Optimizing communication of critical test results using health IT: Radiology as case example

Leadership Strategies for IT in Healthcare
Harvard School of Public Health
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Learning Objectives

• Optimal communication of critical test results is an important quality improvement initiative National Patient Safety goal
  – basic change management project for improving quality
• Describe components of an optimal policy for improving communication of critical test results.
• Use case example to demonstrate how IT tools can optimize communication of critical test results
Context
Context

• Health care delivery systems are focusing on reducing medical errors and improving quality
• Improving quality and patient safety is a core mission
  – errors and harm
Healthcare Reform

• ‘Quality’ will increasingly become an integral component of regulatory, compliance and reimbursement systems in the United States
Attributes of high quality healthcare

- Safe
- Patient-centered
- Evidence-based
- Timely
- Efficient
- Cost-effective
- Equitable

“Quality is the extent to which the right procedure is done in the right way, at the right time, and the correct interpretation is accurately and quickly communicated to the patient and referring physician.”

National Patient Safety Goal
Joint Commission
Goal 2: Improve the effectiveness of communication among caregivers

- **2A.** For verbal or telephone orders or for telephonic reporting of critical test results, verify the complete order or test result by *having the person receiving the information record and "read-back" the complete order or test result.*

- **2C.** *Measure, assess and, if appropriate, take action to improve* the timeliness of reporting, and the timeliness of receipt by the responsible licensed caregiver, of critical test results and values.

http://www.jointcommission.org/PatientSafety/NationalPatientSafetyGoals/07

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How do we manage the needed change*?

• Strong Radiology and Health center clinical leadership:
  – Must address People, process and technology issues
  – Measure, measure, measure…
    • Can’t change what you can’t measure

• Quality improvement initiative
  – Lean, Six Sigma, PDSA, etc.


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Use Case: BWH
How to you begin?

• Define a policy for communication of critical test results
• Communicate the policy explaining why it is being done, the urgency for change, the vision for quality improvement, measuring and tracking performance
Components of an optimal policy for communication of critical results

BWH December 2005

Components of needed policies and procedures:

- Define critical test results, categories
- Time-frame per category for communication to care-giver
- Verifiable method of communication-
- Escalation procedures for communication
- Detailed documentation of communication in the EMR (finalized radiology report?)-must be auditable
- Metric for compliance with policy
- Interventions for improvement
Definitions

• **Critical:**
  - a new/unexpected finding, could result in mortality or significant morbidity if appropriate diagnostic and/or therapeutic follow-up steps are not undertaken

• **Discrepant:**
  - 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 workup or management
Timeliness of Communication

- **Red alert:**
  - potentially immediately life-threatening
  - E.g.: tension pneumo-thorax, or intra-cerebral hemorrhage
  - <= 60 minutes of discovery

- **Orange alert:**
  - could harm patient within 2-3 days
  - E.g.: intra-abdominal abscess or impending path hip fracture:
  - <=3 hours of discovery of findings

- **Yellow alert:**
  - not immediately life-threatening or urgent,
  - E.g.: lung nodule, solid renal mass
  - <= 15 days of discovery

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Policy Components

• **Mode of Communication:**
  – Red and orange alerts: *face-to-face or telephone contact.*
  – Yellow alerts: face to face or phone, or via another verifiable method of communication (E-mail is not verifiable method of communication for this purpose)

• **Escalation Process to Assure Timely Communication:**
  – Inpatients, and outpatients cared for by BWH physicians:
    • Referring MD/covering MD/house-staff/ member of care team
    • Attending MD > Chief of service > Department chair > Chief Medical Officer
  – Outpatients cared for by a non-BWH physician:
    • Patient’s physician or care team member
    • The patient
Policy Components

• **Documentation:**
  – *In the radiology report and* must contain the following information:
  – Name of the **communicator**
  – **Date and time** reported
  – Name of **recipient** of the notification
  – Sample statement: “**Critical findings were communicated by Dr. Radiologist to Dr. Surgeon at 5 PM on Wednesday December 15th, 2005**”.

