Supplemental Digital Appendix 1

Trauma-Informed Care (TIC) Competencies for Undergraduate Medical Education (UME)

Trauma-Informed Health Care Education and Research (TIHCER) Competency Task Force: Berman S MD,[a] Brown T MD,[b] Gerber M MD,[c] Goldstein E MFT PhD,[d] Jelley M MD MSPH,[e] Mizelle C,[f] Potter J MD,[g] Raja S PhD,[h] Rush P MD MBA,[i] Sager Z MD,[j] Sciolla A MD,[k] Stillerman A MD,[l] Weil A MD[m]

Knowledge for Practice

1. Define trauma and resilience.
2. Describe the epidemiology of different types of trauma and their associated adverse health effects.
3. Describe how building resilience through social support and other strategies may serve to prevent and mitigate adverse health effects and promote healing.
4. Describe how structural and social contexts, including oppression, stigma, and discrimination can be traumatic.
5. Describe how structural and social contexts increase vulnerability to poor health outcomes, decrease access to resilience-enhancing resources, and change presentation to medical care.
6. Describe the theoretical and empirical bio-psycho-social-spiritual mechanisms and drivers by which trauma impacts health and development across the lifespan and generations.
7. Explain the concept of regulation as it relates to the window of tolerance.
8. Describe the principles of a trauma-informed approach.
9. Explain the concept of universal trauma precautions.
10. Describe how trauma impacts interpersonal relationships and healthcare engagement.
11. Describe common physical, mental, and social manifestations of trauma exposure.
12. Analyze the risks and benefits of trauma inquiry, including routine screening.
13. Describe evidence-based strategies for primary and secondary prevention of trauma.
14. Describe evidence-based therapeutic strategies to promote healing and recovery for people who have experienced trauma.
15. Identify community resources that provide supportive services for people who have experienced trauma.
16. Define and describe the effects of compassion fatigue, moral injury, vicarious trauma, secondary trauma, and burnout.
17. Describe historical and ongoing examples of structural trauma inflicted by the medical system on patients, staff, and clinicians.

Patient Care

1. Demonstrate the ability to apply trauma-informed principles to all aspects of patient care, including: a. History gathering b. Physical examination c. Tests and procedures d. Decision-making e. Counseling, treatment, and referral
2. Recognize the emergence of a traumatic stress response in a patient during a clinical encounter.
3. Educate patients on the benefits and practice of regulation techniques.

4. Develop preliminary care plans with patients that enable patient autonomy, mutual respect, safety, and ongoing engagement.

Practice-Based Learning and Improvement
1. Describe trauma and resilience literature and explain how it may impact patient care.

Interpersonal and Communication Skills
1. Apply principles of trauma-informed care in communication with patients.
2. Discuss documentation of sensitive information with patients and the possibility of mandatory reporting when abuse or neglect is disclosed or suspected.
3. Demonstrate the principle of containment by explaining to the patient they are in control of how much, what, and when they disclose.
4. Respond to patient disclosure of trauma with empathic statements that convey acceptance, validation of patient's experience, and compassion.
5. Demonstrate use of a validated tool to screen for trauma, when appropriate.
6. Demonstrate the use of trauma-informed language in documentation and professional communications.
7. Educate patients on the benefit of protective factors on health and explain how positive experiences and coping strategies can promote health and wellbeing.
8. Educate patients about the impact of trauma on health and explain health risk behaviors as potential adaptations to chronic stress.
9. Elicit patient strengths and use trauma-informed approaches to promote healing.

Professionalism
1. Describe examples of interpersonal and systemic bias and how they might traumatize or retraumatize patients, colleagues, and staff.
2. Describe strategies to mitigate bias in order to resist traumatization and re-traumatization of patients, colleagues, and staff.
3. Explain how a personal trauma history may influence interactions with patients, peers, supervisors, and healthcare team members.

Systems-Based Practice
1. Identify aspects of the healthcare system and other interacting systems that may not be trauma-informed and identify potential areas of improvement.

