

HIMSS *Brasil*

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EMRAMSM Cases of Success

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@JohnHDaniels

Why should we become a Stage 7 organization?

NUMBER ONE QUESTION

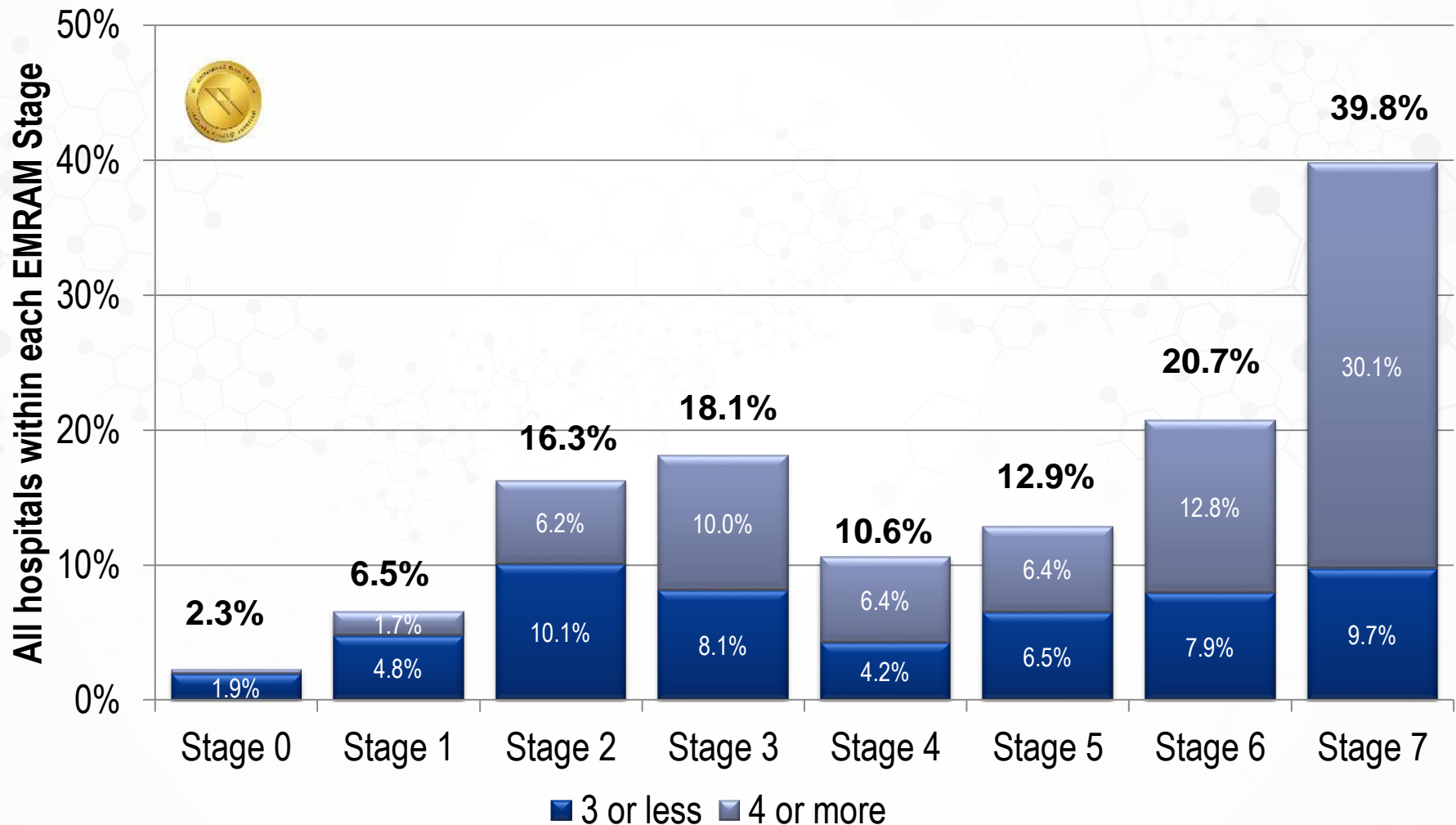
Why Use a Maturity Model?

- **Learn from others experiences**
- **Provides a roadmap**
- **Helps convey a vision**
- **Encourages everyone to work collectively**

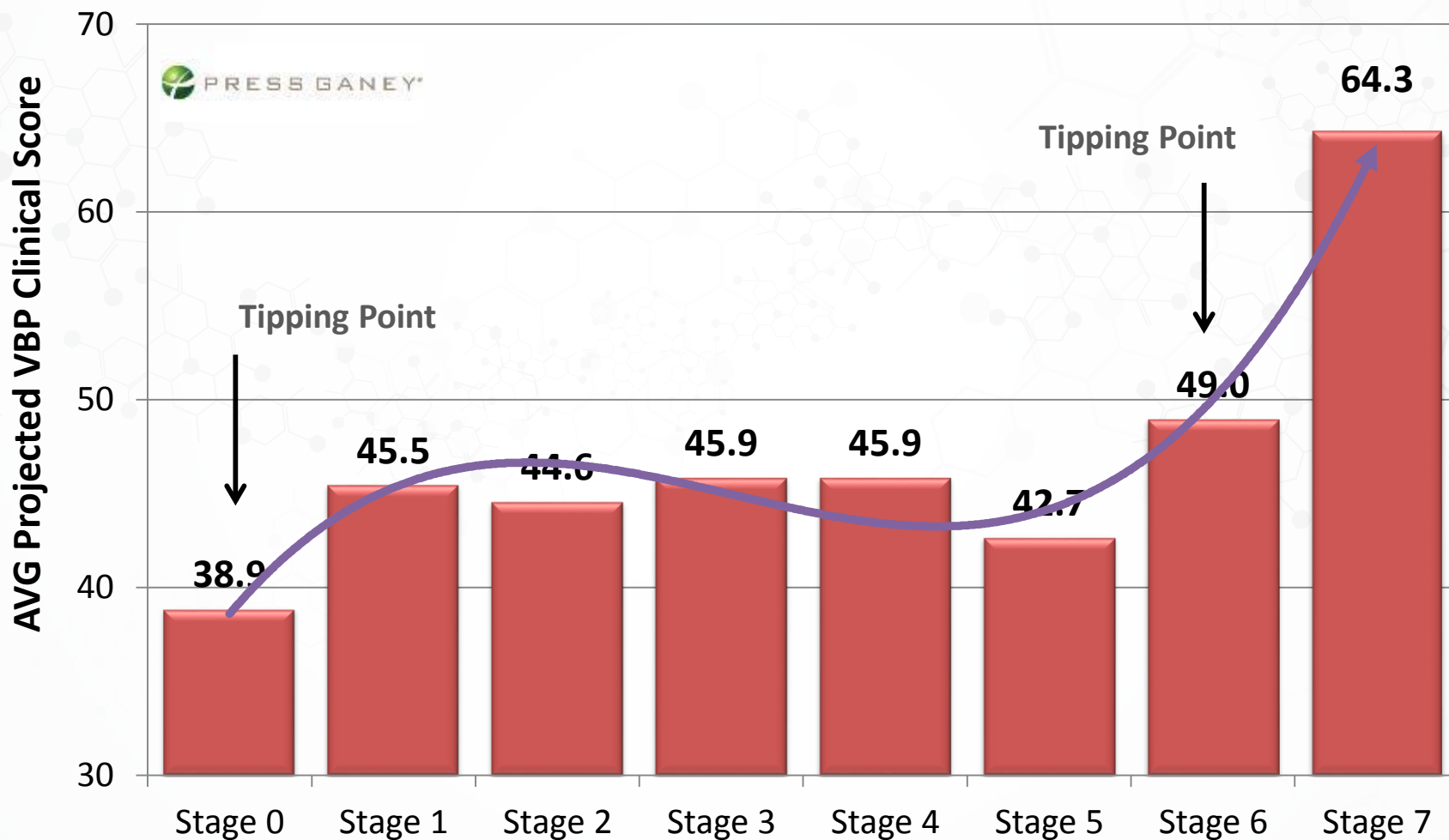
Profile of a Stage 6 & 7 Organization

- **Use data to drive improved outcomes related to ...**
 - Process, Financial, Clinical, Quality & Safety
- **Are paperless, or near paperless (create no paper)**
 - All clinically relevant data is in the EMR
- **Are fully committed to continuous process improvement through collaboration**
 - Strong IT leadership and executive champions
 - Clinician / end-user champions

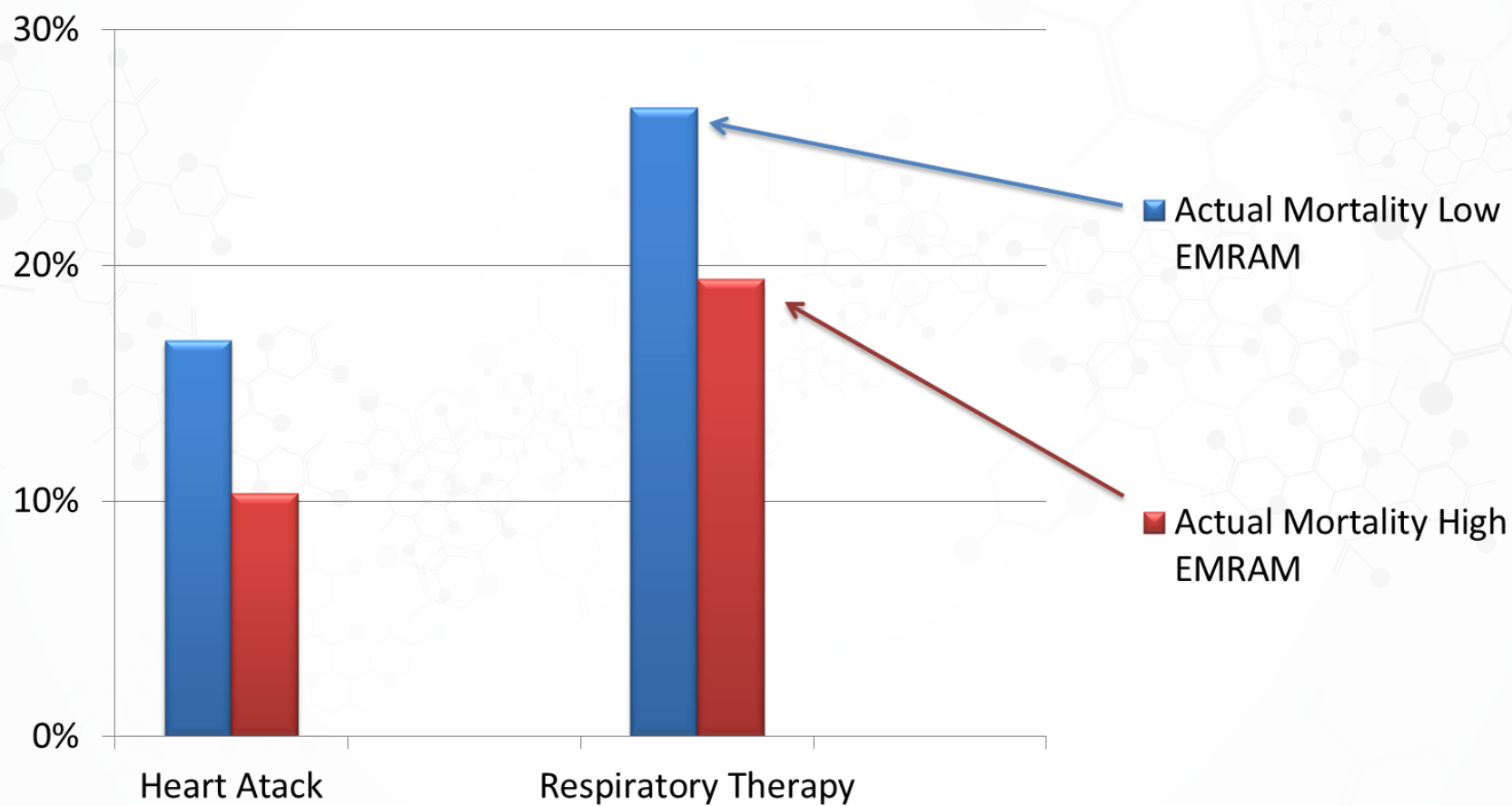
Top Performing Hospitals by Number of Quality Metrics Excelling In by EMRAM Stage



