

Our Lab's Lean Journey:

Lessons from New Automation, CAP15189
Accreditation and More

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In other words:

THE GOOD, THE BAD, AND THE
UGLY!



Mercy Medical Center

- 476 Bed hospital serving a 5 county area and parts of Southeastern Ohio
- First in:
 - Angioplasty in an Emergency Dept (world)
 - Accredited Chest Pain Center (Nation)
 - Cardiac Catheterization in a community hospital(Nation)
 - Drug eluting Stent angioplasty (Ohio)

Department of Pathology and Laboratory Medicine

- Clinical and Anatomic Pathology
- Early Adopter of LEAN (began Oct 2003)
 - Chemistry, Hematology, and Phlebotomy
- 2005 Six Sigma introduced
 - Medical Center: 2 Master Blackbelts
 - Lab: 2 Greenbelts
- CAP, AABB and FDA accredited

Laboratory locations

- Main Laboratory
- 5 Stat Labs
- 3 Limited Services Labs/Drawsites
- 4 Drowsites
- Outreach program covering 5 counties
- Travelling Phlebotomists-Nursing homes

Test Volumes and TAT

- 2012 over 1.4 million billable tests
- TAT goals:
 - All results to the ED within 45 minutes of order
 - All STATs completed within 1 hr of receipt
 - AM draws resulted before 7:30 a.m.

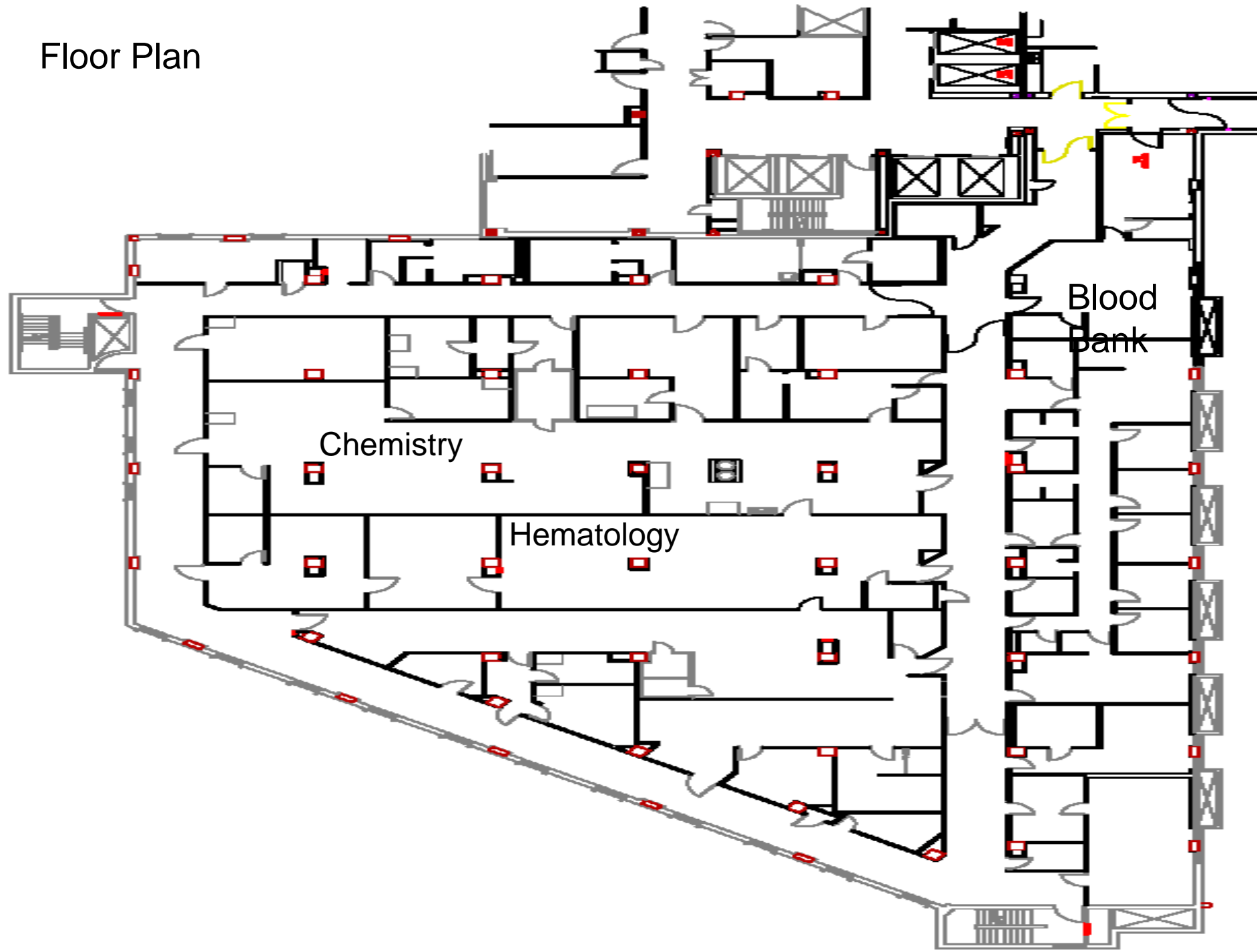
Where did we start?

