

# Indian Health Service

**ENHANCING PATIENT CARE THROUGH CLINIC BCMA AND ADC  
PROFILING ACROSS MULTIPLE DEPARTMENTS AND SPECIALTIES:  
A COMPREHENSIVE APPROACH TO IMPROVING MEDICATION  
SAFETY AND EFFICIENCY**

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PRESENTER NAME:

CDR DINESH SUKHLALL PHARMD, BCPS, CDR KELLY OWENS, PHARMD, BCPS

LCDR JORDAN DAVIS, PHARMD, BCPS

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# Acknowledgements & Disclosures

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This material is the result of work supported with resources and the use of facilities at the Phoenix Indian Medical Center and at the Whiteriver Service Unit, located in the Phoenix Area of the Indian Health Service.

CDR Sukhlall and LCDR Davis are employed with the Indian Health Service as pharmacists at the Phoenix Indian Medical Center, Phoenix, AZ.

CDR Owens is employed with the Indian Health Service as a pharmacist at the Whiteriver Service Unit, Whiteriver, AZ.

The contents of this presentation do not represent the views of the Indian Health Service or of the United States Government.

No disclosures



# Objectives

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- Discuss the deployment of Clinic BCMA in various departments/clinical settings
- Describe profiling of Automated Dispensing Cabinets (ADC) and the role in patient safety
- Summarize the benefits of technology integration in medication safety and patient care



# Background-BCMA

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## What is BCMA?

- BCMA standards for **Bar Code Medication Administration**
- a point-of-care application for validation of medication administration that supports "real-time" recording of medications administered
- Ensures "The Seven Rights"
  - Right Person
  - Right medication
  - Right dose
  - Right route
  - Right time
  - Right Reason
  - Right Documentation



# Background -BCMA

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## What are some BCMA support functions?

- Identification of the patient by scanning a barcoded wristband
- Recording administration of scheduled medications including topical, unit dose, IV push, and IV piggyback medications
- Recording administration of PRN Medications
- Placing an order and recording administration of STAT medications in emergent situations utilizing the "CPRS Med Order" button
- Recording administration and management of continuous IV Fluids including quantifying bags used and start/stop times
- Prevention of incorrect administrations by positively identifying medications with bar codes
- Generation of lists of due medications
- Generation of "missed" medications (i.e. those not recorded as administered when due)
- Generation of medication variance reports for quality improvement
- Generation of unable to scan reports which tracks by passing wrist or medication scanning
- Recording and reporting on PRN effectiveness
- Requesting missing medications electronically



# Goal of BCMA

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- Published literature has demonstrated evidence of reduction of medication errors

## *Effect of Barcode-assisted Medication Administration on Emergency Department Medication Errors*

- A total of 1,978 medication administrations were observed (996 pre-BCMA and 982 post-BCMA). The baseline medication administration error rate was 6.3%, with wrong dose errors representing 66.7% of observed errors. BCMA was associated with a reduction in the medication administration error rate to 1.2%, a relative rate reduction of 80.7% ( $p < 0.0001$ ). Wrong dose errors decreased by 90.4% ( $p < 0.0001$ ), and medication administrations with no physician order decreased by 72.4% ( $p = 0.057$ ).



# Evaluation of Need

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- Reviewing medication error data for year (2023) prior to BCMA implementation in the ED
  - Incorrect patient: 50% of all wrong patient errors occurred in the ED
  - Wrong Dose: 82% of wrong dose errors reported occurred in the ED
  - No Provider order: 100% of no provider order errors reports occurred in the ED
- Post implementation monitoring ongoing



# Deployment Process of Clinic BCMA

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## Planning and Preparation

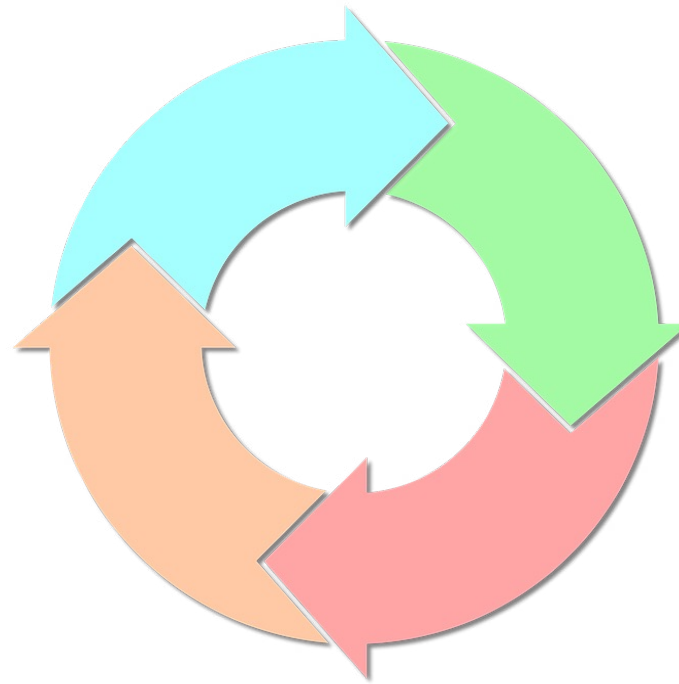
- Identifying needs and goals
- Stakeholder involvement