Clinical Performance Scores

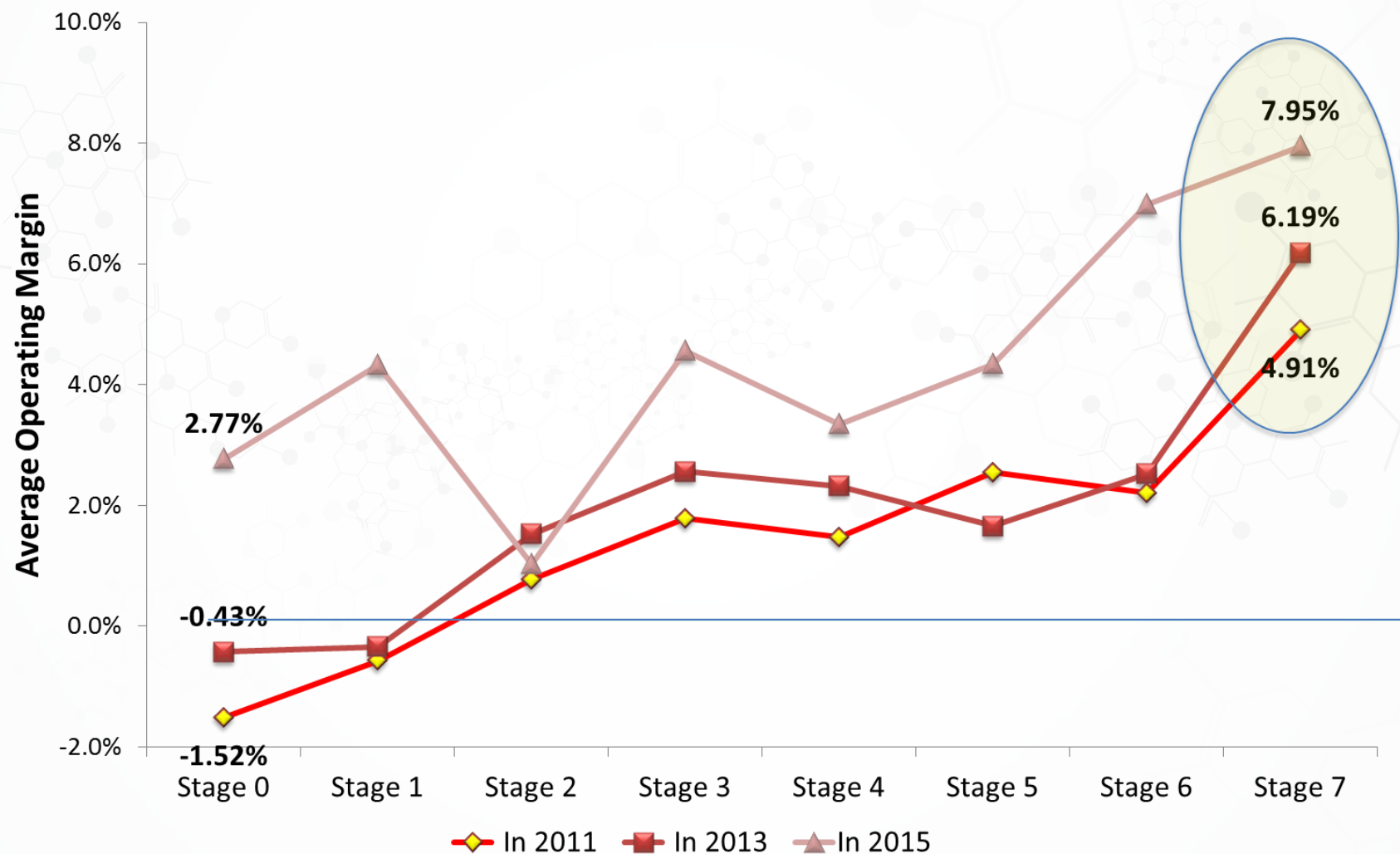


Mortality Rates



healthgrades®

Financial Performance

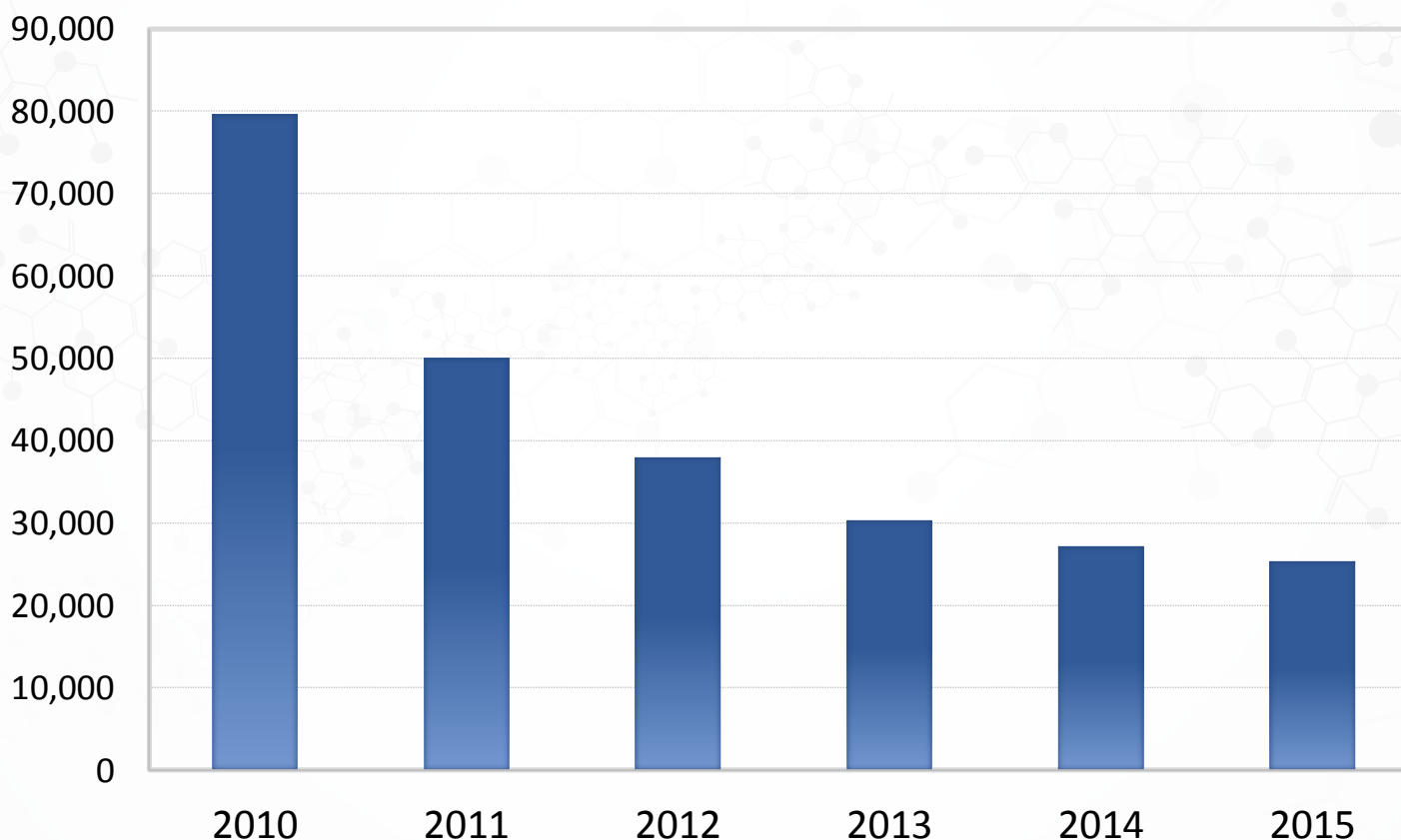


Actual case studies from validated Stage 7 hospitals

CASES OF SUCCESS

Transcription Improvements

Transcription rates have dropped by 68%



The Journey to Improved Inpatient Glycemic Control

“Leveraging the EMR for outcome
improvement”

Team Focus: Improving glycemic control

Project Initiation Month/Year: September 2012

Problem:

- Uncontrolled hyperglycemia in hospitalized patients with or without diabetes is associated with adverse outcomes and longer lengths of stay.
- Lack of efficient tools to manage diabetes in EMR

Project Goals:

- Optimize inpatient glycemic control to improve outcomes



Team Members and Roles:

- An interdisciplinary team of nurses, physicians, dietitians, case managers, pharmacists, quality and Information technology analysts.
- Executive Sponsor: [PHYSICIAN]

Problem : High blood sugars are linked with poor outcomes

Study	Patient Population
Pasquel et al, 2010	Total parental nutrition
Frisch et al, 2009	Noncardiac surgery
Schlenk et al, 2009	Aneurysmal sub arachnoid hemorrhage
Palacio et al, 2008	Children's hospital inpatients
Bochiccio et al, 2007	Critically injured/trauma
Baker et al, 2006	COPD
McAlister et al, 2005	Community-acquired pneumonia
Umpierrez et al, 2002	General Medical Patients

Acute kidney failure

Poor operative outcomes

Poor cardiac outcomes

Increased length of stay

Increased rate of patient mortality

Increased rates of infection

Increased ventilator time

Poor stroke outcomes

Increased ICU admissions

Increased need for transfusions

Source: Inzucchi, S. Management of Inpatient Hyperglycemia 2012, American Association of Clinical Endocrinologists
McDonnell, ME, Umpierrez, GE (2012). Insulin therapy for the management of hyperglycemia in hospitalized patients.
Endo Metab Clin. North Amer., 4(1).

van den Berghe G, Wouters P, Weekers F, et al. Intensive insulin therapy in critically ill patients. N Engl J Med 2001;345:1359-6

Problem:

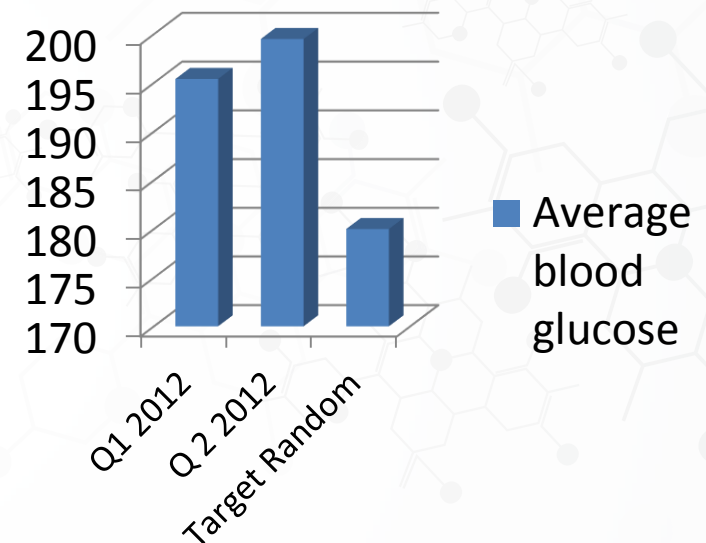
1. Significantly above target mean blood glucose
2. Significant lower percentage in target range

Non-ICU: Premeal < 140 mg/dl; Random <180 mg/dl

ICU: 140 mg/dl – 180 mg/dl

ORMC average POC glucose

- Q1 2012 – 195.4mg/dL
- Q2 2012 – 199.5 mg/dL



Measure/Indicator	Sep-12	Oct-12	Nov-12	Dec-12	Jan-13	Feb-13	Mar-13	Apr-13	May-13	Jun-13	Jul-13	Aug-13	Target 2013	Trend	Current Status vs Goal	Best Practice
Patient days	513	419	454	370	481	338	441	460	431	301	307					
Mean Blood Glucose	178	194	200	205	198	196	189	185	185	165	189		< 180			166
% In Target Range: 70 - 180	58.9	53.2	53.5	41.6	52.2	48.5	56.2	54.1	56.1	70.1	47.9		≥ 65%			.

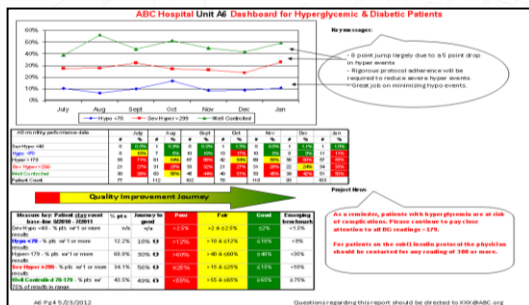
Identified Priority Process Improvement Opportunities



