

Nebraska Medicine: A Davies Journey

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What is Davies?



The HIMSS Nicholas E. Davies Award of Excellence is the pinnacle of the HIMSS Value Recognition Program . The Davies Award recognizes outstanding achievement of organizations who have utilized health information technology to substantially improve patient outcomes and value. The Davies Awards program promotes health information technology-enabled improvement in patient outcomes through sharing case studies and lessons learned on implementation strategies, workflow design, best practice adherence, and patient engagement.



Agenda

Topic

Introduction to Nebraska Medicine

The Davies Application and Preparation Process

Case Study Presentations:

- Saving Lives from Sepsis
 - Preventing Catheter Associated Urinary Tract Infections
 - Improving Quality Outcomes in Ambulatory Clinics
-

Questions



Objectives

Objectives

Describe the process and resources needed for attainment of the HIMSS Nicholas E Davies award of excellence.

Develop a process to design clinical decision support tools based on multidisciplinary collaborative input and feedback.

Analyze clinical workflows and align with system tools to decrease variability in the care of patient with sepsis

Explain the importance of reflex ordering and nurse driven protocols in decreasing incidence of catheter associated urinary tract infections

Create standardized processes with supporting technology to ensure compliance with changing quality measures.



Introduction to Nebraska Medicine



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Nebraska Medicine

- \$1.2 billion academic health system
- 8,000 employees
- More than 1,000 affiliated physicians
- Primary clinical partner of University of Nebraska Medical Center
- Two hospitals, anchored by tertiary/quaternary academic medical center, Nebraska Medical Center
- More than 40 specialty and primary care clinics, offering 50 specialties and subspecialties
- Partial ownership of two rural hospitals and one specialty hospital
- 809 licensed beds in Omaha and Bellevue
- 31,004 discharges
- 426,923 outpatient visits (primary and specialty)
- 91,800 ER visits



OUR MISSION

Our mission is to lead the world in transforming lives to create a healthy future for all individuals and communities through premier educational programs, innovative research and extraordinary patient care.

OUR VALUES

reflect **who we are** and **why we're here**.

ITEACH



Innovation

Search for a better way. Seek and implement ideas and approaches that can change the way the world discovers, teaches and heals. Drive transformational change.



Teamwork

Respect diversity and one another. Communicate effectively and listen well. Be approachable and courteous. There is no limit to what we can achieve when we work together.



Excellence

Strive for the highest standards of safety and quality in all that you do. Work to achieve exceptional results.



Accountability

Commit. Take ownership. Be resilient, transparent and honest. Always do the right thing and continuously learn.



Courage

Make the tough decisions. Have no fear of failure in the pursuit of excellence. Admit mistakes and learn from them.



Healing

Show the empathy you feel. Be selfless in caring for patients, one another and the community.

OUR DOMAINS

reflect our **priorities and areas of focus**.

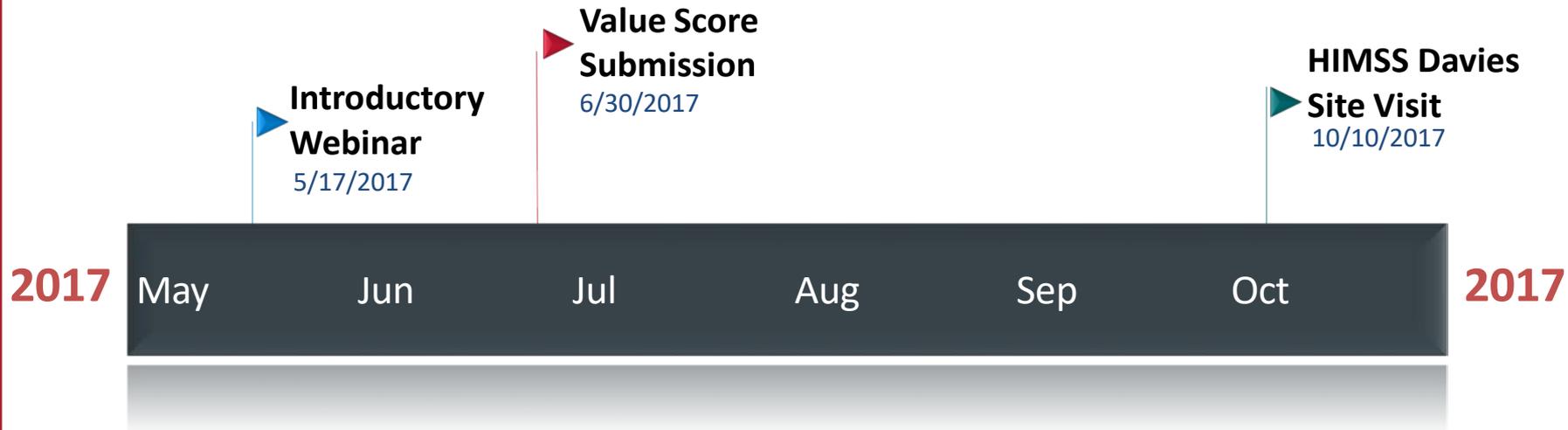


Our Historical Contributions and Utilization of Health IT

1975	PCIS Installed to support enterprise billing, document retrieval & results reporting
1982	COSTAR ambulatory EHR implemented
1989	Lab automation grant resulting in Lab Interlink Automation System (deployed 1995)
1992	OTTR transplant info system developed by Byers Shaw, MD (deployed 1994)
1995	Implemented PHAMIS
1995	Implemented first SNOMED coded problem list <i>world-wide</i> (supported problem list terminology for PHAMIS consortium of users)
1999	IDXRad Installed
2001	Federal Funding for SAGE interoperable standards-based decision support
2009	Nebraska Health Information Exchange established
2010	Intuacare Documentation System developed and implemented in NICU
2011	Began use of Voalte for POC nursing communication and inpatient video monitoring
2012	'Big Bang' Enterprise-wide Epic implementation
2013	NM Funded by PCORI as research center
2015	HIMSS Analytics, Stage 7 Hospital
2016 & 2017	Bernard A. Birnbaum, MD, Quality Leadership Award recipient

Davies Timeline

- May 2017: Introductory Webinar from HIMSS
Review of Requirements
- May – June 2017: HIMSS Value Score Submission Preparation
- July – Sept 2017: Site Visit Preparation
- October 2017: Site Visit with Case Study Presentations



Value Score Content

SECTION ONE: Focuses on known and expected outcomes in three general categories:

- **DATA CAPTURE and SHARING**
 - EMR Microsegmentation
 - 3 Day Documentation

- **ADVANCED PROCESSES**
 - Electronic Physician Documentation with Voice Recognition
 - Nursing Handoff Standardization
 - Rooming Improvements

- **IMPROVED OUTCOMES**
 - Sepsis
 - Improvements in Hemoglobin A1c Through Remote Monitoring
 - CAUTI

SECTION TWO: Health IT that had a positive *measurable* impact on your organization.

- Synoptic Encoding for Pathology
- Decision Support Use for EDU
- Geneva
- QMAs & Dashboards



Davies Timeline



2017

2017



Vizient Quality & Accountability Scorecard

What is Vizient?

- Health care performance improvement company that assists in identifying opportunities for reducing variation and expediting data collection through a comprehensive analytics platform
- 95% of all major academic medical centers participate

What is the Q&A Scorecard?

- Scorecard evaluates organizations on their ability to demonstrate excellence in delivering high-quality care based on performance in key organizational metrics

Why do we participate?

- Benchmark against peer groups
- Identify opportunities for improvement and accelerate changes
- Leverage performance in other reporting programs

Mortality
26.5%

**Service-line mortality
O/E Ratio**

Safety
26.25%

PSIs, HAIs

Effectiveness
21%

**Service-line 30 day
readmit rate, excess
days, core measures**

**Patient
Centeredness**
15.75%

**HCAHPS 9
Composite Question
Grouping**

Efficiency
5.5%

LOS*

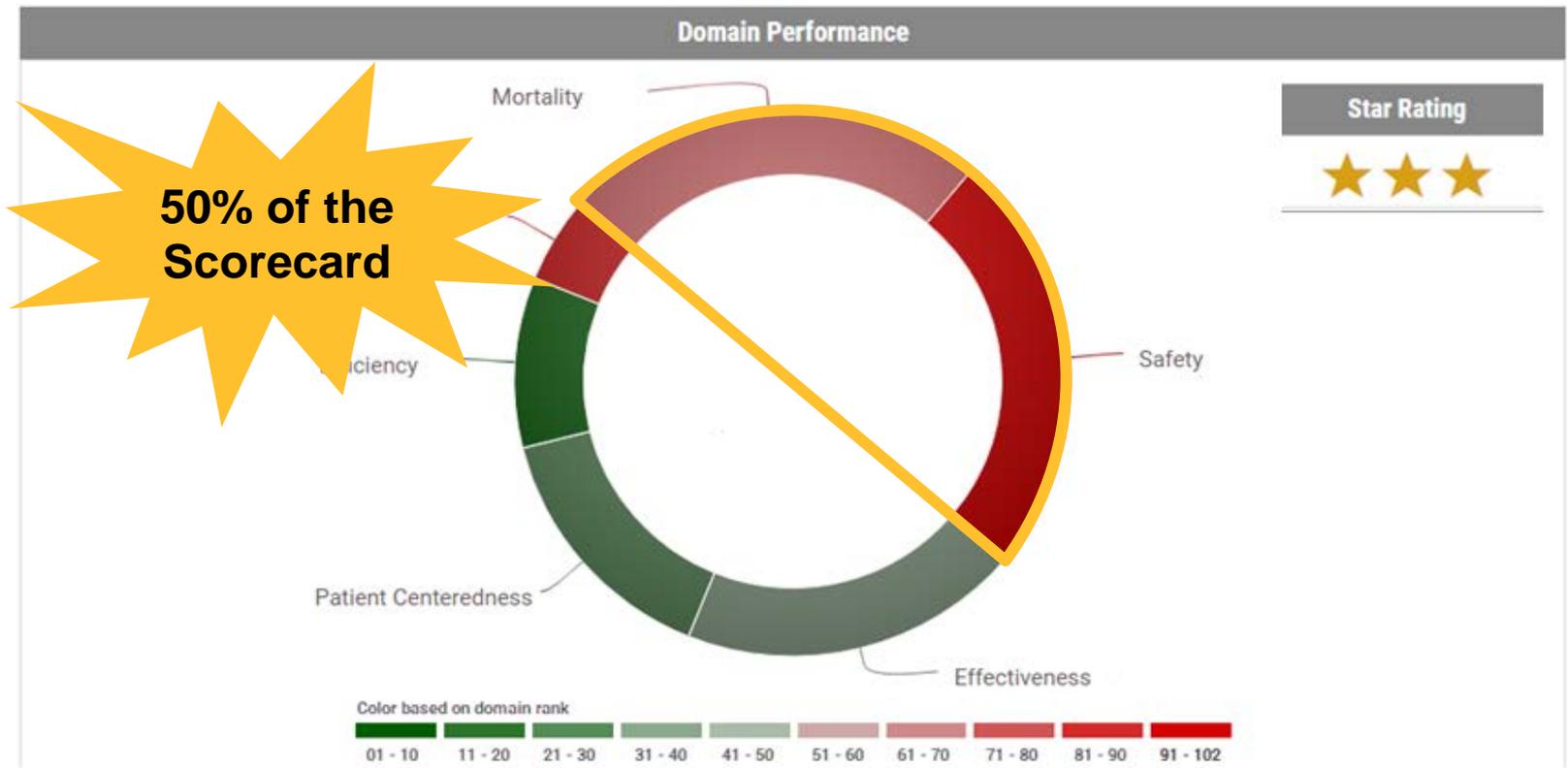
Equity
5.25%

PSIs, HAIs

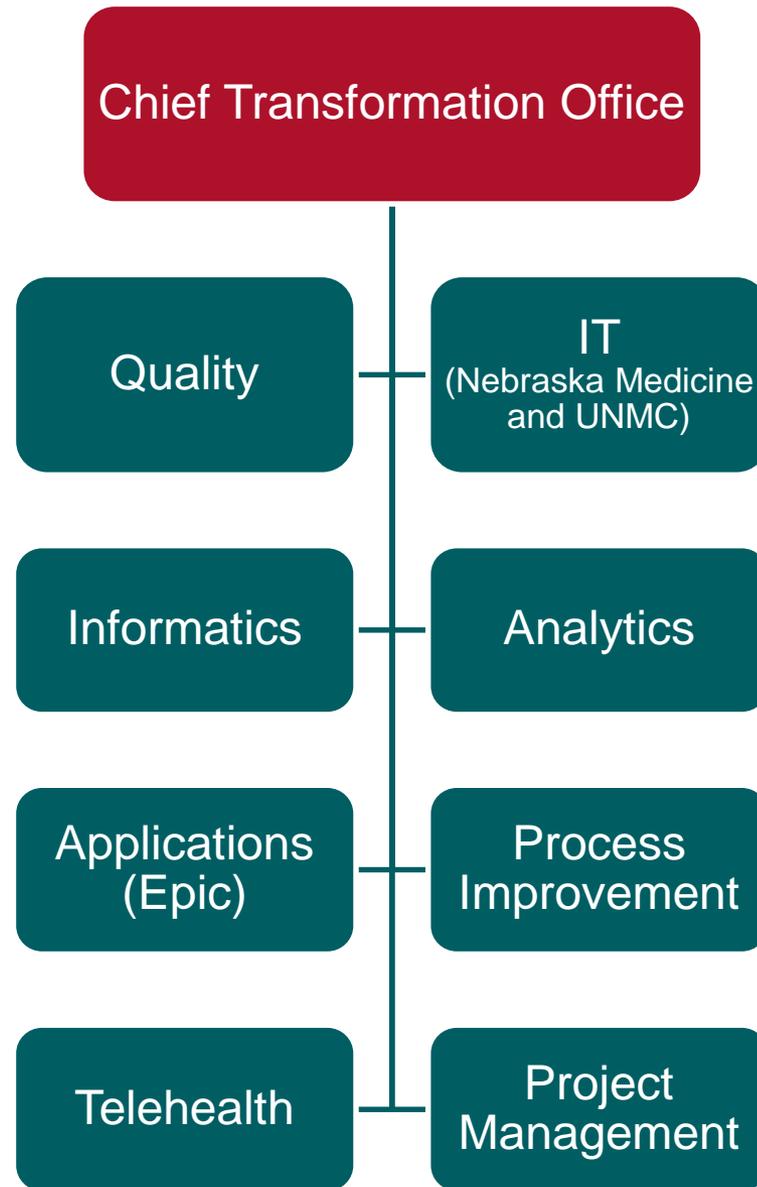
*Efficiency Domain modified for 2017 only – Typically the domain evaluates Direct Cost per service line

