Learn How Your Lab Can Influence Enterprise-wide Improvements in Patient Care & Cost Savings

Kim Futrell, BS, MT(ASCP)
Products Marketing Manager
Orchard Software Corporation
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“You want to be the pebble in the pond that creates the ripple for change.”

-Tim Cook, Apple CEO
Poll Question Results: Facility Type

- Hospital: 59
- Other: 20
- Physician's Office: 12
- Public Health: 8
- Reference Lab: 1

Facility Type

59
20
12
1
8

Hospital
Other
Physician's Office
Public Health
Reference Lab
Objectives

1. Evaluate how the current healthcare trajectory is changing the laboratory’s value perspective and reimbursements.

2. Assess how the lab can influence overall cost savings and patient outcomes, and why this is important in the new healthcare models.

3. Identify growing trends that are essential for lab advancement in the future healthcare model.
Healthcare’s Transformation
Healthcare Spending per capita vs.
Average Life Expectancy Among OECD Countries

Source: http://www.forbes.com/sites/danmunro/2012/01/19/u-s-healthcare-hits-3-trillion/
Surge of mergers & consolidation

Payment transition from volume to value

Decrease in reimbursements

Focus on PHM

Advances in HIT

New molecular & genetic tests

Increased patient involvement

An aging, sicker population

Telemedicine & mHealth

Increase in government regulations

An aging, sicker population

Healthcare Change
65% of Medicare patients have two or more chronic diseases.
43% have three or more
It costs seven times more to treat a patient with chronic disease than it does to treat a healthy patient.
86% of healthcare costs are spent on chronic disease treatment.
Aging Population & Increase in Chronic Disease

Top 5% of Spenders Account for 50% of All Spending

NIHCM Foundation analysis of data from the 2012 Medical Expenditure Panel Survey. This survey captures health spending for the U.S. civilian, non-institutionalized population and thus excludes spending for institutional care, such as nursing homes.
Shift from Volume to Value

Triple Aim Goals
- Improve Patient Experience
- Improve Population Health
- Decrease Costs
“Better, Smarter, Healthier”

By Mike Millard | March 04, 2016 | 11:24 AM

 Barely a year after announcing its ambitious plan to tie reimbursement to quality of care, the U.S. Department of Health and Human Services announced March 3 that 30 percent of Medicare payments are now tied to alternative payment models, such as ACOS.

The goal was reached nearly a year ahead of schedule, according to HHS, which touts the fact that more than 10 million Medicare patients are now getting higher-quality care.
Top 10 Healthcare CEO Concerns (2015)

- Financial challenges
- Patient safety and quality
- Government mandates
- Personnel shortages
- Patient satisfaction
- Physician-hospital relations
- Access to care
- Population health management
- Technology
- Reorganization

Population Health Focus

• ACOs: responsible for the health of a specific patient population
• Combine data: from lab, payer claims, EHR into EDW, data marts, HIE
• Need ability to share data

Risk stratification
Predictive modeling
Laboratories Play a Key Role

Complex, Chronic, Acute & High Risk
Goal: Manage Disease to Minimize Costs

Moderately Ill & Increasing Risk
Goal: Maintain Current Status or Improve Health

Healthy, Latent & Low Risk
Goal: Maintain Health and Provide Preventive Care
Population Health Questions

No longer can we think about reactive patient care...

- How can we help patients with chronic diseases manage their conditions?
- How can we prevent at-risk patients from getting sick?
- How can we encourage healthier behaviors?

We need the ability to manage interventions for high-risk, rising-risk, and healthy patients.
Patient Engagement

• Our new healthcare paradigm puts the patient at the center of its focus.
• Patients are expected to become more involved and diligent about their healthcare decisions.
• Consider the role that patient self-monitoring apps play.