• **Monitoring Compliance with Policy:**
  – Manually review one day of report generated in the department every other month to assess adherence to policy
  – Sectional responsibility (Abdominal, Chest, etc.)
  – If non-adherent-section head to review with individual faculty
Fraction of all cases with critical/discrepant results meeting BWH policy guidelines

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Cases With a Critical/Discrepant Result:
Fraction in Which the Patient Care Team Was Notified & All Compliance Guidelines Were Met (Category A)
Notification of Critical/Discrepant Results

<table>
<thead>
<tr>
<th>Description:</th>
<th>This measure is obtained by reviewing all radiology reports from one work day to manually assess whether results were critical and if so whether communication was within our policy parameters.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data Source:</td>
<td>BWH IDXRad</td>
</tr>
<tr>
<td>Last Update:</td>
<td>Nov-10</td>
</tr>
<tr>
<td>Comments:</td>
<td>Policy for critical results communication is attached</td>
</tr>
<tr>
<td>Contact:</td>
<td>Maria Damiano</td>
</tr>
</tbody>
</table>

Reference:
Automation opportunity?

• We improved adherence to BWH policy from 29% in Feb 2006 to >90% in September 2009

• Several opportunities for improvement including:
  – Standard communication methods (e.g. paging system) are inefficient and interruptive even when findings not imminent safety risk: e.g. incidental pulmonary nodule, indeterminate renal mass, etc.
    • Standard email has many gaps including documentation in the medical record
  – Improve current performance
Why Change?

Many Current State Challenges!

Current Radiology/Enterprise IT infrastructure is not typically suited for optimal communication
Surgery and Medicine cases dominate

Top Responsible Services in CRICO Cases

CRICO N=1,201 PL cases asserted 1/1/06–3/31/11.
Total incurred includes reserves on open and payments on closed cases.
Medicine includes General Medicine and Medicine Subspecialties (Cardiology, Dermatology, Endocrinology, Gastroenterology, Genetics, Geriatrics, Hematology, Hospitalist, Immunology and Allergy, Infectious Disease, Oncology (Medical), Nephrology, Neurology, Physical Medicine/Rehabilitation, Pulmonary Disease, Rheumatology).
*Other includes Oral Surgery/Dentistry, Allied Health, Non-clinical, and Pharmacy.

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There are significantly more outpatient than inpatient cases.

Claimant Type

- **Inpatient**: 18%
- **Outpatient**: 82%

N=90 CRICO PL cases asserted 1/1/05–3/31/10 with a physician specialty or responsible service of Radiology.
Radiology Malpractice Cases

Misinterpretation of studies
- perceptual errors
- cognitive errors

Communication breakdowns
- communication breakdown between radiologist and ordering physician regarding abnormal or unexpected finding
- incidental findings
- lack of follow-up
- growing influence—patient as partner in care: notification of abnormal results
How?
Technology solutions must address:

- **Must be configurable to local policy for communication of critical results**

- *Embedded in workflow*

  1. Radiologist as critical result ‘alert’ generator
  2. ‘Care team’ as ‘alert’ consumers
  3. ‘Alert’ consumption audit trails needed for radiologist, others for escalation
  4. Extend to patient for patient-centered care-
BWH Case Example:

Using IT to improve results communication, including critical results

Supported by grants:
1. Harvard Risk Management Foundation
2. AHRQ
Alert Notification of Critical Radiology Results (ANCR)

ANCR Grant funding:
- CRICO RMF 2009-2010
- AHRQ: 2010-2012
- CRICO RMF 2010-2013
- CRICO RMF 2013-2016
## Communicating Critical and/or Discrepant Results

Notification of the patient’s healthcare provider when the radiologist determines that an imaging study has new and unexpected findings that could result in mortality or significant morbidity. These standards are consistent with recommendations and policies from the MA, Coalition for the Prevention of Medical Errors, the Joint Commission, and the ACR.

<table>
<thead>
<tr>
<th>Definition of Urgency Levels</th>
<th>Examples</th>
<th>Notification Time line… from discovery of finding</th>
<th>Mode of Communication</th>
<th>Documentation Requirements... for all levels</th>
</tr>
</thead>
</table>
| **RED ALERT** (LEVEL 1) ... | EXAMPLES:  
- Tension pneumothorax  
- Ischemic bowel  
- Intracerebral hemorrhage | ≤ 60 MINUTES | • Immediate, interruptive communication  
• From the interpreting radiologist to either a responsible physician or other licensed caregiver who can initiate the appropriate clinical action for the patient.  
• Face to Face  
• Telephone Contact | Documentation in the final radiology report, must contain the following information:  
• Name of the communicator  
• Date and time of the communication.  
• Name of the recipient of the notification |
| **ORANGE ALERT** (LEVEL 2) ... | EXAMPLES:  
- Intra-abdominal abscess  
- Impending pathological hip fracture | ≤ 3 HOURS | • Face to Face  
• Telephone Contact | Sample Statement:  
"Critical findings were communicated by Dr. [radiologist] to Dr. [surgeon] at 3:15 PM on Monday, January 3, 2006" |
| **YELLOW ALERT** (LEVEL 3) ... | EXAMPLES:  
- Lung nodule  
- Solid renal mass | ≤≤≤≤≤15 days | • Face to Face  
• Telephone Contact  
• Other method that allows communication to verify that notification is successful.  
(Per the JC and BWH Policy, e-mail is not a verifiable method of communication) | |