- 2003
 - Aging workforce
 - TAT challenges
 - Productivity and budget constraints
 - Multiple platforms
 - Limited cross training
 - Lab layout issues
 - Only coagulation autoverified

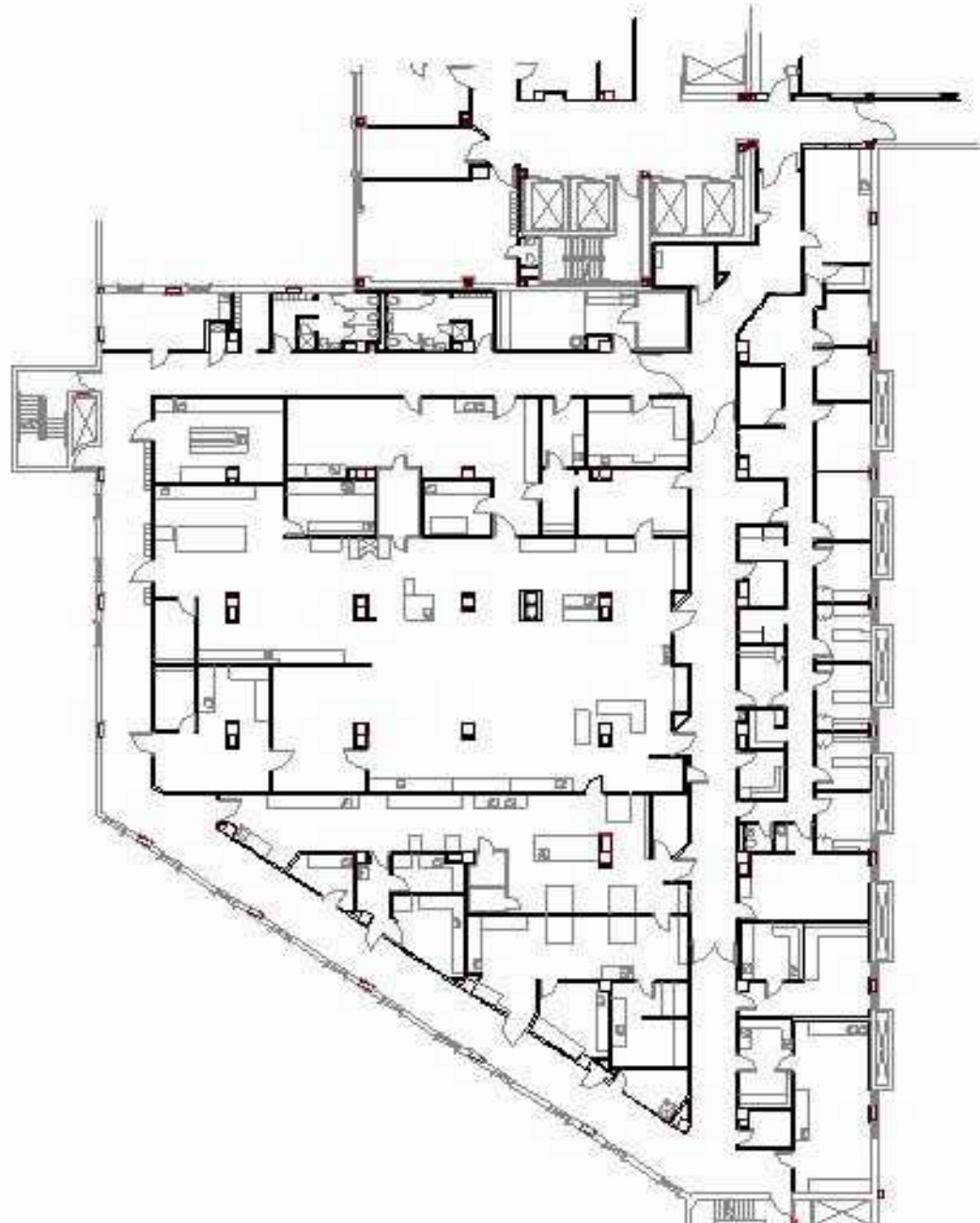
LEAN

What do you mean we have to change?

