

**National Public Health Performance Standards Program
State Public Health System, Local Public Health System, and
Local Governance Performance Assessment**

Complete Scoring Methodology
(July, 2003)

The goal of the analysis strategy is to generate results that will be valid indicators of public health practice. The results are intended to be used by local and state public health system partners in their efforts to identify system strengths and weaknesses and develop plans for improvement. The data also will be aggregated and used to provide a better understanding of public health infrastructure nationwide.

The ten Essential Public Health Services, which is a nationally-accepted structure for describing overall public health activities, serves as the underlying framework for the performance assessment instruments. Each Essential Service section is further divided into several indicators, which represent major components, activities, or practice areas of the Essential Service. Associated with each indicator are model standards that describe aspects of optimal performance. Each model standard is followed by a series of assessment questions that serve as measures of performance. These measures begin with a stem (or first-tier) question, followed by a series of sub-questions.

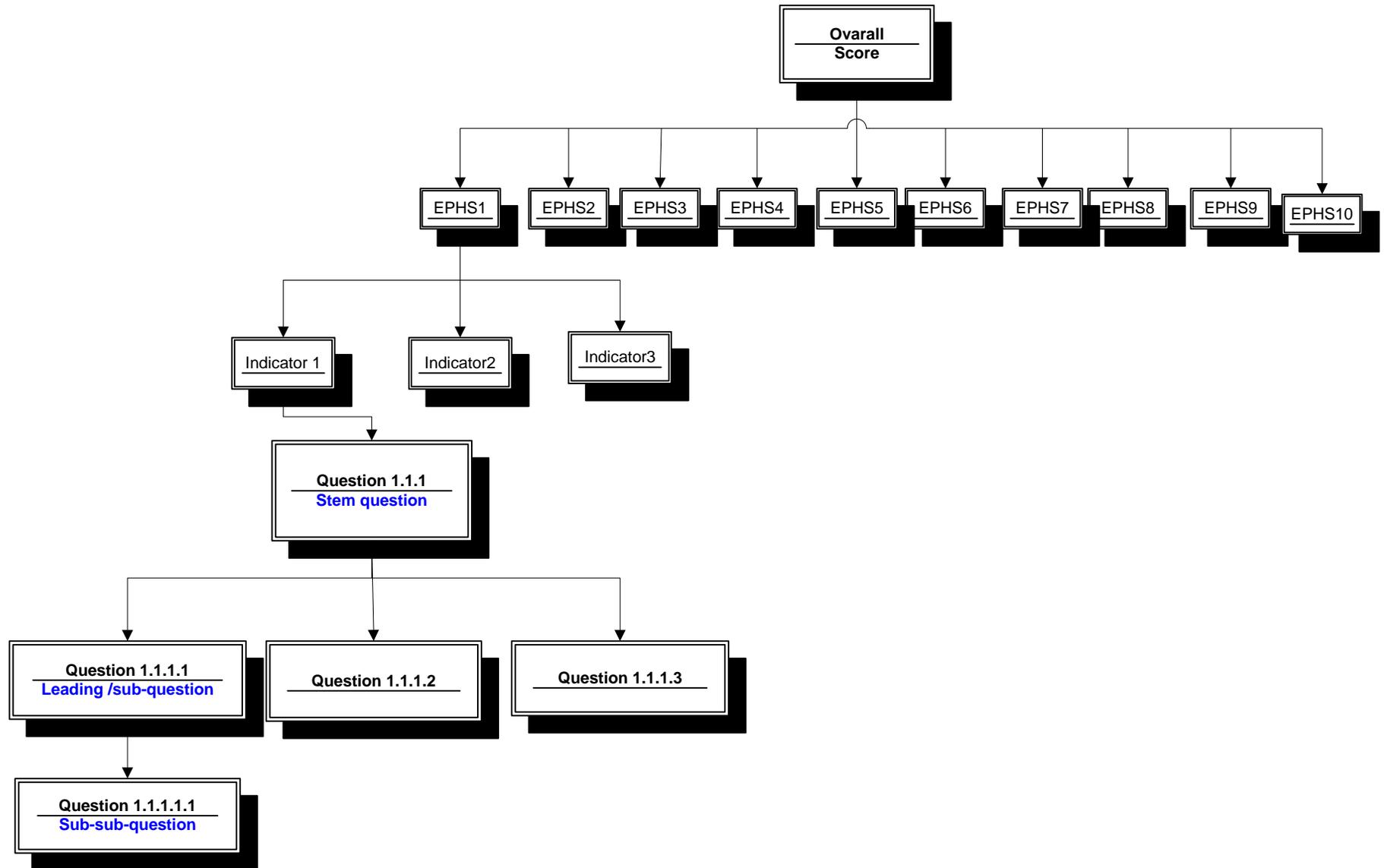
Based on field testing and sound statistical methods, the following scoring methodology was developed. It is applicable to all three instruments.

