

DimRegSci

2D Foundation

3D Elevation

3D Quality

Regulatory Outcomes

THE NEW PARADIGM

From Blueprint to 3D Render

Integrating the Integrated Regulatory Framework (IRF) and Contact Hour Quality (CH+) Metrics to revolutionize Early Care and Education (ECE) assessment.

The 2D Baseline: Contact Hours (CH)

Traditional regulatory science relies on a flat, two-dimensional measurement of compliance. The Contact Hour (CH) formula tracks the relationship between capacity (Number of Children), time (Hours Open), and supervision (Teaching Staff). It measures physical presence, not the quality of the experience.

Measuring Compliance Density

Tracking regulatory loads using the core equation: $CH = NC \times TO \div TA$

Regulate capacity loads across different general and mixed. Note how high enrollment relative to staff impacts the CH ratio.

Number of Children (NC)

The maximum daily enrollment. As this number grows, the baseline contact hour density increases linearly.

Time Open (TO)

Total operational hours. Longer exposure times multiply the density, creating a dynamic rather than static compliance view.

Teaching Staff (TA)

The denominator. Higher staffing levels reduce the contact hour density, maintaining compliance ratios.



The 3D Elevation: Program Quality (Z-Axis)

Once safety is guaranteed, the framework introduces the Z-Axis: ten distinct Program Quality Indicators (PQIs). This transforms the static 2D square into a 3D volume, where high quality yields an exponential regulatory benefit.

The Exponential Power of Quality

Formula: $CH+ = CH \times 10^{PQI} \times 10^{PQI^2}$

Notice the massive buffer generated as minimum program quality score increases from 2 (Good) to 4 (High).

The 10 Quality Dimensions

Mapping a high-performance profile across all indicators.

Indicators obtained from the IRF (2023) CH+ Data. Only 10 Quality Dimensions are shown.

Regulatory Outcomes: The Math in Action

The ultimate application of Dimensional Regulatory Science is the Offset Equation. High quality algebraically compensates for minor capacity overages or low-risk administrative errors, resulting in targeted, data-driven oversight.

$$Offset = ((CH+_{act}) - CH_{std}) - (F_{high} - F_{low}) - (M_{act}) \times P$$

Comparing Facility Performance Scenarios

High Performance

Perfect safety records and top-tier quality generate a massive positive regulatory buffer (+70-200). These programs earn autonomy through differential monitoring.

Medium Performance

Stable minor capacity overages (-10 PNC) and low-risk violations (-2); high educational quality offsets the negative values, yielding a positive offset (+10-20).

Low Performance

A single high-risk violation (action an immediate system shutdown). The math becomes negative (-20) as the facility is reversioned to uniform program monitoring.