

# THE ROLE OF THE PHARMACIST IN IN-PHARM-ATICS



AMAZING THINGS ARE HAPPENING HERE

NewYork-Presbyterian Regional Hospital Network

NEW YORK METHODIST HOSPITAL

October 5<sup>th</sup>, 2016 - Brooklyn, NY



# Agenda

## I Introduction

About New York Methodist Hospital  
Mission Statement & Quality  
Vision, Values and Awards  
Quality Awards and Recognitions



## I NYM Pharmacy

Our Leadership Team  
Pharmacy Services at NYM  
EHR and Automation



## I Post Graduate Year Two (PGY2) Pharmacy Informatics

NYM ASHP accredited PGY2 Residency program



## I Pharmacy Informatics Role in Quality

Anticoagulation Safeguards  
Treatment Plans for specific indications  
Safety Alerts Dashboard  
Medication Management in Care Transitions



## I Thank You



# About New York Methodist Hospital

New York Methodist Hospital is a member of the New York Presbyterian Healthcare System and is also affiliated with Weill Cornell Medical College

## Admission Statistics

01

Beds: 651  
Admissions: 38,872  
Emergency Department (ED) Visits: 100,604  
Surgical Cases: 24,193

## Outpatient Statistics

02

Outpatient Visits: 198,056  
Outpatient Facilities: 42

## Employee Statistics

03

Physicians: 926  
Residents: 400+  
Full Time Equivalents (FTE's): 3,175  
Pharmacy (FTE's): 119

## General

04

Births: 5,600+  
Radiology Exams: 211,000



# Our Mission Statement & Quality

## NYM Mission Statement

The mission of New York Methodist Hospital, a member of the New York-Presbyterian Healthcare System, is to provide excellent healthcare services in a compassionate and humane manner to the people who live and work in Brooklyn and its surrounding areas. The Hospital is a non-sectarian, voluntary institution, which includes an acute care general facility and an extensive array of ambulatory and outpatient sites and services. New York Methodist Hospital has an historic relationship with the United Methodist Church.

## NYM Pharmacy Mission

The mission of the Pharmacy Department shall be to provide optimum quality, comprehensive compassionate, pharmaceutical services to the patient, the patient’s family, the institution wide staff and neighboring community. The Pharmacy Department services shall include all aspects of dispensing, patient consultation, medication storage and management of all drugs and chemicals throughout the institution and the promotion of rational drug therapy, patient and medication safety practices. The department complies with all pharmacy practice standards and all state and federal regulatory requirements set forth under all auspices governing overall pharmacy operations. The department shall direct all resources and pivot initiatives to realize goals in the advancement of patient care and customer service.



## Quality at New York Methodist

New York Methodist Hospital is committed to ensuring quality patient care. Public reporting, awards and recognition, and quality initiatives are all important resources. We constantly strive to excel in developing, achieving and adhering to best practices that result in quality outcomes. We monitor and measure these results ourselves and we also submit data to numerous agencies and organizations that rate and rank various aspects of hospital care.

# New York Methodist Vision & Values

## Better Together

To work with members of the New York-Presbyterian Healthcare System and other healthcare institutions, physicians and community groups in jointly pursuing the delivery of quality healthcare services, medical education and clinical research.

## Services

To make services accessible to patients and physicians without regard to age, sex, race, creed, national origin or disability

To provide an active ecumenical program of pastoral care and to conduct a clinical pastoral education program

## Safety

To provide patients with an environment that assures the continuous enhancement of patient safety

## Assess

To assess periodically the healthcare needs of the community and to respond to these needs with healthcare services, including health education for patients and community residents

To offer an environment that is responsive to new and changing technologies and management principles that will stimulate creative solutions for our patients, physicians and employees;



# Quality Awards and Recognition

## Gold Plus Performance

Gold Plus Performance Achievement Award for Stroke Care

### HIMSS Analytics

HIMSS Analytics Stage 6



### 100 SafeCare Hospitals

New York Methodist Hospital was listed for the second consecutive year as one of the "100 SafeCare Hospitals" by the SafeCare Group

### Joint Commission

Joint Commission Gold Seal of approval, with a 96.9 percent accountability composite score



### Best Doctors

For the past three years, no other hospital in Brooklyn has had more New York Magazine "Best Doctors" choosing it as their primary affiliation than New York Methodist Hospital.

Board of Trustees

Board of Trustees Performance Improvement and Professional Relations Committee

Executive Committee of Medical Board

Medical Board Quality Improvement Committee

CMO  
CQO

Graduate Medical Education Committee

Nursing Quality Improvement Committee

Performance Improvement Committee

- Medical Informatics
- Critical Care
- Bylaws
- Medical Education
- Credentials
- Quality Improvement
- Nutrition & Diet
- Infection Prevention
- Pharmacy & Therapeutics
- Utilization Review

- Quality Management
- Infection Prevention and Control
- Data Analytics
- Regulatory Affairs
- Clinical Departments

- Administrative/  
Ancillary  
Performance Improvement

Rapid Task Force

# Our Leadership Team



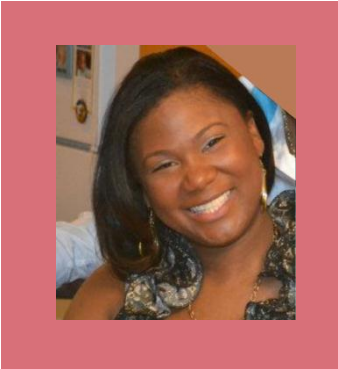
**Dr. Eric Balmir**

CHIEF OF PHARMACY



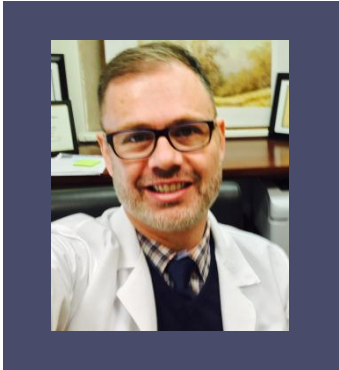
**Dr. Teena Abraham**

DIRECTOR:  
CLINICAL &  
RESIDENCY PROGRAM



**Dr. Fabienne Vastey**

DIRECTOR:  
PHARMACY OPERATIONS



**Righard van Niekerk**

DIRECTOR:  
PHARMACY INFORMATICS



**Dr. Stephanie Amirana**

MANAGER:  
TRANSITIONAL CARE &  
OUTPATIENT SERVICES



# Pharmacy Services at New York Methodist Hospital



## Centralized Dispensing

Main Pharmacy,  
IV Room  
Controlled Substances



## Decentralized Dispensing

Satellite Pharmacy  
Outpatient Infusion Center



## Education & Research

Lectures, Tools & Newsletters  
Investigational Drug Research  
Diabetes Education