The lab must realize how this may influence its testing menu, volumes, and testing locations.
The Lab’s Shift in Value
The Changing Paradigm

- Decreasing laboratory profit margins
- Labs becoming cost centers
- Rethink, align goals with organizational goals
- Actively pursue ways to increase the success of the organization
Reimbursement Shifts

• Bundled payments
  – OPPS
  – BPCI

• PAMA
  – Expected to reduce lab reimbursements by $2.9 billion between now and 2024
Diagnostics is the Future Currency of Healthcare

Diagnosis [ˌdɪəˈzaɪnəs] (nihilism) identification or determination of a disease by the cause of a disease or diseases by the cause of a disease by the cause of a disease.
Lab Data is Central

Preventive Maintenance

Lab Data

Population Health

Treatment Plans
Small Costs = Tremendous Impact

Advantage: Value
Labs: 5-9¢ on the dollar

$3T

Health Center Cost Institute 2011

Lab Results Impact Downstream Costs

- Lab testing is only ~3% of healthcare spending.
- **Downstream costs/savings** are associated with testing.
- Downstream costs (prescriptions, imaging, surgeries, hospital LOS) are much greater.
Delivering the Future of Healthcare

Moving towards a value-based system increases the need for advanced analytics to support activities, such as risk stratification, to help target specific patient needs as a part of population health management and other outcomes-based reporting initiatives.
The Lab’s Changing IT Needs
- Interoperability
- Molecular testing
- POCT
- Outreach
- Analytics
~ Interoperability
Interoperability Drives Analytics to Impact Patient Outcomes
Structured Data

• Foundational for analytics
• Mine & share with other systems

• Statistical research, BI reporting, and data interoperability
• Easier than with unstructured data
Standardized Languages: LOINC

- LOINC
  - Used in HL7 messages
  - Identifies the test method

<table>
<thead>
<tr>
<th>LOINC Code</th>
<th>Component</th>
<th>Property Measured</th>
<th>Timing</th>
<th>System</th>
<th>Scale</th>
<th>Method</th>
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<tbody>
<tr>
<td>5193-8</td>
<td></td>
<td>Hepatitis B surface Ab</td>
<td></td>
<td>Ser</td>
<td>Qn</td>
<td>EIA</td>
</tr>
</tbody>
</table>
Standardized Languages: SNOMED CT

- **SNOMED CT**
  - Used for non-numeric lab results
  - To define testing with greater granularity
  - AP or microbiology

Molecular Testing
Molecular Technology on the Rise

With an eye toward precision medicine and companion diagnostics, the LIS of the future must be able to handle the variant workflows and big data requirements of molecular testing.
Molecular Testing Applications

- Infectious disease
- Oncology
- Pharmacogenetics
- Genetic disease screening
- HLA typing
- Coagulation

**POCT**
- Real-time PCR testing with small footprint
- Single sample testing
- Automated all steps
- Results in 20 minutes to 1 hour
~ POCT
When & Where POCT Fits?

- When having the result immediately is imperative to treatment, thereby reduces downstream costs
- When patient benefits from real-time counseling based on immediate results
Right POCT in the Right Situations Can Improve:

• Consistency
• Accuracy
• Provider satisfaction
• Patient satisfaction
• Patient engagement
• And ultimately patient outcomes.
POCT Connectivity
~ Outreach
Outreach Connectivity

• Declining inpatient visits are compelling laboratories to expand outreach services
  - Need connections to EHRs, nursing homes, clinics, & pharmacies
• Need full outreach operability
  - Courier management, CRM, supply and inventory tracking, & marketing

“Over the next few years, we expect reference lab work to become more important as large healthcare facilities support multiple mergers and acquisitions.”

-Dr. John D. Halamka, MD, CIO, Beth Israel Deaconess Medical Center
Outreach for Care Continuum

• Provides testing across the patient care continuum - because its best for patient outcomes

“This care continuum is absolutely essential for meeting future challenges such as utilization and population health management. The hospital laboratory outreach program must be preserved. It is good patient care and good business.”

-Kathleen A. Murphy, PhD, CEO, Chi Solutions Inc.
~ Analytics
Analytics

- Value-based reimbursement systems
  - Population health management
    - Risk-stratification
  - Outcomes-based reporting initiatives
Do you use analytics for internal tracking of laboratory key performance indicators?

- Yes, this is part of our QA program.
- No, but we intend to in the near future.
- No, we have no plans to use internal analytics.
Lab Analytics: Internal

- Internal Costs
- Turnaround time
- Staffing workload
- Auto validation percentages
- Quality measures, (e.g., rate of blood culture contamination, hemolysis, QNS, cancellations)
Is your lab involved in external analytics projects (e.g., developing laboratory practice guidelines, risk-stratification, clinical decision support rules, defining preventive testing opportunities, etc.)?