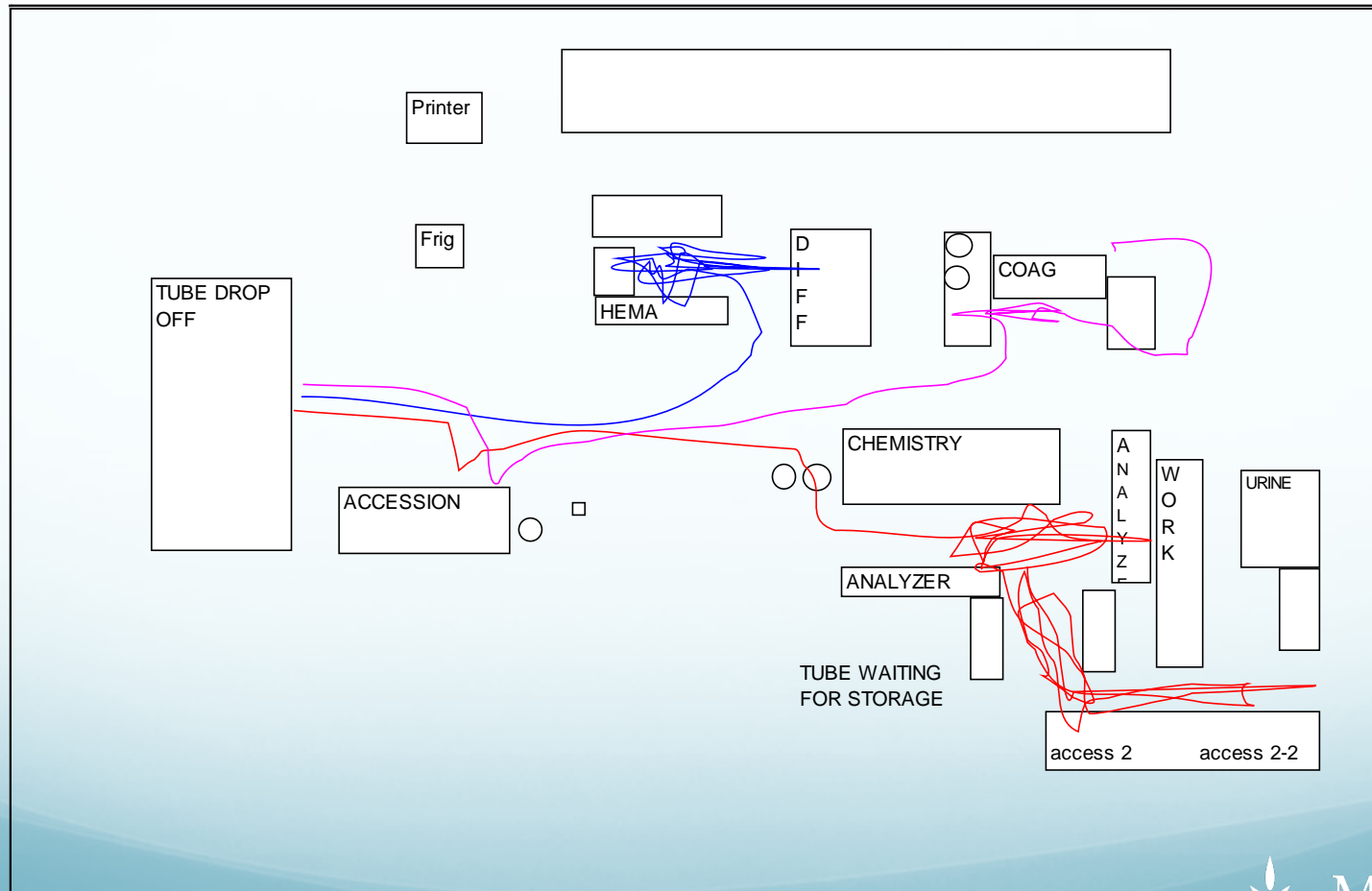
Floor Plan



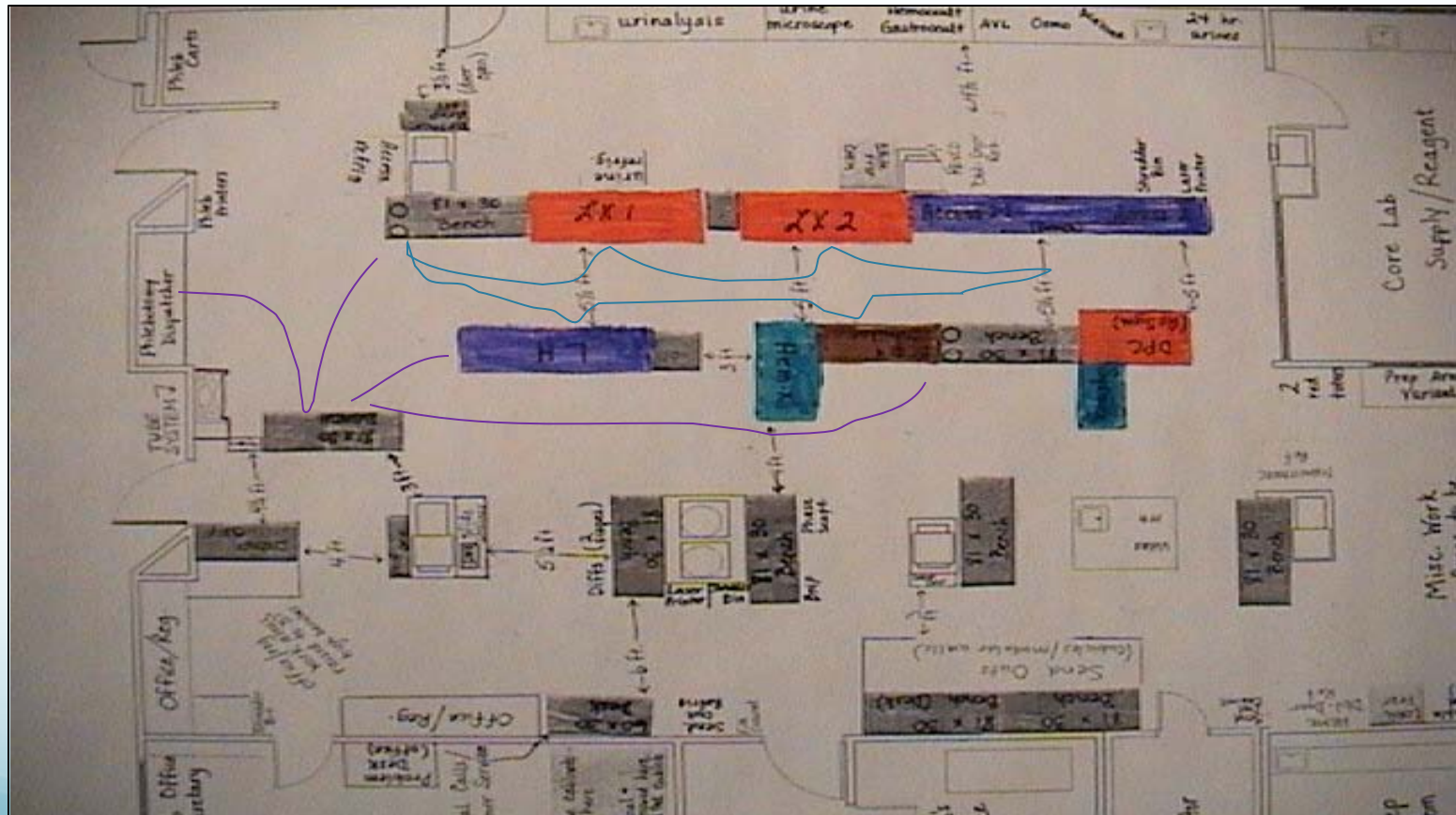
New Floor Plan



Walk patterns analyzed



Cell Design without automation 2004



LEAN outcomes Phlebotomy Carts

LEAN Outcomes

- **Before (Average)**

- **Ven-Rec 28min**

- **Rec-Ver 1hr 13 min**

- **TOTAL:**

1 hr 41 min

- **After (Average)**

- **Ven-Rec 9 min**

- **Rec-Ver 39 min**

- **TOTAL:**

48 min

Lean Outcomes: Floor Space

- General Lab

- Before 4,032 sq. ft.
- After 3,673 sq. ft.

- Storeroom

- Before No central area
- After Central area within lab

Savings- 2004

- Not replacing 1 ½ FTE \$ 81,900.00
- Reference lab savings, no increase in labor
\$ 40,139.90
- Implemented KANBAN cards, consolidation of common supplies: \$50,000 (one time)

INSTRUMENTATION 2007

We need a new Hematology analyzer– now what?