## Special Services

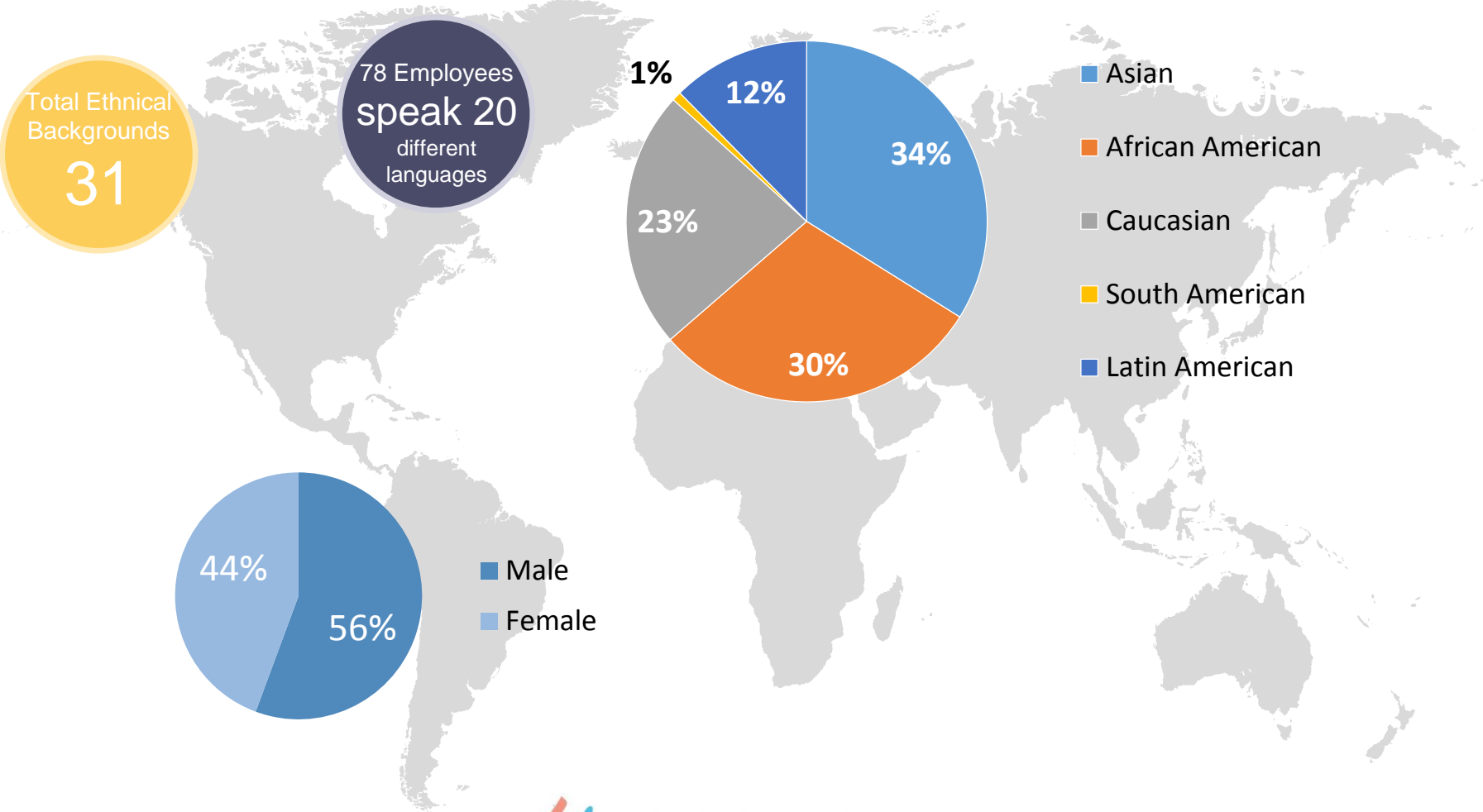
Antimicrobial Stewardship  
Anticoagulation Clinic  
Clinical Rounds  
PEDS / NICU Services  
Drug Information Center



## Other Programs

Meds-To-Bed Program  
(Medication Management in Care Transitions)  
Residency Program  
Teaching Affiliations

# NYM Pharmacy Diversity



# EHR and Automation



swisslog



MedEx



B | BRAUN



KITCHECK



CardinalHealth

Sentri7<sup>®</sup>

Alaris<sup>®</sup> PC



riva™



MCKESSON



CODONICS



ny NEW YORK METHODIST HOSPITAL

AMAZING THINGS ARE HAPPENING HERE

NewYork-Presbyterian Regional Hospital Network

61 CONGRESO NACIONAL SOCIEDAD ESPAÑOLA DE FARMACIA HOSPITALARIA  
41st NATIONAL CONFERENCE SPANISH SOCIETY OF HOSPITAL PHARMACY

# EMR Journey

## First Adopters

In 1995, NYM becomes a Cerner Client, implementing its Classic Laboratory, Radiology and Pharmacy Solutions

## Decade of Success

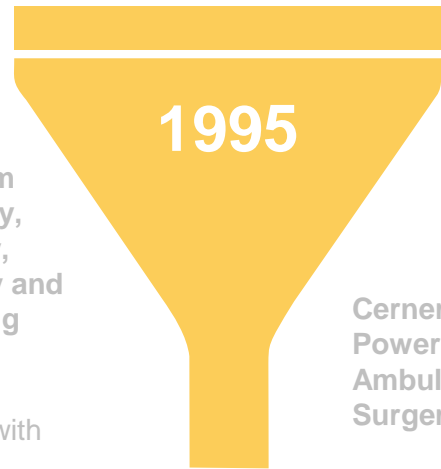
Inpatient Physician Documentation, Medical Dispensing Cabinets – Integrated to Millennium Phase II, Cloud Technology, Device Integration with Vitals, ITWorks Transition, Continued Cerner Ambulatory Rollout, Clinical Reporting XR Migration

## Continuing Excellence

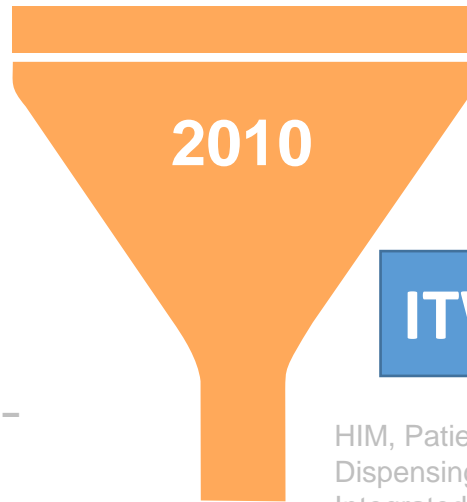
Bridge Breast Milk, Bridge Blood Transfusion, Optum CAC/CDI, Anesthesia, Work Queue Manager, Downtime Viewer Level 2, ICD-10, Camera Capture

## Staying Current

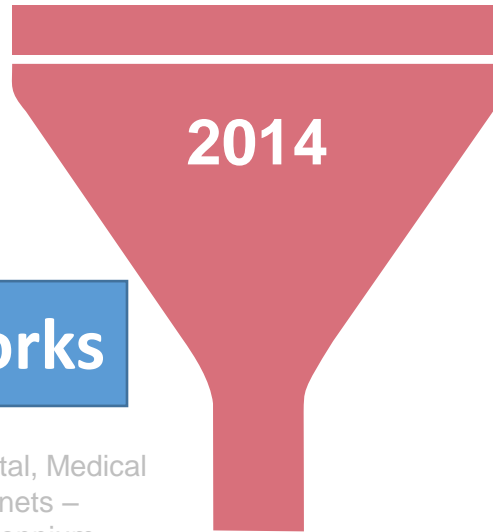
EPCS, Ancillary surgical areas, e-Signature, CommonWell



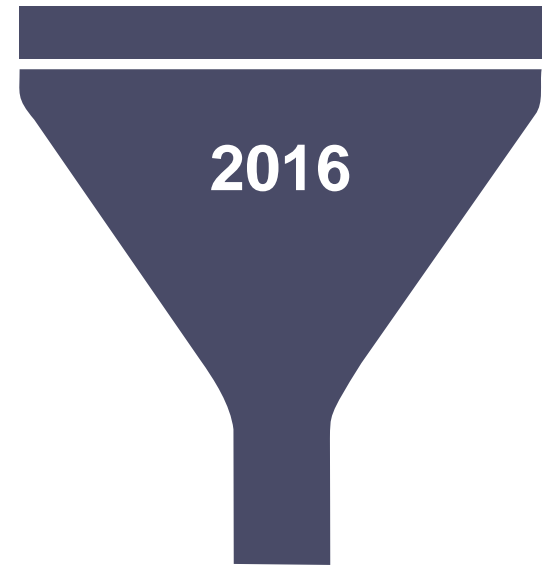
1995



2010



2014



2016

ITWorks

Millennium Laboratory, Pharmacy, Radiology and Scheduling

Cerner Powerchart Ambulatory – Surgery

CPOE with Nursing Documentation, Document Imaging PACS

Clinical Adoption Project Nursing Documentation, Emergency Department, Nursing Plans of Care

Appointment Reminders, Bed Tracking and VR/Radiology

HIM, Patient Portal, Medical Dispensing Cabinets – Integrated to Millennium Phase I, Core Measures (VTE, Stroke & ED Throughput), Lab Medical Necessity Checking, Meaningful Use (MU) Stage 1