Nebraska Medicine Journey

October 2014

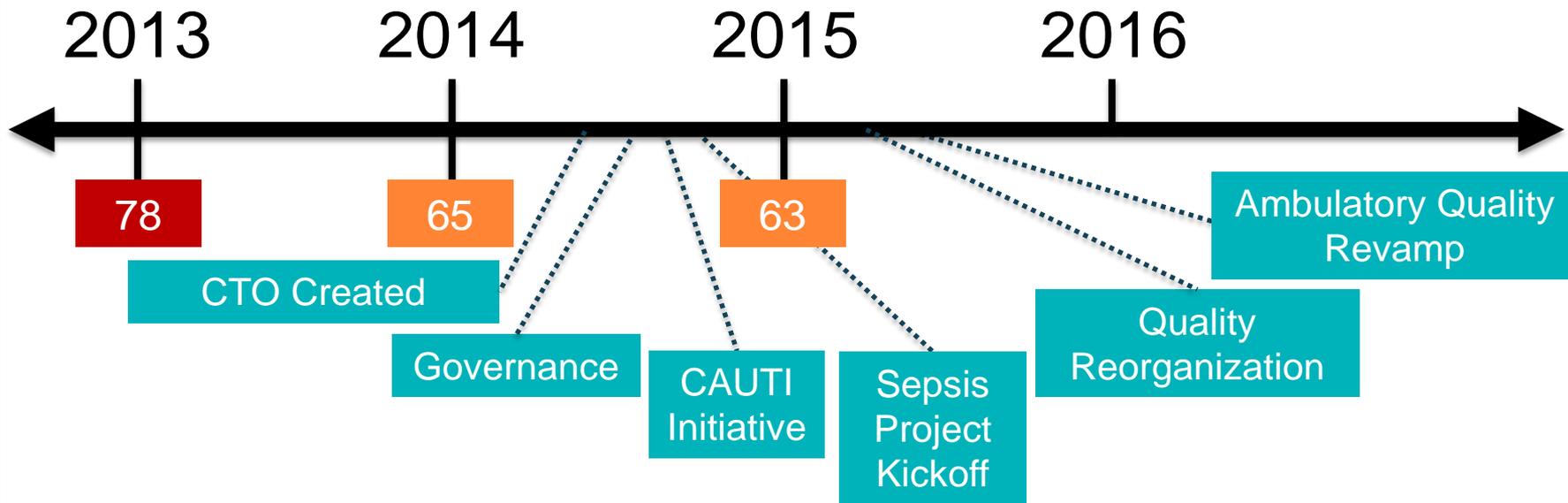


Organizational Chart



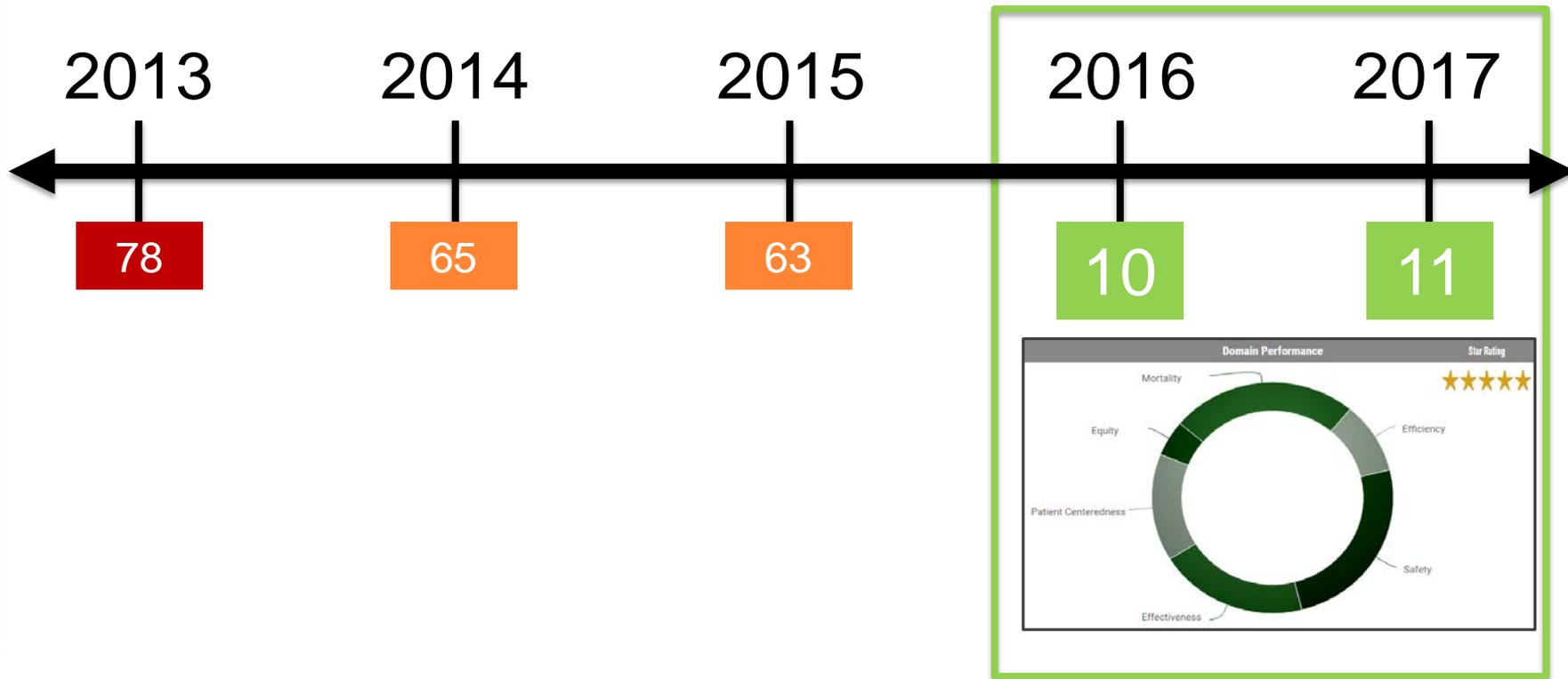
Nebraska Medicine Journey

The Transformation



Nebraska Medicine Journey

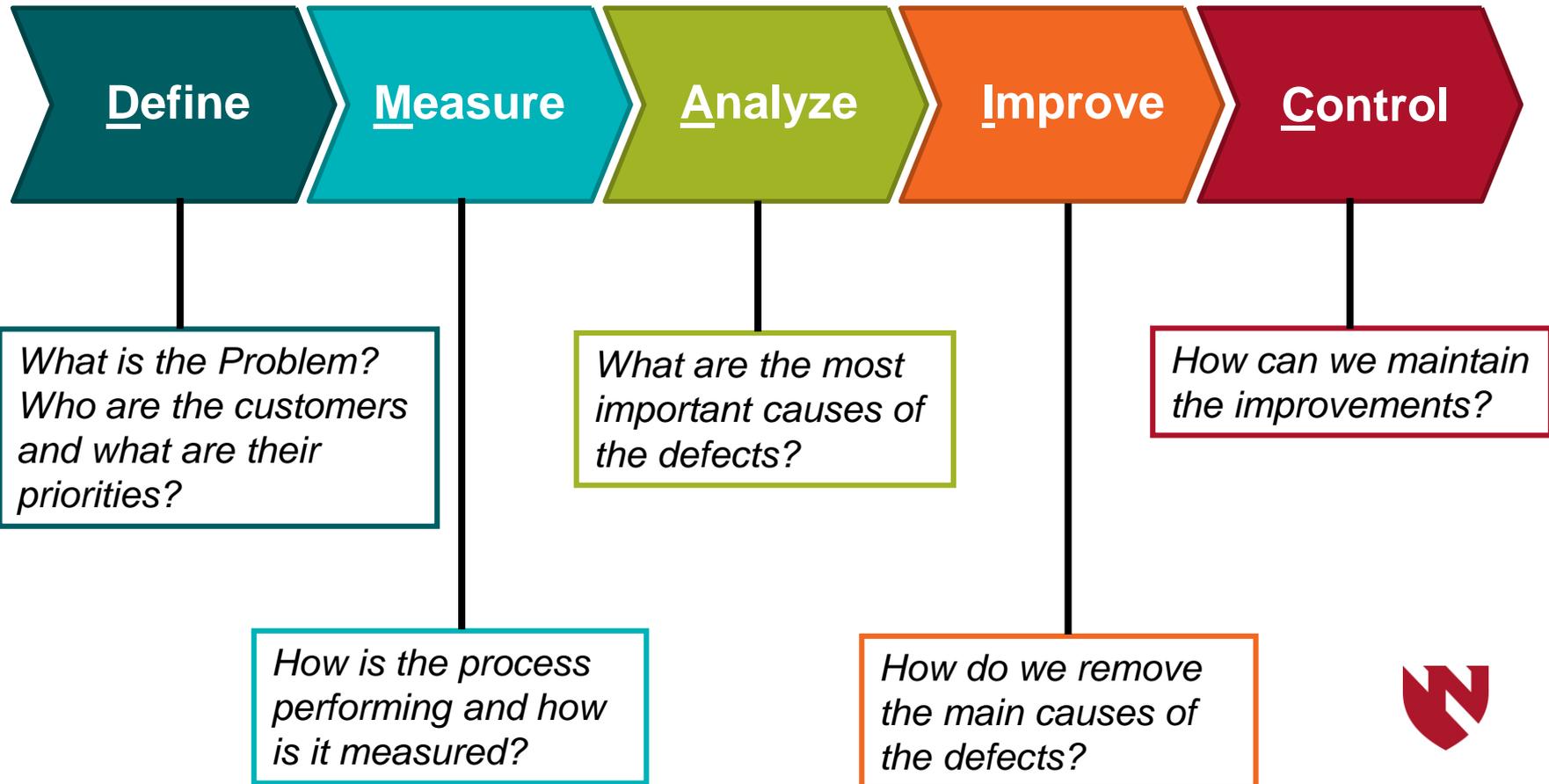
The Transformation



Approach to Change

DMAIC THINKING

To improve any existing product or process...



How We Realize Value from Health IT

STEPS Framework



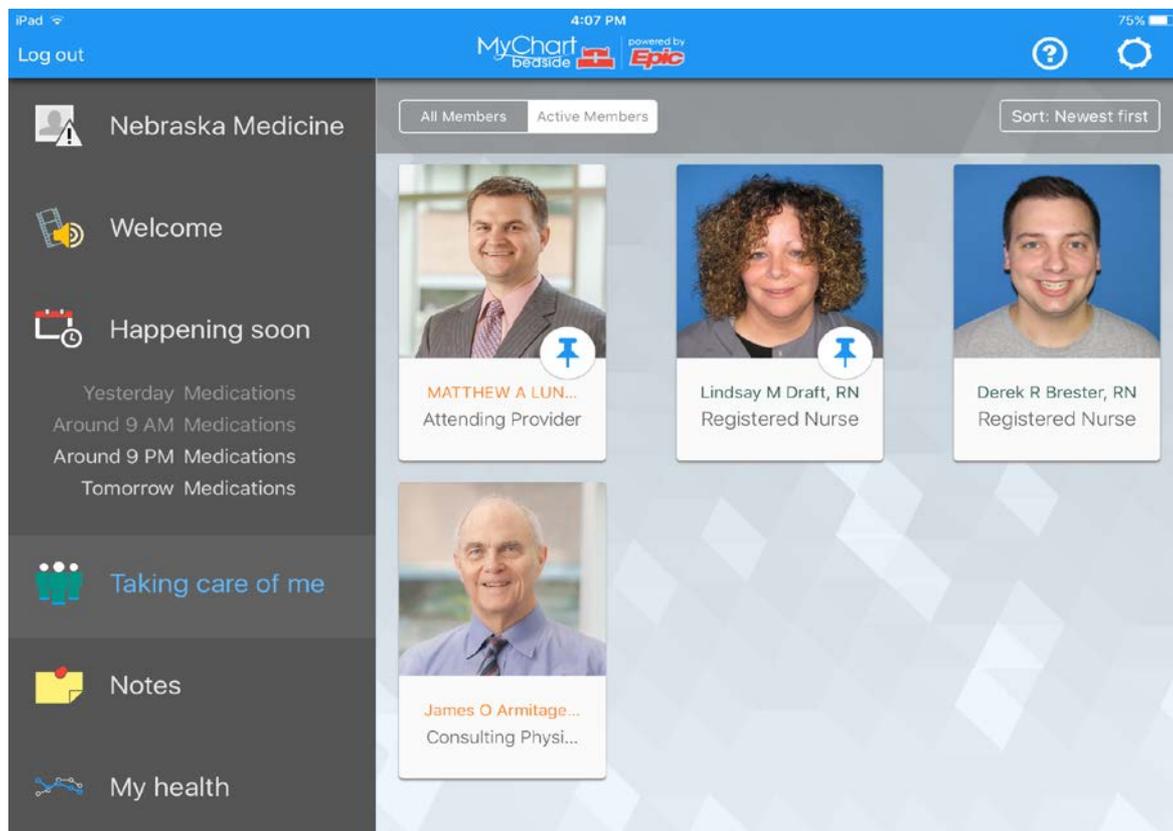
How We Realize Value from Health IT



MyChart Bedside:

Improved patient satisfaction by **connecting the patient to his/her care team** and creating a platform for patients to actively engage in their care during hospitalization

Improvement in
HCAHPS Scores
for Patients
Utilizing Bedside

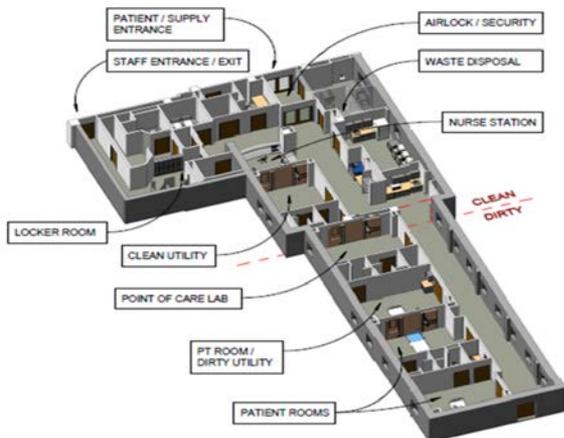


How We Realize Value from Health IT



Ebola:

Utilizing health IT to ensure the **same high-quality level of care** for patients with highly infectious diseases.