The person communicating the critical/discerning radiological findings should be certain that the member of the patient care team is aware of the critical nature of the findings.

This Process has been followed in BWH Radiology since February 2006

For questions or comments please contact:  
Ramin Khorasani, MD, MPH - 617-732-7941  
Maria Damm, RT, MBA - 617-525-7550
ANCR

- Multi-Center grant funded 6/2009 by CRICO-RMF
- BWH lead (Center for Evidence-Based Imaging), collaboration with BI-D, University of Chicago
  - PI: R. Khorasani, MD
- Public domain project
- Pilot in December 2009, limited rollout Q1 2010
- Broad implementation Q2 2010
  - Does not include non-PHS referring MDs till late 2011
- AHRQ Funded October 2010-2012
Radiologist workflow

ANCR is integrated into physician authentication database, PACS, email and paging system, and is available securely over the internet via https (no VPN)
## Critical Results (ANCR)

### Alert Level

<table>
<thead>
<tr>
<th>Alert Level</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Red Alert</td>
<td>Findings that are <strong>potentially immediately life-threatening</strong>. Requires &quot;face-to-face&quot; or &quot;telephone&quot; contact.</td>
</tr>
<tr>
<td>Orange Alert</td>
<td>Findings that could result in mortality or significant morbidity if not appropriately treated <strong>urgently</strong>. Requires &quot;face-to-face&quot; or &quot;telephone&quot; contact.</td>
</tr>
<tr>
<td>Yellow Alert Email</td>
<td>Findings that could result in mortality or significant morbidity if not appropriately treated, but are not immediately life-threatening or urgent. Requires &quot;face-to-face&quot;, &quot;telephone&quot;, or other verifiable contact. <strong>Email is the default communication option and pager is optional.</strong></td>
</tr>
<tr>
<td>Yellow Alert Pager</td>
<td>Findings that could result in mortality or significant morbidity if not appropriately treated, but are not immediately life-threatening or urgent. Requires &quot;face-to-face&quot;, &quot;telephone&quot;, or other verifiable contact. <strong>Pager is the default communication option and email is optional.</strong> (Example: for use in Emergency Dept.)</td>
</tr>
</tbody>
</table>

* - Required Field
### Critical Results (ANCX)

**Alert Level**
- Orange Alert: Findings that could result in mortality or significant morbidity if not appropriately treated **urgently**. Requires "face-to-face" or "telephone" contact.

**Context**
- **Patient Name**: OETEST, BRIDGET MA
- **Patient DOB**: 1934-02-13
- **Patient MRN**: 11489985
- **Exam ID**: EVS0413665
- **Description**: 
- **Exam Time**: 09:01:13
- **Exam Date**: 2013-04-03

**Enter Critical Findings Description Below** *

**Recipients**
- **To**: 
- **Cc**: 

* - Required Field

- No result notes provided.
- "To" field is blank.
- Direct contact is required, but no method is selected.
Enter Critical Findings Description Below *

<table>
<thead>
<tr>
<th>test</th>
</tr>
</thead>
</table>

Recipients

To  Khorasani, Ramin
Cc

Direct Contact - selected alert level requires direct communication

<table>
<thead>
<tr>
<th>contact provider</th>
<th>Use ANCR to notify the provider</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acknowledge: face to face</td>
<td>I have already communicated with the provider.</td>
</tr>
<tr>
<td>Acknowledge: phone</td>
<td>I have already communicated with the provider.</td>
</tr>
</tbody>
</table>

**ANCN will notify Ramin Khorasani with selected option.**

The grayed-out selection is the required mode of communication. You may also send the alert via the optional mode by clicking on that box.