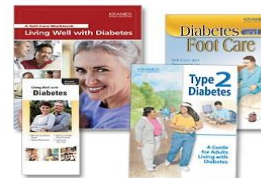
Policies and Protocols



Coordinate nutrition and insulin administration



Glucometrics



Staff and Patient Education



Care Transitions



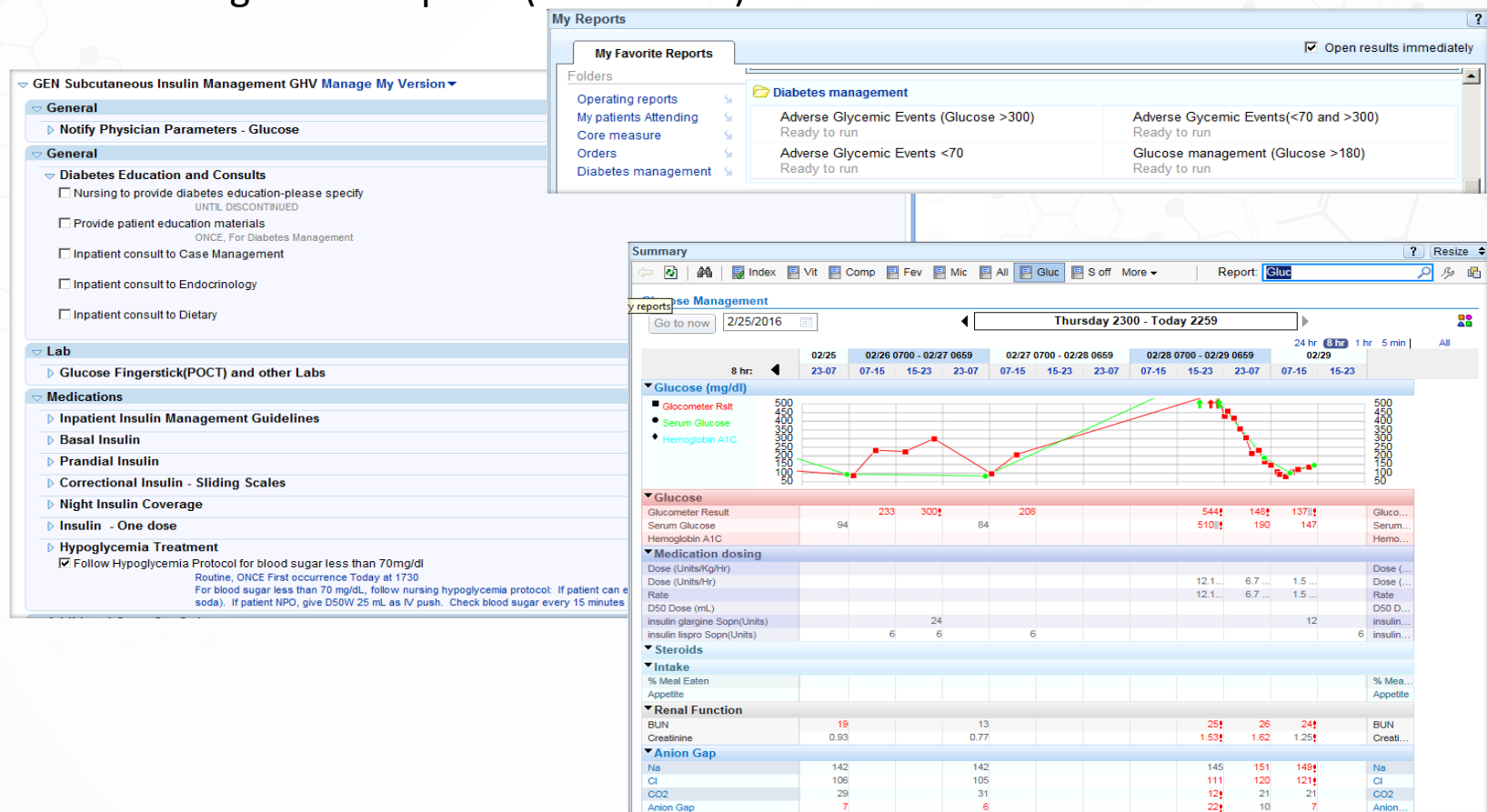
Communication and Culture

IT/EMR Optimization

- Optimized order sets for diabetes management 5 New order sets, 3 retired , 2 modified
- Optimize patient clinical reports – Diabetes management Accordion report
- Modify clinical documentation for nurses and physicians
- BPA modifications
- Interface new software – for insulin drip management - Glytec - Glucommander
- Create new workbench reports for population management
- Glucometrics reports to outside organizations
- Developed a strategy to use these integrated tools across providers

Tools for Improved Management:

1. Order Sets
2. Integrated individual patient clinical reports (accordion reports)
3. Population Management Reports (workbench)

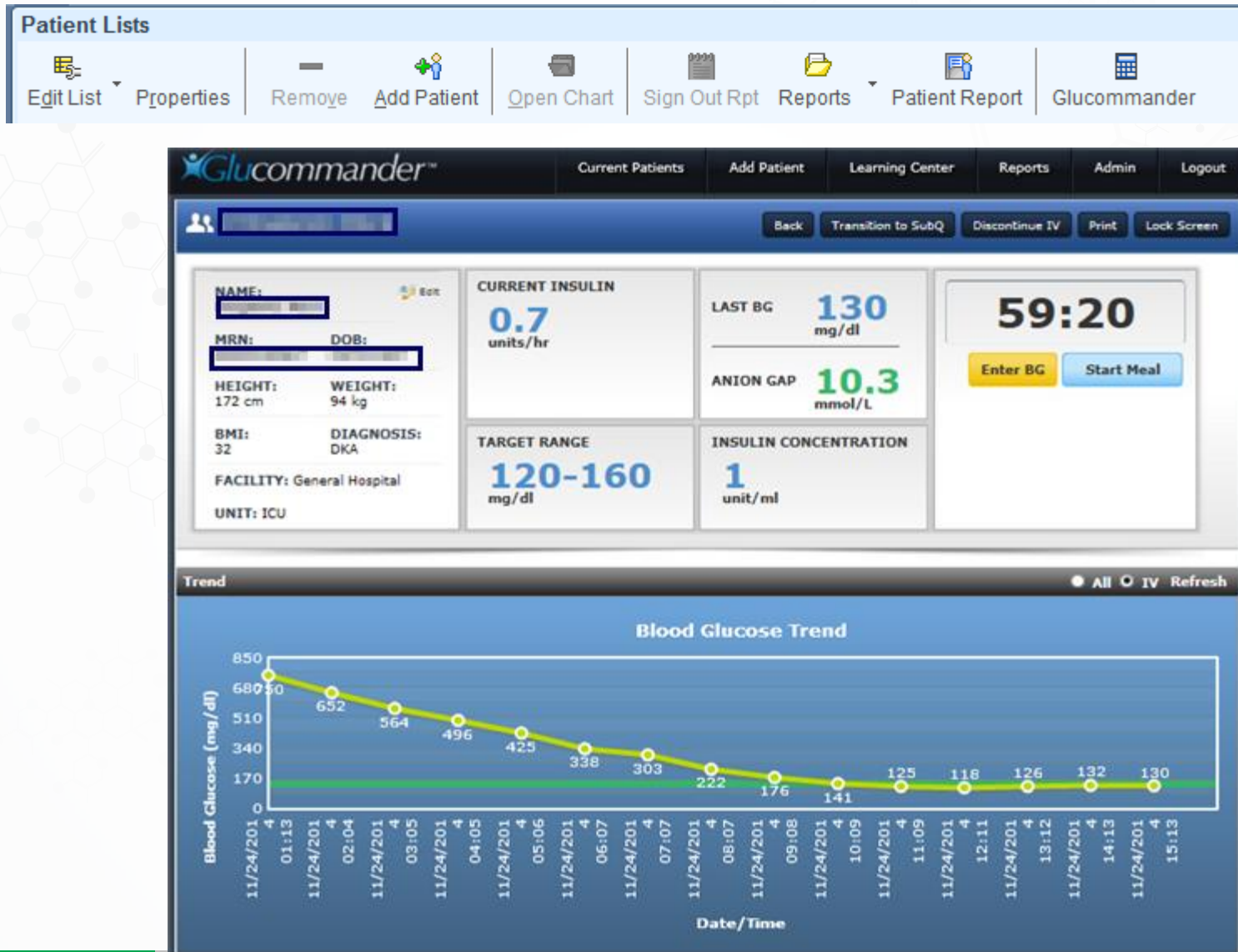


Tools: Glytec Glucommander - January, 2015

- The ***Glytec Glucommander® IV insulin software system*** was implemented in ED and ICU
- Integrated software assisted insulin drip management
 - A predictive algorithm for precise insulin dosing
 - D50 hypoglycemia management and patient safety alerts
 - Hospital wide monitoring



Integrating Glucommander in EMR



Tools: EMR integrated workflow for management

Order Sets

IV To Subcutaneous Insulin Transition Mode

- ☐ Glucomander suggested IV to Subcutaneous Insulin Transition
ONCE, Glucomander suggested IV to Subcutaneous Insulin Transition
- ☐ Physician guided IV to Subcutaneous Insulin Transition
ONCE, Physician guided IV to Subcutaneous Insulin Transition

Nursing Communication for IV to Subcutaneous Transition

- ☐ Follow Glucomander prompts for transition to Subcutaneous
ONCE, Follow Glucomander prompts for transition to Subcutaneous
- ☒ Discontinue Insulin Drip 2 hours after long acting insulin is given
ONCE First occurrence today at 2000
Discontinue Insulin Drip 2 hours after long acting insulin is given

Lab

Glucose POC orders

- ☐ Glucose POC - AC and HS
4 TIMES DAILY BEFORE MEALS & AT BEDTIME
- ☐ Glucose POC
EVERY 6 HOURS
- ☐ Glucose POC
EVERY 4 HOURS
- ☐ Glucose POC - once
ONCE, Starting 2/3/15 for 1 occurrence
- ☐ Glucose POC - 3 AM testing
ONCE, Starting 2/4/15 for 1 occurrence
- ☐ Glucose POC - 2 hour after meals
3 TIMES DAILY AFTER MEALS for 3 occurrences, Test 2 hour after meals
- ☐ Hemoglobin A1c
LAB AM DRAW

Medications

IV to Subcutaneous Insulin transition guidelines

Transition principles:

- Usual single basal insulin dose time is 2200
- If transition is done after 1800 full dose insulin basal insulin is given. If transition is done before 1800 half dose is 2200 hours.
- Continue IV insulin drip for 2 hours after the long acting insulin is given
- Basal+ Prandial(meal insulin) = TOD(total daily dose) – usually 50 % basal and 50 % Prandial
- Usual single basal insulin dose time is 2200.
- Divide the Prandial(meal) insulin in 3 equal doses initially(pick even numbers if possible)
- Select a correctional scale as suggested

TDD(Total Daily Dose)	Correctional Subcutaneous insulin regimen
<40units/day	Low dose insulin regimen
40-80 units/day	Medium dose insulin regimen
>80 units/day	High dose regimen

GHV IV To Sub Q Insulin one time order

- ☐ Day of Transition early dose - insulin glargine (LANTUS) injection
Subcutaneous, ONCE, Starting 2/3/15, Transition IV to Sub Q Insulin day of transition @TD@ early dose. (give if before 1

Patient Lists

Edit List Properties Remove Add Patient Open Chart Sign Out Rpt Reports Patient Report Glucomander

Summary

Index Overview Snapshot Comp Labs Vitals ED Clinical Summary Wt Rad 14-Day Micro More

Glucose Management

Go to now 12/23/2014 12/23/14 - Today

Time:	12/23	12/30 0700 - 12/31 0659	01/13 0700 - 01/14 0659	01/15
1343	1145	1154	1203	1218
1224	1317	1319	1320	1441
0838	0843	0849	0918	

Glucose (mg/dl) Graphs cannot display in the current view

Glucose

Glucometer Result
Serum Glucose
Hemoglobin A1C

Medication dosing

Dose (Units/Kg/Hr)
Dose (Units/Hr)
Rate
D50 Dose (mL)

Steroids

Intake

% Meal Eaten

PART A - Order at the time of first Glucomander transition suggestion

Insulin Drip rates

D50 administration

Glytec, Testthirty

MRN: 936064
Pt Cl: IP
Code: Not on file
DOB: ...
Unit: Bed: 3EAST, 3320-1
Wt: 115 lb (52.164 kg)
Allergy: Not on file
Iso: None
Inf: None
Att Prov: PINE, D
IP Adm D/T: 12/09/14, 1047

View Doc Flowsheet

File Add Rows Add LDA Cascade Add Col Insert Col Last Filed Reg Doc Graph Go to Date Values By Refresh Legend Ling Lines Glucomander

Vital Signs Vital Signs Complex Anthropometrics Intake/Output 2

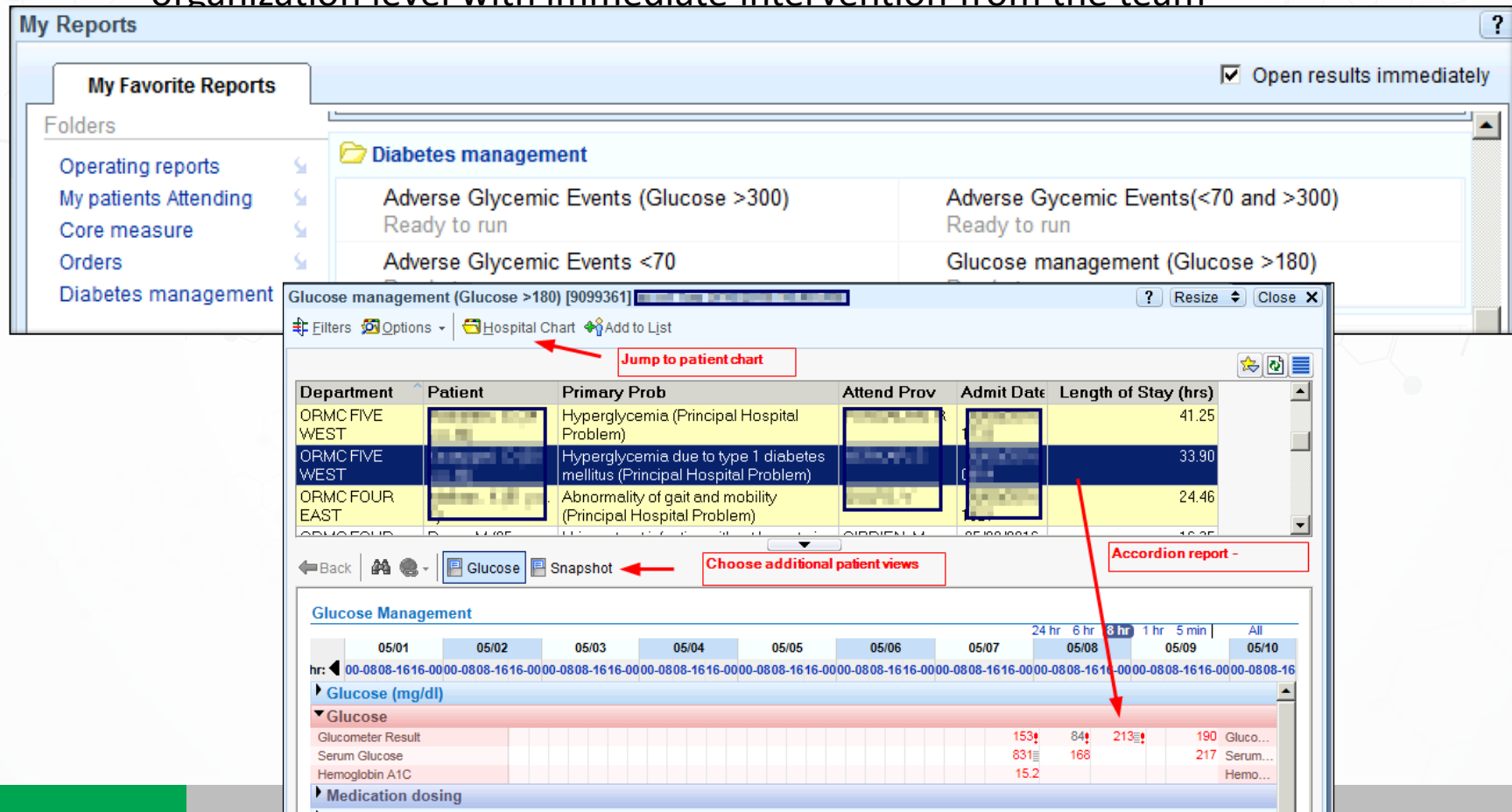
Intake (mL)

