MHS GENESIS
ED Implementation:
Lessons Learned

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I have no financial interest to disclose.

Lecture Objectives

- Highlight lessons learned from implementation preparation, to Go Live, to post Go Live activities in the Pacific Northwest.

- Identify current recommendations for successful EHR implementations.

- Discuss potential future opportunities as more sites implement MHS GENESIS.

Initial Operating Capability (IOC) sites: Pacific Northwest Multi-Service Market

- **Bremerton, WA – September 22, 2017**
  - Naval Hospital Bremerton (Hospital)
- **Everett, WA – September 22, 2017**
  - NHCL Everett (Medical Clinic)
- **Fairchild AFB, WA – February 9, 2017**
  - 92nd Medical Group (Medical Clinic)
  - 92nd Aeromedical DEN SQ/SGD (Dental)

- **Joint Base Lewis-McChord, WA – October 21, 2017**
  - Madigan AMC (Hospital)
- **Oak Harbor, WA – July 21, 2017**
  - Naval Hospital Oak Harbor (Hospital)
- **Silverdale, WA – September 22, 2017**
  - NBHC Sub-base Bangor (Medical Clinic)

Pacific Northwest MSM

Naval Hospital Oak Harbor

NHCL Everett

NBHC Sub-base Bangor

Naval Hospital Bremerton

92ND Medical Group & Aeromedical DEN SQ/SGD

Madigan AMC

"This system is not as bad as I thought it would be. It actually does what it is supposed to do."

Dr. David Misner

"Sir. Don't get wrong. GENESIS is much better than where we were before. The frustration is knowing that there are more capabilities that we don't have in this build."

Anonymous Resident

"Seems that the residents are getting faster. I am signing notes in my inbox during the shift."

Dr. Lindsay Grubbish

Rumor vs. Fact

- Why the transition to GENESIS is smoother for Emergency Medicine compared to other services
  - Improvement compared to current state
  - Content in place
  - Prior knowledge and experience with Cerner
  - Madigan residents leaned in early

Expectation Management

- Extra-departmental Pressure
  - Hospital services operated at reduced capacity
  - Outpatient clinic appointments reduced
  - Pharmacy wait times increased
  - Laboratory process times increased
  - General delays as normalize to new system delays

- Timeline for return to pre-Go Live operational tempo is unknown

The expectation is that the emergency department will operate at 100% capacity at Go Live. Emergency Department operations are tied to how fast the clinical and ancillary areas return to full operations.

Overarching Themes

- Deliberate Planning

- Workflow is critical to success

- Create a comprehensive department team (stakeholder engagement)

- Wide-spread collaboration

Informatics Literature

Main criteria for EHR implementation success
1. Functionality of the implemented system (usability)
2. Organizational structure and support
3. Availability of technical infrastructure.

Fritz F, et al. J Am Med Inform Assoc 2015;22:479–488. doi:10.1093/jamia/ocu038

Mount Sinai Medical Center's Integrated EDIS Implementation lessons learned
1. Active Involvement of the end user
2. Engaged staff regarding information technology
3. Allotted time to devote to implementation
4. Formally identifying each pre-implementation process and redesigning them accordingly

Baumlin, K. M., et.al. Joint Commission Journal on Quality and Patient Safety, 36(4), 179-185.

Potential Reasons why EDIS implementations fail
1. Abandoning time-tested, functional IT solutions
2. Inserting new/untested workflows to a chaotic environment
3. Failing to account for actual needs of clinical staff
4. Increasing IT-work overhead

