National Association for Regulatory Administration

Validation of Washington State's Child Care Risk Assessment and Licensing Decision Making Tiered System

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June 2020

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Washington State Department of Children, Youth, and Families Child Care Risk Assessment Licensing Measures and Outputs Validation Study Final Report

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Research Institute for Key Indicators & Penn State University

June 2020

This report will provide the results of two cohorts from a large-scale validation study of Washington State's Department of Children, Youth and Families child care Risk Assessment Licensing Decision Making Tiers System (RALDMTS). The validation involves two key components: 1) Validation of the measurement strategy used to determine the licensing decision making for child care centers and family child care homes; 2) Validation of the licensing system in juxtaposition to the program quality measures (ERS & CLASS) as part of their QRIS – Quality Rating and Improvement System utilized in Washington.

The data set involves two cohorts drawn from licensing reviews in 2019 – 2020. The data reported in this report is from late 2019 and involved 146 sites, and from early 2020 and involved 385 sites. It was driven by the QRIS visiting and assessment schedule.

Let me start by saying that licensing/regulatory compliance data are very different from other data in how they get distributed and therefore should be analyzed. Licensing/regulatory compliance data are grouped into 4 basic buckets: Full regulatory compliance, substantial regulatory compliance, mid-range, and non-optimal regulatory compliance. Obviously full regulatory compliance means 0 violations or 100% compliance with all rules. Substantial regulatory compliance means 1-3 violations with all rules, while low compliance means 10 or move violations with all rules. A middle regulatory compliance range means 4-9 violations with all the rules.

The data were well distributed and fit into the above four (0 - 3) buckets very nicely. Based upon comparing the licensing data to the "Tiers" and "Actions" variables, the licensing decision making system has been validated with high correlations between the licensing data, the Tiers, Risk Assessment Matrix, and the proposed Actions (see Charts 1, 1a and 2, 2a). The data are reported out for both Cohort 1 and then Cohort 2.

With the comparisons between the licensing data and the Environmental Rating Scales (ERS), the licensing data showed the typical "regulatory compliance law of diminishing returns" where the ERS scores were highest with the substantial regulatory compliance range rather than the full regulatory compliance level. In other words, there is not a linear relationship between moving from low to full regulatory compliance and program quality. Programs that are in substantial regulatory compliance and not full regulatory compliance had higher program quality scores. Obviously, the low regulatory compliance programs had also low program quality scores. There is a linear relationship between

regulatory compliance and program quality in moving from low regulatory compliance to the middle and substantial regulatory compliance levels (see Chart 3, 3a).

Chart 1: Tiers By Proposed Actions (Cohort 1)

	Tiers	1	2	3	4
Proposed	**None**	119	0	0	0
Actions	**Tech Assist**	0	12	0	0
	Safety Plan	0	1	2	0
	Civil Penalty	0	1	8	1

R = .97; p < .001

Chart 1a: Tiers By Proposed Actions (Cohort 2)

	Tiers	1	2	3	4
Proposed	**None**	312	0	0	0
Actions	**Tech Assist**	14	43	5	0
	Safety Plan	0	1	2	1
	Civil Penalty	0	4	15	4

R = .80; p < .001

Chart 2: Risk Assessment Matrix (RAM) By Regulatory Compliance (RC) Levels & Licensing Decision Tiers (Cohort 1)

	Tiers	Actions	Immediate	Short Term	Long Term	RC
RAM	.50*	.48*	.63*	.69*	.37*	.93*

* P < .01

Chart 2a: Risk Assessment Matrix (RAM) By Regulatory Compliance (RC) Levels & Licensing Decision Tiers (Cohort 2)

	Tiers	Actions	Immediate	Short Term	Long Term	RC
RAM	.52*	.50*	.62*	.66*	.41*	.88*

* P < .01

Chart 3: Regulatory Compliance Levels By Program Quality Scores (ERS Average Scores)(Cohort 1)

Licensing Bucket	Legend	Compliance	Programs	ERS Aver Score
0	Full	0 violations	33	3.84*
1	Substantial	1-3 violations	32	4.26*
2	Middle	4-9 violations	50	4.18*
3	Low	10+ violations	31	3.92*

* P < .03

Chart 3a: Regulatory Compliance Levels By Program Quality Scores (ERS Average Scores)(Cohort 2)

Licensing Bucket	Legend	Compliance	Programs	ERS Aver Score
0	Full	0 violations	82	4.07*
1	Substantial	1-2 violations	69	4.28*
2	Middle	3-10 violations	163	4.17*
3	Low	11+ violations	71	3.93*

* P < .01

There are some additional significant relationships to report which occurred in the second cohort but were not observed in the first cohort but that was because the total number of sites were fewer in the first cohort. The second cohort had over twice as many sites where data were collected. Here are some of the significant relationships observed between the Quality Rating and Improvement System (QRIS) and regulatory compliance (RC) and the RAM licensing decision making.

