Editorials

Five New Ways to Advance Diagnostic Safety in Your Clinical Practice

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Each year, an estimated 1 in 20 outpatients will experience a diagnostic error (i.e., a missed, delayed, wrong, or ineffectively communicated diagnosis).[1,2] Few of these events will be systematically identified and analyzed for learning and improvement purposes and to decrease the risk of future harm. Despite increasing attention to the problem, progress toward improving diagnostic processes has been generally slow.

However, research conducted in a wide range of patient populations and settings has led to the development of measurement and prevention strategies for diagnostic errors.[3] Several common themes relevant to outpatient settings have emerged from this work, such as the importance of ensuring closed-loop communication and follow-up for diagnostic test results and empowering clinicians and staff to identify errors and improvement opportunities.[4-9]

Several recently developed resources, outlined in *Table 1*, represent coordinated efforts to bridge the gap between knowledge and practice in diagnostic safety. These free resources translate diagnostic safety measurement and improvement science into practical recommendations for clinicians, practices, and health care organizations. They were developed in collaboration with numerous experts in diagnostic safety, many of whom tested strategies in their own organizations.

These resources can be used by a spectrum of stakeholders, from frontline clinical personnel and patients to executive leaders, but each relies on clinician champions. The Safer Dx Checklist, developed through collaboration with an expert consensus panel, outlines 10 recommended practices that can be assessed when conducting a proactive evaluation of risks to diagnostic safety.[10] Measure Dx provides recommendations for identifying diagnostic safety events so that clinicians and quality and safety professionals can learn from them. Calibrate Dx, in contrast, provides a way for clinicians to self-assess their diagnostic performance through systematic and periodic analysis of their own recent cases. The assumption is that this periodic self-feedback will lead to learning and improved diagnostic performance over time. TeamSTEPPS for Diagnosis Improvement is a course that applies evidence-based communication and teamwork skills to improving diagnosis; it also includes a validated assessment tool that measures diagnostic team functioning. The Toolkit for Engaging Patients to Improve Diagnostic Safety provides strategies to improve communication between patients and clinicians.

The most common hurdles to implementing new diagnostic safety practices include lack of time and resources for frontline teams. In primary care and other ambulatory settings where quality and safety infrastructure are often limited, prioritizing diagnostic safety practices can be even more challenging. A lack of extrinsic motivators such as incentives (to both individuals and organizations) is another obstacle to implementing diagnostic safety innovations. Without any external pressures to prioritize diagnostic safety, these activities often take a back seat to other quality goals and competing priorities.

Despite significant barriers, most clinicians are strongly motivated to improve diagnostic safety. The following recommendations can help clinicians reduce these barriers:

- Start small and focused. A narrow scope of work to address a specific problem (e.g., delayed follow-up for laboratory results) or unexpected variations in care (e.g., patients who unexpectedly visit an emergency department or urgent care

clinic after a recent visit to your office) helps to ensure feasibility. Decide what your scope of work could address, and share lessons with others to inspire broader efforts.

• Align with other high-priority initiatives. Diagnostic safety resources can be deployed to support or complement broader practice improvement initiatives or ongoing requirements. For instance, a goal to improve timeliness of care aligns well with efforts to improve timely follow-up for diagnostic test results.

• Start with the resources you have. If your practice does not have dedicated quality and safety personnel and resources to support maintenance of this work, begin with a tool that is focused on clinicians or clinical teams. For example, using Calibrate Dx, clinicians can begin to systematically review care of the patients they see to get feedback on diagnostic accuracy. Primary care teams can encourage the use of structured communication tools, such as those found in the Toolkit for Engaging Patients to Improve Diagnostic

