

# Experiences with LIS-EMR Interfacing

Session on:

Future of Pathology Informatics and the LIS

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**LIS-EMR Interfacing isn't so much  
about interfacing as it is about...**

**...interfacing**

**HUH???**

## Definitions of “Interface”

- *Noun:* a device or program for connecting two items of hardware or software so that they can be operated jointly or communicate with each other
- *Verb:* interact with (another system, person, organization, etc.)

# Cleveland Clinic Health System

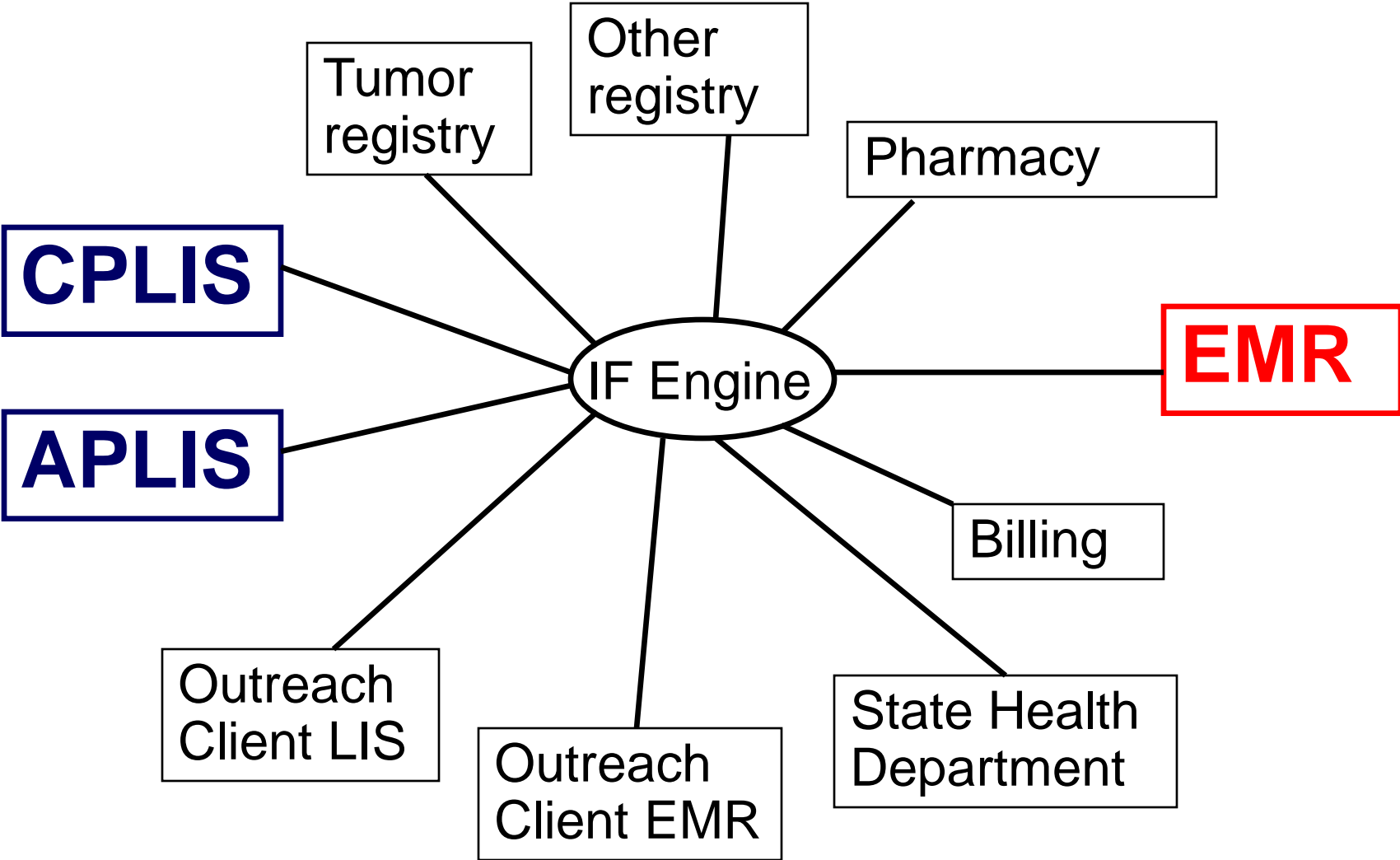


- 9 hospitals (with laboratories)
- 17 satellite clinics/ASCs
- ~160K admissions/yr
- ~187K surgical cases/yr
- >20M billable tests/yr
- >86,000 blood components transfused/yr (main campus)

