Quality care is achieved by both regulatory and non-regulatory approaches. However, licensing provides the threshold or floor of quality below which no program should be permitted to operate.
Non-regulatory approaches to achieving quality care in human services facilities or programs

- Consultation
- Consumer Education
- Peer Support Associations
- Professional Organizations
- Resource and Referral
- Technical Assistance
- Mentoring/Coaching
- Training-Staff Development

Comparing HSPS Violations with CLASS Scores (Fiene, 2013c)

<table>
<thead>
<tr>
<th>HSPS/CM Violations</th>
<th>IS</th>
<th>ES</th>
<th>CD</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Violations</td>
<td>3.09</td>
<td>5.99</td>
<td>5.59</td>
</tr>
<tr>
<td>1-2 (Substantial)</td>
<td>3.15</td>
<td>5.93</td>
<td>5.99</td>
</tr>
<tr>
<td>3-4 (Medium)</td>
<td>2.67</td>
<td>5.85</td>
<td>5.37</td>
</tr>
<tr>
<td>5-9 (Low)</td>
<td>2.86</td>
<td>5.71</td>
<td>5.52</td>
</tr>
<tr>
<td>10-15 (Highest)</td>
<td>2.56</td>
<td>5.52</td>
<td>4.93</td>
</tr>
</tbody>
</table>

Significance: F = 4.92, p < .001

CM Violations = Compliance Measure Violations (lower score = higher compliance)
IS = Average CLASS IS (Instructional Support) Score
ES = Average CLASS ES (Emotional Support) Score
CD = Average CLASS CO (Classroom Organization) Score
#/% = Number of programs and Percent of programs at each level of compliance

Impact of PK on ECERS

ECERS PRE-K & Licensing Scores

PC & PQ Comparison of CC and PK (Fiene, 2013e)

<table>
<thead>
<tr>
<th>PC = Child Care Licensing Compliance</th>
<th>PQ = Pre-K Program Licensing Compliance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Licensing / ECERS-R</td>
<td>Licensing / ECERS-R</td>
</tr>
<tr>
<td>100 / 3.40 Full Compliance</td>
<td>100 / 4.88 Full Compliance</td>
</tr>
<tr>
<td>99 / 4.35</td>
<td>99 / 4.13</td>
</tr>
<tr>
<td>98 / 3.89 Substantial Compliance</td>
<td>98 / 4.38 Substantial Compliance</td>
</tr>
<tr>
<td>97 / 3.15</td>
<td>97 / 3.99</td>
</tr>
<tr>
<td>96 / 3.16</td>
<td>96 / 4.36</td>
</tr>
<tr>
<td>95 / 3.53</td>
<td>95 / 4.60</td>
</tr>
<tr>
<td>90 / 2.56 Medium Compliance</td>
<td>90 / 3.43 Medium Compliance</td>
</tr>
<tr>
<td>80 / 2.38 Low Compliance</td>
<td>80 / 2.56 Low Compliance</td>
</tr>
</tbody>
</table>

PC = Child Care Licensing Compliance
PQ = Pre-K Program Licensing Compliance

Relationship between PC (CI) & PQ (Fiene & Nixon, 1985)(Fiene, 1985)

PC = % Rule Compliance

Relationship between PC (CI) & PQ

y = 0.0453x + 0.2246
R² = 0.8983

ECERS PRE-K & Licensing Scores

Impact of PK on ECERS

Least Squares Means

Impact of PK on ECERS

Least Squares Means
Impact of Pre-K & Higher Standards

- Pre-K only ECERS average = 4.15
  - These are classrooms funded by Pre-K.
- Pre-K’s impact on child care, ECERS average = 3.60
  - These are classrooms not funded by Pre-K but in the same building as a Pre-K funded classroom.
- Child care only ECERS average = 3.26
  - These are classrooms in programs that are not funded by Pre-K.
Impact of Pre-K on ECERS Scores

CC w/ & w/o Pre-K with ECERS Scores

Relationship between PC (CI) & PQ (Fiene & Nixon, 1985)(Fiene, 1985)(Fiene, 2013e)

Regulatory Paradigms

Absolute (Class, 1957) vs Relative/Differential (Fiene, 1985)

- All rules are created equal.
- 100% Compliance = Full License.
- PC + PQ = Linear.
- All rules are reviewed all the time.

- All rules are not created equal.
- Substantial Compliance = Full License.
- PC + PQ = Not Linear.
- Selected key rules are reviewed all the time.

All Licensing Rules – Full Compliance Reviews

Differential Monitoring

How Often to Visit?

Frequency

More Often

Abbreviated Tool

Risk Assessment

Key Indicators

Predictors

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

Definitions of Key Elements:

CI = Comprehensive Licensing Tool (Health and Safety)

PQ = ECERS-RI, FDCRS-RI, CLASS, CDPES (Caregiver/Child Interactions/Classroom Environment)

RA = Risk Assessment (High Risk Rules)

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

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

PD = Professional Development/Technical Assistance/Training

CO = Child Outcomes (See Next Slide for PD and CO Key Elements)
Differential Monitoring Scoring Protocol (DMSP©)

**Score**

<table>
<thead>
<tr>
<th><strong>Systems Present</strong></th>
<th><strong>Score</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>No systems in place.</td>
<td>0</td>
</tr>
<tr>
<td>KI or RA in place and not linked.</td>
<td>2</td>
</tr>
<tr>
<td>(KI &amp; RA in place but not linked) or (PC &amp; PQ are linked).</td>
<td>4</td>
</tr>
<tr>
<td>(KI &amp; RA in place) and (KI + RA are linked).</td>
<td>6</td>
</tr>
<tr>
<td>All systems in place and linked.</td>
<td>10</td>
</tr>
</tbody>
</table>