Methodology

Scores are developed using a multi-step process that uses the following scoring scheme. Scores are developed for four different levels:

- I. First-tier questions
- II. Indicator scores
- III. Essential Service scores
- IV. Overall Score

PLEASE NOTE - these data are self-reported and are collected by a non-standardized methodology which limits its integrity for comparison. The unit of analysis for the state and local National Public Health Performance Standards assessment instruments is the public health system and therefore these data are not appropriate for purposes of accountability at an organizational or agency level.



Please see the table in Appendix II, which displays an example of the distribution of the point value and assigning of the score at the first tier (or stem question), indicator and Essential Service levels.

I) Question score

The point value for each grouping of questions (stem question plus all associated subquestions) is 1 point. The score is developed by establishing the weight value for each question, and then multiplying the weight value by the response value. This process is further described below. There are some questions which are treated as special cases, due to the wording or content of the question. These are described in “Appendix I – Special Cases for Scoring.”

STEP 1. Establish the weight value for each question:

Each grouping of questions (stem question and subquestions underneath) is valued at 1 point. The stem question is given 0.3 weight. The remaining 0.7 weight is equally distributed among the subquestions.

Example:

X.X.X 0.3 weight (multiplied by the response weight)

A weight of 0.7 is split between the subquestions. Since there are four, each is weighted at $0.7 \div 4 = 0.175$:

X.X.X.1 0.175 weight

X.X.X.2 0.175 weight

X.X.X.3 0.175 weight

X.X.X.4 0.175 weight

In the case that a subquestion is a lead-in question for further subquestions, the lead-in question gets 0.3 of its weight while the sub-subquestions get 0.7 of the associated weight. Here is an example:

X.X.X.4 $0.3 \times 0.175 = 0.0525$

 X.X.X.4.1 $0.7 \times 0.175 = 0.1225$

STEP 2. Multiply the weight value by the response value:

For all questions, the weight is multiplied by the appropriate response. Response options are weighted as follows:

Survey Response	Associated Score
Yes	1.0
High Partially	0.67
Low Partially	0.33
No	0

Therefore, using the example above, if Question X.X.X.4.1 (valued 0.1225 weight) is given a “high partial” response, the value for that question would be: $0.1225 \times 0.67 = 0.082$. This provides the numerical score for that question, which is then added to the scores for the other questions in that grouping.

A further example, using real numbers and response options, is listed below:

Question	Response	Point Value	Weight	Scores = Response * Weight
Q1_1_1	Y (1)	.30	.30	.3000
Q1_1_1_1	Y (1)	.233	30% of .233	.0700
Q1_1_1_1_1	L (.333)		70% of .233	.0544
Q1_1_1_2	Y(1)	.233	30% of .233	.0700
Q1_1_1_2_1	Y (1)		(70% of .233) / 4	.0408
Q1_1_1_2_2	N (0)		(70% of .233) / 4	.0000
Q1_1_1_2_3	Y (1)		(70% of .233) / 4	.0408
Q1_1_1_2_4	N (0)		(70% of .233) / 4	.0000
Q1_1_1_3	H (.667)	.233	30% of .233	.0467
Q1_1_1_3_1	Y (1)		(70% of .233) / 5	.0327
Q1_1_1_3_2	Y (1)		(70% of .233) / 5	.0327
Q1_1_1_3_3	Y (1)		(70% of .233) / 5	.0327
Q1_1_1_3_4	H (.667)		(70% of .233) / 5	.0218
Q1_1_1_3_5	Y (1)		(70% of .233) / 5	.0327

