

Nuanced, Graded Levels

FULL / SUBSTANTIAL COMPLIANCE (0-2 Violations)	**"SWEET SPOT"** for quality
MEDIUM COMPLIANCE (3-10 Violations)	
LOW COMPLIANCE (11+ Violations)	

The new system groups compliance into meaningful or compliance into meaningful levels. This reveals a "sweet spot" for quality; programs with "Substantial Compliance" often show higher quality than fully compliant ones.

Clear Licensing Decisions

FULL / SUBSTANTIAL	MEDIUM	LOW
0-2 Violations (Score 7 or 5) → Recommended Decision: **FULL LICENSE**	3-10 Violations (Score 3) → Recommended Decision: **PROVISIONAL LICENSE**	11+ Violations (Score 1) → Recommended Decision: **NO LICENSE**

The scale provides a clear basis for licensing decisions. Each compliance level corresponds to a specific licensing action, improving consistency.

A Blueprint for Better Licensing Decisions: The Uncertainty-Certainty Matrix

THE PROBLEM & THE TOOL

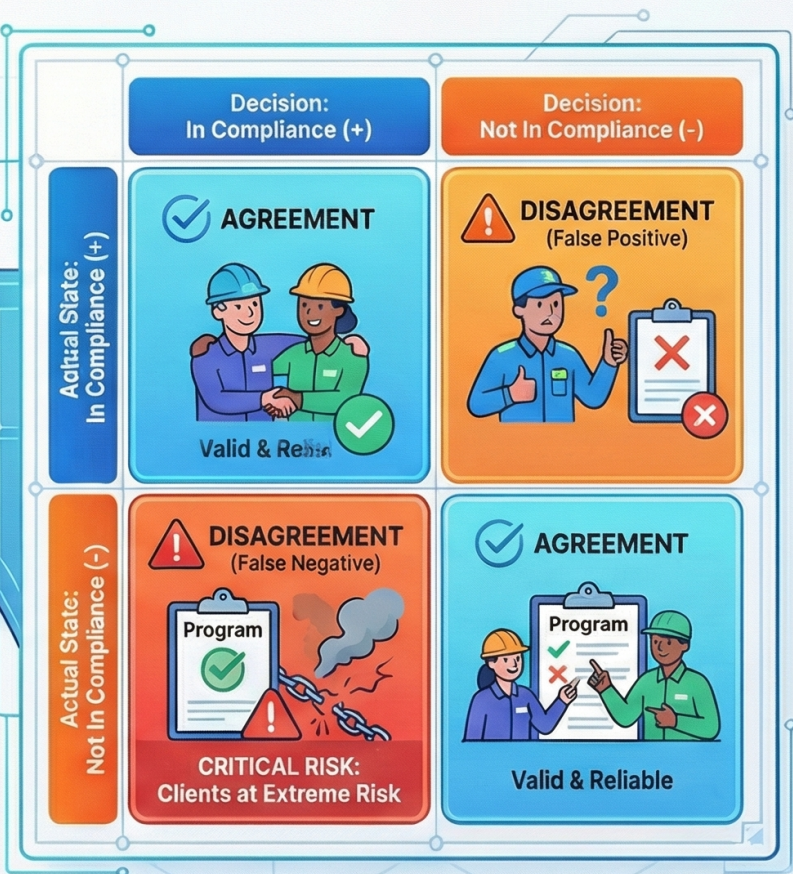## Licensing Decisions Suffer from High Inconsistency
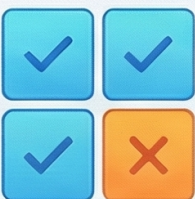
Inconsistency & Risk

Disagreements between inspectors undermine the reliability of monitoring and can put clients at risk.

Solution: The Uncertainty-Certainty Matrix (UCM)

A simple 2x2 tool that compares an inspector's decision to the actual state of compliance.

	Decision: In Compliance (+)	Decision: Not In Compliance (-)
Actual State: In Compliance (+)	AGREEMENT — Valid & Reliable	DISAGREEMENT (False Positive)
Actual State: Not In Compliance (-)	DISAGREEMENT (False Negative) — CRITICAL RISK: Clients at Extreme Risk	AGREEMENT — Valid & Reliable

SPOTTING ERRORS AND BIAS WITH THE UCM

Primary Goal: Valid and Reliable Results

Ideal outcomes show a strong diagonal pattern, where decisions consistently match the actual reality.