- **QRIS x RAM: X^2 = 35.243; p < .009**
- **QRIS x RC: X^2 = 27.761; p < .001**

Significant relationships between Environmental Rating Scales (ERS) and Licensing Decision Tiers (Tiers).

- **ERS x Tiers: F = 5.085; p < .002, where Tier1 = 4.16; Tier2 = 4.10; Tier3 = 3.68; Tier4 = 3.58**
- **ERS x QRIS: F = 26.534; p < .0001, where QRIS1= 3.89; QRIS2= 3.32; QRIS3 = 4.14; QRIS4 = 4.62**

There were interesting demographic and descriptive data with Cohort 2.

- **Regulatory compliance ranged from 0 to 55 violations.**
- **QRIS Levels: 1 = 1%; 2 = 7%; 3 = 78%; 4 = 10%**
- **Licensing Tiers: 1 = 81%; 2 = 12%; 3 = 6%; 4 = 1%**

In both cohorts, there were no significant relationships between regulatory compliance and the CLASS tool as there was with the ERS tool. There was not as much variance in the CLASS tool when compared to the ERS tool. Statistically this was demonstrated when basic distributions were compared and the CLASS's skewness and kurtosis were significantly different than the ERS distribution statistics. These results are consistent with previous studies and warrants additional exploration.

On the basis of the results of this study involving these two independent cohorts, the Washington State DCYF's Risk Assessment Licensing Decision Making Tiers System has been validated at both the measures and output levels. In a previous analysis, the standards that make up the DCYF's Risk Assessment Licensing Decision Making Tiers System have also been validated (see Stevens, 2019 analysis). This state study joins other studies completed which also validated their respective systems core rules & key indicator systems in Georgia and Saskatchewan (see Fiene, 2014 and Fiene, 2020).

The following tables and graphs contain the detail of the above summary analyses and the risk assessment licensing decision making tier system for Cohort 2.

Table 1: Regulatory Compliance: Number of Violations

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	85	21.1	21.1	21.1
	1	43	10.7	10.7	31.8
	2	29	7.2	7.2	39.0
	3	36	8.9	8.9	47.9
	4	27	6.7	6.7	54.6
	5	22	5.5	5.5	60.0
	6	21	5.2	5.2	65.3
	7	23	5.7	5.7	71.0
	8	17	4.2	4.2	75.2
	9	14	3.5	3.5	78.7
	10	11	2.7	2.7	81.4
	11	13	3.2	3.2	84.6
	12	7	1.7	1.7	86.4
	13	8	2.0	2.0	88.3
	14	9	2.2	2.2	90.6
	15	6	1.5	1.5	92.1
	16	4	1.0	1.0	93.1
	17	4	1.0	1.0	94.0
	18	4	1.0	1.0	95.0
	19	3	.7	.7	95.8
	20	1	.2	.2	96.0
	21	1	.2	.2	96.3
	22	1	.2	.2	96.5
	23	2	.5	.5	97.0
	24	1	.2	.2	97.3
	25	3	.7	.7	98.0
	27	2	.5	.5	98.5
	30	1	.2	.2	98.8
	32	1	.2	.2	99.0
	33	1	.2	.2	99.3
	40	1	.2	.2	99.5
	45	1	.2	.2	99.8
	55	1	.2	.2	100.0
	Total	403	100.0	100.0	

The above table (Table 1) provides the frequency distribution for regulatory compliance (NC) for the Washington State ECE sites that were in cohort 2. From the distribution it clearly demonstrates how skewed the data are where the majority of sites (practically 50% of the sites) are either in full or substantial regulatory compliance with Washington licensing rules/regulations.