**Point Assignment**

<table>
<thead>
<tr>
<th><strong>Score</strong></th>
<th><strong>Systems Present and Point Assignment</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>No systems in place.</td>
<td>0</td>
</tr>
<tr>
<td>(KI (1) &amp; (KI &gt; DM (1))) or (RA (1) &amp; (RA &gt; DM (1)))</td>
<td>2</td>
</tr>
<tr>
<td>(PC + PQ (4)) or (KI (1) &amp; (KI &gt; DM (1)) &amp; (RA &lt; DM (1))</td>
<td>4</td>
</tr>
<tr>
<td>(KI + RA &gt; DM (4)) &amp; (KI (1) &amp; (RA (1))</td>
<td>6</td>
</tr>
<tr>
<td>(KI (2)) &amp; (RA (2)) &amp; (PC + PQ (4))</td>
<td>8</td>
</tr>
<tr>
<td>(KI &amp; RA &gt; DM (4) &amp; (KI (1) &amp; (RA (1)) &amp; (PC + PQ (4))</td>
<td>10</td>
</tr>
</tbody>
</table>
### Program Monitoring Effectiveness/Efficiency Relationship

<table>
<thead>
<tr>
<th>Effectiveness (blue)/Efficiency (gold)</th>
</tr>
</thead>
<tbody>
<tr>
<td>How Important</td>
</tr>
<tr>
<td>How Much in Resources</td>
</tr>
</tbody>
</table>

### When Key Indicators and Risk Assessments Can Be Used

- **The Licensing Law:** All Rules that are promulgated based upon the Law
  - Compliance Decision: 100% compliance with all rules at all times.
  - Compliance Decision: Substantial (95-100%) but not 100% compliance with all rules at all times.

### Validation Approaches (Zellman & Fiene, 2012)

- **First Approach (Standards)**
  - CI x Caring for Our Children/Stepping Stones/13 Key Indicators of Quality Child Care
- **Second Approach (Measures)**
  - CI x RA + KI x DM
- **Third Approach (Outputs)**
  - PQ x CI
- **Fourth Approach (Outcomes)**
  - CO = PD + PQ + CI + RA + KI
Interpretation of Inter-Correlations

- Based upon recent research, the relationships between H&S (CI)(PC) and QRIS (PQ) standards and Child Outcomes (CO) is difficult to find significance.
- The relationship between Professional Development (PD) and staff interactions with Child Outcomes (CO) appear to be the significant relationship that should be explored as a Quality Intervention.
- If we want to explore H&S and QRIS standards significant relationships we may need to look at children's health & safety.

Validation of Key Indicator Systems

<table>
<thead>
<tr>
<th>Figure 1</th>
<th>Providers who fail the Key Indicator review</th>
<th>Providers who pass the Key Indicator review</th>
<th>Row Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Providers who fail the Comprehensive review</td>
<td>W</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Providers who pass the Comprehensive review</td>
<td>Y</td>
<td>Z</td>
<td></td>
</tr>
<tr>
<td>Column Totals</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Annotations for Figure 1

- A couple of annotations regarding Figure 1.
- **W + Z** = the number of agreements in which the provider passed the Key Indicator review and also passed the Comprehensive review.
- **X** = the number of providers who passed the Key Indicator review but failed the Comprehensive review. This is something that should not happen, but there is always the possibility this could occur because the Key Indicator Methodology is based on statistical methods and probabilities. We will call these False Negatives (FN).
- **Y** = the number of providers who failed the Key Indicator review but passed the Comprehensive review. Again, this can happen but is not as much of a concern as with “**X**”. We will call these False Positives (FP).
### National Validation Data

<table>
<thead>
<tr>
<th>Figure 2</th>
<th>Providers who fail the Key Indicator review</th>
<th>Providers who pass the Key Indicator review</th>
<th>Row Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>26</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td></td>
<td><strong>Provider's who fail the Comprehensive review</strong></td>
<td></td>
<td><strong>27</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Providers who pass the Comprehensive Review</strong></td>
<td></td>
<td><strong>17</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Column Total</strong></td>
<td></td>
<td><strong>54</strong></td>
</tr>
</tbody>
</table>

### Formula for Agreement Ratio

To determine the agreement ratio, we use the following formula:

\[
\text{Agreement Ratio} = \frac{A}{A + D}
\]

Where \(A\) = Agreements and \(D\) = Disagreements.

Based upon Figure 2, \(A + D = 42\) which is the number of agreements; while the number of disagreements is represented by \(B = 1\) and \(C = 7\) for a total of 8 disagreements. Putting the numbers into the above formula:

\[
\frac{42}{8} = .89
\]

The False Positives (FP) ratio is .14 and the False Negatives (FN) ratio is .02. Once we have all the ratios we can use the ranges in Figure 3 to determine if we can validate the Key Indicator System. The FP ratio is not used in Figure 3 but is part of the Agreement Ratio.

