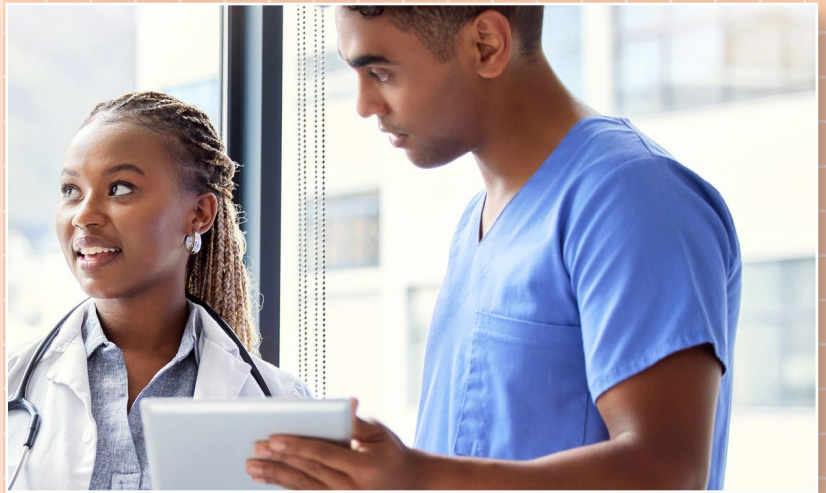
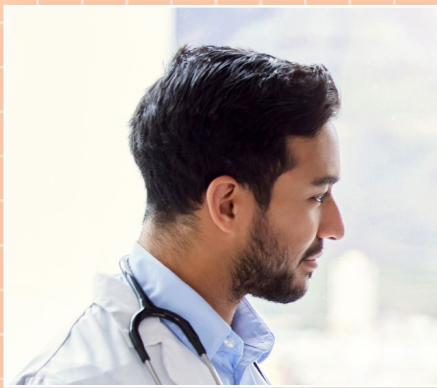


Strategies for Improving Clinician Psychological Safety in Reporting and Discussing Diagnostic Error



PATIENT SAFETY

This page intentionally left blank.

Issue Brief 15

Strategies for Improving Clinician Psychological Safety in Reporting and Discussing Diagnostic Error

Prepared for:

Agency for Healthcare Research and Quality
5600 Fishers Lane
Rockville, MD 20857
www.ahrq.gov

Contract Number HHSP233201500022I/75P00119F37006

Prepared by:

Dhara Amin, M.D., FACEP,
Director of Quality Improvement and Patient Safety
Department of Emergency Medicine
Cook County Health
Assistant Professor of Emergency Medicine
Rush University Medical Center
Chicago, IL

Karen S. Cosby, M.D., FACEP, CPPS
Program Director, The Diagnostic Excellence Initiative
The Gordon and Betty Moore Foundation
Associate Professor (retired)
Rush Medical College
Senior Attending Physician, Emergency Medicine
Cook County Health
Chicago, IL



AHRQ Publication No. 23-0040-6-EF
September 2023

This project was funded under contract number HHSP233201500022I/75P00119F37006 from the Agency for Healthcare Research and Quality (AHRQ), U.S. Department of Health and Human Services. The authors are solely responsible for this document's contents, findings, and conclusions, which do not necessarily represent the views of AHRQ. Readers should not interpret any statement in this product as an official position of AHRQ or of the U.S. Department of Health and Human Services. None of the authors has any affiliation or financial involvement that conflicts with the material presented in this product.

Public Availability Notice. This product is made publicly available by AHRQ and may be used and reprinted without permission in the United States for noncommercial purposes unless materials are clearly noted as copyrighted in the document. No one may reproduce copyrighted materials without the permission of the copyright holders. Users outside the United States must get permission from AHRQ to reprint or translate this product. Anyone wanting to reproduce this product for sale must contact AHRQ for permission.

Citation of the source is appreciated.

Suggested citation: Amin D, Cosby K. Issue Brief 15. Strategies for Improving Clinician Psychological Safety in Reporting and Discussing Diagnostic Error. Rockville, MD: Agency for Healthcare Research and Quality; September 2023. Publication No. 23-0040-6-EF.

