# Manage with Data
## Real-time Performance Measures

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## "We have a lot of data…"

- Numbers and values provide the foundation for laboratory services
- Care givers expect the laboratory to
  - Collect from the right patient
  - Analyze for the right tests
  - Determine the right results
  - Deliver to the right place and at the right time
  - Every time, every patient, every test
- Good thing we have all that data to help us?!?

## First, sort the wheat from the chaff…

- Define what care givers need
- Understand what the lab processes are capable of delivering
- Determine which LIS data reflect those processes
- Insure the quality of that data
- Measure that data
- Report what is measured
- Improve
- Control



## Physicians and Care Givers

- The customer, the care giver, defines success
- What do they need from the lab?
  - Expected turn around times
  - For which tests
  - From which starting point (order, collect, lab receipt)
- Why do they need this service level?
  - Impact on diagnosis and/or treatment
  - Impact on length of stay
- The customer defines value
- The lab determines if the process will meet expectations

## Process Capability

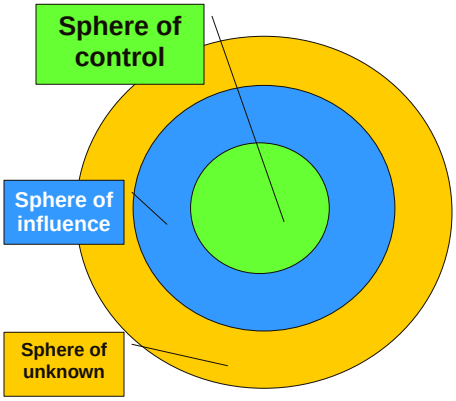
- What can the lab provide?
  - Pre-analytical + Analytical + Post-analytical
- When will it be available?
  - Weekends, nights, holidays, at any time
- Physician need ≠ Process capability
  - Data based conversation and decision making
- Alignment for Service Level Agreements
  - Process capability ≥ Physician need



## Meeting Service Level Agreements

- Which data can be used to insure that the service level agreement (SLA) is being met?
- Define the processes necessary to the SLA
  - Physician decision to order
  - Order to collect
  - Collect to receipt in lab
  - Receipt in lab to arrival in testing area
  - Testing area to verified result
  - Result to physician

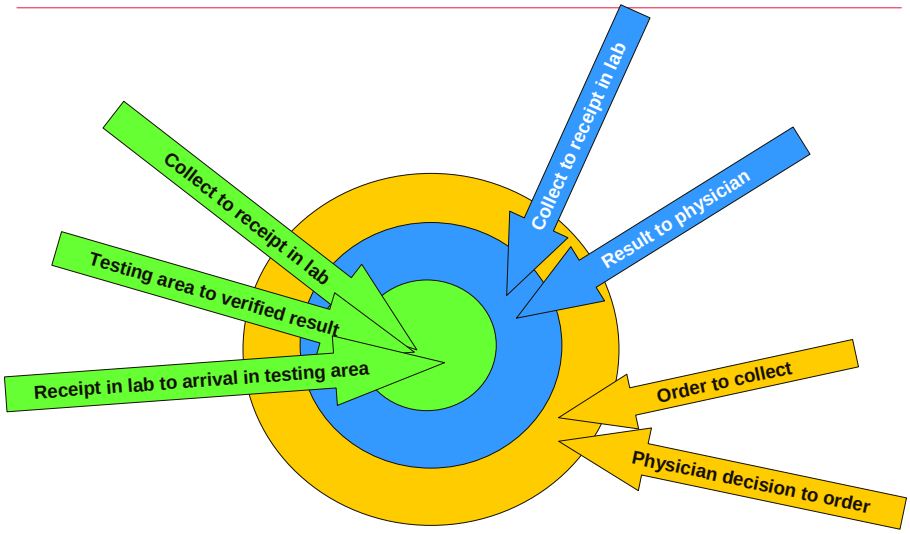
# Focus




- Focus your efforts on measuring and controlling the things in your sphere of control
- Partner with those in your sphere of influence
- Recognize what you don't know, influence or own



# Performance Measure Focus



## Know your influence on the data

- Underlined process steps are captured in most LIS systems
- Collect to receipt
  - Internally
    - Time of collect to time of transport to lab
    - Receipt in lab to time of accession
    - Accessioning process time
- Receipt to result
  - Internally
    - Accessions to receipt in testing area
    - Receipt in testing area to analyzer
    - Time analyzer recognized test request to result
    - Result ready to result verified



