Going Beyond the Basics of Lab Test Utilization Health: How Pathologists Are Collaborating and Delivering Measurable Value in Clinical Care Settings

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Gaurav Sharma, M.D.
Director, Regional Laboratory
Assoc. Director, Core Laboratory and Quality Systems Division
Department of Pathology & Laboratory Medicine
Henry Ford Health System, Detroit, Michigan
Key Learning Objective

- Understand the evolution of the laboratory’s role in a ‘value-based’ ecosystem
- Understand the evolving role of the pathologist as the physician leading this change
- Be aware of opportunities (and barriers) of inter-disciplinary collaboration
Healthcare in the US is expensive.

Source: OECD Health Statistics 2014.
The curve has started to ‘bend’
Because, $ and growth are low
Reimbursement cuts are inevitable

Expected reductions in clinical lab reimbursement

- 30% 2017-2019 (10%/yr)
- 45% 2019-2022 (15%/yr)
## Changing Paradigm

<table>
<thead>
<tr>
<th>Year</th>
<th>Inpatient</th>
<th>Outpatient</th>
</tr>
</thead>
<tbody>
<tr>
<td>-2000’s</td>
<td>Do less (DRG)</td>
<td>Do more (FFS)</td>
</tr>
<tr>
<td>$$$$$$$</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2020’s</td>
<td>Do less (DRG)</td>
<td>Do less (~DRG)</td>
</tr>
<tr>
<td>$$$</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Volume → Value

- Change is inevitable, survival is not...

Past Model
- Stand-alone
- Volumes based $
- Testing phase

Future Model
- Integrated
- Value based $
- All phases

The great challenge for administrators and pathologists..
What is Value?

- Value: is the measure of benefit that may be gained from goods or services.

*The C-suite view
- Improved patient care outcomes
- Improved financial outcomes
- Decreased waste
The new value ‘margin’ comes from reducing costs

- Reduce costs by targeting anything that:
  - does not need to be done….
  - has to be done more than once…
  - has to be done manually….

*Within-and-outside the lab!!!*
What is the role of the pathologist?

- Assessing Medical Needs
- Medical Interpretation
- Medical Education/Discussion
- Assessment of Technology
- Relevance of Test Results
- Optimum Laboratory Utilization
Value Creation (#1)
Choose the right technology to reduce LOS

MALDI TAT from Gram Stain

* p< 0.006
** p<0.001

<table>
<thead>
<tr>
<th>Organism</th>
<th>Pre</th>
<th>Post</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acinetobacter</td>
<td>4.5</td>
<td>2</td>
</tr>
<tr>
<td>Achromobacter</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>Pseudomonas</td>
<td>3.5</td>
<td>2.5</td>
</tr>
<tr>
<td>Candida glabrata</td>
<td><strong>3</strong></td>
<td><strong>2</strong></td>
</tr>
</tbody>
</table>

Days

0 0.5 1 1.5 2 2.5 3 3.5 4 4.5 5
Value Creation #1
Choose the right technology to reduce LOS

Candida septicemia
1 day of LOS = $4100 cost
4.8 day savings = $19,680/patient
Total savings = $1.1 million (Candida)
Value Creation #2

Question relevance of expensive tests

- Provider request for esoteric test
- Reference Laboratory Marketing
- Pathologist review for appropriateness

$ 3.5 million/year and rising

High $$ : Low Standardization → Chaos
Value Creation #3
Create an institutional formulary