P2 Sentinel Security Auditor, Cerner Direct/Summary of Care Patient, Cerner Barcode Medication Administration, Cerner Syndromic Surveillance, Cerner PowerInsight – Explorer, Cerner Mammography, HIMSS Stage 6

# Automating the Medication Process with Technology

### Clinical Orders & Documentation (Electronic Health Record)

**Cerner Millennium®**

- Computerized Provider Order Entry (CPOE)
- Medication Administration Record (MAR)
- Barcode Medication Administration (BCMA)
- Medication Reconciliation
- SA Anesthesia for intra-operative procedures
- Complete Physician and Nursing Documentation
- Including notes, results, imaging, and scanned documents

### Pharmacy Automation and Medication Management Systems

**Automated Picking and Dispensing**

- Cerner Millennium PharmNet® Pharmacy Management & Dispensing System - Electronic verification of CPOE medication orders
- Cerner RxStation® Automated Dispense Cabinets in 15 Patient Care Areas
- Cerner RxStation® Automated Controlled Substance Vault (CSV) in Main Pharmacy
- McKesson® Dispensing Robot, Pre-packer and Over wrapper (retiring 2016)
- Daily filling and dispensing of patient medication cassettes
- Total Parenteral Nutrition (TPN) – Baxa® TPN Compounder

### Pharmacy Automation and Medication Management Systems

**Workflow Automation**

- Aethon® – MedEx Medication Tracking integrated with Cerner Millennium
- Centrak® – Refrigerator Monitoring & Remote Alerts
- KitCheck® – Kit and Tray Restocking Automation and Medication Tracking Software
- Codonics® – Safe Label System
- Pharmacy OneSource – Simplifi® 797 (Sterile compounding quality management system)
- Pharmacy OneSource – Veriform® (Hospital checklist management system)
- Sentact Rounding® - Safety and Compliance (from NYP)

### Clinical Supply Chain & Pharmacy Surveillance

**Quality use of Data**

- Clinical Supply Chain with EDI to 2 major vendor – McKesson® and Cardinal®
- Clinical Supply Chain Accounts Payable & General Ledger Interface Lawson Materials Management®
- eAuditSolutions® - 340B Program – Integrated with Cerner Supply Chain®
- **Pharmacy Clinical Systems**, Optimization and Reporting
  - Pharmacy OneSource – Senti7® (Pharmacy Real Time Clinical Surveillance)
  - DiscernAnalytics® Reporting – Cerner Millennium®



All 3 Pharmacy Residency Programs at NYM were accredited by ASHP for 6 years in 2013



## PHARMACY INFORMATICS

The curriculum keeps evolving with each residency year. Initially, the Informatics Residency was modeled around other existing residencies, but we soon found that because of the ever expanding nature of Informatics, we had to keep updating the structure to allow for a lot of flexibility.

The first resident graduated in 2013 and stayed on as an Informatics Pharmacist. The current resident will graduate in 2017 and will be the third the program has produced.



- Automation
- Clinical and Pharmacy Systems
- Clinical Decision Support
- Data Management

# Effect of integrating Anticoagulant Safeguards

## Background

Over the years, safety concerns of using anticoagulants have attracted significant attention due to numerous sentinel events relating to the use of these agents. Due to the complexity of finding a balance between efficacy and safety of anticoagulant therapy, careful monitoring and medication management process is warranted. Studies have addressed integrating safety features with computerized physician order entry (CPOE) systems to reduce the occurrence of medication errors.



## Statement of Issue

Anticoagulants with a narrow therapeutic index, such as warfarin, have a low threshold between risk of developing thrombotic events or bleeding. Agents which require weight-based dosing or dose adjustment based on specific monitoring parameter, such as heparin and enoxaparin, have also been shown to cause unwanted outcomes. Improper usage or inadequate monitoring of anticoagulants can cause detrimental outcomes to the patients.

Our goal is to comply with the recommendations of promoting safe practice in utilizing anticoagulants to reduce the risk of patient harm by incorporating safety features in the CPOE system.

# Anticoagulant Action Plan



Anticoagulation flowsheet for easy review of medications

01

02

Documentation of subtle signs of bleeding during medication charting on the MAR



Once a day ordering of warfarin with review of lab orders

03



High Alert warnings added to all anticoagulants

04

Prescriber forced to document last INR on the order & Pharmacy validates during order verification



Approved order sets and guidelines built into the ordering working

05



\$		Component	Details
<b>General Medicine Admission PowerPlan, General Medicine Admission, DVT Prophylaxis Orders (Initiated Pending), Ordered as: Admission PowerPlan, General Medicine</b>			
Please select ONE of the below (either an Order or a Reason MUST be selected to proceed):			
<input checked="" type="checkbox"/>		<b>High Alert heparin (heparin 5,000 units SQ)</b>	5,000 units, Form: Injection, Route: SC, Q8H (Every 8 Hours), Indication: D.V.T. Prophylaxis
--OR--			
<input type="checkbox"/>		<b>High Alert enoxaparin (Lovenox)</b>	30 MG, Form: Injection, Route: SC, Q12H ATC (1st now, then every 12hr after), Indication: D.V.T. Prophylaxis
--OR--			
<input type="checkbox"/>		<b>High Alert enoxaparin (Lovenox)</b>	40 MG, Form: Injection, Route: SC, Q24H, Indication: D.V.T. Prophylaxis
--OR--			
<input type="checkbox"/>		<b>High Alert fondaparinux (Arixtra)</b>	2.5 MG, Form: Injection, Route: SC, Q24H, Indication: D.V.T. Prophylaxis, For heparin contraindications e.g. ...
--OR--			
<input type="checkbox"/>		Sequential Compression Device	T;N, Frequency: ONCE, Special Instructions: Apply to B/L Lower Ext
If NONE of the above were ordered, A REASON below MUST be selected:			
<input type="checkbox"/>		Patient is LOW RISK; VTE Prophylaxis is NOT indicated	Low Risk is defined as: Age < 40 years, without additional VTE risk factors, ambulating in the hallways and expected LOS < 48 hours
<input type="checkbox"/>		DVT prophylaxis (mechanical AND pharmacological) i...	
<input type="checkbox"/>		Use the above for patients being anticoagulated already	
<input type="checkbox"/>		BOTH pharmacologic and mechanical prophylaxis are...	
<input type="checkbox"/>		BOTH pharmacologic and mechanical prophylaxis are...	
<input type="checkbox"/>		Use the above for patients being anticoagulated already	
<input type="checkbox"/>		DVT prophylaxis (mechanical AND pharmacological) i...	
<input type="checkbox"/>		Low risk is defined as: Age < 40 years, without additional VTE risk factors, ambulating in the hallways and expected LOS < 48 hours	
<input type="checkbox"/>		Patient is LOW RISK; VTE Prophylaxis is NOT indicated	

**High Alert**

**heparin (heparin 5,000 units SQ) High Alert Medication**

RISK: Bleeding

SAFEGUARDS: Floor stock availability is limited. Monitor aPTT, signs and symptoms of bleeding.

