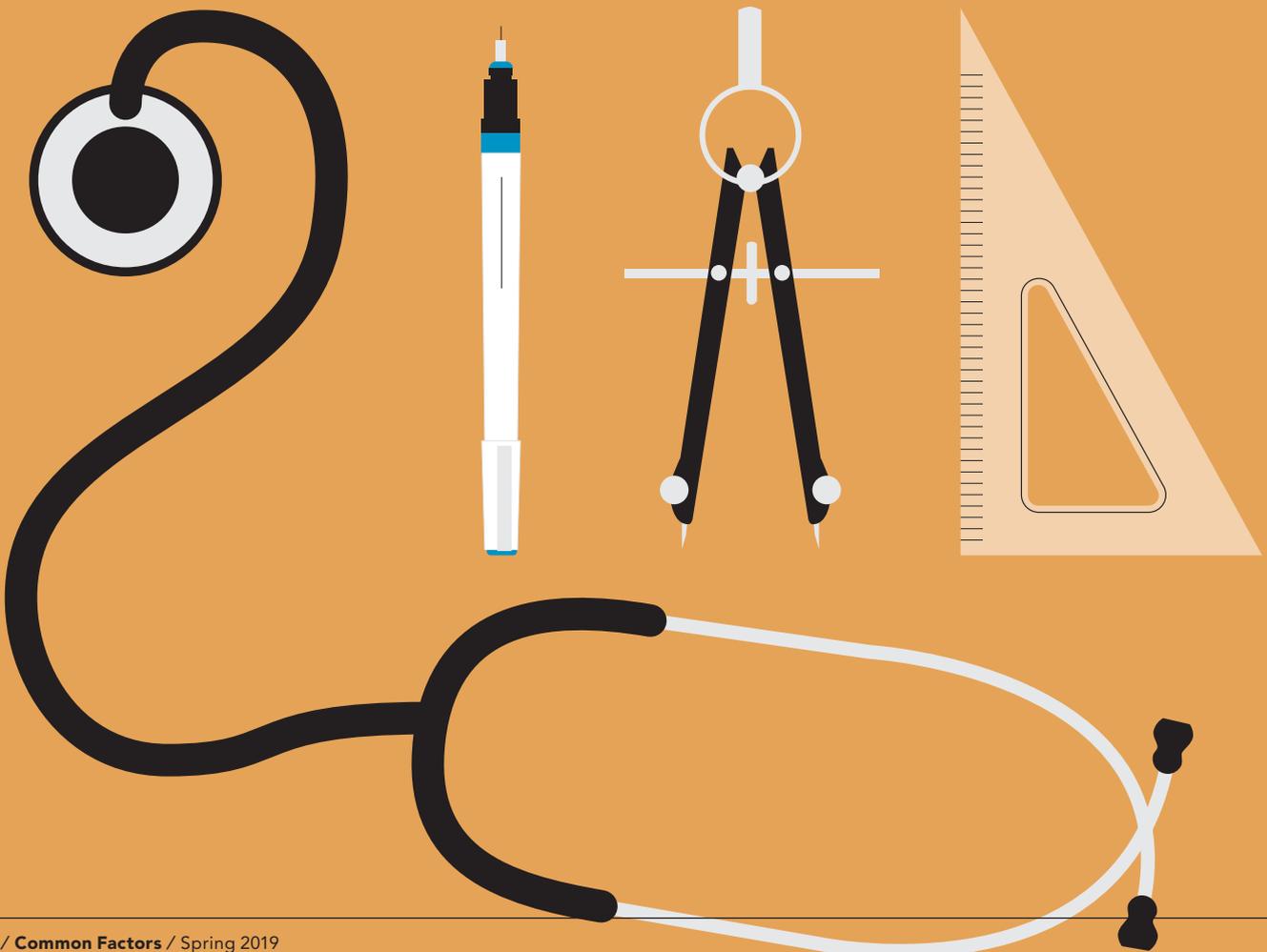