

# Network Operations Command Center (NOCC)



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Dayton, OH 45420

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# Network Operations Command Center

An introduction to

- History and background
- Operations
- Inter-operability
- Resources

In preparation for

- GO-LIVE at Kettering: June 2019

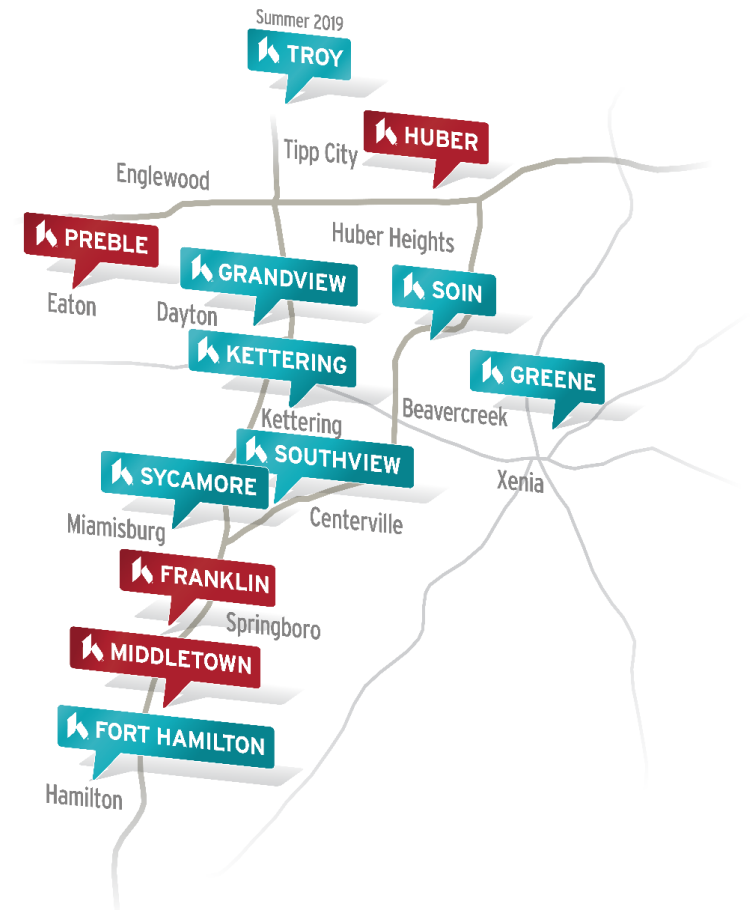


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# Innovation for the Future

## Catalysts for Change

- Growth
  - ↑ Access Points (ED's, Community Healthcare Destinations, KPN)
- Current Capacity Challenges
  - Tertiary Facilities Census consistently at capacity



# Catalyst for Change



**Closure of Good Samaritan Hospital**  
400 bed, urban hospital serving NW Dayton

# Opportunities



Opportunity to Maximize Revenue/Resources  
Improve use of Kettering Mobile Care resources  
↓ LOS, LWOT's, Diversion, Leakage

# NOCC: Best Practice Command Centers



- Situation Awareness
- Easy Access to Information
- Efficient Space
- Software Solutions

# TeleTracking Software Solution

<https://youtu.be/K5BmPktOX1Y>

We challenged our teams to think differently and futuristically, while remaining centered around the patient and family.

Kettering

# Strategic Planning

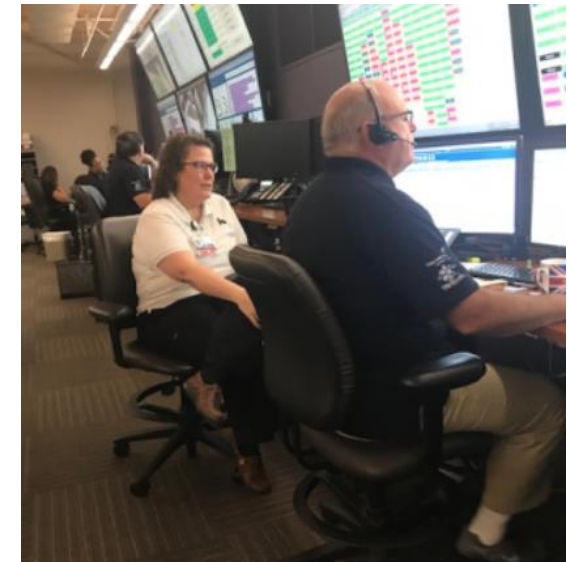
## Administrative visits to Carilion Clinic, Sharp Health, Ohio Health, Cleveland Clinic





## NOCC Leadership Trip to Carilion Clinic

- NOCC RN Team Leaders
  - Melissa, Nik, and Laura
- Mobile Care Communication Manager
  - Addison Frei
- NOCC Director and Manager
  - Jodie Cremeans
  - Nick Squillace
- NOCC Project Manager
  - Sonya Lemmerbrock



# Strategic Planning

In-Depth Discovery and Design phases including all KHN hospitals, KHN Transfer Call Center, MedFlight and Kettering Mobile Care-completed by end of 2018



# TeleTracking and KHN NOCC leaders do Hospital Observations during Soin's Discovery Phase



## Discovery and Design Sessions – On the Right the RTLS Engineers are Looking at Potential Patient Exits



# Hospital Observations – TeleTracking and NOCC Leadership



# Strategic Planning

- Creation of Network Capacity Management and Patient Flow Council as well as campus based councils for decision making and transparency across the enterprise
- Regular updates to Executive Finance Group, Network Leadership Group, Nursing Executive Council, and Med Exec Council



# Situational Awareness:

- Centralizing Key Teams - TCC Nurses, Mobile Care Dispatch, Patient Flow Specialists (bed placement)
- Medical Director
- NOCC Team Leaders



# Making all the pieces fit

## Centralized IS components

- Command Center all on same phone software
- Status Indicator Lights
- TeleTracking
- EPIC

Redundancy to ensure operations seamlessly (UPS, Generator)





# Situational Awareness: 200 monitors



# Medical Director, Dr. Pook TeleTracking Project Kick-off



# Defense Electronics Supply Center

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Gentile Air Force Base  
Named for WWII flying ace  
Major John S. Gentile of Piqua

