Communication of Significant Changes in Interpretation

Primary Authors: Janet Strife, MD
Marilyn Goske, MD
Ramin Khorasani, MD

Purpose and Rationale

This project looks at the effective communication of test results in which there is a significant change in interpretation or discrepant test results from a prior interpretation of the same images. The discrepant test result is defined as "an interpretation that is significantly different from a preliminary interpretation, when the preliminary interpretation has been accessible to the patient care team and the different interpretation may alter the patient's diagnostic workup or management"[1] (e.g., a preliminary study states "no fracture" and the final report states "fracture," or preliminary diagnosis of "fracture" and the final report states "no fracture.")

In practice there may be differences between a preliminary report (which could be oral or written), a final report which is signed off, or an addended report. In a teaching program, the preliminary report may be dictated by a resident or fellow, and if the report is available to the clinical service, a potential change in interpretation or emphasis could occur following faculty review. An addended report that adds new important information or is discrepant from the original report—which have been acted upon by the clinical service--should have a process for timely notification of the significant changes.

In all final reports, findings that change diagnostic work up, treatment or management which are discrepant with the preliminary report should be documented. Some examples are given below, but each department should develop a process, create its own list, decide on methods for appropriate documentation, and develop a timetable for notification of the changes. For example, in a trauma patient, the report might state, "large left pneumothorax" and the radiologists meant to say "large right pneumothorax." Immediate communication with the trauma service should occur, and documentation of the preliminary report, the change in interpretation, the individual that received notification of the change and the timeliness of communication should be documented. This fundamentally builds trust in the process for the referring physicians who act on our reports, and at the same time it increases awareness of and supports National Safety Initiatives to reduce "wrong sided surgery." Other examples include no pneumothorax vs. moderate pneumothorax, no fractures vs. corner fractures of child abuse, etc. Cases in which there are "addended notations" (could be a delayed contrast reaction, or imaging findings) should also adhere to a process for notifying the clinical service of a significant change interpretation which might alter care of the patient.

Effective communication of test results is an important quality metric.[1] It is one of the national patient safety goals from the 2009 Joint Commission and one of the Institute of Medicine's "top twenty" list of quality metrics. Lack of communication of significant

changes in interpretation may result in delay in diagnosis and error in care that may harm the patient, leading to increased morbidity and mortality.
Practice Guidelines for Communication of Diagnostic Imaging findings have been developed by the ACR.[2] These guidelines state:

> Quality patient care can only be achieved when study results are conveyed in a timely fashion to those ultimately responsible for treatment decisions. An effective method of communication should: (a) be tailored to satisfy the need for timeliness, (b) support the role of a diagnostic imager as a physician consultant by encouraging physician to physician communication, and (c) minimize the risk of communication errors.

The purpose of this PQI project is:

- To evaluate the current process in your practice for notifying caregivers of discrepant test results or significant changes in interpretation from a prior interpretation that may impact care. The prior interpretation could be an oral/written report or a preliminary, final, or an addended report.
- To evaluate documentation of change in the report when there is a "significant change" in interpretation or a discrepant report.
- To create clear policies in your practice that are conducive to audits so that compliance can be measured, this ultimately will improve patient care, and reduce error.

Project Resources

Khorasani, R. Optimizing Communication of Critical Test Results. J Am College Radiol. 2009 Oct 6 (10): 721-723.

American College of Radiology Guideline on Communication. Available at: http://www.acr.org/~/media/C5D1443C9EA4424AA12477D1AD1D927D.pdf

Brigham and Women's Hospital, Boston Massachusetts. Policy for communicating critical and/ or discrepant results in radiology. Available at: http://www.brighamandwomens.org/Research/labs/cebi/CCTR/files/OptimizingCommunicationCcriticalTestResults.pdf

Joint Commission. 2014 National Patient Safety Goals. Available at: http://www.jointcommission.org/standards_information/npsgs.aspx

Get Organized

Before initial data collection can begin, a set of institutional policies must be clearly articulated regarding communication of changes/discrepant findings:
Create a definition of "significant change in report" or "discrepant test result" for your group, practice, hospital or institution. One definition of a significant change in report is

> "an interpretation that is significantly different from a preliminary interpretation when the preliminary interpretation has been accessible to the patient care team and the difference in interpretations may alter the patient's diagnostic work-up or management."[1]

Review this definition and accept or change it to fit your practice. It is impossible to list all cases but each subspecialty uniquely knows and understands the implications of changes in reports. Examples include:

- Finding an error on identification of the body side (right/left error)
- Fracture vs. no fractures
- Pneumonia vs. no pneumonia
- Metastatic nodule found and initial report "normal"
- Cardiomegaly vs. normal heart
- Pneumonia with no effusion vs. pneumonia with moderate effusion

Evaluate your system of communication. Within your practice, hospital or health care system, decide who should be notified, a process for notification, details of the communication, and a system for documenting that notification.

Develop a method to document your "significant change in reports" or discrepant findings. Documentation of changes should be in a standard format. This format should include: person providing the modified report, the name of the health care team provider receiving the report, date and time of the communication.

