

**Title:**

Applying, Validating, and Refining a Measure of Team Development for Pre-clinical Interprofessional Education in Multiple Samples and Settings

**Synopsis/Brief Description (30 words max):**

This multi-institutional, multi-phase study sought to refine the Team Development Measure (TDM), a tool designed for clinical settings, and adapt it for pre-clinical Interprofessional Education (IPE).

**Structured Abstract (500 words max):**

**Background.** Effective healthcare teams are vital to achieving the quadruple aim, and teaching health care students to collaborate supports the development of effective health care teams. Educators must be able to demonstrate that interprofessional education (IPE) influences collaborative behaviors, but many measures for assessing interprofessional competencies and teamwork lack evidence of utility and tend to focus on individual learners rather than teams. The purpose of this study was to refine the Team Development Measure (TDM), a tool designed for clinical settings, so that it demonstrates evidence for validity in pre-clinical IPE.

**Methods.** This study was conducted over two phases with health professions learners at two universities. Phase one involved three data sources. (1) We used exploratory factor analysis (EFA) and internal consistency reliability to examine and compare the internal structure of TDM responses from three samples at Institution A and one sample from Institution B. (2) We interviewed four students from Institution A to explore response process for each TDM item. (3) We administered an item applicability survey to students at Institution B to provide empirical and qualitative feedback on item clarity and content validity. We triangulated results from these sources to identify TDM items that had poor fit, caused confusion, or did not resonate with students as applicable in learning teams. Items were then revised accordingly to create the TDM for IPE.

During phase two, we tested the TDM for IPE using a repeated measures design with a new sample at Institution B. Confirmatory factor analysis (CFA) was used on 3 time points of data to test whether the factor structure of responses was consistent with original TDM factors representing cohesiveness (CH), communication (CO), role clarity (RC), and goals and means clarity (GM).

**Results.** Findings from phase one led us to drop one item, revise six items, and adjust the item sequence. We grouped items more closely to their original domains to improve flow and ordered by item difficulty. We also added a response option of 0=Not Applicable/No Opportunity to better represent contexts where opportunities for development on some items are simply not available. Normed Chi-square values for the CFA at each time point (3.50, 4.07, 4.42) were acceptable, SRMR values (0.05, 0.04, 0.03) indicated good fit for the original four-factor model, and scale reliability was high for all four factors at time points 1 and 2 (Cronbach's alpha values > 0.91 for each domain). However, other fit indices were poor, and scale reliability was lower for responses during time point 3 (Cronbach's alpha ranging from 0.72 to 0.84).

**Discussion.** Findings indicate that some concepts related to team development in the clinical workplace are similar in pre-clinical IPE, while others may not translate seamlessly. Our next steps are Rasch modeling to analyze phase two data to see whether item difficulty scores are consistent with prior research on the original TDM, and testing with IPE teams at Institution A. These steps will help determine whether further revisions are needed to improve the utility of the TDM for IPE.

## References:

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