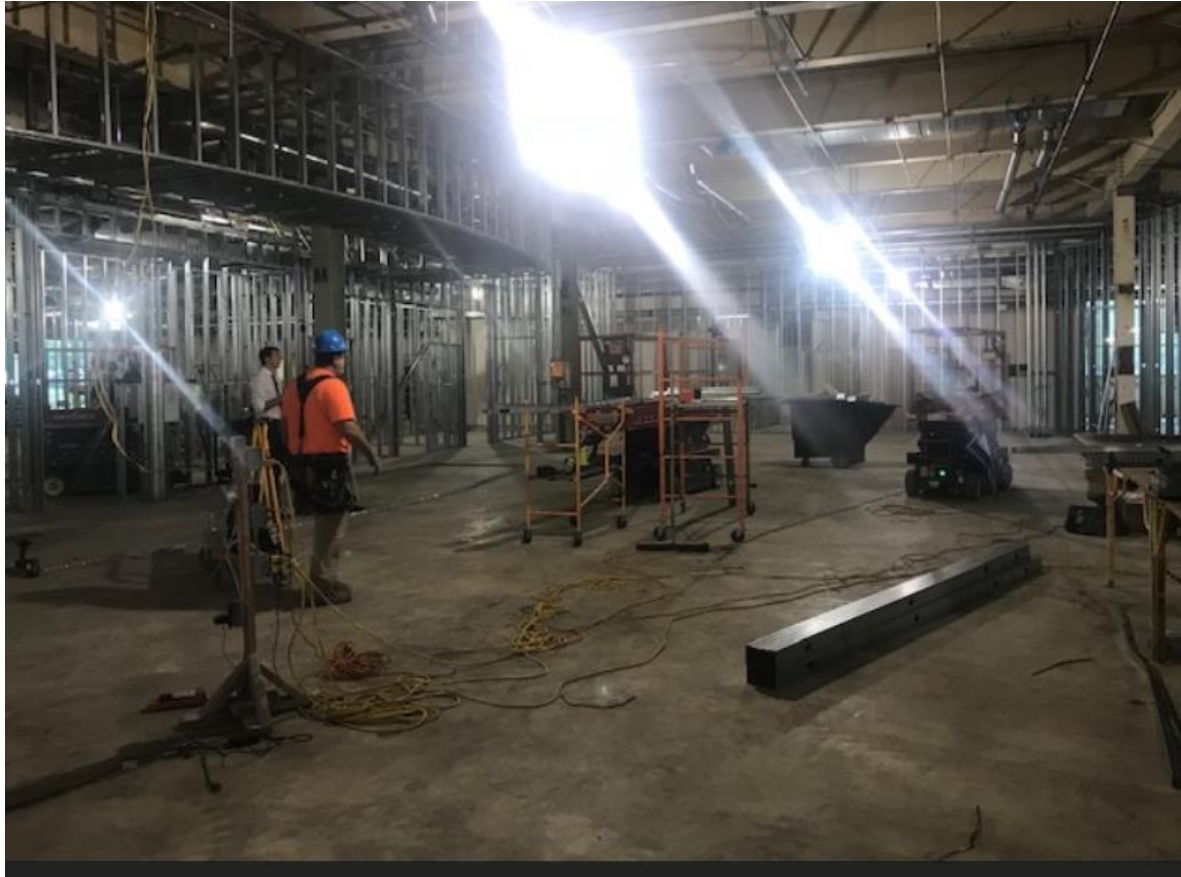
Closed by Defense  
Department in 1993

10 year clean-up

Gifted to City of Kettering

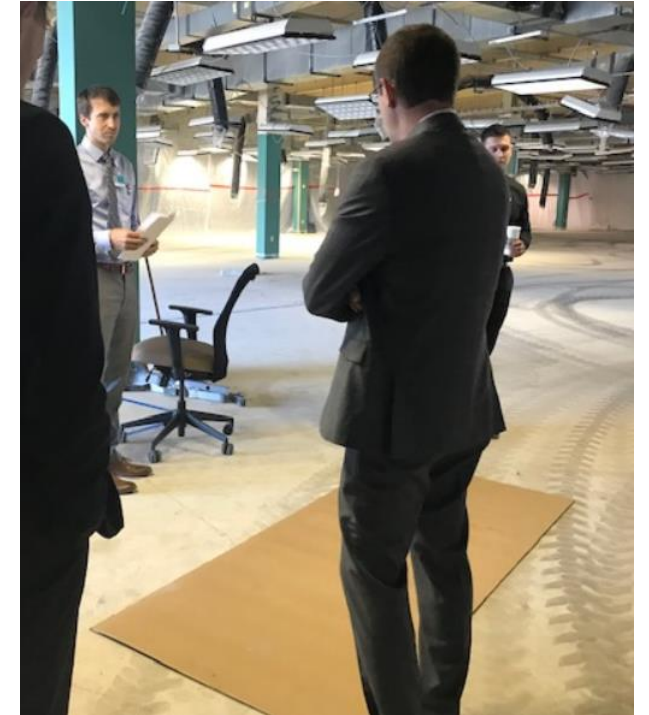
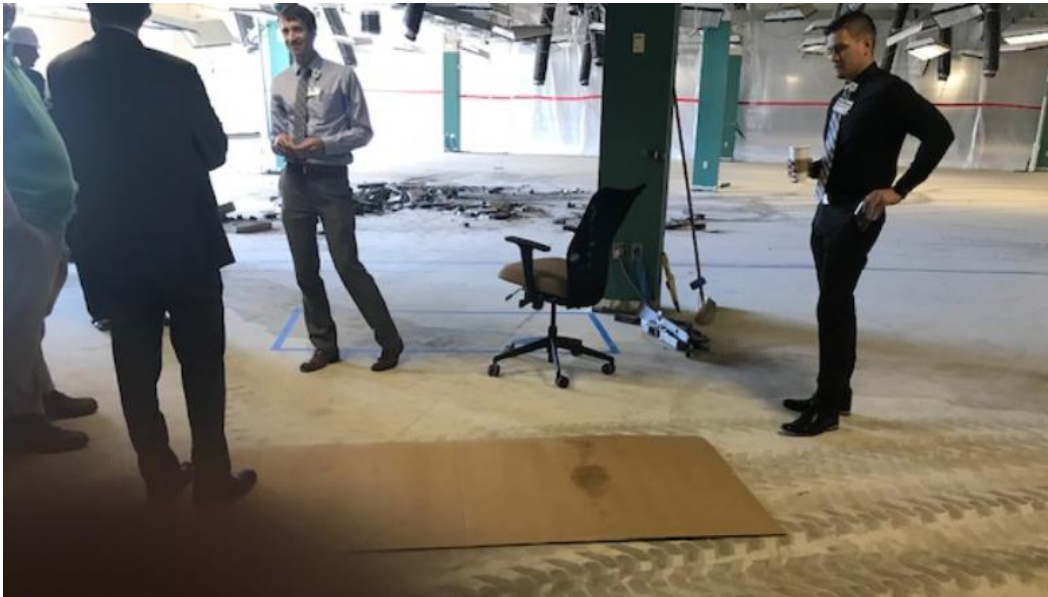