### Thresholds for Validating Key Indicators for Licensing Rules

- **Agreement Ratio Range**
  - (1.00) – (.90)
  - (.90) – (.85)
  - (.85) – (.80)
  - (.80) – (.00)

- **False Negative Range**
  - .05+
  - .10 – .06
  - .11 or more

### Summary of Phase 1 Evaluation Results

<table>
<thead>
<tr>
<th>Areas of Evaluation</th>
<th>Measures</th>
<th>Phase 1 Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Efficiency &amp; Effectiveness</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- % of Tier 1 centres remained with a shortened checklist</td>
<td>61%</td>
<td></td>
</tr>
<tr>
<td>- % of Tier 2 centres remained with a shortened checklist</td>
<td>59%</td>
<td></td>
</tr>
<tr>
<td>- Time spent on the core vs. full renewal checklists</td>
<td>24%</td>
<td></td>
</tr>
<tr>
<td>- Qualitative feedback on time for program discussions</td>
<td>13%</td>
<td></td>
</tr>
<tr>
<td>Validity/Reliability of Inspection Tools</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Correlation between the full and core renewal checklists with respect to observed non-compliances</td>
<td>0.96 (p &lt; .0001)</td>
<td></td>
</tr>
<tr>
<td>Preliminary Inter-Rater Reliability</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- % Agreement between each pair of PA and Sr. PA on the Core checklist</td>
<td>5%</td>
<td></td>
</tr>
<tr>
<td>- % Agreement between each pair of PA and Sr. PA on the Core checklist</td>
<td>0%</td>
<td></td>
</tr>
<tr>
<td>- % Agreement between each pair of PA and Sr. PA on the Core checklist</td>
<td>90%</td>
<td></td>
</tr>
<tr>
<td>IT Functionality</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- # of defects reported and resolved</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>- # of errors reported and resolved</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>Business Process</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Qualitative feedback from Sr. PAs on what works well or does not work well with the business process</td>
<td>5%</td>
<td></td>
</tr>
</tbody>
</table>

### Next Steps: Short and Long-Term Evaluation Plan

<table>
<thead>
<tr>
<th>Areas of Evaluations</th>
<th>Measures</th>
<th>Reporting Timeline</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Business</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Change in # and % of centres in tiers</td>
<td></td>
<td>Throughout Year 1</td>
</tr>
<tr>
<td>Efficiency</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Time spent on the core vs. current monitoring checklists</td>
<td></td>
<td>Year 1</td>
</tr>
<tr>
<td>Validity/Reliability of Inspection Tools</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Correlation between the full and core renewal checklists</td>
<td></td>
<td>Year 1</td>
</tr>
<tr>
<td>IT Functionality</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- % Agreement between each pair of PA and Sr. PA on the Core checklist</td>
<td></td>
<td>Year 1</td>
</tr>
<tr>
<td>Business Process</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Qualitative feedback from Sr. PAs on what works well or does not work well with the business process</td>
<td></td>
<td>Year 1</td>
</tr>
</tbody>
</table>
Differential Monitoring Model

**Key Elements**
- Program Compliance (PC) generally represented by a state’s child care licensing health & safety system or at the national level by *Caring for Our Children*.
- Program Quality (PQ) generally represented by a state’s QRIS, or at the national level by Accreditation (NAEYC, NECPA), Head Start Performance Standards, Environmental Rating Scales, CLASS, etc..
- Risk Assessment (RA) generally represented by a state’s most critical rules in which children are at risk of mortality or morbidity, or at the national level by *Stepping Stones*.

**Key elements (continued)**
- Key Indicators (KI) generally represented by a state’s abbreviated tool of statistically predictive rules or at the national level by 13 Indicators of Quality Child Care and NACCRRA’s *We CAN Do Better Reports*.
- Professional Development (PD) generally represented by a state’s technical assistance/training/professional development system for staff.
- Child Outcomes (CO) generally represented by a state’s *Early Learning Network Standards*.

Differential Monitoring Benefits

- Differential Monitoring (DM) benefits to the state are the following:
  - Systematic way of tying distinct state systems together into a cost effective & efficient unified valid & reliable logic model and algorithm.
  - Empirical way of reallocating limited monitoring resources to those providers who need it most.
  - Data driven to determine how often to visit programs and what to review, in other words, should a comprehensive or abbreviated review be completed.

Program Compliance/Licensing (CI)(PC)

- These are the comprehensive set of rules, regulations or standards for a specific service type.
- *Caring for Our Children (CFOC)* is an example.
- *Head Start Performance Standards* is an example.
- Program meets national child care benchmarks from NACCRRA’s *We CAN Do Better Report*.
- No complaints registered with program.

Advantages of Instrument Based Program Monitoring (IPM)

- Cost Savings
- Improved Program Performance
- Improved Regulatory Climate
- Improved Information for Policy and Financial Decisions
- Quantitative Approach
- State Comparisons

State Example of Violation Data (Fiene, 2013d)

<table>
<thead>
<tr>
<th>Region</th>
<th>Centers</th>
<th>Homes</th>
<th>Violations* Number</th>
<th>Violations* Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>8.30</td>
<td>149</td>
<td>6.40</td>
<td>117</td>
</tr>
<tr>
<td>2</td>
<td>8.50</td>
<td>191</td>
<td>4.63</td>
<td>125</td>
</tr>
<tr>
<td>3</td>
<td>6.41</td>
<td>121</td>
<td>3.04</td>
<td>128</td>
</tr>
</tbody>
</table>

* = Average (Means)