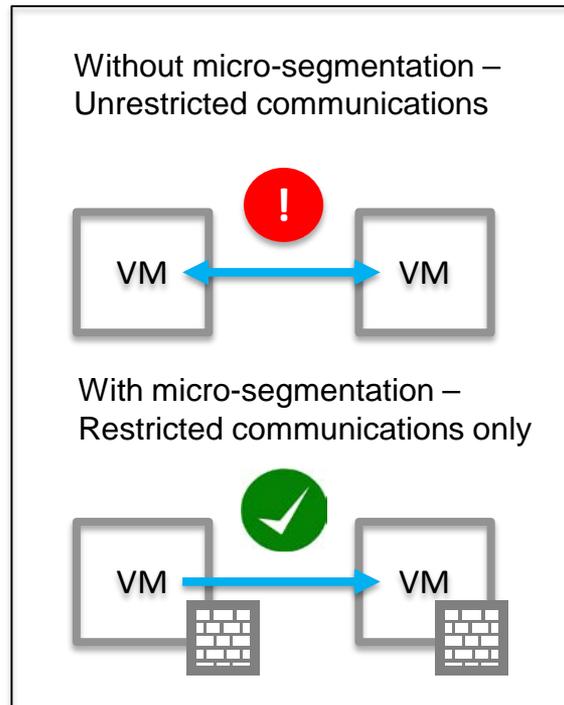


How We Realize Value from Health IT



Microsegmentation:

Micro-segmented Epic environment through a virtual network, resulting in a **reduction of open ports from 3,145,671 to 534**, thereby decreasing security vulnerabilities to cyberattacks



- Stateful firewall of every virtual machine
- Restricts to only necessary communications between virtual machines
- Windows Tier (34 VMs) -
 - 2,228,190 to 292 open ports
- Reporting Tier (8 VMs) –
 - 524,280 to 224 open ports
- Database Tier (6 VMs) –
 - 393,201 to 18 open ports



How We Realize Value from Health IT



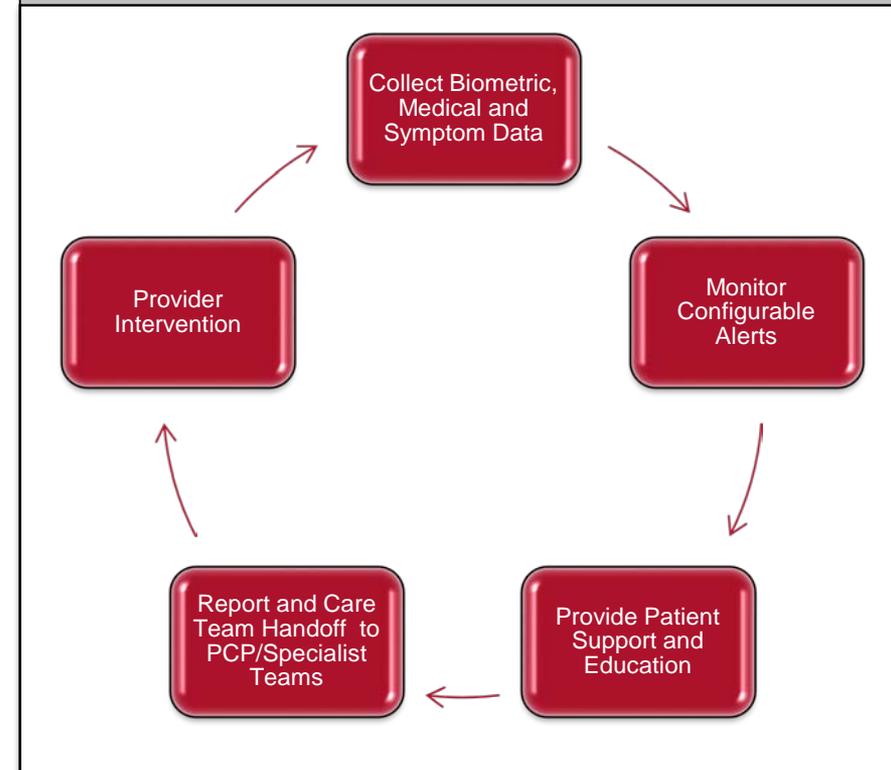
Type 2 Diabetes Management:
Utilized remote patient monitoring technology in patients' homes to **reduce re-hospitalizations and improve HgbA1c control.**

CARDIOCOM



- At Home Vital Sign Collection
- Blood pressure, blood glucose, weight, heart rate
- Home station uploads to cloud service via 3G network
- Patient data is auto downloaded into One Chart/MyChart

Remote Patient Monitoring Cycle

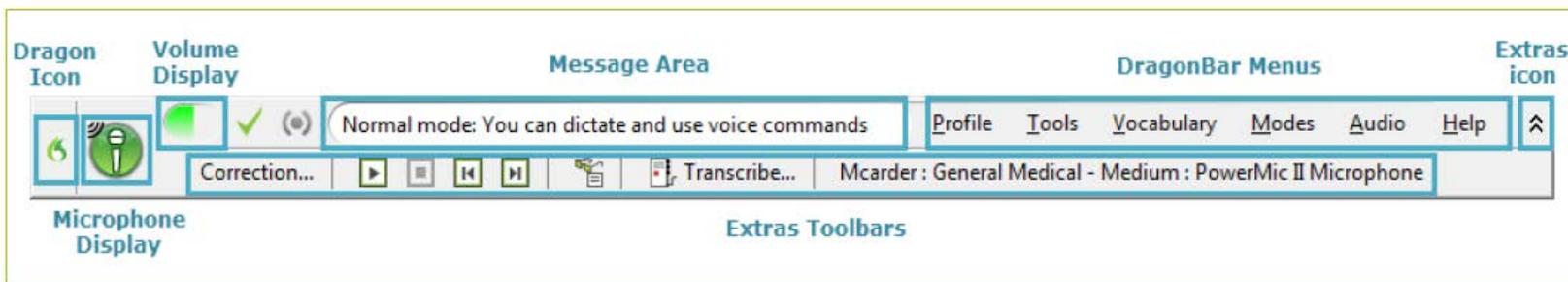
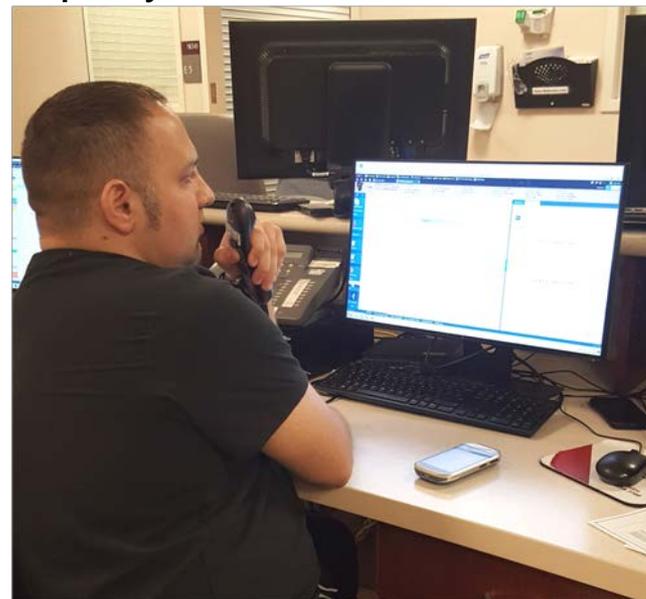
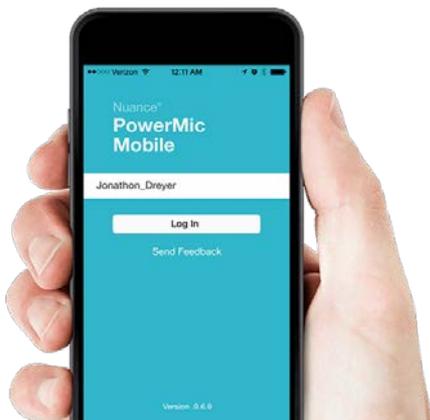


How We Realize Value from Health IT



Voice Recognition Software:

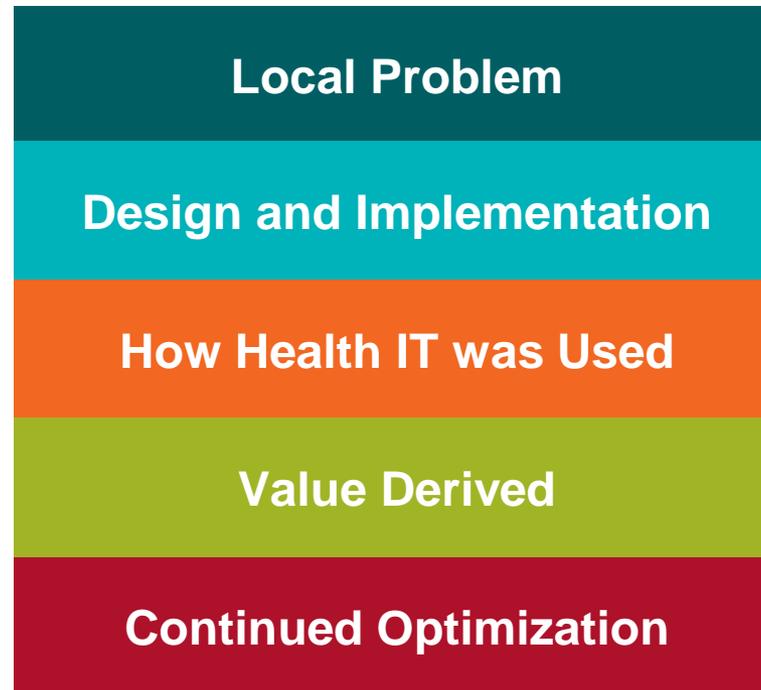
Physician documentation through Epic implementation and voice recognition decreased transcription costs from **\$3.5 million to \$300,000** per year



Menu Case Study Presentations

Topics & Design

- Saving Lives from Sepsis
 - Preventing Catheter Associated Urinary Tract Infections
 - Improving Quality Outcomes in Ambulatory Clinics
-





Saving Lives From Sepsis

Micah Beachy, DO, FACP
Medical Director, Clinical Effectiveness

Charlotte Brewer, BSN, RN
Program Coordinator, Clinical Effectiveness



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Background

- Sepsis is the #1 cause of mortality at Nebraska Medicine
- Sepsis mortality 2013:
 - All Sepsis DRGs: ~10% mortality rate
 - DRG 870: 29% mortality rate
 - Severe sepsis / septic shock development on the floor at Nebraska Medicine has mortality of ~ 50% mortality rate
- Multiple initiatives completed both before and after implementation of Epic
 - Most had temporary success in reducing sepsis mortality, but responses were unsustainable
 - ICU leadership brought forward concern for increasing mortality in this population

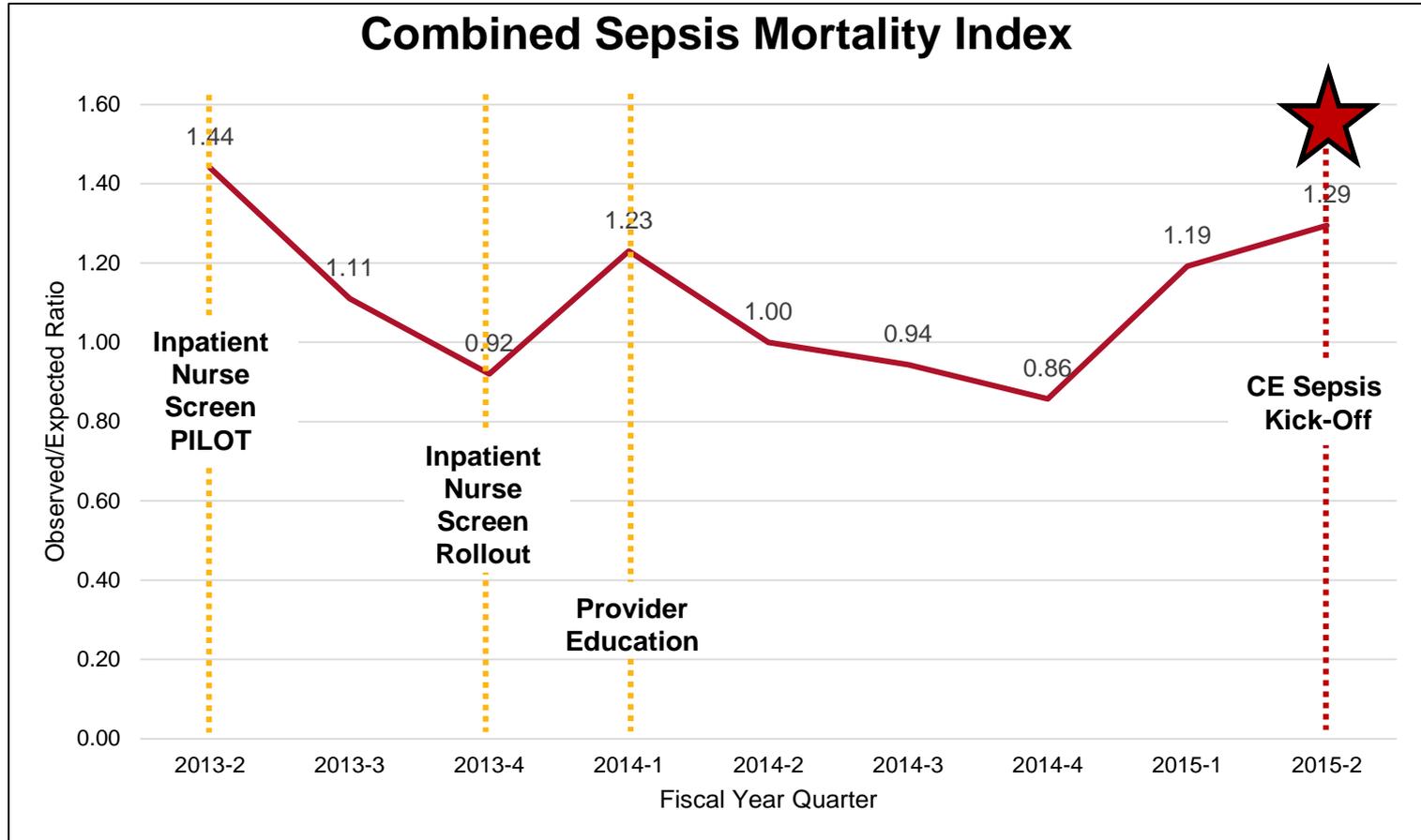


DRG 870: Septicemia with mechanical ventilation greater than 96 hours

DRG 871: Septicemia without mechanical ventilation greater than 96 hours with a major complication or comorbidity (MCC)