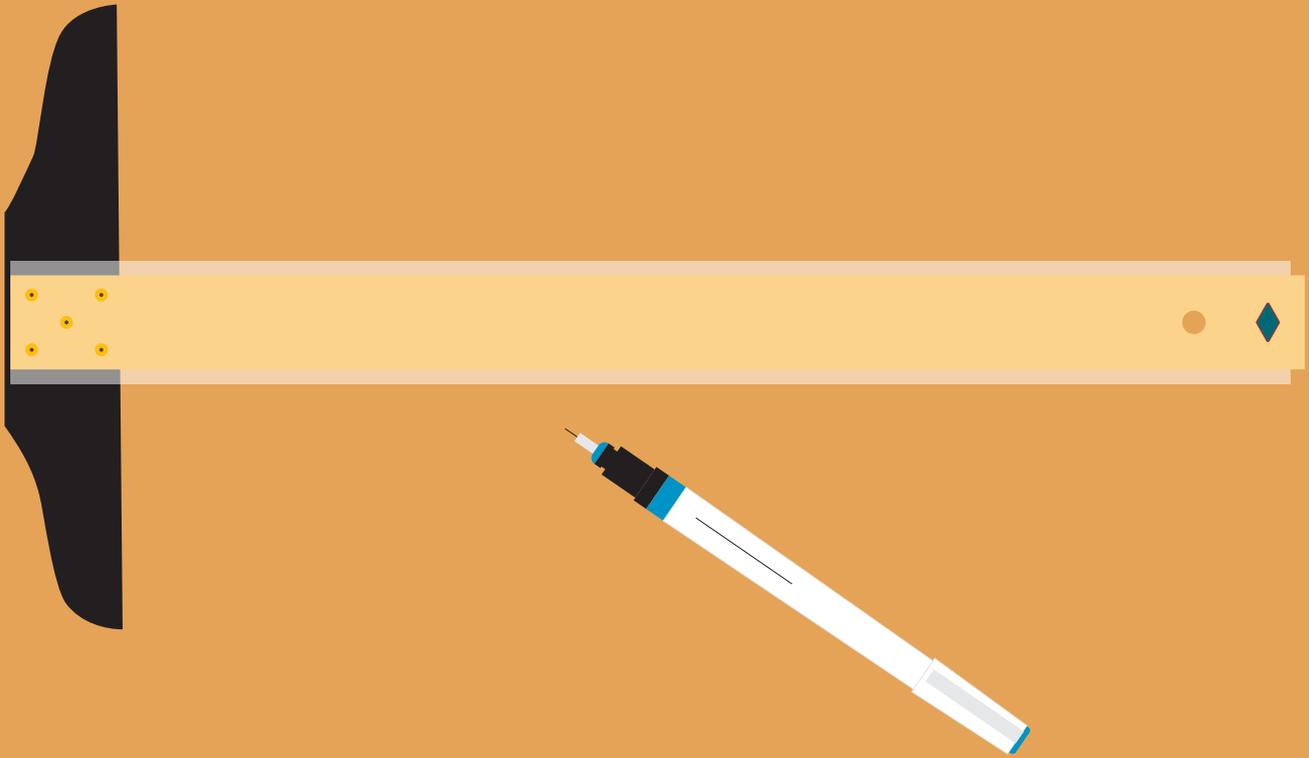# Designing Good Follow-up

