Disclosures

- None

Goals

- Describe ED Patient Process
- Provide Base ED Metrics/Volumes
- Highlight Changes in past 1-2 years
  - Patient Experience
  - Patient Safety/Care
  - Patient Throughput
- OCH Changes to Come
Quality Improvement

- Quality improvement (QI) is a systematic, formal approach to the analysis of practice performance and efforts to improve performance.

Current ED at WCHOB

- Beds
  - ED 25 beds
    - 19 Regular Rooms
    - 1 Trauma/Code Room
    - 2 Surgical/Procedure rooms
    - 1 orthopedic room
    - 2 Fast Track rooms

New ED at OCH

- Beds
  - ED 28 beds
    - ED- 19+ Ebola Room
    - Trauma/Code- 4 rooms
    - Fast Track- 5 rooms
    - Dedicated PIT Room

- Flexible Rooms
  - All with overhead lights
  - All main rooms with central monitors
ED and Process
- Open 24/7, 365 days
- No cap to number of patients, only limit is number of rooms to see them at a time
- Wait determined by severity of illness

Process – What Happens
- Arrival
- ESI - Emergency Severity Index
  - Color Coded
    - 1 - immediate, 2 - 30 min, 3 - 1 hr, 4 - 3 hr, 5 - 5 hr
  - Sets national standard for timely evaluation
- Triage
- Provider Evaluation
- Disposition

ED Tracking Board
- Cerner FirstNet
Volume Year over Year Trend

<table>
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<tr>
<th>Year</th>
<th>1</th>
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Average 2016:
- 137 patients/day = 5.7 pt/hr

Visits per Day

- 137 patients/day = 5.7 pt/hr
Arrivals Per Hour

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<tr>
<th>Date</th>
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<td>Fri</td>
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<tr>
<td>Sat</td>
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Grand Total: 4236

AVG Arrivals Per Day: 132.8, 156.0, 157.5, 136.3, 138.6, 131.0, 111.6, 136.6

Staff

- Based on Census
- Designed to increase staff as patient volume increases
  - Providers
    - Attending
    - Fellows
    - Residents
    - Mid-levels (NPs)
    - Medical Students
  - Nurses

Improving Patient Experience

- Escorts
- Communication Board
- Child Life
ED Escort

- OLD - patients were directed from waiting room to main ED when bed available
- NEW - patients escorted by staff from waiting room to main ED bed

Communication

- In Room White Board
- Inform Patient/Family
  - Staff providing care
  - Expectations of testing
- Goal to improve communication

Child Life

- ED Dedicated Child Life Specialist
- Monday-Friday, 2p-10p
- Role
  - Bedside Activities for patients
  - Distraction for procedures
  - Preparation for CT/X-ray/US/MRI using age appropriate language and photos
  - Emotional support & comprehension for medical/trauma events
Improvements to Patient Safety/Quality Care

- Clinical Pharmacist
- Medication Profiling
- End Tidal CO2
- Order Sets/Care Paths
- Sepsis
- Mock Traumas/Medical Mocks
- Trauma E-page

Clinical Pharmacist

- Started May 2016
  - 8 hrs, Average 3 days/week
- Assist with medication preparation
  - traumas, intubations, active seizures, and medical codes
- Medication acquisition for patients in the ED
  - i.e. Antibiotics for sepsis, methotrexate for ectopic pregnancies, fluids for DKA patients
- Medication reconciliation for patients with a complicated medical history or when medication/dose clarification is needed
- Review of home medications orders upon admission and review of all discharge medications

Clinical Pharmacy Events

- Review Admission Meds-
  - 783 medication reviewed
- Drug Info/Questions-
  - Providing drug information, dosing questions to RN/Providers
  - 293 queries
- Interventions-
  - Recognizing dosing changes, errors in real time, duplicate order, max dosing
  - 330 events
- Trauma/Medical Code-
  - Attending code/trauma room events
  - 64 occurrences

11/16-8/17 data from M.Henning
Medication Profiling
- ED medications stored in Pyxis
- Started March 2017
- Safety Layer
- All non-emergent medication verified by pharmacist
  - Average time for verification 5.9 min
- Verified Medications available in Pyxis
- ED RNs can override emergent medications