DRG 872: Septicemia without mechanical ventilation greater than 96 hours without a major complication or comorbidity (MCC)

Background



Inpatient Clinical Process

- Patient has 2+ positive SIRS criteria
- Nurse completes sepsis screen and contacts provider if positive at any level of sepsis
- Provider evaluates patient for sepsis
- Provider orders additional screening tests as necessary
- Provider initiates 3 and 6 hour bundle treatment (and transfer to ICU for septic shock)

System Tools

BPA/System List Column

Rule-based Print Groups

Widgets, Sepsis Report, Predictive Model

Sepsis Screening Order Panel

Sepsis-specific Order Set



Patient Has 2+ Positive SIRS Criteria

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Care Guidance (1)

Sepsis Screen is required! Patient's Name meets SIRS Criteria and may be septic!
SIRS = Systemic Inflammatory Response Syndrome

- Click the link below to complete required sepsis screening.
- If the result of screen is "SEPSIS", "SEVERE SEPSIS" or "SEPTIC SHOCK"
 - Immediately notify the provider if appropriate
 - Document Sepsis Screen Actions or "Sepsis Screen" in Reason for Communication as necessary

Vitals:

	09/22/17 0700	09/22/17 1100	09/22/17 1300	09/22/17 1600
BP:	100/65	95/60	92/55	(!) 88/52
Pulse:	95	90	100	120
Resp:	20	20	20	26
Temp:	38.1 °C	38.6 °C	38.8 °C	39.2 °C

Pertinent Lab Results in the Last 24 Hours

Lab	Result	Ref Range
Lactate, Ven	6.5*	
WBC	15.5	X10E3/ μ L
Bands Relative	12*	0 - 6 %
Glucose, Blood	65	

[Click here to complete Sepsis Screen](#)

My Patients 5 Patients

Bed	Patient Location	# of SIRS Criteria Met	Sepsis Score	MRN	Code Status Text	Isolation	Signed & Expiri Held Orders
5446-1	NMC 5USW	3	SEPSIS	00304811	Need Order	—	—
6880-0	NMC 6CNE	4					
6886-0	NMC 6CNE	0	1				TEMPERATURE > 38.3 OR < 36 IN THE LAST 24 HO...
			1				HEART RATE > 90 IN THE LAST 2 HOURS
			1				RESPIRATIONS > 20 IN THE LAST 2 HOURS
7472-0	NMC 7UNW	0	1				WBC > 12K OR < 4K OR BANDS > 10%
			0				GLUCOSE < 70 OR > 140 IN THE LAST 24 HOURS W...
M324-0	BMC 3BE	0	S				DOCUMENTED ALTERED MENTAL STATUS

System Tools

BPA/System List Column

Rule-based Print Groups

Widgets, Sepsis Report, Predictive Model

Sepsis Screening Order Panel

Sepsis-specific Order Set



Nurse Sepsis Screen

Calculating Sepsis Screen Score

If you answered the following above:

- No, No & No → Score = **NEGATIVE**
- Yes, No & No → Score = **SIRS**
- Yes, Yes & No → Score = **SEPSIS**
- Yes, Yes & Yes → Score = **SEVERE SEPSIS** or **SEPTIC SHOCK** (if BP criteria met)

If Sepsis Screen Score =

- NEGATIVE** → screen patient as needed
- SIRS** → continue to monitor for signs of progression
- SEPSIS** →
 - If finding is **NEW**: notify provider to initiate Severe Sepsis Screening Panel
 - If provider was previously notified: notify provider only if necessary to initiate Severe Sepsis Screening Panel to evaluate for Severe Sepsis
- SEVERE SEPSIS** → notify Provider to transfer patient to ICU for initiation of Sepsis Order Set
- SEPTIC SHOCK** → notify Provider to transfer patient to ICU for initiation of Sepsis Order Set

System Tools

BPA/System List Column

Rule-based Print Groups

Widgets, Sepsis Report, Predictive Model

Sepsis Screening Order Panel

Sepsis-specific Order Set



Provider Evaluates Patient for Sepsis

System Tools

Summary

← ↻ 🔍 📄 Index 📄 Overview

Nursing Sepsis Screen Report

SEPSIS SCREEN SCORE

- SIRS at 09/22 1600
- SIRS at 09/22 1300
- NEGATIVE at 09/22 1100
- NEGATIVE at 09/22 0700

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BPA/System List Column

Rule-based Print Groups

Widgets, Sepsis Report, Predictive Model

Sepsis Screening Order Panel

Sepsis-specific Order Set

Sepsis Predictive Model - Likelihood Ratio

Total Score: 30

YOUR PATIENT IS THIS MANY TIMES MORE LIKELY TO DEVELOP SEPSIS THAN OTHER INPATIENTS AT NEBRASKA MEDICINE (BASELINE SEPSIS PREVALENCE 2-3%)

Meets SIRS Criteria - Screen for Sepsis!

4 Total Score

- TEMPERATURE > 38.3 OR < 36 IN THE LAST 24 HOURS
- HEART RATE > 90 IN THE LAST 2 HOURS
- RESPIRATIONS > 20 IN THE LAST 2 HOURS
- WBC > 12K OR < 4K OR BANDS > 10%

Nursing Sepsis Screen Report

SEPSIS SCREEN SCORE

- SIRS at 09/22 1600
- SIRS at 09/22 1300
- NEGATIVE at 09/22 1100
- NEGATIVE at 09/22 0700

Sepsis Comprehensive Flowsheet

Go to now: 2/26/2017 | 02/26/17 - Today

6CNE-6TH FLOOR CLARKSON TOWER NORTHEAST

Time:	05/31 0900	07/14 0800	09/21 0000	09/22 0700	09/22 0701 - 09/23 0700 1100	1300	1600
Sepsis							
Screening Score	SEVE...		NEG...	NEG...	SIRS	SIRS	Screening...
Temp	39.4	39.5		38.1	38.6	38.8	39.2
Pulse	125			95	90	100	120
Resp	22			20	20	20	26
BP		98/50		100/65	95/60	92/55	88/52
WBC			15.5				
Bands			12				
Glucose, Blood			65				

Microbiology Results (last 2 days)

Hospital Problems

Infectious Disease Monitoring

Comment

Active Lactate and Blood Cultures

Report

Treatment Team

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Provider Orders Screening

Severe Sepsis Screening Panel ✔ Accept

- Blood gas arterial with O2 saturation
STAT
- CBC with differential, platelet
STAT
- Comprehensive metabolic panel
STAT
- Lactic acid, venous whole blood
SEPSIS STAT and in 4 hours First occurrence Today at 1652 Last occurrence Today at 2052 for 2 occurrences P
- Protine-INR
STAT

ⓘ Next Required ✔ Accept

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lactate Browse Preference List Facility List

Order Sets & Panels Search order sets by user ⓘ (Alt+1)

Name	Type
Lactic acid, venous whole blood (Evaluate for SEPSIS) (aka Lactate)	Order Panel
Lactic acid, venous whole blood (non-sepsis indication) (aka lactate)	Order Panel

Select And Stay ✔ Accept ✗ Cancel

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New Orders

Lactic acid, venous whole blood (Evaluate for SEPSIS)

Lactic acid, venous whole blood

1 P SEPSIS STAT and in 4 hours First occurrence Today at 1706
Last occurrence Today at 2106 for 2 occurrences

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System Tools

BPA/System List Column

Rule-based Print Groups

Widgets, Sepsis Report, Predictive Model

Sepsis Screening Order Panel

Sepsis-specific Order Set



Provider Initiates 3 and 6 Hour Bundles

System Tools

BPA/System List Column

Rule-based Print Groups

Widgets, Sepsis Report, Predictive Model

Sepsis Screening Order Panel

Sepsis-specific Order Set



Order and Order Set Search

SEPSIS

Order Sets & Panels

Name	User Version Name	Type
ED Adult Sepsis Diagnosis & Treatment		Order Set
ED Nurse Sepsis Triage Protocol		Order Set
General Adult Sepsis ICU Admission		Order Set
General Adult Sepsis ICU Focused		Order Set
RRT Sepsis Screening Orders		Order Set
Transplant Fever / Sepsis Admission Pediatric		Order Set
Transplant Fever / Sepsis Focused Pediatric		Order Set

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Medications

IV Fluid Bolus - Sepsis Focused

Lactate, Ven (no units)

Date/Time	Value
10/02/2017	4.7

30 mL/kg is recommended for patients in septic shock or a lactate value ≥ 4

- sodium chloride 0.9 % bolus
30 mL/kg, Intravenous, Once
- sodium chloride 0.9 % bolus
1,000 mL, Intravenous, Once
- sodium chloride 0.9 % bolus
500 mL, Intravenous, Administer over 0.5 Hours, Once

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Outside Transfer Documentation

Screening - Transfer In/Call-In

Time taken: 1341 9/25/2017

Values By

Transfer Information

Admission Source: Transfer from a hospital Transfer from SNF Clinic Other

Reported Temp:

Reported Heart Rate:

Does the patient have a possible source of infection or positive culture? Yes No

Altered Mental Status: Yes No

Altered Mental Status - more information: Alert Responsive to voice R

History of Diabetes: Yes No

Most Recent Blood Glucose:

Patient Information For Call In Transfers

Pertinent Medical History:

Have IV fluids been started? Yes No

Provider Outside Transfer Acceptance Note

BED DESK PROVIDER INFORMATION (all recorded)

Provider Information

Row Name	10/01/17 1512
Referring Facility Number	999999999
Referring Provider	Dr. Jones
Referring Provider Contact Number	8888888888
Referring Provider Contact Type	Pager
Chief Complaint/Reason for Referral	Necrotizing fasciitis
Current Level of Care	ICU

Estimated arrival DATE: 10/1/2017
 Estimated arrival TIME: 1900 PM
 Mode of Transfer: Ambulance
 For updates, call 559-2337 (9-BEDS)

Clinical course PRIOR to transfer: Test Sepsispatient is a(n) 64 y.o. male with necrotizing fasciitis of the left lower leg. Patient is becoming unstable and requires transfer.

BED DESK VITALS (all recorded)

Bed Desk Vitals

Row Name	10/01/17 1512
Reported Temp	39.1
Reported Heart Rate	120
Reported Blood Pressure	92/60
Reported Respirations	24
Reported SpO2	90

Provider sepsis screening:
 Suspected source of infection: left lower leg infection and See clinical course (above)

- Blood culture(s) obtained
- Antibiotics given
- Lactic acid > 4.0
- Crystalloid fluid resuscitation 1L given, encouraged additional 2 L prior to/during transfer.
- Vasopressors Unable to assess due to patient status

I discussed management of infection with the transferring facility.

