GETTING THE MOST OUT OF BARCODING IN YOUR PATHOLOGY LABORATORY

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OBJECTIVES

- Basic understanding of how barcodes work
- Identifying the barcoding needs of YOUR laboratory
- Steps required for barcoding implementation in the lab
- Understand the opportunities using data being collected
Changing from a Fee-For-Service System to a Value-Based Reimbursement System

- Not going to be paid for volume but for quality and value
- FFS has been a major cause of healthcare costs, insurance premiums and high deductibles spiraling out of control.
- Reporting began in January of this year and payments will begin in January of 2019.
- Starting with Medicare with the intent to eventually include commercial contacts and will affect all reimbursement.
Our New World!

- Reductions in reimbursement are driving lean processes
  - We are required to do more with less while improving quality
  - To be successful in this environment we need to increase efficiencies and decrease cost
    - Two largest costs are labor and supplies

- To be successful we must change
  - Invest in technology and instrumentation
  - Efficiency or Growth are the only two alternatives
  - Barcoding will help us make the difference
BARCODYING IS EVERYWHERE
BARCODING IN HISTOLOGY

- Why do we want to barcode in Histology?
  - Automate data entry to eliminate manual data entry errors
  - Automate downstream barcode enabled processes to improve Quality and Patient Safety
  - Reduce or eliminate non-value added tasks
    - Manual checks we perform in Histology to check and recheck our work
    - Relabeling the same sample

- Greatly Improves productivity
  - Will completely change your workflow
ERROR STATISTICS

- Up to 70% of Laboratory errors are in the pre- and post- analytic phases
  - Many errors caused by batching
  - Analytic phase error rate has had a dramatic decrease in errors due to standardization of our processes, reagents and instrumentation

- Histology error prone tasks
  - Accessioning- Label the specimen and the requisition
  - Grossing- Label the cassettes
  - Sectioning- Labeling the slides
  - Case Assembly- Label the slides and /or matching samples
Errors

- Lean Processes eliminate waste/non-value added tasks
  - Improve patient care while improving quality
  - One-piece workflow
    - Handle one specimen at a time

- BARCODING WILL GREATLY REDUCE YOUR ERRORS!
Improving Quality and Patient Care

- By reducing errors
- Maintaining specimen integrity
- Improving productivity
- Improving TAT
- Eliminating non-value added tasks
Improve Productivity

LEAN ANALYSIS RESULTS-

▲ Small lab-barcoding led to improved TAT by 20%
  ▲ While improving error rate by 70%

▲ Research lab- elimination of manual checks savings equivalent to 1.5 FTE

▲ Large lab- full quality system-one year savings equivalent to 1 FTE
Barcodes were designed to automate the identification of an item and eliminate the need for manual data entry in an effort to reduce labor and eliminate mistakes.

There is a wide range of barcode symbologies, the size and data encoded in the barcode vary greatly for individual application.

We will discuss characteristics of barcodes that can be used in Histology

- Two types of barcodes
  - Linear (1D)
  - Two-Dimensional barcodes

Linear-
- Up to 7 to 15 characters depending on the system, linear barcodes get too wide for slides and cassettes.
- Creates a wide barcode use characters to determine the beginning and end of the barcode
- Linear scanners are less expensive than 2D barcode scanners
HOW BAR CODES WORK

2D- (Data Matrix, Aztec, and QR code)

- Can hold 25 to 30 characters
- Requires a 2D barcode scanner
- Data Matrix is a very efficient, 2D barcode that uses a small area of square modules with a unique perimeter pattern and is smaller than a linear barcode with the same information.
- The encoding and decoding process of Data Matrix is very complex and has been standardized
- Data Matrix barcodes error correction algorithms allow the recognition of barcodes that are up to 60% damaged
- The Department of Defense uses Data Matrix Barcodes
WHAT TOOK SO LONG TO GET TO HISTOLOGY

- Only in the last few years have we perfected the ability to put a barcode on a cassette that was machine readable-

  - Cassettes and slides have small rough surface

    - The printed barcodes must be resistant to the chemicals used in Histology
    - All primary specimens must have two human readable unique patient IDs
      - Are blocks primary specimens?
    - Patient blocks and slides are specimens which must be maintained and retrievable for 10 years
      - Most labs struggle with this largely manual process
What are the options with barcoding?

- A lab may just want to barcode cassettes and slides
  - small labs

- A lab may want to add verification
  - QA for case assembly

- A lab may want to have a full quality system built around barcoding
  - a.k.a. Tracking
  - large labs
  - GLP Labs

GLP Labs
GETTING STARTED

- Determine Ultimate Goals
  - Reduce Errors
  - Improve Quality and Patient safety
  - Lean Implementation
  - Improve Productivity
  - Generate Statistics and workload
  - Interface with LIS
  - All the Above

- Document Errors and Source
  - Both before Implementation and following

- Write each step in your workflow
  - Determine where barcoding will allow you to eliminate non-value tasks and errors
Time to Begin!

- Where do you want barcoding to start?
  - With client?
    - Barcode on req
    - Barcode generated when loaded into computer
  - With courier?
  - Accessioning?
  - Grossing?
INSTRUMENTATION REQUIRED

- CASSETTE LABELER
  - Determine your needs
    - Size, speed, cost, accuracy, quantity, flexibility and interface capabilities
  - Determine data you want in the cassette barcode
    - Patient name, Patient ID, Lab name, accession number, prefix, suffix, special stains, IHC
    - Placement of the barcode is important for readability
INSTRUMENTATION REQUIRED

- **SLIDE LABELING**
  
  - **Methodology**
    - Print on slides or labels
    - Printing Directly on slide is a leaner process
    - Must be performed at Microtome-one block at a time!
  
  - **Determine your needs**
    - Size, speed, accuracy, quantity, built in scanners, Wifi and interface capabilities
    - Determine data you want to print on the slide and the layout
INSTRUMENTATION REQUIRED

- BAR CODE SCANNERS
  - 1D or 2D scanners
  - Select Locations for scanning

- OPTIONAL
  - Block Tracking system
  - Verification- Utilizing barcode on block and slide as part of your QA
Summary - Build the Right System for Your Needs

- **Barcoding-**
  - Can be as simple as just cassettes and slides

- **Add Verification-**
  - To help decrease the manual time required for verification of block and slides

- **Add a full quality system-** (Tracking)

- **Add Archiving System-** Fully automated system
  - Full traceability of blocks
  - Reduce labor costs
  - Reduce retrieval and return cost with offsite storage company
CONGRATULATIONS!

- You are ready to begin!
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