The following Table (Table 2) puts Table 1 results into the key buckets for regulatory compliance analysis: 1 = Low Regulatory Compliance (11 violations or greater); 2 = Med Regulatory Compliance (3-10 violations); 3 = Substantial (Subst) Regulatory Compliance (1-2 violations); and 4 = Full Regulatory Compliance (0 violations).

Table 2: Regulatory Compliance Buckets

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Low	75	18.6	18.6	18.6
	2 Med	171	42.4	42.4	61.0
	3 Subst	72	17.9	17.9	78.9
	4 Full	85	21.1	21.1	100.0
	Total	403	100.0	100.0	

This grouping of regulatory compliance bucketing becomes very important in subsequent analyses because of the nature of these data. As has been stated earlier in this report, regulatory compliance data when compared to program quality data is not a linear relationship. To be sensitive to the non-linear nature of the data, these buckets or groupings of data become very significant.

Table 3 depicts the Tiered Licensing Decision Making. In Washington State's Tiered Licensing decision Making System 1 = Continued licensing; 2 = Technical Assistance; 3 = Safety Plan; 4 = Civil Penalty.

Table 3: Licensing Decision Making Tiers

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	326	80.9	81.3	81.3
	2	48	11.9	12.0	93.3
	3	22	5.5	5.5	98.8
	4	5	1.2	1.2	100.0
	Total	401	99.5	100.0	
Missing	System	2	.5		
Total		403	100.0		

The majority of programs are recommended for continued licensing (80%), while the other 20% will receive more intervention.

The next table (Table 4) depicts the Risk Assessment Matrix Levels (RAM1-9). The last section of this report provides the specific methodology and how RAM1-9 and Tiers are linked together in the Washington State Licensing Risk Assessment and Licensing Decision Making Tiers System.

Table 4: Risk Assessment Matrix (RAM1-9)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	92	22.8	22.8	22.8
	4.00	62	15.4	15.4	38.2
	5.00	106	26.3	26.3	64.5
	6.00	62	15.4	15.4	79.9
	7.00	3	.7	.7	80.6
	8.00	27	6.7	6.7	87.3
	9.00	51	12.7	12.7	100.0
	Total	403	100.0	100.0	

It is interesting to note that not all cells of the matrix are filled. RAM2 & 3 have no sites in their cells. This is something that will need further exploration but it appears since these are at the lower risk levels that regulatory non-compliance is less likely.

The next three table (Tables 5-7) deal with the relative risk level of regulatory non-compliance based upon a weighting of the specific rule/regulation. Weights of 8, 7 and some 6 are of immediate concern, while weights of 4, 5 and most 6 are of short term concern, and weights of 1, 2, and 3 are of long term concern.

Table 5: Immediate Concern

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	325	80.6	80.6	80.6
	1	63	15.6	15.6	96.3
	2	12	3.0	3.0	99.3
	3	2	.5	.5	99.8
	6	1	.2	.2	100.0
	Total	403	100.0	100.0	

In 20% of the regulatory non-compliance did the rule/regulation rise to being of immediate concern. Table 6 depicts the non-compliance for the short term rules/regulations. These are rules that are not the highest risk rules but they are not the least weighted rules either. They fall somewhere in between. There is a higher level of regulatory non-compliance with these rules.

Table 6: Short Term Concern

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	94	23.3	23.3	23.3
	1	52	12.9	12.9	36.2
	2	37	9.2	9.2	45.4
	3	35	8.7	8.7	54.1
	4	22	5.5	5.5	59.6
	5	27	6.7	6.7	66.3
	6	27	6.7	6.7	73.0
	7	23	5.7	5.7	78.7
	8	12	3.0	3.0	81.6
	9	15	3.7	3.7	85.4
	10	14	3.5	3.5	88.8
	11	7	1.7	1.7	90.6
	12	5	1.2	1.2	91.8
	13	7	1.7	1.7	93.5
	14	4	1.0	1.0	94.5
	15	4	1.0	1.0	95.5
	16	2	.5	.5	96.0
	17	1	.2	.2	96.3
	19	3	.7	.7	97.0
	20	2	.5	.5	97.5
	21	1	.2	.2	97.8
	22	2	.5	.5	98.3
	24	1	.2	.2	98.5
	25	1	.2	.2	98.8
	26	1	.2	.2	99.0
	27	1	.2	.2	99.3
	35	1	.2	.2	99.5
	37	1	.2	.2	99.8
	47	1	.2	.2	100.0
	Total	403	100.0	100.0	

