


# University of Iowa Health Care

## *The Road to Meaningful Use*



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# DISCLAIMER

- **UIHC's Clinical Systems Implementation**
  - ( Achieving real 'meaningful use' )
- **Impact of project on Information Systems**
- **Meeting the ONC / CMS requirements**
  - ( Complying with regulatory 'meaningful use' )



# Health Care Information Systems



- **Information Technology and Communication Technology Services**
- **284 Staff**
- **Operational Budget: \$37,980,000**
- **Processed 13,960,255 charge records (\$2.9B) FY10**
- **Managed 752,168 phone calls annually**
- **Support**
  - 19,000 Users
  - 21,728 Devices
  - 725 Applications
  - 429 Servers
  - 1.5 Petabytes Storage
  - 424 System Interfaces
  - 43,756 Communication Ports
  - 7,410 Pagers

# Clinical Systems Implementation



# Clinical Automation : Epic

- Electronic Medical Record
- Computerized Provider Order Entry (CPOE)
- Inpt Pharmacy and Medication Administration
- Operating Room Management
- Emergency Room Management
- Anesthesia
- Cardiology
- Transplant
- Labor & Delivery
- Cancer
- Ophthalmology
- Medical Records
- Nurse Triage
- Patient Web Portal
- Referring Physician Portal