## Implementation Phases

- Initial Setup and Adjustment
- Training Staff
- Pilot Testing and Adjustment

## Challenges and Solutions

- Technical Issues
- Staff Adaptation and Compliance





# Deployment Process of Clinic BCMA

## Planning and Preparation

- Identifying needs and goals
  - Equipment
  - Software installation
  - Policies
  - Set expectations
- Stakeholder involvement
  - Nursing
  - Providers
  - Pharmacist
  - IT



# Deployment Process of Clinic BCMA

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## Implementation Phases

- Initial Setup and Adjustment
- Training Staff
- Pilot Testing and Adjustment



# Drug File Clean Up

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Correctly set up the pharmacy files, inpatient wards, and inpatient users to prepare the site for BCMA implementation.

Some Drug File areas to review (but not limited to):

- Dosage Forms
- Medication Routes
- Administration Schedules
- Drug Synonyms

Looking for inconsistencies and mismatches to the orderable item and the national drug file, to address issues that may lead to program errors

- Remediation may include re-matching the drug to the National Drug File or to a new, or different, Pharmacy Orderable Item
- Duplicate entries removed, package assignments reviewed



# Make Decisions ...

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- ...and be consistent
- Example: Determine how to build your IV fluid bolus quick orders. Are they IV Piggybacks (infuse over xx min) or Admixtures (rate ml/min) or as a Unit Dose (special use considerations)? This will determine how it is displayed in BCMA.
- What you choose for one ward should be the same throughout patient care areas



# Training of Staff

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Identify staff to be involved (Nursing, Pharmacy, Informatics, IT) and roles they will serve

- BCMA Training & Implementation Team
- BCMA End Users
- BCMA Super Users
- BCMA Coordinators



# Training of Staff

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## Information Technology

- Configures RPMS and BCMA Clients in collaboration with BCMA Coordinator
- Loads BCMA Clients to identified workstations
- Configures printers and scanners
- Maintains workstations and equipment
- Manages equipment failure for workstations, printers, and scanners
- Assigns appropriate BCMA keys and menus in collaboration with BCMA Coordinator to BCMA users, super users, coordinators, and pharmacists.



# Training of Staff

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## Inpatient Pharmacy

- Conducts continuous drug file monitoring and troubleshooting
- Scans all medication bar codes into the drug file
- Maintains the synonym file
- Maintains EHR medication quick orders and medication quick order menus
- Verifies that medications display correctly in BCMA and on the virtual due list
- Ensures that all medications have an appropriate medication bar code prior to administration
- Manages scanning failures
- Monitors the use of the CPRS med order button



# Training of Staff

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## Nursing

- Develops and implements processes to improve the safety and efficacy of medication management processes associated with BCMA
- Understand how the software functions and how pharmacy's finishing of orders affects what appears in BCMA
- Understand how to run reports pertinent to daily activities
- Individual who uses BCMA for medication administration in a patient care setting
- Serves as a support resource to other BCMA users





# Pilot Testing and Adjustment

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Inpatient Go-Live in 2013- months of preparation, testing, adjustment and years of application.

ED Go-Live in 2024 transitioned almost seamlessly

- Coordinators, super users, and end users in place
- Staff familiarity with BCMA on inpatient Unit
- Preparation completed with inpatient go-live



# BCMA Deployment in Various Departments: Oncology/Infusion Clinic

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- Go-live September 2023 after beta testing complete
- Relatively small number of patients but highest- risk area
- SWOT Analysis
  - Strengths: small and dedicated nursing staff (n=3); highly skilled and specialty trained staff
  - Weaknesses: Predisposed to follow individual processes versus system-wide processes
  - Opportunity: optimize drug files, create quick orders for chemotherapy, develop ordering menu for ancillary medications
  - Threats: confined working space, limited storage areas