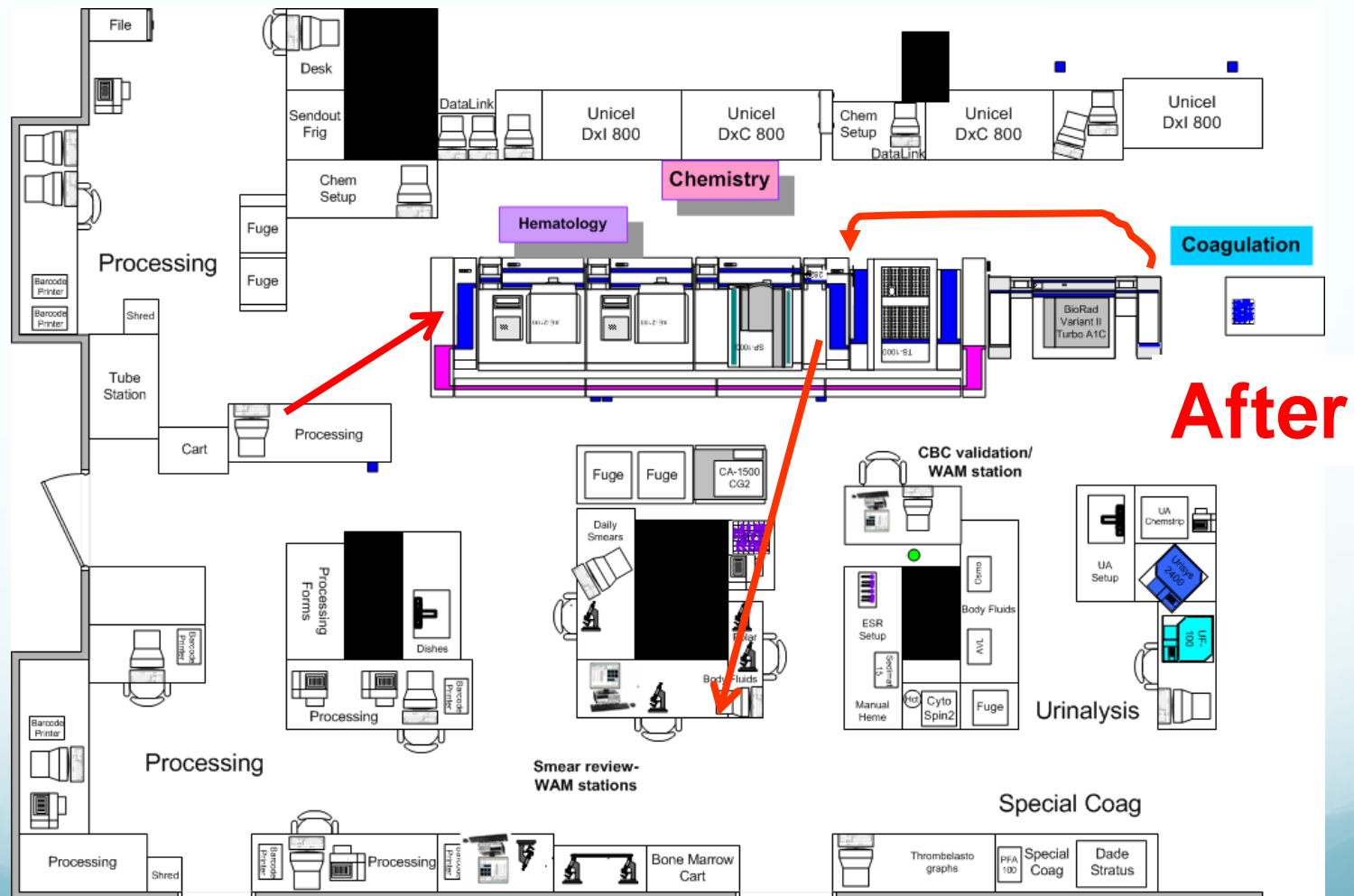
Selection of Analyzer

- LEAN changed how we think
- Cost was still important as was reliability
- New questions:
 - Time splits
 - Hands on time
 - Efficiency
 - Autoverification—Middleware
 - Can we have a process map?
 - Footprint

“Intelligent Automation”

- 2008 Added the Sysmex HST line
- Day one Live- Autoverification
- Differential Review Rate decreased from 20% to less than 13%
- A₁C testing on demand
- Reduction in 0.5 FTE (retired),
- 0.5 FTE moved to other testing

