Practice Improvement Recommendations for

Bar Code Medication Administration

(BCMA)

August 2013

Office of Information Technology
Division of Information Resource Management
Albuquerque, New Mexico

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1.0   Purpose

The Practice Improvement Recommendations for Bar Code Medication Administration (BCMA) is designed to assist Indian Health Service (IHS) in identifying areas where improvements in existing clinical business processes can be implemented to improve patient safety, facilitate efficiency, and improve accuracy associated with the Medication Administration Management process.

Addressing 14 distinct Areas for Improvement, the Practice Improvement Recommendations identifies opportunities to improve Medication Management ordering, procurement, dispensing, and administration processes. Professional organizations and industry associations, such as the Institute for Safe Medication Management (ISMP), The Joint Commission (TJC), and other governing agencies have disseminated quality practices to improve patient safety as well as meet regulatory and accreditation requirements.

2.0   Multidisciplinary Committee

Each facility should establish a Clinical Bar Code Multidisciplinary Committee to:

- Provide advice and guidance for BCMA and related processes
- Report to the Leaders of the Healthcare Organization

Recommendations for membership include but are not limited to:

- BCMA Coordinator
- BCMA Superuser
- Biomedical Engineer
- Clinical Application Coordinator
- Facility Leader
- Information Technologist
- Inpatient Pharmacist
- Inpatient Pharmacy Informaticist
- Medical Director
- Nurse Manager
- Performance Improvement
- Patient Safety
- Infection Control
- Respiratory Therapist
- Staff Nurse

This group should focus on one area for improvement quarterly in preparation for BCMA implementation.

3.0 Objectives and Solutions

Objective	Solutions
Obtain and Sustain Leadership support.	• Seek volunteer team members that will be making the changes. Include physicians, pharmacists, nurses, patient safety managers, and Information Resources Management (IRM) support staff. • Begin meeting with your team once a week. • Establish team roles, including a Key Contact and Senior Leader. • Get people on your team that can help remove barriers to change.
Form a good working team with members from all areas that will be making changes.	• Align project goals with the key drivers and needs of upper management. For example, needs for quantifiable safety improvement efforts. • Prepare prospectus/project plan with projected timeline. • Regularly scheduled meetings with facility Director or Associate Director of Patient Care Services or Service Line Manager. Include Senior Leaders periodically in team meetings. • Send monthly team progress reports to Senior Leaders during the Collaborative. • Use Veterans Integrated Service Network leadership to help obtain support if multiple VAs.
Measure process and outcomes.	**Outcome Measures**: • Medication adverse event reporting rate change from baseline (using current rate method). • Number of close calls that were identified because of BCMA. • Number of close calls and actual medication adverse events of a particular type that no longer occur b/c of the system fix. • Improvement in staff satisfaction with BCMA **Process Measures**: • Percent of staff trained in medication management safety processes. • Staff reports of near misses related to BCMA. • Increase appropriate medication error prevention interventions and plans of care based on evidenced-based interventions, clinical guidelines. • Increase patient knowledge about bar code scanning. • Organization supports system/process improvement. • Continuity/consistency of processes. • Standardize medication event reporting process. • Develop process for analysis of medication event related data. • Appropriate use of technology.

Objective	Solutions
Work together to identify areas for improvement.	- What types of medication events occur? When? Where? Why? How? - Where does the medication management process breakdown? - Identify process problem areas- use process map and measures. - Conduct Root Cause Analysis (RCA) or Healthcare Failure Modes and Effects Analysis (HFMEA) to identify systemic causes. *RCA cognitive aide to be given out at the Learning Session.

Appendix A: Systemic Issues Checklist

Instructions for completing this checklist:

1. Provide the Area name, Site Name, Station Number, and Division Name (if any).

2. Type the Name of each person who is on the Multidisciplinary Committee; choose each person's Specialty or Position from the drop down list.

