

Using the LIS and Workflow Redesign to Improve Specimen Management in the Lab

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Outline

1. Basics of Lean Six Sigma
2. Common Mistakes in Pathology Labs
3. Practical Solutions through the LIS
4. Real World Examples
5. Q&A



THE BASICS



What is 'Six Sigma'?

- A manufacturing concept introduced by Motorola (1980s)
- Aimed at eliminating '**defects**' and '**variance**' in a production process
- Proposes a systematic approach to doing this:
 - DMAIC
 - DMADV or DFSS



=

*No more than 3.4 defects
in 1 million opportunities*



What is 'Lean'?

- A manufacturing concept introduced by Toyota (1990s)
- Aimed at eliminating '**waste**' in a production process (*muda*)
- Seven types of waste:
 1. Transportation
 2. Inventory
 3. Motion
 4. Wait
 5. Over-processing
 6. Over-production
 7. Defect



What is 'Lean Six Sigma'?



Lean Six Sigma:

A systematic approach to minimizing defects and costs by controlling waste and variance in a production process.



Why is this Important for Pathology Labs?

- You don't get paid for mistakes
- Errors are expensive ... sometimes very expensive
- There is just too much at stake ...
 - Critical Samples
 - Institution's Reputation
 - Patient Safety
 - Patient Care



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JANUARY 15, 2008

Insurers Stop Paying for Care Linked to Errors

Health Plans Say New Rules Improve Safety and Cut Costs; Hospitals Can't Dun Patients



Article Comments

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By VANESSA FUHRMANS

Health insurers are taking a new tack in a bid to improve patient safety and reduce health-care costs: refusing to pay -- or let their patients be billed -- for hospital errors.

Aetna Inc., WellPoint Inc. and other big insurers are moving to ban payments for care resulting from serious errors, including operating on the wrong limb or giving a patient incompatible blood.

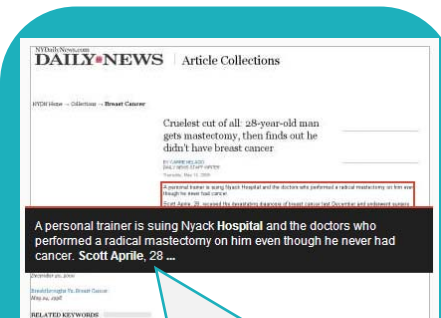



Study finds 4.3 surgical specimen identification errors per 1000 surgical specimens. These errors are common and pose important risks to all patients.

2007 Apr;141(4):450-5: Surgical specimen identification errors: a new measure of quality in surgical care. Makary MA, Epstein J, Pronovost PJ, Millman EA, Hartmann EC, Freischlag JA. Department of Surgery, Center for Surgical Outcomes Research, John Hopkins University, USA.


Only 69% surgical pathology cancer reports include all the required elements.

2010 Jul;134(7):969-74: Adequacy of surgical pathology reporting of cancer: a College of American Pathologists Q-Probes study of 86 institutions. Idowu MO, Bekeris LG, Raab S, Ruby SG, Nakhleh RE. Source Department of Pathology, Virginia Commonwealth University Health System, USA.



Nyack Hospital said in a statement it regretted that Aprile was misdiagnosed with cancer when his biopsy sample accidentally was switched with that of another patient.

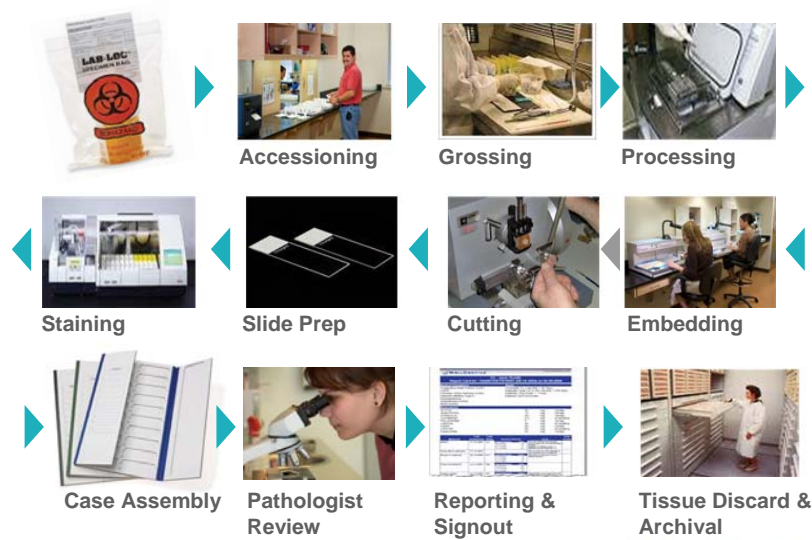
By Carrie Melango, DAILY NEWS staff writer, NYDailyNews.com, Thursday, May 14, 2009



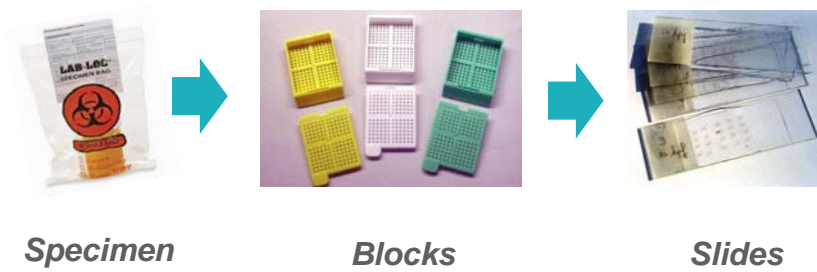
PATHOLOGY LABS



Typical Pathology Lab Workflow



Hundreds of Assets Generated per Day



Room for Digitization ...