Workflow

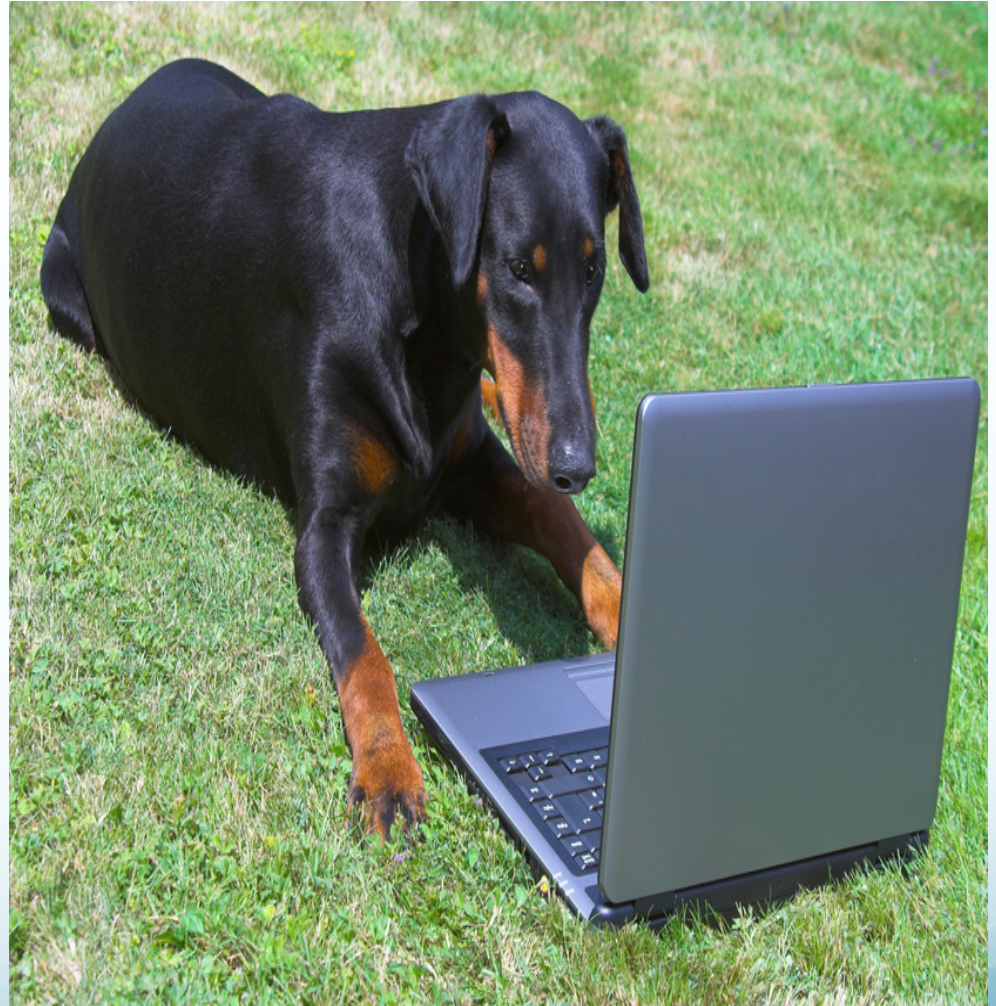


What's next?

- Moved projects into Microbiology and Blood Bank
- Root Cause analysis
- Process Improvement
- New Chemistry analyzers
- But there was something missing.....

ISO15189

- Read about it
- Thought about it
- Thought again.....
- Bought the standards
- Thought about it.....



CAP15189

- Started application process in Fall 2009
- The silliest question I ever asked:

We are CAP accredited, how hard can this be?

CAP15189

- **Desk Assessment**
 - Not bad, few things to do
- **GAP ASSESSMENT**
 - We have a GAP.....
- **Pre-Assessment**
 - Let's make sure
 - I think we need more time



CAP15189



- **On-site assessment**
 - Thorough
 - Quality system and Technical
 - Interviewed Staff

Accreditation

April 2011

What did we get from it?

- Robust Quality Management System
- Document Control
 - A constant challenge
- A better understanding of who we are and where we want to go

What did we get from it?

- Internal Auditors—part 1
 - Interviewed current techs who would be interested
 - New MTs
 - We never learned this is school
 - Grooming our new managers
 - Team concept
 - Voice of the team

What did we get from it?

- Internal Auditors— part 2
 - Opened to other staff
 - Phlebotomist and techs
 - Greater reach
 - Staff development--awareness

So where are we today?

- Global approach
- Ask the 5 whys, and ask again
- Stretch the goal
- Engage Staff
- Process Improvement Teams

Our Journey

- It doesn't seem like 10 years
- We only scratched the surface
- It isn't for the faint of heart!
- Stay true to the path,
- Keep the focus



Yes we would do it again!