Dextrose 50% Solution
Insulin Drip
History
Fingerstick Glucose R...
Output (mL)
Unmeasured Output
Drain (LDAs)
Urine Assessment
Stool Assessment

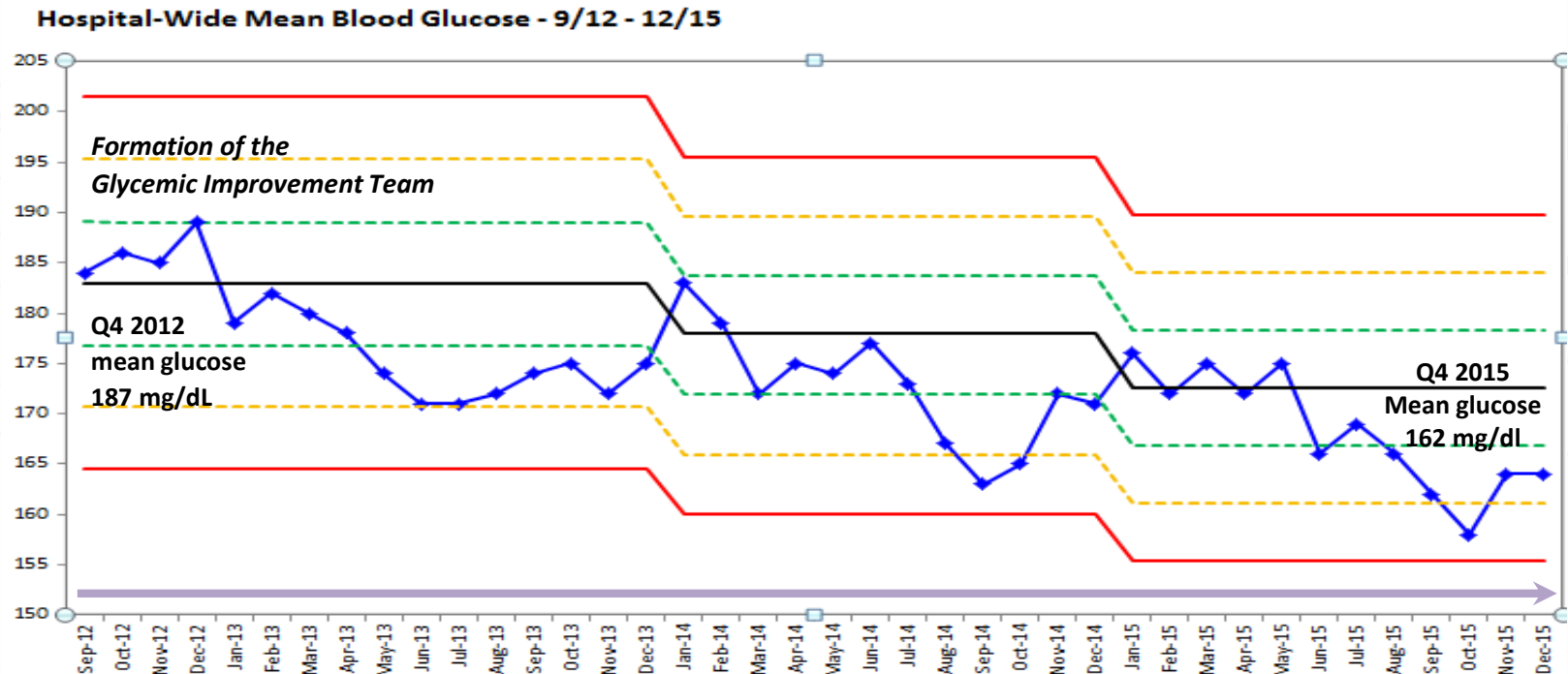
ORMC THREE EAST

	0842	0843	0849	0853	0855	0901	0905	0916	0918
Dextrose 50% Solution									
Dose (mL)									
Volume (mL)									
Line									
Glytec - Recommended D50	0	18	0	0	0	0	0	0	0
Insulin Drip									
Dose (units/hr) Insulin		3.8							5.8
Rate Insulin		3.8							5.8
Volume (mL) Insulin									
Concentration Insulin		1 Units/...							1 Units/...
POC FS Glucose Level Manual									
Glytec-Recommended Rate Insulin	3.8		0	1.1	3.2	2.7	1.4	5.2	
Fingerstick Glucose Results									
Glucometer POC FS Glucose Result									
Output (mL)									

1



Results : Hospital-Wide Mean Blood Glucose – 9/12 – 12/15



Glucometric outcomes since GIT project inception:

	2012	2015
Mean glucose by pt day	187 mg/dl (Q 4)	162 mg/dl (Q 4)
Ave % glucose >300 mg/dl	20.4	13.3
Ave % glucose <70 mg/dl	4.2	5.2
Ave % glucose <40 mg/dl	0.6	0.3
Ave % glucose in target of 70-180 mg/dl	57.5	66.1