OK

# Treatment Plans for Specific Indications

**PRN Pain Response**

15 Plans

- Plans address specific areas
- Opioid Sparing vs Opioid
- Renal Insufficiency/Elderly
- Major Surgeries incl Hip/Knee
- Covering Pain Response
- Improved Compliance

**Better Patient Experience**

**Antibiotic in the ICU**

25 Plans

- Plans address specific infection
- Default options
- Weight based ordering
- Related Lab results
- Preapproved duration of Tx
- Adherence to Quality Measures

**Infection Control**

**Diabetes Management**

1 Plan

- Assists with complex dosing
- Provides option for Bolus dose
- Supplemental Sliding Scale
- Consultation for Education
- Link to Outpatient Supplies
- Embedded in Admission Plans

**Improved Dose Calculations**

**Chemotherapy Plans**

20 Plans

- Standard Plans with Cycles
- Hydration and Premed Order
- Lab and Extravasation Orders
- From Paper to CPOE
- Review of Orders Required
- Triple checked Orders

**Safety**

\$		Component	Details
<b>General Medicine Admission PowerPlan, General Medicine Admission, Pain Opioid-Sparing PRN Pain Orders (Initiated Pending), Ordered as: Admission PowerPlan, General Medicine</b>			
PRN MEDICATIONS - Select ONE from EACH Pain Score Range			
<b>PAIN SCORE 1-3</b>			
<input checked="" type="checkbox"/>			acetaminophen (Tylenol Oral) 650 MG, Form: Tablet, Route: ORAL, Q6H (Every 6 Hours), Indication: Pain Score (1-3), PRN for Pain
<input type="checkbox"/>			ibuprofen (Motrin) 400 MG, Form: Tablet, Route: ORAL, Q6H (Every 6 Hours), Indication: Pain Score (1-3), PRN for Pain, If GI u...
--AND--			
<b>PAIN SCORE 4-6</b>			
<input checked="" type="checkbox"/>			ibuprofen (Motrin) 600 MG, Form: Tablet, Route: ORAL, Q6H (Every 6 Hours), Indication: Pain Score (4-6), PRN for Pain, If GI u...
<input type="checkbox"/>			ketorolac (Toradol) 15 MG, Form: Injection, Route: IVPush, Q6H (Every 6 Hours), Indication: Pain Score (4-6), PRN for Pain, for ...
<input type="checkbox"/>			traMADol 50 MG, Form: Tablet, Route: ORAL, Q6H (Every 6 Hours), Indication: Pain Score (4-6), PRN for Pain, for ...
<input type="checkbox"/>			acetaminophen-traMADol (Ultracet 325 mg-37.5mg o... 1 TAB(S), Form: Tablet, Route: ORAL, Q8H (E...
<input type="checkbox"/>			<b>High Alert oxyCODONE-acetaminophen (Percocet ...</b> 1 TAB, Form: Tablet, Route: ORAL, Q6H (Eve...
--AND--			
<b>PAIN SCORE 7-10</b>			
<input type="checkbox"/>			ibuprofen (Motrin) 800 MG, Form: Tablet, Route: ORAL, Q6H (E...
<input type="checkbox"/>			ketorolac (Toradol) 30 MG, Form: Injection, Route: IVPush, Q6H...
<input checked="" type="checkbox"/>			traMADol 100 MG, Form: Tablet, Route: ORAL, Q8H (E...
<input type="checkbox"/>			acetaminophen-traMADol (Ultracet 325 mg-37.5mg o... 2 TAB(S), Form: Tablet, Route: ORAL, Q8H (I...
<input type="checkbox"/>			<b>High Alert oxyCODONE-acetaminophen (Percocet ...</b> 2 TAB(S), Form: Tablet, Route: ORAL, Q6H (I...
<input type="checkbox"/>			<b>High Alert morphine</b> 2.5 MG, Form: Injection, Route: SC, Q6H (Eve...
<b>ADDITIONAL MEDICATIONS:</b>			
For Oversedation due to opioid overdose			
<input checked="" type="checkbox"/>			naloxone (Narcan) 0.04 MG, Form: Injection, Route: IVPush, Q1...
<input type="checkbox"/>			naloxone (Narcan) 0.04 MG, Form: Injection, Route: IVPush, Q1...
For Oversedation due to opioid overdose			
<b>ADDITIONAL MEDICATIONS:</b>			
<input type="checkbox"/>			<b>High Alert morphine</b> 5.2 MG, Form: Injection, Route: SC, Q6H (Eve...
<input type="checkbox"/>			<b>High Alert oxyCODONE-acetaminophen (Percocet ...</b> 5 TAB(S), Form: Tablet, Route: ORAL, Q6H (I...
<input type="checkbox"/>			<b>High Alert morphine</b> 5.2 MG, Form: Injection, Route: SC, Q6H (Eve...

**The prescriber selected the following PAIN SCORE RANGE for this medication:**

**Pain Score: 7 - 10**

Please document the patient's pain score:

**Pain Score Must correspond with the order.**

\$	Offset	Component	Status	Details
<b>Chemo Bortezomid (Velcade) Induction Q3Weeks PowerPlan, Cycle 1 (Future Pending)</b>				
Medications				
Add medications by using "Add to Phase"				
Day 1:				
Pre Medications:				
<input checked="" type="checkbox"/>		ondansetron		16 MG, Ivpb, IV, ONCE, Pre Medication - Chemo
<input checked="" type="checkbox"/>		palonosetron		0.25 MG, Ivpb, IV, ONCE, Pre
Medications/Regimen:				
<input checked="" type="checkbox"/>		bortezomib		1.3 mg/m2, Injection, IVP, O
Hydration:				
<input checked="" type="checkbox"/>		Sodium Chloride 0.9%		Dose: 250 mL, Route: IV, Ind
<input type="checkbox"/>		Sodium Chloride 0.45%		mL, IV, Hydration, Durations:
<input type="checkbox"/>		Dextrose 5% in Water		mL, IV, Hydration, Durations:
<input type="checkbox"/>		Dextrose 5% with 0.9% NaCl		mL, IV, Hydration, Durations:
<input type="checkbox"/>		Lactated Ringers Injection		mL, IV, Hydration, Durations:
Day 4:				
Pre Medications:				
<input checked="" type="checkbox"/>	+3 day	ondansetron		16 MG, Ivpb, IV, ONCE, Pre M
<input checked="" type="checkbox"/>	+3 day	palonosetron		0.25 MG, Ivpb, IV, ONCE, Pre
Medications/Regimen:				
<input checked="" type="checkbox"/>	+3 day	bortezomib		1.3 mg/m2, Injection, IVP, O
Hydration:				
<input checked="" type="checkbox"/>	+3 day	Sodium Chloride 0.9%		Dose: 250 mL, Route: IV, Ind
<input type="checkbox"/>	+3 day	Sodium Chloride 0.45%		mL, IV, Hydration, Durations:
<input type="checkbox"/>	+3 day	Dextrose 5% in Water		mL, IV, Hydration, Durations:
<input type="checkbox"/>	+3 day	Dextrose 5% with 0.9% NaCl		mL, IV, Hydration, Durations:
<input type="checkbox"/>	+3 day	Lactated Ringers Injection		mL, IV, Hydration, Durations:
Day 8:				
Pre Medications:				
<input checked="" type="checkbox"/>	+7 day	ondansetron		16 MG, Ivpb, IV, ONCE, Pre M
<input checked="" type="checkbox"/>	+7 day	palonosetron		0.25 MG, Ivpb, IV, ONCE, Pre
Medications/Regimen:				
<input checked="" type="checkbox"/>	+7 day	bortezomib		1.3 mg/m2, Injection, IVP, O
Hydration:				
<input checked="" type="checkbox"/>	+7 day	Sodium Chloride 0.9%		Dose: 250 mL, Route: IV, Ind
<input type="checkbox"/>	+7 day	Sodium Chloride 0.45%		mL, IV, Hydration, Durations:
<input type="checkbox"/>	+7 day	Dextrose 5% in Water		mL, IV, Hydration, Durations:
<input type="checkbox"/>	+7 day	Dextrose 5% with 0.9% NaCl		mL, IV, Hydration, Durations:
<input type="checkbox"/>	+7 day	Lactated Ringers Injection		mL, IV, Hydration, Durations:

**NYMHTEST, AMBINF - Add Plan**

**Chemo Bortezomid (Velcade) Induction Q3Weeks PowerPlan**

Select Visit and Start Time

This Visit  
 Future Inpatient Visit  
 Future Outpatient Visit

Estimated Start Date of Standard PRN Protocols

In  Day(s)  
 In  Week(s)  
 In  Month(s)

