

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

US HEALTHCARE SYSTEM

- ▶ 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

BARCODING 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

HOW BAR CODES WORK

- ▶ 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

GETTING STARTED

- ▶ 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

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 !



References

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