Assessments to Ensure Quality of Notes during Transfer of Patient Care

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In 1948, *Life* magazine published a classic photo essay titled "The Country Doctor," documenting the everyday life of Dr. Ernest Ceriani, a general practitioner who provided 24-hour care to a community of 2,000 inhabitants. The poignant black-and-white photos reveal an immensely rewarding life while simultaneously betraying his exhaustion due to long hours (1). More than eight decades later, medicine has evolved in small and large communities as a result of many factors. Although Dr. Ceriani didn't transfer the care of his patients often, two changes have demanded an increase in the number and intensity of patient handovers: work hour restrictions and patient complexity (2). Patient care is thus critically dependent on the quality of a written or verbal handover; indeed, poor handover can result in significant errors in patient care (2). These issues are more acute in the intensive care unit (ICU) setting, a fast-paced environment in which exceedingly complex patients are treated (3). Although there are gaps in training and assessment for verbal and written handovers, the most significant gap in the current literature exists in the assessment of written notes (2, 4). Assessment has taken on a particular significance in an era of competency-based medical education, which relies on valid assessment tools to provide feedback and document our learners' competence (5).

The study by Lyons and colleagues in this issue of the *ATS Scholar* embarks on validating an assessment tool for transfer notes from the ICU to the ward (6). Modern frameworks conceptualize validity as an interpretive argument that supports a predefined interpretation or use of data (7). The authors use a previously published tool, the Physician Documentation Quality Instrument (PDQI-9), which has limited validity evidence in the context of internal medicine discharge notes (8). They modify it for use in the context of transfer notes from the ICU to the ward and undertake a validity study. The authors use Messick's framework, which collects sources of validity evidence supporting argument inferences (9). The statement "Without any additional information, could you use this note to

ATS Scholar Vol 5, Iss 2, pp 224–226, 2024

DOI: 10.34197/ats-scholar.2024-0045ED

manage this patient if called for help?" is used as the outcome construct. Because raters in this study had no other access to patient information, two factors of the PDQI-9 concerning whether the note was "accurate" and "up to date" were removed. The modified PDQI9 (mPDQI9) elements included were the following: thorough, useful, organized, comprehensible, succinct, synthesized, and internally consistent. Twelve notes were randomly selected from the three study sites and were reviewed and scored by all 24 raters. Raters were grouped by levels of expertise on the basis of experience in education or quality improvement. In Messick's framework, the first four sources of evidence address the question "Are we measuring what we think we are measuring?" Content evidence is concerned with whether elements of the tool reflect what the assessment is supposed to measure. For the PDQI-9, that evidence is provided by the original study through a review of literature and expert consensus (8). Response process evidence or, in other words, the quality control of raters' actions comes to the readers through the fact that the raters had no issues with filling out the assessment tool. Internal structure evidence is provided through high interrater reliability at 0.89 (95% confidence interval, 0.78–0.96) together with Cronbach's α of 0.87. Relationship with other variables' evidence looks at how well the new assessment correlates with other assessments that measure the same construct. The authors, in an innovative way, determined the percentage of raters who would answer "yes" to the construct statement and used this as a continuous variable in correlation analyses. The correlation of this percentage with the mPDQI-9 score was moderate at 0.49 ($P < 0.01$). The consequences validity evidence is not provided.

This study significantly contributes to the existing literature gap, and its findings will positively impact patient care, education, and research. Despite the importance and interest in training and assessment of handover, a recent review shows that the quality of studies is variable, especially as they relate to educational theory (2, 9). Lyons and colleagues, having undertaken a rigorous validity study, provide the community with a tool that can be used for training, assessment, and feedback. In addition, this study helps research and advancement of health sciences because it gives other researchers who want to study different interventions an outcome in which those interventions can be evaluated.

There are two main limitations to the study by Lyons and colleagues. Their raters were blinded to patient information to reduce bias, and although reducing bias is vital in studies, it is challenging to assess the usefulness of a note without knowing the patient's story and the note's accuracy. Second, this study does not provide consequences validity evidence concerned with "Does the activity of assessing and its subsequent interpretations achieve the desired results with few negative effects?" This precludes the mPDQI-9 from being used for high-stakes assessment scenarios.

Since the first medical notes were written in papyrus around 1,600 B.C., transfer notes have had a tremendous impact on the future care of our patients (10). Although note writing is one of the most frequent tasks clinicians perform, its quality depends on the complex process of gathering accurate information, synthesizing the note in a clear and comprehensive history, and the ability to compose a well-written note. This complex process needs to be supported by adequate training and feedback, and there

is a paucity of literature to guide it, as evidenced by a recent review (11). Assessment tools with validity evidence can be used by supervisors for feedback, as well as for peer review and self-reflection. Some have proposed that machine learning algorithms can be made to use these assessment tools to reduce demands on faculty (6, 11). Still, these algorithms are as good as the datasets they are trained in, and evidence for their accuracy is currently lacking (12). For now, we have to rely on our supervisors and valid assessment tools.

Author disclosures are available with the text of this article at www.atsjournals.org.

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