Supplementary material D. Assessment tools

Assessment tool	Components and comments	References
Quantitative assessment tools		
Moral Distress Scale and revised versions	The MDS is a direct measure of MD based on the frequency and intensity of MD experienced from a series of clinical situations to calculate the overall composite score. Components of the tool:	[1-19] [20] [21] [22] [23] [24] [25-32]

	• The MDS and MDS-R include a range of clinical situations that are potentially distressing and can range from 14 to 38 items. • Root causes of MD include situations involving end-of-life care, staffing, resources, communication and decision-making. • Some versions include a write in section for additional causes that were not cited in the tool. Calculation of the MD score:	

	• Respondents are asked to rate the frequency and intensity of MD evoked from each item on a likert scale of 0 to 4. • The fxi score of each item is obtained from the multiplication of the frequency and intensity. • The individual fxi scores are summed to provide the overall composite MD score. Origins of the tool: • Corley developed the MDS in 1996 for use by registered nurses and medical doctors	

	• It is originally a 38-item tool rated in a seven-point likert sale Changes to the MDS (MDS-R) include: 1. Including or removing root causes 2. Expanding its use to other professions or settings 3. Including questions about intention of leaving due to MD 4. Including questions about risk factors that predispose the healthcare worker to MD Uses of the tool:	

	• The goal of the MDS is for use by healthcare organisations to assess and address MD in their healthcare workers • It is used to guide the institution of interventions to alleviate MD	
Measure of Moral Distress for Healthcare Professionals (MMD-HP)	The MMD-HP is a direct measure of MD based on the frequency and intensity of MD experienced from a series of clinical situations to calculate the overall composite score. Components of the tool:	[27]

	• The MMD-HP consists of three domains of clinical scenarios – patient, team and systems.1 27 clinical situations are included. Calculation of the overall composite score: • Respondents are asked to rate the frequency and intensity of MD evoked from each item on a likert scale of 0 to 4. • The frequency and intensity scores are summed respectively to calculate the overall frequency and intensity scores. These scores range between 0 to 108	

[1] The MMD-HP includes 27 hypothetical clinical situations grouped into three domains: patient (e.g., "follow the family's insistence to continue aggressive treatment even though I believe it is not in the best interest"), team (e.g., "watch patient care suffer because of a lack of provider continuity"), and systems (e.g., "be unable to provide optimal care due to pressures from administrators or insurers to reduce costs;" See Supplemental Table 1 for a complete listing of all 27 situations).

	• The fxi score of each item is obtained from the multiplication of the frequency and intensity. • The individual fxi scores are summed to provide the overall composite score. The overall composite score ranges from 0 to 432. Origins of the tool: • The MMD-HP was created by Epstein in 2019.	

Moral Distress Thermometer (MDT)	The MDT is a direct measure of acute MD based on a single item scale. Components of the tool: • The MDT is a validated single item scale. Respondents are provided the definition of MD asked to rate their level of MD on a scale of 0 to 10. • An additional component of the tool asks respondents to identify the factors that contributed to their MD.	[7, 28, 33]

	• Physicians and surrogates are asked to indicate their perception of the treatment that the patient is receiving and their preferred treatment course. Options of the preferred treatment course include (1) focused on extending life, (2) focused on relieving discomfort and pain, (3) in between. Origins of the tool: • The MDT was created by Wocial in 2013. Uses of the tool:	

	• The MDT is a time saving instrument which measures "acute" MD	
Qualitative assessment tools		
Qualitative frameworks (interview, open-end focus groups)	Techniques used in interviewing include: - Semi-structured interviews which explored healthcare worker's opinions on policies, resource limitations and clinical care during the pandemic [34] - Critical Incident Technique was used to retrospectively gather experiences. [35]	[34-37]

	- Grounded theory methodology [36]	
Adjuncts used to with direct measures of MD		
Tools used as adjuncts to evaluate the impact of MD • Maslach Burnout Tool • Professional Quality of Life Scale	Impacts of MD were evaluated including: - Considered quitting or leaving a clinical position [1, 3, 13] - Burnout [38-40]	[1, 3, 13, 38-42]
Tools used to evaluate the factors affecting MD • Revised MDS	Factors influencing MD were evaluated including: - Physician demographic, level of training [38] - Team communication and dynamics [3]	[3, 38, 43] [44] [45]

• C-Change Resident Survey	- Culture [43, 44]	
Tools used to evaluate the coping mechanisms of MD • Batson's model and Eisenberg's elaboration • Framework for addressing MD [41] • Framework for ethical decisions during MD [46]	Coping mechanisms of MD were evaluated including: - Emotional attunement, perspective taking, memory and moral sensitivity [41] - Perceived efficacy in coping with moral distress [23] - Including coping mechanisms [39] - Evolution of handling MD [35]	[39, 41, 46, 47] [35] [23]

• Critical Incident Technique [35] • General Self Efficacy (GSE) scale [23]		