Provider Request for Esoteric Tests

Pathologist Review

Department Review

Formulary Review

Reference Laboratory

Reference Laboratory Marketing

Low $$ : Standardization $\rightarrow$ Better Utilization
## Value Creation #4

**Demonstrate $ efficacy of lab’s intervention**

<table>
<thead>
<tr>
<th>Test</th>
<th>Vendor Claim</th>
<th>CETAC Determination</th>
<th>Cost and Reimbursement</th>
<th>Potential Cost Avoidance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assay 1</td>
<td>A genomic profile that helps physicians make treatment decisions.</td>
<td><strong>NOT AVAILABLE</strong>&lt;br&gt;Reasons:&lt;br&gt;-No FDA approval, Not in NCCN guidelines, Not for HFHS Trials</td>
<td>Cost: $5800 and $7500&lt;br&gt;Reimbursement: $0&lt;br&gt;LOSS:&lt;br&gt;$5800-$7500/test</td>
<td>&gt; $ 10 million/year&lt;br&gt;In HFHS, 2000 cases/year will qualify for ‘genomic testing for potential targets’. This will be in addition to routine pathological diagnostic work-up.</td>
</tr>
<tr>
<td>Assay 2</td>
<td>Quantitative assessment of the likelihood of distant recurrence in patients diagnosed with ER+ node-negative breast cancer.</td>
<td><strong>NOT AVAILABLE</strong>&lt;br&gt;Reasons:&lt;br&gt;-No FDA approval, Not in NCCN guidelines</td>
<td>Cost: $3500&lt;br&gt;Reimbursement $150&lt;br&gt;LOSS:&lt;br&gt;$3350/test</td>
<td>&gt; $3.5 million&lt;br&gt; &gt; 300 cases/y of breast carcinoma are diagnosed in HFHS. A cohort of &gt;1000 patients may qualify per vendor claim.</td>
</tr>
<tr>
<td>Assay 3</td>
<td>Aid in the classification of the tissue of origin and tumor subtype in conjunction with standard clinical and pathological assessment by a qualified physician.</td>
<td><strong>NOT AVAILABLE</strong>&lt;br&gt;Reasons:&lt;br&gt;- No FDA approval, Not in NCCN guidelines</td>
<td>Cost: $4750&lt;br&gt;Reimbursement: $0&lt;br&gt;LOSS:&lt;br&gt;$4750/test</td>
<td>&gt;$ 1.4 million/year&lt;br&gt;Per vendor claim, test is to be used in 30% of metastatic cases that remain unclear. If we assume 30% malignancies are metastatic at diagnosis then HFHS has 300 cases/y (i.e. 10% of the total 3000) that may qualify per vendor criteria.</td>
</tr>
<tr>
<td>Assay 4</td>
<td>Tests for *** protein and **** may be used as supplemental tests to help establish a diagnosis of Alzheimer Disease.</td>
<td><strong>NOT AVAILABLE</strong>&lt;br&gt;Reasons:&lt;br&gt;- No FDA approval, Not required for diagnosis</td>
<td>Cost: $1160&lt;br&gt;Reimbursement: $52&lt;br&gt;LOSS:&lt;br&gt;$1108/test</td>
<td>&gt;$110,000/year&lt;br&gt;Per clinical expert, the utilization of this test is expected to be around 100 cases/year.</td>
</tr>
</tbody>
</table>
Value Creation #5
Understand the downstream implications

<table>
<thead>
<tr>
<th>Assay</th>
<th>Tumor</th>
<th>Cost of Treatment</th>
<th>Pharma Cost Savings 2012</th>
<th>Pharma Cost Savings 2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>EGFR (Gefitinib)</td>
<td>lung</td>
<td>$72,000</td>
<td>$14,184,000</td>
<td>$14,832,000</td>
</tr>
<tr>
<td>ALK FISH (Crizotinib)</td>
<td>lung</td>
<td>$72,000</td>
<td>$12,600,000</td>
<td>$13,248,000</td>
</tr>
<tr>
<td>BRAF (Ipilimumab)</td>
<td>melanoma</td>
<td>$120,000</td>
<td>$1,560,000</td>
<td>$2,880,000</td>
</tr>
<tr>
<td>Her2 FISH (Herceptin)</td>
<td>breast</td>
<td>$70,000</td>
<td>$12,180,000</td>
<td>$14,560,000</td>
</tr>
<tr>
<td>KRAS (Cetuximab)</td>
<td>colon</td>
<td>$125,000</td>
<td>$5,750,000</td>
<td>$4,750,000</td>
</tr>
<tr>
<td>Testing cost</td>
<td>--</td>
<td>--</td>
<td>($253,994)</td>
<td>($243,551)</td>
</tr>
<tr>
<td>Reimburse</td>
<td></td>
<td></td>
<td>$173,881</td>
<td>$176,796</td>
</tr>
<tr>
<td>Total Savings</td>
<td></td>
<td></td>
<td>$50,270,000</td>
<td>$50,270,000</td>
</tr>
</tbody>
</table>
Value Creation #6
Monitor and reduce defects
Value Creation #7

Improve supplier processes

Surgical Pathology EMR Tissue Part Type Defects

- First customer supplier meeting with OR Nursing at Main Campus
- Second customer supplier meeting with OR Nursing at Main Campus
- Customised part type ordering lists were updated for each speciality
- Customer supplier meeting (Pathology and OR admin)
- Reduced extremity part type choices, 24 to 12
- Educated at RN meeting at HS
- One on one education to not use generic part types when specimens delivered to the lab