Unable to assess due to patient status

 septic shock
 severe sepsis
 sepsis

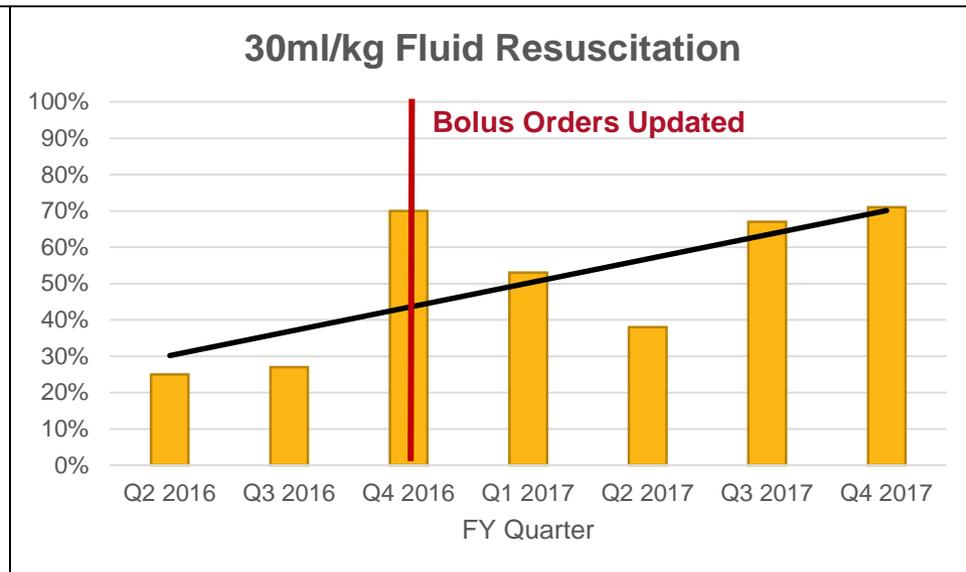
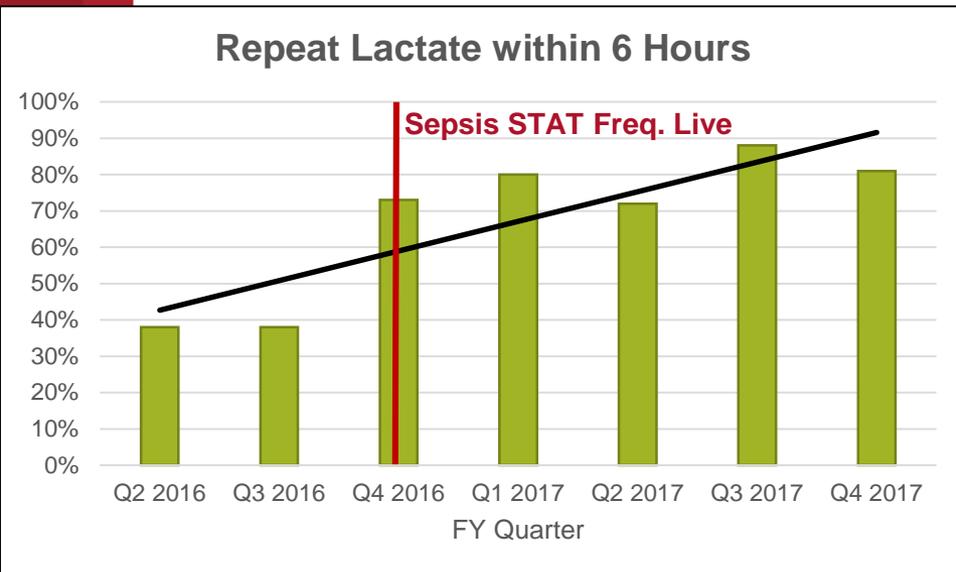
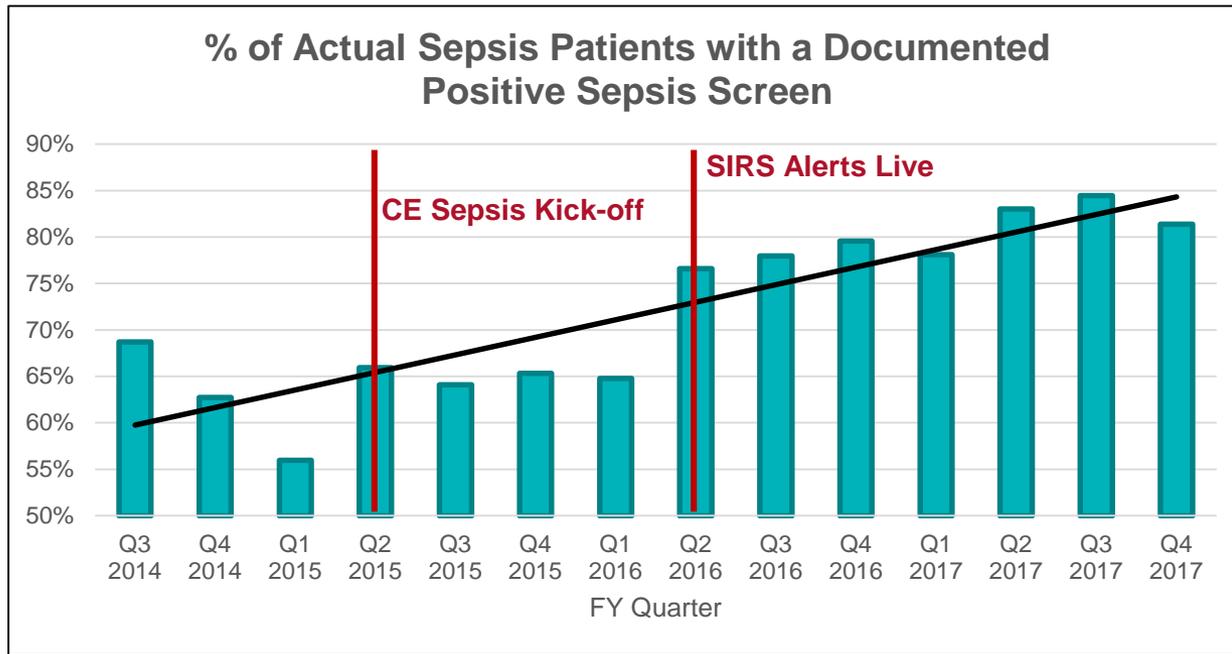
Based on the patient description and documented clinical course, I am conc
 {sepsis spectrum disorder 19197:"septic shock","severe sepsis","sepsis"}

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Process Metrics



Outcome Metric - Mortality



Striving Toward Zero Harm: Reducing Catheter-associated Urinary Tract Infections

Julie Fedderson, MD, MBA, FACP
Chief Patient Safety & Compliance Officer

Nicole Turille, BSN, RN
Director, Quality & Patient Safety



SERIOUS MEDICINE. EXTRAORDINARY CARE.™

Background

Nebraska Medicine's
Fiscal Year



3.1 CAUTI rate
(Rate/1000 Catheter Days)


1 in 5 IUCs
are placed
UNNECESSARILY

Responsible for

40%

of Health Care
**Acquired
Infections**

Catheter use is common:

12-20%

overall patients

70-80%

of ICU patients



**RISK
FACTOR**

for nosocomial UTI

Further investigation revealed:

- Staff were not always aware of indication for catheter
- Catheters were not being removed in a timely manner
- Catheter cares were not being performed and documented consistently
- Urine culture and sensitivity studies were being ordered inappropriately



Solutions Implemented

- Indwelling Urinary Catheter (IUC) Protocol
- Infection Prevention and Department Manager Rounds
- Urine Culture Order Modifications
- Skills Validation – Nursing and Patient Care Technicians



Clinical Process

- Order is placed for IUC placement requiring selection of indication from a set of organizationally- approved indications
- Nurse documents IUC placement, status and catheter care completion
- Nurse monitors IUC dwell time and removes catheter or contacts MD for removal order dependent on indication
- Nurses and department leadership able to quickly evaluate patients with IUC, review catheter maintenance and length of dwell time
- Team leads and operational leadership able to view departmental opportunities
- Clinicians desiring urine cultures must utilize reflex ordering panel to ensure appropriate use.

System Tools

Standardized Required Indications

Task List Reminders

Rule Based Decision Support

Real-time Evaluation

Nursing Dashboards

Reflex Order Algorithm



Process & Tools:

Reduce Catheter Days & Standardize Documentation

Indication is now a mandatory field and more visible

System Tools

Indwelling Urinary Catheter Panel ✓ Accept

✓ Indwelling urinary catheter per protocol; ✓ Accept ✕ Cancel

Priority: Routine STAT

Frequency: Continuous

For: Hours Days Weeks

Starting: Today Tomorrow At:

Starting: **Today 0858** **Until Specified**

Scheduled Times: [Hide Schedule](#)
9/8/17 0858

Reason for urinary catheter

Comments: [Click to add text \(F6\)](#)

Remove indwelling urinary catheter ✓ Accept ✕ Cancel

Next Required ✓ Accept

Standardized Required Indications

Task List Reminders

Rule Based Decision Support

Real-time Evaluation

Nursing Dashboards

Reflex Order Algorithm

Process & Tools:

Reduce Catheter Days & Standardize Documentation

Decision support to aid in catheter care completion

Work List Tasks

Current Shift: 10/06/17 0701-1901 | Start Date: 10/6/2017 | Overdue

Time View | Filters: All Tasks | Show: Completed Discontinued

List view: Category Discipline Documentation Priority Task Time | Choose Columns

Time	Task	Priority	Doc	Skip	Grid	Print
1000	Indwelling Urinary Catheter Cares	Routine	Doc	Skip	Grid	Print
1400	Ambulate patient	None	Doc	Skip	Grid	Print
1600	Vital signs	Routine	Doc	Skip	Grid	Print

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System Tools

Standardized Required Indications

Task List Reminders

Rule Based Decision Support

Real-time Evaluation

Nursing Dashboards

Reflex Order Algorithm

Process & Tools:

Reduce Catheter Days & Standardize Documentation

Decision support to promote timely catheter removal

System Tools

Standardized Required Indications

Task List Reminders

Rule Based Decision Support

Real-time Evaluation

Nursing Dashboards

Reflex Order Algorithm

The screenshot displays a clinical information system interface. On the left, a table shows admission data for various dates (8/26/15, 9/9/15, 10/2/15) with corresponding counts (1734, 1003, 1042, 1300). Below this, a table lists 'Indwelling urinary catheter' properties for a patient on 09/25/15, including 'Urethral Catheter Properties', 'Urinary Catheter Status', 'Collection Container', 'Securement Method', and 'Output (mL)'. A yellow starburst icon is visible over the 'Urinary Catheter Status' field.

On the right, the 'Urinary Catheter Status' panel shows a date/time of 10/02/15 1300 and a status of 'Maintained per protocol'. A yellow banner with the text '! LONG TERM INDWELLING URINARY CATHETER !' is displayed, listing criteria: 'In place for greater than three days', 'Unknown placement date/time', and 'Present on admission'. Below this, a green banner reads '! INDWELLING URINARY CATHETER INDICATION !' with the reason '24 hour urine collection with incontinence or inability to collect' and the instruction 'NURSE MAY REMOVE PER PROTOCOL'. A red banner at the bottom of the interface reads '! INDWELLING URINARY CATHETER INDICATION !' with the reason 'Treatment decisions requiring accurate I & O' and the instruction 'CALL MD FOR REMOVAL ORDER'.

Annotations explain the banners: A green banner displays if the nurse may remove urinary catheter per protocol. A red banner displays if the nurse must consult the physician for removal orders per protocol.

Additional text in the interface includes: 'Please consult with their physician for removal or reevaluation.', '***Remove when 24 hour urine collection is complete.', and a link to 'IUC Removal Protocol (CP_NUR_04)'.

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Process & Tools:

Reduce Catheter Days & Standardize Documentation

System Tools

my patients (14 Patients) Last Refreshed: 1641

Room/Bed	Unit	Patient Locator	Patient Name	Age/Sex	Admission Dx	Unacknow Orders	Med Overdue/ Pended Admin	New Rpt Flag	New Notes	Isolation	Code Status Text	Attending	Modified Schmid - Total Score	Injury Fall Risk	Shift Req Doc	RN Name/ Phone Number	IUC Details
											FULL	John Y Um, MD	4	H		HOLLY M, CANDACE M (Ph: 402-507-9281)	Indwelling urinary catheter per protocol. Reason for urinary catheter. Treatment decisions requiring accurate I & O **** IUC > 3 DAYS ****
											FULL	David L Bolam,				BLAIRE H (Ph: 507-	

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Profile Due Meds Vitals Labs Notes All Held Orders Rad Req Doc SBAR Handoff

! LONG TERM INDWELLING URINARY CATHETER !
 This patient's indwelling urinary catheter meets one of the following criteria:
 • In place for greater than three days
 • Unknown placement date/time
 • Present on admission
Please consult with their physician for removal or reevaluation.

! INDWELLING URINARY CATHETER INDICATION !
 Reason for urinary catheter: **Treatment decisions requiring accurate I & O**
[CALL MD FOR REMOVAL ORDER](#)
[IUC Removal Protocol \(CP_NUR_04\)](#)

Urinary Catheters
 Indwelling urinary catheter 09/15/15 1127 2 way (standard); Temperature probe (Active)
 Urinary Catheter Status Maintained per protocol 9/18/2015 3:51 AM
 Collection Container Urometer (standard) 9/18/2015 3:51 AM
 Securement Method Securement device 9/18/2015 3:51 AM
 Output (mL) 275 mL 9/18/2015 4:15 AM
 Number of days:3

Hygiene
 Hygiene / Cares: Indwelling urinary catheter cares, Peri-wash (09/17/15 2208)
 Level of assistance: Minimal assist (09/17/15 1400)
 Bath supplies: Foam skin cleanser (Non-CHG) (09/17/15 2208)
 Skin Care: Foam skin cleanser (09/16/15 2200)

Indwelling Urinary Catheter
 Go to now: 9/14/2015 Monday 0300 - Today 1859

Time	09/14 03-07	09/14 07-11	09/14 15-19	09/14 23-03	09/15 03-07	09/15 11-15	09/15 15-19	09/15 23-03	09/16 03-07	09/16 11-15	09/16 15-19	09/16 23-03	09/17 03-07	09/17 11-15	09/17 15-19	09/17 23-03	09/18 03-07	09/18 11-15	09/18 15-19	09/18 23-03	09/19 03-07	09/19 11-15	09/19 15-19	
Placement Date/Time: 09/15/15 1127 Inserted by: RN Present on admission: No Catheter Type: 2 way (standard); Temperature probe Tube Size (Fr.): 16 Fr. Catheter Balloon Size: 10 mL Urine Returned: Yes Site Prep: Betadine Patient Tolerance: In...																								
Urinary Catheter																								
Collection Contai...																								
Securement Met...																								
Output (mL)																								
Catheter Cares																								
Hygiene / Cares																								
Level of assistance																								
Bath supplies																								
Skin Care																								

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Process & Tools:

Reduce Catheter Days & Standardize Documentation

System Tools

Patients with Foley Catheters Just now

Report completed: Tue 10/3 02:32 PM

Department	Foley Catheter Duration (>3 Days)	Missing Foley Catheter Orders	Missing Catheter Cares Doc (>14 hrs)
BMC 1BNE	0 / 1	0 / 1	0 / 1
BMC 3BE	0 / 1	0 / 1	0 / 1
NM 4LEW	1 / 2	0 / 2	0 / 2
NM 6WNE	2 / 4	0 / 4	2 / 4
NM 6WW	0 / 1	0 / 1	0 / 1
NM 8WE	0 / 1	0 / 1	1 / 1
NMC 3CE	0 / 3	0 / 3	1 / 3
NMC 3CSE	0 / 1	0 / 1	1 / 1
NMC 3CSW	0 / 4	2 / 4	1 / 4
NMC 4CS	1 / 1	0 / 1	0 / 1
NMC 4UN	0 / 1	0 / 1	1 / 1
NMC 4UW	0 / 1	0 / 1	1 / 1
NMC 5CNE	0 / 2	0 / 2	0 / 2
NMC 5CSE	0 / 2	0 / 2	2 / 2
NMC 5CSW	1 / 1	0 / 1	0 / 1
NMC 5UN	0 / 4	0 / 4	1 / 4
NMC 5UNW	1 / 2	0 / 2	0 / 2
NMC 5USW	1 / 2	0 / 2	0 / 2
NMC 6CNW	1 / 1	0 / 1	0 / 1
NMC 6LEW	1 / 1	0 / 1	1 / 1
NMC 6UNW	0 / 1	0 / 1	1 / 1
NMC 7CSW	0 / 1	0 / 1	1 / 1
NMC 7LEW	1 / 1	0 / 1	0 / 1
NMC 8CNW	0 / 3	0 / 3	0 / 3
NMC 8CSW	2 / 6	0 / 6	1 / 6
NMC 9CSE	2 / 3	0 / 3	1 / 3
Total	14 / 51	2 / 51	16 / 51

Standardized Required Indications

Task List Reminders

Rule Based Decision Support

Real-time Evaluation

Nursing Dashboards

Reflex Order Algorithm

Process & Tools:

Decrease False Positive Culture Results

Accept

Urinalysis order panel with UTI evaluation

If only UA with microscopic is needed choose '**UA with reflex microscopic**'. If evaluating for UTI or desire a urine culture choose '**UA with reflex micro and possible culture (UTI evaluation)**'.