Learning From Diagnostic Errors

Diagnostic errors are both frequent and harmful, accounting for the most common potentially preventable cause of serious disability and death identified in malpractice cases.¹ We do not have systematic and rigorous ways to define and enumerate diagnostic errors, but we are often reminded by patients and clinicians of the harm from missed opportunities to intervene to optimize outcomes. The 2015 National Academy of Medicine report *Improving Diagnosis in Health Care* declared the need to improve diagnosis as a “moral and professional imperative.”² However, solutions are not easy or clear.

Despite growing awareness of diagnostic error, most healthcare systems do not track or record diagnostic quality, and many diagnostic safety events are not recognized. Without methods to identify, measure, investigate, and analyze events, healthcare organizations cannot understand causes of diagnostic errors, identify contributing factors, or create solutions. A learning health system relies on such information to act.

One of the best ways to collect information about diagnostic errors is through self-reporting by patients and clinicians. Successful approaches to learn from diagnostic quality and develop strategies to reduce harm from diagnostic failure depend on two workplace characteristics: psychological safety and organizational safety culture. Both concepts are explored in this issue brief.

The Potential of Psychological Safety and Organizational Safety Culture To Improve Diagnostic Safety

The concept of psychological safety³ was first applied to healthcare by Edmonson more than 20 years ago. She defined it as “a shared belief that the team is safe for interpersonal risk taking” and a culture that encourages individuals “to express their ideas and concerns, to speak up with questions, and to admit mistakes – all without fear of negative consequences.”⁴ The concept is generally used in patient safety to encourage transparent and open discussion of hazards and errors and to foster innovation and learning.⁵⁻⁷

Psychological safety relies on two key principles: respect and trust.⁴ Respect presumes that individuals involved in healthcare, even in adverse events, have expertise, acted in good faith and with good intentions, and were motivated to perform well. It is important to understand the context for their decisions and actions. If decisions or actions were imperfect, the goal should be to understand why they made sense at the time and how care could be improved in the future.

The goal of reporting and analyzing errors should be to promote insight, create solutions, and enable the individual and team to advance understanding and solutions. Trust requires that the team supports the individual, acknowledges and appreciates them for their contribution to learning, and joins them in developing strategies to make care safer for all going forward.

Organizational culture refers to the collective attitudes, beliefs, and values of an organization; a safety culture fosters a shared commitment to identifying and mitigating risks, learning, and improving. Safety culture requires leadership commitment to safety, engagement of individuals, and training to support improvement.⁸

Psychological safety and an organizational culture of safety are ideas firmly embedded in patient safety, but evidence is limited around their role in addressing diagnostic errors. It is reasonable, however, to think that the principles that enable error reporting and guide process improvements can also enable improvements in diagnostic safety.

Specific Barriers and Challenges to Reporting and Learning From Diagnostic Errors

Many personal and philosophical reasons make it hard to learn from diagnostic safety events. Clinicians endure years of training in medical sciences followed by arduous years of apprenticeship training. Their deep foundation of knowledge and clinical reasoning skills are gained at a great price (financial and personal) and is highly treasured. Questions about diagnostic errors challenge their sense of competency and can undermine confidence.

The reaction to questions about diagnostic safety events may range from denial to shame. The requirement to subject one's care to examination is threatening. In fact, most physicians do not participate in reporting mechanisms, perhaps out of unwillingness to confront error. It is also possible that they value other activities, have other pressing priorities with their clinical time, or may find little value from the exercise.^{9,10}

The ever-present threat of malpractice suits also chills open and frank discussions around quality of care. One strategy is to frame discussions around improvement opportunities to avoid the harsh judgment assigned to the characterization of a diagnostic safety event as an "error."

Some may not trust independent assessments of diagnostic quality that might be viewed as capricious or unfair. The conclusion that an error happened at all might depend on the reviewer's perspective; in fact, consensus is often difficult to achieve among peer reviewers. One can argue that reviewers should not be selected for their content expertise but rather for experience with the context and setting specific to the case for review. For example, specialists might not understand the practice setting faced by generalists, and physicians might not understand or fairly assess nurses and vice versa.