# BCMA Deployment in Various Departments: Oncology/Infusion Clinic



**Procedure Room (Chemo and Infusion) Order Menu**

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>IV Fluids</b></p> <p>Normal Saline 500 ml IV Bolus</p> <p>Normal Saline 1000 ml IV Bolus</p><br><p>Dextrose 5% 500ml IV Bolus</p> <p>Dextrose 5% 1000ml IV Bolus</p><br><p><b>Antiemetics/ GI</b></p> <p>Dexamethasone Tabs</p> <p>Dexamethasone 12mg IV Piggyback</p><br><p>Famotidine 20mg/50ml Premix</p> <p>Fosaprepitant 150mg in 150ML NS</p><br><p>Ondansetron 4mg Tab</p> <p>Ondansetron 8mg IV Piggyback</p><br><p>Ondansetron 8mg Dex 12mg in NS 50</p><br><p>Palonosetron 0.25mg IV Push</p> <p>Prochlorperazine 10mg Tabs</p><br><p><b>Antihistamine</b></p> <p>Cetirizine 10mg Tab</p> <p>diphenhydAMINE 25mg Cap</p> <p>diphenhydAMINE 50mg/1ml Inj</p> <p>hydroxyzine 10mg Tab</p> <p>hydroxyzine 25mg Cap</p><br><p><b>Antiinflammatory/ Pain</b></p> <p>Acetaminophen 650mg PO</p> <p>methylPREDNISolone (Solu Medrol) 40mg/1ml Vial</p> <p>methylPREDNISolone (Solu Medrol) 125mg/2ml Vial</p><br><p><b>Colony Stimulating Factor</b></p> <p>Filgrastim 300mcg Subcutaneous</p> <p>Filgrastim 480 mcg Subcutaneous</p><br><p>Pegfilgrastim 6mg Subcutaneous</p><br><p><b>Electrolyte/ Mineral Replacement</b></p> <p>Magnesium Sulfate 2gm IVPB Over 2 Hrs</p> <p>Potassium Cl 10meq IV (K Rider)</p><br><p>Iron Sucrose 300mg IVPB q.o.day x 3 doses (900mg total)</p><br><p>Zoledronic Acid 4mg (ZOMETA) IVPB x 1</p> <p>Zoledronic Acid 5mg (RECLAST) IVPB x 1</p> | <p><b>Chemotherapy/ Immunotherapy</b></p> <p>AdoTrastuzumab in 250ml NS</p> <p>Bevacizumab in 100ml NS</p> <p>Bortezomib SQ</p><br><p>Carboplatin in 250ml NS</p> <p>Cyclophosphamide in 250ml NS</p> <p>Docetaxel in 250ml D5W</p><br><p>Doxorubicin IV Push</p> <p>Gemcitabine in 250ml NS</p> <p>Nivolumab in 100ml NS</p><br><p>Oxaliplatin in 500ml D5w</p> <p>PACLITAXEL IN 250ML NS</p> <p>Pembrolizumab in 100ml NS</p><br><p>Irinotecan in 500ml D5w</p> <p>vinBLASTine IVP</p> <p>Trastuzumab In 250 NS</p><br><p><b>Misc Agents</b></p> <p>Atropine 0.4mg/1ml Vial</p><br><p>Outpatient Infusion Reaction Orders</p> |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

Enter ?? for more actions

|                          |           |
|--------------------------|-----------|
| PI Patient Information   | SO Select |
| PU Patient Record Update | NO New Or |

Select Action: Quit// 2

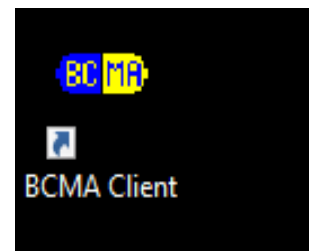
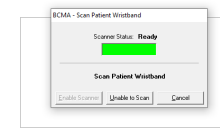
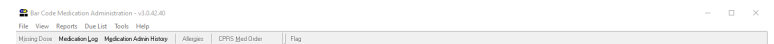
Cannot process an Out-patient Unit Dose order for

Enter RETURN to continue or '^' to exit: █



# BCMA Deployment in Various Departments: ED Department/Urgent Care

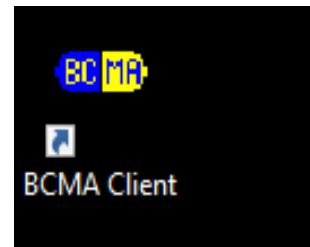
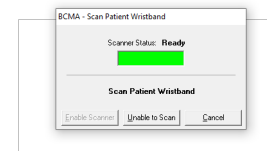
- Determine equipment needs
  - WOWs (workstation on wheels)
  - Scanners
  - Carts
- BCMA application is configured on WOWs and desktops
  - Training room is configured for BCMA