Est. start   EDT

Confirm Phase Action

Phase	Start Date/Time	Action
Standard PRN Protocols	*Est. 9/20/2016 10:17 AM EDT	Order for future visit
Laboratory	*Est. 9/20/2016 10:17 AM EDT	Order for future visit
Cycle 1	*Est. 9/20/2016 10:17 AM EDT	Order for future visit
Cycle 2:	*Est. 10/11/2016 10:17 AM EDT	Order for future visit
Cycle 3:	*Est. 11/1/2016 10:17 AM EDT	Order for future visit
Cycle 4:	*Est. 11/22/2016 10:17 AM EST	Order for future visit
Cycle 5:	*Est. 12/13/2016 10:17 AM EST	Order for future visit
Cycle 6:	*Est. 1/3/2017 10:17 AM EST	Order for future visit
Cycle 7:	*Est. 1/24/2017 10:17 AM EST	Order for future visit
Cycle 8:	*Est. 2/14/2017 10:17 AM EST	Order for future visit

Additional Review Settings

Review Required

Review Provider

**NYMHTEST, AMBINF - 00007047327**

OK Cancel

# Titratable Medication Orders

## Background

To ensure that titration orders are clear and safe for patients, specific parameters for titration must be defined. In order to achieve this, new order entry formats and PowerPlans with sub phases based on diluents and final concentrations were created, while ensuring that everything could be easily understood when ordering and charting on the interactive flowsheet

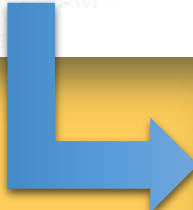
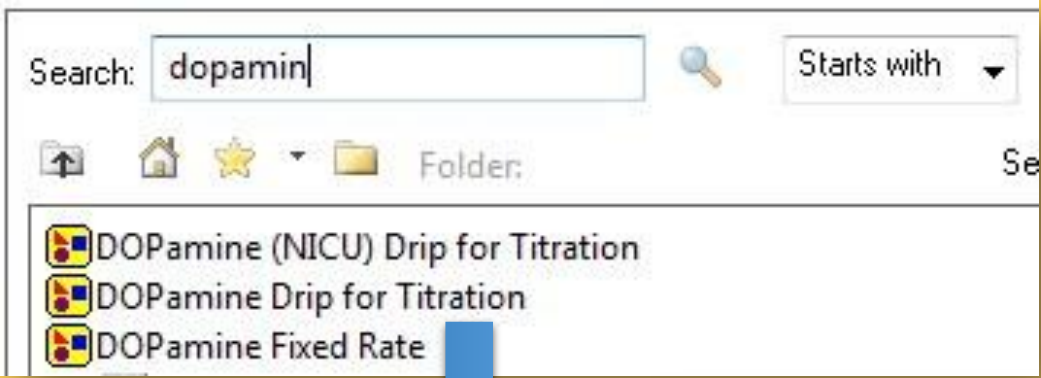
The following user *defined fields* are provided as a reference during the ordering process:

- **Titrate by** – used to indicate the value the nurse can titrate up or down
- **With an UP Frequency of** – the time in minutes/hours the nurse can up titrate
- **With a DOWN Frequency of** - the time in minutes/hours the nurse can down titrate
- **With a Goal of** – titration parameter used by the nurse to titration the medication
- **Titration Goal Reference** – reference for titration goal
- **Final Concentration**
- **Maximum Rate** – maximum rate for the medication order



# Titratable Medication Orders

The prescriber's selects the titrate order which is part of a PowerPlan which restricts the IV sets to the predefined concentrations. Titratable orders can only be ordered using the pre-designed PowerPlans.



\$	▼	Component
		<b>DOPamine Drip for Titration (Initiated Pending)</b>
	▲	Continuous IVs
		Standard Concentration: 1.6 MG/mL
<input type="checkbox"/>		<input type="checkbox"/> DOPamine 800 MG/500 mL Dextrose 5% TITRATE
		Standard Concentration: 3.2 MG/mL
<input type="checkbox"/>		<input type="checkbox"/> DOPamine 800 MG/250 mL Dextrose 5% TITRATE



# Titratable Medication Orders

The system automatically calculates the dose, rate and infuse over fields on the order. The required fields are indicated on the “Details” tab.

▼ Details for **DOPamine 800 MG [10 mcg/kg/min] + Premix Base 500 mL**

Details | Continuous Details | Offset Details | Diagnoses

Base Solution	Bag Volume	Rate	Infuse Over	
Premix Base	500 mL	36.9 mL/hr	13.6 HR	
Additive	Additive Dose	Normalized Rate	Delivers	Occurrence
DOPamine	800 MG	10 mcg/kg/min	984.1 MCG/MIN	EB
Total Bag Volume	500 mL			

Weight: 98.41 KG Weight Type: Clinical Weight Result dt/tm: 9/28/2016 10:30:00 AM EDT

Infusion instructions  
Initial rate = Normalized rate



# Titratable Medication Orders

The prescriber's only required field is to provide the goal of the titration parameter. Goal references are also provided to assist with completion of the orders

▼ Details for **DOPamine 800 MG [10 mcg/kg/min] + Premix Base 500 mL**

Details | Continuous Details | Offset Details | Diagnoses

+ [Icons]

<b>*Route of administration:</b> IV	<b>*Medication indication:</b> Hypotension
Requested start date and time: **/**/**** EDT	Duration: 24
Duration unit: HR	Titrate by: 1-3 mcg/kg/min
Maximum Rate: 20 mcg/kg/min	Up Titration Freq: 5 min
Down Titration Freq: 5 min	<b>*Titrate to:</b> Maintain MAP >
*.: [Yellow box]	Titration Goal Reference: MAP > 65 mmHG
Special Instructions: [ ]	





# Titratable Medication Orders

The Pharmacy Verification screen shows the details of the order so that the pharmacist can review.

The titration parameters are displayed in the User defined details section.

The pharmacist is forced to the product selection window first to ensure they review the order details of each order.

**M Manual Product Select - DOPamine Titrate + D5W Premix Base Titratable IV 36.9 mL/hr [10 mcg/kg/min]**

**Order Information**

Ingredients:

<input checked="" type="checkbox"/> DOPamine	800 MG
DOPamine Titrate	
<input checked="" type="checkbox"/> Premix Base	500 mL
D5W Premix Base Titratable	

Last updated by: Van Niekerk (DBA), Righard - DBA EV

Communication type: Verbal

Order comments: Initial rate = Normalized rate

User defined details:

Medication indication: Hypotension  
 Titrate by: 1-3 mcg/kg/min  
 Maximum Rate: 20 mcg/kg/min  
 Up Titration Freq: 5 min  
 Down Titration Freq: 5 min  
 Titrate to: Maintain MAP >  
 :: 65

**Products**

Products (2) | IV Sets (13)