Interprofessional Collaboration
1. Demonstrate words and actions that incorporate trauma-informed principles during team-based care.
2. Use strengths-based language when discussing patients with healthcare and non-clinical teams.

Personal and Professional Development
1. Describe strategies to prevent and mitigate compassion fatigue, moral injury, vicarious trauma, secondary trauma, and burnout.
2. Describe signs or symptoms of moving outside the window of tolerance.

3. Describe regulation skills that are effective in returning to or remaining within the window of tolerance.
4. Identify effective regulation skills and other self-care techniques for healthcare providers to maintain personal health and wellbeing, especially in the face of trauma.
5. Describe the prevalence of mental health distress among medical students and explain the benefits of mental health support.
6. Describe how to access trauma-informed supervision, mentoring, and/or coaching relationships to promote personal and professional vitality.

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Supplemental Digital Appendix 2
Methods and Results - Development of Trauma-Informed Competencies for Undergraduate Medical Education (UME)

Recognizing the gap between trauma research and application and galvanized by medical student outcry for TIC education, the National Collaborative on Trauma-informed Health Care, Education and Research (TIHCER) developed and validated a TIC Competency Set for undergraduate medical education (UME)**.**

<u>Methods</u>

TIHCER's Trauma-Informed Care Competencies Task Force was composed of 13 individuals with diverse expertise in TIC and included practicing clinicians, medical educators, medical students, and behavioral and social scientists.

The Task Force based their model on a process delineated by the AAMC Advisory Committee on Sexual Orientation, Gender Identity, and Sex Development. First, the Physician Competency Reference Set (PCRS) was selected as the overarching competency framework, given its unifying list of common learner expectations utilized in training physicians. Next, over the course of several months, each domain of the PCRS was reviewed for gaps where the addition of TIC-specific competencies could provide needed guidance tailored to TIC. These competencies were then drafted by the Task Force. After all the PCRS domains were reviewed and TIC-specific competencies drafted, the Task Force convened in person in Boston, Massachusetts in January 2020. Each proposed competency was systematically reviewed during this meeting under three standards: 1) testable in a medical education setting, 2) attainable by a UME-level learner, and 3) incorporates the principles of TIC (Table 2). Competencies that did not meet these standards were discarded. Using a consensus-based process, all remaining competencies were evaluated for redundancy and those that were redundant were combined. Placement of all competencies was reviewed to ensure location in the appropriate PCRS domain. Lastly, the competencies were edited for consistency in grammar, style, and vocabulary.

The initial set was completed by the Task Force in 2020 and contained 38 competencies.

Validating TIC Competencies

Once the Task Force reached consensus, the competencies underwent validation using a modified Delphi approach as described by Wheeler & Phillips, who developed the TIC competency set for the nursing profession. The protocol for this study was submitted to the Institutional Review Board (IRB) at each of the four participating institutions: Harvard Medical School (HMS), University of North Carolina-Chapel Hill School of Medicine (UNC), University of Oklahoma School of Community Medicine (OU-Tulsa), and University of California-Davis School of Medicine (UC-Davis). We selected these four institutions to represent geographical diversity and enhance the generalizability of our results. The study was determined to be IRB exempt by all four institutional IRBs.

Recruitment of Reviewers

We recruited a reviewer group composed of four stakeholder populations: 1) TIC experts; 2) medical educators, 3) medical students, and 4) community members self-identifying as having lived experience with trauma. This prioritization ensured inclusion of the unique perspectives of TIC content experts, process experts in medical education, and, in keeping with community-based participatory research principles,[35] the ultimate recipients of medical education efforts (i.e., students and patients).

TIC experts, medical educators, and medical students were recruited from four regions based on the four participating institutions: Northeast/HMS, South/UNC, Midwest/OU-Tulsa, and West Coast/UC-Davis. TIC experts were identified via snowball sampling and recruited via email invitation. If one participant declined, another was identified and invited until the goal number of participants was reached. For each group, we aimed to have six reviewers for each stakeholder

population from each geographical region (i.e., a total of 24 medical educators, 24 TIC experts, and 24 medical students). To include diverse perspectives and feedback in the validation process, we attempted to over-sample for groups traditionally under-represented in medicine (i.e., participants who identify as sexual and gender minorities, Black or African American, Native American, and Hispanic or Latinx).