CRITICAL RISK:

Beware of False Negatives

Deciding a program is 'in compliance' when it's not places clients at the most extreme risk.

Diagnostic Patterns
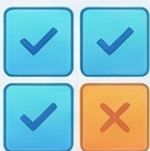
Ideal: Valid & Reliable

Strong diagonal agreement. The inspection system is working correctly.
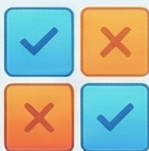
Problem: Random Results

All four cells are filled equally. The decision-making process is chaotic and unreliable.
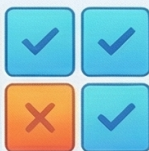
Problem: Inspector Bias

A strong horizontal or vertical line. The inspector is consistently too lenient or too strict.

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How States Monitor Child Care Centers: A 2017 Snapshot of Licensing Practices

State licensing agencies inspect child care centers to ensure legal operation, primarily using two different monitoring philosophies: checking **every rule every time** or adjusting based on a center's track record.

Full Compliance Monitoring
96% of states use Full Compliance

An inspector assesses a child care program's compliance with *all* licensing regulations.

An inspector assesses a child care program's compliance with *all* licensing regulations.

Differential Monitoring
73% of states use a Differential approach

The depth or frequency of inspections varies based on the program's compliance history.

Strategy 1: Varying the Depth of Inspection

69% of states use "abbreviated inspections" that monitor a select subset of regulations.

Methods for Selecting Rules for Abbreviated Inspections

Consensus Approach
60% of States Using Method

Risk Assessment (Risk of Harm)
49% of States Using Method

Key Indicators (Predicts Overall Compliance)
29% of States Using Method

Strategy 2: Varying the Frequency of Inspection

33% of states use compliance history to decide how often to inspect a program.

Good Compliance History = Less Frequent Inspections

Poor Compliance History = More Frequent Inspections

Goal: Efficiency and Focus

This approach allows agencies to focus resources on lower-compliance programs.

The Fiene Method: A Smarter Approach to Child Care Monitoring

Dr. Richard Fiene's research pioneers a statistical methodology to streamline Child Care and Early Education (CCEE) licensing inspections, making them more efficient and effective by focusing on the regulations that best predict overall compliance.

THE CHALLENGE: TRADITIONAL INSPECTIONS

Hundreds of Regulations

FULL COMPLIANCE REVIEWS ARE INEFFICIENT

States must monitor providers for compliance with the complete set of licensing regulations, which can be resource-intensive and slow.
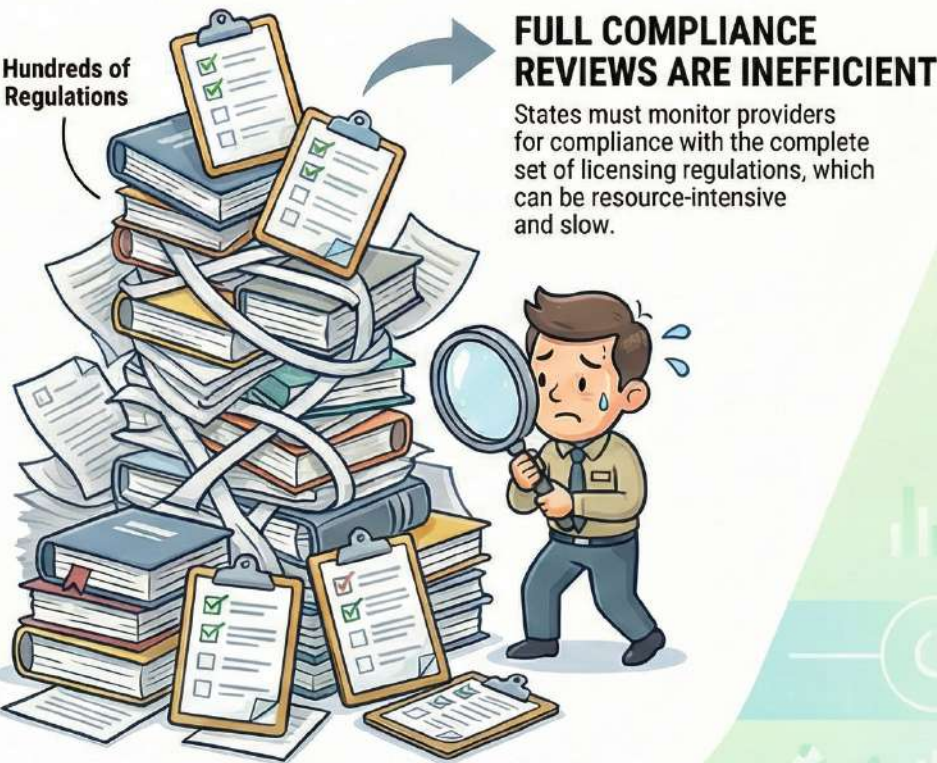
THE FIENE SOLUTION: DATA-DRIVEN MONITORING