Since the cognitive component of diagnostic reasoning is often invisible or intangible, some may ask whether cognition can fairly be assessed at all without recall bias, hindsight bias, and outcome bias.¹¹ In addition to bias, undifferentiated illness is complex and has some degree of irreducible uncertainty. Thus, attempts to characterize diagnostic reasoning as good or bad require judgment that may not be objective or easily standardized.¹¹

Organizational barriers also limit examination of diagnostic events. In general, most clinicians receive little feedback from other providers or from different care settings, so many diagnostic errors are never recognized.^{12,13} When they are, the lack of standards and benchmarks for diagnostic quality make it difficult to make fair and objective (unbiased) assessments.¹⁴

In some settings, the complex sociotechnical system approach to understanding diagnosis may not be appreciated, and reviews by existing quality personnel may not fully investigate system contributions to diagnostic problems.¹⁵ In addition, organizations may not support adequate infrastructure to facilitate reporting. The lack of informatics support designed to capture data on diagnostic quality impedes routine assessment of diagnostic performance.

These challenges and barriers, however daunting, still have potential solutions that can be achieved given a safe and supportive environment open to learning and improvement.

Strategies To Promote Psychological Safety and Organizational Safety Culture Related to Diagnosis

Diagnostic quality requires the active engagement of individuals and a responsive healthcare system. Three distinct targets for improvement rely on a safe environment, all grounded in psychological safety and an organizational culture of safety: the individual, the team, and the organization.¹⁶

Strategies at the Individual Level

A variety of activities can encourage individual learning and improvement, particularly when they take place in a supportive environment. Clinicians may find informal support in the form of real-time casual “curbside consults” by seeking the opinion of a trusted colleague. Sometimes simply constructing a question can help the busy clinician articulate their reasoning and explain aspects of the case that create doubt or concern. A colleague can validate their reasoning and affirm their conclusion or suggest alternate ideas.¹⁷ Outside major practices and healthcare settings, few have the privilege of working side by side with a trusted colleague, so this benefit is limited to select healthcare settings.

When reviewing a case after the fact, or when grappling with concern about a mistake, personal reflection, with or without a peer coach, can help clinicians examine their thinking and imagine how they might respond differently in the future.^{18,19} Personal reflection may be facilitated by reflective writing to help clinicians better understand their unique susceptibilities and vulnerabilities to cognitive errors.²⁰

Individuals may benefit from standardized tools designed to help them review their performance on cases, such as [Calibrate Dx](#). AHRQ developed this resource to help individuals assess and improve diagnostic decisions.²¹

Feedback on performance can help calibrate clinical reasoning. Professionals may develop their own system to surveil for error, although consistent and reliable feedback can be engineered into a system and supported by system design.²² Feedback mechanisms help physicians better understand how their clinical practice compares with others and when they are prone to misjudgments.

Physicians value specific programs designed to provide corrective and positive peer feedback, explanations, and suggestions for improvement.²³ The American College of Radiology has developed a “peer learning” program that uses interpersonal relationships to assess and enhance performance; this program recognizes mistakes as opportunities to learn and fosters openness and trust between peers.^{24,25}

Outside academic settings and training programs, opportunities for individual learning are less accessible. One approach to address this gap is to develop and participate in “practice inquiry,” a problem-based learning and improvement method organized between clinicians at different primary practice sites to discuss difficult cases.²⁶ The forum allows clinician colleagues to share strategies and ideas outside regulatory or oversight mechanisms, creating open exchange for improvement strategies free of judgment. The program requires active management and personal investment to sustain, and programs may have significant drop-off over time.

Strategies at the Team Level

While medical education focuses on individual achievement, in practice, care delivery requires coordinated activity between individuals in a complex environment. Teamwork principles promote a culture of cooperation, coordination, communication, situation monitoring, and mutual support within the context of psychological safety.

TeamSTEPPS has emerged as a valuable program to enhance team performance. The program includes a **diagnosis improvement course** that incorporates teamwork principles to engage a team (including patients, families, providers, radiology and lab personnel, other staff, and support services) to support optimal diagnosis.²⁷

While the TeamSTEPPS program does not explicitly discuss psychological safety, the principles of shared accountability and mutual support model psychological safety. The focus on safety huddles and situation awareness promotes shared vision and fosters a team engaged in solutions and innovation.