Paradigm
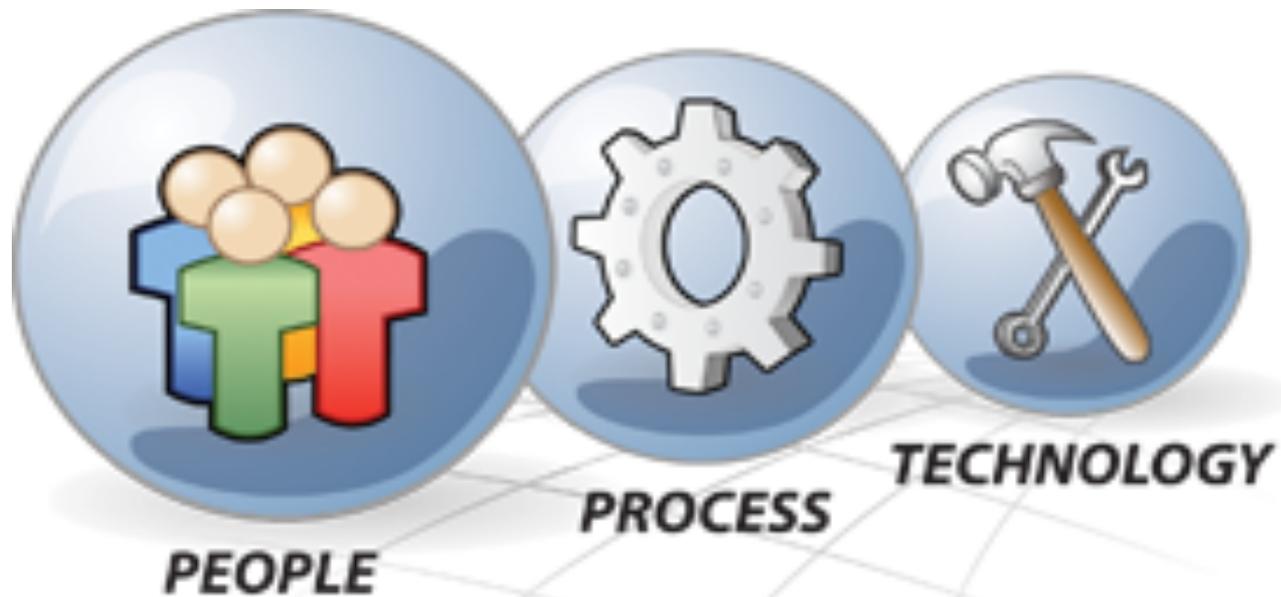
Timeline

Pre Go Live Activities: -start 12 to 18 months before Go Live

Go Live Activities: -6 weeks before Go live to 4 weeks afterward.

Post Go Live Activities: -begin 4 weeks after Go – Live.

Pre Go-Live Activities

- People
  - **Get your department team together early**
    - All department team members should be trained as super users
    - Attend the meetings
  - Find your "Nick Allan" – Physician champion
  - **Build in time for the team to do the work**
  - **Anticipate the need for augmented staffing for at least 6 to 12 months post Go Live**
  - Early senior resident involvement
  - Be available to the Leidos and Cerner team when they are onsite
  - Phone a friend
    - Talk to other Cerner facilities such as IOC sits, local Cerner clients, TSWAGs, uCern

Pre Go-Live Activities

- Process
  - **Map out and document current processes for major activities**
    - Admission process, discharge process, lab ordering process, blood transfusion process, culture call backs
    - Meet with other departments regarding current processes
  - **Map out Tracking board/Room arrangements**
  - Incorporate information updates into staff meetings regularly

Pre Go-Live Activities

- Technology
  - **Identify any equipment that interfaces with any clinical systems (ultrasound machines, iSTAT, rapid infusers, Pyxis, etc.)**
    - Some items may need or require clearance for the network
  - Printers, scanners, and barcode readers
  - **Order WOWs, COWS, and "Tap and Go"**

Go-Live Activities

- People
  - Account for everyone on staff that needs training and access
  - **Assign a civilian person as the "keeper of ED content"**
  - **Over staff the department the first couple of weeks after Go Live**
  - **Don't schedule super users and other clinical champions to work clinically during Go Live**
    - "Every shift is a Go Live."