<table>
<thead>
<tr>
<th>License Type</th>
<th>Centers</th>
<th>Homes</th>
<th>Violations* Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial</td>
<td>7.44</td>
<td>36</td>
<td>3.00</td>
</tr>
<tr>
<td>Renewal</td>
<td>7.07</td>
<td>368</td>
<td>3.53</td>
</tr>
<tr>
<td>Amendment</td>
<td>9.61</td>
<td>99</td>
<td>2.95</td>
</tr>
<tr>
<td>Correction</td>
<td>6.71</td>
<td>14</td>
<td>3.00</td>
</tr>
<tr>
<td>Temporary</td>
<td>33.33</td>
<td>9</td>
<td>8.00</td>
</tr>
</tbody>
</table>

* = Average (Means)
Head Start: Content Area Correlations (Fiene, 2013c)

<table>
<thead>
<tr>
<th></th>
<th>CHS</th>
<th>ERSEA</th>
<th>FCE</th>
<th>FIS</th>
<th>GOV</th>
<th>SYS</th>
</tr>
</thead>
<tbody>
<tr>
<td>CDE</td>
<td>.33**</td>
<td>.26**</td>
<td>.06ns</td>
<td>.14**</td>
<td>.13*</td>
<td>.33**</td>
</tr>
<tr>
<td>CHS</td>
<td>.29**</td>
<td>.18**</td>
<td>.09ns</td>
<td>.25**</td>
<td>.51**</td>
<td></td>
</tr>
<tr>
<td>ERSEA</td>
<td>.15**</td>
<td>.10*</td>
<td>.27**</td>
<td>.38**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FCE</td>
<td>.01ns</td>
<td>.17**</td>
<td>.23**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FIS</td>
<td>.13*</td>
<td>.23**</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GOV</td>
<td>.38**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

International Study of Child Care Rules (Fiene, 2013a)

Program Quality (PQ)

- Generally Quality Rating and Improvement Systems (QRIS) and/or Accreditation systems either used separately or together.
- Program has attained at least a 5 on the various ERS’s or an equivalent score on the CLASS.
- Program has moved through all the star levels within a five year timeframe.
- Percent of programs that participate.
- Generally PQ builds upon PC/Licensing system.

International Study Benchmarks

Program Quality (PQ)

- Generally Quality Rating and Improvement Systems (QRIS) and/or Accreditation systems either used separately or together.
- Program has attained at least a 5 on the various ERS’s or an equivalent score on the CLASS.
- Program has moved through all the star levels within a five year timeframe.
- Percent of programs that participate.
- Generally PQ builds upon PC/Licensing system.

Keystone STARS ECERS Comparisons to Previous Early Childhood Quality Studies (Barnard, Smith, Fiene & Swanson (2006))

**Table:**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

**Legend:**

- Not in STARS
- Start w/STARS
- STARS 1&2
- STARS 3&4

**Chart:**

- **GRAPH:**
  - Not in STARS
  - Start w/STARS
  - STARS 1&2
  - STARS 3&4
ECERS/FDCRS By Type of Setting (Fiene, et al. 2002)

- Head Start: 4.9
- Preschool: 4.3
- Child Care Centers: 3.9
- Group Child Care Homes: 4.1
- Family Child Care Homes: 3.9
- Relative/Neighbor Care: 3.7

ECERS Distribution By Type of Service—Head Start (HS), Child Care Center (CC), Preschool (PS)

<table>
<thead>
<tr>
<th></th>
<th>HS</th>
<th>CC</th>
<th>PS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimal</td>
<td>8%</td>
<td>62%</td>
<td>35%</td>
</tr>
<tr>
<td></td>
<td>(3.99 or less)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adequate</td>
<td>46%</td>
<td>23%</td>
<td>44%</td>
</tr>
<tr>
<td></td>
<td>(4.00-4.99)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Good</td>
<td>46%</td>
<td>15%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(5.00 or higher)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

NECPA/ERS’s/QRIS (Fiene, 1996)

<table>
<thead>
<tr>
<th>Score</th>
<th>Minimal</th>
<th>Adequate</th>
<th>Good</th>
</tr>
</thead>
<tbody>
<tr>
<td>HS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CC</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PS</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

PC/PQ Conceptual Similarities

- 100% Compliance with child care health & safety rules = QRIS Block System.
- Substantial but not 100% Compliance with child care health & safety rules = QRIS Point.
- Both Licensing (PC) and QRIS (PQ) use rules/standards to measure compliance. Licensing rules are more structural quality while QRIS standards have a balance between structural and process quality.
Determining Compliance

- Risk assessment
  - Identify requirements where violations pose a greater risk to children, e.g., serious or critical standards
  - Distinguish levels of regulatory compliance
  - Determine enforcement actions based on categories of violation
  - Stepping Stones to Caring for Our Children is an example of risk assessment (AAP/APHA/NRC, 2013)

- Key indicators
  - Identify a subset of regulations from an existing set of regulations that statistically predict compliance with the entire set of regulations
  - Based on work of Dr. Richard Fiene (2002) – 13 indicators of quality
  - “Predictor rules”

National Center on Child Care Quality Improvement, Office of Child Care

Risk Assessment (RA)

- Risk Assessment (RA) are those rules which place children at greatest risk of mortality or morbidity.
- Stepping Stones is example of Risk Assessment Tool and Approach.
- When Risk Assessment (RA) and Key Indicators (KI) described in next slide are used together, most cost effective and efficient approach to program monitoring.
- 100% compliance with RA rules.