# Construction



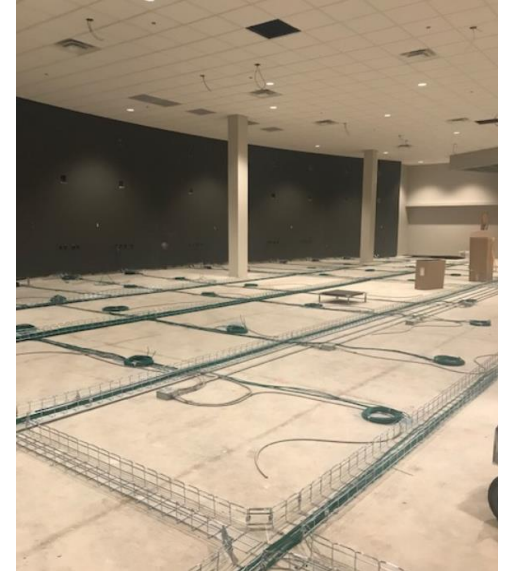
## Weekly Construction Meetings at Site

At this meeting, we taped off the space and placed cardboard cut-outs the size of desks and TV's to experiment with space



## More Construction

- David Nelson: Led CIP
- Kristi Tolliver: Engineer
- Nathan Verrill: Construction Fellow
- Brumbaugh Construction
- Heapy Engineering
- Ohio Valley Engineering
- Saturn Electric