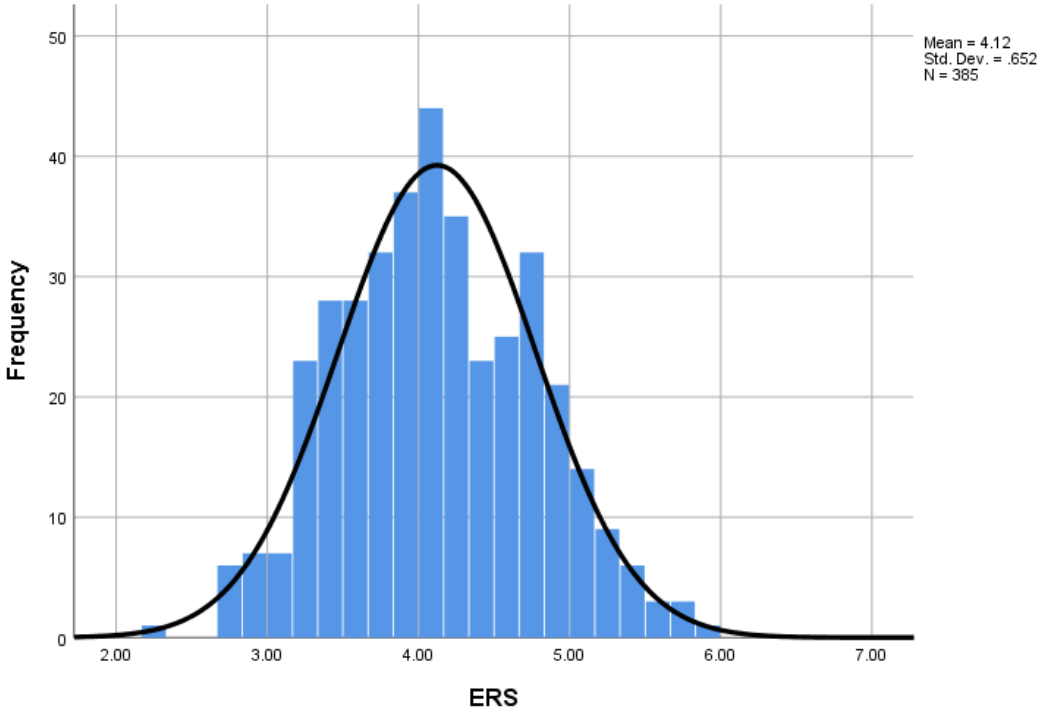
There is a good deal of a range in regulatory non-compliance with these rules as depicted in Table 6. Table 7 which contains the regulatory non-compliance with long term concern rules and regulations which are the lowest weighted/risk rules. The distribution is between the immediate concern and the short term concern rules when it comes to regulatory non-compliance.

Table 7: Long Term Concern

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	224	55.6	55.6	55.6
	1	95	23.6	23.6	79.2
	2	36	8.9	8.9	88.1
	3	21	5.2	5.2	93.3
	4	13	3.2	3.2	96.5
	5	9	2.2	2.2	98.8
	6	1	.2	.2	99.0
	7	1	.2	.2	99.3
	9	1	.2	.2	99.5
	11	1	.2	.2	99.8
	20	1	.2	.2	100.0
	Total	403	100.0	100.0	

The following graphs (Graphs 1-3) depict the distributions of ERS and CLASS scores.