Within healthcare systems, efforts to help team members and consultants become familiar with each other promote shared understanding for quality improvement. Relationship building improves communication, generates understanding of different perspectives, and fosters collaboration.¹⁶ Shared goals over time can avoid conflicts that arise in crisis clinical settings.

Strategies at the Organization Level

Organizational leadership can support and incentivize event reports with well-designed and user-friendly reporting systems. For meaningful use, the system should provide timely investigation and analysis and feed forward corrective actions that are responsive to the reporter.

Optimal systems will build capacity for measuring and monitoring diagnostic quality in support of quality improvement. **Measure Dx** is a tool that can provide practical guidance for starting a systematic process to gather and analyze data to identify missed opportunities for improvement.²⁸ As organizations develop a robust quality reporting system, they will benefit from a more exhaustive view of broader system factors that impact safety. The Safer Dx framework can guide such assessments and includes technological factors and external forces such as payment systems, legal issues, regulatory requirements, and health policy.²⁹

Forums to discuss diagnostic problems are also key to improvement. For example, mortality and morbidity conferences may involve analysis of events, engage team members, and support a comprehensive assessment from a systems perspective. An open, honest, and nonpunitive environment ensured by a culture of safety will reveal opportunities for improvement.³⁰ However, these forums can fail if they are used to harass or bully junior team members; they can also lose their effectiveness if they become case conferences focused on rare and unusual conditions.

Leadership committed to a culture of safety should invest resources to solve system problems that threaten diagnostic safety and provide educational resources and training for continuous learning for the team. A mature and healthy organization will provide proactive solutions to identified problems that encourage and reward reporting. One method to promote recognition of risk is to reward individuals for detecting and announcing safety risks; an example is the “Good Catch” safety program that promotes active surveillance for problems.³¹

Organizations can also seek feedback about the quality of diagnosis from patients on patient and family advisory councils (PFACs)³² or via patient experience measures specifically designed to capture diagnostic quality.³³

Organizations can drive engagement and promote team vision by identifying and supporting healthcare champions. Highly motivated and influential individuals can play a key role in successfully implementing improvement efforts by modeling desired behaviors and engaging their team to support change.³⁴ Such champions are now considered essential to implement new healthcare informatics technology or integrate new processes, equipment, or workflow solutions.

AHRQ's voluntary Patient Safety Organization (PSO) program is another significant advancement that promotes reporting by providing legal protections for reporters.³⁵ Participation offers hospitals access to shared learning.

A 2019 report by the Department of Health and Human Services Office of the Inspector General found that 97 percent of hospitals working with a PSO find it valuable; 80 percent found that feedback and analysis of safety events helped prevent future events. Involvement with a PSO provides peer-to-peer learning in confidential "safe tables" where patient safety topics and adverse events are discussed to understand the causes and find solutions, an experience one participant described as "priceless."³⁶