# Progress



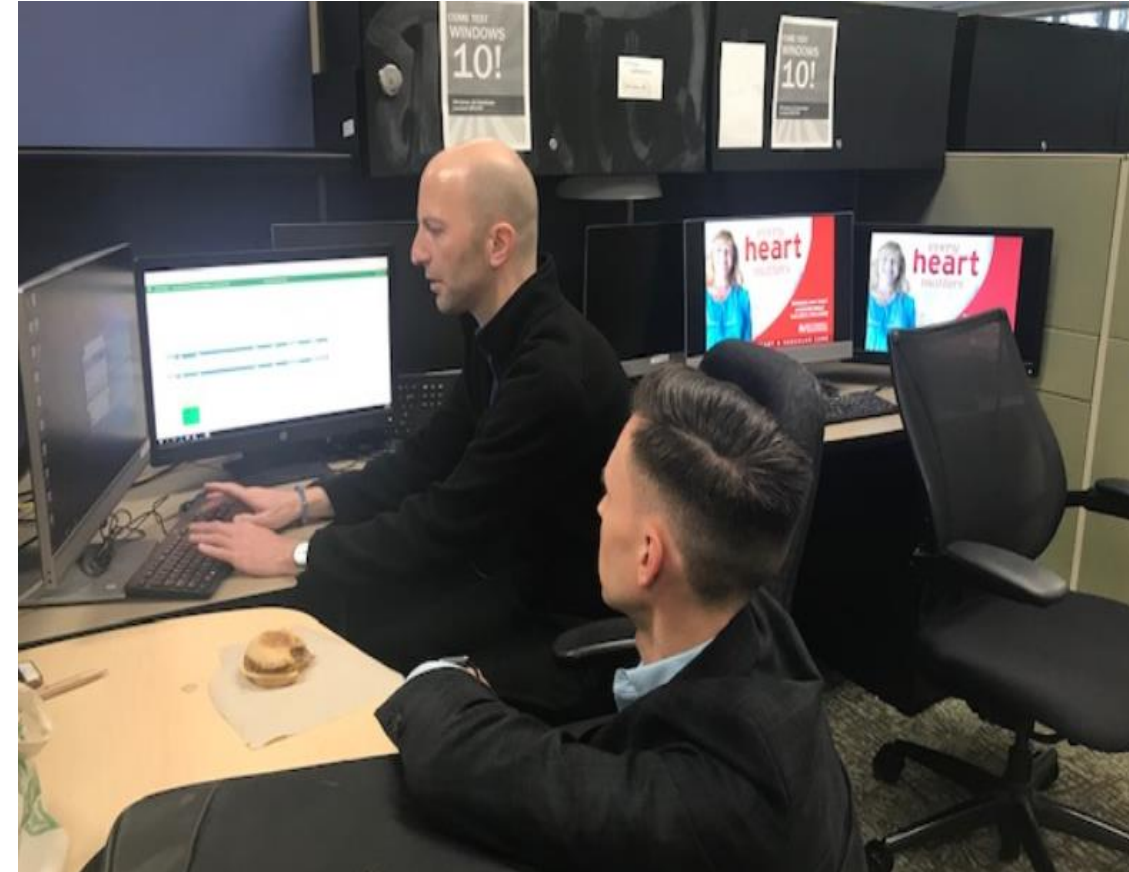
# One Call

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Call for ALL transfers

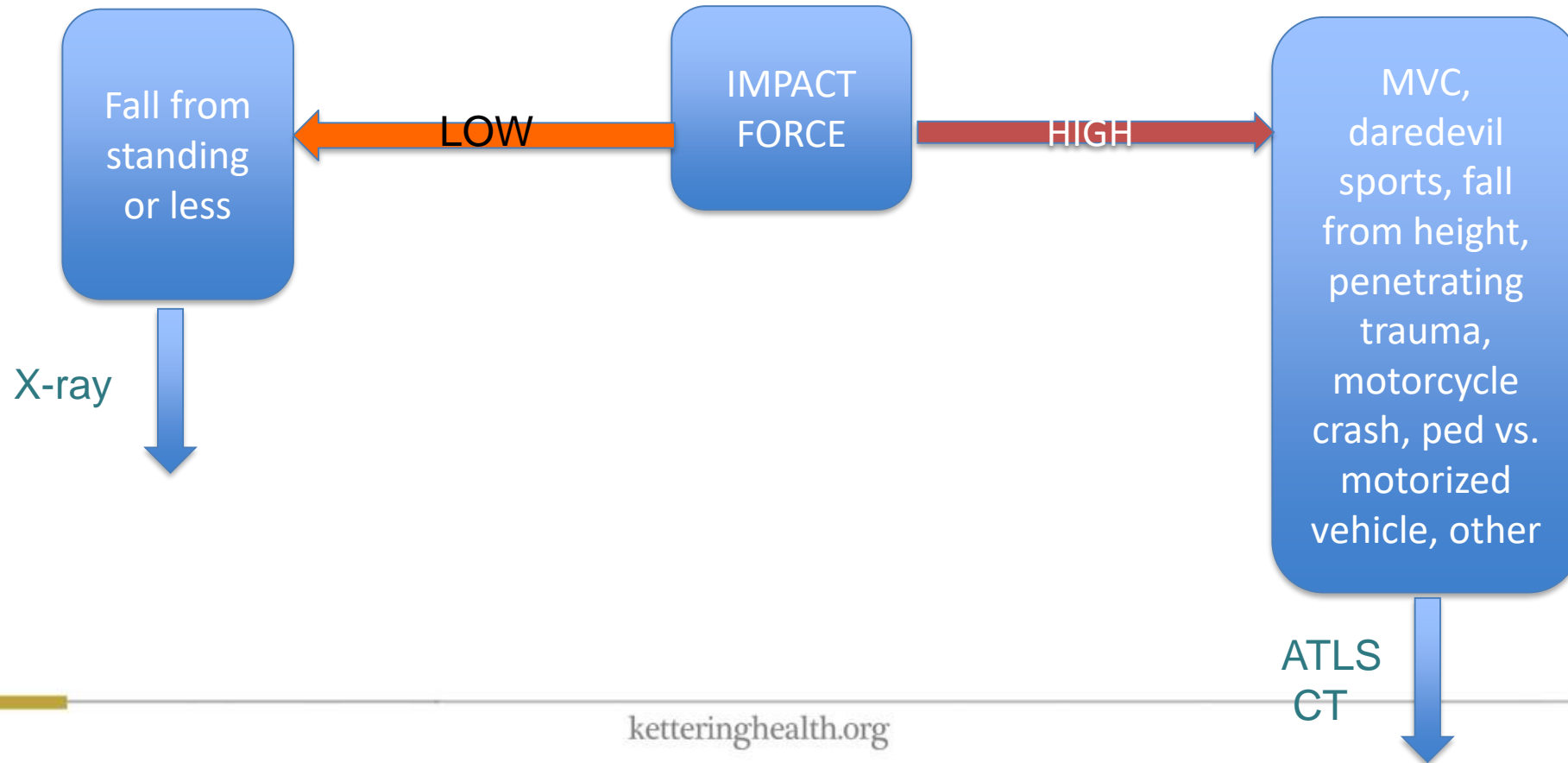


# Algorithm Building and TeleTracking Testing



# Patient centered algorithms

## Vertebral Column Injuries- T/L spine



# Patient movement algorithms



## Transport Mode

ALS  