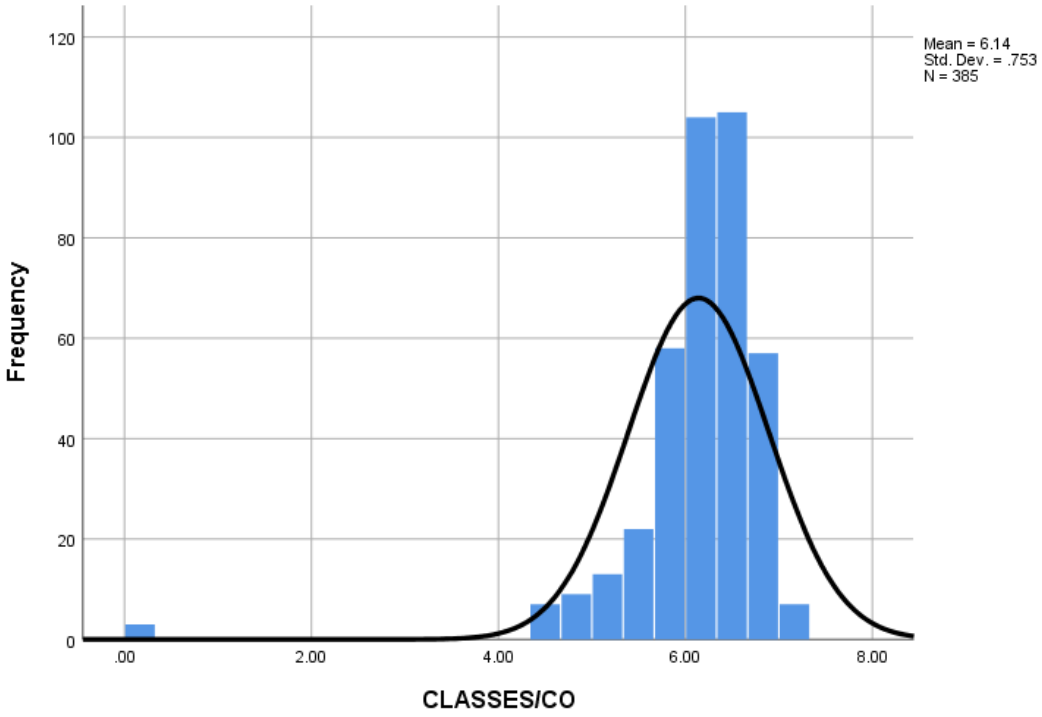
Graph 1 – ERS Scores



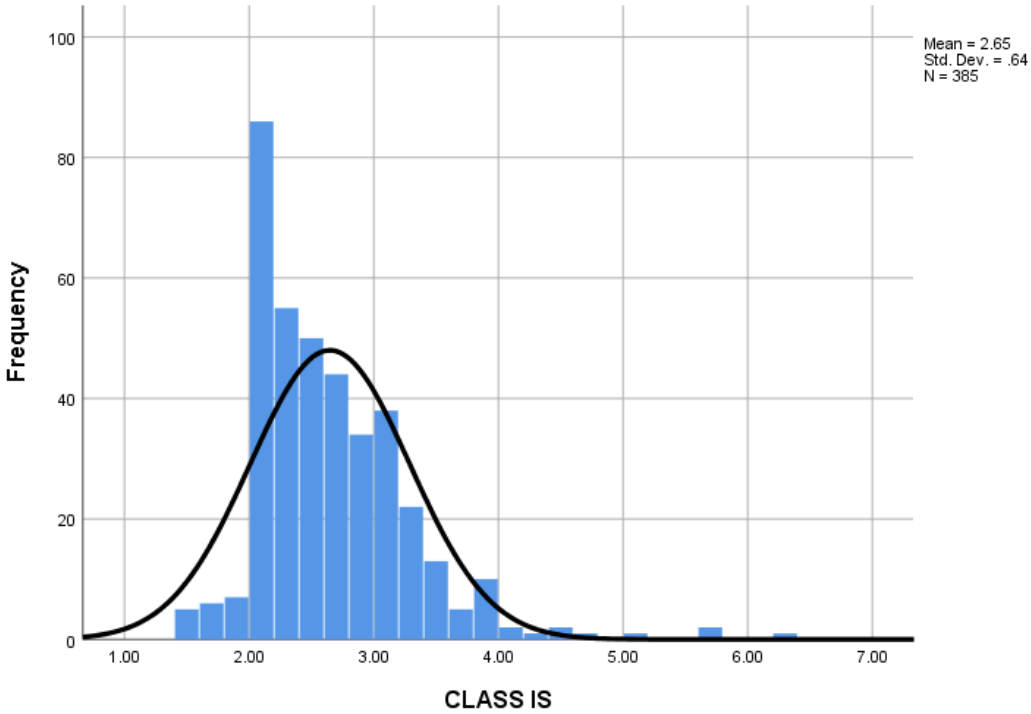
Graph 2 depicts the CLASS/CO scores. Note the difference in the distribution in these scores as versus

the ERS scores in Graph 1. Also note that the N has dropped to 385 sites. This is because not all 403 sites had ERS or CLASS tools administered.