When UTI evaluation is ordered the urine culture is reflexively performed based upon patient symptoms, patient characteristics, and urinalysis results. There is no need to order a separate urine culture.

The following algorithm will be used to determine if a urine culture is performed:

1. No symptoms and not a special population = NO CULTURE
2. Special population (neutropenic, kidney transplant, pregnant, impending urologic surgery) with or without symptoms = CULTURE
3. Symptoms and not a special population = Evaluate UA for pyuria (>10 WBC/hpf) and contamination (>100 squamous cells/hpf)
 - a. **No pyuria = NO CULTURE, lack of pyuria strongly predictive infection NOT present**
 - b. Pyuria + contamination = NO CULTURE. If culture desired obtain new specimen.
 - c. Pyuria without contamination = CULTURE

UA with reflex microscopic

UA with reflex micro and possible culture (UTI evaluation)

Can only select one

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- Urine culture and sensitivity order no longer available for inpatients
- Urinalysis automatically reflexed for culture and sensitivity only if certain parameters are met in initial results

System Tools

Standardized Required Indications

Task List Reminders

Rule Based Decision Support

Real-time Evaluation

Nursing Dashboards

Reflex Order Algorithm

Process & Tools:

Decrease False Positive Culture Results

System Tools

Standardized Required Indications

Task List Reminders

Rule Based Decision Support

Real-time Evaluation

Nursing Dashboards

Reflex Order Algorithm

UA with reflex microscopic

UA with reflex micro and possible culture (UTI evaluation) Accept Cancel

Frequency: Once Once timed STAT

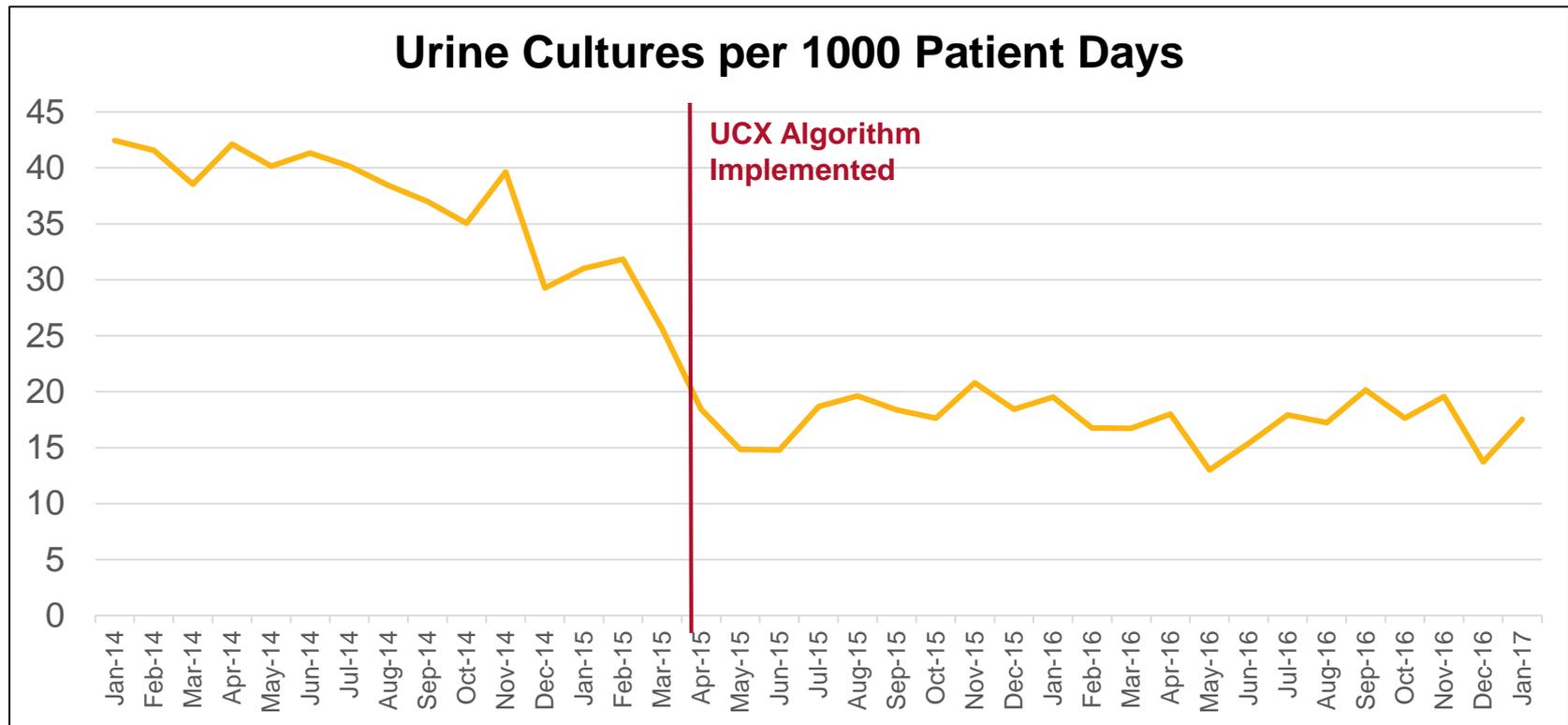
Starting: Today Tomorrow At:

First Occurrence: **Today 1505**

Scheduled Times: [Hide Schedule](#)

Questions:	Prompt	Answer
1.	Specimen source	Urine, Clean Catch Urine, Catheterized Urine, Nephrostomy Urine, Suprapubic Urine, Straight Cath Urine, Kidney Left Urine, Kidney Right Urinary Bladder
2.	Does patient have symptoms suggestive of urinary tract infection?	Yes No symptoms suggestive of UTI
A.	UTI symptoms	Dysuria New onset frequency or urgency Suprapubic or CVA tenderness Fever and unable to assess UTI symptoms New alteration in mental status without clear cause Acute hematuria Other (specify)
3.	Does patient meet criteria for further evaluation even if lacking pyuria (special population)?	Yes No
A.	Special need	Neutropenic Kidney transplant Pregnant Impending urologic surgery Child under 3 years Other (specify)
4.	Condition (fill out when using 'If Condition Met' frequency):	<input type="text"/>
Multiple response		

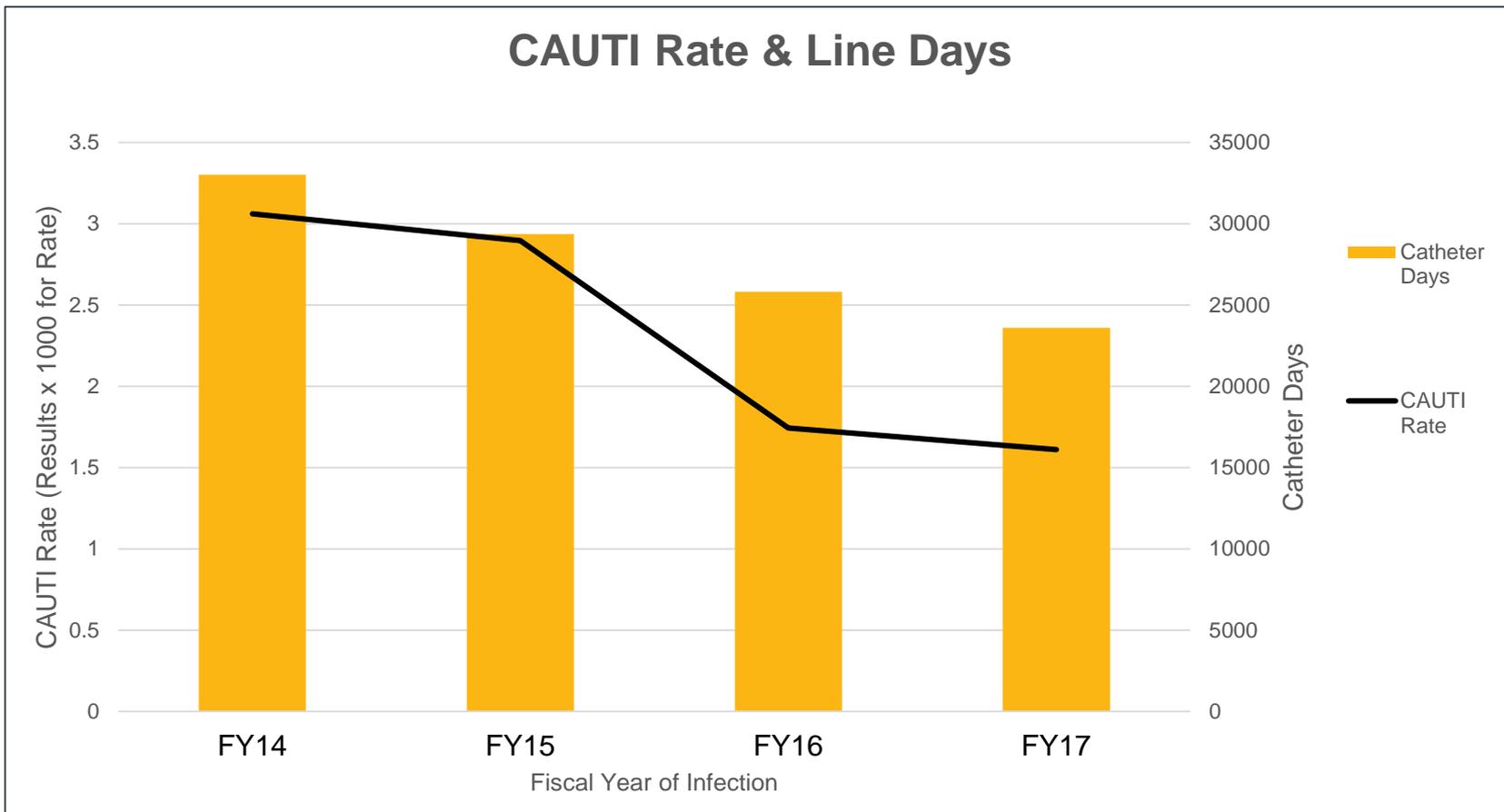
Markers of Success: Number of Urine Cultures



	Pre-Intervention	Post-Intervention	% Decline	<i>P</i>
UCX/1000 PD	36.9	18.4	50%	>.0001
Contaminated UCX/1000 PD	3.25	1.58	49%	<.0001



Value Derived: CAUTI Rate



Reduction in CAUTI rate:

47%

Reduction in catheter days:

29%



Moving the Mark on Ambulatory Clinical Quality Measures

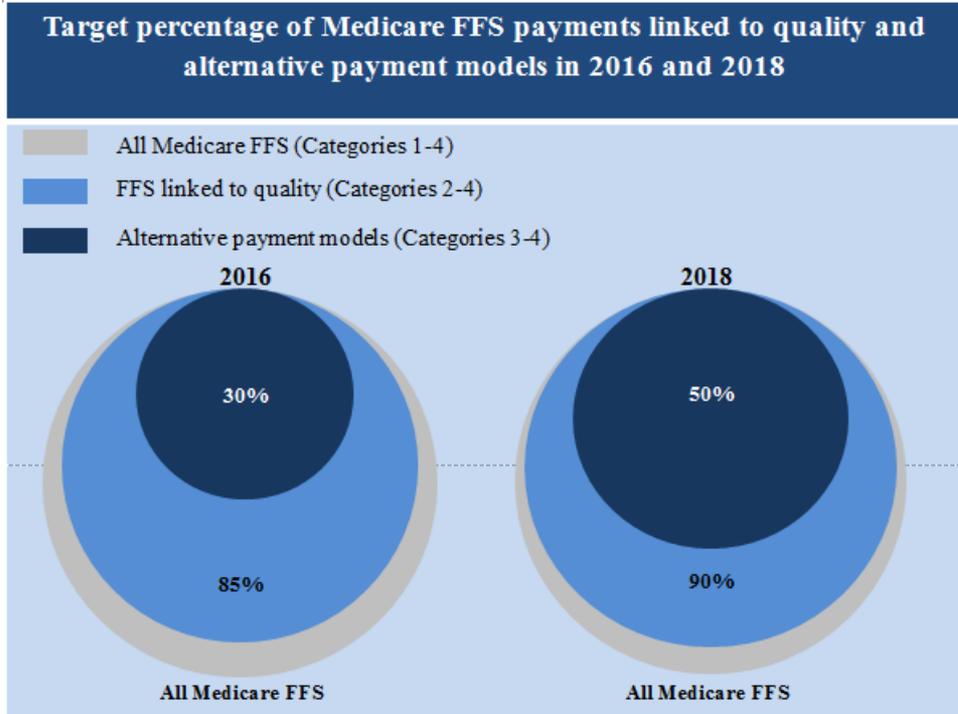
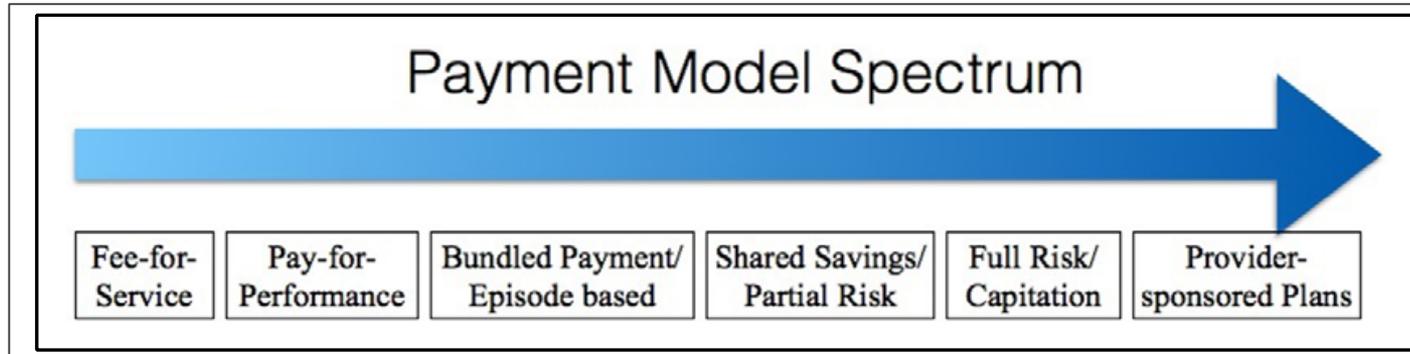
David Cloyed, MS, RN-BC
Applications Manager

