

Diagnostic Errors Related to the “Testing” Process

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Error-Free Testing Process

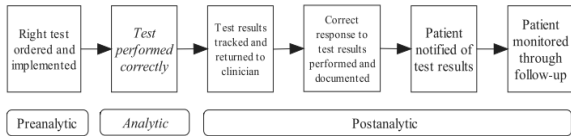


Figure 1. In a perfect system, the testing process would occur in an orderly, error-free manner, as shown.

*Hickner, J. et al. (2005). J. Joint Commission Journal on Quality and Patient Safety, 31(2)

Objectives

- Setting the stage (Singh)
- Preanalytic/Analytic – Lab perspective (Epner)
- Post-analytic – lessons from EHR studies (Singh)

Ordering

- Needed test but did not order
- Needed test but ordered wrong
- Test not needed but ordered

Performance / interpretation

- Ordered correct test did not get done
- Ordered correct test but done incorrectly
- Test was interpreted incorrectly

Reporting and follow-up

- Test is abnormal but no follow-up
 - Transmission
 - Response
 - Patient follow-up/monitoring

Diagnostic Errors: Reporting and Follow-up of Test Results

Hardeep Singh, MD MPH

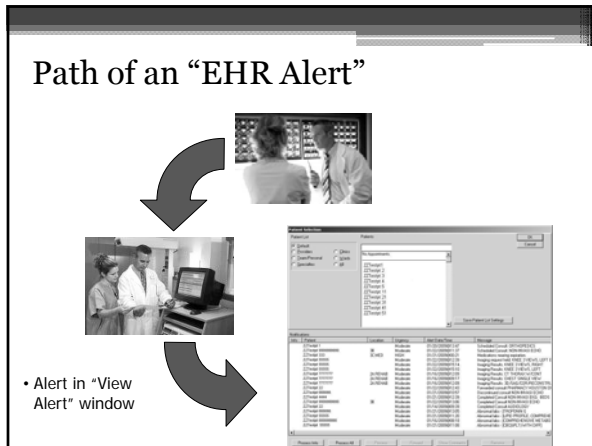
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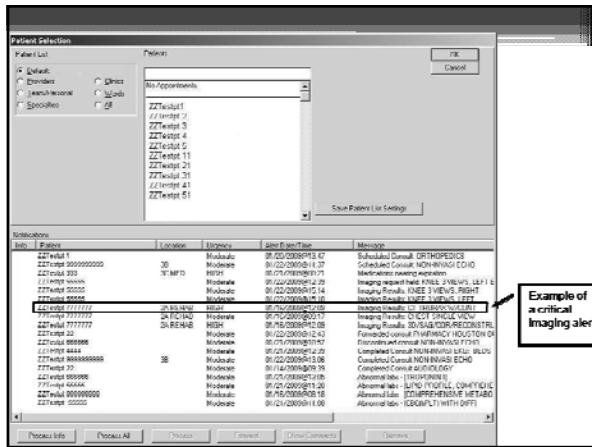
Objectives

- Setting the stage (Singh)
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Background

- Process in outpatients prone to breakdown:
 - Many not immediately life threatening
 - Several “systems” of care involved
- Electronic communication ensures transmission
 - “Alerting” through computers (EHRs), pagers, text-messages etc.





However.....

- Communication more than information transfer
 - Response and appropriate follow-up action
- Providers may not acknowledge all alerts they receive
 - Timely follow-up *should* occur if they acknowledge an alert

Singh H. et al JAMIA 2007

Abnormal Test Follow-up

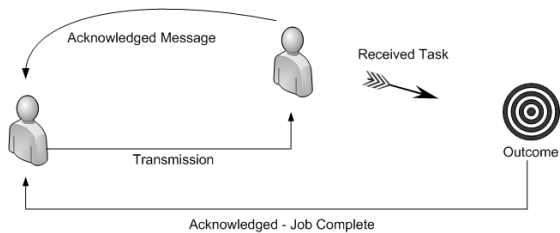
- 1,163 labs & 1,196 imaging results
- Despite acknowledgment
 - 7% labs lacked timely follow-up
 - 8% imaging lacked timely follow-up
- Acknowledgement does not mean follow-up of result—why?

Singh et al Am J Med 2010 and Arch Int Med 2009

Digging Deeper


- Quantitative work
 - Rates of lack of timely follow-up
 - Identified some problems
- Mixed Methods
 - Identify causes and best practices
 - In-depth understanding from users

Three Stages: Transmission, Receipt, and Acknowledgement



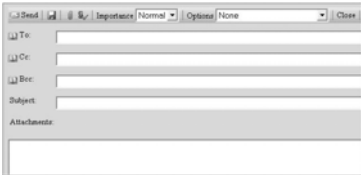
Lessons in transmission

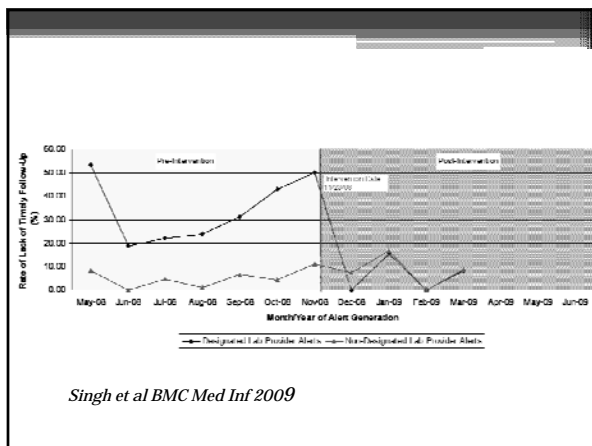
- **Asynchronous vs. synchronous: choose the medium accordingly..**
 - Message content
 - Radiology calling...



Lessons in transmission

- **Make sure you address the right recipient**
 - may not be easy for a human or the computer...





Lessons in Receipt

- **Reduce ambiguity of roles & responsibilities in communication**
→ High-quality communication



Lessons in Receipt

- **Reduce information overload**
 - Too many messages could be as bad as not sending any!



Singh et al J Patient Safety 2010

High Alert Volumes

“One of the issues is just the sheer volume of alerts, and there’s a number of alerts that in all honesty [you] really don’t have any business seeing.”

Measuring and Evaluating

- Need better system oversight to electronically track:
 - Was message acknowledged?
 - Was appropriate action taken in response to the message? (measuring follow-up actions)
- Chart reviews are laborious

Conclusions

- Technology can facilitate reporting results
- However, electronic communication entails special considerations and challenges
- Multifaceted approach needed to address timely follow-up of abnormal test results

Thank you!

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