Daily volume at Madigan and Bremerton was 25% higher than normal for the first 14 days with the biggest spike during the first 3 days

Go-Live Activities

- Process
  - **Inter-departmental collaboration using parallel charting sessions with specific patient scenarios before Go-Live**
    - **Develop processes that all stakeholders can agree on**
  - **Cross walk all the labs/rads/pharmacy orders since order names will change**
  - **Loop in civilian hospitals in anticipation receiving patient transfers and increased ED/UC volume**
  - **Patient reminders regarding open authorization to utilize urgent care centers at least 30+ days in advance**
  - Develop departmental artifact preservation process
    - Transfer paperwork
    - Sick call/Duty Limitation documents
    - Department specific documents
    - Facility-level orders
  - Develop individual preferences
    - Orders
    - Pre-completed Notes
    - Patient education and discharges instructions

Concrete workflows that everyone understands and can execute is key a factor to success

Go-Live Activities

- Technology
  - Work with the Cerner/LPDH team on the ground a couple weeks before Go Live to ensure that equipment is on the network and has an interface
    - **Printers/scanners/barcode readers**
    - Tap-and-Go
    - WOWs and COWs
    - iSTATs
    - Ultrasounds

Post Go-Live Activities – Optimization and Sustainment

- People
  - **Augment staffing until clinical areas reach near pre-implementation capacity**
    - **6 to 12 months post Go Live**
  - **MHS GENESIS department leads can begin to help with usability issues and leverage GENESIS to improve operations**

Post Go-Live Activities – Optimization and Sustainment

- Process
  - **Department leads develop formal process to track issue resolution tickets**
    - **Provide details and screen shots with ticket submission**
    - **Provide regular updates to staff and leadership on status**
  - **Continue iterative process improvement**
    - **Triage, Admissions, Discharge, Transfer**
  - Collaborate with others on best practices
    - Other IOC sites
    - Local Cerner users

Work on the issues that you can control and leverage command/facility leadership regarding systemic issues

Post Go-Live Activities – Optimization and Sustainment

- Technology
  - Label printers for lab samples
  - Network Issues vs. GENESIS Issues

What does the future hold?

- Current State Factors:
  - 2016 NDAA
  - VA/Cerner
  - Integrated healthcare record
    - ED-Inpatient-Outpatient
    - CONUS and Deployed
    - Tri-Service
    - DoD/MHS to VA Health System

- Opportunity: Data
  - Lifelong health record in a closed health system
  - Substantial impact on care delivery through care pathways, Health Information Exchange, and benchmarking

- **Challenge:**
  - **Who does the work?**

Considerations for Successful Optimization and Sustainment

- Maintain organizational leadership and develop agile support structures

- **Strive to create "learning health systems"**

- Follow a medium to long-term vision

- **Develop relationships with and continuously learn from benchmark organizations**

- **Keep developing human capital and user motivation**

- Measure progress and Gather Evidence

- **Be clear on what data to collect, how it will be used and who will have access to it**

- Continuous Monitoring of HIT-related safety issues

- View system optimization as a work in progress

- **Keep celebrating successes and continuously share experiences**

Cresswell, K.M., Bates, D.W., & Sheikh, A. (2017). Ten Key Considerations for the successful optimization of large-scale health information technology. Journal of the American Medical Informatics Association, 24(1) 182-187

Data Platform and Management Strategy

- Operational Management

- Patient Quality and Safety

- Clinical Outcomes

- Health Information exchange

- Image management

- Things to look at
  - Robust data architecture with clear process to access information and people to manage it
  - Common standards and measures

Collaborative Learning Health System

- Navy Emergency Medicine Clinical Practice Guidelines

- Seattle Children's Clinical care pathways

- Intermountain Health has a Cerner development contract

- Telehealth
  - NYU, Thomas Jefferson Health System and other EDs are using Telehealth to manage low acuity patients through virtual visits
  - Queen's Emergency Department uses Teleneurology to evaluate stroke patients
  - DoD Virtual EMS and Virtual Critical Care
  - Madigan Peds Cardiology provides Tele-consultation services for bedside Echo evaluation during office visits at remote clinics

Continuously share experiences

- VA and DoD

- Tri-Service – IOC sites

- Military Treatment Facilities

- Emergency Departments and Urgent Care Centers

- Madigan - Bremerton

Developing human capital

- Long-term: department level informatics expertise will be needed
  - Informatics Fellowship
  - 10x10 Course
  - On-line course
  - 2016 EM Core Content

- Recruiting: It is a great time to get involve
  - More questions than answers
  - Few people with a breadth of knowledge
  - Decision makers are looking for anyone with direct patient care knowledge and a willingness to be involved in implementing solutions

- Only need an interest to have an impact

Questions?