Because of the ethical conflict of inviting patients known to the researchers, community members were recruited from an online community centered around trauma and TIC, the Positive and Adverse Childhood Experiences Connection. A call for participants was posted in blog format to this website with a Qualtrics survey in which participants provided their relevant background in TIC and contact information for study participation. The goal was to recruit 24 community members.

All reviewers who were invited to participate in the study received detailed information about the study, and all reviewers gave permission via a signed consent form. No financial incentive for participation was provided.

Review Process

Each reviewer received a Validation Companion Guide explaining key terms and the Competency Domains including how to assess testability.

Next, reviewers participated in a series of validation surveys to vote on the appropriateness (described below) of each competency [Figure 1]. Reviewers were sent surveys via Qualtrics (Qualtrics, Provo, UT).

In each round, reviewers were allotted two weeks to complete the survey, and within this time they were sent two reminder emails. Consensus among reviewers was prospectively defined as being achieved if greater than or equal to 70% of reviewers responded that a competency met each of four minimum standards: 1) incorporates the principles of TIC, 2) attainable by a UME-level learner, 3) testable in a medical education setting, and 4) unique or not redundant with other competencies. More detailed descriptions of each of these standards were provided as reference for the reviewers (Table 2). Reviewers rated each competency via a 5-point Likert scale (1= "very inappropriate", 5= "very appropriate"). Using Microsoft Excel software (Redmond, Washington), researchers analyzed this data to calculate totals and percentages. Participants had the option to select "N/A" for standards they did not feel confident evaluating, therefore, partial survey responses were included in the analysis. Consensus was calculated as the proportion of responses equaling 4 ("appropriate") or 5 ("very appropriate") over the total number of responses for each standard. If one or more of the minimum standards was not met for an individual competency, the competency and any associated qualitative comments were returned to the Task Force. The competency was then either edited or discarded by the Task Force. All edited competencies were then re-evaluated by the reviewers in the next round's survey. This cycle was repeated until consensus on each competency was reached or until the last round, at which point any competency that had not reached consensus was discarded. A maximum number of three rounds was set prior to initiation of the study.

Additionally, for each competency, reviewers were invited to provide qualitative feedback to the research team. If a competency that reached quantitative consensus received greater than 5 qualitative comments, authors TB, TD, and CT used inductive content analysis to identify recurrent themes. The 6th principle of SAMHSA's TIC framework focuses on sensitivity to cultural, historical, and gender issues. To ensure adequate representation of these issues in the final Competency Set, a qualitative sub-analysis was conducted to evaluate any comment from reviewers referencing trauma caused by oppression (i.e., racism, sexism, homophobia, transphobia, etc.) or historical trauma: the "cumulative emotional and psychological wounding, over the lifespan and across generations, emanating from massive group trauma." This feedback was reviewed by the Task Force, and, in some cases, a competency was modified or added to incorporate qualitative feedback from reviewers. Any competencies edited or added by the Task Force based on qualitative feedback were evaluated by the reviewers in the next round's survey. Competency validation was completed in spring 2021.

Results

A total of 81 reviewers were recruited (23 TIC experts, 24 educators, 24 medical students, and 10 community members). The demographics of the reviewers are presented in Table 3. The first-round survey received 61 responses (52 complete and 9 partial), a 75% response rate. As shown in Figure 1, after the first round of review, 8 of 38 competencies (21%) did not meet quantitative consensus. Of these, two were redundant and discarded by the Task Force. Three competencies were edited by the Task Force to make them more testable. Each of the other three competencies that did not reach consensus were divided into two parts to make the resulting competencies more focused and testable. Based on qualitative feedback about aspects of TIC that were not covered by the original TIC Competency Set, two new competencies were drafted by the Task Force for a total of 11 revised and new competencies for the Round Two Survey for evaluation by the reviewers.