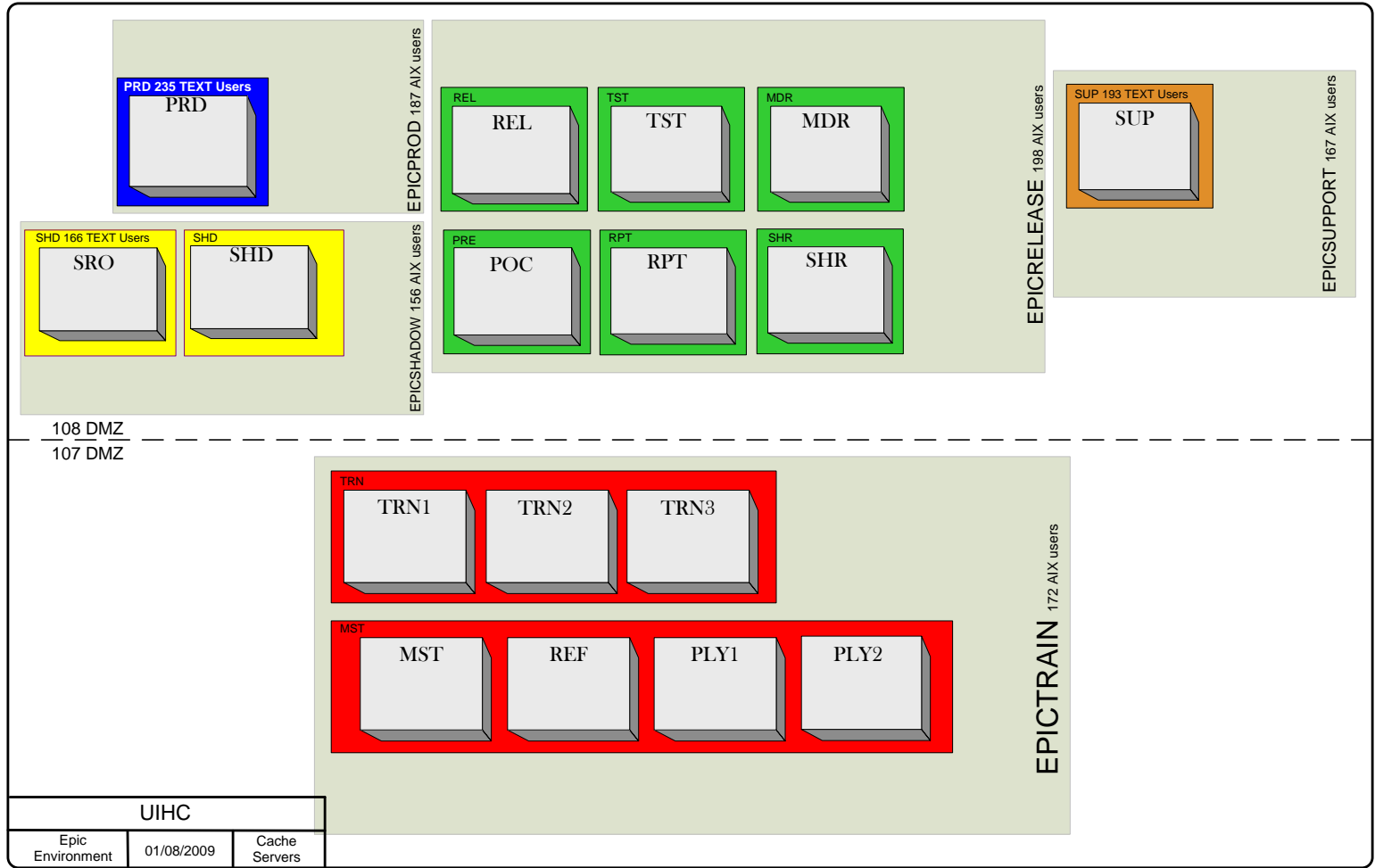
# Epic Implementation Timeline

- October 2006 – Contracting
- January 2007 – Kick-Off
- December 2007 – Cardiology
- June 2008 – O/R
- July 2008 – Radiology
- August 2008 – HIM
- Feb 2009 – Inpt Pharmacy, MAR, Critical Care
- May 2009 – Physician Documentation, CPOE, +
- Oct 2009 - Cancer
- July 2010 – MyChart
- Nov 2010 - Anesthesia





# Epic Environments



- **Physicians**

- Initial Response

- **Disruptive**
- **Major changes in workflow**
- **Transition to order entry (restricted ordering)**
- **Focus on documentation**
- **Replaced very old processes**
- **Renewed enforcement of policies**
- **Struggle with user interface / multiple paths**
- **Desire for customizations**
- **Struggled to see ROI, benefits of standardization**
- **Struggled with traditional I.T. support staff, processes**
- **Intellectual Property**

- Gradual Transition

- **Adoption of more advanced functionality**
- **'I don't like it, but I would never go back'**
- **Research Potential**



- Physicians
  - Ongoing
    - **Alert Fatigue**
    - **Government objectives vs physician perspective**
      - The Problem List
      - Medication Reconciliation
      - Enabling patient electronic access into clinical record



# Challenge of Implementation - Clinicians

- **Non-Physicians** ( nurse, pharmacist, social worker)
  - Better positioned for change
  - Used to more standard workflow
  - Transition to order entry
  - Replaced very old processes
  - Renewed enforcement of policies
  - Struggle with user interface / multiple paths
  - Culture – physician / non-physician
  - Struggled with traditional I.T. support staff, processes
  - Decreased time spent documenting bedside data
  - Orders clarity ( eventually )



# Challenge of Implementation – I.T. Staff

- Move away from internal development
- Move to certifications
- Dependence upon vendor for technical info
- Increased reliance on communication across teams
- Increased demand by clinicians on system / support
- Project management / Change management / expectation management
- I.T. Staff Retention / Staff Moral



# Changes Resulting from the Epic Project

- Adoption of Project Management
- Re-alignment of technical staff
- Changes in change management
- Changes in printer architecture
- Redesign Incident Response Team
- Integration of clinical staff into I.T.
- Changes in security architecture
  - Implementation of Proxy filters, blocking
  - Redesign system account provisioning
- Engagement with patients (MyChart)
- New strategy for data warehouse / BI
- Changes in disaster planning
- Focus on single path system workflow
- Increased focus on workflow
- Redesign(s) of customer support
- Drive to work within system functionality (no customization)



# Impact of Epic – Clinical Care

- Computer can interfere with physician / patient encounter
- Face to Face communication between clinicians has suffered
- Tools to improve efficiencies can contribute to errors in the documentation ( cut & paste )
- Alert fatigue
- Increased transparency of long standing issues
- Real-time decision support can drive change
  - Rapid Response system
  - Changes in lab utilization
    - **Duplicate orders**
    - **Genetic Tests**
  - Increased compliance with standards of care



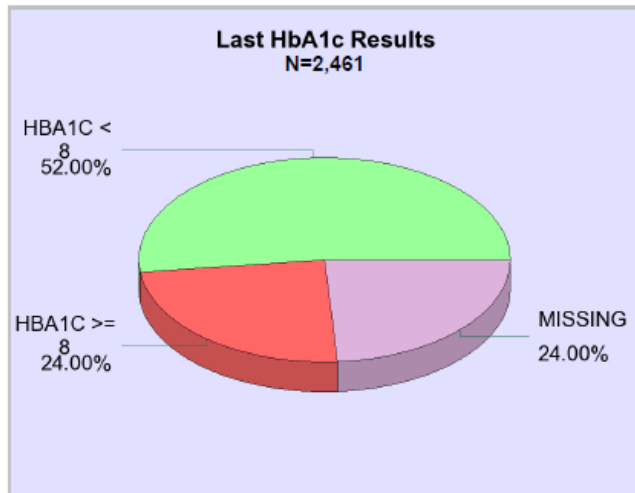
# Business Intelligence – Clinical Quality