## Rule #1

- "Garbage in – Garbage out"
  - GIGO, quoted by computer gurus everywhere
- Examples of compromised LIS data
  - Inaccurate collect times, ordering as collected
  - Batching that delays receipt in lab time, prolonging 'collect' time
  - Batching that delays department to analyzer time, prolonging 'testing' time
  - If you don't auto-verify, results wait in queue and prolong 'testing' time
  - If results don't go to a physician portal, delay in reporting time (total TAT)
- To effectively use electronic data, it must reflect truth
- Goal #1
  - Truth in = Truth out

# Rule #2

- "What gets measured, gets managed."
  - Dr. Peter Drucker, "the creator and inventor of modern management"
- Measure what matters
  - Most clinical labs will control their processes and then their TAT with
    - Collect to receipt for lab collection patients
    - Standardization of process steps
    - Control of batch size
    - Maintaining first in, first out specimen control
    - Receipt to result for key analytes, all patients
      - i.e. Potassium, INR, Hemoglobin, Urinalysis, Troponin
    - Key process turn around times, every day
- Goal #2
  - Meaningful measurements



# Rule #3

- Use meaningful graphs
  - 90%, average, run charts, SD, CV, min/max
  - By shift, by area, by day
- Post the goals and the outcomes
  - Back to the care givers
  - For the process owners and operators
  - Time sensitive – must reflect current reality
- Investigate only meaningful outliers
  - Not predicted outliers (add-ons, clinic collections)
- Goal #3
  - Report the results

## Rule #4

- "What you permit, you promote."
  - Quint Studer, former hospital president and 20-year health care veteran
- Frequency of measurements = Frequency of improvement opportunities
  - Quarterly measurements mean…
    - Trying to run down what went wrong 3 months ago
    - Not knowing about negative trends for 3 months
    - What is measured no longer reflects what is reality
- Goal #4
  - Frequent and timely measurements driving frequent and powerful improvements



## A Tale of Two Laboratories

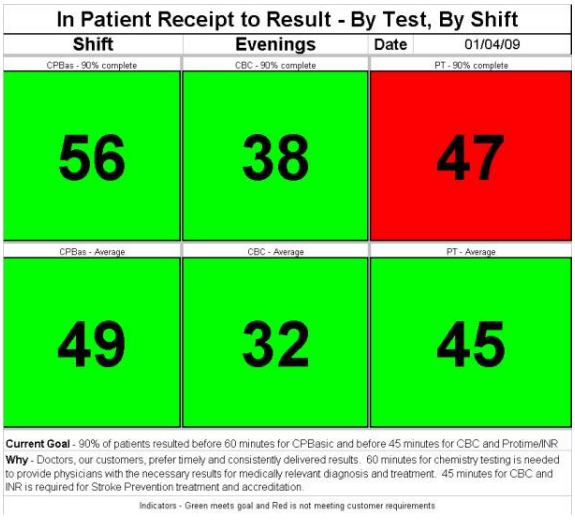
- Different customer needs
- Different process capabilities
- Different charts and graphs
- Similar outcomes
  - Process understanding
  - SLA development and delivery
  - Daily and Monthly performance measures
  - Data driven process management

# Collection Chart *site name withheld


- LIS data
- Simple excel report
- Collect to Receipt
  - Morning Rounds
- Goals
  - Customer driven
  - Staff and care givers are thriving in data based, care driven environment
- Daily Posting
- 30 day – running review

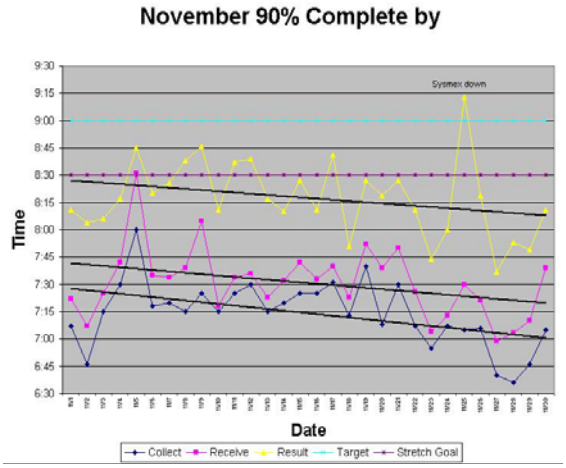


# Daily Core Cell Chart *site name withheld




- LIS data
- Simple excel chart
- Key analytes
- By shift
- By day
- Goals
  - Customer driven
  - 90% & Average
- Explanation

# Turn around Time Graph *site name withheld




- LIS data
- Collect/Receive/Result
  - Sum of all in-patient results tested for morning rounds
- Goals
  - Customer driven
  - Current & Stretch
- Trends
- Monthly posting