Adopt a policy for stratifying "significant change" in report or "discrepant test result." Stratification of "critical tests' or "change in reports" classifies these reports on the basis of urgency and sets the expectation for communication at each to occur within a specific time frame. This stratification optimizes information getting to the patient care team in a timely manner.

The following simple checklist can be used to guide you in developing/refining your policy. If your answer is "no" to any of the following questions, agreement on definitions and processes should be developed before going further. Within many PACS systems, there are IT solutions that might make auditing easier and consultation with clinical services such as surgeons, referring physicians or the emergency room, may be appropriate.

Do you currently have a formal process for noting in the report "significant changes" or "discrepant findings "in interpretation?	Yes	No
Do you have a list of significant changes/ discrepant findings?	Yes	No
Do you document in the radiology report, the individual who notifies the health care team of the significant change in interpretation?	Yes	No
Do you document in the report, the individual or health care team receiving the information?	Yes	No
Do you document the time of notification?	Yes	No
Do you stratify timeliness of reporting for significant changes (for example, change in interpretation of initial report large pneumothorax to the change, no large pneumothorax. (Urgent result)	Yes	No
Do you seek feedback from referring physicians on the notification process?	Yes	No

Baseline Data Collection

Having agreed on a policy, baseline data collection can begin. Depending on how much of a change in practice is created by your new policy, performance at baseline will vary considerably.

Make a plan for auditing a sample of reports. For example, you could review reports generated by you as an individual, in your section, or in your department one day every other month. Alternatively, select a percent of all cases for auditing (2-5%). There may be IT solutions to assist in collecting the data if certain key words are utilized and searched through a report database.

Tally your review findings as follows:

Total cases reviewed	300
Cases of significant change	25
Cases where significant change was documented	15
Cases where documentation used the standard format	15
Cases stratified as per policy (timeliness with urgent)	15
Cases where stratification requirements were met	13

Analyzing Baseline Data

Use your data to calculate the following metrics:

Metric 1

Numerator Number of cases where significant change occurred (25/300, 8.3%)
Denominator Number of cases reviewed

Metric 2

Numerator Number of cases where significant change was documented (15/25, 60%)
Denominator Number of cases where significant change occurred

Metric 3

Numerator Number of cases where significant change was documented using a standard format prescribed by policy (15/15,100%)
Denominator Number of cases where significant change was documented

Metric 4

Numerator Number of cases where significant change was documented using the stratification system prescribed by the policy (15/15, 100%)
Denominator Number of cases where significant change was documented

Metric 5

Numerator Number of cases where stratification requirements were met (13/15, 86%)
Denominator Number of stratified cases

Performance on Metric 1 will vary by practice setting. Each practice or institution should set a target ratio of significant changes per studies done.
The goal for Metrics 2 through 5 should be 100% compliance.

Factors that Can Influence Performance

After analyzing the baseline data, identify metrics where there is room for improvement. Reflect on your setting and practice and identify factors that may have influenced your results. Design an intervention that will address those factors.

Possible contributors may include:

- Lack of awareness regarding the communications policies and procedures. Implement an education plan for raising awareness among those affected by the policy. Share the initial data with the group and look for ways to reduce error and improve patient safety. Sharing individual data and group data is useful as it increases awareness of their performance with reference to the group.

- Lack of knowledge about identifying findings as significant changes or discrepancies or stratifying them. Implement an appropriate education or work to improve the process and facilitate use, getting feedback from radiology and referring physicians.
- Workflow procedures that result in missed opportunities. Examine and modify workflow or create reminders/prompts. Look to IT for possible solutions such as addend dictations or potential reminders.
- Infrastructure barriers to policy implementation (e.g., no ready access to means of communication). Address the infrastructure to eliminate the barriers.

Collecting and Analyzing Post-Intervention Data

Plan to collect data again six months after baseline and then every six months for the scope of the project (one to three years is typical). In the interim, make your interventions.

Make sure that cases are collected, tallies are performed and metrics are analyzed the same way as at baseline. The only exception to this is if, during baseline data collection, a problem was identified that necessitates a change in data collection procedures. If so, correct the problem and then use the same procedure going forward.
You may want to make a chart or graph of your performance on the metrics to identify trends and patterns. Review the data with the project team after every six month collection period.

If you are meeting goals, no further changes may be necessary. However, you should plan to take steps to institutionalize whatever changes contributed to successful performance. If additional improvement is possible, look at your processes again and design additional interventions. It is generally best to only make one intervention per study period so that conclusions can be drawn about what caused the observed effect. Once performance has stabilized or you feel the project is well underway, consider selecting and launching another PQI project.

Conclusion

The communication of important test results is a national patient safety goal and part of our national regulatory and compliance framework. The responsibility for improving this aspect of radiology practice resides with radiology groups and individual practitioners. This PQI project is a straightforward method of defining your process and measuring compliance for radiology reports that have a significant change in interpretation or discrepant test results from a prior report."