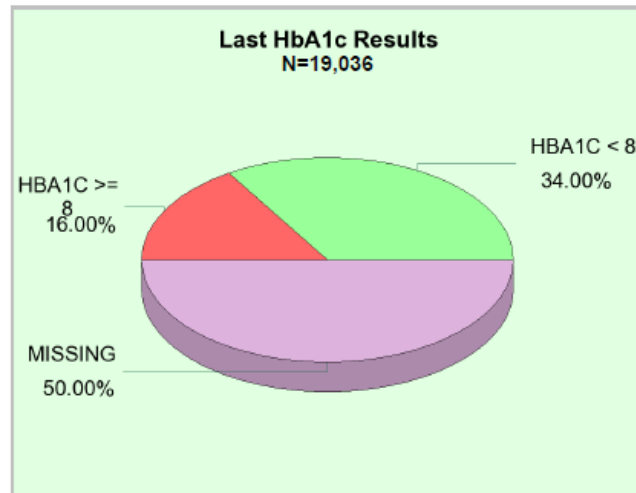
## Diabetic Registry - HbA1c by Department

### FAMILY MEDICINE

#### Patients of FAMILY MEDICINE

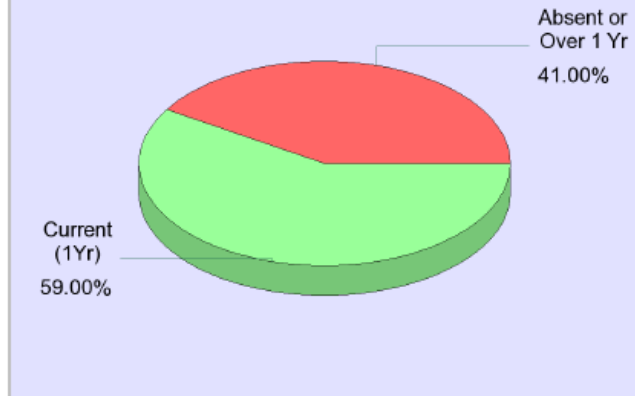


#### All Patients



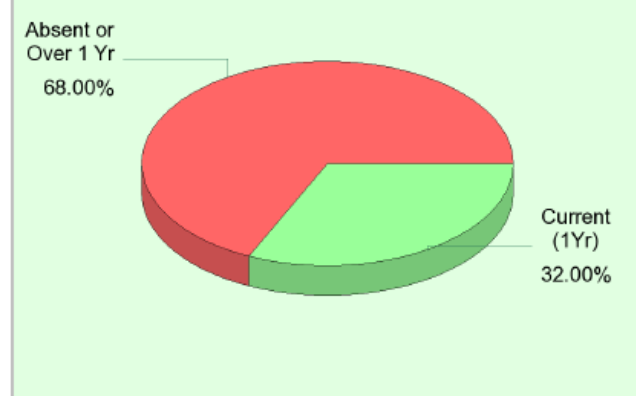
#### Diabetic Patients Having HbA1c in Last Year

N=2,461



#### Diabetic Patients Having HbA1c in Last Year

N=19,036



# Impact of the Computer System on Clinician Stress

Table 2. Nurses' responses to survey stress questions

Situation	Occasionally Stressful, n (%)	Frequently Stressful, n (%)	Extremely Stressful, n (%)
Breakdown of a computer	13 (30)	16 (36)	15 (34)
Fear of making a mistake when treating a patient	26 (59)	8 (18)	5 (11)
Uncertainty regarding operation and functioning of specialized equipment	25 (58)	12 (28)	4 (9)
Feeling inadequately trained for tasks to be performed	25 (57)	3 (7)	4 (9)
Having to make decisions under pressure	32 (73)	8 (18)	1 (2)
Not enough staff to cover unit	25 (57)	4 (9)	6 (14)
Too many non-nursing tasks	16 (36)	14 (32)	4 (9)
Not enough time to complete all nursing tasks	25 (57)	11 (25)	4 (9)
Being blamed for anything that goes wrong	21 (48)	4 (9)	8 (18)
Experiencing discrimination on the basis of sex	5 (12)	1 (2)	1 (2)

# Impact of Epic – the Patient



## Mean Trends

**91.1** is the score needed to be at the 90<sup>th</sup> percentile in the NATION (better than 90% of facilities)

## Medical Practice

UIHC Clinic Aggregate  
Question - Ease of obtaining test results



All My Sites

Displayed by Discharged Date

# Meeting 'Meaningful Use'

- Is Everything in the CCHIT EMR ?
- Does your workflow match the vendor's perception of your workflow?
- Greater restrictions on documentation
- Do the vendor's MU reports cover every scenario?



# Conclusion

- **Electronic Medical Record systems can bring significant value**
  - Patient Safety
  - Clinical Outcomes
  - Staff Efficiency
  - Hard to quantify
  - Will take years to fully realize
- **It is not without pain**
- **It will change the way you do business**
- **Federal program adds additional challenges**



Questions ?