- Yes, we actively use external analytics.
- No, but we intend to in the near future.
- No, we have no plans to use external analytics.
Lab Analytics: External

- Test/Physician utilization
- Laboratory Practice Guidelines
- Population Health
- Clinical Decision Support
- Preventive Medicine
- Precision Medicine
“Johns Hopkins Bayview Reduces Overuse of Cardiac Tests”

- Grant from ABIM Foundation
- Project reduced lab tests used to assess acute coronary syndrome
- “Use Troponin alone and no more than three times.”
- More than $1 million saved

Lab’s Evolution in Healthcare

Pre-ACO: Operational Efficiency
- Cost cutting
- Streamline operations
- Flexible shifts
- Equipment upgrades
- Automation
- Supply vendor management (e.g., volume discounts)

ACO: Clinical Effectiveness
- Provide interpretation and clinical recommendations
- Link laboratory services to patient outcomes
- Work with clinicians to develop treatment plans
- Help build HIT
- Be involved in data analytics (e.g., population health management)

### ACO Quality Measure Benchmarks


<table>
<thead>
<tr>
<th>Preventive Health</th>
<th>ACO #17</th>
<th>Tobacco Use Assessment and Cessation Intervention</th>
<th>R</th>
<th>P</th>
<th>P</th>
<th>30.00</th>
<th>40.00</th>
<th>50.00</th>
<th>60.00</th>
<th>70.00</th>
<th>80.00</th>
<th>90.00</th>
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<tbody>
<tr>
<td>Preventive Health</td>
<td>ACO #18</td>
<td>Depression Screening</td>
<td>R</td>
<td>P</td>
<td>P</td>
<td>5.31</td>
<td>10.26</td>
<td>16.84</td>
<td>23.08</td>
<td>31.43</td>
<td>39.97</td>
<td>51.8</td>
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<td>Preventive Health</td>
<td>ACO #19</td>
<td>Colorectal Cancer Screening</td>
<td>R</td>
<td>R</td>
<td>P</td>
<td>19.81</td>
<td>33.93</td>
<td>48.49</td>
<td>63.29</td>
<td>78.13</td>
<td>94.73</td>
<td>100.0</td>
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<td>Preventive Health</td>
<td>ACO #20</td>
<td>Mammography Screening</td>
<td>R</td>
<td>R</td>
<td>P</td>
<td>28.59</td>
<td>42.86</td>
<td>54.64</td>
<td>65.66</td>
<td>76.43</td>
<td>88.31</td>
<td>99.5</td>
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<td>Preventive Health</td>
<td>ACO #21</td>
<td>Proportion of Adults who had blood pressure screened in past 2 years</td>
<td>R</td>
<td>R</td>
<td>P</td>
<td>30.00</td>
<td>40.00</td>
<td>50.00</td>
<td>60.00</td>
<td>70.00</td>
<td>80.00</td>
<td>90.00</td>
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<tr>
<td>High Risk Population Diabetes Composite ACO #22 – 26</td>
<td>Diabetes</td>
<td>ACO #23. Low Density Lipoprotein (LDL) (&lt;100 mg/dl)</td>
<td>R</td>
<td>P</td>
<td>P</td>
<td>70.00</td>
<td>60.00</td>
<td>50.00</td>
<td>40.00</td>
<td>30.00</td>
<td>20.00</td>
<td>10.00</td>
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<tr>
<td>High Risk Population Hypertension ACO #28</td>
<td>Percent of beneficiaries with hypertension whose DBP &lt; 140/90</td>
<td>R</td>
<td>P</td>
<td>P</td>
<td>60.00</td>
<td>63.16</td>
<td>65.69</td>
<td>68.03</td>
<td>70.89</td>
<td>74.07</td>
<td>79.6</td>
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<tr>
<td>High Risk Population Hypertension ACO #29</td>
<td>Percent of beneficiaries with I/V with complete lipid panel: LDL control (&lt;160 mg/dl)</td>
<td>R</td>
<td>P</td>
<td>P</td>
<td>35.00</td>
<td>42.86</td>
<td>51.8</td>
<td>57.14</td>
<td>61.60</td>
<td>67.29</td>
<td>78.0</td>
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Collaborate With Other Departments

- Physician Champions
- Pharmacy
- Radiology, Imaging
- Finance
- ED
- Respiratory Therapy
- IT
- Can you think of others?