January: 187
February: 173
March: 129
April: 64
May: 28
June: 5

Main hospital
Comm hosp 1
Comm hosp 2
Comm hosp 3
## Value Creation #8

### Reduce unintended OR Testing

<table>
<thead>
<tr>
<th>Problem</th>
<th>Since the implementation of EPIC, the number of orders for AFB cultures has drastically increased.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Goal</td>
<td>Reduce the number of AFB cultures and stains on surgical specimens to those where it is medically indicated.</td>
</tr>
</tbody>
</table>
| Workgroup Members | Medical Team (surgeons, pathologists, microbiologists)  
EMR Team, Analytics Team, Finance Team |
| Issue   | Our hypothesis is that this is due to the use of default order sets and easy buttons in the ordering interface.  
We are collecting data on ordering options, locations and specimen types to determine an appropriate intervention.  
This will reduce testing volumes and generate relevant results |
<table>
<thead>
<tr>
<th>Problem</th>
<th>Front-loaded ordering of unnecessary tests on hospital inpatients.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Goal</td>
<td>To decrease unnecessary lab draws for hospital inpatients</td>
</tr>
<tr>
<td>Workgroup Members</td>
<td>Medical Team (internists, pathologists, chemists), EMR Team, Analytics Team, Finance Team</td>
</tr>
<tr>
<td>Issue</td>
<td>Our hypothesis is that this is due to the use of default order sets and easy buttons in the ordering interface used by residents and providers. We are collecting data on ordering options, locations and specimen types to determine appropriate intervention. After adjusting for acuity, we plan to study the outliers. We want to encourage mindful ordering amongst staff and residents as well as reduce testing volumes and generate relevant results.</td>
</tr>
</tbody>
</table>
## Value Creation #10
Reduce unintended special testing

<table>
<thead>
<tr>
<th>Problem</th>
<th>Lack criteria for allergy testing and germline testing.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Goal</td>
<td>Reduce inappropriate testing in allergy and genetic disease</td>
</tr>
</tbody>
</table>
| Workgroup Members | Medical Team 1 (allergists, pathologists, chemists)  
Medical Team 2 (geneticists, pathologists, oncologists)  
EMR Team, Analytics Team, Finance Team |
| Issue   | Our hypothesis is that these esoteric tests are often easy to order but difficult to select in the correct clinical context.  
Often ordered as part of a protocol, they are redundant.  
Our aim is to standardize protocols and limit to specialists |
Doing this is not easy.....
Barrier #1
It’s not my job (or your job)

ISSUE
- Providers perceive this as a loss of control
- Labs are seen as distant from patient care

RESOLUTION
- Involve providers in decision-making and standardization
- Ensure institutional support for initiatives
Barrier #2
What do you know?

ISSUE
- Few providers feel that they should be exempt as they take care of ‘real patients’ rather than lab specimens

RESOLUTION
- Acknowledge that you consider specimens as your ‘patients’ and want the very best for patient care.
- Support with data.
Barrier #3
But, you don’t understand!!

Communication Gap

Laboratory -> Suggestion -> Clinician

Laboratory <- Rejection <- Clinician

Laboratory <-> Negotiation <-> Administration
Barrier #3
But, you don’t understand!!

Communication is a complex task, prone to errors

Sender (Lab) | Receiver (Clinician)
--- | ---
Intent | Flow of information
Words | Words
Media - speak - paper - e-mail

Speak to the person when discussing unexpected news!
Write to the person when discussing routine matters!
Barrier #4
Formulary lacks support

Laboratory Formulary

- Improvement
  - Provider-led
  - Data driven

- Operations
  - Lab-led
  - Protocol driven

Often, missing in action
Barrier #5
Lack of EMR Tools

Provider’s view of utilizing labs

What is the right test?
How do I order the test?
Where do I get my results?
Barrier #5
Lack of EMR Tools

Provider’s view of utilizing labs

What is the right test?
How do I order the test?
Where do I get my results?

EMR do not perform this!!!
EMR do perform this

Formulary is most effective during this part!
Take Home Points

- In a value-reimbursed paradigm, laboratories (and pathologists) will be rewarded for the quality of tests not the quantity.
- This ‘value’ model requires test utilization to be both objective and standardized.
- While opportunities abound, significant barriers must also be addressed.