The second-round had a response rate of 60% (46 complete and 3 partial responses). Four competencies did not reach the threshold for quantitative consensus. The wording of two of these competencies was changed. Each of the other two competencies that did not reach consensus were divided into two parts. Based on qualitative feedback, one additional competency was drafted by the TIHCER Task Force for a total of 7 revised and new competencies for the Round Three Survey.

The third-round survey had a response rate of 56% (46 complete responses). One competency did not reach quantitative consensus and was discarded.

Several themes emerged from the qualitative sub-analysis regarding cultural, historical, and gender issues: a focus on using the socioecological model for teaching on types of trauma (i.e., individual, interpersonal, collective, structural); an emphasis on trauma caused by structural stigma[38] and its impacts on health outcomes; and how generational trauma affects how a person understands, copes with, and heals from trauma. The Task Force analyzed the Competency Set to ensure that each of these themes was appropriately addressed.

Supplemental digital content for Berman S, Brown T, Mizelle C, et al. Roadmap for trauma-informed medical education: introducing an essential competency set. Acad Med.

Supplemental Digital Appendix 3
TIC Competency Reviewer Companion Guide

Key Terms:

Trauma: an event, series of events, or set of circumstances that is experienced by an individual as physically or emotionally harmful or life threatening and has lasting adverse effects on the individual's functioning and mental, physical, social, emotional, or spiritual well-being. (SAMHSA, 2014).

Trauma-informed Care (TIC): is defined as an approach to clinical care that "realizes the widespread impact of trauma and understands potential paths for recovery; recognizes the signs and symptoms of trauma in clients, families, staff, and others involved with the system; and responds by fully integrating knowledge about trauma into policies, procedures, and practices, and seeks to actively resist re-traumatization" (SAMHSA 2014 p.9) This approach is grounded in six principles: safety; trustworthiness and transparency; peer support; collaboration and mutuality; empowerment, voice and choice; and cultural, historical, and gender acknowledgements. (SAMHSA 2014).

Undergraduate Medical Education (UME): Undergraduate medical education is also known as "medical school". Students in medical school have completed 4 years of college and have attained a Bachelor's degree. While in medical school, students learn the *basic skills required of a physician* (how to interview, perform a physical exam, and talk with patients about tests and treatment options). They will not be prepared to practice independently until they complete an additional 3+ years of training as "residents" (the exact length of extra training depends upon the specialty they choose).

Competency Domains:

Testable in a medical education setting: When assessing this domain, we would like to know if you think this competency or skill could be tested (i.e., is there a way we could prove that a student is competent). In medical school, there are several ways to test students' knowledge or skills. Students could answer test questions related to this competency, or they could be observed with patients providing clinical care and evaluated on their in-person skills.

Reasonably attainable for an undergraduate medical education (UME) level learner: When assessing this domain, we would like to know if this competency is at the appropriate level for a graduating medical student. These competencies should cover *introductory knowledge, attitudes and skills* in trauma-informed care, but do not yet need to be at the level of an independently practicing physician. These are basic skills that we want all doctors to have regardless of specialty.

Incorporates the principles of TIC: When assessing this domain, we would like to ensure that the competency is related to TIC. The competency should instruct on trauma, TIC, or other topics important to understanding the health impacts of trauma. The competency should also teach students how to apply one or more of the six principles of TIC: safety; trustworthiness and

transparency; peer support; collaboration and mutuality; empowerment, voice and choice; and cultural, historical, and gender acknowledgements.

Lacks redundancy: When assessing this domain, we would like to know if the competency seems to overlap with or repeat knowledge, attitudes or skills already captured by a different competency. We have included a list of all of the competencies at the end of this document. You may find it useful to read through all of the competencies once before beginning the survey, and to have this companion guide open while completing the survey for easy reference.

When should I choose the N/A option?

We have recruited a diverse selection of reviewers for the competencies, and we recognize that not all reviewers may feel they have enough background to evaluate each domain.

If you feel that you are unable to assess a particular domain, you should feel empowered to select N/A. You may still provide feedback on the competency via the free text option.