# BCMA Deployment in Various Departments: ED Department/Urgent Care



- Identify "Super users"/ Experts
  - Pharmacist
  - Nurses
- Training Coordination
  - Educators
  - Computer based learning
  - Live demonstration



# BCMA Deployment in Various Departments: ED Department/Urgent Care

## Develop a roll out schedule

| Week of: March 04 <sup>th</sup>                                                                                                                     | Week of: March: 11 <sup>th</sup>                                                              | March 15 <sup>th</sup> : ED EDUCATION DAY | Week of: March 18, 2024                                                                                                                               | Week of March 25 <sup>th</sup> :                                              | Week of April 1 <sup>st</sup> :                                             | April 22, 2024:                                                |
|-----------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|-------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------|-----------------------------------------------------------------------------|----------------------------------------------------------------|
| <ul style="list-style-type: none"><li>• Identify ED Super users</li><li>• Identify ICU/3E/FP Support</li><li>• Sign up for Support Shifts</li></ul> | <ul style="list-style-type: none"><li>• Computer module training assigned in RELIAS</li></ul> |                                           | <ul style="list-style-type: none"><li>• Status update:</li><li>• Relias completions?</li><li>• Check-in</li><li>• Put out the sign-up sheet</li></ul> | <ul style="list-style-type: none"><li>• Verify Support Staff Shifts</li></ul> | <ul style="list-style-type: none"><li>• In-person training starts</li></ul> | <ul style="list-style-type: none"><li>• Go Live Date</li></ul> |

Developed by LCDR Sunny Rae Carranza and ED nursing leadership



# BCMA Deployment in Various Departments: Other Settings

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## **OB Triage:**

- Similar process to implementation of ED/clinic

## **Radiology:**

- Drug entry and order such as contrast
  - outpatient vs inpatient

## **Day Surgery**

- Delayed orders
- Clinic orders





# BCMA Deployment in Various Departments: Day Surgery (Future)

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- Added complexity and layers with each additional area using BCMA
- Pre-op conditions: inpatient or outpatient
- Consider entirety of patient flow through the healthcare system
- Lay the framework: transition from paper to EHR order entry



# BCMA Deployment in Various Departments: Day Surgery (Future)

**PRE-OP ORDERS**

**Labs**  
 COVID 19 Routine  
 Covid 19

**Diets/Labs/Restrict**  
 BMP/Chem 7  
 CMP/Dam-20  
 CBC  
 HCG Quant (Serum)  
 HgH a/c  
 Lipase  
 Liver Profile  
 PLPT/UA

**UAs**  
 UA Complete  
 Urine HCG  
 Urine Drug Screen

**Blood Bank (Serum a/c, 1ml)**  
 Type & Crossmatch 2 Units PRBCs (Stat)  
 Type & Screen

**Diagnosis**  
 Chest PA + Lat  
 Chest AP

**History**  
 Vitals on call to OR  
 Vitals on call to OT  
 Call Surgeon when pt in pre op

**Other**  
 Pre Surgery Scrub  
 O/S: Indicate Date and Person

**IV/Drugs**  
 0.9% NS  
 Lactated Ringers  
 Lactated Ringers 1000ml IV Bulb  
 Normal Saline 1000ml IV Bulb

**Medications/Restrict**  
 cefZolin-Peds Sprinkle (15g)  
 cefZolin-Peds Pigeetack (15g)  
 cefZolin-2 Gm IVB (Pts less than 120kg)  
 cefZolin-3gm IVB (Pts equal to over 120kg)

**Contraindications**  
 Clindamycin 600mg IVB  
 Clindamycin 900mg IVB  
 Doxycycline 200mg po once  
 Metronidazole 500mg IVB  
 Vancomycin 1gm IVB

**Abuse/Screening**  
 Abstinence (EtOH) 12mg PO a 1 hr before pre op  
 Deserent screen 18mg IVB  
 Fentanyl  
 Scopolamine Patch Preop

**Anesthesia/Drugs/Medications**  
 Acetaminophen 1gm IV Preop  
 Acetaminophen-Suppository  
 Albuterol 2.5mg 0.0025g/1ml  
 Fentanyl 25ug IV push (once)  
 Lidocaine 1ml  
 Lubricant  
 Lidocaine/Prilocaine (Emla) Cream  
 Metoclopramide 10mg Oral Injection  
 Midazolam Oral Syrup 10mg/5ml  
 Ondansetron 4mg IV  
 Sedation/Chase 20ml

**Pre-Op Antibiotics**

**CLINICAL RECORD PREOPERATIVE DOCTOR'S ORDERS**  
 \*AUTHORIZATION IS GIVEN FOR COMPLETING ORDER BY ISS STAFF WHEN BOX OPPOSITE OF ORDER IS CHECKED\*  
 \*HYBRID RECORD, REFER TO EHR COMPONENT FOR POSSIBLE ADDITIONAL INFORMATION\*