A new lens on diagnostic error magnifies the leader's role in creating follow-up systems that work.

By Lori Atkinson, RN, BSN, CPHRM, CPPS,
Trish Lugtu, MS, CPHIMS,
and Anne Geske

A 54-year-old woman involved in a car accident presented to her local emergency department (ED) with complaints of left arm and shoulder pain. The ED physician examined her, ordered X-rays—which he read as negative—and diagnosed a soft tissue injury and shoulder strain. He sent the woman home with instructions to apply cold compresses, use over-the-counter medication for pain and follow up with her family physician if she experienced further shoulder problems.

A year later, the woman went to her family physician for a cough that would not go away. The physician ordered a chest X-ray, and the radiologist noted in his report a left upper lung mass with mediastinal adenopathy. The radiologist compared this X-ray with the one done the previous year during her ED visit and noticed the previous radiologist identified an incidental finding of a density

in the upper left lung and documented this in his over-read report. The family physician referred the woman to a specialist who diagnosed lung cancer. She underwent chemotherapy and radiation treatment but died six months later. The woman's family sued for malpractice.

In reviewing the malpractice claim filed by the woman's family, medical experts criticized the hospital for having no system to follow up on tests and images ordered in the ED. All X-rays read by ED physicians were routinely over-read by radiologists, but the hospital had no process for reviewing the over-reads, noting discrepancies and contacting primary care physicians and patients for further care. During the investigation of this adverse outcome, the hospital risk manager also discovered the ED had no process for following up on patients who were discharged with pending test results.

55%
of outpatient cases with a diagnostic-related allegation involve a follow-up system failure

Follow-up systems and data

The right systems and processes could have prevented the woman's lung cancer from remaining undiagnosed for a full year. We call these kinds of systems and processes "follow-up systems." The National Academies of Sciences, Engineering and Medicine say that diagnostic error isn't simply failing to correctly diagnose, it's also the failure to establish an accurate and timely explanation of the patient's health problem or the failure to communicate the problem to the patient.[1]

This bears repeating: Not communicating a diagnosis to a patient in a timely manner is a diagnostic error—the type of diagnostic error that happens when follow-up systems don't exist or are simply poorly designed.

Follow-up system failures are where breakdowns in communication and patient care coordination are captured in our claims analysis. A review of Constellation claims found that 57 percent of all diagnostic-error cases occurred in the outpatient setting, and of these cases, 55 percent involved breakdowns in follow-up and care coordination (see CRICO's 12-step diagnostic framework). Our review strikingly revealed that even when appropriate clinical steps were taken to lead to a correct diagnosis, errors in diagnosis still occurred due to follow-up system failures.

This insight—that these outpatient diagnostic-error cases are as much about systems and processes as they are about clinical judgment—breaks traditional thinking that an accurate and timely diagnosis is the responsibility of the physician alone. Injuries caused by these types of errors are tragic because they're preventable with the implementation of reliable processes, policies and education. In turn, claims due to such injuries are costly to organizations and difficult to defend because they're preventable.

These system inefficiencies and failures are the very things CEOs, administrators and clinician leaders have a direct ability to influence: people, processes and technology. This is good news, because by looking at diagnostic error through the lens of communication and process failures, we see clearly that leaders play a part. They can ensure that the workflow processes and documentation systems their care teams use to coordinate care and communicate with each other and with patients are working well.

> ## These system inefficiencies and failures are the very things CEOs, administrators and clinician leaders have a direct ability to influence: people, processes and technology.

What drives follow-up system failures?

Simply put, inefficient, error-prone processes drive follow-up system failures. System inefficiencies and failures cause diagnostic errors in several specific ways. When teams don't utilize team-based care and reliable systems, inefficient workflows and diagnostic errors result. Here are some examples of inefficiencies and wasteful work:

- ✓ **Clerical overload.** The AMA estimates that physicians spend nearly two hours on EHR deskwork for every hour of clinical face time with patients,[2] but many organizations don't use a team-based care model to handle these increasing loads. The highest-trained clinicians should be relieved of performing clerical functions by using team-based workload redistribution.
- ✓ **EHR functions not optimized.** Studies show that when EHR use isn't optimized, 25 percent of outpatient providers don't have a method to confirm that all ordered tests have been completed, with 73 percent not using EHR technologies to their full capability.[3]
- ✓ **Referral follow-up failure.** In one study, 25 to 50 percent of referring physicians didn't know if their patients saw the specialist after referral.[4] A closed-loop referral process and delegation of monitoring to a member of the care team can solve this problem.
- ✓ **Discharge summary gaps.** Researchers found that 70 percent of patients had at least one pending study when discharged from the hospital, but only 18 percent of these were communicated in the discharge summary.[5]
- ✓ **Incidental finding follow-up failure.** One study of ED patients found that 56.3 percent of abdominal scans had at least one incidental finding, but only 9.8 percent were disclosed in discharge paperwork. In addition, only 40.9 percent of life-threatening findings had documented follow-up.[6]