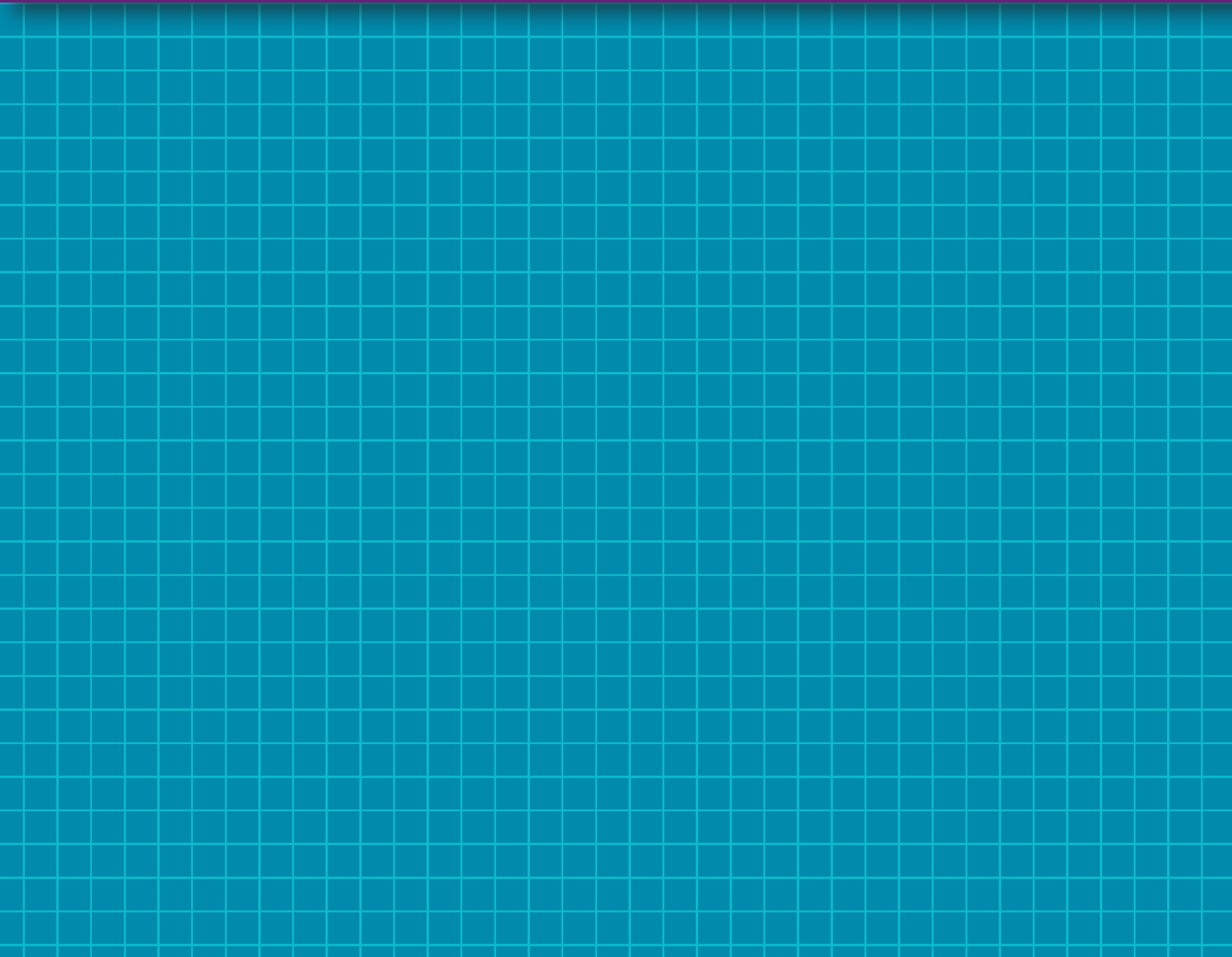
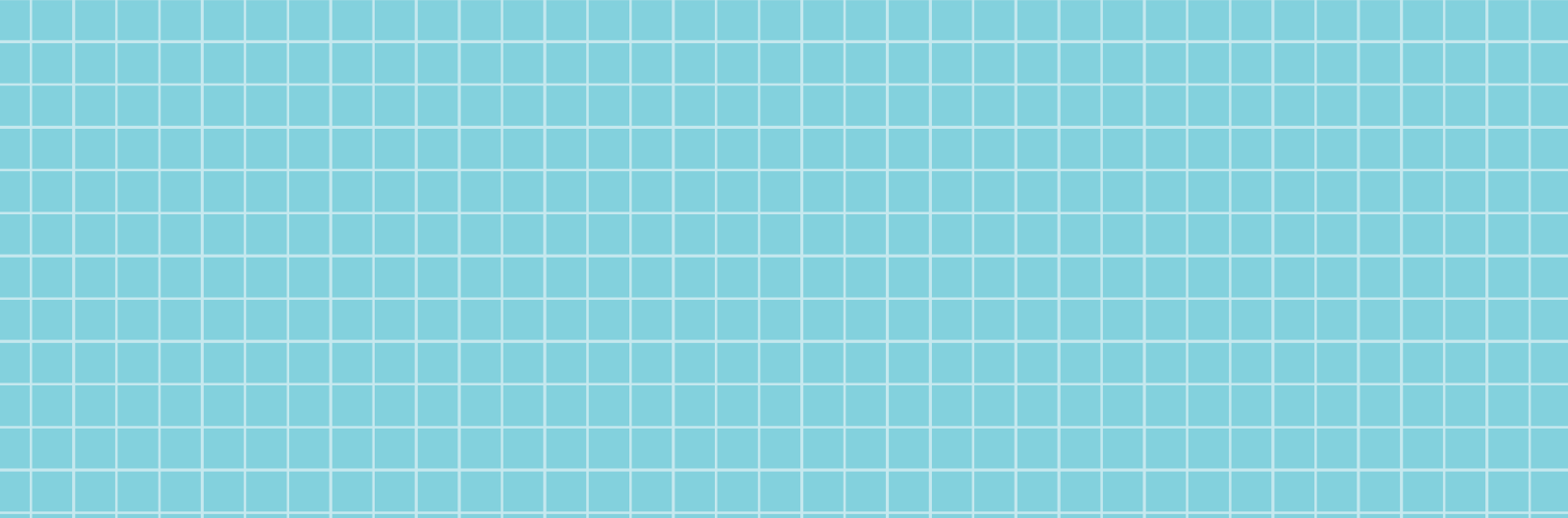
Each of these mechanisms offers promising strategies, but their successful application relies on a secure environment of psychological safety that supports and encourages frontline clinicians to act as the best defense for reducing harm from diagnostic safety events.