paramedic

MICU  
Paramedic  
CC RN  
EMT

## Patient characteristics

Cardiac monitoring  
IV fluids  
IV meds  
NG to suction  
Blood in process

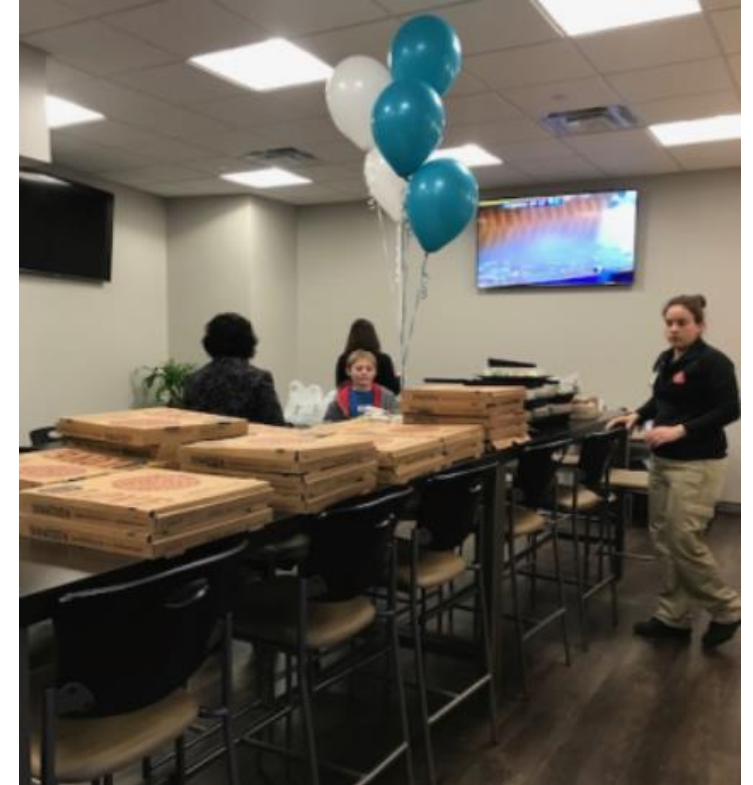
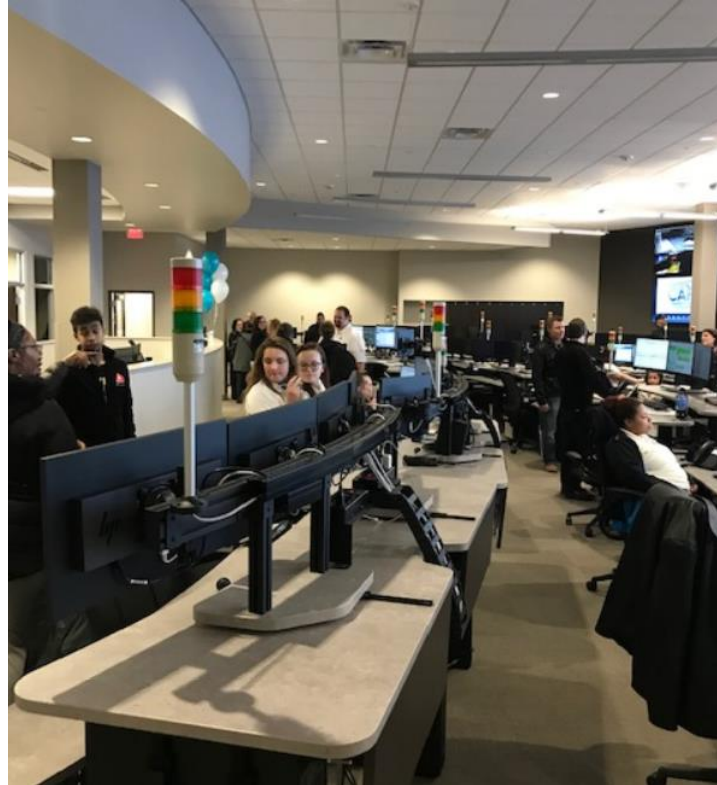
Intra-aortic balloon  
pump  
LVAD  
Art line  
SWAN  
Ekos catheter  
Sheaths  
Chest tube to suction