Leading follow-up system initiatives

The stakes are high when follow-up systems failures occur—not only for patients, but also for the health care organization's bottom line. Just some of the costs include:

- ✓ Accreditation loss—many accrediting standards relate to follow-up systems
- ✓ Financial loss or penalties because of the following:
  - ✓ Poor patient experience scores
  - ✓ Hospitalizations and readmissions
  - ✓ Unnecessary or duplicate lab tests
  - ✓ Poor outcomes impacting value-based care metrics
  - ✓ Inefficient workflows, especially related to EHR tasks
  - ✓ Turnover due to workload burnout
  - ✓ Recruitment costs to replace a physician
- ✓ Reputation damage
- ✓ Malpractice claim losses

Because the cost of derailed diagnosis is so high, having designated executive and operational sponsors is key to doing this important, ongoing work. Executive and clinician leaders must champion initiatives to ferret out the gaps in their follow-up systems, as well as gaps in patient care handoffs to other clinicians or health care organizations.

CRICO's 12-step diagnostic framework
Where follow-up systems fit in

Constellation partners with Harvard-based CRICO Strategies to classify the underlying issues in our malpractice claims in a standardized way. Using CRICO's 12-Step Diagnostic Process of Care Framework, Constellation mapped clinical and operational breakdowns along the diagnostic process. The data pointed to gaps in the care team's communication process (steps 9–12), revealing that even when providers take the appropriate clinical steps to arrive at a diagnosis, operational failures may still lead to diagnostic errors.

Initial diagnostic assessment
1. Problem noted, care sought: 1% of cases
2. History and physical conducted: 17%
3. Patient assessed and symptoms evaluated: 34%
4. Differential diagnosis established: 30%
5. Diagnostic tests ordered: 30%

Tests and results processing
6. Tests performed: 5% of cases
7. Tests interpreted: 25%
8. Test results transmitted to/received by ordering clinician: 5%

Follow-up and coordination

9. Clinician follows up with patient: 29% of cases
   Issues: Findings are not communicated to the patient, follow-up testing is not arranged or follow-up is not documented.

10. Referrals/consults: 13% of cases
    Issues: Appropriate referrals to specialists (or consults) are not made or adequately managed, or identification of the clinician responsible for ongoing care is unclear.
11. Patient information communicated among care team: 23% of cases
    Issues: One or more providers fails to fully review or share patient information that influences ongoing diagnostic process.
12. Patient and providers establish follow-up plan: 12% of cases
    Issues: The patient fails to adhere to the follow-up plan, including appointments and the treatment regimen.

Following up with patients
Regarding following up with patients, clinicians and team members must ask these questions:
- How do we communicate test results to patients?
- How do we proactively communicate with patients about test results so they know that no news is NOT good news?
- How do we audit communication systems to ensure patients and other clinicians involved in the patient's diagnosis and treatment receive test results?