State Example of Risk Assessment Tool

RA Example = Stepping Stones

13 Key Indicators/Stepping Stones Crosswalk with State Rules Template

Key Indicators (KI)(Fiene & Nixon, 1985)

- Key Indicators are predictor rules that statistically predict overall compliance with all rules.
- 13 Indicators of Quality Child Care is an example of this approach.
- Most effective if KI are used with the Risk Assessment (RA) approach described on the previous slide.
- Must be 100% compliance with key indicator rules.
Advantages of Key Indicators

- Quality of Licensing is maintained.
- Balance between program compliance and quality.
- Cost savings.
- Predictor rules can be tied to child outcomes.

Pre-Requisites for Key Indicators

- Licensing rules must be well written, comprehensive, and measureable.
- There must be a measurement tool in place to standardize the application and interpretation of the rules.
- At least one year’s data should be collected.

How to Develop Key Indicators

- Collect data from 100-200 providers that represent the overall delivery system in the state.
- Collect violation data from this sample and sort into high (top 25%) and low (bottom 25%) compliant groups.
- Statistical predictor rules based upon individual compliance.
- Add additional rules.
- Add random rules.

Criteria for Using Key Indicators

- The facility had:
  - A regular license for the previous two years
  - The same director for the last 18 months
  - No verified complaints within the past 12 months
  - The operator has corrected all regulatory violations cited within 12 months prior to inspection
  - A full inspection must be conducted at least every third year
  - Not had a capacity increase of more than 10 percent since last full inspection
  - A profile that does not reveal a pattern of repeated or cyclical violations
  - No negative sanction issued within the past 3 years

Key Indicator Systems Summary

<table>
<thead>
<tr>
<th>1980 - 2010</th>
<th>2011+</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time savings only.</td>
<td>Time and cost savings.</td>
</tr>
<tr>
<td>Child care mostly.</td>
<td>All services.</td>
</tr>
<tr>
<td>Child care benchmarking.</td>
<td>Benchmarks in all services.</td>
</tr>
<tr>
<td>Substantial compliance.</td>
<td>CC national benchmarks.</td>
</tr>
<tr>
<td>Safeguards.</td>
<td>Safeguards.</td>
</tr>
<tr>
<td>Tied to outcomes study.</td>
<td>Tied to outcomes study.</td>
</tr>
<tr>
<td>Adult residential – PA.</td>
<td>National benchmarks.</td>
</tr>
<tr>
<td>Child residential – PA.</td>
<td>Inter-National benchmarks.</td>
</tr>
<tr>
<td>Risk assessment/weighting.</td>
<td>Risk assessment/DMLMA.</td>
</tr>
</tbody>
</table>

Relationship of Comprehensive Reviews (CR) to Key Indicator (KI) or Risk Assessment (RA) Rule Non-Compliance

- Key Indicator Rule
- Risk Assessment Rule
- Both
- Risk to CR

- Point System = CR
- 2+ Rules = CR
- 1 Rule = CR
- Absolute scoring 1/0
- Relative scoring 1/9

- 20 Rules = CR
- 1 Rule = NR
- 1 Extreme Rule = CR
- Relative scoring 1/9

- 20 Rules = NR
- 1 Rule = NR
- Risk in CR
- Relative scoring 1/9
**Key Indicator/Non-Compliance Relationship**

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Effective</th>
<th>Efficient</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Key Indicator Formula Matrix**

<table>
<thead>
<tr>
<th>Providers in Compliance with specific standard</th>
<th>Programs Out Of Compliance with specific standard</th>
<th>Row Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>High Group – top 25%</td>
<td>A</td>
<td>B</td>
</tr>
<tr>
<td>Low Group – bottom 25%</td>
<td>C</td>
<td>D</td>
</tr>
<tr>
<td>Column Total</td>
<td>W</td>
<td>X</td>
</tr>
</tbody>
</table>

**Key Indicator Matrix Expectations**

- A + D > B + C
- A + D = 100% is the best expectation possible.
- If C has a large percentage of hits, it increases the chances of other areas of non-compliance (False positives).
- If B has a large percentage of hits, the predictive validity drops off considerably (False negatives).

**Key Indicator Statistical Methodology**

\[
\phi = \frac{(A)(D) - (B)(C)}{\sqrt{(W)(X)(Y)(Z)}}
\]

- 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.

**Key Indicator Coefficient Ranges**

<table>
<thead>
<tr>
<th>KI Coefficient Range</th>
<th>Characteristic of Indicator</th>
<th>Decision</th>
</tr>
</thead>
<tbody>
<tr>
<td>(+1.00) – (+.26)</td>
<td>Good Predictor – Licensing</td>
<td>Include</td>
</tr>
<tr>
<td>(+1.00) – (+.76)</td>
<td>Good Predictor – QRIS</td>
<td>Include</td>
</tr>
<tr>
<td>(.25) – (-.25)</td>
<td>Unpredictable - Licensing</td>
<td>Do not</td>
</tr>
<tr>
<td>(.75) – (-.25)</td>
<td>Unpredictable - QRIS</td>
<td>Do not</td>
</tr>
</tbody>
</table>

**Examples of Key Indicator Applications**

- Health and Safety Licensing Key Indicators.
- Stepping Stones Key Indicators.
- Office of Head Start Key Indicators.
- Accreditation Key Indicators – NECPA – National Early Childhood Program Accreditation.
- Environmental Rating Scale Key Indicators – Centers.
- Environmental Rating Scale Key Indicators – Homes.
- Caregiver Interaction Scale Key Indicators.
- Quality Rating & Improvement System Key Indicators – QualiStar.
- Footnote: Child & Adult Residential Care Key Indicators.
- Footnote: Cruising Industry in general and Royal Caribbean in particular.
Examples of Health & Safety Key Indicators