- Pager
- Email

Callback Information

<table>
<thead>
<tr>
<th>16177325500</th>
</tr>
</thead>
</table>

* - Required Field
Critical Result Detail (ANCR): Orange Alert

Patient & Exam Information

<table>
<thead>
<tr>
<th>Patient Name</th>
<th>DETEST, BRIDGET MAY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient MRN</td>
<td>11489986</td>
</tr>
<tr>
<td>Patient DOB</td>
<td>1934-02-13</td>
</tr>
<tr>
<td>Description</td>
<td></td>
</tr>
<tr>
<td>Exam Time</td>
<td>09:01:13</td>
</tr>
<tr>
<td>Exam Date</td>
<td>2013-04-03</td>
</tr>
<tr>
<td>Exam ID</td>
<td>EVS0413666</td>
</tr>
</tbody>
</table>

Provider Information

<table>
<thead>
<tr>
<th>Alert created by</th>
<th>Ramin Khorasani</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alert sent to</td>
<td>Ramin Khorasani</td>
</tr>
</tbody>
</table>

Notification History

<table>
<thead>
<tr>
<th>Time</th>
<th>Transport</th>
<th>Details</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>05-13-2013 09:07 AM</td>
<td>Pager</td>
<td>11229</td>
<td>Sent</td>
</tr>
</tbody>
</table>

Documents

- BWH Radiology Critical/Discrepant Results Policy
- BWH Radiology Policy Summary Table

Critical Result Description (this is not the full radiology report)

Result has not been acknowledged

- test

Acknowledge on behalf of referring provider

☐ I have spoken to the referring provider face to face
☐ I have spoken to the referring provider on the phone

Acknowledge
Acknowledged
Acknowledged and Close

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# Alert Notification of Critical Results (ANCR) Version 3.5 (PROD)

<table>
<thead>
<tr>
<th>Levels</th>
<th>RAD</th>
<th>BWTH PATH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Red Alert</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Orange Alert</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Yellow Alert - Email</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Yellow Alert - Pager</td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>

Last update at: 5/13/2013 9:12 AM

### Create New Alert

**My Alerts:** click anywhere on a row to open it up and see the detail

<table>
<thead>
<tr>
<th>Alert Level</th>
<th>Patient/Exam Info</th>
<th>Critical Alert Description</th>
<th>Providers</th>
<th>Alert Timeline</th>
</tr>
</thead>
</table>
| 0 hr 59 min pending RAD | Patient: GETEST, BILBO  
MRN: 08942385  
DOB: 1979-10-01  
Exam ID: 12749006  
Exam Time: 15:07:32  
Exam Date: 2013-03-29  
Description: | test | Alert created by Ramin Khorasani  
Alert sent to Ramin Khorasani | Created on 5/13/2013 9:12 AM  
Due on 5/13/2013 10:12 AM |
| 2 hr 55 min pending RAD | Patient: GETEST, BRIDGET NAY  
MRN: 114899986  
DOB: 1934-02-13  
Exam ID: EWS0413666  
Exam Time: 04:01:13  
Exam Date: 2013-04-03  
Description: | test | Alert created by Ramin Khorasani  
Alert sent to Ramin Khorasani | Created on 5/13/2013 9:07 AM  
Due on 5/13/2013 12:07 PM |
| >14 days pending RAD | Patient: GETEST, BILBO  
MRN: 08942385  
DOB: 1979-10-01  
Exam ID: 12784004  
Exam Time: 15:37:53  
Exam Date: 2013-04-15  
Description: | test | Alert created by Ramin Khorasani  
Alert sent to Ramin Khorasani | Created on 5/13/2013 9:11 AM  
Due on 5/28/2013 9:11 AM |

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### Patient & Exam Information

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient Name</td>
<td>OETEST, BILBO</td>
</tr>
<tr>
<td>Patient MRN</td>
<td>08942385</td>
</tr>
<tr>
<td>Patient DOB</td>
<td>1979-10-01</td>
</tr>
<tr>
<td>Description</td>
<td></td>
</tr>
<tr>
<td>Exam Time</td>
<td>15:37:52</td>
</tr>
<tr>
<td>Exam Date</td>
<td>2013-04-15</td>
</tr>
<tr>
<td>Exam ID</td>
<td>12704004</td>
</tr>
</tbody>
</table>

### Critical Result Description

*Result has not been acknowledged*

- **test**

### Acknowledge on behalf of referring provider

- [ ] I have spoken to the referring provider *face to face*
- [ ] I have spoken to the referring provider on the *phone*
- [ ] I have received an *email* from the referring provider
- [ ] I have received a *personal text message* from the referring provider
- [ ] I have been in *contact* with the referring provider by the *method specified below*