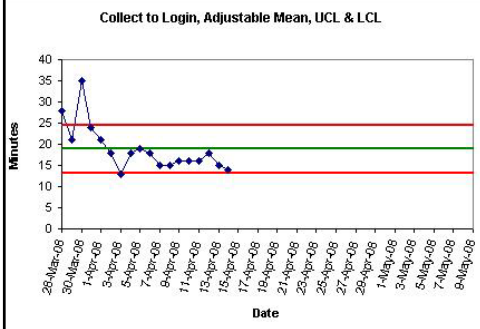


# Collection Chart *site name withheld

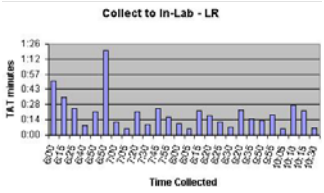
| | Morning Collections | January 5, 2009 - all day average |
|---|---|---|
| TAT | 15 | 13 |
| # collections | 99 | 252 |
| | Goal = 18 minutes or less. Standardized work - Team collections, drawn 1 patient, place in bio bag, collect at team station, send to lab every 4 patients. | |

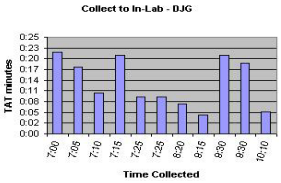
- LIS data
- Simple excel chart
- Goals
  - Customer driven
  - Morning & Daily averages
  - Staff and process managers look forward to metrics – in the absence of the data, no process changes are made
- Volumes
- Daily Posting

# Collection Graphs *site name withheld




- Run charts with UCL & LCL
  - Mean, trend and consistency
- Monthly posting
- Collect to receipt charts
  - By phlebotomist
  - Measurement of process compliance
  - Personal TAT
  - As needed, with new trainees, outlier issues, performance reviews, etc…



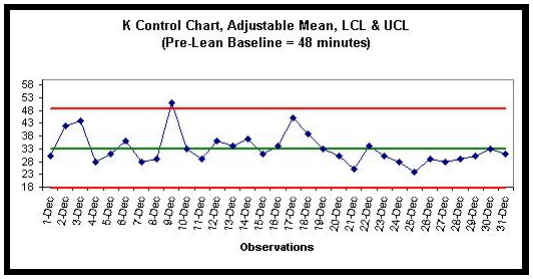

# Daily Core Cell Chart *site name withheld

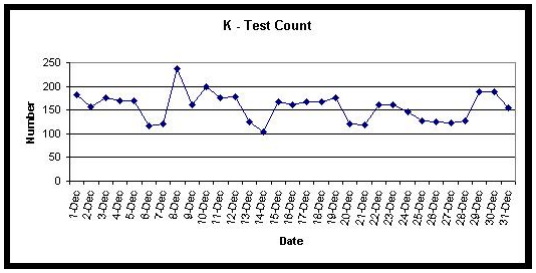
| 4-Jan-2009 | | | |
|---|---|---|---|
| Test | Hemoglobin all patients inlab to verify Goal <30 mins | Potassium all patients inlab to verify Goal <45 mins | INR all patients inlab to verify Goal <45 mins |
| TAT | 8 | 27 | 30 |
| Daily Volume | 127 | 111 | 64 |
| Test | Urinalysis (nitrite) all patients inlab to verify Goal <30 mins | Slide Scan all patients inlab to verify Goal <90 mins | Troponin all patients inlab to verify Goal <50 mins |
| TAT | 26 | 93 | 39 |
| Daily Volume | 36 | 26 | 17 |

**Goals** - to contribute to high quality patient care through the delivery of timely test results. The goals are a result of customer request combined with current instrument capability. We accomplish these goals with high quality laboratory work performed in an environment of continuous improvement.

- LIS data
- Simple excel chart
- Key analytes
- Receipt to Verified
- Goals
  - Customer driven
  - "ED is completely satisfied" with the current lab SLA
    - – Site director
- Volume of tests
- Daily Posting

# Core Cell Graphs *site name withheld




- Run charts with UCL & LCL
  - Mean, trends, consistency
- Side by side TAT to Volume
- Monthly posting



# Getting Started

- Understand what the care givers need
  - Customer defines value and success
- Understand what we are capable of delivering
  - Know your process capability
- Develop meaningful service level agreements
  - Process capability ≥ Physician need
- Quality data in, Quality data out
  - Use your LIS data for process understanding, control and improvement
- Collect the data that represents your SLA
  - Truth in = Truth out
- Post performance measures
  - To your staff, To your customer, Frequently

# Moving Forward

- Post performance measures
- Frequency of review drives frequency of improvement
  - Investigate meaningful outliers
  - Make process changes that improve performance measures
- Regularly discuss SLA with your customer
  - Update your goals as their needs change
  - Communicate process capacity changes as your lab changes
- Discuss, Understand and Celebrate
  - Performance measures are the visible manifestation of your life's work



# Questions?

# Thank You

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