## Vent status

Long term trach  
Assist control

Trach and intubated  
patients  
AC, SIMV, CPAP, BiPAP

# Family Night at the NOCC



## Operations Begin – January 22nd



# Placing our first patient in bed in Teletracking!



## NOCC Fun Facts

- 56,000 Feet of Cabling on the Command Center Floor
- 36 Floor Boxes (Data/Power Ports)
- Twenty, 86" Monitors on the Display Wall
- 40 Workstations
- All Network Bed Placement is Performed Here
- 24/7 Operations
- Internal Transportation Dispatching/Monitoring
- Internal EVS Dispatching
- Real Time System Capacity Management



# Transparent movement



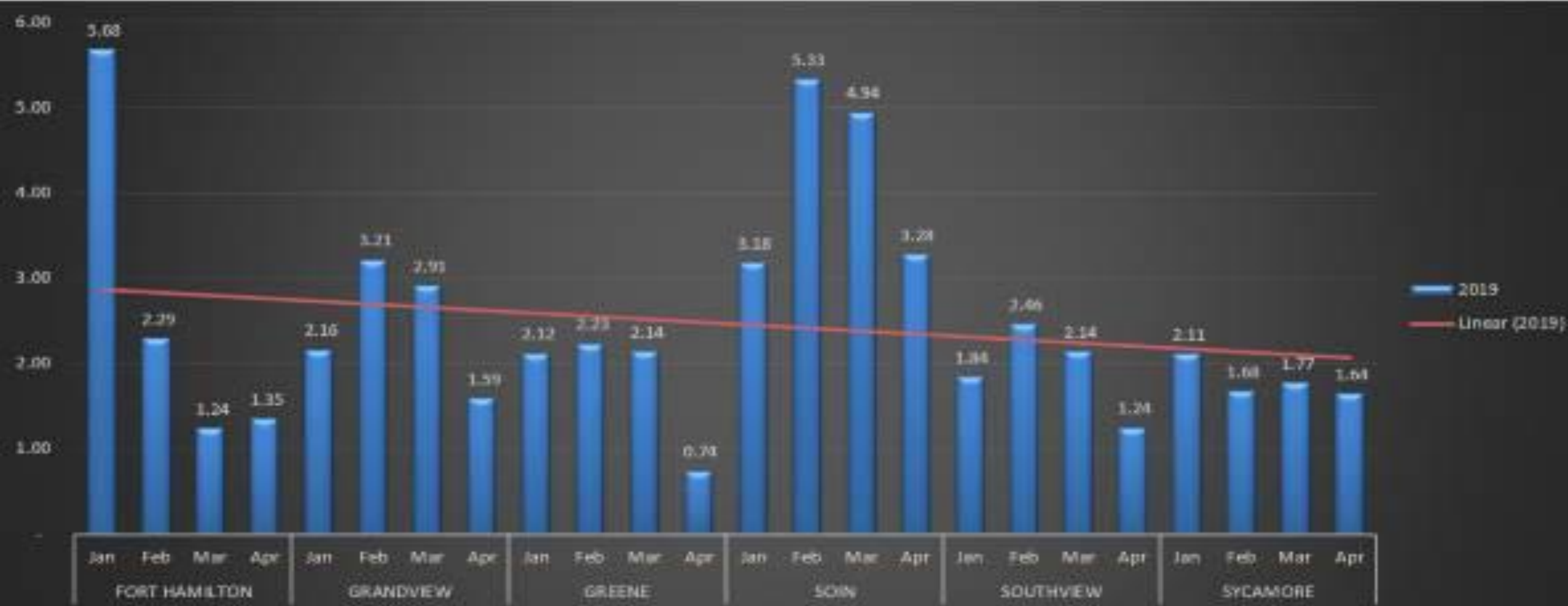


# Tools

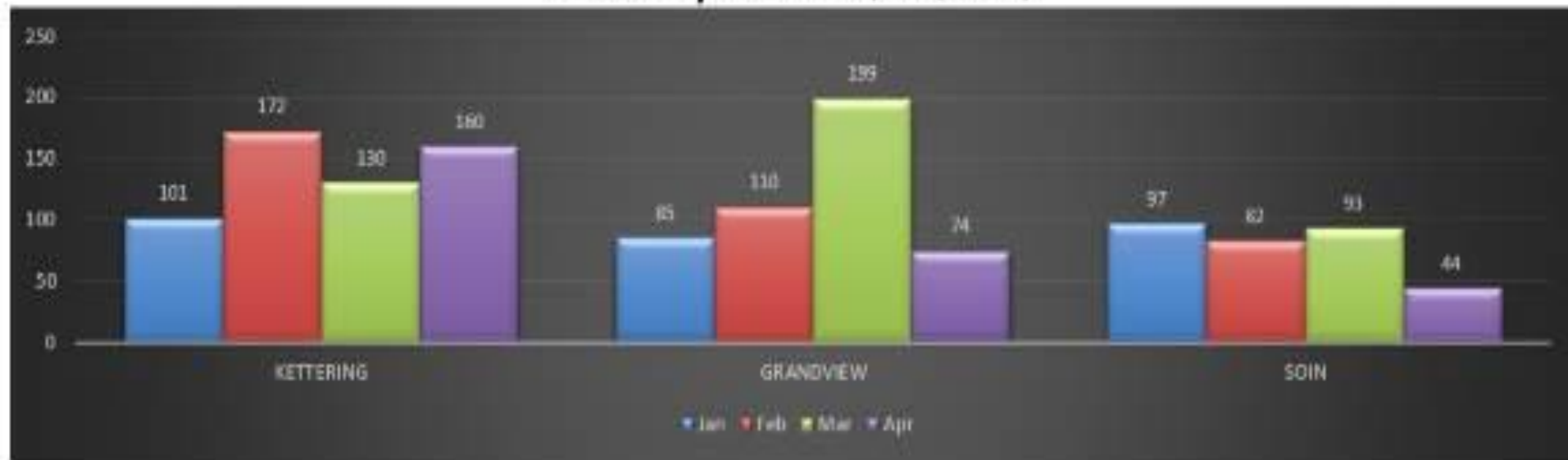
- IPOD
- RFID tracker for discharge
- Monitoring: app or lounge
  - From home or office
  - To discharge



# ED Hold Hour Trend – TT Facilities



# LWOT/LWBS (Jan-Apr 2019)



## IP/Obs Growth – TT Facilities

Roll Up of Go-Live Facilities				
2018 (Feb-Apr)	2019 (Feb-Apr)	Change	Percent	
7,647	8,124	609	6%	
Grandview (19' W 17% Reduction)				
2018 (Mar/Apr)	2019 (Mar/Apr)	Change	Percent	
2,161	2,370	209	10%	
Southview				
2018 (Mar/Apr)	2019 (Mar/Apr)	Change	Percent	
1,493	1,361	(132)	-9%	
Soin				
2018 (Feb-Apr)	2019 (Feb-Apr)	Change	Percent	
3,065	3,405	340	11%	
Greene				
2018 (Feb-Apr)	2019 (Feb-Apr)	Change	Percent	
928	988	60	6%	



# Go-lives

## Greene/Soin

- EVS time saved >60min
- Decreased CC bed time

Unit monitors

## Grandview/Southview

- early morning ID of potential discharges
- time to inpatient bed 15 minutes

## Sycamore/Fort Hamilton

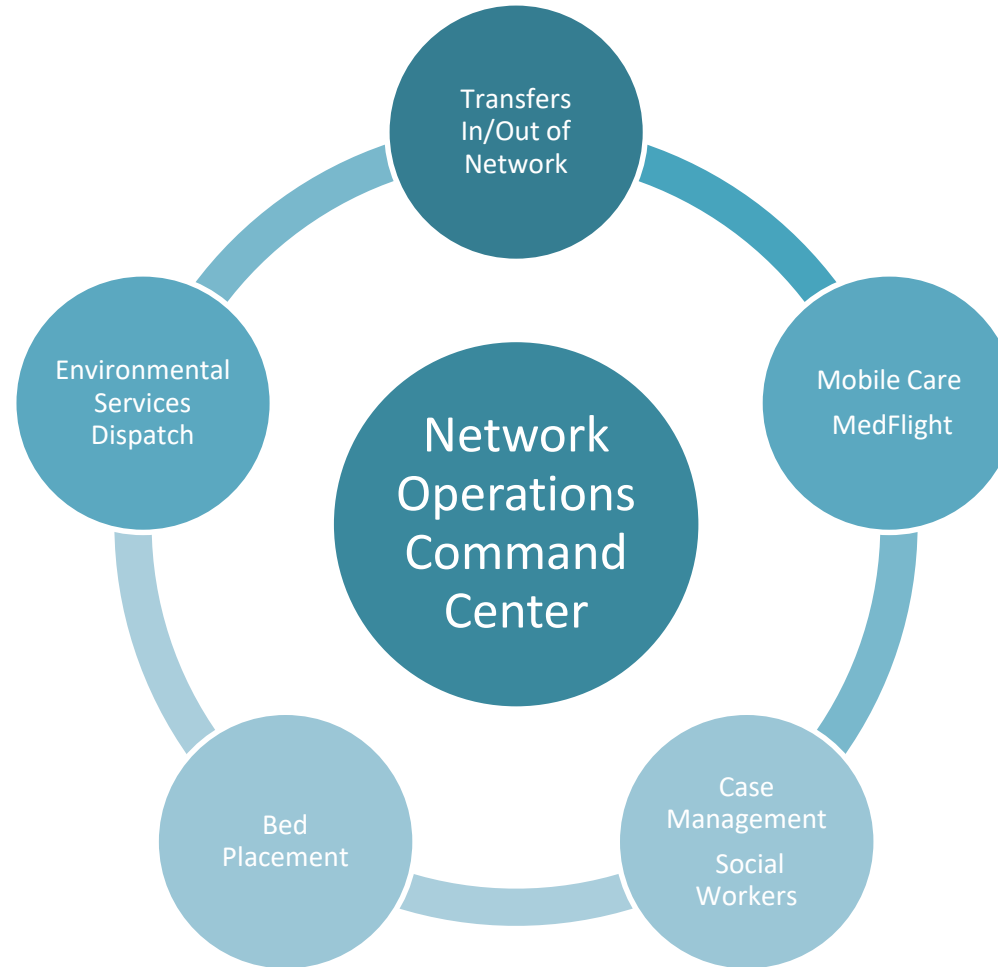
- smoothest start

## Kettering

- June 2019



# Structure of Operations



# Benefits of a Centralized Team

## Direct Income

- Increase efficiency of access
  - One Call System, Faster Admission
- Increase out-of-network admissions
  - Create a “path of least resistance” for their admissions
- Decrease out-of-network leakage
- Better utilization of beds network-wide to allow ALL campuses to be full
- Expanded nursing home business with one call system & transport initiatives
- Decreased hospital reroute hours & ED hold hours

