The IOM Quality Chasm Series
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Robert Wood Johnson Foundation
Study Charge

- **Evaluate** diagnostic error as a quality of care challenge
- **Examine** the epidemiology, burden of harm, economic costs of diagnostic error, and current efforts to address the problem
- **Propose** solutions and devise recommendations for stakeholders on topics such as:
  - Clarifying definitions
  - Education and cognitive processes
  - Culture, teamwork, and systems engineering
  - Health IT
  - Measurement
  - Research
  - Payment and medical liability
Key Report Themes

Diagnostic errors are a significant and underappreciated health care quality challenge.

Patients are central to the solution.

Diagnosis is a collaborative effort.
Areas for Improvement

- Education and training
- Health IT
- Research
- Identification and learning
- Work system and culture
- Collaboration

Areas where more evidence is needed

- Payment
- Medical liability
- Measurement for accountability
Getting the **right diagnosis** is a key aspect of health care: it provides an explanation of a patient’s health problem and informs health care decisions.

Yet...

- Diagnostic errors persist through **all settings of care** and harm an unacceptable number of patients.

- In **every** research area, diagnostic errors were a consistent quality and safety challenge.
It is likely that most of us will experience at least one diagnostic error in our lifetime, sometimes with devastating consequences.
Committee’s Conceptual Model

- Definition of Diagnostic Error
- Overview of the Diagnostic Process
- Work System Factors that Influence the Process
- Outcomes from the Diagnostic Process
Definition of Diagnostic Error

The failure to:

(a) establish an accurate and timely explanation of the patient’s health problem(s)

or

(b) communicate that explanation to the patient
The Diagnostic Process

INFORMATION INTEGRATION & INTERPRETATION

- Has sufficient information been collected?
  - Clinical History and Interview
  - Physical Exam
  - Referral and Consultation
  - Diagnostic Testing

WORKING DIAGNOSIS

- Communication of the Diagnosis
- Treatment
- Outcomes
  - Patient and System Outcomes
    - Learning from diagnostic errors, near misses, and accurate, timely diagnoses

Patient Experiences a Health Problem
Patient Engages with Health Care System

TIME
The Work System

- External Environment
- Organization
- Technologies and Tools
- Diagnostic Team Members
- Physical Environment
- Tasks

The National Academies of Sciences • Engineering • Medicine
The Outcomes from the Diagnostic Process

OUTCOMES

THE WORK SYSTEM
- Diagnostic Team Members
- Tasks
- Technologies and Tools
- Organization
- Physical Environment
- External Environment

THE DIAGNOSTIC PROCESS

INFORMATION INTEGRATION & INTERPRETATION

INFORMATION GATHERING

WORKING DIAGNOSIS

COMMUNICATION OF THE DIAGNOSIS

TREATMENT

PATIENT OUTCOMES

Accurate, Timely Diagnoses
Diagnostic Errors and Near Misses

SYSTEM OUTCOMES

Effects on Quality, Safety, Cost, Efficiency, Morale, Public Confidence in the Health Care System

Learning from Diagnostic Errors, Near Misses, and Accurate, Timely Diagnoses
Identifying and learning from diagnostic errors is important, but a sole focus on reducing diagnostic errors will not achieve the extensive change that is necessary.

A broader focus on improving diagnosis is warranted.
8 Goals to Improve Diagnosis and Reduce Diagnostic Error

GOAL 1  Facilitate more effective teamwork in the diagnostic process among health care professionals, patients, and their families

GOAL 2  Enhance health care professional education and training in the diagnostic process

GOAL 3  Ensure that health information technologies support patients and health care professionals in the diagnostic process

GOAL 4  Develop and deploy approaches to identify, learn from, and reduce diagnostic errors and near misses in clinical practice
## 8 Goals to Improve Diagnosis and Reduce Diagnostic Error

**GOAL 5** Establish a *work system* and *culture* that supports the diagnostic process and improvements in diagnostic performance

**GOAL 6** Develop a *reporting environment* and *medical liability system* that facilitates improved diagnosis through *learning from diagnostic errors and near misses*

**GOAL 7** Design a *payment* and *care delivery environment* that supports the diagnostic process

**GOAL 8** Provide *dedicated funding for research* on the diagnostic process and diagnostic errors
GOAL 1
More effective teamwork in the diagnostic process
RECOMMENDATION 1

1A: Health care organizations should ensure that health care professionals have the appropriate knowledge, skills, resources, and support to engage in teamwork in the diagnostic process.