**ALLERGIES:** \_\_\_\_\_ (PT. WEIGHT: \_\_\_\_\_ kg)

**PRE-OPERATIVE WORK-UP ORDERS**  
**HEMATOLOGY AND COAGS:**  CBC  PT/INR/PTT  
**CHEMISTRY:**  K+  CHEM-7  CMP  LIVER PANEL  TSH  BETA-HCG  
**BLOOD BANK:**  TYPE & SCREEN  TYPE & CROSS MATCH  
**URINE:**  U/A  URINE HCG  URINE DRUG SCREEN (UDS)  
**MISCELLANEOUS:**  EKG  CXR  OTHER \_\_\_\_\_  
 PRESURGERY SCRUB PROVIDER'S SIGNATURE/DATE/TIME: \_\_\_\_\_

**SAME DAY SURGERY ORDERS (MORNING OF SURGERY); ALL LABS TO BE DONE STAT**  
**HEMATOLOGY AND COAGS:**  CBC  PT/INR/PTT  
**CHEMISTRY:**  K+  CHEM-7  CMP  LIVER PANEL  TSH  BETA-HCG  
**BLOOD BANK:**  TYPE & SCREEN  TYPE & CROSS MATCH  
**URINE:**  U/A  URINE HCG  URINE DRUG SCREEN (UDS)  
**MISCELLANEOUS:**  CALL MD WHEN PT IS IN SDS  OTHER \_\_\_\_\_  
 PROVIDER'S SIGNATURE/DATE/TIME: \_\_\_\_\_

**PRE-OPERATIVE HOLDING AREA**  
 PREPARE AND HAVE AVAILABLE THE ANTIBIOTIC(S) INDICATED BELOW:  
 CEFAZOLIN \_\_\_\_\_ MG (\_\_\_\_ MG PER KG)  CEFAZOLIN 1G  CEFAZOLIN 2G I.V.P.B.  
 CIPROFLOXACIN 400 MG I.V.P.B. (Note to O.R. personnel: Infuse over 60 minutes)  
 CLINDAMYCIN 900mg I.V.P.B. (Note to O.R. personnel: Infuse over 30 minutes)  
 ERTAPENEM 1G I.V.P.B.  
 METRONIDAZOLE 500 MG I.V.P.B. (Note to O.R. personnel: Infuse over 30 minutes)  
 VANCOMYCIN 1 G I.V.P.B. (Note to O.R. personnel: Infuse over 60-to-90 minutes)  
 DEXAMETHASONE \_\_\_\_\_ MG I.V. (\_\_\_\_ MG PER KG)  
 CALL MD WHEN PT IS IN PRE-OPERATIVE HOLDING AREA  SCD'S  
 OTHER \_\_\_\_\_  
 PROVIDER'S SIGNATURE/DATE/TIME: \_\_\_\_\_

**ANESTHESIA ONLY**  
 Apply EMLA Cream to:  
 LIDOCAINE 1% OR 2% 0.1ML-TO-0.3ML SQ AT SITE PRIOR TO STARTING I.V.  
 MIDAZOLAM, ORAL LIQUID, P.O.  0.3 MG/KG  0.4MG/KG  \_\_\_\_\_ MG  
 \*\*\*PLEASE DO NOT ADMINISTER ORAL MIDAZOLAM (VERSED) UNTIL PATIENT HAS BEEN EVALUATED BY ANESTHESIA ON DAY OF SURGERY  
 ACETAMINOPHEN, SUPP. P.R.  120 MG  325 MG  650 MG  \_\_\_\_\_ MG  
 ACETAMINOPHEN, I.V., \_\_\_\_\_ MG; GIVE OVER 15 MINUTES  
 METOCLOPRAMIDE 10 MG I.V. SLOWLY  
 ALBUTEROL 2.5 MG IN NORMAL SALINE 0.9% 3ML, VIA NEBULIZER  
 SODIUM CITRATE 30 ML P.O. ON-CALL TO O.R.  
 ONDANSETRON 4 MG I.V. FOR PRE-OP NAUSEA  
 RANITIDINE 50 MG I.V.P.B. (Pharmacy may substitute with Famotidine 20 mg or other H-2 blocker, based on availability)  
 I.V. SALINE LOCK  I.V. FLUIDS (CIRCLE ONE) L.R. OR NORMAL SALINE 0.9% AT TKO  
 OTHER \_\_\_\_\_

