THE INFORMATION ARCHITECTURE FOR ORDERING LAB TESTS FROM AN OFF-SITE, HOSPITAL-BASED, MEDICAL CLINIC

Natalie S. Schwartz
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Instructor: Mark Roche
Ambulatory Care Center

- 3,600 sq. ft facility located approx. two miles from the Main Hospital
- Provides comprehensive primary care services, as well as subspecialty medical care
- Primarily, underserved, multicultural patient population
- Primary Care Clinic - 4 full-time attending physicians supervise 90+ medical residents in training
- Medical Subspecialty Clinics - full time and voluntary attending physicians supervise 20+ fellows in training
- On-site phlebotomy services
- Lab services provided by Charter Diagnostic Laboratories (CDL), an outreach program of the Main Hospital
<table>
<thead>
<tr>
<th>Test</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>25 hydroxy Vit D Thyrogblobulin Level</td>
<td></td>
</tr>
<tr>
<td>Hypertension</td>
<td>250.00</td>
</tr>
<tr>
<td>Comprehensive Chem Panel</td>
<td>x</td>
</tr>
<tr>
<td>Lipids</td>
<td>x</td>
</tr>
<tr>
<td>CBC</td>
<td>x</td>
</tr>
<tr>
<td>Glycosylated hemoglobin</td>
<td>x</td>
</tr>
</tbody>
</table>
The phlebotomist in the Off-site clinic attaches the laboratory requisition form to the patient face-sheet and affixes a hand-written patient identification label to the laboratory specimens, along with the account number label from the bottom of the lab requisition form.

The specimen, requisition form, and face sheet are transported, by courier, to the hospital lab.

Information entered into Eagle at the registration desk - printed out.
The laboratory processor at the hospital laboratory must **reenter** demographic information **manually** into the LIS software (Meditech)
The laboratory processor needs to know the Meditech “mnemonics” for each lab test ordered and type these Mnemonics into the order entry box.
If the laboratory processor does not know the Meditech “mnemonic”, he/she can look up the test from an “order lookup screen” - Identifies all related laboratory tests

NOT a drop-down menu!

Processor needs to select proper test, remember its number, and manually enter it into the order box

**Look up “25 Hydroxy Vit D”**
- 1,25 hydroxy Vit D
- 25 hydroxy Vit D total
- 25 hydroxy Vit D2
- 25 hydroxy Vit D3

**Look up Thyroglobulin Level**
- Quantitative thyroglobulin panel
- Thyroglobulin antibodies
- Thyroid antibodies
- Barcode generated by LIS and affixed to lab specimen
  - Contains patient identification information
  - Contains specimen identification used by instruments for analysis

- Lab result reported
Lab form
Checked off CBC, SMA-18, HbA1C, Lipids, PSA

“25 OH Vitamin D level” and “Thyroglobulin panel” handwritten in provided space

ICD9 codes for HTN/ DM added. “Thyroid Cancer” handwritten in space for diagnoses

Lab bill sent to insurance company

Lab writes off lab test costs

Resubmit claim?

Yes

Lab test paid for by insurance

END

No

Claim Denial

Biller contacts MD to resubmit proper ICD9 code for denied lab claim
## Current Information Architecture

### Problem
- Redundant Manual Entry of Information off paper forms
- Over-reliance on non-clinical staff deciphering handwritten MD orders, medical diagnoses
- Ordering physician not having to enter ICD9 codes for each lab procedure

### Result
- Misspelled demographic information
- Other information errors
- Workflow inefficiencies
- Incorrect tests ordered
- Incorrect billing information
- Claims denial
- Loss of payment
- Patient dissatisfaction
- Jeopardize patient care
- No compensation for having to rerun laboratory specimens
## Current Information Architecture

### Problem
- Using Meditech Mnemonics
- LIS not using LOINC codes
- Transporting paper forms from off-site lab to hospital lab to billing department
- Billing department using conversion tables to translate Meditech codes to billing procedural codes
- Billing department converting handwritten medical diagnoses to appropriate ICD9 codes

### Result
- LIS not in compliance with HITSP standards for CCHIT certification
- Potential loss of forms in transport
- Mapping errors
Future Information Architecture: Options

Option #1: Bar Code Enabled Point of Care

Option #2: Providers enter lab orders directly into LIS application

- for each lab test to be processed by the LIS, the provider must select a billable ICD9 code from a dropdown menu

Option #3: Providers enter lab orders directly into LIS application + Integration Engine for data exchange between current software applications
Future Information Architecture: Options

**Option #4:** Ambulatory EMR with ACPOE functionality
Choice Rationale- Option #3

- Providers enter lab orders directly into LIS application

  PLUS

- Integration Engine for data exchange between current disparate software applications
Choice Rationale- Option #3

• No redundant manual entry of information and resultant errors
• Immediate sharing of information between registration system, physician order entry, lab information system, and finance/billing using single patient identifier (MR#)
• Preserve institutional investment in legacy systems
• Departments can continue to use applications best suited for their needs
• More consistent data mapping across applications
• No more paper transport between off-site and lab and between lab and billing department
• More efficient departmental workflows
• Faster processing of insurance claims
• Fewer claims denials
• Greater cash flow for the institution