All Regulations → Key Indicators (Predictive Subset)

INTRODUCING THE "KEY INDICATORS" APPROACH

Fiene developed the statistical method to identify a small subset of regulations that accurately predict overall compliance.

ENABLING EFFICIENT "DIFFERENTIAL MONITORING"

This allows for abbreviated inspections, saving time and focusing resources where they are needed most.

COMBINING MODELS FOR MAXIMUM IMPACT

KEY INDICATORS (FIENE) + RISK ASSESSMENT = Most Effective System

APPROACH COMPARISON

	Key Indicators (Fiene)	Risk Assessment
PRIMARY GOAL	Predicts overall compliance	Identifies greatest risk of harm
METHOD OF SELECTION	Statistical analysis	Expert consensus

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The Fiene Approach: Smarter Child Care Licensing Through Data.

The goal is to focus on standards linked to quality and safety.

A powerful pairing: Key Indicators + Risk Assessment.

Fiene and experts advocate combining data-driven Key Indicators with Risk Assessment to identify regulations posing the greatest risk of harm. (Source: Fiene, 2019b)

The Key Indicators Approach: A Foundation for Efficiency

A statistical method to pinpoint what matters most.

Developed by Dr. Fiens, identifies a small subset of regulations statistically shown to best predict a provider's compliance with the full set of rules. (Source: Fiene, 2013a; Fiene & Rroh, 2000)

How it works: Data reveals the predictors.

Analyzes a state's actual compliance data to discover strongest indicators of overall provider compliance.

Key indicators are consistent across different settings.

Research in Indiana showed considerable overlap in identified key indicators for centers, homes, and license-exempt homes, showing reliability. (Source: Fiene, 20190)

The ECPQI2M4 Model: A comprehensive framework.

Integrates risk assessment, key indicators, and differential monitoring strategies. (Source: Fiene, 2016)

GOAL: Focus on standards linked to quality and safety.

Helps licensing agencies shift offerts to standards empirically proven to be associated with program quality and child safety. (Source: Fiene, 2016)

Fiene's Research in Action: State Examples

Georgia: Validating the "Core Rule" System.

External review by Fiene confirmed 74 "core roles" (risk-assessment approach) successfully predicted overall compliance with 436 licensing regulations. (Source: Fiene, 2014a)

Washington: A Hybrid Model for Monitoring.

Planned new inspection system, co-developed by Stevens & Fiene, combines key indicators, highest-rish regulations, and a rotating sample of other rules. (Source: Stevens & Fiene, 2018)

Indiana: Versatility Across Provider Types.

Fiene's work successfully identified key indicators for various settings, including conters, homes, and legally license-esempt homes, showing flexibility. (Source: Fiene, 20196)

Linking Licensing Compliance to Program Quality

Fewer violations are linked to higher quality ratings.

Fiene's research with Washington licensing data found higher QBIS atar levels were associated with fewer licensing violations. (Source: Fiene, 2017)

Fewer Violations — **Higher Quality Ratings (QRIS)**

Compliance with core rules predicted quality in Georgia's Pre-K.

Georgia validation study found compliance with "core rolee" was a predictor of program quality for clole-funded pre-kindergarten programs. (Source: Fiene, 2014a)

A call for continued research and validation.

Fiene and Rroh have called for more studies to examine the effectiveness of differential monitoring approaches to ensure they work as intended to protect children. (Source: Fiene & Rrok, 2016)

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Smarter Child Care Safety: The Key Indicator Approach

THE KEY INDICATOR METHOD

A statistical approach that identifies a small subset of licensing regulations that accurately predict a provider's overall compliance with the full set of rules.