# BCMA Deployment in Various Departments: Day Surgery (Future)

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----- P E N D I N G -----
14  ONDANSETRON INJ,SOLN      ? ***** P
    Give: 4 MG IV PUSH SDS PRE-OP
15  SCOPOLAMINE PATCH        ? ***** P
    Give: 1 PATCH TRANSDERMAL SDS PRE-OP
  
```

RPMS

| Status | Ver | Type | Medication/Solutions                                                                                              | Infusion Rate                         | Route | Admin Time | Last Action |
|--------|-----|------|-------------------------------------------------------------------------------------------------------------------|---------------------------------------|-------|------------|-------------|
|        |     | DC   | CIPROFLOXACIN 400MG/CSW INJ,SOLN<br>CIPROFLOXACIN 400MG PREMIX 200ML<br><b>PyDS SUPPLY ===GIVE IN SDS ONLY===</b> | INFUSE OVER 60 Minutes,<br>SDS PRE-OP | IVPB  |            |             |

BCMA

|                                                                                     |          |                                                                                                                                 |     |
|-------------------------------------------------------------------------------------|----------|---------------------------------------------------------------------------------------------------------------------------------|-----|
|  | Infusion | CIPROFLOXACIN 400MG/CSW INJ,SOLN 200 ml IVPB INFUSE OVER 60 Minutes SDS PRE-OP<br>PyDS SUPPLY ===GIVE IN SDS ONLY=== *UNSIGNED* | EHR |
|-------------------------------------------------------------------------------------|----------|---------------------------------------------------------------------------------------------------------------------------------|-----|



# BCMA Deployment in Various Departments: Day Surgery (Future)

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- Scanning of preop medications
- Documentation of antibiotic times
- Allows for pharmacist prospective review
- Enhance patient safety



# Deployment Process of Clinic BCMA

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## Challenges and Solutions

- Technical Issues
- Staff Adaptation and Compliance



# Deployment Process of Clinic BCMA

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## Challenges and Solutions

- Technical Issues
  - Scanner malfunctions and WiFi issues --> IT work orders
  - Drug entry --> Informaticist entering into drug file/ADC formulary
  - Synonym-->New drug linking by pharmacist
  - Missing documentation -->Enter a note or edit med log
    - Stop times for IV Piggybacks



# Deployment Process of Clinic BCMA

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## Challenges and Solutions

- Staff Adaptation and Compliance
  - Run override reports in BCMA-->unable to scan
  - Missed medication report
  - Not all BCMA reports function for the clinic setting
- Clinic definitions and parameters
  - Automatic stop dates
  - Consider future clinic needs



# Enhancements: Adding start/stop time for infusions

Reports → Med Admin Log (BCMA) --> select date range (IV Medications will have a comment with the stop time)

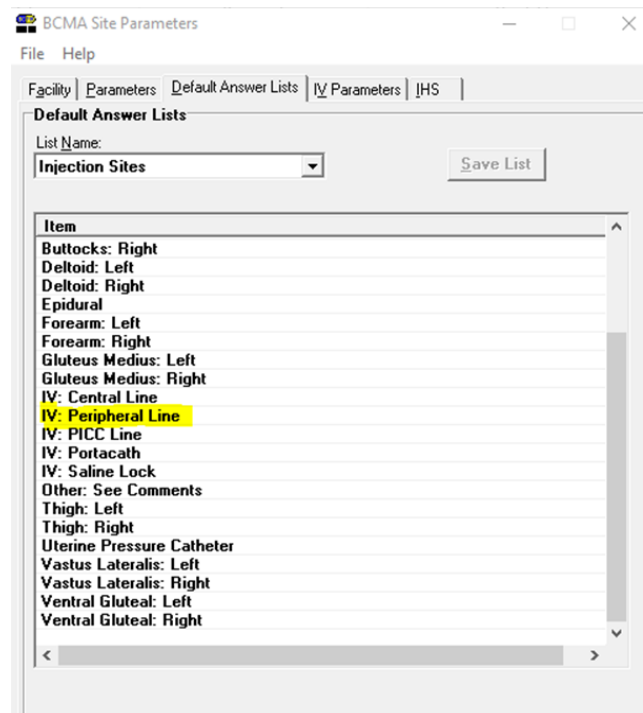
| Reports (for Readings, click on "Imaging")                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