## Intangible Benefits

- Increased Physician Satisfaction
- Increased Patient Satisfaction
- Creation of virtual beds through improved throughput efficiencies
- Creation of best practice, scalable processes and procedures for throughput and access.
- Variation management in nursing practice and workload management
- Standardized nursing units

# Patient Movement



**MOBILE CARE**





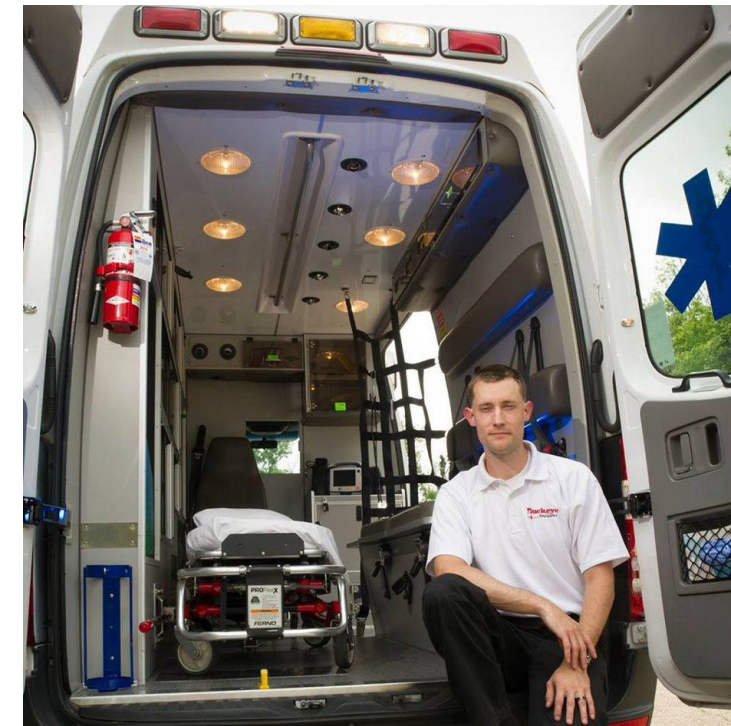
# Centralized Patient Flow Management

## Goal:

- To implement a center for patient flow management, with a patient centered approach and real-time visibility to Kettering Health Network bed capacity.

## Benefits:

- Reduce lost transfers by using auto acceptance and auto transport launch
- Improve access to care
- Optimize available capacity
- Reduce ED and PACU holds
- Improved customer satisfaction



## Implementation of Best Practices

### Keys to Success:

- Right patient – Right bed – Right Place – First time
  - Use of ready to move
  - Use of attributes
  - Use of bed priorities
  - Use of pending discharges functionality



## Concepts In the Science of Flow

### Concept 1:

- When utilization is high in a hospital (Near capacity), planning for the timely transitioning of a few appropriate patients can have a substantial effect on delays and free up needed space at the right time.

### Concept 2:

- Successfully discharging at least 25% of your patients by 11AM each day will alleviate the late afternoon crunch.



# Mobile Care / Buckeye Key Points

- Centralized Transportation Dispatch
- Auto Launch of Air and Ground Transports
- Centralized Precertification of Non-emergent Transports
- Real-time GPS Tracking of Vehicles
- 54 Vehicles in the Mobile Care/Buckeye Fleet
- 185 Team Members
- 2.1 Million Miles Driven in a Year
- Standardization of Levels of Service
  - Helicopter
  - MICU
  - ALS
  - BLS