MMIC N=230 MPL diagnosis-related outpatient claims asserted 2013–2017 as of 12/31/2018
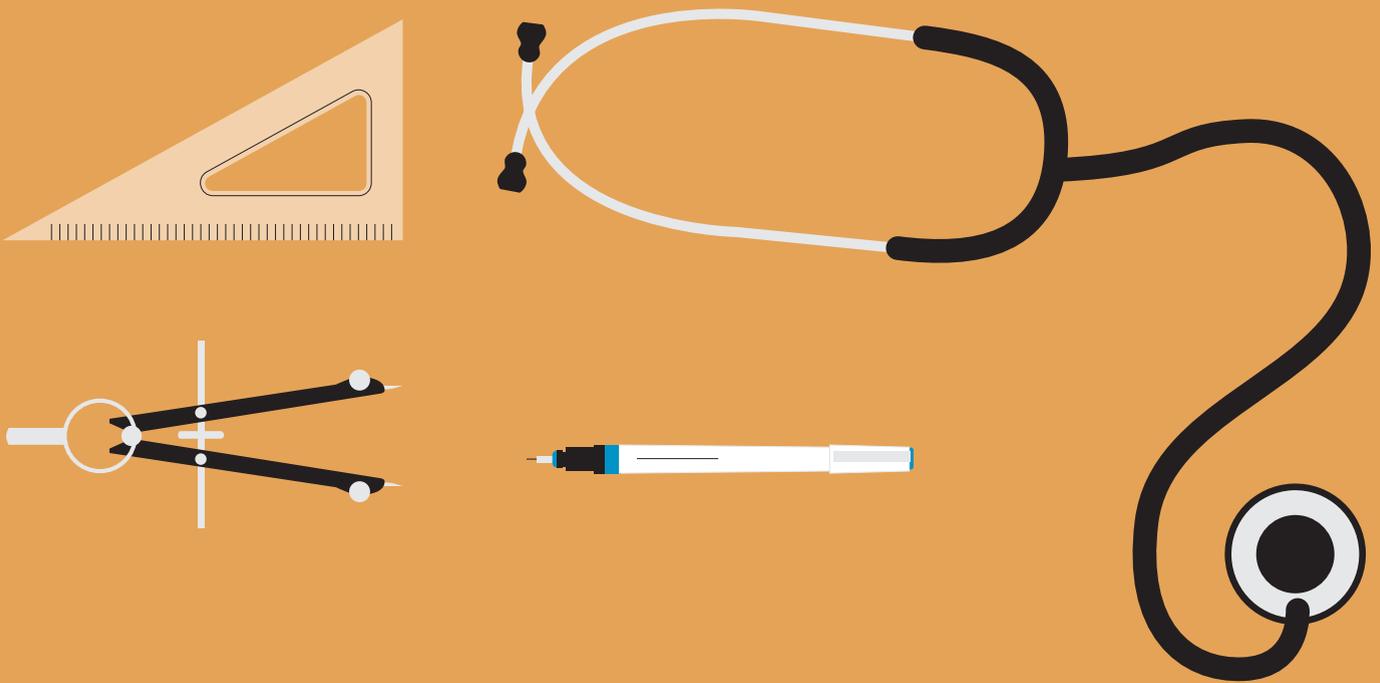
Improving follow-up systems

The importance of reducing diagnostic error by addressing follow-up system failures cannot be overstated. Improving follow-up systems reduces risk, increases team productivity and affects an organization's reputation and bottom line by bettering patient experience and incurring fewer malpractice claims. It's a win-win-win—good for patients, care teams and business.

Improving the diagnostic process takes leadership support, teamwork and collaboration. We recommend involving the entire team—including health information technology (HIT)—using the following three steps.

1. Re-engineer processes

Follow-up system revision needs to start by re-engineering failure-prone, inefficient processes using proven performance improvement methods such as the following:
- **Process mapping** models a process step by step and includes roles and accountabilities.
- **Failure modes and effects analysis** (FMEA) is a proactive method for evaluating the steps in a process to identify where and how it might fail.
- **Plan, do, study, act** (PDSA) is a cyclical process to do a small test of a change before spreading the new process throughout an organization.
- **Root cause analysis** is a reactive process done after an adverse event to identify causal and contributing factors to the event.
- **Automated audits** of medical records and logs indicate if a process really works.
- **Safety scorecards** track performance over time.

Mapping processes and roles

Capturing processes collaboratively and including every role on the performance improvement team are important, as each role knows only a part of the whole story. Because the EHR is central to the operation of health care, bringing HIT to the table at the beginning of a redesign process, as well as all the way through—from implementation to evaluation—is essential.

When process mapping, take team-based care into account. Team-based care is a strategic redistribution of work among members of a practice team in which the physician or advanced practice provider and a team of nurses and/or medical assistants share responsibilities for patient care. In this model, all members of a clinician-led team play an integral role in providing patient care.[7] Not all steps in the follow-up process need to be handled by the clinician. Identify the steps that can be safely and effectively handled by others on the team, then delegate them to team members using their highest level of training and scope of practice (see Implementing team-based care sidebar).

Next, adjust the workflow to capture all the variations in your processes. Ask the following questions:
- What happens to the workflow when you have paper orders versus electronic orders?
- What about variations in the patient notification process?
- What happens when there is an amended or revised report?