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| <ul style="list-style-type: none"> <li>Imaging</li> <li>Reading (local only)</li> <li>Anatomic Pathology</li> <li>Health Summary</li> <li>Clinical Reports</li> <li>Daily Order Summary</li> <li>Order Summary for a Date Range</li> <li>Chart Copy Summary</li> <li>Outpatient ICD Profile</li> <li>Med Admin Log (BCMA)</li> <li>Med Admin History (BCMA)</li> <li>Eye Exam Prescription</li> </ul> | <p>Med Admin Log (BCMA) [From: May 16, 2024 to May 23, 2024]</p> <p>OVER 15 Minutes Q&amp;S IVPB Inj<br/>Site: IV: Peripheral Line] AST 05/21/24 09:07<br/>Sovaia Bag ID #92360946 HA HA SA<br/>AMPICILLIN/SULBACTAM - 3 GM<br/>SODIUM CHLORIDE 0.9% - 100 ML</p> <p>5/21/24 09:25: Comments: 05/21/24 09:15 AST stop at 0930</p> <p>6/20/24 14:59: Audits: 05/21/24 09:07 AST Field: ACTION DATE/TIME Set to 'MAY 21, 2024@09:07:44'.<br/>05/21/24 09:07 AST Field: ACTION STATUS Set to 'GIVEN' by 'AST'.<br/>05/21/24 09:07 AST Field: DESCRIPTION SITE Set to 'IV: Peripheral Line'.<br/>05/21/24 09:07 AST Field: DOSE GIVEN Set to '3 GM'.<br/>05/21/24 09:07 AST Field: DOSES GIVEN Set to '100 ML'.</p> <hr/> <p>05/21/24 09:08 LOSARTAN (20MG Q&amp;S PO) AST 05/21/24 09:08<br/>Sovaia LOSARTAN 10MG TAB T/D 1.00 1.00 TAB</p> <p>5/21/24 09:25: Comments: &lt;No Comments&gt;</p> <p>6/20/24 15:00: Audits: 05/21/24 09:08 AST Field: ACTION DATE/TIME Set to 'MAY 21, 2024@09:08:01'.<br/>05/21/24 09:08 AST Field: ACTION STATUS Set to 'GIVEN' by 'AST'.<br/>05/21/24 09:08 AST Field: DOSES GIVEN Set to '1'.<br/>05/21/24 09:08 AST Field: UNIT OF ADMINISTRATION Set to 'TAB'.</p> <hr/> <p>05/21/24 12:21 INSULIN ASPART (NOVOLOD) (LOW DOSE CORRECTION Q&amp;S SST (ASPART) SUHQ) AST 05/21/24 12:21<br/>Beld INSULIN ASPART U-100 (NOVOLOD) 100U VI 1.00 0.60</p> <p>5/21/24 09:25: Comments: 05/21/24 12:21 AST Held: Blood Sugar 00-8004 SS Insulin</p> <p>6/20/24 15:00: Audits: 05/21/24 12:21 AST Field: ACTION DATE/TIME Set to 'MAY 21, 2024@12:21:49'.<br/>05/21/24 12:21 AST Field: ACTION STATUS Set to 'HELD' by 'AST'.<br/>05/21/24 12:21 AST Field: DOSES GIVEN Set to '0'.</p> <hr/> <p>05/21/24 14:40 AMPICILLIN/SULBACTAM (IPFUSE OVER 15 Minutes Q&amp;S IVPB Inj Site: IV: Peripheral Line] AST 05/21/24 14:40<br/>Sovaia Bag ID #92360947 HA HA HA<br/>AMPICILLIN/SULBACTAM - 3 GM<br/>SODIUM CHLORIDE 0.9% - 100 ML</p> <p>5/21/24 09:25: Comments: 05/21/24 14:42 AST finished at 1506</p> <p>6/20/24 14:59: Audits: 05/21/24 14:40 AST Field: ACTION DATE/TIME Set to 'MAY 21, 2024@14:40:23'.<br/>05/21/24 14:40 AST Field: ACTION STATUS Set to 'GIVEN' by 'AST'.<br/>05/21/24 14:40 AST Field: DESCRIPTION SITE Set to 'IV: Peripheral Line'.<br/>05/21/24 14:40 AST Field: DOSE GIVEN Set to '3 GM'.<br/>05/21/24 14:40 AST Field: DOSES GIVEN Set to '100 ML'.</p> |





# Enhancements: BCMA Site Parameters

IV Peripheral Line



# Enhancements: BCMA Site Parameters

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## Option A:

| Site Name- A             | Character Length |
|--------------------------|------------------|
| PIV: Antecubital Left    | 21               |
| PIV: Antecubital Right   | 22               |
| PIV: Foot Left           | 14               |
| PIV: Foot Right          | 15               |
| PIV: Forearm Left        | 17               |
| PIV: Forearm Right       | 18               |
| PIV: Hand Left           | 14               |
| PIV: Hand Right          | 15               |
| PIV: Mid Upper Arm Left  | 23               |
| PIV: Mid Upper Arm Right | 24               |
| PIV: Wrist Left          | 15               |
| PIV: Wrist Right         | 16               |

## Option B:

| Site Name- B                   | Character Length |
|--------------------------------|------------------|
| IV: Peripheral AC Left         | 22               |
| IV: Peripheral AC Right        | 23               |
| IV: Peripheral Foot Left       | 24               |
| IV: Peripheral Foot Right      | 25               |
| IV: Peripheral Forearm Left    | 27               |
