TRANSFORM-ing Patient Safety Culture: A Universal Imperative

Edmondo Robinson, M.D., M.B.A.^{1,2} and Tara Lagu, M.D., M.P.H.^{3,4,5}

¹Value Institute, Christiana Care Health System, Wilmington, DE, USA; ²Department of Medicine, Christiana Care Health System, Wilmington, DE, USA; ³Center for Quality of Care Research, Baystate Medical Center, Springfield, MA, USA; ⁴Division of General Medicine, Baystate Medical Center, Springfield, MA, USA; ⁵Tufts University School of Medicine, Boston, MA, USA.

KEY WORDS: patient safety; safety culture; multidisciplinary teams; implementation science.

J Gen Intern Med 30(4):384–6

DOI: 10.1007/s11606-014-3138-9

© Society of General Internal Medicine 2014

The importance of patient safety has been well established in the United States, inspired by the oft-cited Institute of Medicine reports “To Err is Human” and “Crossing the Quality Chasm.”^{1,2} The World Health Organization (WHO) has since broadened the quest to the international scale, establishing the WHO Patient Safety Programme in 2004.³ A core component of this movement, which has been influenced by other industries, including those focused on preventing bad outcomes in high-risk and complex environments, is the establishment of a culture of safety. In this issue of JGIM, Braddock et al. describe a bundle of interventions focused on improving safety culture in the clinical microsystem of the hospital inpatient unit.⁴ The project, referred to as “TRANSFORM Patient Safety,” consists of the identification of patient safety champions, establishment of a patient safety working group, and introduction of ongoing incident debriefings, patient safety interdisciplinary case conferences, in situ simulation, and a teamwork performance award. TRANSFORM “bundles” successful interventions described in prior literature while, importantly, focusing on the clinical microsystems (nursing units) rather than the larger hospital or system level. Although this project was conducted in a challenging inpatient teaching environment, it still manages to address most of the components that the Agency for Healthcare Research and Quality (AHRQ) has described as critical to developing a culture of safety.⁵

One of the strengths of the TRANSFORM Project is its focus on important outcomes: prevention of hospital-acquired severe sepsis/septic shock and hospital-acquired acute respiratory failure. The authors observed statistically significant decreases in the incidence of hospital-acquired shock and respiratory failure, results that were maintained through the sustainability period, while non-intervention units in the same hospital showed an increase in the rates of these same outcomes. It could be argued that the focus of the program led to earlier detection of sepsis and respiratory failure, resulting in

decreases in apparent incidence of hospital-acquired conditions without changing the overall burden of disease (because more cases were coded “present on admission”). While earlier detection of cases is generally a desirable outcome, there is some risk of overdiagnosis and overtreatment of cases that would not have developed into sepsis or respiratory failure. Despite these risks, the TRANSFORM Project shows that a bundle of interventions can potentially improve safety outcomes and sustain these improvements over time, which is arguably evidence of a positive “change in safety culture.”

An aspect of the development of a safety culture that has been previously described and that may help to explain much of the success of the TRANSFORM Project is the use of interdisciplinary teams. There is likely much benefit to be gained from the act of coalescing and supporting interdisciplinary teams focused on patient safety, especially at the clinical microsystem level.⁶ These benefits may extend to diagnoses beyond the ones measured in this article and may also include: 1) improved team and patient/family communication, 2) improved nursing and physician engagement, 3) more efficient use of healthcare resources, and 4) better workplace morale.^{7–9}

As JGIM readers consider implementing the TRANSFORM Project at their own institutions, some important considerations and challenges arise. As with many bundled interventions, it is not completely clear which component of the bundle was most important for establishing the outcomes described, or if it is necessary to implement all components of the bundle. Although using multifaceted interventions is a common approach to behavior change in general, there is recent evidence to suggest that the multifaceted approach may be no better than single component interventions when attempting to change behavior in a healthcare setting.¹⁰ Additionally, possibly due to space constraints, the roles of each of the participants in the intervention (Unit-Based Medical Director, Patient Safety Champion, etc.) are not completely clear. The methods used to select control nursing units are also not well described. The in situ simulation training of the TRANSFORM Project is novel and interesting, but also may be the most resource-intensive component. Those tasked with implementing a project like TRANSFORM may wonder if the same outcomes can be achieved without the simulation training component. Additional implementation challenges that are not well described in the manuscript include: how to

best secure buy-in from leadership; the best method for overcoming the challenge of staffing, given the increased workload associated with the intervention; and the best way to access the resources needed for the intervention, such as simulation equipment or information technology.