EFFICIENT & EFFECTIVE MONITORING

This method allows for "abbreviated compliance reviews," focusing inspections on the rules that best predict overall compliance, saving time and resources.

KEY RULES ARE CONSISTENT

Research shows that these key indicators tend to be consistent across different types of child care settings (centers, homes, etc.) and over time.

LINKING COMPLIANCE TO QUALITY

By combining key indicators with risk assessment, this approach helps states connect licensing standards to broader measures of program quality and safety.

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The Science of Safety: A Look at Child Care Licensing Research

Based on a comprehensive review of over 200 articles from 1999-2019, this infographic summarizes the state of CCEE licensing research, highlighting focus areas, gaps, and innovative monitoring approaches.

THE STATE OF LICENSING RESEARCH

Research Focuses Heavily on Functions, Not Management

Literature primarily covers regulations and monitoring, with less research on staff management and support.

Few Studies Measure Outcomes for Children & Families

Most outcome research centers on providers; few studies examine effects on child injuries or family costs.

Most of the Literature is Descriptive

More hypothesis-driven research is needed to build a stronger evidence base for licensing practices.

INNOVATIONS IN MONITORING RESEARCH

SMARTER MONITORING: THE KEY INDICATORS METHOD
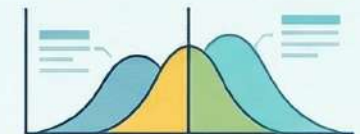
Developed by researcher Richard Fiene, this statistical method identifies regulations that predict overall compliance.
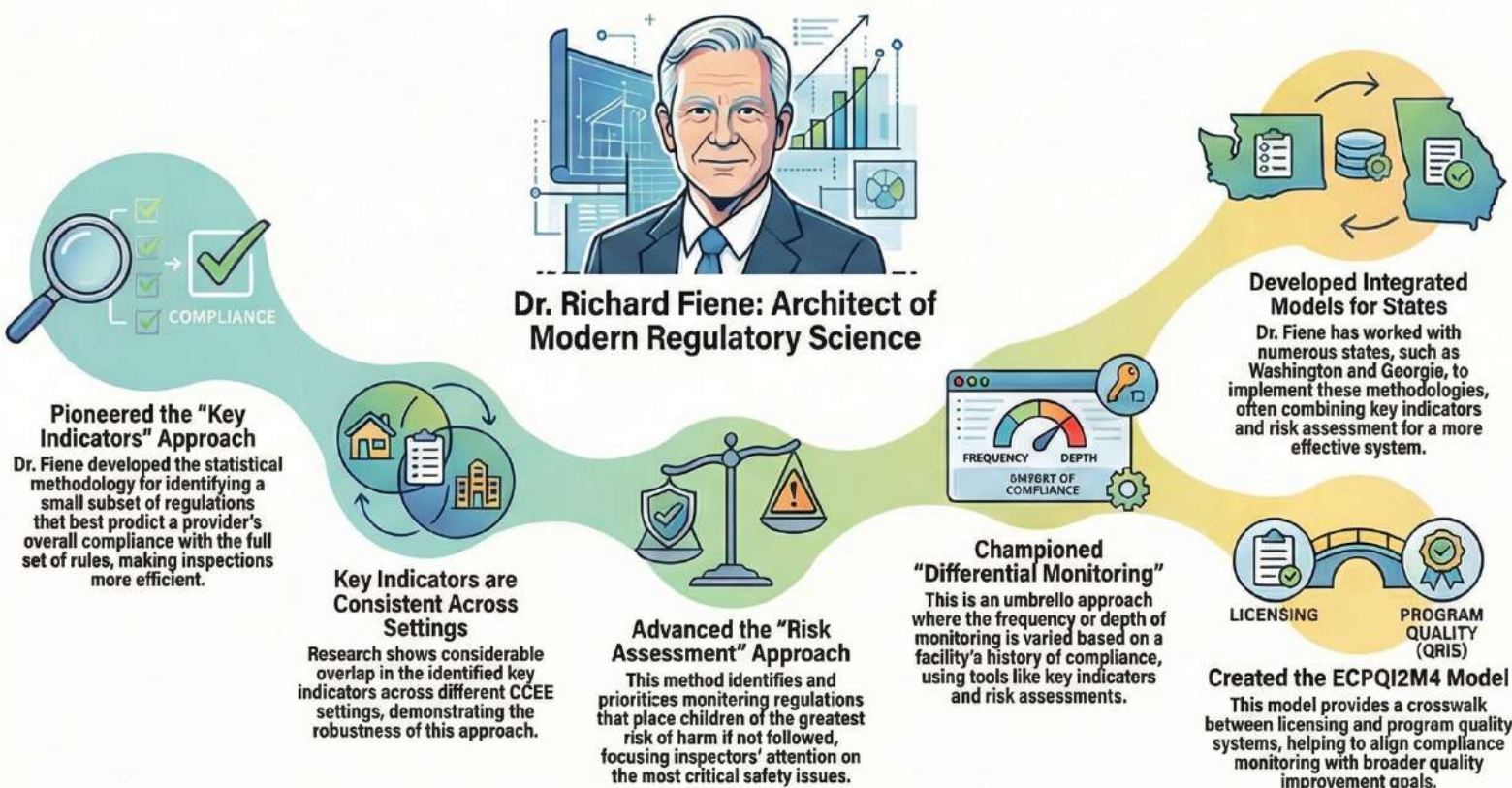
WHAT ARE KEY INDICATORS?

