Connecting our Lab Vision to Lab Success: Our Upgrage Journey and Improvements Achieved

Huntsville Hospital
Huntsville, AL

Nichola Marcus, Automated Laboratory Manager
Huntsville Hospital Health System
Standardization benefits the patient, physician and lab

Huntsville Hospital
Huntsville Hospital for Women & Children
Madison Hospital
Decatur General Hospital
Parkway Medical Center
Athens-Limestone Hospital
Helen Keller Hospital
Red Bay Hospital
Lawrence Medical Center

Automated Lab Consists of:
• Hematology
• Coagulation
• Urinalysis
• Flow Cytometry
• Chemistry
• Immunoassay
• Electrophoresis
• Immunology
• Toxicology
• Pre Analytical & Post Analytical Processes and Automation

60 to 70% of lab testing from outreach program

AutoLab Sample/Test volumes
• Monday – Friday average 7400 specimens/day
• Weekends average 3400 specimens/day
• Max – 9080 (3/9/15)

Hematology Sample/Test volumes
• Monday – Friday average 1500 specimens/day
• Weekends average 740 specimens/day
• Max – 1898 (3/9/15)
Huntsville Hospital Laboratory  
Huntsville, Alabama

1996

LAB HEADLINE NEWS

HUNTSVILLE HOSPITAL PURCHASES HUMANA HOSPITAL

ADMINISTRATION TELLS LAB: OPEN AN OUTREACH PROGRAM

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**Merge Two Labs and Start an Outreach Program**

**Key Issues**
- 3 labs are now under one management team
  - HH Main Lab, HH East (formerly Humana Hospital) Lab, and ER Lab
  - Duplications in testing
  - Multiple vendors
- Attract and retain clients
- Manage growth in specimen volumes

**Action Plan to Achieve Success**
- Minimize testing in HH East and ER Labs
- Choose one vendor for each area of testing
- Optimize processes to produce consistent, timely, reliable results

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**Sysmex is Chosen as our Automation Solution**

**SF-3000s**
- ED Lab, "East" Lab
- 3 in the Main Lab

**Benefits**
- Excellent Correlations
- Manual Mode, Capillary Mode, Auto (Sampler Mode)
- Easy Maintenance
THE WALLS COME DOWN – THE CHEMISTRY AND HEMATOLOGY DEPARTMENTS ARE NOW KNOWN AS ‘AUTOMATED LABORATORY’.

Shocked lab employees exclaim “What’s next…cross training?”

Core Lab Concept and Crosstraining

Key Issues
- Staff resistance
- Extensive training needed
- Managing increasing specimen volumes

Action Plan to Achieve Success
- Unified scheduling
- Identify and streamline labor intensive processes – let Techs do what Techs need to do

Streamlining Processes

Processes Identified to free up Tech time
- Bone Marrow and Flow Cytometry processing
- Processing and loading specimens
- Archiving specimens
- Preparing, labeling and staining manual slides
- Reviewing ‘negative’ results
Automation and Process Solutions

XE-Alpha Replaces 3 SF-3000s

• Slide Making is Automagic
• Focus only on ‘Positive’ specimens with Autovalidation
• Decreased Specimen Touches

Other Process Improvements

• Flow Tech can focus on acquisition and analysis
• Bone Marrow processing is more consistent
• EDTA pre and post analytical management
HOSPITAL ADMINISTRATION ANNOUNCES TO ALL DEPARTMENTS: CUT YOUR ANNUAL BUDGETS...IMMEDIATELY.

Cut Your Budget!

By this time we already had:

• Pre-analytical automation processing 90% of our specimens
• Streamlined processes in each department with excellent TATs
• A Tram and pneumatic tube system between the HH East Hospital and the HH Main Hospital

So we felt confident that we could…

HH EAST AND EMERGENCY DEPARTMENT LABS CLOSE – ALL TESTING TO BE PERFORMED IN ONE LAB!!!!!!
Three Labs Become One

Key Issues
- All STAT, ER, InHouse, and Outreach specimens are run on the same analytical platforms
- Excellent TATs must be maintained
- Staff Resistance “We will just get STATed to death”

Action Plan to Achieve Success
- Optimize pre-analytical automation so the Central Processors can focus on the STATs
- Automate, automate, automate

Automation and Process Solutions

XE-HST
- Two analyzers for concurrent analysis
- Upgraded Stainer
- Easily handles increased volumes without adding staff

What is that weird blue box?
- A cool new toy called CellaVision
- It’s pretty neat to put interesting slides on and discuss

NEW LANGUAGE OVERHEARD IN THE LAB!
BARRY AND NICHOLA HAVE STARTED SPEAKING A NEW LANGUAGE. INSIDERS SAY ‘WAM’ IS A GOOD WORD, AND ‘WAMMIT’ IS A BAD WORD.
Huntsville Hospital gets WAMed!

