

Unified Theory of Regulatory Compliance: Further Explanation of the Equation and Variables

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This research abstract will provide further explanation of the unified theory of regulatory compliance's equation and the associated variables. The theory's variables and equation provide an effective and efficient model for determining the overall quality of child care and early education (CCEE) programs. It provides a balance of structural (SQ) and process quality (PQ) assessment utilizing human care licensing (HCL) differential monitoring methodologies of risk assessment (False Positives and Negatives (F+/F-)) and key indicator (Foundational Compliance (FC)) methodologies. The unified theory also introduces the concept of dimensionality by assessing at a three-dimensional (3D) (Program Quality Indicators (PQI)) in addition to a two-dimensional (2D) level (Contact Hour metric (RWCH)).

The new unified theory of regulatory compliance produces a 100-point assessment scale which is more intuitive in that higher numbers closer to 100 indicate a high-quality program while results closer to 0 indicate a low-quality program. The efficiency quotient is measured through the RWCH metric and the effectiveness quotient is measured through the PQI scale. The RWCH (SQ) and PQI (PQ) variables are part of a micro assessment focusing on the classroom through the CCEEHM: Child Care Early Education Heart Monitor App while FC, F+, and F- variables are part of a macro assessment focusing on overall regulatory compliance with all health and safety rules within an integrated regulatory framework (IRF).

The basic equation is as follows and that is further elaborated in the following table to help explain what each variable means:

$$CH+ = ((\sum PQI) - (FC^{\Phi}) - (F^{-\Phi}) - (F+ \times 3) - (\sum RWCH)) \times 2$$

The table provides additional details about the above formula and how the variables inter-relate.

Quality Level	Variable	Scoring	Dimensions	Methodology	App
PQ	PQI	+10 - +40	3D	KIM	CCEEHM
SQ	RWCH	-20 - +20	2D	KIM	Micro
SQ	FC	0/1	1D	KIM	IRF
SQ	F+	0/-3	1D	RAM-Subs RC	IRF
SQ	F-	0/1	1D	RAM-Full RC	Macro

Legend: Quality Level is PQ = Process Quality or SQ = Structural Quality; Scoring = ranges on the various variables, such as PQI = 10 – 40 is the summation of the 10 PQI individual program quality indicators, RWCH = -20 to +20 is the overage or under enrollments or the facility being open too long or not, FC, F+, and F- are all frequency or binary categories and relate to rules that are either predictive rules (FC), high risk rules (F-) or low risk rules (F+); Dimensions refers to the level of measurement of the rule itself (1D), over time (2D), or the quality element (3D); Methodology refers to key indicators (KIM), risk assessment (RAM), substantial regulatory compliance (Subs RC), or full regulatory compliance (Full RC); App refers to the actual application used to generate the results, for the micro assessment it is the Child Care Early Education Heart Monitor (CCEEHM), and for the macro assessment level it is the Integrated Regulatory Framework (IRF); PQI = Program Quality Indicators; FC = Foundational Compliance or Fiene Coefficient – Key Indicator Rules; F- = False Negative – High Risk Rules; F+ = False Positive – Low Risk Rules; RWCH = Relatively Weighted Contact Hours; Status = Pass Fail determination; IRF = Integrated Regulatory Framework.

This section provides additional guidance on the three major components of the CH+ equation which deals with RWCH, the relative weighted contact hours which measures the time element of regulatory compliance with staff child ratios and group sized. The IRF, integrated regulatory framework which measures regulatory compliance with key indicators and risk assessment rules and is a failsafe gate keeping function that these types of rules must always be in compliance for demonstrating a very high level of substantial compliance or the equation fails to run the PQI and RWCH components. The PQI is a summation of the results obtained from the 10 PQIs as an offset to the RWCH results which would indicate either full compliance or over-/under-compliance with the contact hours measured at a two-dimensional level. The PQI introduces a 3D measurement scale which tells us the relative quality of the contact hours between staff and children. Without this last component, the RWCH is measuring the interaction amongst staff and children over time but says nothing about the quality of those interactions. However, with that said, RWCH is still a more effective metric than just measuring staff-child ratios or group size rules which would still be at a one-dimensional measurement level.

$$\text{RWCH} = (\text{NC} \times \text{TO}) / \text{TA} \quad \text{2D Time Element}$$

$$\text{IRF} = (\text{FC}) + (\text{F-}) + (\text{F+}) \quad \text{Macro Level Compliance DM} = \text{RAM} + \text{KIM TRC 1D Rule Compliance}$$

$$\Sigma \text{PQI} = 10 \text{PQI}^3 - \Sigma \text{RWCH CCEEHM Micro Level 3D Quality}$$

Legend: PQI = Program Quality Indicators; FC = Foundational Compliance or Fiene Coefficient – Key Indicator Rules; F- = False Negative – High Risk Rules; F+ = False Positive – Low Risk Rules; RWCH = Relatively Weighted Contact Hours; Status = Pass Fail determination; NC = Number of Children; TO = Time Open; TA = Total Number of Teaching Staff. IRF = Integrated Regulatory Framework.

The last component for this explanation is the presentation of the following table which provides a unified theory of regulatory compliance CH+ Conversion Table© which gives

exampled results from the above equations. It demonstrates how the results can be neatly grouped into a high, medium, and low sequence based upon a 1-100 rubric and scale. This scale will be more normally distributed similar to other program quality scales and remove the tremendous skewness found in regulatory compliance data distributions.

Unified Theory of Regulatory Compliance© CH+ Conversion Table© Fiene 2026

Group	Site	PQI	FC	F-	F+	RWCH	Status	CH+	Notes
High	1	40	0	0	0	+10	Pass	100	Theoretically Possible
High	2	40	0	0	0	0	Pass	80	Gold Standard, High Quality
High	3	38	0	0	-1	0	Pass	74	Substantial Compliance
High	4	36	0	0	0	0	Pass	72	100% Compliance
Med	5	38	0	0	-2	-10	Pass	52	Quality Offset
Med	6	32	0	0	0	-5	Pass	54	Quality Offset
Med	7	28	0	0	-2	-3	Pass	46	Average
Med	8	24	0	0	-1	-8	Pass	30	Borderline
Low	9	35	0	-1	0	0	Fail	0	High Risk Veto (F- = 1)
Low	10	30	0	0	-3	0	Fail	0	F+ Noncompliance (F+ = 3)
Low	11	16	-1	0	-5	-10	Fail	0	Systemic Breakdown (CH+ = 0)
Low	12	10	0	0	0	0	Pass	20	Compliance ok; Quality not (PQI = 10)

Legend: PQI = Program Quality Indicators; FC = Foundational Compliance or Fiene Coefficient – Key Indicator Rules; F- = False Negative – High Risk Rules; F+ = False Positive – Low Risk Rules; RWCH = Relatively Weighted Contact Hours; Status = Pass Fail determination; CH+ = Score from the new Unified Theory of Regulatory Compliance App. (100-70 = High/Full License; 69-30 = Med/Provincial License; 29-0 = Low/license revocation or questionable license status). NC = Number of Children; TO = Time Open; TA = Total Number of Teaching Staff. IRF = Integrated Regulatory Framework.

It is hoped that with this additional documentation it will provide the detail needed to fully understand the Unified Theory of Regulatory Compliance's CH+ formula and its significance for assessing CCEE programs.

For very detailed additional information, please go to the Research Institute for Key Indicators Data Laboratory's website: <https://rikinstitute.com>