# Cleveland Clinic Experience with LIS-EMR Interfacing

- LIS-EMR interfaces since 1995
  - Order entry – CPLIS
  - Results reporting – CPLIS and APLIS
- Current EMR replacement of legacy EMR:
  - Ambulatory – 2002
  - Inpatient – 2006
- APLIS-EMR orders interface – 2009

# LIS-EMR Interface Environment



# Operational Considerations in LIS-EMR Interfaces

- Maintenance of EHR settings related to laboratory tests
- Change control and communication (e.g. test definition updates)
- Troubleshooting and client support
- Training of EHR users in test result viewing and (eventually) test ordering
- Handling of corrected results
- Monitoring or quality of service
- Client site contact and engagement

# Unintended errors with EHR-based result management: a case series

Thomas R Yackel,<sup>1</sup> Peter J Embi<sup>2</sup>

J Am Med Inform Assoc. 2010;17:104-7

- Two year experience with commercial EHR in setting of 54,000 lab test results per month
- New categories of result management errors:
  - Interface and results routing errors
  - Provider record issues – MD dictionary definitions
  - EHR system settings – user configuration, unsolicited orders
  - System maintenance-related errors
- Common thread – results not routed or available to provider who was expecting them
- Some involved settings in the LIS



# Anatomy of a failure: A sociotechnical evaluation of a laboratory physician order entry system implementation

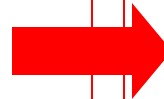
Linda W. Peute<sup>a,\*</sup>, Jos Aarts<sup>b</sup>, Piet J.M. Bakker<sup>c</sup>, Monique W.M. Jaspers<sup>a,\*</sup>

Int J Med Inform 2010;79:e58-70.

- “It became clear that the [CPOE] project’s management grossly underestimated the CPOE-L implementation project.”
- “The technical infrastructure of some laboratories...proved to be enormously complex, and the large number of specialized laboratory services added to this complexity.”
- “Understanding of clinical workflow was identified as a key theme pressured by organizational, human and social issues ultimately influencing the entire implementation process in a negative way.”

# Toward a Broader View of “Interfacing”

- Successful and accurate exchange of test results and orders between LIS and EMR



- Application of *laboratory domain expertise* to management of laboratory information in the EMR

# Fostering Laboratory's Credibility for EMR Issues

- Anticipate challenges in EMR-laboratory information management
- Provide laboratory resources to troubleshoot and resolve EMR-laboratory issues as they arise
- Raise awareness of EMR-laboratory issues with clinicians and IT support staff

# LIS-EMR Interfacing Success Factor #1:

- Build relationships at various levels of the institution
  - CIO/CMIO
  - Chief of Staff
  - Influential clinicians
  - Quality/Safety Officer
  - Compliance Office
  - EMR support staff

# LIS-EMR Interfacing Success Factor #2

- Draw upon laboratory staff who support LIS to work on laboratory information management in the EMR
  - Activities that translate well from LIS to EMR:
    - Test definition
    - Interface implementation
    - System testing and validation
    - Change control practices

# LIS-EMR Interfacing Success Factor #3

- Demonstrate benefits of having laboratory subject matter experts involved in EMR issues
  - Work directly with EMR support staff
  - Document/track laboratory involvement in resolving or preventing EMR problems
  - Identify *risk management* issues

# Examples of Laboratory Involvement in EMR

- Configure CPOE screens
- Manage laboratory test definitions in EMR
- Ensure required elements are in EMR for lab orders and results
- Contribute to clinical scenarios used during EMR system selection
- Participate actively in cross-departmental committees or projects
- Schedule meetings between laboratory and EMR IT support

**1990:**

*Informatics as a Separate Section  
Within a Department of Pathology*

BRUCE A. FRIEDMAN, M.D.

Am J Clin Pathol 1990;94(Suppl 1):S2-S6

Strategically, political power accrues to those subunits of an organization that are best able to solve its strategic problems.