References

1. Gupta A, Snyder A, Kachalia A, Flanders S, Saint S, Chopra V. Malpractice claims related to diagnostic errors in the hospital. *BMJ Qual Saf.* 2017 Aug 9;27(1):bmjqs-2017-006774. <https://doi.org/10.1136/bmjqs-2017-006774>. Accessed August 24, 2023.
2. Committee on Diagnostic Error in Health Care; Board of Health Care Services; Institute of Medicine; The National Academies of Sciences, Engineering, and Medicine. *Improving Diagnosis in Health Care*. Balogh EP, Miller BT, Ball JR, eds. Washington, DC: National Academies Press; December 2015. <https://doi.org/10.17226/21794>. Accessed August 24, 2023.
3. Kahn WA. Psychological conditions of personal engagement and disengagement at work. *Acad Manag J.* 1990;33(4):692-724.
4. Edmondson A. Psychological safety and learning behavior in work teams. *Adm Sci Q.* 1999;44(2):350-383. <https://doi.org/10.2307/2666999>. Accessed August 24, 2023.
5. O'Donovan R, Van Dun D, McAuliffe E. Measuring psychological safety in healthcare teams: developing an observational measure to complement survey methods. *BMC Med Res Methodol.* 2020 Jul 29;20(1):203. <https://doi.org/10.1186/s12874-020-01066-z>. Accessed August 24, 2023.
6. Grailey KE, Murray E, Reader T, Brett SJ. The presence and potential impact of psychological safety in the healthcare setting: an evidence synthesis. *BMC Health Serv Res.* 2021 Aug 5;21(1):773. <https://doi.org/10.1186/s12913-021-06740-6>. Accessed August 24, 2023.
7. Gallo A. What is psychological safety? *Harvard Business Review.* 2023 Feb 15. <https://hbr.org/2023/02/what-is-psychological-safety>. Accessed August 24, 2023.
8. Agency for Healthcare Research and Quality. PSNet. Patient Safety 101: Primers: Culture of Safety. <https://psnet.ahrq.gov/primer/culture-safety>. Accessed August 24, 2023.
9. Milch CE, Salem DN, Pauker SG, Lundquist TG, Kumar S, Chen J. Voluntary electronic reporting of medical errors and adverse events. An analysis of 92,547 reports from 26 acute care hospitals. *J Gen Intern Med.* 2006 Feb;21(2):165-170. <https://doi.org/10.1111/j.1525-1497.2006.00322.x>. Accessed August 24, 2023.
10. Tuttle D, Holloway R, Baird T, Sheehan B, Skelton WK. Electronic reporting to improve patient safety. *Qual Saf Health Care.* 2004 Aug;13(4):281-286. <https://doi.org/10.1136/qhc.13.4.281>. Accessed August 24, 2023.
11. Croskerry P. Perspectives on diagnostic failure and patient safety. *Healthc Q.* 2012;15 Spec No:50-6. <https://doi.org/10.12927/hcq.2012.22841>. Accessed August 24, 2023.
12. Omron R, Kotwal S, Garibaldi BT, Newman-Toker DE. The diagnostic performance feedback “calibration gap”: why clinical experience alone is not enough to prevent serious diagnostic errors. *AEM Educ Train.* 2018;2(4):339-342. <https://doi.org/10.1002/aet2.10119>. Accessed August 24, 2023.
13. Fernandez Branson C, Williams M, Chan TM, Graber ML, Lane KP, Grieser S, Landis-Lewis Z, Cooke J, Upadhyay DK, Mondoux S, Singh H, Zwaan L, Friedman C, Olson APJ. Improving diagnostic performance through feedback: the Diagnosis Learning Cycle. *BMJ Qual Saf.* 2021 Dec;30(12):1002-1009. <https://doi.org/10.1136/bmjqs-2020-012456>. Accessed August 24, 2023.