Tammy Winterboer, PharmD, BCPS
Director, Clinical Effectiveness and Informatics



SERIOUS MEDICINE. EXTRAORDINARY CARE.™

National Challenge: Quality and Payment



Significant Gap in Quality

	CY 2015 (%)	CY 2016, Q1 (%)
Depression screen and follow-up	41	49
BMI counseling 18-65 yo	42	44
BMI counseling >65 yo	59	58
CRC screen	16	19
Pneumonia vaccination	35	40
Breast cancer screening	37	35
Falls screen	36	46
Uncontrolled HA1c	--	45
ASA in Vasc Dz	84	82
Tobacco use counseling	90	91
Med rec	89	91
BP control	60	57



Clinical Process

- When patient arrives in clinic, rooming staff gather and document standard visit specific information
- If necessary, rooming staff gather pertinent information to be collected annually
- Rooming staff complete any unreconciled regulatory requirements within their scope
- Physicians evaluate patient, review visit specific and annual information and then complete required documentation
- Physicians review personal individual compliance metrics with quality requirements
- Department and service line leaders review metrics for their care areas

System Tools

Visit Navigator Organization

Rule-based Banners

Reminders for Rooming Staff

Reminders for Providers

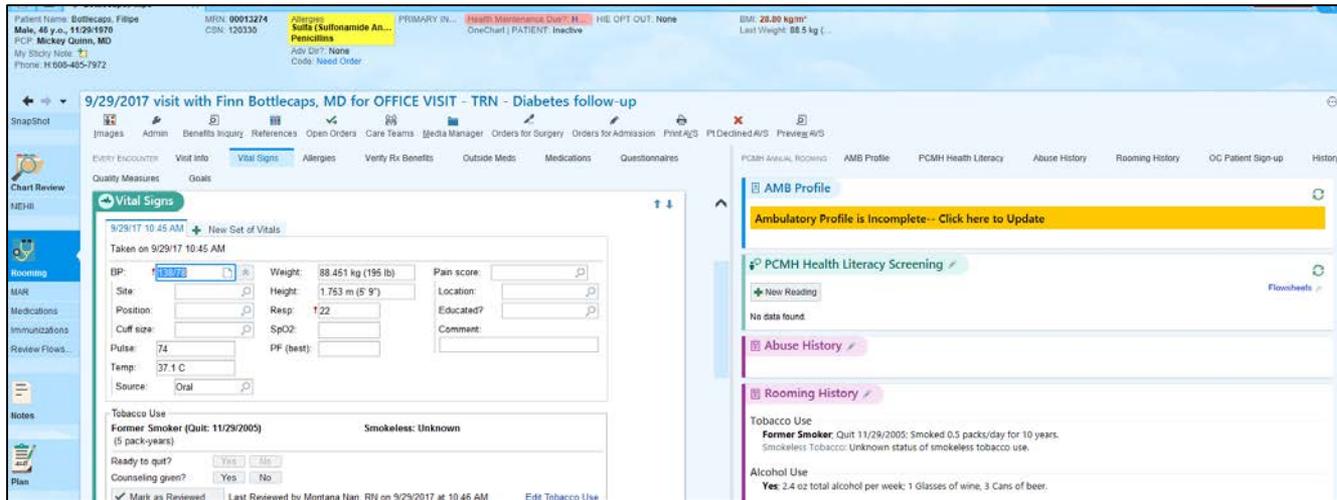
Provider Dashboards

Leader Roll-up Dashboards

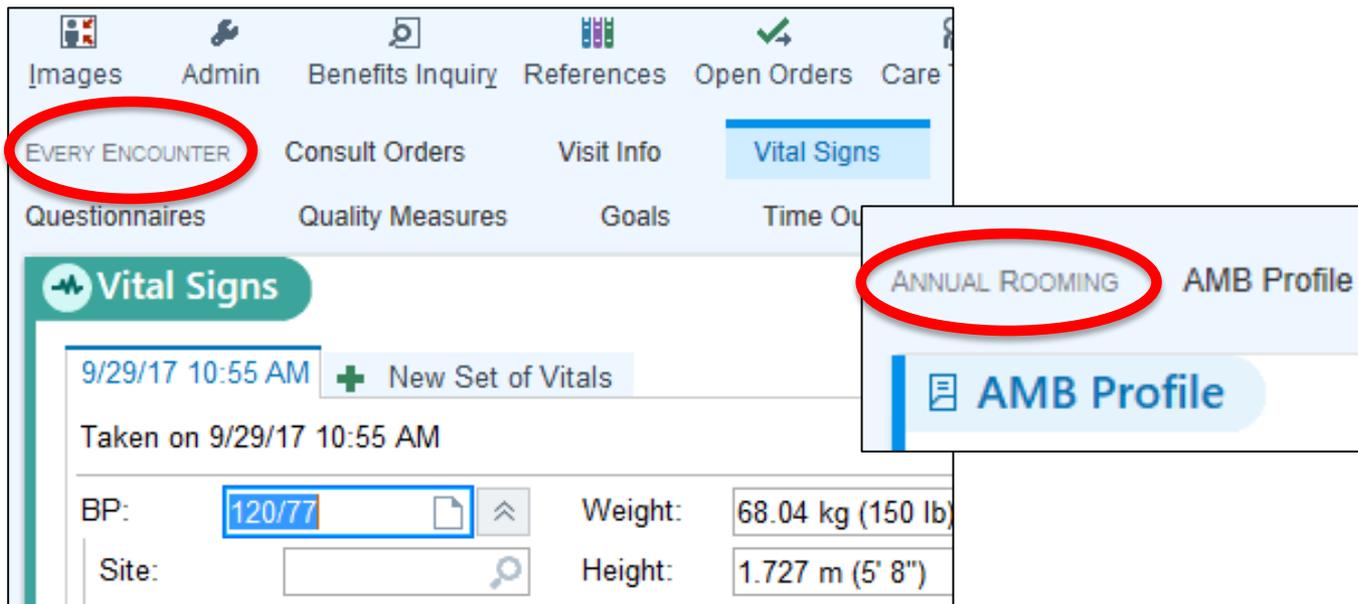


Process and Tools

System Tools



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Process and Tools

System Tools

Visit Navigator Organization

Rule-based Banners

Reminders for Rooming Staff

Reminders for Providers

Provider Dashboards

Leader Roll-up Dashboards

AMB Profile ↻

Ambulatory Profile is Incomplete-- Click here to Update

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ASSESSMENTS

Screenings

Depression Quest...

Home Care Plann...

PCMH Health Lite...

INTERVENTIONS

Education

PROFILE REVIEWED

Profile Reviewed

Time taken: 1113 9/29/2017

Responsible + Create Note

Nutrition Screen

Unintended weight loss? (more than 10 pounds in the last 2 months) Yes (Comment) No

Pneumococcal Vaccine Screen - Year Round

Have you ever had a pneumococcal vaccination? Yes No

Influenza Vaccine Screen - Influenza Season

Have you had an influenza vaccine this season? Yes No [Influenza Immunization Report](#)

PT/OT Screen

Have you had any recent decline in your mobility(gait, mobility, transfers)? Yes No

Have you had any recent changes in your ability to perform your activities of daily living (dressing, toileting, hygiene, bathing)? Yes No

History of Falls/Devices

History of falls? 1=Yes 0=No

Assistive Devices None

OVERVIEW

Directives

ASSESSMENTS

Screenings

Depression Quest...

Home Care Plann...

PCMH Health Lite...

INTERVENTIONS

Education

PROFILE REVIEWED

Profile Reviewed

Depression Questionnaire - PHQ-2

Time taken: 1114 9/29/2017

Responsible + Create Note

Over the past 2 weeks have you often been bothered by:

Little interest or pleasure in doing things 1=yes 0=no

Feeling down, depressed, or hopeless 1=yes 0=no

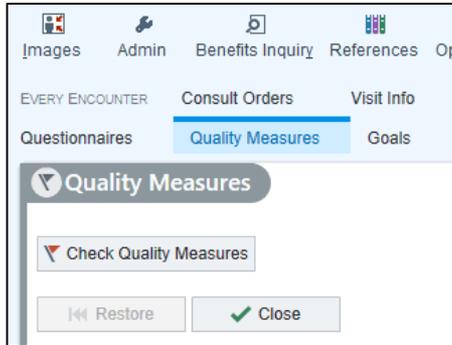
PHQ-2 Total

Restore Close Cancel

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Process and Tools



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Designed to remind rooming staff of measures that are within scope

A screenshot of a 'Quality Measures' dashboard. On the left is a sidebar with navigation options: 'Rooming', 'MAR', 'Medications', 'Immunizations', 'Review Flows...', 'Flowsheets', and 'Notes'. The main content area is titled 'Quality Measures' and shows a list of 'Quality Metrics (Measures: 4)'. Two metrics are visible: 1. 'Quality Metric- Depression Screening' with the message 'The PHQ-2 Depression Screening has NOT been completed.' and a link 'Link below to Flowsheets to complete the PHQ-2 depression screen.' pointing to 'Flowsheets (PHQ-2)'. 2. 'Quality Metric- Fall Risk' with the message 'This patient has NOT been screened for falls.' and a link 'Link below to "Flowsheets" to document a fall risk screen.' pointing to 'Flowsheets (Document History of Falls)'.

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System Tools

Visit Navigator Organization

Rule-based Banners

Reminders for Rooming Staff

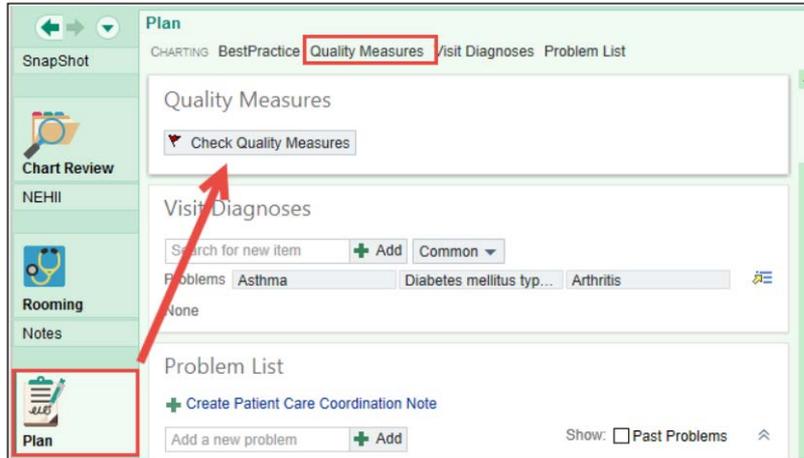
Reminders for Providers

Provider Dashboards

Leader Roll-up Dashboards

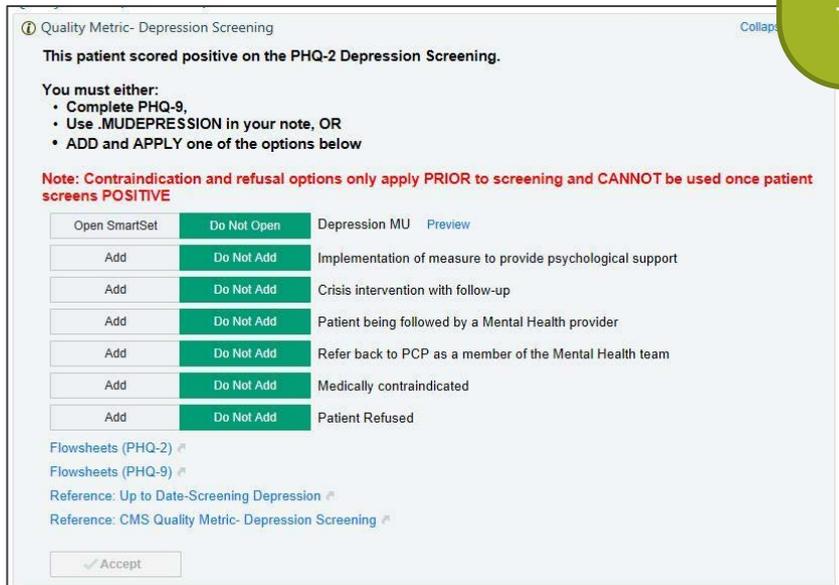
Process and Tools

System Tools



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Automates chart checking and reduces clicks normally spent searching for information throughout the chart



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Process and Tools

Adding Clinical Value to QMAs

Quality Metric- Pneumonia Vaccination Status for Older Adults

This patient is due for a pneumococcal vaccination.

Health Maintenance Topic	Date Due
<ul style="list-style-type: none"> Pneumococcal 65+ years Low and Medium Risk (1 of 2 - PCV13) 	11/27/2010

In order to meet this measure you must do one of the following:

- Select "Order" on ONE of the pneumococcal vaccines below that is appropriate for the patient OR
- Select the link below to Immunization Activity to document an external vaccination.