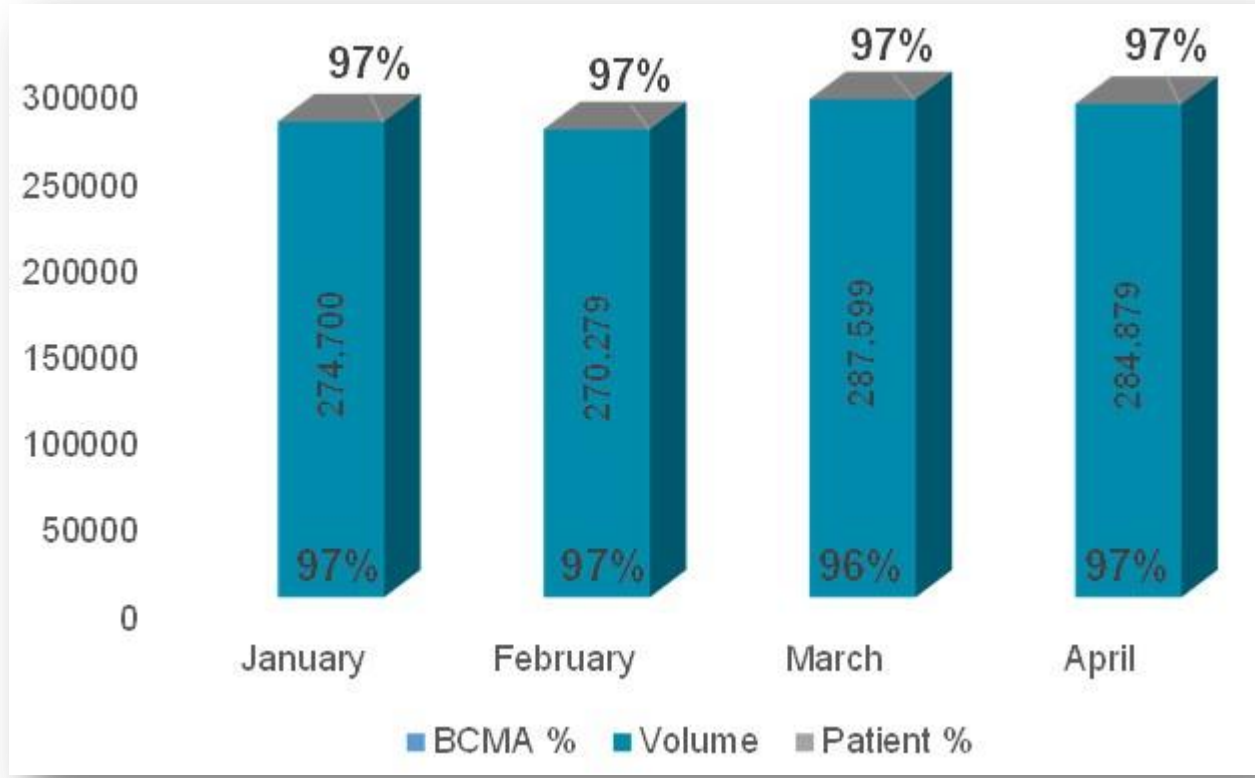
Description	Formulary Status
DOPamine 400 MG/250 mL D5W	Formulary
DOPamine 400 MG/250 mL D5W TITRATE	Formulary
DOPamine 800 MG/250 mL D5W	Formulary
DOPamine 800 MG/250 mL D5W TITRATE	Formulary
DOPamine 800 MG/500 mL D5W	Formulary
DOPamine 800 MG/500 mL D5W TITRATE	Formulary

Selected products:

Product	Dose	Unit	DspQty	QtyUnt
DOPamine 800 MG/ D5W 5...	800	MG	1	EA

Reset      Move >      Select >      OK      Cancel

# Barcode Medication Administration (BCMA)



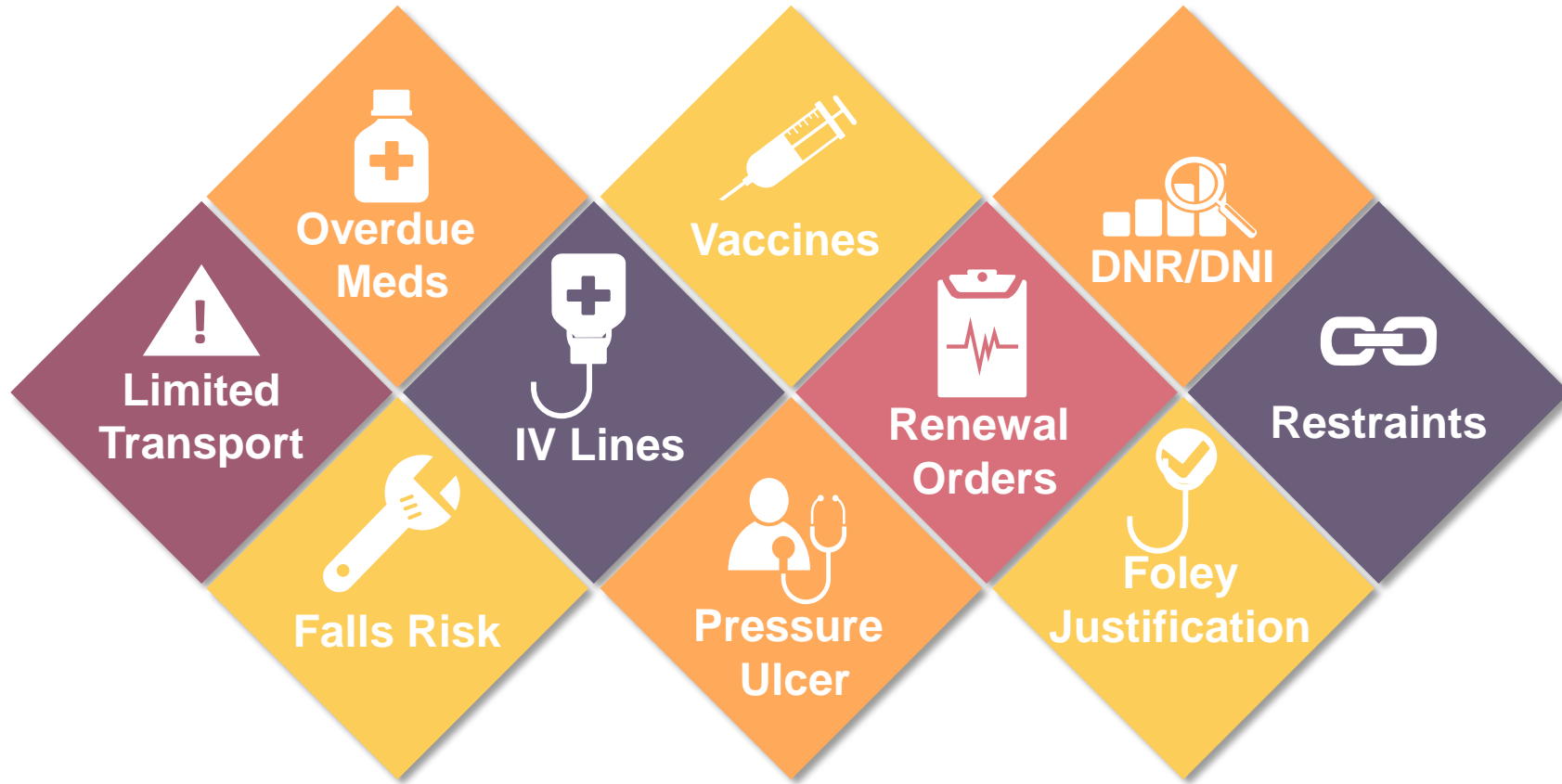
- **Closed Loop Medication Administration**
  - Criteria for HIMSS Stage 7 (Acute Care)
    - The *HIMSS Analytics Electronic Medical Record Adoption Model (EMRAM)*<sup>SM</sup> was created to track healthcare organizations' progress towards achieving a paperless patient record environment
    - Hospitals and ambulatory care facilities are scored based on their *level* of a EMR adoption from *Stage 0* through *Stage 7*
  - Threshold is  $\geq 95\%$  scanning rate of patient wrist band and medication before delivery for over 4 months
    - Excludes ED, but barcoding must be in use

NYM Average (for Included Units):

- 97% Scanning Compliance in 2015
- 98% compliance January to June 2016

# Safety Alerts Dashboard

Zooming out to the overall chart picture, the Safety Alerts Dashboard is one of the most phenomenal custom developments that Pharmacy Informatics played a big part in. The Dashboard combines into a unit view all of the most important components of patient care, including the vaccination status, falls risk, central line indicator, Foley justification, DNR/DNI status, and limited transport status (one of the determinants of which are medications).