Graph 2: CLASS/CO Scores



Graph 3: CLASS/IS Scores



Again please note the distribution of the CLASS/IS scores and compare it to the CLASS/CO and ERS data score distributions (Compare Graphs 2 & 3 with Graph 1).

Table 8 provides the frequency counts and distribution of the QRIS Levels from 1 to 4 where 4 is the highest level.

Table 8: QRIS

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Lowest	2	.5	.5	.5
	2	29	7.2	7.5	8.1
	3	315	78.2	81.8	89.9
	4 Highest	39	9.7	10.1	100.0
	Total	385	95.5	100.0	
Missing	System	18	4.5		
Total		403	100.0		

Table 9 provides the descriptive statistics for all the variables described above so the reader can see the characteristics of the respective data distributions and how they vary.

Table 9: Descriptive Statistics for all Variables

Variables	N	Range	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
NC	403	55	5.93	7.061	2.474	.122	9.739	.243
Immediate	403	6	.25	.592	3.856	.122	24.745	.243
Short	403	47	4.77	5.854	2.640	.122	11.131	.243
Long	403	20	.94	1.720	4.823	.122	40.946	.243
QRIS	385	3	3.02	.445	-.284	.124	3.779	.248
ERS	385	3.64	4.1225	.65207	.120	.124	-.386	.248
CLASSES/CO	385	7.00	6.1411	.75260	-4.514	.124	33.019	.248
CLASS IS	385	4.97	2.6481	.63985	1.658	.124	5.546	.248
RAM1-9	403	8.00	4.8089	2.56860	-.051	.122	-.811	.243
Tiers	401	3	1.27	.617	2.449	.122	5.592	.243
TRC-RCL	403	3.00	2.4144	1.01946	.304	.122	-1.033	.243
Valid N (listwise)	383							

This section describes the Washington State Risk Assessment and Licensing Decision Making Tiered System which was validated in this report.

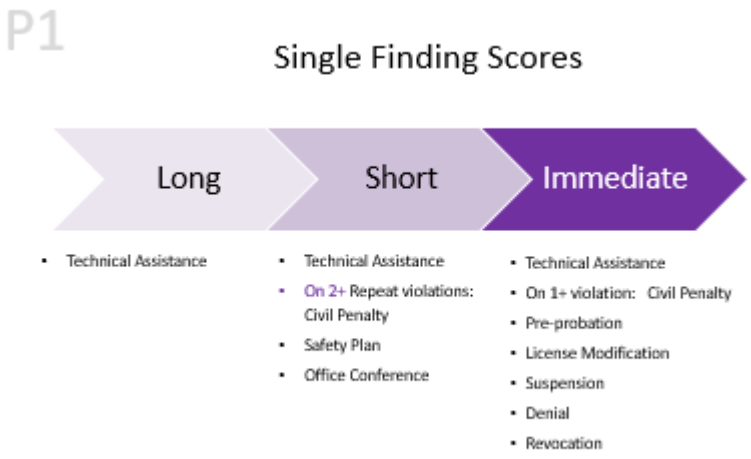
The Washington State System combines the use of risk assessment and licensing decision making matrices. In the past, risk assessment matrices have been used to determine the frequency of monitoring and licensing visits and scope of reviews based upon individual rule severity/risk factors. These data have not been aggregated to determine what type of licensing decisions should be made based upon prevalence, probability or regulatory compliance history data.

Washington State's HB 1661 redesigned the FLCA process as a way to appeal and forgive non-immediate health and safety risks rather than simply being a report of compliance findings. As a result, weights were used to assign risk categories to regulations in accordance to the mandate definition of immediate health and safety regulations:

- **Weights 8, 7 and some 6 = immediate concern**
- **Weights 4, 5 and most 6 = short term concern**
- **Weights 1, 2, and 3 = long term concern**

Single violations of regulations can be considered independently or based on how many time it has been violated over a four-year period when considering licensing actions. For example, a violation within the short term concern category could be subject to a civil penalty when violated the second (or potentially the 3rd) time in a four-year period. Whereas, a violation in the immediate concern category could be subject to a civil penalty or more severe action upon the first violation. (See Graphic for Step 1).