This includes:

• Interprofessional and intraprofessional teamwork.

• Collaboration among pathologists, radiologists, and treating health care professionals to improve diagnostic testing.
RECOMMENDATION 1

1B: Health care professionals & organizations should partner with patients and their families as diagnostic team members.

They should:

• Create environments where patients and their families can learn and engage in the diagnostic process and share feedback and concerns.

• Ensure patient access to EHRs, including clinical notes and diagnostic testing results.

• Include patients and their families in efforts to improve the diagnostic process.
Diagnostic Team Members

Health care professionals who support the diagnostic process

Diagnosticians

Patient & Family Members
GOAL 2
Enhance health care professional education and training in the diagnostic process
RECOMMENDATION 2

2A: Educators should ensure that curricula and training programs across the career trajectory address performance in the diagnostic process and include evidence from the learning sciences:

– Clinical reasoning
– Teamwork
– Communication
– Diagnostic testing
– Health IT

2B: Certification and accreditation organizations should ensure that health care professionals have and maintain these competencies.
GOAL 3
Ensure that health information technologies support patients and health care professionals in the diagnostic process
RECOMMENDATION 3

3A: Health IT vendors and ONC should work together with users to ensure that health IT used in the diagnostic process:

– Demonstrates usability
– Incorporates human factors knowledge
– Integrates measurement capability
– Fits well within clinical workflow
– Provides clinical decision support
– Facilitates the timely flow of information among patients and clinicians
RECOMMENDATION 3

3B: ONC should require health IT vendors meet standards for interoperability by 2018.

3C: The Secretary of HHS should require health IT vendors to:

- Submit products for independent evaluation
- Notify users about adverse effects on the diagnostic process related to product use.
- Support the free exchange of information about user experiences with health IT used in the diagnostic process.
GOAL 4
Develop and deploy approaches to identify, learn from, and reduce diagnostic errors and near misses in clinical practice
RECOMMENDATION 4

4A & 4B: Accreditation organizations and the Medicare Conditions of Participation should require that health care organizations:

- **Monitor** the diagnostic process

- **Identify, learn from, and reduce diagnostic errors and near misses.**

- Provide **systematic feedback on diagnostic performance** to health care professionals, care teams, and clinical and organizational leaders
RECOMMENDATION 4

4C: HHS should provide funding for a designated subset of health care systems to conduct routine postmortem examinations on a representative sample of patient deaths.

4D: Health care professional societies should identify opportunities to improve accurate and timely diagnoses and reduce diagnostic errors in their specialties.
GOAL 5
Establish a work system and culture that supports the diagnostic process and improvements in diagnostic performance
RECOMMENDATION 5

5: Health care organizations should:

- Promote a non-punitive culture that values **open discussion** and **feedback** on diagnostic performance.
- Design the **work system** to support **patients**, their **families**, and **health care professionals** in the diagnostic process.
- Ensure **effective and timely communication** between **diagnostic testing** health care professionals and **treating health care professionals** across all health care settings.
GOAL 6
Develop a reporting environment and medical liability system that facilitates improved diagnosis through learning from diagnostic errors and near misses
RECOMMENDATION 6

Reporting

6A: AHRQ or others should encourage and facilitate the voluntary reporting of diagnostic errors and near misses.