Implementing safety culture improvements can be even more challenging in the setting of a teaching hospital. The AHRQ Patient Safety Culture Report for 2014 shows teaching hospitals lagging behind nonteaching hospitals in all 12 composites scores.¹¹ The TRANSFORM Project did incorporate internal medicine and surgery post-graduate year (PGY)-1 residents into the intervention. However, it is unclear what part more senior residents played in the intervention. Additionally, when designing interventions aimed at changing culture, whether patient safety or otherwise, the more prominent involvement of attending physicians should be considered. Both peer pressure and attending physician role modeling can be drivers of behavior change in the inpatient teaching setting.¹²

Given the near-universal desire to improve patient quality and safety, and the challenges of trying to implement the methods of peer-reviewed articles in “real-life” settings, we suggest that practical, science-based implementation interventions such as TRANSFORM are most helpful when they can be translated into an evidence-based “How To” guide in order to facilitate rapid uptake and spread. Therefore, we propose recommendations for both authors and journal editors who desire to disseminate future interventions:

Authors: When conducting implementation science interventions focused on patient safety, a concerted effort should be made to:

1. Design interventions that are as generalizable and replicable as possible, given the limitations of the experimental setting.
2. Describe the intervention using an in-depth, online supplement format, with a focus on defining the role of each participant.
3. In this supplement or in the manuscript itself, be sure to explain how to measure success in terms of both processes and outcomes.

Journal Editors: Given the space limitations in most scientific journals, efforts should be made to:

1. Publish detailed descriptions of interventions, using an established guideline, as an online appendix.
2. Use the journal’s “Instructions for Authors” to describe expectations of authors with regard to these types of interventions.
3. Encourage authors presenting novel interventions to consider including in the body of the manuscript, or as figure, practical considerations for implementation and evaluation of the intervention.

4. Consider the importance of the emerging field of implementation science: Publish work describing applications of previously described interventions, in order to grow the body of literature describing strategies that have succeeded in improving safety culture in different settings.

The TRANSFORM Program represents an early snapshot of a successful attempt to improve patient safety culture. This program, and others like it, should be applied elsewhere to determine their generalizability to other nursing units, hospitals, and health systems, so that the evidence around how to develop a culture of safety will be strengthened and deepened.

Acknowledgements: Dr. Lagu is supported by the National Heart, Lung, and Blood Institute of the National Institutes of Health under Award Number K01HL114745, and has received consulting fees from the Institute for Healthcare Improvement, under contract to CMS, for her work on a project to help health systems achieve Disability competence. She has also received consulting fees from The Island Peer Review Organization, under contract to CMS, for her work on development of episodes of care for CMS payment purposes.

Conflict of Interest: The authors declare that they do not have a conflict of interest.

Corresponding Author: Edmondo Robinson, M.D., M.B.A.; The Value Institute, Christiana Care Health System, 501 West 14th Street, Suite 1N81, Wilmington, DE 19801, USA (e-mail: ERobinson@ChristianaCare.org).

REFERENCES

1. To Err Is Human: Building a Safer Health System. Available at: http://www.nap.edu/openbook.php?record_id=9728. Accessed November 10, 2014
2. Crossing the Quality Chasm: A New Health System for the 21st Century. Inst Med. Available at: <http://iom.edu/Reports/2001/Crossing-the-Quality-Chasm-A-New-Health-System-for-the-21st-Century.aspx>. Accessed November 10, 2014
3. Vincent J-L. Increasing awareness of sepsis: World Sepsis Day. Crit Care. 2012;16(5):152. doi:10.1186/cc11511.
4. Braddock C, Szaflarski N, Forsey L, et al. The TRANSFORM patient safety project: a microsystem approach to improving outcomes on inpatient units. J Gen Intern Med [SPI 3067]
5. Sorra JS, Nieva V. Hospital survey on patient safety culture. (Prepared by Westat, under Contract No. 290-96-0004). Rockville, MD: Agency for Healthcare Research and Quality; 2004. Available at: <http://www.ahrq.gov/professionals/quality-patient-safety/patientsafetyculture/hospital/userguide/hospcult.pdf>. Accessed November 10, 2014.
6. O’Leary KJ, Wayne DB, Haviley C, Slade ME, Lee J, Williams MV. Improving teamwork: impact of structured interdisciplinary rounds on a medical teaching unit. J Gen Intern Med. 2010;25(8):826–32. doi:10.1007/s11606-010-1345-6.
7. Reader TW, Flin R, Mearns K, Cuthbertson BH. Developing a team performance framework for the intensive care unit*. Crit Care Med. 2009;37(5):1787–93. doi:10.1097/CCM.0b013e31819f0451.
8. Vazirani S, Hays RD, Shapiro MF, Cowan M. Effect of a multidisciplinary intervention on communication and collaboration among physicians and nurses. Am J Crit Care. 2005;14(1):71–7.
9. Zimmerman JE, Shortell SM, Rousseau DM, et al. Improving intensive care: observations based on organizational case studies in nine intensive care units: a prospective, multicenter study. Crit Care Med. 1993;21(10):1443–51.
10. Squires JE, Sullivan K, Eccles MP, Worswick J, Grimshaw JM. Are multifaceted interventions more effective than single-component

- interventions in changing health-care professionals' behaviours? An overview of systematic reviews. *Implement Sci.* 2014;9(1):152. doi:10.1186/s13012-014-0152-6.
11. Hospital Survey on Patient Safety Culture: 2014 User Comparative Database Report. Available at: <http://www.ahrq.gov/professionals/quality-patient-safety/patientsafetyculture/hospital/2014/hosp14summ.html>. Accessed November 10, 2014
12. **Haessler S, Bhagavan A, Kleppel R, Hinchey K, Visintainer P.** Getting doctors to clean their hands: lead the followers. *BMJ Qual Saf.* 2012;21(6):499-502. doi:10.1136/bmjqs-2011-000396.