- Program is hazard free in-door and out-doors.
- Adequate supervision of children is present.
- Qualified staff.
- CPR/First Aid training for staff.
- Hazardous materials are inaccessible to children.
- Staff orientation and training.
- Criminal Record Checks.
- Ongoing monitoring of program
- Child immunizations

Caring for Our Children Basics (2015)

- Stepping Stones 3 (2013)
- Senate Bill 1086 (2014)
- Notice for Proposed Rule Making to Amend CCDF Regulations (2013)
- 27 Indicators from Head Start Program Standards (2014)
- 15 Key Indicators from Stepping Stones 3 (Fiene)(2013)
- 77 Observable Health and Safety Standards for Early Care and Education Providers from Caring for Our Children (Alkon)(2014)

Federal Legislation

- In the House of Representatives, U. S., September 15, 2014.Resolved, That the bill from the Senate (S. 1086) entitled “An Act to reauthorize and improve the Child Care and Development Block Grant Act of 1990, and for other purposes.”, do pass with the following
- SECTION 1. SHORT TITLE. 1 This Act may be cited as the “Child Care and Development Block Grant Act of 2014”.

The Key Indicators from Stepping Stones (3rd Edition)

- 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
- 1.4.1.1 - First Aid and CPR Training for Staff
- 1.4.2.1 - Child Abuse and Neglect Education
- 1.5.2.1 - Methods of Supervision of Children
- 2.1.1.4 - Diaper Changing Procedure
- 2.2.1.2 - Handwashing Procedure
- 2.3.1.1 - Emergency Procedures
- 2.3.4.1 - Recognizing and Reporting Suspected Child Abuse, Neglect, and Exploitation
- 3.5.1.1 - Medication Administration
- 5.2.7.6 - Storage and Disposal of Infectious and Toxic Wastes
- 6.1.5.1 - Prohibited Surfaces for Placing Climbing Equipment
- 7.2.5.2 - Unimmunized Children
- 9.2.4.5 - Emergency and Evacuation Drills/Exercises Policy
Interest in streamlining the monitoring protocol — Tri-Annual Reviews.

Selected a representative sample from the overall Head Start data base.

The Head Start monitoring system is an excellent candidate for developing key indicators and differential monitoring system:

- Highly developed data system to track provider compliance history.
- Well written, comprehensive standards.
- Monitoring Protocols in place for collecting data.
- Risk assessment system in use.
- Program quality (CLASS) data collected.
- Example of a national system using key indicators.
- Head Start has all the key elements present from the Differential Monitoring Model as presented earlier.

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**Development of Head Start Key Indicators**

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**Head Start Key Indicators Sample Content**

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**HSKI-C Monitoring Protocol**

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**Conceptual Similarities Between Licensing & QRIS and Key Indicator Methodology**

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**Other Examples of Key Indicators**
Key Indicator (KI) Formula Matrix for ECERS Item 16 – Children Communicating

These data are taken from a 2002 Program Quality Study (Fiene, et al.) completed in Pennsylvania. The phi coefficient was 1.00. The first time this has occurred in generating key indicators. It was replicated in a 2006 QRIS – Keystone STARS.

<table>
<thead>
<tr>
<th></th>
<th>Providers with a 5 or higher on item 16</th>
<th>Programs with a 3 or less on item 16</th>
<th>Row Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>High Group</td>
<td>117</td>
<td>0</td>
<td>117</td>
</tr>
<tr>
<td>Low Group</td>
<td>0</td>
<td>35</td>
<td>35</td>
</tr>
<tr>
<td>Column Total</td>
<td>117</td>
<td>35</td>
<td>152</td>
</tr>
</tbody>
</table>

Box Plot of ECERS Item 16

Box Plot of ECERS Item 39

Normal & Skewed Data

ECERS Total Scores

State’s Family CC Home Licensing
**Dichotomization & Skewed Data**

- When data are extremely skewed as is the case with licensing data, dichotomization of data is warranted.
- Skewed licensing data has a strong possibility of introducing very mediocre programs into the high group which will make it difficult to always identify the best programs.
- It is much easier to identify problem programs in a skewed data distribution.

**Differential Monitoring Options**

- **Reward good compliance:**
  - Abbreviated inspection – if no serious violations, for a period of time
  - Fewer full compliance reviews if compliance record is strong
  - Response to non-compliance:
    - Additional monitoring visits
    - Technical assistance
- **Determine how often particular rules are included in inspections. Rules that pose the most risk of harm to children if violated are reviewed during all inspections.** (Virginia)

**Provider Outcomes to Determine Differential Monitoring (DM)**

- Fully licensed – substantial/full compliance.
- Potentially accredited (NAEYC/NECPA).
- Highest star rating.
- Cost effective and efficient delivery system.
- Little turnover of staff and director.
- Fully enrolled.
- Fund surplus.
- The above results determine the number of times to visit & what to review and resources allocated.

**Differential Monitoring (DM) Allocation: An Example**

- **Absolute System – One size fits all.**
  - 25% of providers need additional assistance & resources.
  - Other 75% receive the same level of monitoring services without differential monitoring based upon past compliance history. No additional services available.
- **Relative System – Differential Monitoring.**
  - 25% of providers need additional assistance & resources.
  - 25% have a history of high compliance and are eligible for Key Indicator/Abbreviated Monitoring visit. Time saved here is reallocated to the 25% who need the additional assistance & resources.
  - 50% receive the same level of monitoring services because they are not eligible for Key Indicators nor are they considered problem providers.
Monitoring Tools

- 26 States use differential monitoring
  - Increased from 11 States in 2005
- Most States report using abbreviated compliance forms
- Nearly all States provide technical assistance during monitoring activities
  - 45 percent report assisting facilities to improve quality beyond licensing regulations

National Center on Child Care Quality Improvement, Office of Child Care

Program Monitoring Questions?