Step 1:



A more difficult task is assigning initial thresholds for the overall finding score. It is this second step (Step 2) where we need to consider probability and severity side by side as depicted in Chart 1 below which is generally considered the standard Risk Assessment Matrix in the licensing research literature:

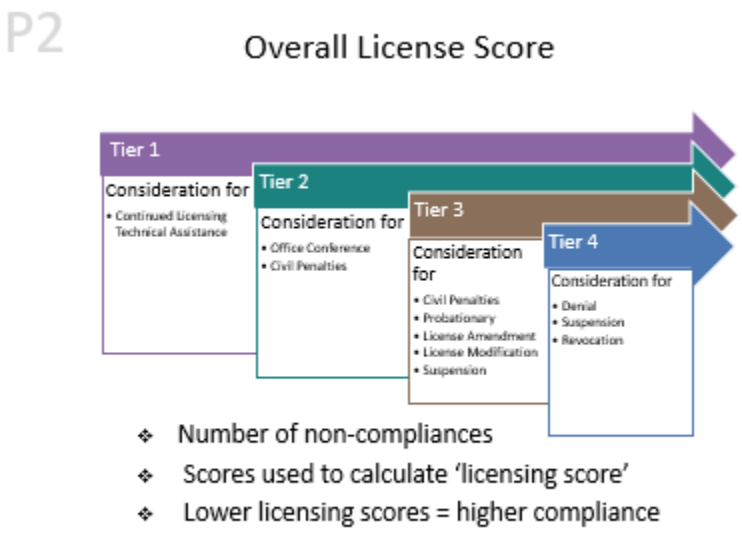
Step 2:

Chart 1 – Risk Assessment Matrix

		Probability/	Prevalence		
	Levels	High	Medium	Low	Weights
Risk/	High	*9*	*8*	*7*	*7-8*
Severity	Medium	*6*	*5*	*4*	*4-6*
	Low	*3*	*2*	*1*	*1-3*
	# of Rules	*8 or more*	*3-7*	*2 or fewer*	

The next step (Step 3) is to build in licensing decisions using a graduated Tiered Level system as depicted in the following figure. In many jurisdictions, a graduated Tiered Level system is used to make determinations related to monitoring visits (frequency and scope) and not necessarily for licensing decisions.

Step 3:



Step 4 involves combining steps 1 and 2 into a revised risk assessment matrix as depicted in the following chart:

Step 4:

Risk Assessment (RA) Matrix Revised

	Levels	High	Medium	Low
Risk/Severity	Immediate	9	8	7
	Short-term	6	5	4
	Long-term	3	2	1
			Probability	
	Regulatory Compliance (RC): # of Rules out of compliance and In compliance	8+ rules out of compliance. 92 or less regulatory compliance.	3-7 rules out of compliance. 93 – 97 regulatory compliance.	2 or fewer rules out of compliance. 98 – 99 regulatory compliance.

The last step (Step 5) is to take steps 3 and 4 and combine them together into the following charts which will provide guidance for making licensing decisions about individual programs based upon regulatory compliance prevalence, probability, and history as well as rule risk/severity data.

Step 5:

Licensing Decision Making Matrix*

Tier 1 = (1 – 2) RA Matrix Score

Tier 2 = (3) RA Matrix Score
Tier 3 = (4 – 5) RA Matrix Score

Tier 4 = (6 – 9) RA Matrix Score

***Regulatory Compliance (RC)(Prevalence/Probability/History + Risk/Severity Level**

Tier 1 = ((RC = 93 – 97) + (Low Risk)); ((98 – 99) + (Low Risk)) = Tier 1

Tier 2 = (RC = 92 or less) + (Low Risk) = Tier 2

Tier 3 = ((RC = 93 – 97) + (Medium Risk)); ((98 – 99) + (Medium Risk)) = Tier 3

Tier 4 = (RC = (92 or less) + (Medium Risk)) = Tier 4; ((93 -97) +(High Risk)) = Tier 4; ((98 – 99) + (High Risk)); ((92 or less) + (High Risk)) = Tier 4+

Key Indicator Matrix (KIM) and Risk Assessment Matrix (RAM)

Key Indicator Matrix

KIM	High Compliance Group	Low Compliance Group
In Compliance	***1***	**2**
Out of Compliance	**3**	***4***

1 + 4 = Key Indicators

2 = False Positives

3 = False Negatives

Risk Assessment Matrix

RAM	High Compliance	Medium Compliance	Low Compliance
Low Risk	***1***	***2***	**3**
Medium Risk	**4**	**5**	**6**
High Risk	**7**	**8**	**9**

1 + 2 = Positive Compliance

3, 4, 5, 6 = Questionable Compliance

7, 8, 9 = Negative Compliance

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The Principles of Regulatory Compliance Measurement

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June 2019

The principles of regulatory compliance measurement will be described in this short technical research note covering comprehensive licensing inspections, abbreviated licensing inspections through weighted risk assessment, and how the resultant scoring protocols can be used to make licensing decisions.

