Diagnostic Safety Research at the Agency for Healthcare Research and Quality

Diagnostic Error

Diagnostic error is a significant and underrecognized threat to patient safety.

Diagnostic errors are common, consequential, and costly and contribute to avoidable suffering and preventable deaths.

- Each year, 795,000 Americans die or are permanently disabled due to misdiagnosis.[1]
- Diagnostic errors disproportionately affect vulnerable populations based on race, ethnicity, gender, age, language, income, education, and location and add to inequities in health outcomes.[2-10]
- Delayed or missed diagnosis of cancer is a common error and allows cancers to progress to a less treatable stage, worsen prognosis, and decrease survival.[11-14]

Diagnostic errors create a significant economic burden on the U.S. healthcare system.

- The United States leads the world in medical science and technology yet ranks lowest in health outcomes among other high-income countries.[15] Diagnostic inefficiencies such as overtesting contribute to excessive healthcare costs, but the additional tests do not improve quality.[16]
- Based on paid malpractice claims, diagnostic errors are more than twice as likely to end in death and receive the greatest payouts, with a cost of $38.8 billion over 25 years.[17]

Diagnostic Safety Research Efforts

AHRQ has supported research to improve diagnostic safety since it first started supporting patient safety grants in 2000. This brief shares highlights of the extensive portfolio of AHRQ's diagnostic safety work.

- AHRQ has funded 10 Diagnostic Safety Centers of Excellence focusing on better characterizing sources of diagnostic error and developing and testing solutions to reduce harm. Selected work underway includes:
  - Engaging patients to codesign approaches to improve communication.
  - Designing better systems to follow up on abnormal test results.
  - Improving design of electronic medical records and using new technology to support diagnosis, such as using electronic triggers to identify and learn from errors.
  - Learning from patients to characterize missed opportunities for earlier cancer diagnosis.

- AHRQ has funded Patient Safety Learning Labs that use cross-disciplinary teams taking human factors approaches to engineer safety into practice. Selected projects related to diagnostic safety include those that:
  - Design highly reliable processes to improve the use of imaging tests and ensure closed-loop communication about diagnostic test results and referrals.
  - Develop a framework to improve communication across transitions of care known to create risk for delayed or missed diagnoses.
  - Identify contributing factors to diagnostic failure for cardiovascular disease in women.
- Other recent grants have:
  - Focused on specific areas known to experience the greatest harm from diagnostic errors, including stroke, pneumonia, pulmonary emboli, cancer, cardiovascular disease in women, and maternal health.
  - Funded an annual Diagnosis Error in Medicine conference hosted by the Society to Improve Diagnosis in Medicine, an event that brings together academic leaders, community partners, and patients to advance progress in diagnostic safety.
- AHRQ continues to support new diagnostic safety research with the following funding opportunities:
  - Understanding and Improving Diagnostic Safety in Ambulatory Care: Incidence and Contributing Factors (R01, PA-23-291)
  - Improving Diagnostic Safety in Ambulatory Care: Strategies and Interventions (R18, PA-23-290)

Tools and Resources

- AHRQ has developed resources to support patient engagement (Toolkit for Engaging Patients To Improve Diagnostic Safety), guide organizations to identify, analyze, and learn from diagnostic safety events (Measure Dx), help clinicians reflect and learn from cases (Calibrate Dx), and train multidisciplinary diagnostic teams (TeamSTEPPS Diagnosis Improvement Course)
- AHRQ has also developed and disseminated a series of issue briefs on diagnostic safety, including Current State of Diagnostic Safety: Implications for Research, Practice, and Policy and others focused on measurement of safety and education and training to improve clinical reasoning.

Practice Improvement

- AHRQ is providing technical assistance to implement its diagnostic safety tools in up to 150 healthcare organizations nationwide.

Measurement

- AHRQ has funded foundational work on understanding mechanisms and sources of diagnostic errors and development of a taxonomy for classifying errors.
- AHRQ has also funded work to estimate the burden of diagnostic errors across a variety of healthcare settings, specialties, medical conditions, patient populations, and phases of work (such as communicating test results and tracking abnormal results).
- AHRQ has developed and shared a public resource for standardized reporting of diagnostic errors (Common Formats for Diagnostic Safety).

Partnerships and Leadership

- AHRQ oversees a coordinating center for AHRQ-funded Diagnostic Safety Centers of Excellence to promote and encourage collaboration and capture and share lessons across sites.
- AHRQ is leading a National Academy workshop on Advancing Equity in Diagnostic Excellence To Reduce Health Disparities.
- AHRQ coordinates a Federal Interagency Workgroup to coordinate efforts across the Department of Health and Human Services on research related to diagnostic safety.

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All web pages were accessed October 18, 2024.

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