Results: Report

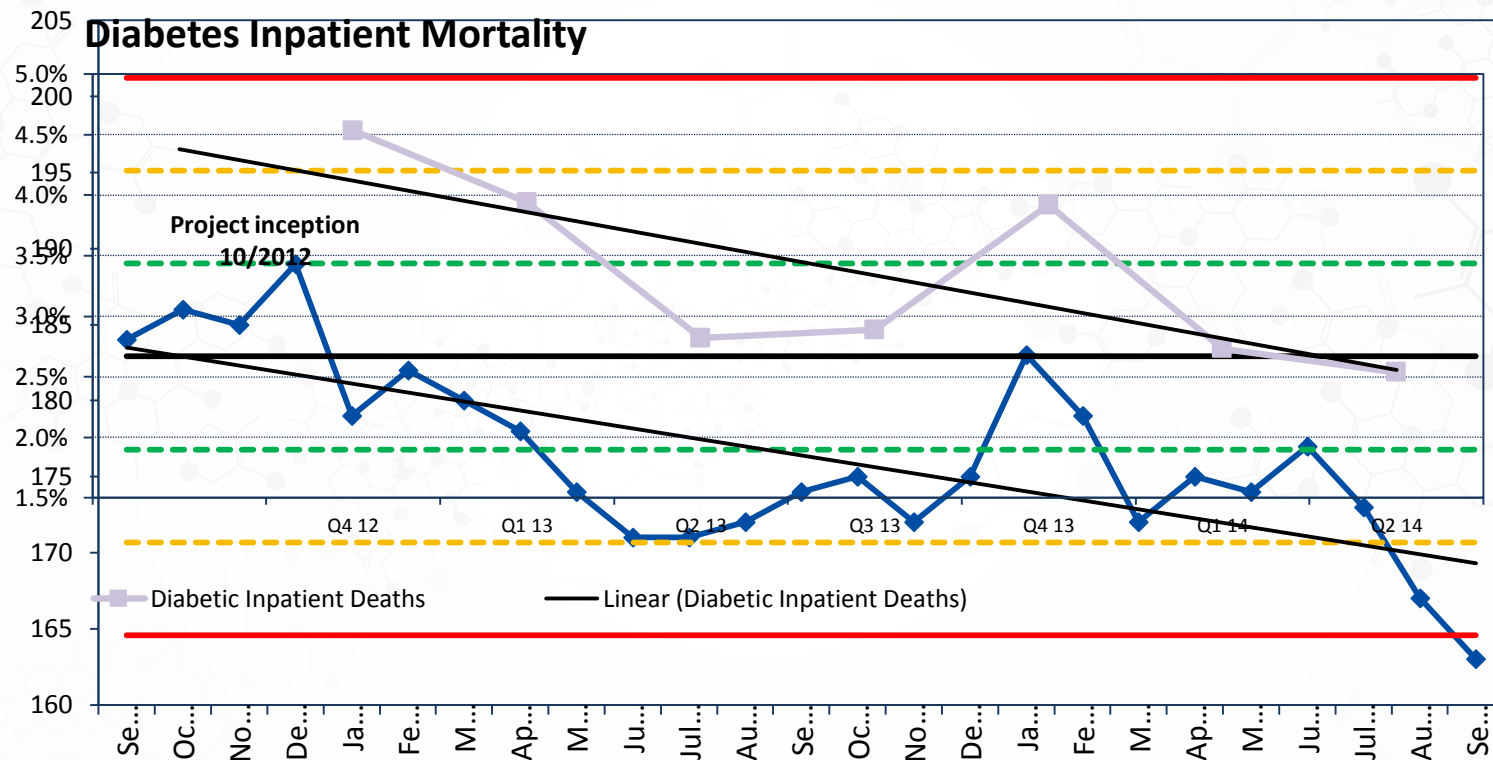


Measure/Indicator	1/14	2/14	3/14	4/14	5/14	6/14	7/14	8/17	9/14	10/14	11/14	12/14	1/15	2/15	3/15	4/15	5/15	6/15	7/15	8/15	9/15	10/15	11/15	12/15	Target 2015	Trend	Current Status vs Goal	Best Practice
Overall Hospital Data (without ED data)																												
Patient days	3056	2785	2728	2710	2597	2724	2736	2771	2681	3016	2820	3061	2999	3014	3135	3137	2978	2878	2861	2484	2546	2474	2404	2976				
Numerator	1757	1663	1738	1705	1654	1651	1699	1840	1885	2051	1777	1947	1847	1944	1900	1976	1903	1940	1931	1662	1790	1779	1623	2012				
Mean Blood Glucose	183	179	172	175	174	177	173	167	163	165	172	171	176	172	175	172	172	166	169	166	162	158	164	164	≤ 170			166
% In Target Range: 70 - 180	57.5	59.7	63.7	62.9	63.7	60.6	62.1	66.4	70.3	68.0	63.0	63.6	61.6	64.5	60.6	63.0	63.9	67.4	67.5	66.9	70.3	71.9	67.5	67.6	≥ 65%			
% less than 40	0.4	0.4	0.3	0.3	0.4	0.3	0.1	0.6	0.3	0.3	0.1	0.3	0.3	0.3	0.4	0.3	0.4	0.4	0.2	0.5	0.2	0.3	0.5	0.3				
% less than 70	5.9	5.6	5.1	4.7	6.1	4.6	3.9	5.2	4.3	5.3	5.2	5.4	5.8	6.2	5.4	5.2	4.8	4.5	4.4	4.9	5.9	6.6	3.7					
% greater than 300	19.8	18.8	14.4	17.4	16.5	16.2	14.5	12.9	11.0	12.9	14.8	16.5	16.8	13.9	16.2	13.9	16.3	12.0	13.5	11.6	11.0	10.5	12.3	11.4				
2 East - BHU																												
Patient days	120	79	109	125	131	120	109	113	104	165	76	113	59	75	104	111	82	136	104	116	146	128	121	51				
Numerator	63	60	92	108	109	87	64	80	67	141	76	98	42	68	74	93	61	104	100	92	136	108	110	46				
Mean Blood Glucose	187	159	137	138	141	162	181	164	173	137	114	134	150	130	158	140	140	156	126	145	117	147	127	123	≤ 170			166
% In Target Range: 70 - 180	52.5	75.9	84.4	86.4	83.2	72.5	58.7	70.8	64.4	85.5	100.0	86.7	71.2	90.7	71.2	83.8	74.4	76.5	96.2	79.3	93.2	84.4	91.0	90.2	≥ 65%			
% less than 70	0.0	11.4	2.8	0.0	10.7	5.8	0.9	4.4	1.9	3.0	5.3	4.4	10.2	4.0	1.0	0.9	3.7	0.7	5.8	3.4	2.7	1.6	1.0	3.9				
% greater than 300	19.2	16.5	10.1	3.2	12.2	15.0	18.3	13.3	19.2	6.1	0.0	11.5	11.9	2.7	12.5	7.2	8.5	6.6	0.0	5.2	2.1	7.0	1.0	0.0				
2 North																												
Patient days	194	167	217	152	115	107	112	93	129	155	161	202	176	89	142	146	193	144	216	119	169	166	78	137				
Numerator	108	90	125	84	84	71	68	56	99	84	91	143	85	69	81	81	99	87	144	78	135	123	55	76				
Mean Blood Glucose	189	188	182	192	156	165	186	168	147	185	178	149	195	157	175	185	193	174	177	177	152	156	162	174	≤ 170			166
% In Target Range: 70 - 180	55.7	53.9	57.6	55.3	73.0	66.4	60.7	60.2	76.7	54.2	56.5	70.8	48.3	77.5	57.0	55.5	51.3	60.4	66.7	65.5	79.9	74.1	70.5	55.5	≥ 65%			
% less than 70	4.6	3	2.8	2.6	4.3	3.7	0.0	4.3	2.3	1.9	6.2	8.9	1.1	7.9	3.5	2.7	3.6	2.1	4.2	3.4	4.1	10.8	6.4	2.9				
% greater than 300	20.1	26.9	14.3	21.7	11.3	11.2	18.8	2.0	5.4	18.7	13.7	3.5	26.1	7.9	16.9	19.2	25.4	14.6	18.5	13.4	7.7	11.4	6.4	16.1				
2 South																												
Patient days	150	165	186	144	89	151	139	254	180	231	140	170	228	212	190	187	156	111	157	183	121	98	132	149				
Numerator	101	119	143	94	59	118	102	181	120	161	108	109	129	156	156	149	92	73	118	126	86	76	91	119				
Mean Blood Glucose	160	158	149	174	163	154	158	160	164	164	156	173	175	160	146	157	177	165	151	165	157	154	171	153	≤ 170			166
% In Target Range: 70 - 180	67.3	72.1	76.9	65.3	66.3	78.1	73.4	71.3	66.7	69.7	77.1	64.1	56.6	73.6	82.1	79.7	59.0	65.8	75.2	68.8	71.1	77.6	68.9	79.9	≥ 65%			
% less than 70	7.3	5.5	3.2	0.7	1.1	1.3	5.0	4.7	1.7	3.5	0.0	0.6	2.2	7.5	4.2	2.1	3.8	4.5	2.5	2.2	3.3	3.1	0.8	2.0				
% greater than 300	11.3	6.7	2.2	13.2	6.7	3.3	9.4	10.2	7.2	13.9	9.3	13.5	11.8	7.1	5.8	4.8	16.7	10.8	3.2	7.1	4.1	3.1	13.6	5.4				
4 East - Rehab																												
Patient days	242	199	149	181	89	212	194	215	284	263	166	166	144	197	163	250	203	157	161	181	155	215	185	234				
Numerator	162	130	116	149	73	163	138	164	249	226	120	99	99	116	124	203	188	131	128	122	118	165	159	185				
Mean Blood Glucose	170	174	155	143	143	151	160	146	143	141	159	173	159	173	151	146	137	142	149	167	160	147	140	156	≤ 170			166
% In Target Range: 70 - 180	66.9	65.3	77.9	82.3	82.0	76.9	71.1	76.3	87.7	85.9	72.3	59.6	68.8	58.9	76.1	81.2	92.6	83.4	79.5	67.4	76.1	76.7	85.9	79.1	≥ 65%			
% less than 70	5.8	10.6	4.7	0.6	16.9	3.8	2.6	6.0	4.2	1.9	3.0	4.8	10.4	9.1	9.8	5.2	4.4	10.8	1.2	3.9	3.9	1.9	8.6	3.0				
% greater than 300	15.7	23.6	8.1	2.2	5.6	2.8	4.1	3.3	2.1	2.7	9.6	16.9	6.3	15.2	6.7	4.8	2.5	2.5	5.6	13.3	12.9	7.0	7.0	5.6				
4 North																												
Patient days	373	273	276	301	314	323	303	255	244	280	253	352	287	288	279	238	287	312	222	251	219	234	199	311				
Numerator	204	157	179	185	221	188	167	145	165	163	142	221	190	195	148	110	174	223	166	173	159	155	113	211				

Results: Pre- and Post- Implementation of Glucommander

	Before Glucommander (Summer 2014) 35 patients	With Glucommander Jan 2015 – Feb 2016 270 patients
Average Time to Target	>17 hours 30 minutes	8 hours 45 Minutes
All Hypoglycemia (<70 mg/dl)	66%	16.3%
Severe Hypoglycemia (<40 mg/dl)	6%	0%

Results: Mean Blood Glucose and Mortality



CAUTI

“Catheter Associated Urinary Tract Infection” Case Study

CAUTI “Catheter Associated Urinary Tract Infection”

Project Initiation Month/Year: December 2012

Revisions June 2015

Problem:

- Lack of adequate documentation and MD order for Foley, and inconsistent charting

Project Goals:

- Increase awareness of all staff of detrimental costs and patient harm from catheter acquired urinary catheter infections
- Identify and eliminate clinical/other barriers leading to hospital acquired urinary tract infections
- Reduce observed rates of CAUTI

Team Members and Roles:

- MICU Nurse Director: Leadership Facilitator
- Frontline Staff Project Leader
- RN Research & Planning
- RN – Data Collection
- PI Coordinator/Infection Control
- IT Analysts
- Professional Practice

CAUTI Changes...

- Created a system list for **Active Foley Orders**

Patient Lists

Edit List Remove Add Patient Copy Paste Open Chart Triage Call Patient CRM

My Lists < **Foley DC Orders (61 Patients)**

Unit	Room/Bed	Patient Name	DOB	Age of Order
ORMC ED	Pod 1 35/POD 1 35		3/1...	19h 55m
ORMC ED	POD 3 12/POD 3 12		6/7/...	19h 18m
ORMC FIVE SOUTH	5407/5407-1		3/1...	4d 15h 53m
ORMC FIVE SOUTH	5408/5408-1		11/...	1d 23h 26m
ORMC FIVE SOUTH	5410/5410-1		3/1/...	4d 17h 22m
ORMC FIVE WEST	5116/5116-1		2/6/...	1d 24m
ORMC FIVE WEST	5124/5124-1		12/...	1d 17m
ORMC FIVE WEST	5107/5107-1		11/...	2d 24m
ORMC FIVE WEST	5105/5105-1		11/...	22h 45m
ORMC FOUR EAST	4322/4322-1		2/2...	4d 12h 1m
ORMC FOUR NORTH	4210/4210-1		6/1...	2d 3h 34m

Available Lists

- 6 North - OBS
- 6 South - L&D
- All Pediatric Pati...
- BHU Teams
- Central Line LDAs
- Consults - Ancillary
- Diagnostics
- Dialysis
- Diet Orders
- Downtime Recovery
- Flu Vaccine Orders
- Foley Orders
- Foley DC Orders

- Active Orders Report with a **Complete Link**

Nursing Orders Awaiting Completion (Through next 72h) Comm

Start	Order
04/28/16 0600	Discontinue Foley catheter - (Insert Foley Catheter & Discontinue per protocol panel) ONCE "And" Linked Group Details
04/28/16 0600	Discontinue Foley catheter - (Insert Foley Catheter & Discontinue per protocol panel) ONCE "And" Linked Group Details
04/27/16 1400	Insert foley catheter Reason for insertion/continuation of foley catheter: A surgical/invasive procedure within last 24 hours(goal of removal post-op day 2) - (Insert Foley Catheter & Discontinue per protocol panel) ONCE Complete "And" Linked Group Details

CAUTI Changes...

Added ***Reason for Insertion/Continuation***, and ***Indication/Necessity*** within the order and in the nursing assessment

Priority:

Frequency:

Starting: 3/30/2016 At: 1030

First Occurrence: Today 1030

Scheduled Times: [Hide Schedule](#)

3/30/16 1030

Questions:

Prompt	Answer	Comments
1. Reason for insertion/continuation of foley catheter <input type="button" value="Multiple response"/>	Search: <input type="text"/>	
	Title	
	An upcoming, prolonged (>2 hours) procedure/surgery	
	A surgical/invasive procedure within last 24 hours(goal of removal post-op day 2)	
	For accurate urinary output measurement or close urine output monitoring	
	Management of acute urinary retention and urinary obstruction	
	Assistance in pressure ulcer healing for incontinent patients	
	To improve comfort for end of life care if needed	
	Requires prolonged immobilization	
	Mechanical ventilation	

1m 5m 10m 15m 30m 1h 2h 4h 8h 24h Based On: 0700

ORMC N... 3/30/16 1203

Urethral Catheter Foley Placement Date/Time: 03/30/16 1202

Urethral Catheter Properties

Does patient have active foley order?

Date Foley Order was Placed

Indication/Necessity

Collection Container

Site Assessment

Securement Method

Output (mL)

Indication/Necessity

Select Multiple Options: (F5)

Foley/Catheter being managed by Urologist

Intra-Abdominal Pressure Monitoring

A surgical/invasive procedure within the last 24 hours

An upcoming prolonged (>2 hrs) procedure/surgery

Patients undergoing urologic surgery or other surgery

Assistance in pressure ulcer healing for incontinent

For accurate urinary output measurement or close u

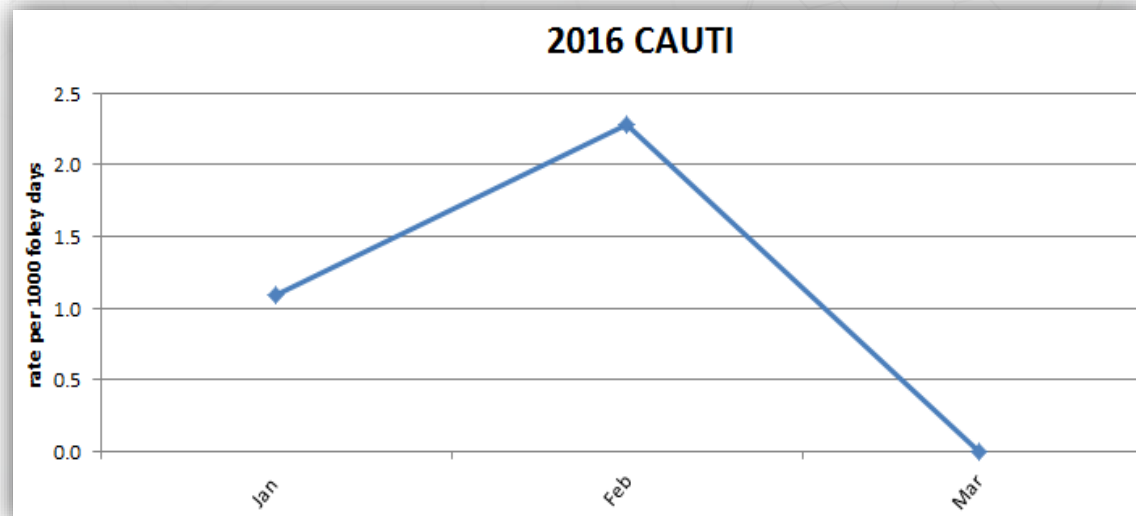
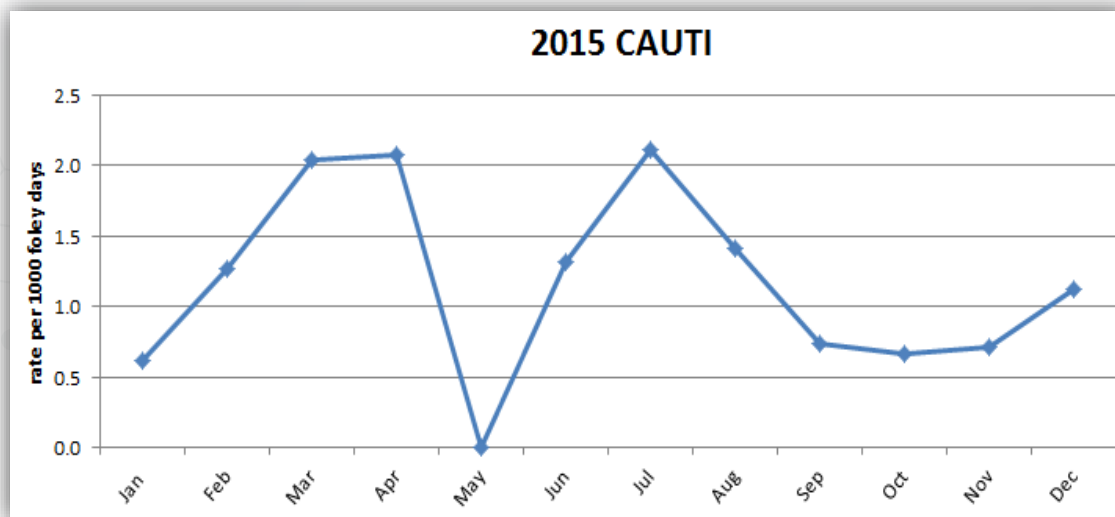
Management of acute urinary retention and/or uninar

Mechanically ventilated patient

Requires prolonged immobilization (e.g. potentially t

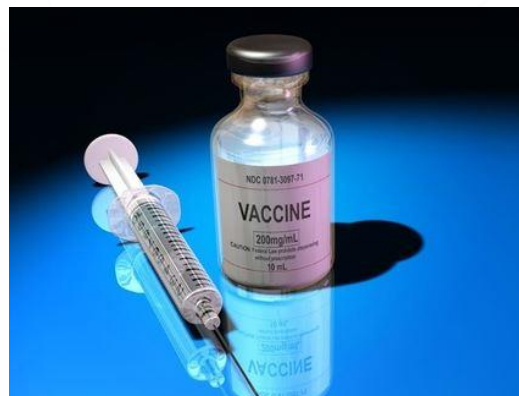
To improve comfort for end of life care if needed

Outcomes for CAUTI Changes...