### Notification History

<table>
<thead>
<tr>
<th>Time</th>
<th>Transport</th>
<th>Details</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>05-13-2013 09:11 AM</td>
<td>Email</td>
<td><a href="mailto:RKHORASANI@PARTNERS.ORG">RKHORASANI@PARTNERS.ORG</a></td>
<td>Sent</td>
</tr>
</tbody>
</table>

### Reroute Notification Options

- [ ] Email
- [ ] Pager

### Documents

- [BWH Radiology Critical/Discrepant Results Policy](#)
- [BWH Radiology Policy Summary Table](#)

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### Critical Result Detail (ANC): Yellow Alert - Email

#### Patient & Exam Information
- **Patient Name:** OETEST, BILBO
- **Patient MRN:** 08942385
- **Patient DOB:** 1979-10-01
- **Description:**
- **Exam Time:** 15:37:53
- **Exam Date:** 2013-04-15
- **Exam ID:** 12784004

#### Critical Result Description (this is not the full radiology report)
- **Result has not been acknowledged**

#### Acknowledge on behalf of referring provider
- I have spoken to the referring provider **face to face**
- I have spoken to the referring provider on the **phone**
- I have received an **email** from the referring provider
- I have received a **personal text message** from the referring provider
- I have been in **contact** with the referring provider by the **method specified below**

#### Documents
- BWH Radiology Critical/Discrepant Results Policy
- BWH Radiology Policy Summary Table

#### Provider Information
- **Alert created by:** Ramin Khorasani  
  - Check paging status
- **Alert sent to:** Ramin Khorasani  
  - Check paging status

#### Notification History
- **Time** | **Transport** | **Details** | **Status**
- 05-13-2013 09:11 AM | Email | RKHORASANI@PARTNERS.ORG | Sent
- 05-13-2013 09:16 AM | Email | RKHORASANI@PARTNERS.ORG | Sent

Last Updated: 5/13/2013 9:17 AM

*Leave Feedback on this critical alert (FOR QA PURPOSES ONLY)*

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Referring Provider Workflow

ANCR is integrated into physician authentication database, email and paging system, and is available securely over the internet via https (no VPN). Providers can view images, radiology report and order follow up studies without logging into multiple systems.
Referring provider workflow

- **Red/Orange alert**
  - Receive a page: xxx-xxx (call back number)

  *Critical Radiology Result (Red alert) for patient…please call Dr … (Radiologist)*

- **Yellow alert**
  - Receive email with link embedded in the email text to ANCR
A patient in your care has a Critical Radiology Result that requires your acknowledgement. The Yellow Alert - Email was created by Ramin Khorasani on 5/13/2013 9:16:59 AM.

To view and acknowledge this alert follow this link:
https://ancr.partners.org/Main.htm?Action-open&ResultUuid-f0c93c43-44fc-47bb-a076-cc7318f68ef3

Important Notes:
Red Alert (<= 60 Minutes to Acknowledge): Immediately Life Threatening
Orange Alert (<= 3 Hours to Acknowledge): Urgent
Yellow Alert (<= 15 Days to Acknowledge): Not immediately Life Threatening or Urgent

Any questions on the ANCR system please contact ancrsupport@partners.org.
This is a Critical Radiology Result Alert.

Please do not reply to this email.

There is a Yellow Alert created by Test Radiologist, MD on 4/26/2010 2:20:18 PM.

To view this alert, please login to ANCR – Alert Notification of Critical Radiology Results:
https://anorpartners.org/CriticalResultTransporter/Web/Default.htm?AuthExt=Windows&Action=open&ResultDuid=d1738ce8-46ac-4f4a-eb17-0c8e5e8254a7

Critical Radiology Result Alert Definitions:
Red Alert: Immediately life threatening
(must be communicated within 60 minutes of discovery of findings)

Orange Alert: Urgent
(must be communicated within 3 hours of discovery of findings)

Yellow Alert: Not immediately life threatening or urgent
(must be communicated within 3 days of discovery of findings)

To view the BWH policy for communication of critical/discrepant radiology results follow the link below:

Any questions on the ANCR system please contact Allen Duault (aduault@partners.org).
Alert tracking and escalation

• All unacknowledged alerts are visible on the ANCR dashboard for referring and radiologist providers as well as clinical administrator