Total point value per question ---→ 1.0

The score for question **Q1_1_1** is $.7752 * 100 = 77.52\%$

II) Indicator scores

This score is the average of the scores for the associated stem questions (derived as described in Section I). The score for each indicator is derived using the formula:

$$\frac{\text{Sum of Scores for all Stem Questions within the Indicator}}{\text{Number of Stem Questions within the Indicator}}$$

The average is then multiplied by 100 in order to achieve a percentage score.

In the attached table, the score for indicator Q1_1 is $.654 * 100 = 65.4\%$

Please see the attached table in Appendix II (at the end of this document) which includes an example of how this indicator score was generated.

III) Average Performance Scores for Essential Public Health Services

The Essential Service score is the average of all indicator scores (derived as described in Section II), which that fall under an Essential Service.

$$\frac{\text{Sum of Scores for all Indicators within the Essential Service}}{\text{Number of Indicators within the Essential Service}}$$

The average is then multiplied by 100 in order to achieve a percentage score.

In the attached table, the score for Essential Service #1 is $.5769 * 100 = 57.69$

Please see the table in Appendix II which includes an example of how the Essential Service score is generated.

IV) Overall Score

An overall score – for the full assessment – also is provided. This score is the average of all Essential Service scores (derived as described in Section III).

$$\frac{\text{Sum of Scores for all 10 Essential Services}}{\text{Divided by } 10}$$

The average is then multiplied by 100 in order to achieve a percentage score.

(Note: the table in Appendix II does not include an example of this, because this requires full data for the all questions.)

Appendix I - Special Cases for Scoring

Local Governance Assessment Instrument

G1.9 Is the board of health or other governing body responsible for continuous improvement of the methods by which the community health status is monitored?

Due to the wording of this question, this measure is not scored. The board may not be responsible due to circumstances beyond their control, such as being an advisory board, so this should not be held against the scoring.

Scoring Solution: If the response to this question is "N", it is converted to "Y" prior to scoring.

G6.8 Does the board of health or other governing body enter into or ratify any contracts for provision of the Essential Services of Public Health?

Boards may not be in a legal position to enter into contracts, therefore if the board responds "no", this response does not negatively affect the scoring.

Scoring Solution: If the response to this question is "N", it is converted to "Y" prior to scoring.

Local Public Health System Assessment Instrument

**1.1.1.1 Is the community health assessment updated at periodic intervals?
If so, is the community health assessment updated: (Choose one of the following)**

- 1.1.1.1.1 Annually? (scored as a "yes")
- 1.1.1.1.2 Every 2 years? (scored as a "high partial")
- 1.1.1.1.3 Every 5 years? (scored as a "low partial")
- 1.1.1.1.4 After 5 or more years? (scored as "no")

Because this question directs respondents to choose one of the options, this question is scored differently from other measures.

Scoring Solution: See the information in parentheses above, which indicates how responses are scored.

1.2.5 Is the information in the CHP available in an electronic version?

If so, is it available:

1.2.5.1 On one website?

1.2.5.2 On one website linked to other websites?

1.2.5.3 On multiple websites (same information on multiple sites)?

1.2.5.4 On multiple (linked) websites (different information on different sites)?

1.2.5.5 Through access to a [data warehouse](#)?

1.2.5.1 through 1.2.5.4 represent different options for displaying the data on websites. Therefore, these four questions represent one method for electronically displaying information, while the last submeasure (1.2.5.5) displays a second method for electronically sharing information. For this reason, the weight of these submeasures has been allocated in a slightly different fashion.

Scoring Solution: Scoring is implemented as follows:

1.25 – weight of 0.3

1.2.5.1 through 1.2.5.4 – a weight of 0.35 is distributed equally among these four submeasures (0.0875 each).