Precipitating Issues
- CellaVision is very slick but the interface to SunQuest is not very good
- It takes 3 techs to get a.m. diffs out by 11:00

WAM Wins
- Enhanced Critical Value Flagging
- Prioritization of STATS
- Multiparameter Rules
- Transforms CellaVision from a toy to a production tool

2012 LAB HEADLINE NEWS

HEMATOLOGY GOES PAPERLESS. TECHS ASK “IF WE PLANT TREES, CAN WE KEEP OUR PRINTOUTS?”

Instant Messaging System Eliminates Paper
- XE Operator Enters a message for the Diff Tech
- The Diff Tech easily recognizes high priority and problematic specimens
HH ADMINISTRATION: “THE LAB IS GETTING MORE SPACE...ACROSS THE STREET”

A New Lab!

Great!
- 1 ½ floors in a multipurpose building connected by a walkway
- Enhanced tube system
- All lab departments back together

Reality Strikes
- Who is going to do all of the planning?
- What do we move and what do we implement in the new lab?
- How do we deal with construction delays and instrument installations?
- How do we train everyone on multiple new analytical systems?
- How can we stay fully operational during the move?

New Lab Design
Planning & Project Management

- Selecting the best XN line configuration for current and future needs
- Project management keeps everything and everyone smoothly aligned
- WAM rules changes were painless

Impressive Installation and Validation

A small team of Superheroes swooped in and had the line put together...within hours!
Virtual Training (in Hard Hats)
• With our own instrument
• Easy interaction with the instructor and other students
• Excellent training materials

Exceeding our Expectations
• Flawless installations and validations
• Staff fully trained prior to move day
• Excellent support on move day – every possible resource was available to us
• Customized Advanced Parameter education
  • I asked for Handouts – Sysmex sent experts!

Everyone’s Favorite – the RU20

RU-20
- 25 X Concentrate
- Very infrequent reagent changing
- Frees up storage space
- May lead to scrawny arms

CellPack DCL
- 50 pounds per box
- Changed at least one a day
- Monthly shipments could be built into small forts
- Great muscle building opportunity
Additional Wins and Efficiencies with the XN

- Same footprint as previous XE-5000 system BUT gained more
  - Integrated Automated Smear Review – DI-60
  - Integrated EDTA Tube Sorting – TS-500
- Far less specimen hostage situations
- Easy maintenance
- Easy reagent loading
- IPU is easy to interact with
- Less manual reviews
  - 18% ‘Positive’
    - 10% Diff and Morphology
    - 8% Morphology Only (Autovalidates CBC)
- XN operator only sees 11% of all specimens in WAM (certain ‘positives’ plus delta failures)

Continued Evolution

Wouldn’t it be nice to have certain slides* automatically output on the SP-10?

* Certain Slides = Platelet Clumps, Thrombocytopenia, and MCHC slides
operator Alert: Check for Platelet Clumps

Vortex Specimen and Rerun (order rerun)

Platelet Clumps Present?

Examine Slide

Result Platelet count from Run 2

Is platelet clumping seen on slide?

Is Specimen volume > 1 mL?

Add 20 mg of Kananycin Sulfate powder to the specimen, vortex, and rerun

Result Platelet count from Run 3

Is platelet count Acceptable?

Add 20 mg of Kananycin Sulfate powder to the specimen, vortex, and rerun

Report platelet count

Enter PLTQLP in the result field and the platelet count in the comment field.

Inhouse patient with PLTC < 100 with no previous thrombocytopenia

Request recollection

Platelet count may be inaccurate due to very low specimen volume. Platelet count is at least ______.

Platelet count may be inaccurate due to platelet clumping in EDTA. Recollection in Sodium Citrate is recommended. Platelet count is at least ______.
Running Smoothly with Happy Techs?

Peaches and Pits

Predictable Turn Around Times

Huntsville Hospital Laboratory