Order	Do Not Order	Pneumococcal conjugate vaccine 13-valent
Order	Do Not Order	Pneumococcal polysaccharide vaccine 23-valent

[Immunization Activity \(Document outside immunization\)](#) ↗
[Reference: CDC Guidelines for Adult Pneumococcal Vaccination](#) ↗
[Reference: CMS Quality Metric- Adult Pneumococcal Vaccination](#) ↗

Integration of best practice recommendation

Links available to add documentation and reference material

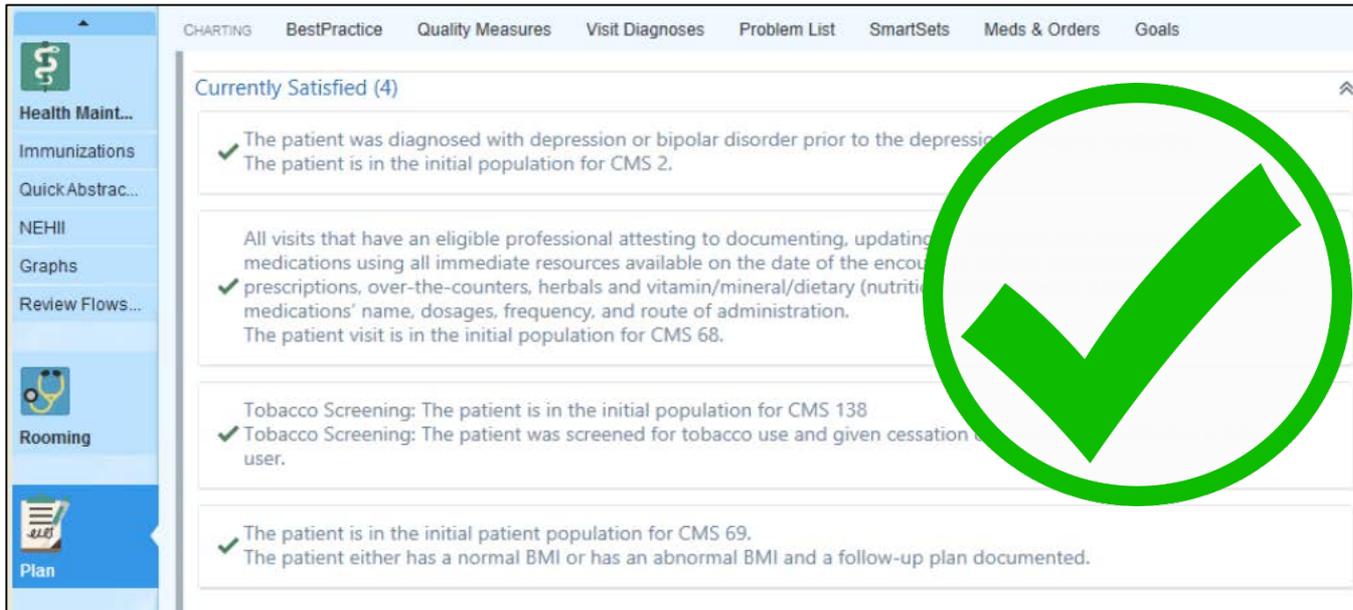
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System Tools



Process and Tools

Getting the Green Check Mark



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System Tools

Visit Navigator Organization

Rule-based Banners

Reminders for Rooming Staff

Reminders for Providers

Provider Dashboards

Leader Roll-up Dashboards

Process and Tools

System Tools

Visit Navigator Organization

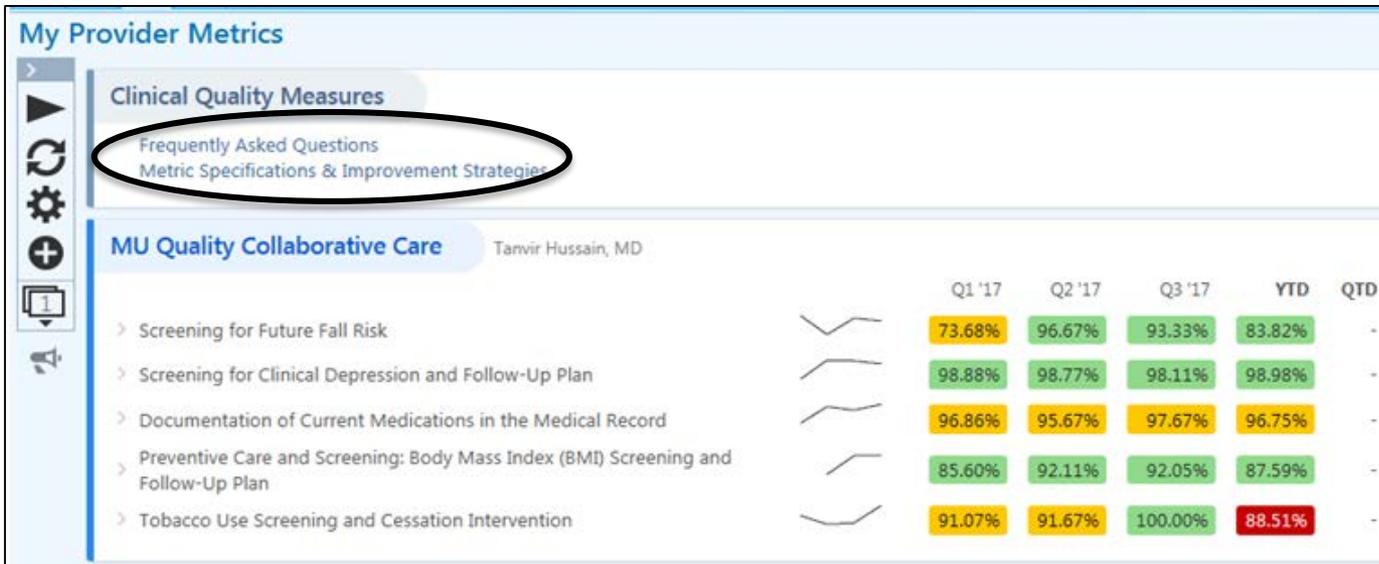
Rule-based Banners

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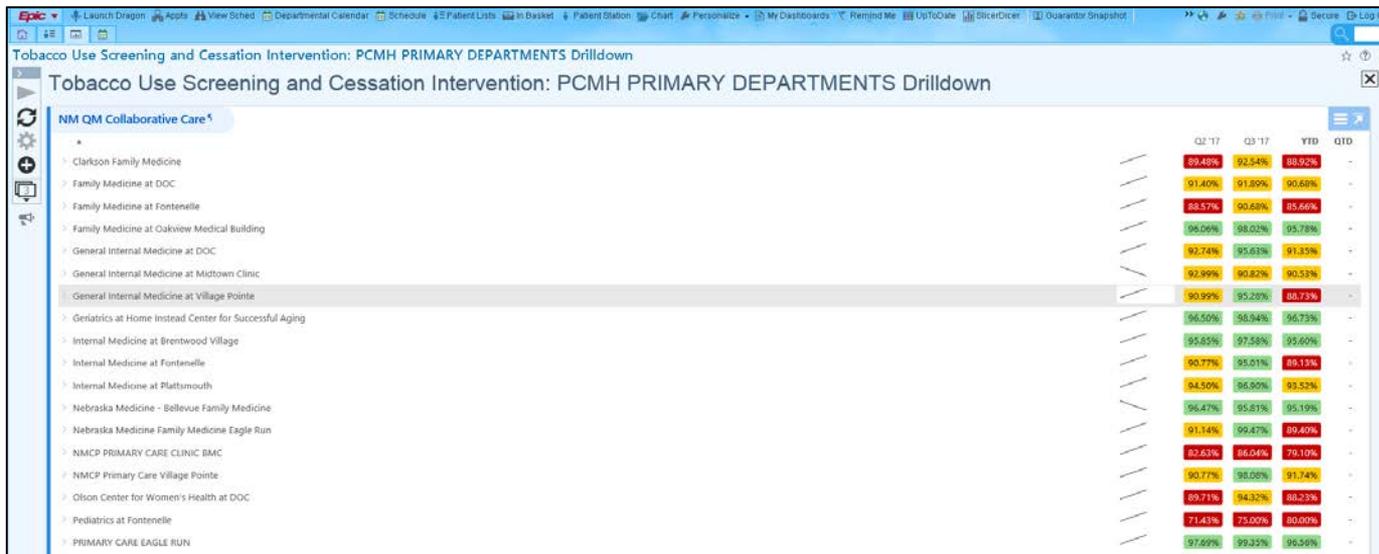
Rule-based Banners

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Provider Dashboards

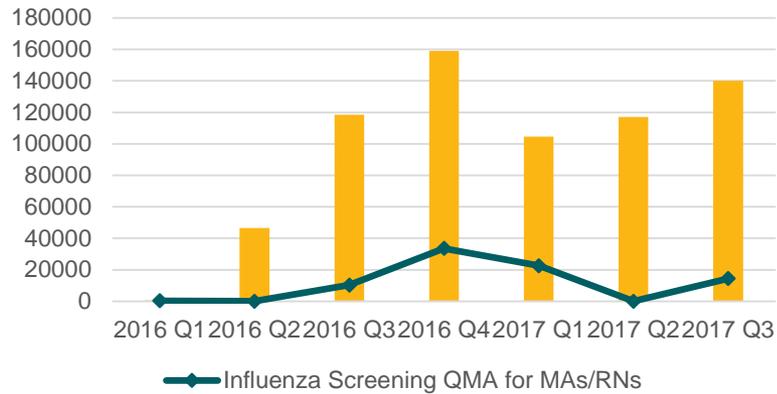
Leader Roll-up Dashboards



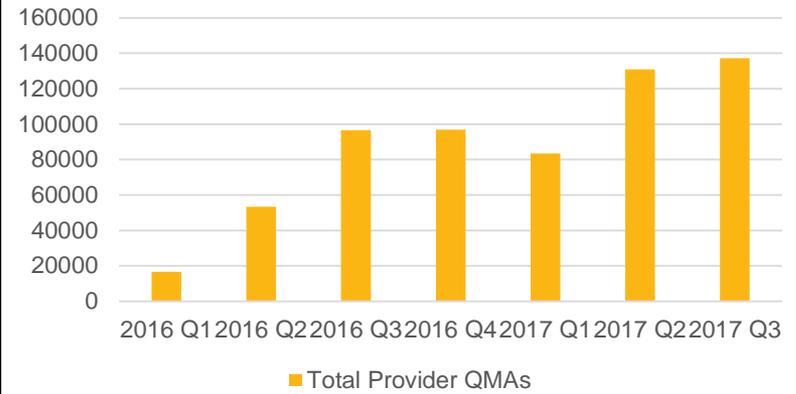
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Value Derived: Rooming Process Metrics

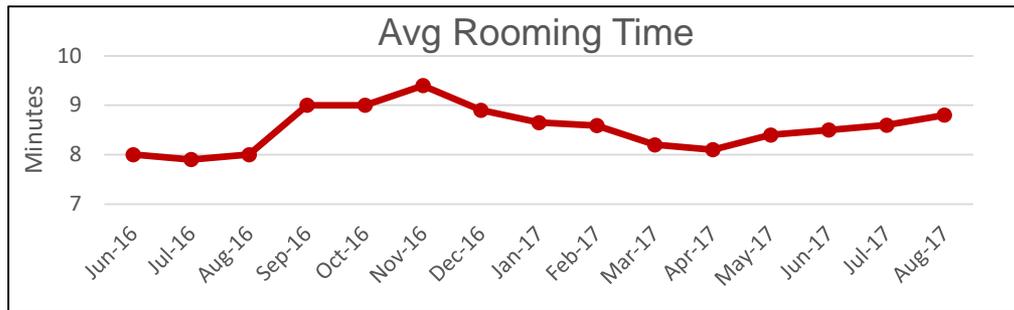
Rooming Staff QMAs Displayed



Provider QMAs Displayed



Avg Rooming Time



Impact of Quality Workflow

	CY 2015 (%)	CY 2016, Q1 (%)	CY 2017, Q2 (%)	% Change
CRC Screen	16	19	45	137
Pneumonia Vaccination	35	40	59	48
Breast Cancer Screening	37	35	51	47
Depr Screen and F/U	41	49	70	43
Falls Screen	36	46	68	26
BP Control	60	57	63	11
BMI counseling 18-65 yo	42	44	49	11
BMI counseling >65 yo	59	58	61	5
Uncontrolled HA1c	--	45	42	7
ASA in Vasc Dz	84	82	85	4
Tobacco use counseling	90	91	94	3
Med rec	89	91	94	3



Impact of Quality Workflow



- 9000 additional mammograms
- 18 women saved from dying of breast cancer



- 11,400 additional pneumonia vaccinations
- 11 cases of pneumonia prevented
- 5 cases of invasive pneumococcal disease prevented



- 31,200 additional colon cancer screenings documented
- 39 lives at less risk from colon cancer deaths



Conclusions

Keys to Success

Create a multidisciplinary team

Clearly define and measure the problem

Leadership support is critical

Engage end-users and obtain their feedback

Analyze end-to-end workflows and hardwire processes

Always focus on the patient



Conclusions

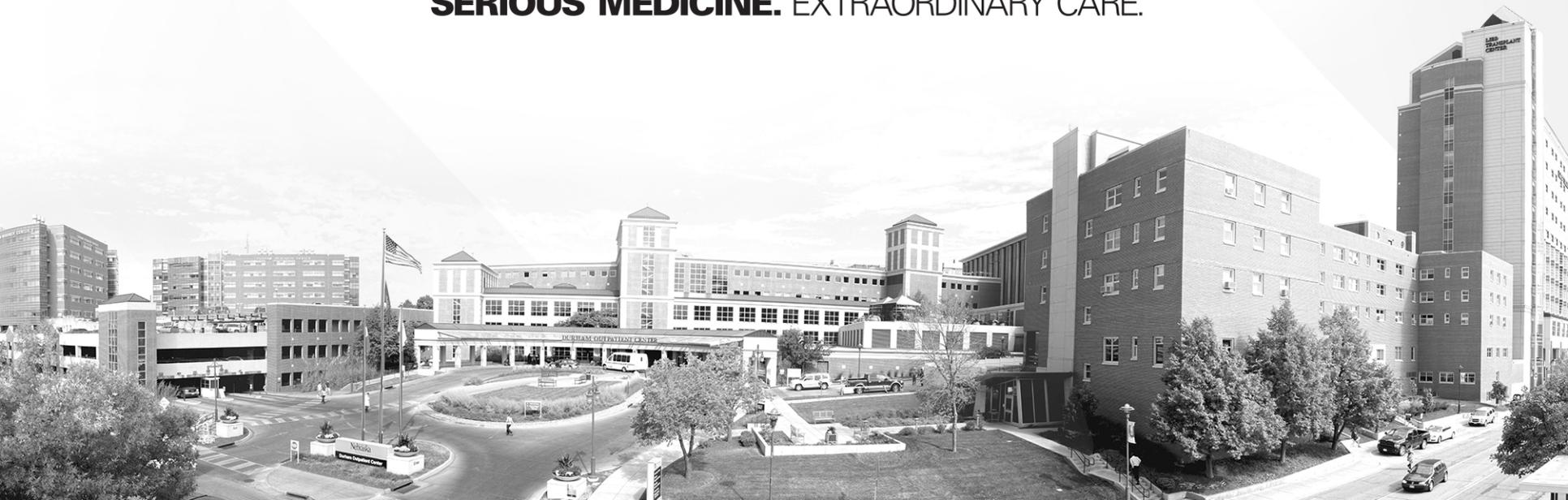
Keys to Success





Nebraska Medicine

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Sepsis Marketing Videos

[Suspect Sepsis](#)

[Sepsis, You are So Busted](#)

[Give 'em 30!](#)