1.2.5.5 – weight of 0.35

5.1.3 Does a local board of health or other governing entity conduct oversight for the local governmental public health entity?

If so,

5.1.3.1 Has this local board of health or other governing entity completed the [National Public Health Performance Standards Program Governance Public Health System Performance Assessment Instrument](#)?

These questions are not used in the final score, since the existence (or lack of existence) of a board of health or other governing entity should not reflect negatively on the public health system. Additionally, the LPHS should not be penalized if the governing entity has not completed the governance instrument.

Scoring Solution: Scoring is implemented as follows:

- 1) A score of Zero has been assigned to this question and it has been excluded from the averaging and analysis process.
- 2) This question is excluded from the analysis and scoring (averaging) at the indicator and EPHS levels.

5.1.4.1 - Have state partners completed the State Instrument?

This question is not used in final scoring, since the use (or lack of use) of the SPHS Assessment Instrument should not impact the score of the LPHS performance.

Scoring Solution: The subquestion 5.1.4.1 is not included in the final scoring analysis; the full amount of the score for 5.1.4 is derived from the response to the stem question (5.1.4).

State Public Health System Assessment Instrument

No special cases for scoring

Appendix II – Example Table

Question	Survey_Response	Point_Value	Weight = Point_value * (.30 for leading Q or .70 for sub_Q))	Score= Point_value * Survey_Response)	Rollup Score
*****	*****	*****	*****	*****	*****
	**				
Q1_1_1	Y	0.3	0.3000	0.3000	0.7752
Q1_1_1_1	Y	0.233	0.0700	0.0700	
Q1_1_1_1_1	L		0.1633	0.0544	
Q1_1_1_2	Y	0.233	0.0700	0.0700	
Q1_1_1_2_1	Y		0.0408	0.0408	
Q1_1_1_2_2	N		0.0408	0.0000	
Q1_1_1_2_3	Y		0.0408	0.0408	
Q1_1_1_2_4	N		0.0408	0.0000	
Q1_1_1_3	H	0.233	0.0700	0.0467	
Q1_1_1_3_1	Y		0.0327	0.0327	
Q1_1_1_3_2	Y		0.0327	0.0327	
Q1_1_1_3_3	Y		0.0327	0.0327	
Q1_1_1_3_4	H		0.0327	0.0218	
Q1_1_1_3_5	Y		0.0327	0.0327	
Q1_1_2	L	0.3	0.3000	0.1000	0.3148
Q1_1_2_1	L	0.175	0.1750	0.0583	
Q1_1_2_2	L	0.175	0.1750	0.0583	
Q1_1_2_3	N	0.175	0.1750	0.0000	
Q1_1_2_4	H	0.175	0.0525	0.0350	
Q1_1_2_4_1	Y		0.0111	0.0111	
Q1_1_2_4_2	Y		0.0111	0.0111	
Q1_1_2_4_3	Y		0.0111	0.0111	
Q1_1_2_4_4	N		0.0111	0.0000	
Q1_1_2_4_5	N		0.0111	0.0000	
Q1_1_2_4_6	H		0.0111	0.0074	
Q1_1_2_4_7	Y		0.0111	0.0111	
Q1_1_2_4_8	L		0.0111	0.0037	
Q1_1_2_4_9	N		0.0111	0.0000	
Q1_1_2_4_10	H		0.0111	0.0074	
Q1_1_2_4_11	N		0.0111	0.0000	
Q1_1_3	Y	0.3	0.3000	0.3000	1.0000
Q1_1_3_1	Y	0.7	0.7000	0.7000	
Q1_1_4	Y	0.3	0.3000	0.3000	1.0000