# Safety Alerts Dashboard – Patient List

Task Due Task Overdue Hover to see Med with Due Dt/ Tm	<b>F</b> Patient has Foley <b>F</b> Needs Justification Link to Foley Catheter Justification Form	Patient has Central Line	Patient on Restraint New Order Needed Hover to see Order Dt/ Tm	High Fall Risk	Hover on Circle to Show Med and Due Dt/ Tm	Expiring within 3 Hours Expiring within 16 Hours Expiring within 24 Hours Hover on Circle to Show Expired Meds	DNR/DNI Order Present	Limited Transport Patient	Pressure Ulcer	IV Lines Tubes and Drains
Vaccines	Foley	Central Line	Restraints	Falls	Uncharted Meds	Expired Meds	DNR/DNI	Limited Transport	Pressure Ulcer	IV Lines Tubes and Drains
	<b>F</b>									

# Safety Alerts Dashboard – Patient Specific Alerts

Task Due Task Overdue Hover to see Med with Due Dt/Tm	<b>F</b> Patient has Foley <b>F</b> Needs Justification Link to Foley Catheter Justification Form	Patient has Central Line	Patient on Restraint New Order Needed Hover to see Order Dt/Tm	High Fall Risk	Hover on Circle to Show Med and Due Dt/Tm	Expiring within 3 Hours Expiring within 16 Hours Expiring within 24 Hours Hover on Circle to Show Expired Meds	DNR/DNI Order Present	Limited Transport Patient	Pressure Ulcer	IV Lines Tubes and Drains
Vaccines	Foley	Central Line	Restraints	Falls	Uncharted Meds	Expired Meds	DNR/DNI	Limited Transport	Pressure Ulcer	IV Lines Tubes and Drains

< > 🏠 Acute Care Workflow

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Admit ⊗

Manage ⊗

Assessment ⊗

Transfer ⊗

Discharge ⊗

### Safety Alerts

Patient Safety Alerts

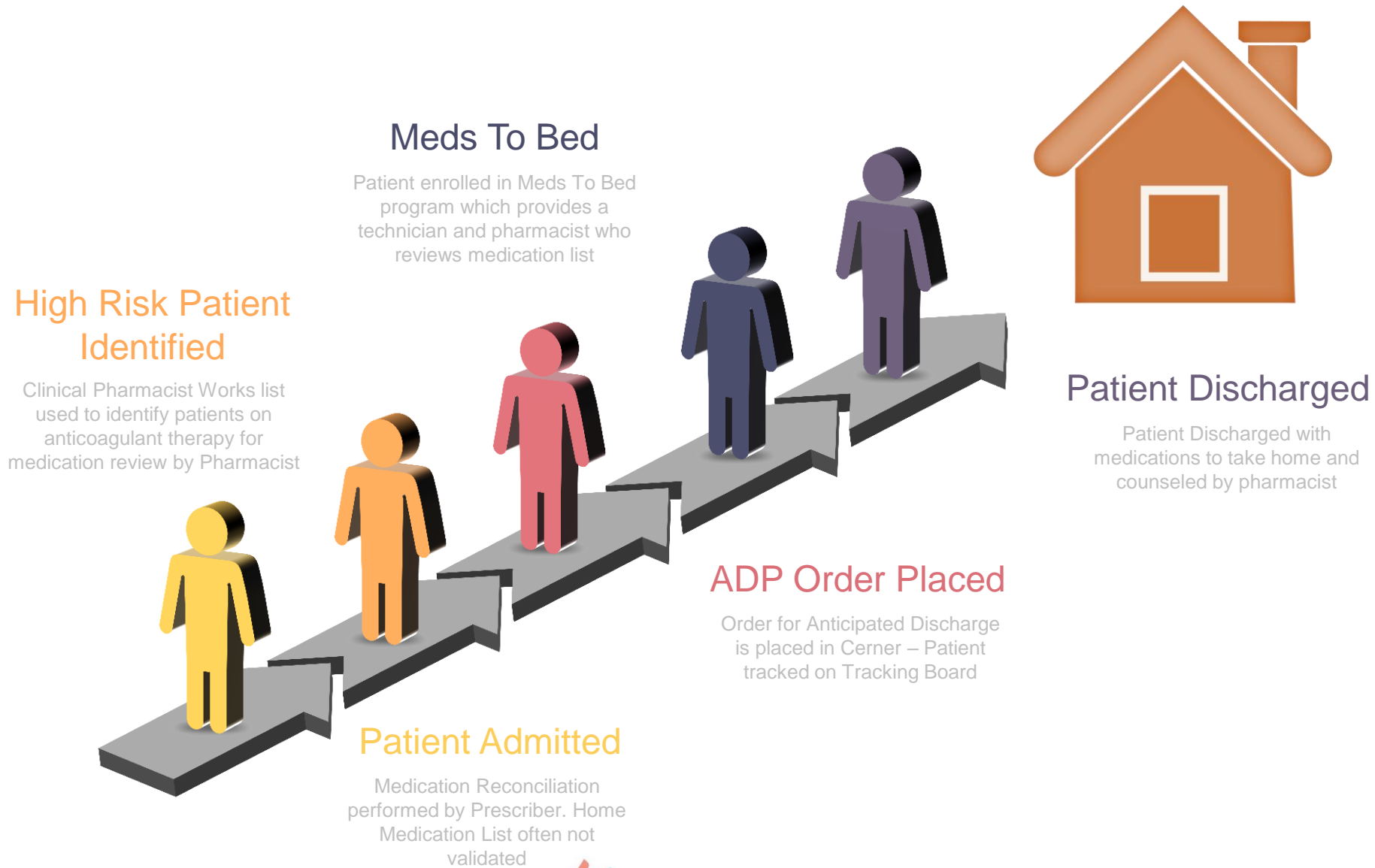
**Fall Risk Score: 45 , Documented Date: 04/20/2016 15:07**

**Patient has uncharted Meds**

**Patient has Expiring Meds**

**Patient is Limited Transport**

# Medication Management in Care Transitions



# High-Risk Patient Identification - Pharmacist Work List

**Clinical Pharmacist Worklist**

Patient List:  Facilities:  Nurse Units

Views:

Patient Information		<input type="checkbox"/> Meds to Bed Anticoags
[+] <input type="checkbox"/> [REDACTED] 70 years F		<b>Hemoglobin:</b> ↓ 9.3 g/dL 09/28/2016 07:05 <b>Xarelto:</b> 10 MG, 1 TAB(S), ORAL, QPM (Every Evening)
[+] <input type="checkbox"/> [REDACTED] 85 years F		<b>Hemoglobin:</b> ↓ 10.2 g/dL 09/28/2016 06:13 <b>INR:</b> 1.69 09/28/2016 06:13 <b>Coumadin:</b> 2 MG, 1 TAB(S), ORAL, AT BEDTIME <b>aspirin:</b> 81 MG, 1 TAB(S), ORAL, DAILY <b>warfarin 1 mg oral tablet:</b> 1 MG, 1 TAB, ORAL, DAILY, 30 TAB, 0 Refill(s) <b>warfarin 2.5 mg oral tablet:</b> 2.5 MG, 1 TAB, ORAL, DAILY, 30 TAB, 0 Refill(s)
[+] <input type="checkbox"/> [REDACTED] 25 years F		<b>Hemoglobin:</b> ↓ 8.3 g/dL 09/27/2016 21:48 <b>Eliquis 5 mg oral tablet:</b> 5 MG, 1 TAB(S), ORAL, Q12H (10 AM and 10 PM)
[+] <input type="checkbox"/> [REDACTED] 66 years M		<b>Hemoglobin:</b> ↓ 11.8 g/dL 09/28/2016 09:57 <b>Xarelto:</b> 10 MG, 1 TAB(S), ORAL, Q24H <b>aspirin:</b> 81 MG, 1 TAB(S), ORAL, DAILY
[+] <input type="checkbox"/> [REDACTED] 73 years F		<b>Hemoglobin:</b> ↓ 10.6 g/dL 09/28/2016 09:57 <b>Xarelto:</b> 10 MG, 1 TAB(S), ORAL, QPM (Every Evening)
[+] <input type="checkbox"/> [REDACTED] 68 years F		<b>Hemoglobin:</b> ↓ 9 g/dL 09/28/2016 09:58 <b>INR:</b> 1.98 09/28/2016 09:58 <b>Coumadin 4 mg oral tablet:</b> 4 MG, 1 TAB, ORAL, AT BEDTIME, 30 TAB, 0 Refill(s)

