Overcoming the Challenges to Achieve Lab Interoperability

Provided By: 
The National Learning Consortium (NLC)

Developed By: 
Karen Williams, BSMT(ASCP), Lab Manager, Internal Medicine of Northern Michigan
The National Learning Consortium (NLC) is a virtual and evolving body of knowledge and resources designed to support healthcare providers and health IT professionals working towards the implementation, adoption and meaningful use of certified EHR systems.

The NLC represents the collective EHR implementation experiences and knowledge gained directly from the field of ONC’s outreach programs (REC, Beacon, State HIE) and through the Health Information Technology Research Center (HITRC) Communities of Practice (CoPs).

The material in this document was developed by Regional Extension Center staff in the performance of technical support and EHR implementation. The information in this document is not intended to serve as legal advice nor should it substitute for legal counsel. Users are encouraged to seek additional detailed technical guidance to supplement the information contained within. The REC staff developed these materials based on the technology and law that were in place at the time this document was developed. Therefore, advances in technology and/or changes to the law subsequent to that date may not have been incorporated into this material.
Description & Instructions

• The Overcoming the Challenges to Achieve Lab Interoperability PowerPoint is intended to aid providers and health IT implementers with achieving lab interoperability.
Internal Medicine of Northern Michigan

• 11 Provider Internal Medicine Practice
• In house Physician Office Lab
• EMR Go Live – March 16, 2011

Located in Petoskey, Michigan overlooking Little Traverse Bay.
Lab Challenges

- Medical Necessity/Frequency
- ABN (Advance Beneficiary Notice)
- Mapping Diagnosis to Testing
- Managing Insurance Based Lab Carve Outs
- Managing Multiple Lab Service Providers
- Managing Standing and Future Orders
- Tracking Result Completion
- Notifying Patients of Results
- SatisfyingCourtesyCopies to other Providers
Objectives

• Objective 1: I will show you how we have set up our orders and interfaces to make them easy to order, keep track of outstanding orders, and easily provide lab reports to colleagues and patients.

• Objective 2: Our practice owns a lab. I will show you how we’ve made it more efficient by minimizing Medicare and insurance write offs and streamlined the order completion process.

• Objective 3: Patient friendly lab reports keep our patients informed, more active in their care plans, and reduce the number of phone calls asking for lab results interpretation.

• Objective 4: I will show you how by investing in the right tools to assist our EMR function to meet the needs of our practice provided an overall savings of time and money.
The Process

Providers:
- Order Tests
- Map Diagnosis Codes to tests
- Medical Necessity Checking
- Provide Patient Demographic Information

Phlebotomists:
- Accurate Patient Identification
- Review Order/Verify Correct Diagnosis

Mapping:
- Deal with Insurance Carve Out Rules
- Obtaining the correct Specimen
- Label specimens Correctly
- Send Specimens to the correct lab
- Get ABN signed
- Provide completed requisitions to Reference Lab
- Enter orders in LIS

Results:
- Matching Reports to Correct Patient Chart
- Data Entry to Flowsheets
- Tracking Result Completion
- Patient Friendly Reporting
- Sharing Reports with Colleagues
The Beauty of Clean Lab Orders and Bi-directional Interfaces.
EMR Workflow

Provider Ordering
- Easy to order

Provider Lab Review
- Desktop notification
- Updates the order status

Lab Order Completion
- AOE questions
- Minimize data entry

EMR Chart Matching
- Results match to charts
- Results into the flowsheet

Lab & Testing
- Verify insurance
- Get ABN
- Minimize Data Entry

- Bidirectional Interface with our lab and 2 reference labs

National Learning Consortium
www.HealthIT.gov
ORDER ENTRY

- Our lab orders were created based on lab order history.
- Our practice created names that made sense to us.
- Custom order lists and order sets are created.
- Created Lab Kits for our lab and reference lab.
- Created Routing Rules.
- Medical Necessity Checking based on Lab Rules.
Medical Necessity Checking
ORDER COMPLETION

- Phlebotomist collects the specimen.
- Completes the order by sending order to lab.
- Labels/Requisition are designed to meet lab specifications.
- ABN are also available for printing
Reporting Results/Lab to EMR

- Created our results mapping files.
- Created our flowsheet views (based on lab results).
- Mapped Reference Lab Compendium with EMR OBS Terms
- Auto-completion of order in EMR upon provider signature.
Patient Friendly Reporting

- Create Patient Friendly Lab Reports that inform the patient about their lab tests by including an explanation not just a number.
- Reduce Calls from patients asking what the lab report means.
The lab report we already know now includes a link that references the HTML enhanced report format.