It is a subset of regulations used in abbreviated inspections to streamline monitoring efficiently.

ALTERNATIVE APPROACH: RISK ASSESSMENT

Experts identify a subset of rules that place children at the greatest risk of harm.

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Pioneers of Regulatory Science: Key Scholars Shaping Human Services Licensing

Dr. Richard Fiene: Architect of Modern Regulatory Science

Pioneered the "Key Indicators" Approach
Dr. Fiene developed the statistical methodology for identifying a small subset of regulations that best predict a provider's overall compliance with the full set of rules, making inspections more efficient.

Key Indicators are Consistent Across Settings
Research shows considerable overlap in the identified key indicators across different CCEE settings, demonstrating the robustness of this approach.

Advanced the "Risk Assessment" Approach
This method identifies and prioritizes monitoring regulations that place children at the greatest risk of harm if not followed, focusing inspectors' attention on the most critical safety issues.

Championed "Differential Monitoring"
This is an umbrella approach where the frequency or depth of monitoring is varied based on a facility's history of compliance, using tools like key indicators and risk assessments.

Developed Integrated Models for States
Dr. Fiene has worked with numerous states, such as Washington and Georgia, to implement these methodologies, often combining key indicators and risk assessment for a more effective system.

Created the ECPQI2M4 Model
This model provides a crosswalk between licensing and program quality systems, helping to align compliance monitoring with broader quality improvement goals.

LICENSING — PROGRAM QUALITY (QRIS)

FREQUENCY DEPTH EXPERT OF COMPLIANCE

Foundational Concepts from Other Key Scholars

Gormley: More Frequent Inspections Improve Performance
A key study in Florida by Gormley (1995) found that child care centers receiving more frequent inspections performed better over time, regardless of their previous compliance history.

Gormley & Morgan: The Regulatory Balancing Act
These scholars highlighted that regulations must balance protecting children with the need for an adequate supply of care; regulations that are too costly or intrusive may reduce the number of available licensed providers.

Maxwell & Start: Linking Licensing to Quality
They provided a framework for how licensing can actively support CCTP quality, viewing regulations as a foundational subset of broader quality standards and promoting TA as a key licensing activity.

Payne: Establishing Best Practices for Licensing Staff
Payne's research contributed to defining licensing management and establishing recommended best practices, such as a maximum caseload of 50 programs per licensing unit member to ensure effectiveness.

The Goals of Regulatory Science in Licensing

Increase Efficiency
Use data-driven methods like abbreviated compliance reviews to save time for both inspectors and providers, allowing staff to focus on technical assistance.

Focus on High-Risk Areas
Prioritize regulations that are most critical to children's health and safety, ensuring that monitoring efforts have the greatest impact on preventing harm.

Improve Consistency and Objectivity
Employ statistical methods to create standardized monitoring tools, reducing inconsistencies between individual inspectors and regions.

Enhance Provider Quality
Align licensing compliance with broader quality improvement initiatives (like QRIS) to create a seamless system that supports provider growth.

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