- Paper Requisitions. vs Electronic Orders
- Narrative vs Synoptic Reports
 - CAP Checklists
 - Machine readable, discrete data
- AdHoc Reports vs Realtime Dashboards



Opportunities in Pathology Labs

- Defects
 - Misidentification
 - Misplaced Specimen
- Waste
 - Batch Label Printing
 - Relabeling
- Variance
 - Case Workup
 - Report Formats



PRACTICAL SOLUTIONS



Bad Workflow Eats Good Software for Lunch



Know it ... Measure it ... Own it



Start with the following ...

1. Understand your *SPOTs*
2. Baseline 'normal' flow
3. Identify steps for exception handling
4. Define the rules and measure compliance
5. Leverage consulting services, if needed

"I am careful not to confuse excellence with perfection"

– Michael J. Fox

"Were I to await perfection, my book would never be finished"

– Chinese Proverb



Barcoding Promotes Positive Specimen Identification



Tracking Maintains Chain of Custody



'Just in Time' Reduces Waste/Defects



Comprehensive Specimen Management



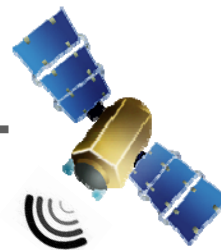
Barcoding

+



Routing

+



Tracking

=

*Safe, Consistent, Efficient
Handling of Specimen*



Middleware?



OR

Integrated?



But what about "0 to 1"?

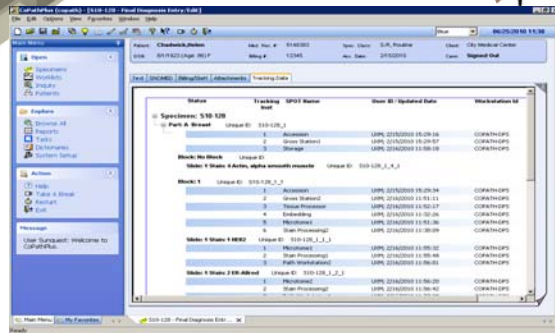
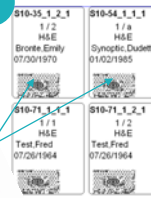
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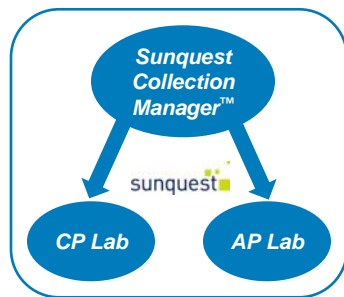


3



Specimen Management starts from Point of Collection

- Positive Patient ID
- Instant Specimen Label
- Electronic Order to Lab
- Track Collection to Accession



Support for Foreign IDs eliminates Relabeling



Synoptic Reporting promotes Checklist Approach

- Structured and consistent reporting format
- Minimize errors in transcription and interpretation
- Preferred format for receiving clinician/oncologist
- Reduces inquiries, calls for clarification on reported content
- Compliance and Accreditation (CoC, CAP, CCO)
- Checklists fields in outbound interfaces



Business Analytics Promotes Lean Operation



REAL WORLD EXAMPLES



LEAN Experience at MGH

Histology Redesign Project

MGH incorporated Lean concepts of workflow analysis, re-design, standardization, including the barcode system.

Results:

- Reduced average routine surgical TAT from 48 hr to 20 hr
- Reduced average Biopsy TAT from 24 hr to 16 hr
- Reduced overtime from 3.5 FTE's to 0.97 FTE's
- Improved morale

*Thomas M. Gudewicz, MD
Massachusetts General Hospital
Harvard Medical School*





Quality Focus at Henry Ford

Sunquest CoPathPlus™

Henry Ford implemented barcoding and Sunquest CoPathPlus to streamline workflow and employ an overall quality program.

Results:

- Implemented 1,128 process improvements on their main campus including 150 in AP
- Reduced overall misidentification case rate by 62%, with 95% reduction in the more common slide misidentification defects
- Increased throughput at histology microtomy station by 125%
- The number of routine biopsies completed in a single day improved from 73% to 92%

"The integration of mTuitive's xPert for Pathology with Sunquest CoPathPlus represents the biggest advance in pathology reporting since the invention of the typewriter."

– Dr. Mark Tuthill, Division Head of Pathology Informatics,
Henry Ford Health System



Business Analytics at NGM

Sunquest Diagnostic Intelligence™

NGM implemented real time dashboards to track and manage Key Performance Indicators (KPIs) critical to their lab operations.

Results:

- **Time savings** (Instant results) – Reports that used to take an hour to hour and half can now be accessed in seconds.
- **Operational effectiveness** – NGM is a large reference site and with DI dashboards they can gauge test volumes at each site. With these numbers they can forecast how much work will be done at each location and can send the supply/inventory accordingly.
- **Improved efficiency** – Monitoring dashboards is helping to keep track of their workload and proper resource management.

"Advances in the areas of data analysis and understanding through BI will be used more pervasively throughout organizations and will lead to better patient care. Overall, it will become a mission critical tool for healthcare organizations to be successful."

– Allana Cummings, EMBA, CHCIO, PMP, CPHIMS,
CIO, Northeast Georgia Health System



Summary

Opportunities in Path. Labs

LIS based Solutions

Live Implementations

Defects:

- Misidentification
- Misplaced Specimen

- ✓ Barcoding
- ✓ Specimen Tracking



Waste:

- Batch Label Printing
- Relabeling

- ✓ Just-in-time Label Printing
- ✓ Support for Foreign IDs



Variance:

- Case Workup
- Report formats

- ✓ Specimen Routing
- ✓ Dashboards, Analytics
- ✓ Synoptic Reporting & Checklists



Thank You