3. Place a check in the checkbox of each checklist item indicating completion.

4. Type additional comments and notes in the area provided under each checklist item.

A.1   Site and Personnel

Name	Specialty or Position

A.2   Medication Administration Systemic Issues

Pathways for evaluating Medication Administration Systemic Issues:

.   Gather baseline data: What types of errors? When are they occurring? Where are they occurring? How are they occurring? Why are they occurring?

.   Do a Cause and Effect diagramming or other analysis tools to understand the systemic reasons for the errors.

.   Analyze the medication management process. Do all the nurses understand the medication management process to troubleshoot and problem solve issues?

.   Providers enter all orders electronically through RPMS.

. New providers know how to order medications.

. A system is in place to alert staff of new orders.

. Determine what works and what doesn't work with the pharmacy verification process.

. Medication orders display as they should on the Virtual Due List.

.   Nurses verify medication orders before administration. The facility has a policy on nurse verification.

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.   Nurse order verification takes place in RPMS or through Inpatient Medications Package.

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.   Nurses are allowed to edit administration times for Inpatient Medications.

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.   Nurses complete 24-hour chart reviews on all patients?

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. Analyze staffing patterns when and where errors occur.

. Analyze patient and staff activities when and where errors occur. Was there contract staff; were there call-ins, or float staff from another ward?

. Don't blame staff. Ask them, "What is keeping you from using the BCMA technology the way it is designed to be used?"

. Use the idea: "Every system is perfectly designed to get the results it gets."

A.3   Medication Administration Monitoring and Reporting

Pathways for evaluating Medication Administration Monitoring and Reporting:

.   The current processes associated with monitoring and reporting have been thoroughly examined through flowcharting or process mapping to promote detailed understanding of caregiver needs and the workflow.

.   Local policy clearly delineates staff responsibility to respond to adverse drug events, adverse drug reactions, toxic drug reactions, and anaphylaxis.

.   A list of common signs and symptoms of adverse drug events and toxicity for various classes of medications is readily available.

.   Appropriate action is taken when an adverse drug event occurs.

. Appropriate medications, supplies, and equipment to respond to adverse drug events are available.

. A mechanism to report adverse drug events internal safety system and external of the organization exists (incident reports, NASA Patient Safety reporting System).

. A mechanism is provided to report local issues/ concerns related to hardware and software. This mechanism is available 24/7 (e.g., stapling of non-scannable medication packets to a sheet of paper for Pharmacy to pick up daily for resolution).

. Clinicians and other staff report and openly discuss errors without undue embarrassment or fear of reprisal from peers and hospital leaders.

.   No disciplinary action is taken against clinicians who make an error (exceptions: intentionally unsafe acts as they pertain to patients, are any events that result from: a criminal act; a purposefully unsafe act; an act related to alcohol or substance abuse by an impaired provider or staff; or events involving alleged or suspected patient abuse of any kind).

.   Data related to medication errors are not used as a measure of employee competence or vigilance during performance evaluations.

.   Reportable events include both hazardous situations that could lead to an error and actual errors including those that have been detected and corrected before reaching the patient.

.   Near misses and hazardous situations that have the potential to cause the patient harm are given the same high priority for analysis and error prevention strategies as errors that actually cause patient harm.

.   Protocols exist for documenting and administering medications or treatments to respond to adverse drug events.

.   Staff has access to and knowledge of local and national reporting systems to report information system issues.