End Tidal CO₂
- Become Standard of care
  - Procedural sedation
- Availability of End Tidal CO₂ capnography
- Nasal cannula placed on patient
- Used in sedations, post-ictal patients, ingestions
  - Detection of apnea or hypoventilation can be markedly delayed with use of pulse oximetry alone¹
  - Capnography serves as superior measure of ventilation to detect subclinical respiratory depression²

¹Verhoeff F. Anaesthesia 1990; 45
²Hart LS. Pediatric Emergency Care 1997;13

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Order Sets/Care Paths
- Order Sets
- Clinical Care Paths
  - 30+ care paths
  - Created based on evidence based/institutional practice
  - Many with assistant of sub-specialists

Sepsis Algorithm
- Sepsis orderset shared across WCHOB
  - Goal for timely care
    - Labs, Fluids, Antibiotics
  - EMR crawls patient vitals and labs to detect SIRS/Sepsis
  - Visual Cue on Tracking board
  - Quarterly Sepsis Quality Committee tracks cases/data

Mock Trauma/Medical Codes
- Trauma
  - Monthly mock trauma lead by trauma team
  - Day/Night Shift
  - Work on improving care, efficiency, resource utilization
- Medical
  - Monthly
  - Work with PEM fellows and RN staff
Trauma E-Page

- **Trauma Team**
  - Responders based on criteria/severity
  - Level 1 and Level 2
  - ED, Surgery, Respiratory, Child Life, Social Work, RN Supervisor, OR, PICU, Blood Bank

- **OLD Process**
  - Paper form completed by provider and secretary complete web based form that notified team
  - Variable Documentation - elements missing
  - Time = 7-10 min

- **NEW Process**
  - ED Attending/Fellow open application on computer and complete c
  - Standardized Click Box Process
  - Time = 1-2 min

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**Improvements to Patient Throughput**

- **PIT**
- **Resident Admission Process**
- **Time to Provider**
- **Bedside Registration**
- **LWBS**
Provider in Triage - PIT

- What is PIT?
  - Provider (NP) rapid assessment of patient to determine interventions
- What can PIT do for patients?
  - Low acuity rapid d/c
  - Order needed radiology studies to fast track assessment
  - Order needed medications for symptoms or initiate future care
- What can PIT change?
  - Patient Satisfaction
  - Time to Provider
  - Left without being seen

PIT Process

- Need dedicated staff and workflow
- Dedicated Room(s)
  - Current - Second Triage Room
    - Small, no exam bed
  - New
    - Standard fast track room across hall from triage
      - Standard bed, light, equipment

PIT Data
Admission Process
- ED places bed request order
  - Inpatient, Observation, Ambulatory Surgery
- Transfer center assigns floor
- Transfer center notifies triage resident
- Floor teams assesses patient in ED
- ED Team activates admit complete icon
- In person sign-out
- Floor team can examine patient and ask question

Bedside Registration
- OLD-
  - ED Registrars would gather demographics, insurance, payment information, consent for treatment in waiting room after patients check-in and ESI/Triage
- NEW-
  - ED Registrars now gather demographics, insurance, payment information, consent for treatment in main ED once patient has been seen by provider
  - Only collected in waiting room when main ED full and patient must wait

Left Without being Seen - LWBS

![Graph showing % of LWBS to Total Volume]

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One more tool

Cerner Advance

- Presents individual user or group level efficiency and adoption data related to EMR
- Look for areas to improve efficiency, compare group or to national Cerner users

Data Extracted - Kaleida Health, 10/17, All Providers
Orders

Now to Oishei
Quality & Process Changes at Oishei

- Ascom phones for all Staff
  - Less overhead paging/noise for patients in room
  - Codes will notify providers
- Radiology in ED
  - CT/XR/US will be in radiology corridor behind ED
- Isolation Flags
  - Plan for post-move infection control improvement
  - Above door color coded flag system to indicate precautions
• Dedicated Fast track
  • Current- no dedicated rooms, low acuity can wait, over the years been in multiple non-ED locations at CHOB
  • New- in ED fast track, nearby pyxis

• CD Import Process
  • Improving outside study importation and provider notification
  • Also over-reads by radiology

• ED Based Office for Trauma and managers

• Ebola with hot lab
• Safe Room
  • Room that can be made secure and safe for patients with behavioral and mental health issues

Questions?
Thanks to many ED Team members who contribute and continue to work to improving the process