#### SCORE II Safety Culture and Workforce Well-being Survey

#### Safety, Communication, Operational Reliability and Engagement II

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This technical paper gives details of the psychometric properties of the scales and items used in SCORE II, and details the progress from SCORE to SCORE II

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#### **Update on SCORE II**

Since the creation of SCORE, we have published and repeatedly replicated the excellent psychometrics, associations with quality, and responsiveness to interventions in numerous peer-reviewed journals<sup>(1-35)</sup>. SCORE has been used in hundreds of hospitals every year for almost a decade. SCORE and SCORE debriefings have driven cultural change in thousands of work-settings, and we have many empirical and operational lessons learned from these experiences.

The onset of the COVID-19 pandemic has been merciless on the workforce and hindered routine ways of assessing and improving care quality, including safety culture. With multiple crises of staffing shortages and budget shortfalls, everything is more difficult. This includes getting good response rates on surveys, and acting effectively<sup>(31,36)</sup> on survey results. Using a valid survey and getting an invalid response rate is a waste of time for all parties, and substantially hinders efforts to conduct future survey administrations.

In both 2022 and 2023, we have found that the two core issues in the healthcare workforce that arise in thousands of SCORE debriefings are psychological safety (finding one's voice/speaking up) and healthcare worker well-being. Safety culture in any given work setting waxes and wanes given local conditions, but these two fundamental components provide the simplest and most straightforward diagnosticity:

- 1) **Trust** that one can speak up, coordinate care, and learn from problems.
- 2) Ability to do stuff (diagnose, treat, communicate, participate in quality improvement, etc).

SCORE scales cover concepts like local leadership, teamwork climate, safety climate, emotional exhaustion, and improvement readiness. We have worked to validate a shorter version called the SCORE II (instrument included as Appendix A), retaining the most important elements while shortening the instrument to facilitate response rates and usability. This is an evolution of the instrument based on the needs of the users and the reality of limited opportunities to pause and reflect on a survey when there are ubiquitous staffing and budget crises. Please note, this does not mean that all surveys should be shortened, nor does it mean that a short survey is a "good" survey. Having meaningful and productive debriefings and action plans are essential for the utility of any safety culture survey, and we have found a way to do so using a shorter version of the instrument that elicits diagnostic information on psychological safety<sup>(5)</sup> and healthcare worker (HCW) well-being<sup>(37-48)</sup>.

The psychological safety scale has been published<sup>5</sup> as a psychometrically valid metric, responsive to interventions, and shows significant variation by role, shift, shift length, and years in specialty. The 6 items include:

- Disagreements in this work setting are appropriately resolved (i.e., not who is right but what is best for the patient).
- In this work setting, it is difficult to speak up if I perceive a problem with patient care.
- It is easy for personnel here to ask questions when there is something that they do not understand.
- My suggestions about quality would be acted upon if I expressed them to management.
- The culture in this work setting makes it easy to learn from the errors of others.
- In this work setting, it is difficult to discuss errors.

Psychological Safety (PS) is associated moderately to highly with Improvement Readiness, Work-life Climate, Teamwork Climate, Safety Climate, Burnout Climate, Emotional Exhaustion and Local Leadership (Table 1)<sup>5</sup>.

Variable	1	2	3	4	5	6	7	8
1. Psychological Safety	(0.80)							
2. Improvement Readiness	0.751*	(0.93)						
3. Work-Life Climate	0.400*	0.405*	(0.83)					
4. Teamwork Climate	0.788*	0.661*	0.367*	(0.76)				
<ol><li>Safety Climate</li></ol>	0.866*	0.756*	0.424*	0.733*	(0.87)			
6. Burnout Climate	-0.680*	-0.642*	-0.527*	-0.661*	-0.695*	(0.90)		
7. Emotional Exhaustion	-0.664*	-0.690*	-0.545*	-0.636*	-0.656*	0.813*	(0.92)	
8. Local Leadership	0.662*	0.727*	0.367*	0.607*	0.706*	-0.527*	-0.567*	(0.94

N = 396 work settings. Cronbach α for each domain are included in bold in the diagonal. All scores were aggregated at the work setting level. The 6-item PS scale shares 3 items with the Teamwork Climate scale and 3 items with the Safety Climate scale.

\*P < 0.01 level (2-tailed).

PS serves as a useful and diagnostic shorthand for many aspects of safety culture, making it an ideal candidate for debriefings when time is limited. The items that make up PS have their roots in SCORE domains of teamwork climate (3 items) and safety climate (3 items). <u>Using these existing items</u>

means all future administrations of SCORE II will be backward compatible with SCORE. Variation in Local Leadership is captured well by psychological safety scale items (Figure 2).<sup>2</sup>

### Illness, Missing Work, and Psychological Safety Items by LL Climate Quartile

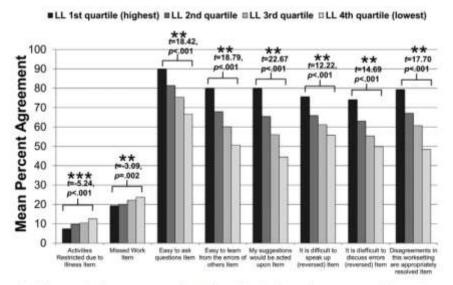


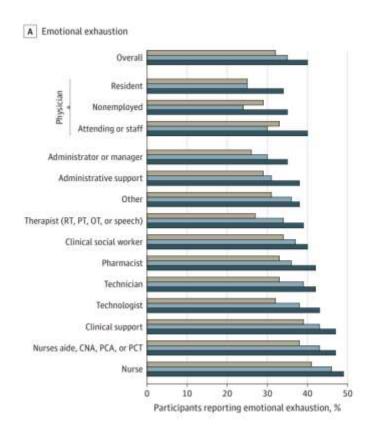
Figure 2: This graph shows reports of good local leadership climate across 818 work settings.