Usually when one thinks about regulatory compliance the number of violations are generally the prominent number that most people associate with measuring this concept. So zero (0) violations on a comprehensive licensing inspection is a very good result or number. But what is a not so good number when thinking about regulatory compliance. Based upon the past 40 years of licensing research in which I have established and maintained an international data base related to regulatory compliance, there are trends in data which will help to inform us about what potential thresholds could be in thinking about the number of violations. There is a brief footnote to add to this discussion and that is the impact of the Theory of Regulatory Compliance (Fiene, 1985, 2016, 2019) in which substantial (1-2 violations of low risk rules) and not full compliance (0 violations) is more characteristic of high quality programs.

After taking the Theory of Regulatory Compliance into account, the following ranges based upon the international data base provides us with the following: a provisional level of regulatory non-compliance is between 3 - 7 violations while a low level of regulatory non-compliance is 8+ violations. This results are based upon annual comprehensive licensing inspections in which all rules are measured for compliance. The scoring and license decision making is rather straightforward where if a program has 0 - 2 violations than they would receive a full license; 3 - 7 violations would result in a provisional license with a good deal of technical assistance; and 8+ violations would result in negative sanctions being applied. This scoring protocol takes prevalence data into account but not the relative weight or risk assessment of regulatory non-compliance. That is where differential monitoring can play a role in constructing a licensing risk assessment matrix which is used by a number of jurisdictions in the US and Canada.

Weighted Risk Assessment Matrices have been used to make determinations about individual rules and how often to monitor a program but have not been used in conjunction with License Decision Making as outlined in the above paragraphs. Depicted below is a standard 3 x 3 Risk Assessment Matrix format that is used by the majority of jurisdictions in the US and Canada. In

the more general research literature on risk assessment, the cells may vary from this 3 x 3 format and might use a 4 x 4 or 5 x 5 format, but the result is the same.

Standard Risk Assessment Matrix: Risk Assessment with Probability along the vertical axis and Risk along the horizontal axis

A	**B**	**C**
D	**E**	**F**
G	**H**	**I**

In the above 3 x 3 Risk Assessment Matrix, (A) indicates a very high risk rule with a high likelihood that it will occur, while (I) indicates a very low or no risk rule with a low likelihood that it will occur. (B) through (H) indicate various degrees of risk and probability based upon their position within the Matrix.

Let's merge the risk assessment designation with the regulatory non-compliance probability data from the earlier paragraphs in the following manner: A = (High Risk Rule) + (8+ Violations); B = (High Risk Rule) + (3-7 Violations); C = (High Risk Rule) + (1-2 Violations); D = (Medium Risk Rule) + (8+ Violations); E = (Medium Risk Rule) + (3-7 Violations); F = (Medium Risk Rule) + (1-2 Violations); G = (Low Risk Rule) + (8+ Violations); H = (Low Risk Rule) + (3-7 Violations); I = (Low Risk Rule) + (1-2 Violations).

The last step is now to take the results of the above 3 x 3 Risk Assessment Matrix and combine this with license decision making as was outlined in the above paragraphs for comprehensive inspections. Risk scores are the predominant factor but the probability or prevalence scores do factor into the overall equation in the following manner especially at the high probability levels: A, B, C, D = Negative sanctions; E, F, G = Provisional license; H, I = Full license.

Risk Assessment, Regulatory Non-Compliance and License Decision Making Matrix

A = Negative sanction	**B = Negative sanction**	**C = Negative sanction**
D = Negative sanction	**E = Provisional license**	**F = Provisional license**
G = Provisional license	**H = Full license**	**I = Full license**

By utilizing this matrix a jurisdiction can now account for both risk assessment and regulatory non-compliance data at the same time in order to make a more informed licensing decision. A validation study is being conducted in the state of Washington to determine the effectiveness of these above two matrices (Stevens & Fiene, 2019).

References:

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