14. Giardina TD, Shahid U, Mushtaq U, Upadhyay DK, Marinez A, Singh H. Creating a learning health system for improving diagnostic safety: pragmatic insights from U.S. health care organizations. *J Gen Intern Med.* 2022 Nov;37(15):3965-3972. <https://doi.org/10.1007/s11606-022-07554-w>. Accessed August 24, 2023.
15. Holden RJ, Carayon P, Gurses AP, Hoonakker P, Hundt AS, Ozok AA, Rivera-Rodriguez AJ. SEIPS 2.0: a human factors framework for studying and improving the work of healthcare professionals and patients. *Ergonomics.* 2013;56(11):1669-1686. <https://doi.org/10.1080/00140139.2013.838643>. Accessed August 24, 2023.
16. Remtulla R, Hagana A, Houbby N, Ruparell K, Aojula N, Menon A, Thavarajasingam SG, Meyer E. Exploring the barriers and facilitators of psychological safety in primary care teams: a qualitative study. *BMC Health Serv Res.* 2021 Mar 24;21(1):269. <https://doi.org/10.1186/s12913-021-06232-7>. Accessed August 24, 2023.
17. Cook DA, Sorensen KJ, Wilkinson JM. Value and process of curbside consultations in clinical practice: a grounded theory study. *Mayo Clin Proc.* 2014 May;89(5):602-614. <https://doi.org/10.1016/j.mayocp.2014.01.015>. Accessed August 24, 2023.
18. Fragkos KC. Reflective practice in healthcare education: an umbrella review. *Educ Sci.* 2016 Aug;6(3):27. <https://doi.org/10.3390/educsci6030027>. Accessed August 24, 2023.
19. Salas E, Klein C, King H, Salisbury M, Augenstein JS, Birnbach DJ, Robinson DW, Upshaw C. Debriefing medical teams: 12 evidence-based best practices and tips. *Jt Comm J Qual Patient Saf.* 2008 Sep;34(9):518-527. [https://doi.org/10.1016/s1553-7250\(08\)34066-5](https://doi.org/10.1016/s1553-7250(08)34066-5). Accessed August 24, 2023.
20. Raghoobar-Krieger HMJ, Barnhoorn PC, Verhoeven AAH. Reflection on medical errors: a thematic analysis. *Med Teach.* 2023 Jun 12:1-7. <https://doi.org/10.1080/0142159X.2023.2221809>. Accessed August 24, 2023.
21. IQuEst, Gupta A, Singh H. Calibrate Dx: A Resource To Improve Diagnostic Decisions. Rockville MD: Agency for Healthcare Research and Quality; October 2022. AHRQ Publication No. 22(23)-0047-2-EF. <https://www.ahrq.gov/sites/default/files/publications2/files/calibrate-dx-guide.pdf>. Accessed August 24, 2023.
22. Cifra CL, Sittig DF, Singh H. Bridging the feedback gap: a sociotechnical approach to informing clinicians of patients' subsequent clinical course and outcomes. *BMJ Qual Saf.* 2021 Jul;30(7):591-597. <https://doi.org/10.1136/bmjqs-2020-012464>. Accessed August 24, 2023.
23. Scheepers RA, van den Goor M, Arah OA, Heineman MJ, Lombarts KMJM. Physicians' perceptions of psychological safety and peer performance feedback. *J Contin Educ Health Prof.* 2018 Fall;38(4):250-254. <https://doi.org/10.1097/CEH.000000000000225>. Accessed August 24, 2023.
24. Larson DB, Donnelly LF, Podberesky DJ, Merrow AC, Sharpe RE Jr, Kruskal JB. Peer feedback, learning, and improvement: answering the call of the Institute of Medicine Report on Diagnostic Error. *Radiology.* 2017 Apr;283(1):231-241. <https://doi.org/10.1148/radiol.2016161254>. Accessed August 24, 2023.
25. Le RK, Cohen M, David N, Matalon T. Transitioning to peer learning: lessons learned. *J Am Coll Radiol.* 2021 Mar;18(3 Pt B):499-506. <https://doi.org/10.1016/j.jacr.2020.09.058>. Accessed August 24, 2023.