- Generalist versus Specialists Assessors.
  - General (SS3) versus Special Standards (Licensing, QRIS, HSPS).
- How Key Indicators can be used?
  - KI = Generalists.
  - CI = Specialists.
- Based upon approach from previous slide, discussion should be generalist + specialist rather than generalist or specialist.

Differential Monitoring (DM) Example (Fiene, 2013e)

Core Indicators

Screener = CR + KI

Monitoring Visit

Licensing Study

Monitoring Visit

Licensing Study

Compliance Decisions:

Core Indicators = Core Rules + Key Indicators
  - this becomes a screening tool to determine if a program receives a LS or MV 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 which indicates substantial to full compliance with all rules and 100% with Core Indicators. The next visit it is a Monitoring Visit.

Non-compliance = less than 96% with all rules which indicates lower compliance with all rules. The next visit is a Licensing Study.

Math Model for Computing ACR

\[ CH = \frac{(NC (TH+TO))}{2} / (1/TA) \]

Where:

- CH = Contact Hours
- NC = total number of children on the maximum enrollment day.
- TO = total number of hours the center is open.
- TH = total number of hours at full enrollment.
- TA = total number of teaching staff.

Professional Development (PD) (Fiene, 1995, Fiene, etal, 1998)

- All staff have CDA or degrees in ECE.
- Director has BA in ECE.
- All staff take 24 hours of in-service training/yr.
- Mentoring of staff occurs.
- Training/PD fund for all staff.
- Professional development/training/technical assistance (PD) linked to Differential Monitoring (DM) results.

Capital Area Early Childhood Training Institute

Mentoring

Individualized, on-site support to help child care staff implement the knowledge and skills they are receiving in classroom instruction.

Benefits:

- Building relationships.
- Effecting long term change in best practices.
- Providing a support system.
Relationship between Child Care Income and Quality Measures (Fiene, 2002b)

<table>
<thead>
<tr>
<th>ITERS</th>
<th>A RNETT</th>
<th>KIDI</th>
<th>BLOOM</th>
<th>DIR16</th>
</tr>
</thead>
<tbody>
<tr>
<td>Score</td>
<td>Score</td>
<td>Score</td>
<td>Score</td>
<td>Score</td>
</tr>
<tr>
<td>1.000</td>
<td>.599**</td>
<td>.107</td>
<td>.368*</td>
<td>.661**</td>
</tr>
<tr>
<td>.000</td>
<td>.568</td>
<td>.038</td>
<td>.000</td>
<td>.000</td>
</tr>
</tbody>
</table>

49 45 31 32 37

Correlation is significant at the 0.01 level (2-tailed).**.
Correlation is significant at the 0.05 level (2-tailed).*.

Infant-Toddler Teacher Mentoring

ITERS/HOME Post-Test Scores

ITQIP (PD) Mentoring/Coaching

Child Outcomes (CO)

- Health and safety:
  - Immunizations (95%+).
  - Child well-being (90% of key indicators).
- Developmental Outcomes:
  - Social (90% meeting developmental benchmarks).
  - Emotional (90% meeting developmental benchmarks).
  - Cognitive (90% meeting developmental benchmarks).
  - Gross and fine motor (90% meeting developmental benchmarks).

Correlation of Accreditation, Licensing, & Training with Child Outcomes

<table>
<thead>
<tr>
<th>Licensing</th>
<th>Quality</th>
<th>Training</th>
<th>Accreditation</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECERS</td>
<td>EDECS/CECD</td>
<td>MED/NAPCEC</td>
<td>SE</td>
</tr>
<tr>
<td>Silliman</td>
<td>.23*</td>
<td>.30*</td>
<td>.34*</td>
</tr>
<tr>
<td>GRANT</td>
<td>.26*</td>
<td>.25*</td>
<td>.16*</td>
</tr>
<tr>
<td>TELD</td>
<td>.26*</td>
<td>.25*</td>
<td>.31*</td>
</tr>
<tr>
<td>ALL</td>
<td>.44*</td>
<td>.31*</td>
<td>.31*</td>
</tr>
<tr>
<td>SFQ</td>
<td>.37*</td>
<td>.25*</td>
<td>.22*</td>
</tr>
<tr>
<td>CB/SOC</td>
<td>.28*</td>
<td>.25*</td>
<td>.28*</td>
</tr>
</tbody>
</table>

p < .05
Kontos & Fiene (1987).
**Key Element ECPQIM/DMLMA Publication Summary**

- **PC** = *Caring for Our Children* (AAP/APHA/NRC, 2012).
- **PQ** = *National Early Childhood Program Accreditation (NECPA)* (Fiene, 1996).
- **RA** = *Stepping Stones* (NRC, 2013).
- **KI** = *13 Indicators of Quality Child Care* (Fiene, 2002a).
- **DM** = *International Child Care & Education Policy* (Fiene, 2013a).
- **PD** = *Infant Caregiver Mentoring* (Fiene, 2002b).