It only took a few minutes to configure or “turn on”.

HTML report stored on EMR-Link server, so no storage requirements.

Forwarding functionality allows HTML report to be sent securely to a patient or other providers via email message.
## Patient: WILMA G TEST

### ID: MEDCOM 48068

**Note:** All results are final unless otherwise noted.

### Tests:

<table>
<thead>
<tr>
<th>Test</th>
<th>Value</th>
<th>Reference Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glucose</td>
<td>75 mg/dL</td>
<td>70-110</td>
</tr>
<tr>
<td>Creatinine</td>
<td>1.1 mg/dL</td>
<td>0.6-1.0</td>
</tr>
<tr>
<td>Sodium</td>
<td>140 mmol/L</td>
<td>136-145</td>
</tr>
<tr>
<td>Potassium</td>
<td>4.1 mmol/L</td>
<td>3.6-5.1</td>
</tr>
<tr>
<td>Chloride</td>
<td>102 mmol/L</td>
<td>95-107</td>
</tr>
<tr>
<td>Calcium</td>
<td>8.9 mg/dL</td>
<td>8.5-10.1</td>
</tr>
<tr>
<td>GFR (clearance)</td>
<td>67 ml/min</td>
<td>&gt;50</td>
</tr>
</tbody>
</table>

### Tests:

<table>
<thead>
<tr>
<th>Test</th>
<th>Value</th>
<th>Reference Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hgb-A1c</td>
<td>7.50 %</td>
<td>4.30-6.10</td>
</tr>
</tbody>
</table>

**Note:** An exclamation mark (!) indicates a result that was not dispersed into the flowsheet.

**Document Creation Date:** 03/09/2012 3:25 PM

---

1. **Order result status:** Final
2. **Collection or observation date/time:** 03/09/2012 14:36
3. **Requested date-time:** 03/09/2012 15:00
4. **Receipt date-time:** 03/09/2012 15:00
5. **Reported date-time:** 03/09/2012 15:00
6. **Referring Physician:**
   - **Ordering Physician:** PAUL BLANCHARD MD (pb Blanchard)
7. **Specimen Source:** MEDCOM
8. **Filler Order Number:** 5022759
9. **Laboratory:** Internal Medicine of Northern Michigan
...THIS!

![Image of a computer screen showing a medical result report. The report includes test results for various metabolic parameters such as Fasting BMP, Glucose, BUN, Creatinine, BUN/Creatinine, Sodium, Potassium, Chloride, CO2, Calcium, GFR (non-black), and GFR (black). The report indicates values such as 250 mg/dL for Glucose and 75–110 mg/dL for the Range.](https://www.healthit.gov/)

---

**Result Report**

**TEST, WILMA**

**Patient ID:** 48068  
**DOB:** 5/15/1957  
**Sex:** F  
**Lab reference #:** S822753

**Test** | **Value** | **Range** | **Flags** | **Status**
--- | --- | --- | --- | ---
Fasting BMP | YES | | | F
Glucose | 250 mg/dL | 75–110 | △ H | F
BUN | 15 mg/dL | 7–18 | | F
Creatinine | 1.1 mg/dL | 0.4–1.0 | △ H | F
BUN/Creatinine | 13.6 RATIO | 8.0–20.0 | | F
Sodium | 140 mmol/L | 136–145 | | F
Potassium | 4.5 mmol/L | 3.5–5.1 | | F
Chloride | 102 mmol/L | 98–137 | | F
CO2 | 25 mmol/L | 21–52 | | F
Calcium | 8.9 mg/dL | 8.5–10.1 | | F
GFR (non-black) | 55 ml/min | >60 | △ L | F
GFR (black) | 67 ml/min | >60 | | F

**Hgb A1c [041]**

**Collected on:** 3/9/2012 14:36  
**Resulted on:** 3/9/2012 15:09

**Hgb A1c** | 7.50% | 4.3–6.10 | △ H | F

Performing location:

[1] Internal Medicine of Northern Michigan
# EMR Link Results Report

**Result Report**

Received on: 7/12/2011 9:31 PM

**CLANCY, MARTHA**

- **DOB:** 10/12/1962
- **Sex:** F
- **Provider ID:** hwinston

Lab reference #: 087G9400650

Source: Cervical; Endocervical

<table>
<thead>
<tr>
<th>Test</th>
<th>Value</th>
<th>Range</th>
<th>Flags</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pap Smear [192005]</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Clinical Information:</strong></td>
<td>DOC ATT CO-CPK2011-8700650</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Source:</td>
<td>Cervical; Endocervical</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interpretation:</td>
<td>NIL</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>NEGATIVE FOR INTRAEPITHELIAL LESION AND MALIGNANCY.</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>DIAGNOSIS/CATEGORY:</strong></td>
<td>NIL</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Negative for Intraepithelial Lesion</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adequacy:</td>
<td>ENDO</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Satisfactory for evaluation. Endocervical and/or squamous metaplastic cells (endocervical component) are present.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**National Learning Consortium**

Here are your labs from your recent visit on March 9, 2012. Please note my remarks. I would like you to repeat these labs in 3 months. A lab order has been included in this correspondence. Please take that with you when you visit our lab.

**BASIC METABOLIC**

**GLUCOSE**

- **250** High
- Normal range in mg/dL: 70 to 110

**Hgb-A1c**

- **7.50** High
- Normal range in %: 4.3 to 6.1

Your fasting glucose is still elevated. Please continue your diet and exercise regimen and recheck in 3 months.

Your Hgb-A1c is elevated. Please continue your diet and exercise regimen and recheck in 3 months.
Benefits

Our Providers
• No change to our EMR ordering workflow
• Medical Necessity Checking
• Eliminate Duplicate Ordering
• Allows Standing Order/Future Order Set up
• Auto-completes the lab order status upon signing the result
• Supports all of your labs. EMR-Link routes orders to the correct lab (based on insurance or local rules)

Our Lab
• Eliminates data entry for the lab order
• Eliminates lab call-backs
• Eliminates chart matching errors when results are returned
• Single connection through EMR-Link to all labs
• Clean and complete orders. Medical necessity validated. ABN generated when required
• Streamlined the Specimen collection process
• Streamlined the Lab reporting process
Benefits

To Lab Management
• Reduces or eliminates LIS Management
• Diagnosis updates
• Test Menu changes for reference labs
• Utilization Reporting
• Result Management

To Our Practice
• Billing Department- reduced time spent correcting orders with missing diagnosis or lacking medical necessity
• Clinical Assistants-Auto completion reduces open order tracking saving valuable time. 
• Results automatically enter the flowsheets making reporting for Quality Measure reports a breeze.
## Annual Lab Savings

<table>
<thead>
<tr>
<th>Description</th>
<th>Hours</th>
<th>Dollars</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reduction of Data Entry</td>
<td>5760</td>
<td>$69,120</td>
</tr>
<tr>
<td>Fewer Order Errors</td>
<td>288</td>
<td>$4320</td>
</tr>
<tr>
<td>Reduction Correction Medicare Missing Dx</td>
<td>3240</td>
<td>$38,880</td>
</tr>
<tr>
<td>Reduction in LIS Maintenance</td>
<td>24</td>
<td>$600</td>
</tr>
<tr>
<td><strong>Total Savings</strong></td>
<td>9312</td>
<td><strong>$112,920</strong></td>
</tr>
</tbody>
</table>

- 75% Lab Revenue from Medicare Patients with an average $45/order
- Clean orders = Reduction in Medicare Write offs saving approximately $60,000/yr
## Annual Practice Savings

<table>
<thead>
<tr>
<th></th>
<th>Hours</th>
<th>Dollars</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lab</td>
<td>9312</td>
<td>$112,920</td>
</tr>
<tr>
<td>Medical Records</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Matching/Routing Errors</td>
<td>150</td>
<td>$1,500</td>
</tr>
<tr>
<td>Clinical Staff-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Result Tracking and Completion</td>
<td>480</td>
<td>$7,200</td>
</tr>
<tr>
<td>Billing-Reduction of Tracking</td>
<td></td>
<td></td>
</tr>
<tr>
<td>down DX</td>
<td>540</td>
<td>$6,480</td>
</tr>
<tr>
<td>Total Savings</td>
<td>9312</td>
<td>$128,100</td>
</tr>
</tbody>
</table>
How you can help?

• Hear from everyone in the practice.
• Encourage practices to ask the tough questions to EMR vendors and do not except “That is not possible.” response. Tell them what you want and need.
• Be familiar with third party products that can fill in the gaps.
• Be sure that all involved in the set up have a clear understanding of the goal and are all on the same page.