Influenza Vaccine Case Study

Presented by: Senior Administrator
of Quality/ Patient Safety Officer



Team Focus: Influenza Vaccines...

“Screen, offer, administer so we can protect our patients”
- Project Initiation Month/Year: July 2014

Problem:

- Poor compliance: administering Influenza Vaccines for optimal patient care
- Flu vaccine initiative which had begun at 77.3% compliance on onset in March 2012 had improved only to 91.2% by 1Q- 2014, below established goals
- Flu vaccines were not always administered at discharge, even when indicated; “forgotten during the course of patient hospitalization”

Project goals:

- Improve compliance and provide the highest quality care

Team Members and Roles:

- Pharmacy Dept.- Vaccine experts
- IT Analyst- EMR build
- Nursing Administration
- Infection Prevention – Epidemiology
- Quality- Regulatory
- Quality Administrator
- Quality
- Nursing Education

Screening: Matching EMR Choices to the CMS Specifications

The screenshot displays the 'RN ADT Navigator' interface. On the left is a navigation pane with categories: Orders, Overview, Assessments, and Immunizations. The 'Vaccine Assess' option under Immunizations is highlighted with a red box. The main area shows the 'Influenza Vaccine Screen - September 1st through May 31st' form, which is also highlighted with a red box. The form contains several questions with 'Yes' and 'No' buttons. The first question is 'Have you received the Influenza vaccine during the current flu season?'. Below it, a 'No' button is selected, and a message states 'No taken 7 months ago'. The second question is 'Does patient have any influenza vaccine contraindications?'. Below it, a 'No' button is selected, and a message states 'No Contraindications taken 7 months ago'. The third question is 'Education provided and reviewed?'. Below it, a 'Yes' button is selected, and a message states 'Yes taken 8 months ago'. The fourth question is 'Consent Signed'. Below it, a 'Yes' button is selected, and a message states 'Yes taken 8 months ago'. The fifth question is 'Influenza vaccine available for administration?'. Below it, a 'Yes' button is selected, and a message states 'Yes taken 8 months ago'. The form also includes a 'Decline' button and a 'No Contraindications' button.

- In the ADT Navigator → Vaccine Assess → Influenza Vaccine Screen
- If the answer is **No or Unsure** to **Have you received the influenza vaccine during the current flu season?** it will cascade to the **Patient Contraindications** question
- If there are **No Contraindications** the education, consent, and vaccine available questions will open

BPA → Activates Approved Protocol and Orders

Influenza and Pneumococcal Assessment - Vaccination Assessment (Influenza Vaccinations from September-June) - (Pneumococcal Vaccination available all year).

Time taken: 1243 9/23/2014

Add Row Add Group Add LDA Values By Create Note

Influenza Vaccine Screen - September 1st through May 31st

Have you recieved the Influenza vaccine during the current flu season? Yes No Unsure

No taken today

If "yes" be sure to document in the Immunizations Activity under "Historical Immunizations"

Does patient have any influenza vaccine contraindications? Yes No Unsure

BestPractice Advisory - Glob,Monster

The CMS Advisory Committee on Immunization Practices (ACIP) recommends seasonal influenza vaccination for all persons 6 months of age and older.

Add to unsigned orders: Flu vaccine (quadrivalent) greater than or equal to 3 years old

Education provided and reviewed? Yes No Unsure

Yes taken

- When the nurse clicks **Next**, a BPA will open and the nurse will select **Accept** → this will open the Manage Orders activity and automatically pull in the correct Influenza vaccine order
- The nurse will sign the order **Per Protocol** entering in the admitting physician as the prescriber

Order Automatically Populates the Medication Record

Documented By: MASSIMILLA, SHELLY Schedule Date/Time: 05/10/16 1700 [Document for Another](#)

Medication

✕ influenza vaccine (FLUARIX) greater than or equal to 3 years old preservative free injection 0.5 mL : Dose 0.5 mL : Intramuscular : IMMUNIZATION

Frequency:	IMMUNIZATION
Route:	Intramuscular
Order Dose:	0.5 mL
Admin Amount:	0.5 mL
Admin Instructions: Administer intramuscularly into the deltoid muscle. Do NOT inject in the gluteal Contains NO preservatives. Not made with natural rubber latex. shake well prior	
Order Start Time:	Today 05/10/16 at 1645
Administrations Remaining:	1
Dispensed Volume:	0.5 mL
Disp Location:	Central Pharmacy

Recent Actions	Next Actions
	05/10 1700

Next Actions
05/10
1700

Action: Date: 5/10/2016 Time: 1645 Comment:

Route: Site:

Dose: mL

Order Concentration: 1 mL/mL

Immunization Information:

Lot Number	NDC	VIS Date	Product	Manufacturer	Expiration Date
	58160-903-52	8/7/15			

Immunization Questions

Associated Flowsheet Rows:

New Value: Date: 5/10/2016 Time: 1645 ☒ Check the box to link to previous value if no new assessment is needed

Vaccine Administration	
Influenza Vaccine Administered? (if "NO" nurse MUST document a reason)	Yes No <input type="checkbox"/> <input type="checkbox"/>
Reason For Not Administering Influenza Vaccine	Patient Refused Contraindication Previously Given this Flu Season <input type="checkbox"/> <input type="checkbox"/>

- The administration will then appear on the MAR
- During the documentation of the administration, the nurse will need to answer the question ***Influenza Vaccine Administered?***
- Order stays on MAR until given

Hard Stop at Patient Discharge

Cannot print the AVS at this time.

The following information is missing or may need your attention

Reason	Required?
Meaningful Use Documentation is Missing	Yes
Discharge Cognitive Functional Status	Yes
Influenza vaccine question needs to be answered	Yes
Vaccine Administration	Yes
Discharge order reconciliation is not complete for this contact.	No

RN ADT Navigator

Admission Transfer Discharge

BestPractice Advisories

Discharge

BestPractice

Core Measures

Meaningful Use

Vaccine Assess

Overview Report

Unresulted Labs

Running Infusions

LDA Removal

Med Rec Status

Manage Orders

Progress Notes

Admit Belongings

Discharge Belongings

Discharge Call Back

Transfer Out

Transport Request

Refresh Last refreshed on 9/23/2014 at 4:02 PM

Core Measures - Core Measures

Time taken: 1602 9/23/2014

Values By: Create Note

Core Measure Patient?

Discharge Cognitive Functional Status

Vaccine Administration

Influenza Vaccine Administered?

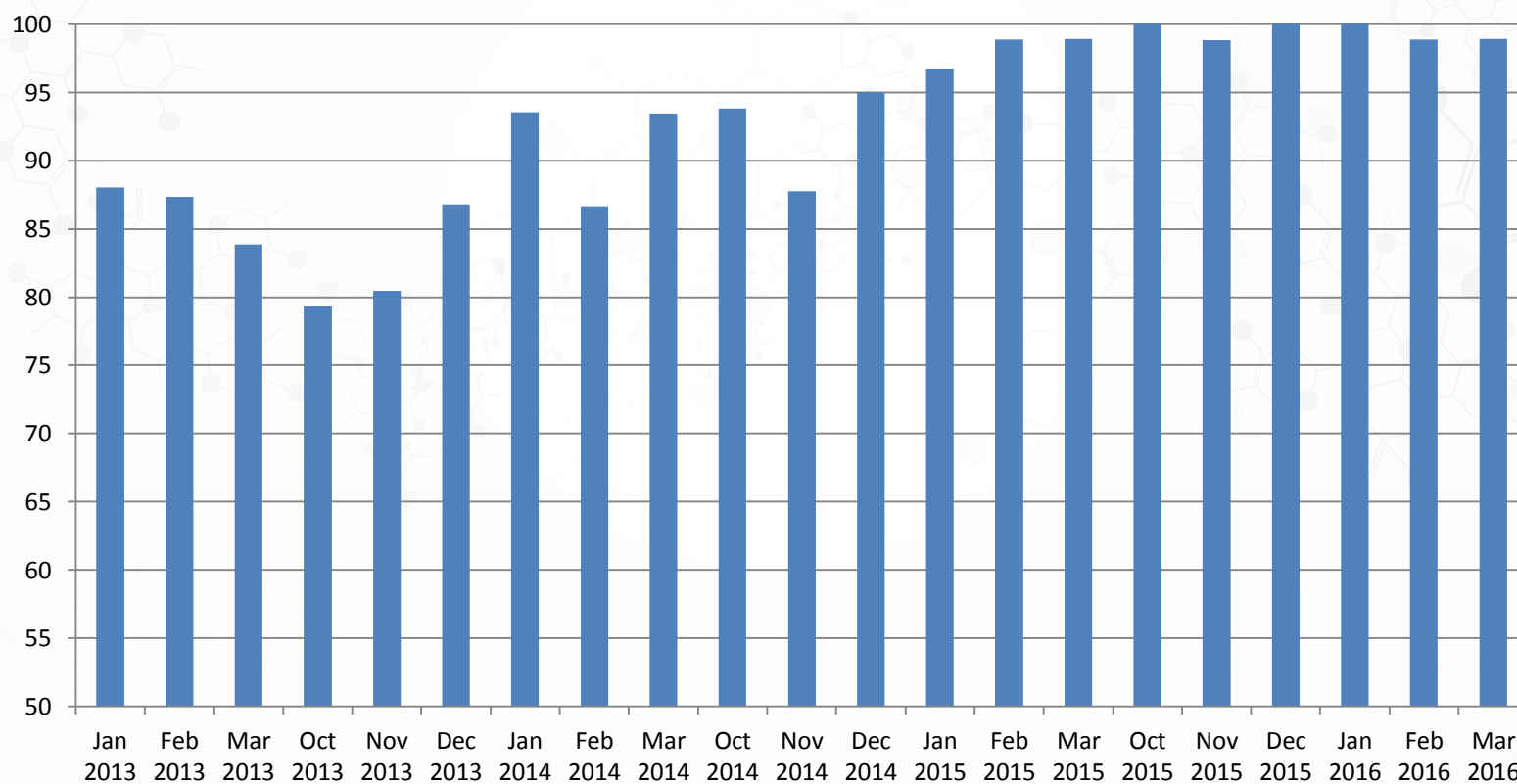
Yes No Other (Comment)

Yes taken 2 weeks ago

- Upon discharge, if the vaccine has not been addressed the system will not allow the AVS to be printed
- The nurse will have to click on the **hyperlink** → this will take the nurse to the **Core Measures activity** → the nurse will need to answer the **Vaccine Administration** question