# Pharmacy Discharge Planning – Tracking Shell

**Tracking Shell** Full screen Print 0 minutes ago

Caregiver Identified OB Hall Beds Psychiatric Consults Documentation Tab Caregiver Identified Psych Code Sheet Inpatient Admitting WR/Triage InFill 7 MTR Inpatient CP6N  
SMART Inpt High Risk/ Social Work Consult Follow Up My Patients Demo Recently Discharged MTR Caregiver Identified Prearrival Patients Eagle Reg Data  
ED All Beds Check Out REU Recently Discharged -8 hrs Social Work Social Worker ED High Risk/ Social Work Consult High Risk Patient Abuse Acute SMART  
ED Rounds Nursery ED All Beds ED All Beds ED All Beds ED All Beds ED All Beds ED All Beds ED All Beds ED All Beds ED All Beds Even Even Odd Odd  
Miner 7 Miner 8 Registration FC Registration Missed Registration Psych Patients CP6N CP6S Doctor Doctor Doctor Doctor Doctor Doctor Doctor  
Postpartum 5 South Pending Discharge ED Admissions ED Rounds KPAC To Be Seen To Be Seen To Be Seen Inpatient Isolation Requests Miner 5 Miner 6  
In House Pending DC OB Action Required Ambulance Transport ED Transporter Inpatient Transporter InFill 6 WR/Triage CPAC Postpartum 5 North  
ED All Beds ED Greaseboard Admitting ED Disposition Recently Admitted BTR Missed Dispositions LDR RN Greaseboard LDR Anticipated Discharge Plan

Patient: NYMHTEST, EXCHANGE | Filter: ADP Orders | Total: 68

Assigned Bed	MRN	Name	Sex/Age	Medical Service	Radiology	General Lab	Cardiology	Discharge Status	Reasons for
M403,D			38 years			13/11		2	
M404,B			65 years		3/1	16/6	1/0	1	
			71 years			1/0		1	
M498,C			73 years	Cardiology			2/0	1	
M500,D			31 years	Medicine	<input checked="" type="checkbox"/>	872/776	11/4	1	
7031,A			56 years	Medicine	<input checked="" type="checkbox"/>	757/739	5/2	2	
I508,A			71 years	Cardiology	14/12	442/419	5/1	1	
I516,A			47 years	Medicine	<input checked="" type="checkbox"/>	392/311	3/1	2	
I501,A			86 years	Cardiology	<input checked="" type="checkbox"/>	348/336		1	
I612,A			77 years	Medicine	<input checked="" type="checkbox"/>	152/126	1/0	1 2	
ICU2,16			58 years	Medicine	<input checked="" type="checkbox"/>	210/156	2/1	1	
8007,A			93 years	Rehabilitation	<input checked="" type="checkbox"/>	31/25	2/1	1	
M701,A			64 years	Pulmonary Med	<input checked="" type="checkbox"/>	144/107	5/0	1	
7041,B			82 years	Medicine	<input checked="" type="checkbox"/>	202/186	3/1	2	
7101,B			73 years	Pulmonary Med	<input checked="" type="checkbox"/>	157/145	5/1	1	
I412,A			29 years	Ors Services		<input checked="" type="checkbox"/>		1	
I701,A			47 years	Medicine	<input checked="" type="checkbox"/>	89/81	3/0	1	
M510,A			55 years	Medicine	<input checked="" type="checkbox"/>	230/206	5/2	1	
8013,B			83 years	Rehabilitation		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	1	
8057,A			88 years	Cardiology	<input checked="" type="checkbox"/>	80/66	2/0	2	
8009,A			68 years	Rehabilitation		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	1	



# Transitions of Care Pharmacist Interventions

Pharmacy Clinical Interventions - NYMHTEST, POWERPLAN

\*Performed on: 09/28/2016 1313 EDT By: Van Niekerk (DBA), Righard

**Clinical Interventions**

**NOTE: This form was recently updated to allow for the ability to document and report on additional Intervention Types for AMS. Please take a moment to ensure you select the correct Intervention Type.**

Pharmacist Intervention Type	Antimicrobial Stewardship (AMS) Intervention Type	Medication Management in Transitions of Care (MMCT) Intervention Type
<input type="radio"/> ADR - Adverse drug event <input type="radio"/> Approval required <input type="radio"/> Dose too high <input type="radio"/> Dose too low <input type="radio"/> Drug information question <input type="radio"/> Drug, allergy interaction <input type="radio"/> Drug, disease interaction <input type="radio"/> Drug, drug interaction <input type="radio"/> Drug, food interaction <input type="radio"/> Drug, lab interaction <input type="radio"/> Formulary conversion <input type="radio"/> Medication history <input type="radio"/> IV to PO switch <input type="radio"/> Optimize administration route <input type="radio"/> Optimize administration time <input type="radio"/> Optimize duration <input type="radio"/> Optimize formulation <input type="radio"/> Optimize frequency <input type="radio"/> Optimize monitoring <input type="radio"/> Order clarification <input type="radio"/> Patient counseling <input type="radio"/> Pharmacokinetic consult <input type="radio"/> POM Evaluation <input type="radio"/> Therapeutic duplication <input type="radio"/> Unnecessary order <input type="radio"/> Untreated indication	<input type="radio"/> AMS-ADR - Adverse drug event <input type="radio"/> AMS-Antimicrobial renewal <input type="radio"/> AMS-Cost effective regimen recommended <input type="radio"/> AMS-C, Diff Inf treatment optimization <input type="radio"/> AMS-C, Diff ROP appropriate treatment <input type="radio"/> AMS-De-e <input type="radio"/> AMS-Disc <input type="radio"/> AMS-Dose <input type="radio"/> AMS-Dose <input type="radio"/> AMS-Drug <input type="radio"/> AMS-Drug <input type="radio"/> AMS-Drug <input type="radio"/> AMS-Dural <input type="radio"/> AMS-Duration too short <input type="radio"/> AMS-ID consultation recommended <input type="radio"/> AMS-IV to PO switch <input type="radio"/> AMS-Organism resistant to antimicrobial <input type="radio"/> AMS-Prevention for CUP	<input type="radio"/> MMCT - Medication history <input type="radio"/> MMCT - ADR - adverse drug event <input type="radio"/> MMCT - Dose too high <input type="radio"/> MMCT - Dose too low <input type="radio"/> MMCT - Drug information question <input type="radio"/> MMCT - Drug-allergy interaction <input type="radio"/> MMCT - Drug-drug/food/disease interaction <input type="radio"/> MMCT - Medication omission <input type="radio"/> MMCT - Formulary conversion <input type="radio"/> MMCT - Additional medication <input type="radio"/> MMCT - Optimize frequency <input type="radio"/> MMCT - Optimize formulation <input type="radio"/> MMCT - POM evaluation <input type="radio"/> MMCT - Therapeutic duplication <input type="radio"/> MMCT - Patient medication counseling <input type="radio"/> MMCT - Patient adherence counseling <input type="radio"/> MMCT - Meds to Beds <input type="radio"/> MMCT - Insurance/financial barrier address

**Medication Management in Transitions of Care (MMCT) Intervention Type**

MMCT - Medication history  
 MMCT - ADR - adverse drug event  
 MMCT - Dose too high  
 MMCT - Dose too low  
 MMCT - Drug information question  
 MMCT - Drug-allergy interaction  
 MMCT - Drug-drug/food/disease interaction  
 MMCT - Medication omission  
 MMCT - Formulary conversion  
 MMCT - Additional medication  
 MMCT - Optimize frequency  
 MMCT - Optimize formulation  
 MMCT - POM evaluation  
 MMCT - Therapeutic duplication  
 MMCT - Patient medication counseling  
 MMCT - Patient adherence counseling  
 MMCT - Meds to Beds  
 MMCT - Insurance/financial barrier address  
 MMCT - Other:  
 Other:

\*Pharmacist Intervention Time  
 < 1 Minute  
 1-5 Minutes  
 6-15 Minutes  
 16-30 Minutes  
 > 30 Minutes

\*Initiated By  
 Nurse  
 Pharmacist  
 Physician  
 Other:

\*Prescriber Response  
 Accepted  
 Modified  
 No response  
 Not accepted  
 Pending  
 Other:

Pharmacoeconomic Impact  
 < \$5.00  
 \$5.01 - \$15.00  
 \$15.01 - \$25.00  
 \$25.01 - \$50.00  
 \$50.01 - \$100.00  
 \$100.01 - \$250.00  
 \$250.01 - \$500.00  
 \$500.01 - \$1000.00  
 > \$1000.00

Additional Information

In Progress

# THANK YOU