• If Red/Orange alert not acknowledged
  – Radiologist gets automatically paged
    • (Red 1 hour, Orange 3 hours after alert is created)
    • Each over due alert creates a paging event

• If yellow alert not acknowledged and is past due
  – Radiologist and referring MD get daily email reminders (one reminder per all over due alerts at)
Tracking performance

ANCR Analytics
Adherence to BWH Policy

Urgency Levels
- Red: Immediately life-threatening
  - Notification Acknowledgement: < 60 Min
- Orange: Require urgent treatment
  - Notification Acknowledgement: < 3 Hours
- Yellow: No immediate treatment
  - Notification Acknowledgement: < 15 Days
- All Critical: All Critical Alerts
- Non-critical: Non-critical finding

Median Notification Acknowledgement Time for all Critical Alerts: 0 Hours 8.4 Minutes

(Critical) Urgency Levels
- Yellow Alert - Email: 50.28%
- Yellow Alert - Pager: 24.83%
- Red Alert: 1.09%
- Orange Alert: 23.80%

Acknowledgement Status
- On Time: 97.50%
- Others: 2.50%

(from 4/1/2013 to 5/1/2013)
### ANCR Communications by Specialty

<table>
<thead>
<tr>
<th>Specialty</th>
<th>RED</th>
<th>ORANGE</th>
<th>YELLOW</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1  Brigham ED</td>
<td>100%</td>
<td>95%</td>
<td>100%</td>
<td>97%</td>
</tr>
<tr>
<td>2  VASCULAR SURGERY</td>
<td>71%</td>
<td>96%</td>
<td>99%</td>
<td>98%</td>
</tr>
<tr>
<td>3  DFCI</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>4  BIMA</td>
<td>100%</td>
<td>95%</td>
<td>100%</td>
<td>99%</td>
</tr>
<tr>
<td>5  FLK</td>
<td></td>
<td>98%</td>
<td>100%</td>
<td>99%</td>
</tr>
<tr>
<td>6  Foxborough</td>
<td>100%</td>
<td>95%</td>
<td>100%</td>
<td>98%</td>
</tr>
<tr>
<td>7  Neurology</td>
<td>87%</td>
<td>92%</td>
<td>100%</td>
<td>97%</td>
</tr>
<tr>
<td>8  Orthopedics</td>
<td>100%</td>
<td>96%</td>
<td>96%</td>
<td>96%</td>
</tr>
<tr>
<td>9  Thoracic Surgery</td>
<td>100%</td>
<td>98%</td>
<td>99%</td>
<td>99%</td>
</tr>
<tr>
<td>10 Neurosurgery</td>
<td>100%</td>
<td>85%</td>
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### ANCR Communications Volume of ANCR Alerts

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Ramin Khorasani, MD,
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Challenges and Opportunities

• “Referring MD”
  – Too many critical alerts! They are not all critical!
  – Can I send alert on to someone else?

• Who is the responsible provider at the time of reporting?
  – At BWH: CPOE ordering MD, PEPL pilot web service integrate into ANCR

• “Radiologists”
  – Referring MDs don’t acknowledge all yellow alerts on time
  – Can we use for follow up recommendations?
  – Can we use for all reports?
Key Enhancement Timelines

• ANCR mobile application released July 2011
• Public domain software released July 2011
  – Google: CEBI and critical results
• FY12-13 ANCR Dissemination (Funded by CRICO)
  – Non-Radiology: pilot Cardiology, Pathology
• FY 12-13: ANCR Enhancements (Funded by CRICO)
  – Module for managing follow up recommendations
  – Improve management of ‘non-affiliated’ physicians
  – Add SMS ‘text message’ option for notification based on physician preference
• FY 13-15: ANCR enhancements
  – Transitions of care documentation
  – Pilot applying logic to ‘numerical’ values for labs
Take Home Message

• Optimizing communication of critical results is an important patient safety goal
  – Can be substantially improved using quality improvement methodologies/tools

• Begins with creating an optimal policy

• Informatics tools will help improve performance
  – Automating relevant processes
  – Monitoring performance

• [Google ‘CEBI Critical Results’ ]
Conclusion

• Quality matters- it can be measured and improved
  – Health IT tools will help create a more robust infrastructure for quality improvement

• Quality improvement will become integral to physician training (certification, maintenance of certification, credentialling) programs, and encouraged as a focus for research

• Real change takes leadership and time!

Ramin Khorasani, MD, MPH 2013