Results

Influenza Immunization Screening/Vaccination Compliance



Kingdom of Saudi Arabia Success Case

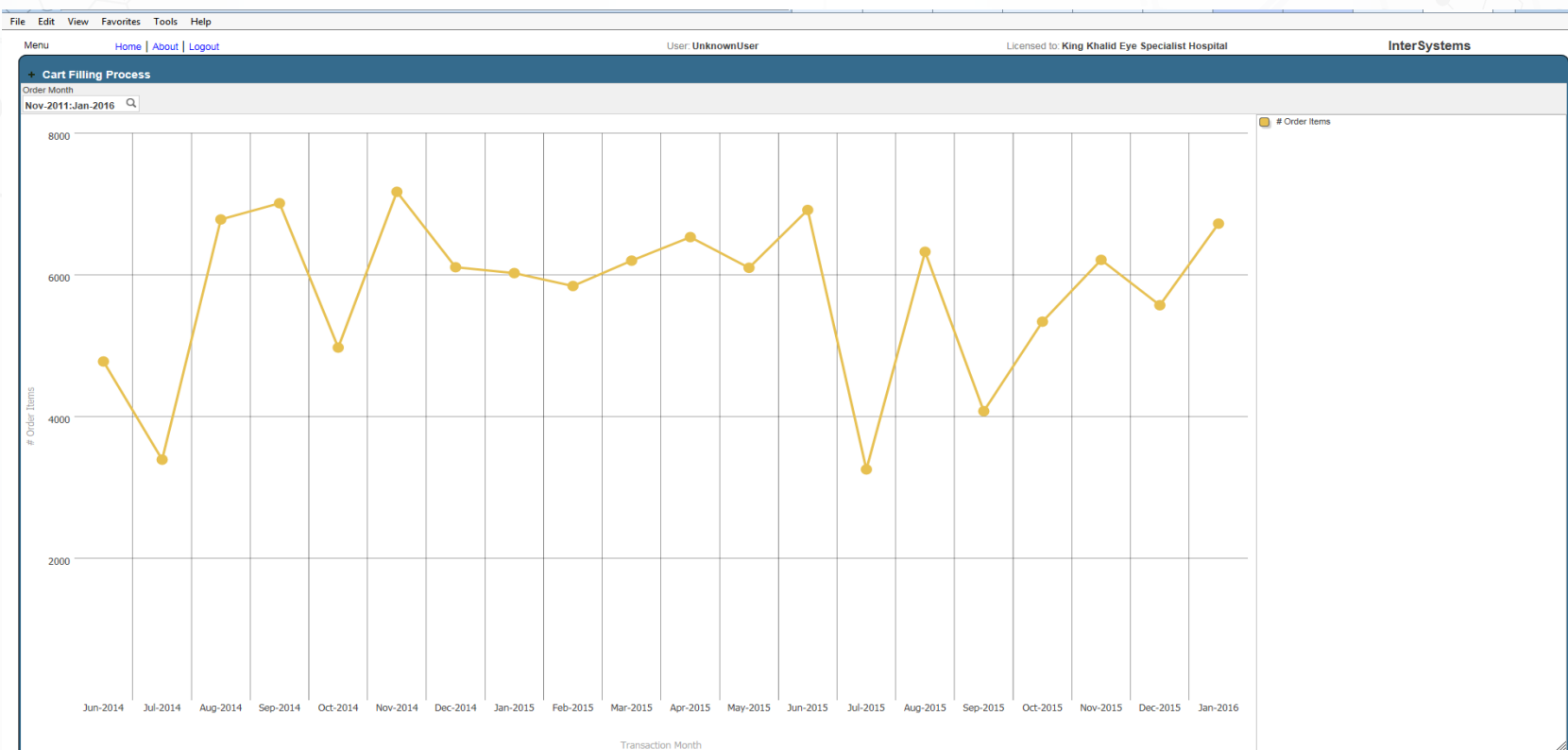
Pharmacy Director

**INCREASE EFFICIENCY AND REDUCE
NUMBER OF POTENTIAL MEDICATION
ERRORS IN PHARMACY**

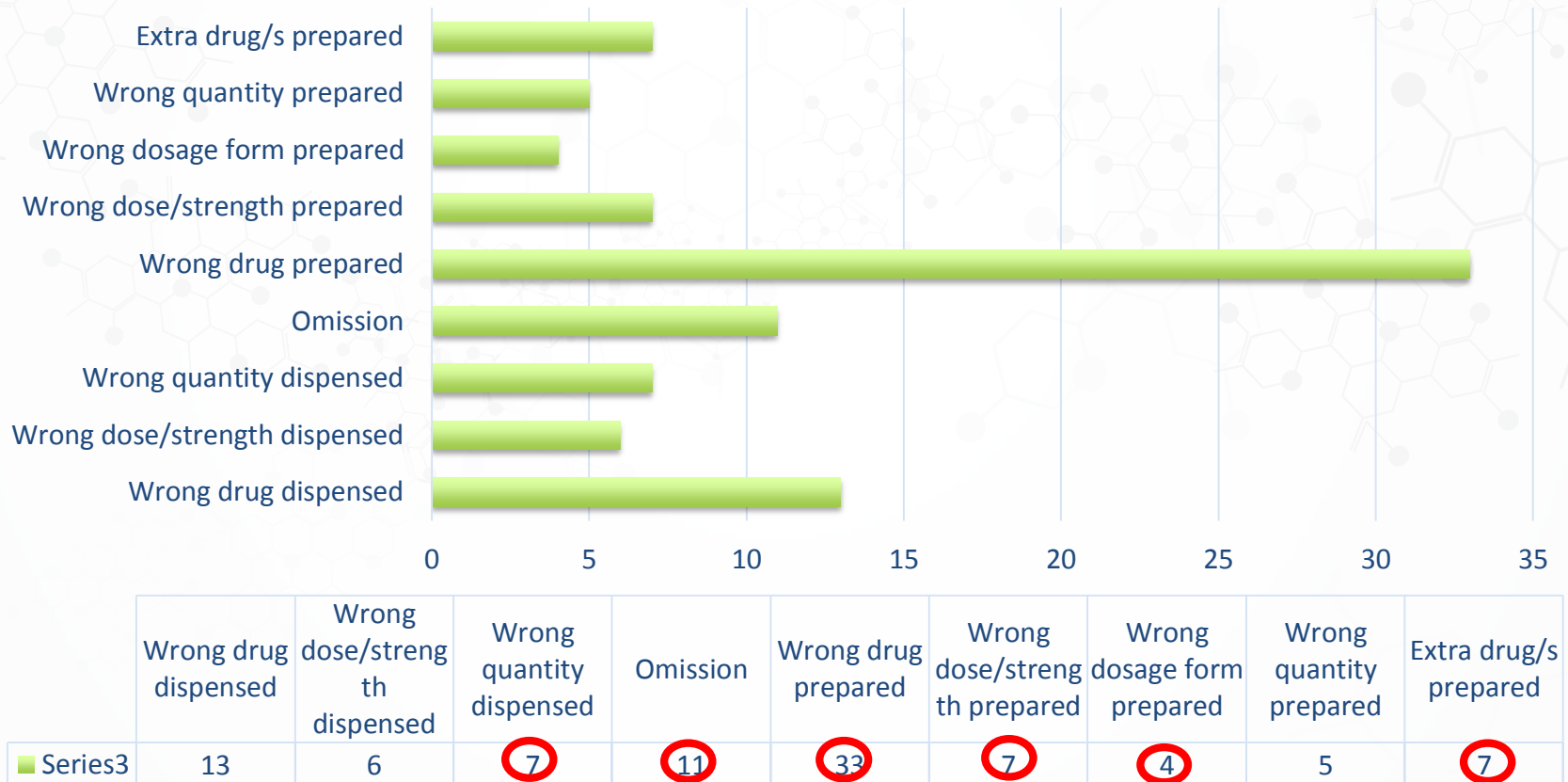
Project Background

- Pharmacy main goal is to increase the efficiency and reducing the number of the potential medication errors.
- Studies have shown that use of Automatic Dispensing Machine (ADM) and Bar Code Medication Administration technology (BCMA) have shown to improve patient safety through fewer errors, increase the confidence of the clinical staff in automation, improve the economy, and save time compared to manual dispensing of medication.
- [ORGANIZATION] is advanced in using of Health Information Technology (HIT) within the medication use process. However, there was an area for improvement in the medication dispense process.

Using TC Analytics (# of Dispensed Medications)



Dispensing Errors Types - Prior to PYXIS Implementation 2015



Solution Overview

- The Pyxis Medstation ES is an automated dispensing machine used by [ORG] for the dispensing of patient medication.
- Pyxis machines are located on nursing floors and automatically dispense -from the designated drawer/door and pocket- the correct drug when a nurse keys in their credentials and selects the patient
- Profile MedStations operate on an interface to the EMR system to display the list of ordered medications for each patient that have been reviewed and entered into the system by pharmacy
- Medications not available in the Medstation will be supplied as patient specific medications from pharmacy.

Workflow Analysis : Pre-Implementation

- Prior to implementing Pyxis Profile ADM pharmacy Technician is responsible to:
 - Initial unit dose dispense.
 - Extra unit dose dispense.
 - Print Pick List.
 - Perform cart fill.
 - Enter Units Dispensed.
 - Report Returns.
- Prior to implementing Pyxis Profile ADM Pharmacist is responsible to :
 - Double check each unit dose dispense.
 - Double check cart fill.

Workflow Analysis : Post-Implementation

- Most items will come out of the ADM instead of having a cart fill.
- No need to physically print the Pick List.

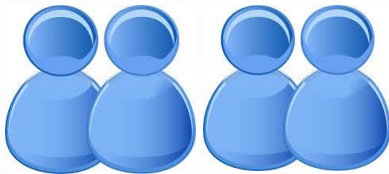
Benefits Analysis: Number of Staff to Fill and exchange the Cart Fill

Before PYXIS

(2) Two Pharmacists



(4) Four Pharmacy Technicians



After PYXIS

(1) One Pharmacist



(1) One Pharmacy Technician



Benefits Analysis: Consumed Time to Fill and Exchange Cart Fill

Before PYXIS

Five Hours

After PYXIS

One Hour

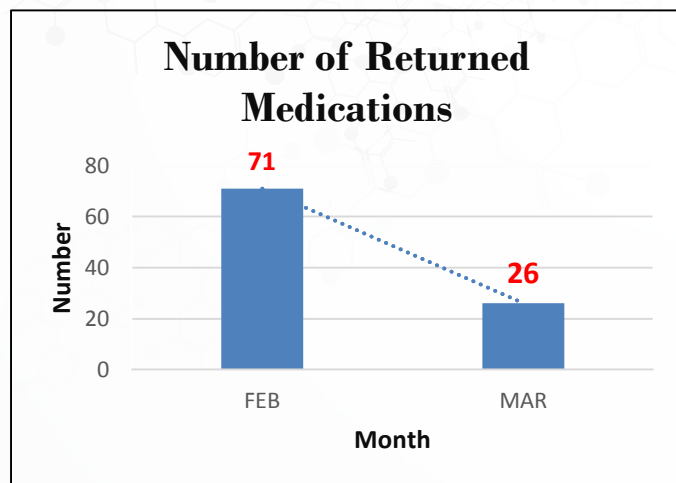


Saving Time = 4 hrs

Benefits Analysis: Number of Returned Medications

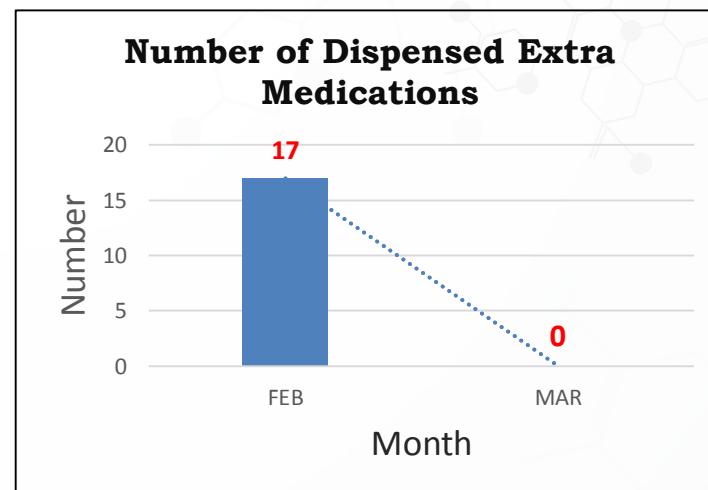
Before PYXIS

FEB 2016	
Total Number of Returned Medications	71
* Dispensed of Extra Medications	17
%	24%

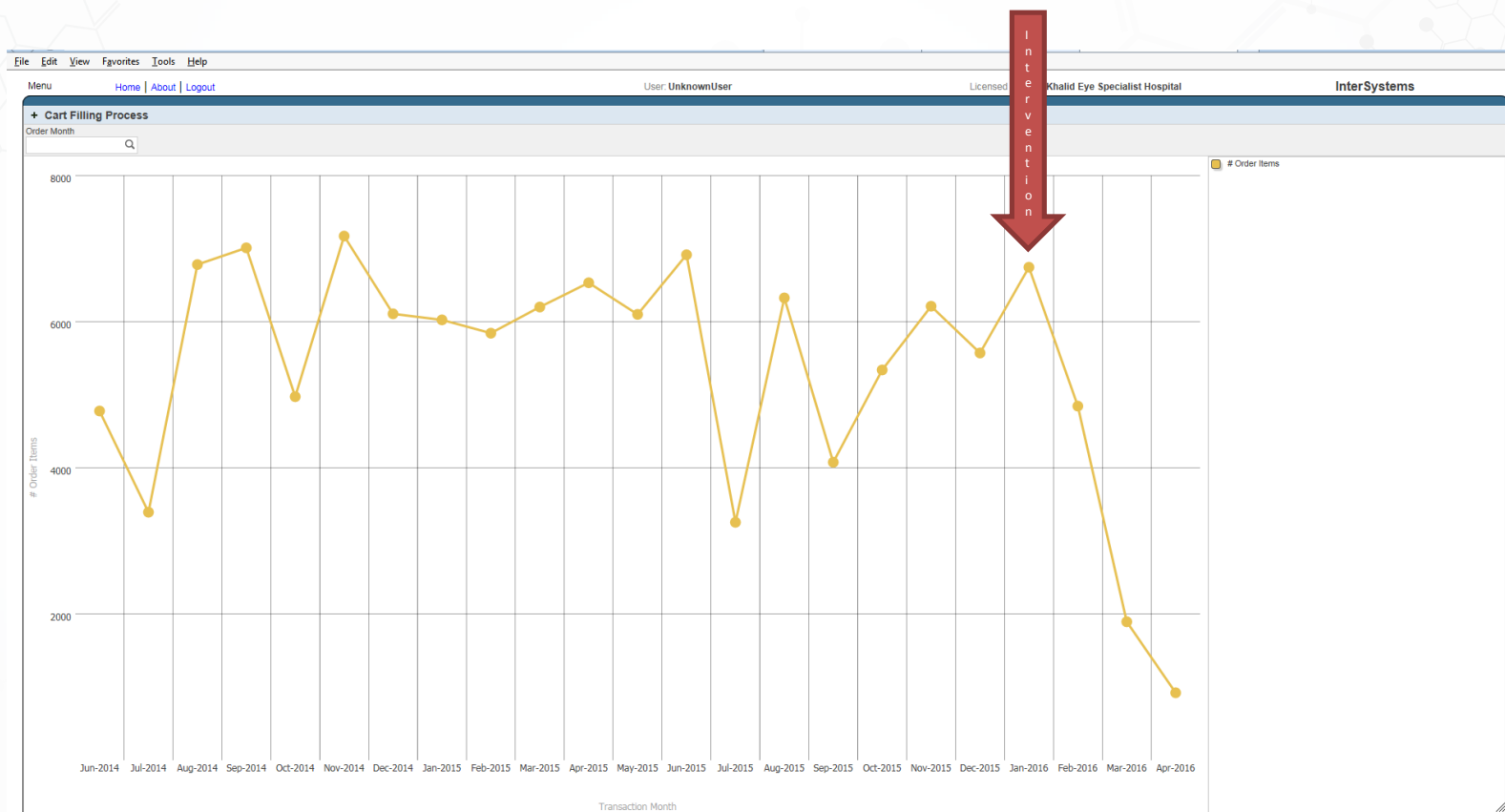


After PYXIS

MAR 2016	
Total Number of Returned Medications	26
* Dispensed of Extra Medications	0
%	0



Dashboard (# of Dispensed) Medications)



Kingdom of Saudi Arabia Success Case

Director, Quality & Strategic Planning Administration

IMPROVING OPERATION THEATER EFFECTIVENESS & EFFICIENCY

Objectives

- To identify current system in place for handling patient's surgical appointments (patient notification system) and tracking of no shows.
- To identify reasons why patients failed to show up for their surgical appointment.
- To find appropriate solutions in reducing no shows.