PS is a scale that provides one number to approximate local safety culture norms of teamwork, safety and leadership.

Emotional Exhaustion (EE) is a 5 item derivative of the original 9 item scale, it is an excellent metric of individual and group-level well-being, is responsive to interventions and is psychometrically outstanding. 38-41, 43-48 The items are:

- Events in this work setting affect my life in an emotionally unhealthy way.
- I feel burned out from my work.
- I feel fatigued when I get up in the morning and have to face another day on the job.
- I feel frustrated by my job.
- I feel I am working too hard on my job.

Recent results following over 30,000 HCWs for 3 years show significant increases in EE since the start of the COVID-19 pandemic (see Figure A).<sup>39</sup>



Understanding PS and EE strengths and opportunities in a given work setting, clinical or non-clinical, is fundamental to safety culture assessment and improvement. PS indicates the norms of trust and the ability to speak up. EE indicates the ability to "do stuff," and is a powerful predictor of clinical and operational outcomes, while also indicating the wherewithal of the HCWs in any given work setting to do something new or different. EE predicts HCW disruptive behavior rates and intentions to leave (turnover). We published a detailed review of EE performance as a scale. PS is about trust, and EE is about wherewithal. These two domains work well together to drive quality improvement efforts, but they also indicate when a group of HCWs are not ready to take on a significant challenge, and instead need to focus on their well-being. These domains have dominated the vast majority of SCORE debriefings for over 2 years, and were the primary topics of discussion since SCORE was created.

#### Single Item for Leadership and Quality Improvement Readiness

There are two items that draw a good deal of attention during debriefings, and based on their functionality and diagnosticity, they were retained in SCORE II.

Local Leadership Item:

• In this work setting, local management... (or —In this work setting, local physician leaders...for physicians) regularly makes time to provide positive feedback to me about how I am doing.

#### Improvement Readiness Item:

• The learning environment in this work setting allows us to gain important insights into what we do well.

The Local Leadership item loads very highly on the Local Leadership scale (.92), and serves as a good proxy for the full scale.<sup>2,5</sup> We have also found that this item is useful for leaders to understand during debriefings, as it is highly actionable and acts as a driver to both safety culture and wellbeing.<sup>3</sup> The new concept of Positive Rounding has also highlighted the utility of this leader practice of highlighting what staff are doing well.<sup>5,8</sup> In short, we the PS domain and this single LL item are sufficient for diagnostic and actionable purposes.

The Improvement Readiness item loads very highly on the scale (.86), and serves as a good proxy for the full scale. <sup>14</sup> Similar to the Local Leadership item above, this item provides insight into the quality improvement capacity in a given work setting, while also guiding leaders to understand an actionable component of quality improvement, i.e., the ability to gain insights into what they do well.

The SCORE II uses two scales and two stand-alone items to provide the briefest possible set of results that are still psychometrically valid, diagnostic, and actionable. These concepts are not only psychometrically defendable, they are the essential ingredients of good debriefings and good action plans, and of a healthy culture and healthy workforce.

# Leapfrog Criteria for validity SCORE II

#### 1. Scale reliability.

Psychological Safety Cronbach's Alpha ( $\alpha$ =.80)<sup>5</sup> Emotional Exhaustion Cronbach's Alpha ( $\alpha$ =.93)<sup>39</sup>

#### 2. Confirmatory factor analysis

- *Psychological Safety* CFA fit was good<sup>5</sup>: root mean square error approximation = 0.08; Confirmatory Fit Index = 0.97; Tucker-Lewis Fit Index = 0.95
- *Emotional Exhaustion* scale is intact and unchanged from SCORE, with an excellent online supplemental fit: root mean square error approximation = 0.039; Confirmatory Fit Index = 0.944; Tucker-Lewis Fit Index = 0.941

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### Appendix A

## **SCORE II Items**

# SCORE II: Assessment of your work setting

# Safety, Communication, Operational Reliability, and Engagement

Please answer the following items with respect to your specific unit or clinical area. Choose your responses using the scale below:

Α	В	С	D	Е	Х
Disagree Strongly	Disagree Slightly	Neutral	Agree Slightly	Agree Strongly	Not Applicable

#### **Emotional Exhaustion Scale Items:**

- Events in this work setting affect my life in an emotionally unhealthy way.
- I feel burned out from my work.
- I feel fatigued when I get up in the morning and have to face another day on the job.
- I feel frustrated by my job.
- I feel I am working too hard on my job.

#### **Psychological Safety Scale Items:**

- Disagreements in this work setting are appropriately resolved (i.e., not who is right but what is best for the patient).
- In this work setting, it is difficult to speak up if I perceive a problem with patient care.
- It is easy for personnel here to ask questions when there is something that they do not understand.
- My suggestions about quality would be acted upon if I expressed them to management.
- The culture in this work setting makes it easy to learn from the errors of others.
- In this work setting, it is difficult to discuss errors.

#### **Local Leadership Item:**

• In this work setting, local management... (or —In this work setting, local physician leaders...for physicians) regularly makes time to provide positive feedback to me about how I am doing.

#### **Improvement Readiness Item:**

• The learning environment in this work setting allows us to gain important insights into what we do well.