- Reduce Readmissions
- Patient Satisfaction
- Antibiotic Stewardship
- Cost Savings
- Reduce HAIs
- Patient Engagement
- Reduce LOS
# Outpatient Contrast Studies

<table>
<thead>
<tr>
<th>HCPCS</th>
<th>Description</th>
<th>Pre Vol</th>
<th>Post Vol</th>
<th>Pre Rev</th>
<th>Post Rev</th>
<th>Vol Diff</th>
<th>Revenue Diff</th>
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<tr>
<td>71260</td>
<td>CT THORAX W/DYE</td>
<td>1,852</td>
<td>1,898</td>
<td>$554,324</td>
<td>$567,885</td>
<td>46</td>
<td>$13,561</td>
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<tr>
<td>71270</td>
<td>CT THORAX W/O W/DYE</td>
<td>15</td>
<td>29</td>
<td>$3,403</td>
<td>$8,388</td>
<td>14</td>
<td>$4,985</td>
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<tr>
<td>71275</td>
<td>CT ANGIOGRAPHY, CHEST</td>
<td>506</td>
<td>465</td>
<td>$143,580</td>
<td>$133,743</td>
<td>-41</td>
<td>($9,837)</td>
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<tr>
<td>72156</td>
<td>MRI NECK SPINE W/O W/DYE</td>
<td>186</td>
<td>223</td>
<td>$117,406</td>
<td>$140,761</td>
<td>37</td>
<td>$23,355</td>
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<tr>
<td>72157</td>
<td>MRI CHEST SPINE W/O W/DYE</td>
<td>139</td>
<td>160</td>
<td>$93,904</td>
<td>$108,091</td>
<td>21</td>
<td>$14,187</td>
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<tr>
<td>72158</td>
<td>MRI LUMBAR SPINE W/O W/DYE</td>
<td>232</td>
<td>295</td>
<td>$129,419</td>
<td>$164,563</td>
<td>63</td>
<td>$35,144</td>
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<tr>
<td>78816</td>
<td>TUMOR IMAGE PET/CT FULL BODY</td>
<td>44</td>
<td>64</td>
<td>$23,104</td>
<td>$35,702</td>
<td>20</td>
<td>$12,598</td>
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<tr>
<td><strong>Total</strong></td>
<td></td>
<td>7,968</td>
<td>8,421</td>
<td>$3,443,293</td>
<td>$3,690,955</td>
<td>453</td>
<td>$247,662</td>
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<td><strong>Annualized</strong></td>
<td></td>
<td>15,936</td>
<td>16,842</td>
<td>$6,886,587</td>
<td>$7,381,910</td>
<td>906</td>
<td>$495,323</td>
</tr>
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</table>

Annualized net revenue: $495,323
Less cost of contrast, etc.: $32,767
Less cost of POCT reagents: $85,547
Net contribution to fixed costs: $377,100

**Profitability**
Cost of instruments: $23,970
Payback (days): 22.1 d
Going Forward
Lab’s Evolution in Healthcare

• Expand your reach.
• Increase clinical effectiveness.
• Contribute to positive patient outcomes.
• Integrate and collaborate with other departments.
Testing cannot be performed the same as in the FFS model

- Develop testing protocols and best order sets
  - promote appropriate testing
  - reduce unnecessary testing
- Perform utilization studies
  - determine if proper tests are ordered on the right patients
  - reach accurate diagnoses as quickly as possible
The LIS of the future must maximize lab productivity; and collect, structure, and codify diagnostic information to support organization-wide Triple Aim goals: improve patient experience, improve population health, and decrease costs.
Don’t Underestimate the Value of your Lab…

…Or the importance of having HIT that is prepared for the future.
• Interoperability
• Molecular testing
• POCT
• Outreach
• Analytics
If you agree that healthcare is changing...

Now is the time to carefully review your strategic plan and forge a path that ensures future success. Laboratory data and its integration into the patient’s clinical picture is a vital component of the new model, so it is important to ensure you have the best HIT systems in place to deliver coordinated patient care.
“If you don't like change, you will like irrelevance even less.”

- General Eric Shinseki
Tools to Empower Labs
Harvest the Power of Orchard's White Papers!

Download at...
www.orchardsoft.com/whitepapers
Thank you!