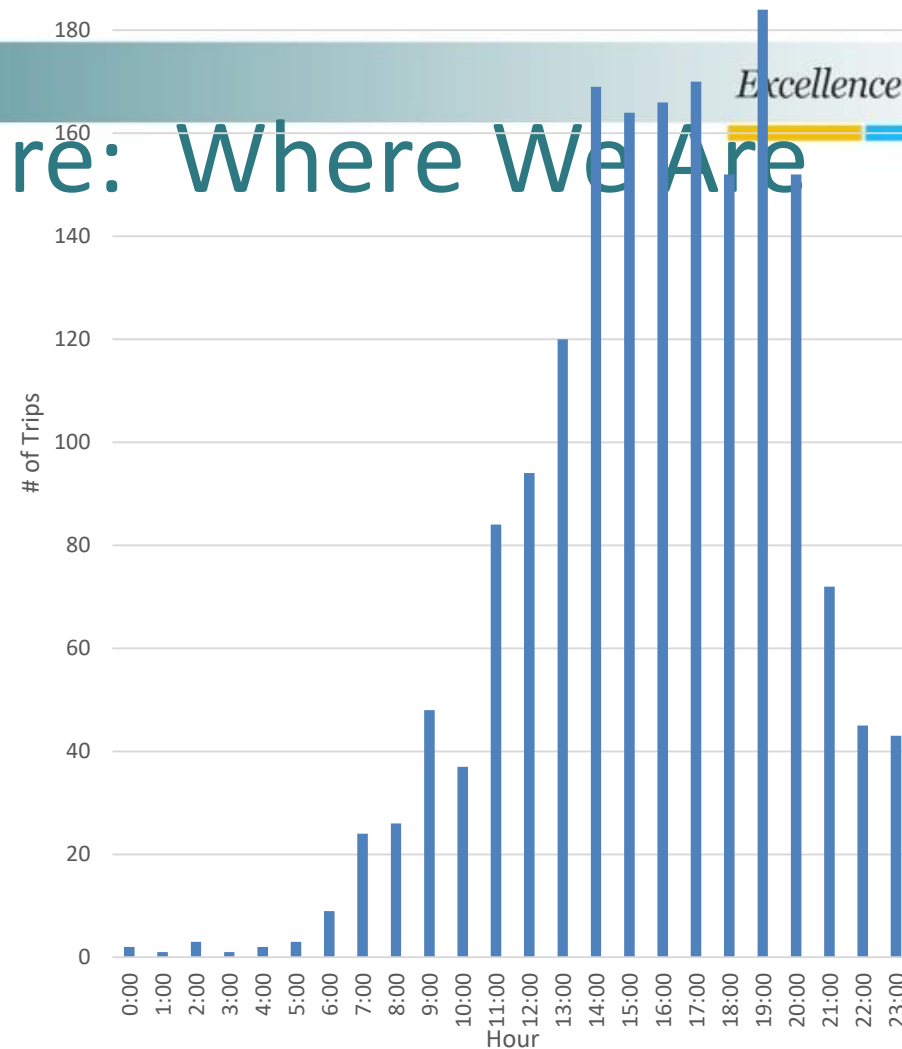
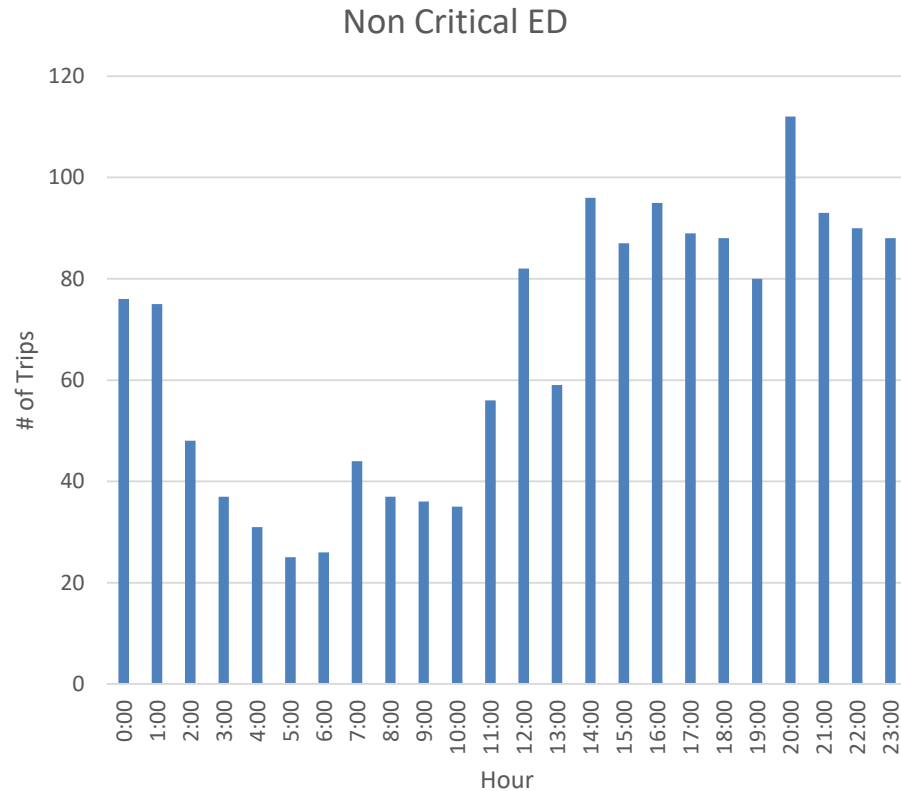


# Kettering Mobile Care Update

- June **2016**: New and fully staffed- 5x24 hour shifts
- April **2019** Growth
- Running 12-14 trucks
- Understaffed
  - Regional/State/National Shortage
  - Providers are moving to the public sector or out of industry
- NO 24-hour shifts – Safety and Retention
- Paramedic holes in schedule



# Kettering Mobile Care: Where We Are



Graphs show that the floor trips are scheduled for late afternoon/evening and then the ED's start to increase transfers/discharges. This causes crews to be tied up on floor discharges when the ED's start the transfers. Floor runs are then delayed to allow for ED trips. Attempts are being made to move the floor discharges earlier in the day to allow for more units to be available during evening boluses.



# Kettering Mobile Care

## Where does that leave us now?

- Extended ETA's
- High Level of frustration
- Difficult communication
- Damaged relationship
- Compromised patient experience



# How Can You Help

- Secondary EMS Providers
  - Allow the NOCC to contact secondary providers
  - Tell Mobile Care “no availability” then give campus an ETA
- Average On Scene Times
  - ED – 0:20 \*Thank You!\*
  - Floor – 0:45



# KHN Preparedness/Event Management

## Hazardous Materials

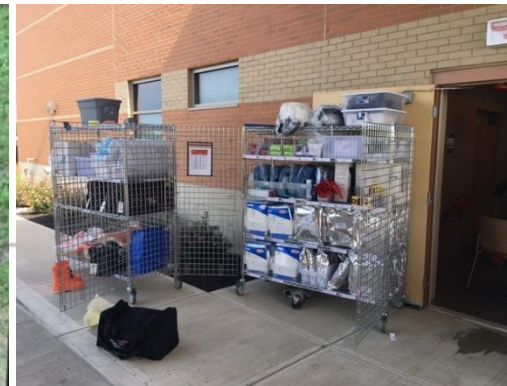
- Training
- PPE
  - Highly Infectious Disease
  - Chemical, Biological, Nuclear, Radiological (CBRN)/WMD

## Radio Communications

- ED-EMS
- Disaster

## Event Medicine

- Equipment
  - Medical
  - ATV/UTVs Patient Transport/Access



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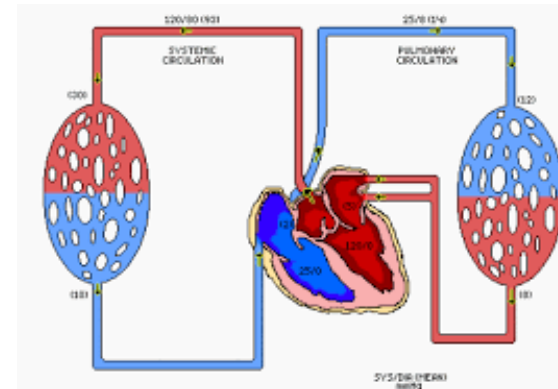
Routine and directed review of transfer opportunities

- Timeliness of transport
- Patient safety
- Physician capacity
- Nursing/staff capacity
- Facility capability

# Case review: 80 y.o. female



Midshaft femur fracture  
VS.  
Pulmonary Hypertension



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Interested in more?

- Tour
- Solutions
- Chart review

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