26. Sommers LS, Morgan L, Johnson L, Yatabe K. Practice inquiry: clinical uncertainty as a focus for small-group learning and practice improvement. *J Gen Intern Med.* 2007 Feb;22(2):246-252. <https://doi.org/10.1007/s11606-006-0059-2>. Accessed August 24, 2023.
27. Agency for Healthcare Research and Quality. TeamSTEPPS Diagnosis Improvement Course. Last reviewed June 2023. <https://www.ahrq.gov/teamstepps-program/diagnosis-improvement/index.html>. Accessed August 24, 2023.
28. IQuEst, Bradford A, Singh H. Measure Dx: A Resource To Identify, Analyze, and Learn From Diagnostic Safety Events. Rockville MD: Agency for Healthcare Research and Quality; July 2022. AHRQ Publication No. 22-0038. <https://www.ahrq.gov/sites/default/files/publications2/files/MeasureDx-guide.pdf>. Accessed August 24, 2023.
29. Singer H, Sittig DF. Advancing the science of measurement of diagnostic errors in healthcare: the Safer Dx framework. *BMJ Qual Saf.* 2015;14:103-110. <https://doi.org/10.1136/bmjqs-2014-003675>. Accessed August 24, 2023.
30. Kachalia A. Improving patient safety through transparency. *N Engl J Med.* 2013 Oct 31;369(18):1677-1679. <https://doi.org/10.1056/NEJMp1303960>. Accessed August 24, 2023.
31. Wallace SC, Mamrol C, Finley E. Promote a Culture of Safety With Good Catch Reports. *Pa Patient Saf Advis* 2017 Sep;14(3). http://patientsafety.pa.gov/ADVISORIES/Pages/201709_goodcatch.aspx. Accessed August 24, 2023.
32. Society to Improve Diagnosis in Medicine. Patient and Family Advisory Council Guides. August 2020. <https://www.improvediagnosis.org/pfac-guides/>. Accessed August 24, 2023.
33. Smith K, Baker K, Haskell H, Hill M, Tate J. Using patient experience surveys to assess diagnostic safety in urgent care. *Health Serv Res.* 2021 Sep;56(Suppl 2):53-54. <https://doi.org/10.1111/1475-6773.13822>. Accessed August 24, 2023.
34. George ER, Sabin LL, Elliott PA, Wolff JA, Osani MC, McSwiggan Hong J, Berry WR. Examining health care champions: a mixed-methods study exploring self and peer perspectives of champions. *Implement Res Pract.* 2022 Feb 10;3:26334895221077880. <https://doi.org/10.1177/26334895221077880>. Accessed August 24, 2023.
35. Agency for Healthcare Research and Quality. Patient Safety Organization (PSO) Program. PSOs. Last reviewed October 2020. <https://pso.ahrq.gov/pso>. Accessed August 24, 2023.
36. Murrin S. Patient Safety Organizations: Hospital Participation, Value, and Challenges. Report in Brief OEI-01-17-00420. Washington, DC: U.S. Department of Health and Human Services, Office of Inspector General; September 2019. <https://oig.hhs.gov/oei/reports/oei-01-17-00420.pdf>. Accessed August 24, 2023.



AHRQ Pub. No. 23-0040-6-EF
September 2023