TABLE 1

Tools and Resources for Diagnostic Safety Learning and Improvement

			Audience				
Tool/resource	Description	Example of strategy or practice change	Leaders/ C-suite	Quality and safety	Clinicians	Clinic staff	Patients
Calibrate Dx	Resource for clinicians to self-evaluate their diagnostic reasoning by reviewing samples of their clinical practice	Uses a structured review and reflection tool for cases that represent common scenarios in the practice (i.e., rather than rare diagnoses)		X	X		
Measure Dx	Resource for clinicians and organizations to detect, analyze, and learn from diagnostic safety events	Solicits brief reports from clinicians about diagnostic process breakdowns and "good catches" for further review and learning	X	X	X		
Safer Dx Checklist	Self-assessment tool to understand current organizational diagnostic safety practices and identify opportunities for improvement	Promotes psychological safety to encourage information sharing, engagement of patients and families, and use of mechanisms to close the loop when findings are abnormal	X	X			
TeamSTEPPS for Diagnosis Improvement	Skill-based training program for individuals and teams to raise awareness about diagnostic safety and improve diagnostic processes	Uses the SBAR (situation, background, assessment, recommendation) framework to structure team communication and referrals		X	X	X	
Toolkit for Engaging Patients to Improve Diagnostic Safety	Toolkit containing two strategies to improve communication and information exchange within the patient-physician encounter	Uses 60 Seconds to Improve Diagnostic Safety approach to promote deep listening at the start of a patient encounter			X	X	X

Note: Safer Dx Checklist is available at https://www.jointcommissionjournal.com/cms/10.1016/j.jcjq.2022.08.003/attachment/6d8c8a9f-1c25-4300-a778-b4f8cc26f771/mmc1.pdf. All other resources are available at https://www.ahrq.gov/topics/diagnostic-safety-and-quality.html.

Safety, to ensure that important diagnostic information is not lost. Practice managers or clinical leaders can assess and enhance diagnostic teamwork and communication using tools found in TeamSTEPPS for Diagnosis Improvement.

• Consider how diagnostic safety work can enhance missions other than clinical care. Educators can engage learners in diagnostic safety activities by teaching clinical reasoning and quality improvement. For example, Calibrate Dx provides a list of sources to access simulated cases for learning and a fillable tool to assist with case reviews and reflective reasoning across cases. Academic practices can generate practice-based research data by using some of the structured data collection and tracking tools in the resources listed in *Table 1*. Such efforts could also satisfy board certification requirements for performance improvement activities.

The primary care environment is well suited for diagnostic safety improvement efforts. A suite of five new resources is now available to help generate learning and improvement opportunities in diagnosis. By using these new approaches, clinicians can gain knowledge and expertise to reduce preventable harm from diagnostic error.

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References

1. Balogh E, Miller BT, Ball J, et al., eds.; Institute of Medicine. *Improving Diagnosis in Health Care*. National Academies Press; 2015.
2. Singh H, Meyer AND, Thomas EJ. The frequency of diagnostic errors in outpatient care: estimations from three large observational studies involving US adult populations. *BMJ Qual Saf*. 2014;23(9):727-731.
3. Singh H, Bradford A, Goeschel C. Operational measurement of diagnostic safety: state of the science. *Diagnosis (Berl)*. 2020;8(1):51-65.
4. Wright B, Lennox A, Graber ML, et al. Closing the loop on test results to reduce communication failures: a rapid review of evidence, practice and patient perspectives. *BMC Health Serv Res*. 2020;20(1):897.
5. Irani N, Saeedipour S, Bruno MA. Closing the loop–a pilot in health system improvement. *Curr Probl Diagn Radiol*. 2020;49(5):322-325.
6. Davidow SL, Sheth J, Sixta CS, et al. Closing the referral loop: improving ambulatory referral management, electronic health record connectivity, and care coordination processes. *J Ambul Care Manage*. 2018;41(4):240-249.
7. Patel MP, Schettini P, O'Leary CP, et al. Closing the referral loop: an analysis of primary care referrals to specialists in a large health system. *J Gen Intern Med*. 2018;33(5):715-721.
8. Marshall TL, Ipsaro AJ, Le M, et al. Increasing physician reporting of diagnostic learning opportunities. *Pediatrics*. 2021;147(1):e20192400.
9. Okafor N, Payne VL, Chathampally Y, et al. Using voluntary reports from physicians to learn from diagnostic errors in emergency medicine. *Emerg Med J*. 2016;33(4):245-252.
10. Singh H, Mushtaq U, Marinez A, et al. Developing the Safer Dx Checklist of ten safety recommendations for health care organizations to address diagnostic errors. *Jt Comm J Qual Patient Saf*. 2022;48(11):581-590. ■