Process Improvement

- A key to success in many industries
- A movement across healthcare
- Essential to improve access
- A simple, fast, effective approach

Aims

- Reduce Waiting Times
- Reduce No-Shows
- Increase Admissions
- Increase OT Utilization

Patient Empowerment

- Empowerment is a process through which people gain greater control over decisions and actions affecting their health (WHO 1998)
- Key issues are partnership, networking and mutual conversation in a confidential relationship

The issue of OT “no show” and cancellation of operations

- This will lead to OT underutilization
- Increase Waiting list
- Increase equipment shortages
- Increase on operation cost
- OT elective surgery cancellation is quality KPI

Actions Plan

- Improving communication between patient, doctors, and nurses.
- Patient are counseled adequately to report on time.
- Send patient SMS notification and reminders
 - At the time of OT booking
 - 30 days before operation date
 - 15 days before operation date
 - 5 days before operation date
 - 1 day

Patient can cancel



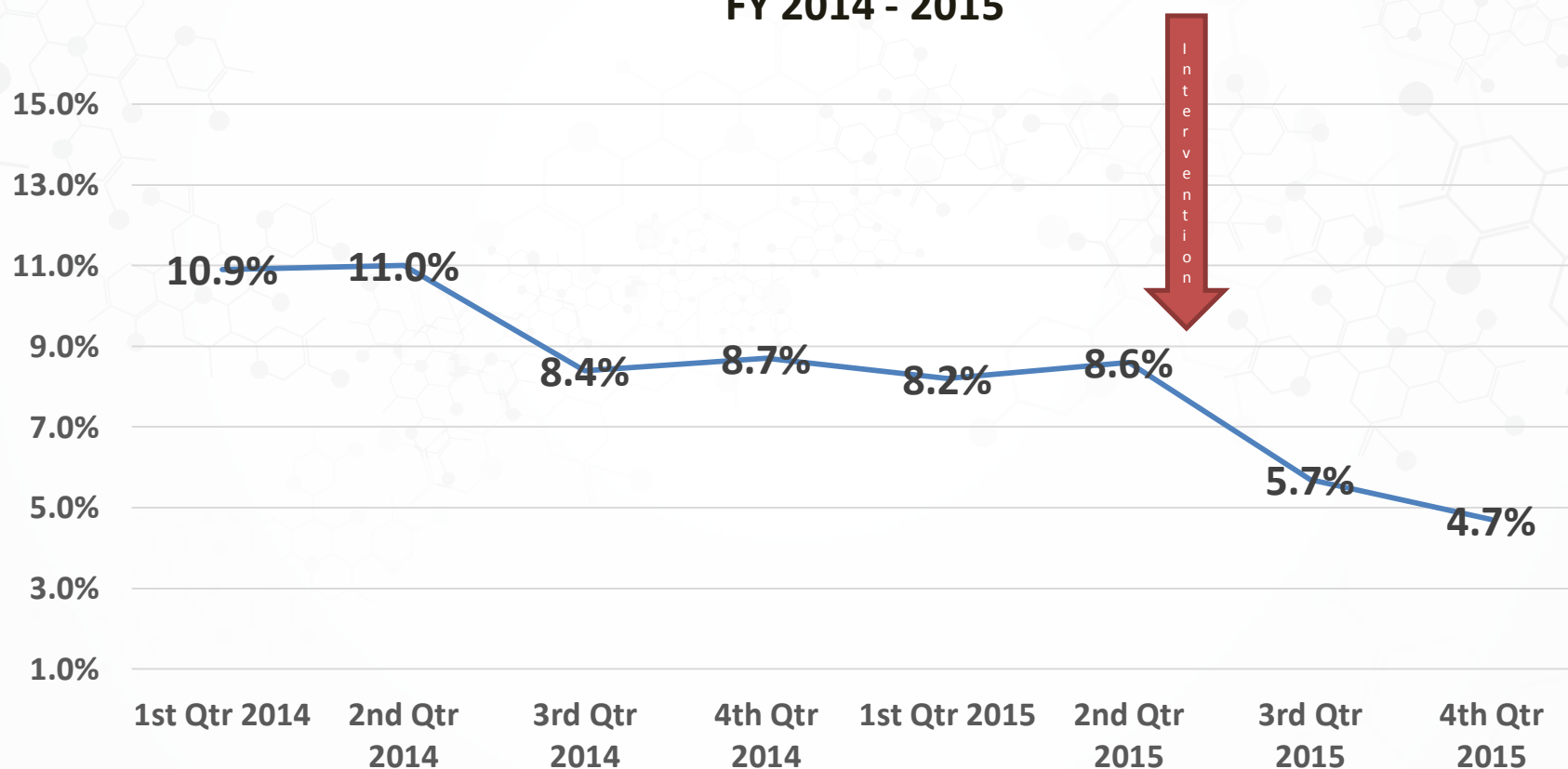
The text message informs patients

- The importance of keeping the surgical appointment.
- The consequences if the patient fails to attend the surgery without informing the hospital to cancel.

(If patient did not show for surgery, she/he will return back to OPS and again to surgery Waiting List)

Result of Surgical No-Shows

**Rate of Surgical No Shows
FY 2014 - 2015**



Breast milk

- Goal:
 - Reduce identification errors with Expressed Breast milk by utilizing barcode technology.
- Problem:
 - Medication barcoding in use but did not have a process for breast milk.

Breast Milk Process

Expressed Breast Milk Patient Verification Label: TESTPATIENT, RESPIRATORY

Expressed Breast Milk Patient Verification Label
1 bottle(s), Oral, q1hr PRN for feedings, Drug form: Liquid, first dose 01/08/16 14:44:00 EST

***Performed date / time :** 01/08/2016 1452 EST
***Performed by :** Test , RN 01 Cerner
Witnessed by :

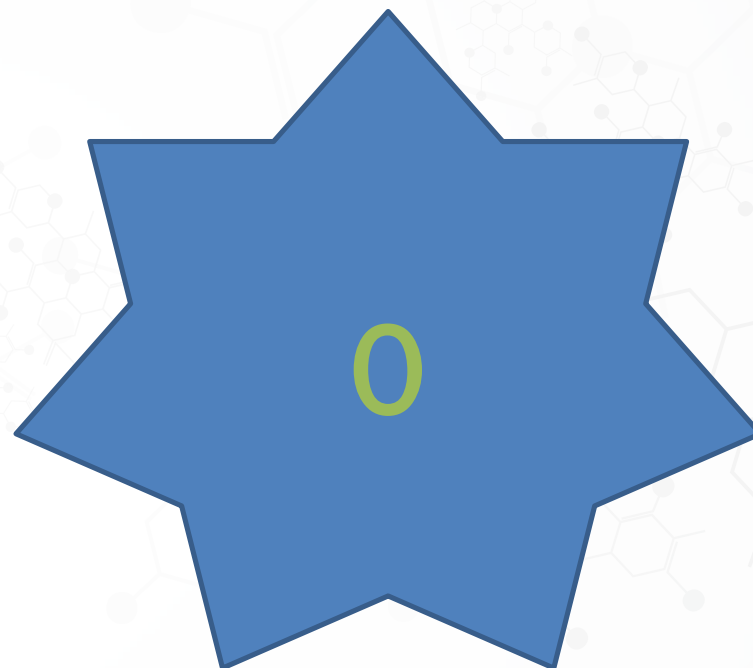
No record of last documented administration.

Name on ID Band & Bottle Match: Trend
DOB on ID Band & Bottle Match: Trend
MRN on ID Band & Bottle Match: Trend
Parent Verification Labeled Breastmilk: Trend

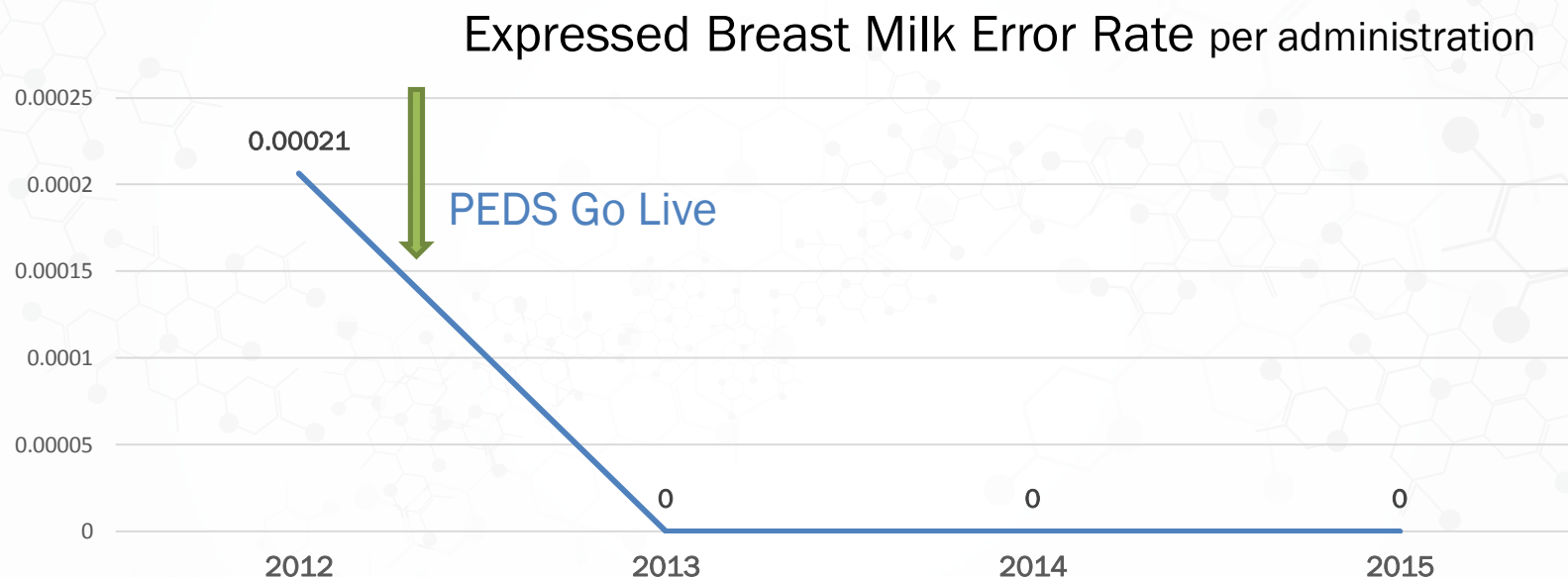
***expressed breast milk:** 1 bottle(s) Volume : 0 ml
Diluent : <none> ml
***Route :** Oral **Site :**
Reason : feedings
Total Volume : 0 **Infused Over :** 0

01/08/2016 1300 EST	01/08/2016 1400 EST	01/08/2016 1500 EST	01/08/2016 1600 EST	01/08/2016 1700 EST	01/08/2016 1800 EST

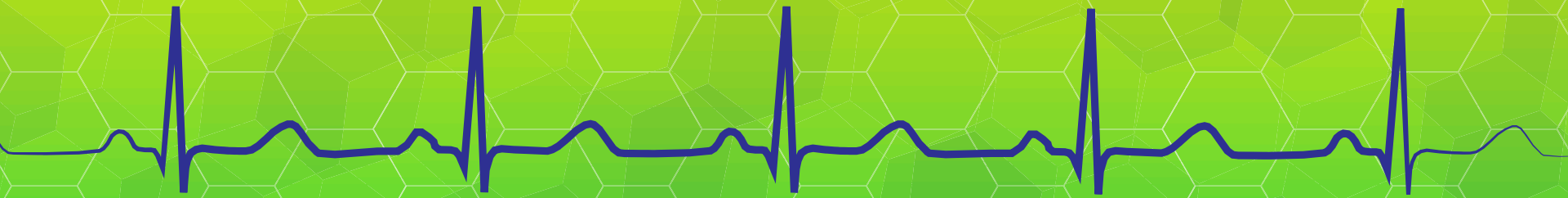
☐ Not Given
Reason :
Comment...



Breast Milk Error Rate



* Prior to PEDS, all reporting of errors were based on self reporting. After PEDS, alert reports reviewed. Error rate describes errors that reached the patient.



HIMSS *Brasil*

Conference & Exhibition 2016
São Paulo, 4 a 6 de Outubro

Thank you!

John H. Daniels, CNM, FACHE, FHIMSS, CPHIMS
Global Vice President, HIMSS Analytics



@JohnHDaniels