6B: AHRQ should:
   – Evaluate the effectiveness of PSOs as a major mechanism for voluntary reporting and learning from diagnostic errors and near misses
   – Modify the PSO common formats to include diagnostic errors and near misses.
RECOMMENDATION 6

Medical Liability & Risk Management

6C: States and others should promote a legal environment that facilitates timely identification, disclosure, and learning from diagnostic errors.

- Adoption of Communication and Resolution Programs
- Demonstration projects of alternative approaches to the resolution of medical injuries
  - Administrative health courts
  - Safe harbors

6D: Professional liability insurers should collaborate with health care professionals to improve diagnosis through education, training, and practice improvement.
GOAL 7
Design a payment and care delivery environment that supports the diagnostic process
RECOMMENDATION 7

7A & 7B: CMS and other payers should:

- **Provide coverage** for evaluation and management (E&M) activities, including time spent by pathologists, radiologists, and others in advising clinicians on diagnostic testing.

- **Reorient relative value fees** to more appropriately value the time spent with patients in E&M activities.

- **Modify documentation guidelines** to improve the accuracy of information in the EHR and to support decision making in diagnosis.

- **Assess the impact of payment and care delivery models** on the diagnostic process & diagnostic error.
GOAL 8
Provide dedicated funding for research on the diagnostic process and diagnostic errors
RECOMMENDATION 8

8A: Federal agencies (HHS, VA, and DOD) should:
• Develop a **coordinated research agenda** on the diagnostic process and diagnostic errors by the end of **2016**.
• **Commit dedicated funding** for implementation.

8B: The federal government should pursue and encourage opportunities for **public–private partnerships** among a broad range of stakeholders to support research on the diagnostic process and diagnostic errors, such as:
• PCORI
• Foundations
• Diagnostic testing and health IT industries
• Health care organizations
• Professional liability insurers
Improving the diagnostic process is not only possible, but it also represents a moral, professional, and public health imperative.

Achieving this goal will require a significant re-envisioning of the diagnostic process and a widespread commitment to change.
To download the report and view more resources, visit:

nas.edu/improvingdiagnosis
Video featuring patient experiences with diagnosis
PATIENTS AND THEIR FAMILIES ARE ESSENTIAL MEMBERS OF THE DIAGNOSTIC TEAM. The goal of patient engagement in diagnosis is to improve patient care and outcomes by enabling patients and their families to contribute valuable input that will facilitate the diagnostic process and improve shared decision making about the path of care. Yet for a variety of reasons, patients may not be effectively engaged in the diagnostic process. For example, some patients may fear asserting themselves and coming across as “difficult,” because they are concerned that may influence the quality of care they receive. Some may lack familiarity with or adequate access to the health care system. Cultural and language barriers also can be significant challenges to full participation in the diagnostic process. Even
Where Failures in the Diagnostic Process Occur

- Failure of Engagement
- Failure in Information Gathering
  - Failure in Information Integration
  - Failure in Information Interpretation
- Failure to Establish an Explanation for the Health Problem
- Failure to Communicate the Explanation

**The Diagnostic Process**

1. Patient Experiences a Health Problem
2. Patient Engages with Health Care System
3. Information Gathering
4. Working Diagnosis
5. Information Integration & Interpretation
6. Communication of the Diagnosis
7. Treatment
8. Outcomes

**The Work System**
- Diagnostic Team Members
- Tasks
- Technologies and Tools
- Organization
- Physical Environment
- External Environment

Patient and System Outcomes:
Learning from diagnostic errors, near misses, and accurate, timely diagnoses.
Feedback on Diagnostic Performance and Calibration

The diagram illustrates a feedback cycle involving health care professionals, decision-making processes, outcomes, and calibration maintenance. The cycle includes:

- Health Care Professional
- Decision Making Process
- Outcome
- Unfavorable
- Favorable
- Unknown
- Re-calibrate
- Maintain Calibration

The cycle flows from Health Care Professional to Decision Making Process, then to Outcome, which can be Unfavorable, Favorable, or Unknown. The Outcome can lead to Re-calibration or Maintain Calibration, completing the cycle.