After mapping out the process—including variations—model the process using "swim lanes" to identify roles and responsibilities. Each swim lane represents the role and responsibility for that step in the process. You can then evaluate each step of the process using FMEA and re-engineer the process to make it safer and more efficient.

Process mapping step by step

1. Write down the name of the process at the top.

2. Ask the team, "What happens first in the process?" and write it down on the far left, in that role's "swim lane."

3. Draw a box around it.

4. Ask the team what usually happens next in the process; write it down below or to the right of first box; draw a box around it.

5. Draw an arrow linking the two boxes.

6. Ask the team if there are alternative ways to achieve the next step in the process.

7. Keep going, asking the team, "What happens next?"

8. Review the map and revise.

1 Lab Testing Process—ordering through notification
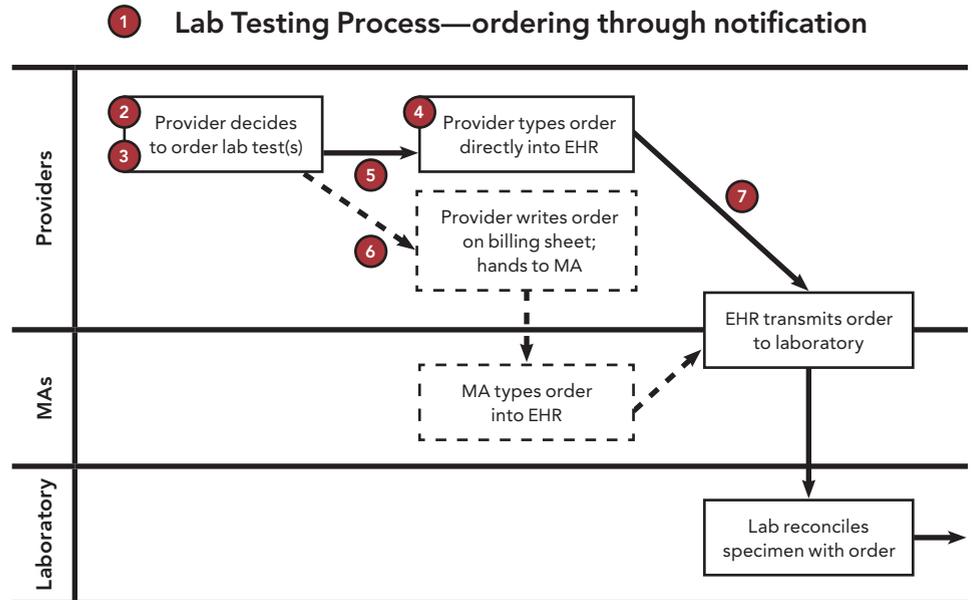
Source: AHRQ.gov

Implementing team-based care: Starting points

Team-based care spreads the diagnostic-process load among the team. The following tasks are the most critical places to start for reducing errors and increasing productivity:

- In-basket management for normal-test-result review and patient communication
- Pre-visit planning, including ordering tests (CPOE)
- Expanded rooming, including test-result reconciling
- Post-visit referral management and follow-up
- Telephone and portal symptom management via written protocols
- Final reads and incidental finding follow-up
- Tests pending after discharge follow-up
- Team documentation

Prioritize initiatives with FMEA

Returning to the car accident in the example of the 54-year-old woman, a place to start would be to use FMEA, asking the following questions:

- ✓ What are the steps in the process to review and communicate final reports and over-reads?
- ✓ When could the process fail?
- ✓ What causes it to fail?
- ✓ What happens when it fails?
- ✓ How likely is it to fail?
- ✓ How will we detect the failure?
- ✓ How severe is the impact when a failure occurs?
- ✓ What can we do to prevent the failure?

The Institute for Healthcare Improvement has an excellent FMEA template for evaluating the steps in a process to identify where and how the process might fail. The tool captures all these questions and their answers, then assigns a numerical value to the probability of failure and the severity of injury to the patient. The numerical values are multiplied to generate a risk profile number to help prioritize performance improvement initiatives. The tool also captures what can be done to prevent potential failures. Assemble your team and use your process map to perform an FMEA for each step in the process to evaluate the process for reliability.