Q1_1_4_1	Y	0.7	0.7000	0.7000	
Q1_1_5	Y	0.3	0.3000	0.3000	1.0000
Q1_1_5_1	Y	0.7	0.7000	0.7000	
Q1_1_6	H	0.3	0.3000	0.2000	0.4333
Q1_1_6_1	L	0.7	0.7000	0.2333	
Q1_1_7	Y	0.3	0.3000	0.3000	1.0000
Q1_1_7_1	Y	0.7	0.7000	0.7000	
Q1_1_8	L	0.3	0.3000	0.1000	0.3333
Q1_1_8_1	L	0.7	0.7000	0.2333	
Q1_1_9	N	0.3	0.3000	0.0000	0.0000
Q1_1_9_1		0.7	0.7000	0.0000	
Q1_1_10	Y	0.3	0.3000	0.3000	1.0000
Q1_1_10_1	Y	0.7	0.7000	0.7000	
Q1_1_11	Y	0.3	0.3000	0.3000	1.0000
Q1_1_11_1	Y	0.7	0.7000	0.7000	
Q1_1_12	Y	0.3	0.3000	0.3000	1.0000
Q1_1_12_1	Y	0.7	0.7000	0.7000	
Q1_1_13	H	0.3	0.3000	0.2000	0.2000
Q1_1_13_1	N	0.7	0.7000	0.0000	
Q1_1_14	L	0.3	0.3000	0.1000	0.1000
Q1_1_14_1	N	0.233	0.2333	0.0000	
Q1_1_14_2	N	0.233	0.2333	0.0000	
Q1_1_14_3	N	0.233	0.2333	0.0000	
Indicator 1 --->					0.6540
Q1_2_1	Y	0.3	0.3000	0.3000	0.5917
Q1_2_1_1	Y	0.175	0.1750	0.1750	
Q1_2_1_2	H	0.175	0.1750	0.1167	
Q1_2_1_3	N	0.175	0.1750	0.0000	
Q1_2_1_4	N	0.175	0.1750	0.0000	
Q1_2_2	L	0.3	0.3000	0.1000	0.5667
Q1_2_2_1	Y	0.233	0.2333	0.2333	
Q1_2_2_2	Y	0.233	0.2333	0.2333	
Q1_2_2_3	N	0.233	0.2333	0.0000	
Q1_2_3	N	0.3	0.3000	0.0000	0.0000
Q1_2_3_1		0.175	0.1750	0.0000	
Q1_2_3_2		0.175	0.1750	0.0000	
Q1_2_3_3		0.175	0.1750	0.0000	
Q1_2_3_4		0.175	0.1750	0.0000	
Q1_2_4	N	1	1.0000	0.0000	0.0000
Q1_2_5	N	0.3	0.3	0.0000	0.0000

Q1_2_5_1		0.0875	0.0875	0.0000	
Q1_2_5_2		0.0875	0.0875	0.0000	
Q1_2_5_3		0.0875	0.0875	0.0000	
Q1_2_5_4		0.0875	0.0875	0.0000	
Q1_2_5_5		0.35	0.35	0.0000	
Indicator 2 ---->>>					0.2317
Q1_3_1	Y	0.3	0.3000	0.3000	0.7992
Q1_3_1_1	Y	0.0636	0.0636	0.0636	
Q1_3_1_2	Y	0.0636	0.0191	0.0191	
Q1_3_1_2_1	Y		0.0148	0.0148	
Q1_3_1_2_2	L		0.0148	0.0049	
Q1_3_1_2_3	Y		0.0148	0.0148	
Q1_3_1_3	Y	0.0636	0.0636	0.0636	
Q1_3_1_4	Y	0.0636	0.0636	0.0636	
Q1_3_1_5	Y	0.0636	0.0636	0.0636	
Q1_3_1_6	Y	0.0636	0.0636	0.0636	
Q1_3_1_7	H	0.0636	0.0636	0.0424	
Q1_3_1_8	H	0.0636	0.0636	0.0424	
Q1_3_1_9	H	0.0636	0.0636	0.0424	
Q1_3_1_10	N	0.0636	0.0636	0.0000	
Q1_3_1_11	N	0.0636	0.0636	0.0000	
Q1_3_2	Y	0.3	0.3000	0.3000	1.0000
Q1_3_2_1	Y	0.23	0.2333	0.2333	
Q1_3_2_2	Y	0.23	0.2333	0.2333	
Q1_3_2_3	Y	0.23	0.2333	0.2333	
Indicator 3 ---->>>					0.8996
EPHS 1 --->>>					0.5769