**Outstanding Issues**

- Process versus Structural Quality Indicators
- Input/Processes versus Output/Outcomes
- Impact of Pre-K and QRIS on Licensing
- Inter-rater reliability still is a big issue contributing to inconsistent data collection

**Methodological Issues**

- The need for states to routinely conduct reliability testing is vitally important to make sure that their licensing staff/inspectors are consistently measuring rules.
- The balancing between program compliance and program quality.
- Determining the most effective and efficient threshold is critical because as one becomes more efficient a loss of effectiveness does occur which can lead to an increase in false positives and negatives.

**Lessons Learned**

- We have learned how to deal more effectively with very skewed data through dichotomization grouping of a high versus a low compliant groups.
- Risk assessment only focuses on compliance and high risk rules which generally are always in compliance.
- Key indicators focus on high and low compliance differences with these rules generally being somewhere in the middle range, not in compliance the majority of the time nor out of compliance the majority of the time.
- It continues to be a fact that all rules are not created equal nor are they administered equally.
- Most recently we have seen that when higher standards are applied, especially with Pre-K initiatives, this goes a long way in helping to discriminate the top performers from the mediocre performers.

**Future Research**

- The crucial need for future research in the human services licensing and regulatory compliance area is for validation studies of the above approaches, Key Indicators and Risk Assessment methodologies to make certain that they are working as they should.
- Another validation study is needed regarding the relationship between program compliance and program quality. This is such an important finding about the plateau of program quality scores with increasing regulatory compliance as one moves from substantial compliance with all rules to full compliance with all rules.
- A clear delineation needs to occur to establish appropriate thresholds for the number of key indicator/predictor rules that provide a balance between efficiency and effectiveness that can diminish the number of false positives and especially false negatives.

**Concluding Thoughts**

- The relationship between regulatory compliance and quality is not linear.
- Regulatory compliance has difficulty in distinguishing the best programs from the mediocre programs.
- Regulatory compliance is very effective at identifying the worse programs.
- There still is the need to balance regulatory compliance with quality indicators.
- There is the need to validate differential monitoring approaches, such as risk assessment and key indicators.
- What is the ideal threshold for the number of key indicator/predictor rules so that we can maintain a balance of program monitoring effectiveness and efficiency.
- Risk assessment rules are usually in compliance because they place children at such risk of mortality or morbidity.
- More recent risk assessment systems have two components: severity and probability of occurrence.
- Key indicator/predictor rules are not usually in compliance but are not out of compliance a great deal.
- What is it about key indicator/predictor rules that make them so effective in discriminating between high and low performing programs.
- Licensing data are very skewed and because of this there is the need to dichotomize the data.
Core Indicators – Final Thoughts

- Childhood Immunizations (PC)
- Director & Teacher Qualifications (PC, PQ)
- Mentoring/Coaching (PQ/PD)
- Family Engagement (PQ)
- Social-Emotional & Language Learning/Competencies (ELS, PD)

Early Childhood Program Quality Indicator Model (ECPQIM) Evolution

- Nixon Veto of Comprehensive Child Development Bill 1971. (ECPQIM0)
- FIDCR Moratorium 1981. (ECPQIM1)
- Reagan Block Grant Formula 1983. (ECPQIM1)
- CDBG enacted 1991. (ECPQIM2)
- Caring for Our Children (CFOC) 1st Edition 1993. (ECPQIM2)
- Stepping Stones 1st Edition 1995. (ECPQIM2)
- Child Care Development Fund (CCDF) enacted 2001. (ECPQIM3)
- Child Care Aware First Report Card 2007. (ECPQIM3)
- OPRE/ACF Validation Brief 2012. (ECPQIM4)
- Differential Monitoring Logic Model (DMLMA) 2012-13. (ECPQIM4)

ECPQIM 1-4 Graphics

The following graphics represent the previous generations of ECPQIM 1-4 beginning in 1975 up to the present model (DMLMA, 2013).


<table>
<thead>
<tr>
<th>Inputs</th>
<th>Processes</th>
<th>Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agency Rule Making Authority</td>
<td>Interagency Review</td>
<td>Consumer Data Collection</td>
</tr>
<tr>
<td>Regulations, Requirements, Codes, Funding Rules</td>
<td>Compliance Study</td>
<td>Combined/Cohort Effective Use of Resources to Meet State Priorities</td>
</tr>
<tr>
<td>Monitoring System, Surveillance, Licensing, Certification</td>
<td>Change/Certification, Training, TA</td>
<td>Strength/Clarity of Rules Reduced Duplication of Rules Consistency Across Agencies</td>
</tr>
<tr>
<td>CCR&amp;R, Local CC Programs, CC Organizations, Consumers, Monitors</td>
<td>Weighted Indicator Checklist</td>
<td>Monitoring Efficiency Program</td>
</tr>
<tr>
<td>Field Survey, Focus Groups, Public Hearings</td>
<td></td>
<td>Compliance Targeting Resources to Areas of Need</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Monitoring Effectiveness Training &amp; Technical Assistance Program</td>
</tr>
<tr>
<td></td>
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<td>Compliance</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Consensus-Building Increased State Local Cooperation</td>
</tr>
</tbody>
</table>


Related Publications and Reports

Resources

For the interested reader, please consult the following excellent publications by the Assistant Secretary for Planning and Evaluation, the Office of Child Care, and the National Resource Center for Health and Safety in Child Care that will provide additional insights into program monitoring in general, differential monitoring in particular, risk assessment and key indicator systems:

ACF/Caring for Our Children Basics: http://www.acf.hhs.gov/programs/ecd/caring


ASP/Thirty Key Indicators of Quality: http://www.aspe.hhs.gov/programs/30-key-indicators-quality-child-care


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