Re-engineer, test, evaluate

After your team completes an FMEA for each step, re-engineer your process, inserting the necessary steps to reduce the chance and impact of failures. When you have re-engineered the process, remap it, then test the new process to ensure it works without failure using small tests of change (PDSA). Roll the new process out with a small team, study the effects, change what isn't working, then spread the new process to other teams.

2. Employ policies and tools

After re-engineering, testing, and evaluating your processes, make them organizational policy. Outlining standard workflow processes in policies is an essential way to ensure everyone on the team understands "this is how we do things."

Develop policies using the evidence-based practices team members are expected to follow, including test management, result management, critical test results reporting, patient portal communication, missed appointment tracking and referral management. Accountabilities for team-based care should also be outlined in your policy, including indicating the specific roles and their responsibilities within the processes.

Employ process and communication tools that can be used to optimize your test-management and communication processes. Diagnostic process tools include algorithms, care maps and standing order sets. Communication tools include IPASS, SBAR and team huddles.

How do you know if your re-engineered processes are working and your policies are being followed? One way is by doing medical-record audits that can indicate how your processes are working from efficiency and reliability standpoints. After your new procedures and policies have been implemented for a period of time, assess compliance by performing automated medical record and EHR report log audits. Then, enforce your policy standards, and be transparent about the consequences and outcomes when policies aren't followed.

3. Engage, educate and support teams and patients

Education is paramount to engaging clinicians and team members in understanding and improving the entire diagnostic process. Once you have re-engineered processes and made them policy, education helps the care team understand "why we do it this way."

Combined clinician and team member education should include the following elements:

- ✓ A primer on the causes and contributing factors of diagnostic error and how follow-up systems support the diagnostic process
- ✓ A discussion of roles and accountabilities in the diagnostic and follow-up systems processes
- ✓ Training on how to work in a team-based care model using proven communication tools, such as IPASS, SBAR and team huddles

Use diagnostic-error storytelling (e.g., claim reviews are available on MMICgroup.com and UMIA.com after logging in) to engage clinicians and care-team members on their roles in preventing diagnostic errors. Integrate performance improvement into team-member roles. Frontline team members have the best view of how follow-up systems fail and can bring direct knowledge of how to improve diagnostic and communication processes.

Patients and families

Once your processes have been re-engineered and implemented by the care team, bring in the patient and family as part of the diagnostic team. Patient engagement should incorporate health-literacy tools such as Ask Me 3, teach-back and empathetic communication. Patient-communication tools such as a Patient Visit Summary, Patient Testing Summary and Patient Referral Form (sample forms are available to policyholders after logging in to MMICgroup.com and UMIA.com) help patients become active members of the diagnostic team.

Remember, almost one-third of claims involve follow-up and coordination issues. Including patients as part of the team adds another layer of safety—if they don't hear back about test results, patients can contact the care team.

Using the EHR to initiate or evaluate processes

EHRs, because they are filled with data, can empower organizations to automate medical record audits. Collaboration is key to figuring out what's possible.

If we know the inputs into the EHR fields, we have the potential to create automated reports that can calculate the dates and times of those inputs. We can get lists of patients that are overdue for follow-up appointments or have missed follow-up appointments without rescheduling. We can uncover orders not completed and letter-generation processes that failed. We can uncover broken orders or provider behaviors, such as a high percentage of signing off without review.

Using EHR audit reports is a good way to begin identifying unsafe processes, and they can be used at the beginning of re-engineering processes, as well as during the evaluation stage. In any case, including HIT throughout the process is critical. This takes collaboration. Ask your HIT team and your EHR vendor what can be pulled out of the EHR to evaluate follow-up systems.

Over time, you can track your performance with the use of HIT safety scorecards. From an HIT and a risk-management perspective, you can track the causes of diagnostic errors or near misses, answering questions such as:

- Was it a vendor issue?
- Was it an internal HIT issue?
- Was it a process-design issue?
- Is training-content improvement needed?
- Is individual training needed?
- Did HIT prevent a near miss?

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