| IV: Peripheral Forearm Right   | 28               |
| IV: Peripheral Hand Left       | 24               |
| IV: Peripheral Hand Right      | 25               |
| IV: Peripheral Upper Arm Left  | 29               |
| IV: Peripheral Upper Arm Right | 30               |
| IV: Peripheral Wrist Left      | 25               |
| IV: Peripheral Wrist Right     | 26               |

## Option C:

| Site Name- C             | Character Length |
|--------------------------|------------------|
| PIV: Left Antecubital    | 21               |
| PIV: Left Foot           | 14               |
| PIV: Left Forearm        | 17               |
| PIV: Left Hand           | 14               |
| PIV: Left Mid Upper Arm  | 23               |
| PIV: Left Wrist          | 15               |
| PIV: Right Antecubital   | 22               |
| PIV: Right Foot          | 15               |
| PIV: Right Forearm       | 18               |
| PIV: Right Hand          | 15               |
| PIV: Right Mid Upper Arm | 24               |
| PIV: Right Wrist         | 16               |

Give options for any enhancements



# Enhancements: BCMA Site Parameters

The winner is....

List Name:

| Item                      |
|---------------------------|
| Gluteus Medius: Left      |
| Gluteus Medius: Right     |
| IV: Central Line          |
| IV: PICC Line             |
| IV: Portacath             |
| IV: Saline Lock           |
| Other: See Comments       |
| PIV: Left Antecubital     |
| PIV: Left Foot            |
| PIV: Left Forearm         |
| PIV: Left Hand            |
| PIV: Left Mid Upper Arm   |
| PIV: Left Wrist           |
| PIV: Right Antecubital    |
| PIV: Right Foot           |
| PIV: Right Forearm        |
| PIV: Right Hand           |
| PIV: Right Mid Upper Arm  |
| PIV: Right Wrist          |
| Thigh: Left               |
| Thigh: Right              |
| Uterine Pressure Catheter |



# Background -ADC

- What are Automated dispensing cabinets (ADCs)?
- Computerized drug storage devices or cabinets that allow medications to be stored and dispensed near the point of care while controlling and tracking drug distribution.



# Background -ADC

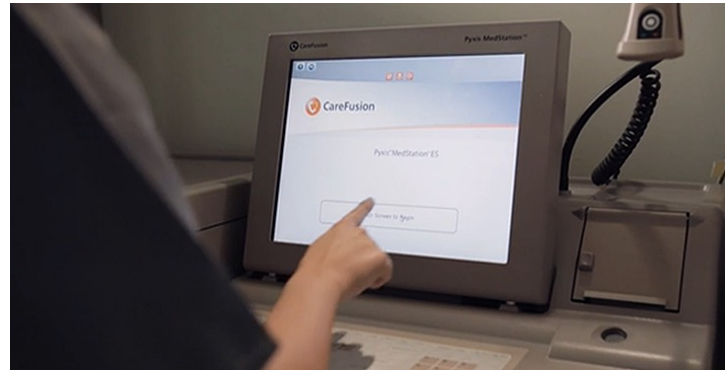
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## PROFILED ADC

software functionality that allows the pharmacist to review and approve medications before they are available for selection and administration by the nurse, respiratory therapist or physician

## NON-PROFILED ADC

allows practitioner access to all medications contained within, typically bypassing the pharmacist's review of the order prior to medication selection



# ADC- Future Consideration

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Consider implementing profiling of ADC in clinics

Allows pharmacist review prior to medication administration

Improves patient safety



# Implications on Billing

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- Enhancements:
  - Local customization of exact site of infusion
  - Future project forced stop time entry vs current practice of adding comments
- Expanded coverage through Point of Sale



# Reference

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[patient-safety-practice-resource-for-automated-dispensing-cabinet-overrides.ashx \(ashp.org\)](https://www.ashp.org/patient-safety-practice-resource-for-automated-dispensing-cabinet-overrides.ashx)

Bonkowski, Joseph Carnes, Cynthia Melucci, Joseph, et.al. Effect of Barcode-assisted Medication Administration on Emergency Department Medication Errors. Academic Emergency Medicine. Acad Emerg Med. 20.8. 1069-6563. <https://doi.org/10.1111/acem.12189>