.   Senior management actively demonstrates its commitment to patient safety by encouraging practitioner error reporting, and supporting system enhancements, including technology, that are likely to reduce errors.
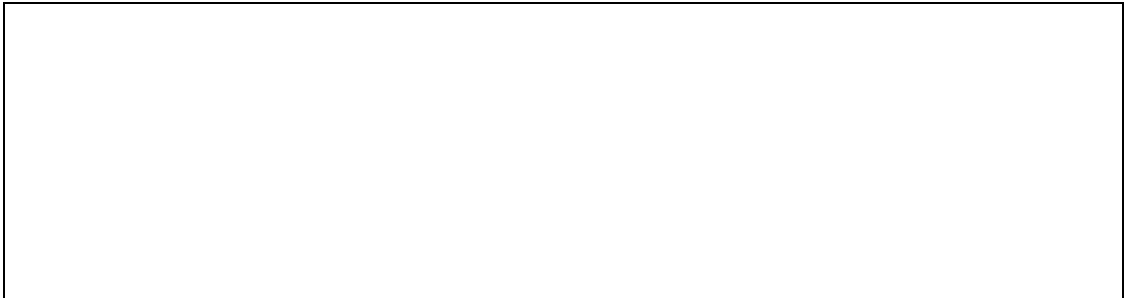
A.4   Provider Order Entry

Pathways for evaluating RPMS Provider Order Entry:

.   The current processes associated with computerized provider order entry have been thoroughly examined through flowcharting or process mapping to promote detailed understanding of caregiver needs and the workflow.

.   A healthcare professional assures that any patient allergy information entered into a computer system is clinically accurate and that names of allergens are spelled correctly.

.   The computer system automatically screens and detects the patient has "no allergy assessment" upon order entry.

.   A mechanism exists to remind providers to assess and update patient allergy information each time the patient is seen by a clinician or is admitted to the facility.

.   The computer system automatically screens and detects drugs to which patients are allergic including cross- allergies and provides a clear warning to the ordering provider.

.   A process is established to maintain the patient record integrity regarding misspelled allergy entries and free text entries so that allergy order checking can occur

.   Providers electronically enter all orders through RPMS.

. An active physician alert mechanism exists to identify duplicate therapies, real or potential drug-drug, drug-food, drug-disease and drug-lab interactions, and contraindications for use.

. All new staff including interns, residents, and physician attending receives formalized Order Entry classes as part of their orientation process.

. New Staff report that the above described orientation is effective. Ask staff once they've been working on the unit for a while to find out much the orientation really helped.

. Quick orders defining the most common standardized doses, frequencies, and drug routes are available in RPMS.

.   Medication use processes are supported by evidence-based practices.

.   The ordering prescriber has readily available and uses at the time of prescribing patient-related information including age, height, weight, diagnosis, co-morbidities, and medication allergies and previous sensitivities.

.   Local policy delineates best practice for prescribing over-the-counter medications such as herbals, vitamins, and health supplements.

.   Local facility policy dictates that medication orders are clear, accurate, and complete identifying the required elements of a complete medication order including indications for use,

.   Unapproved abbreviations are identified per local policy and staff are educated on acceptable abbreviations

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.   Verbal orders are kept to a minimum per facility policy. There is a process identified (read back) for validating the accuracy of the verbally transmitted medication orders. (TJC Patient Safety Goal)

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.   Blanket orders (e.g., resume all pre-operative orders) are prohibited.

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.   Range orders are prohibited unless specific criteria for each dose is defined.

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. Situations are identified upon which medication orders can be permanently or temporarily cancelled including automatics stop orders and the processes for reinstating them.

. Drug information including the reason for the administration of the medication is pre-populated in the quick orders.

. All clinicians have access to the most current drug references.

. Reports of computer warnings that are overridden are routinely reviewed for quality improvement process.

.   All medication orders are forwarded to the pharmacy.

.   Except in urgent or emergent situations, all orders are checked against the computerized patient and drug profiles for contraindications, interactions, and appropriateness of doses before drugs are administered.

.   Pharmacists work directly in inpatient care areas performing clinical activities such as reviewing patient records and drug orders, attending multidisciplinary rounds, and providing input into the selection and administration of drugs.

.   Pharmacists are routinely assigned to work inpatient care areas performing clinical activities, adjusting doses of medications that may be toxic to patients.

A.5   Pharmacy Order Finish and Verification

Items related to Pharmacy Order Finish and Verification:

Some of the following was extracted from "Pathways for Medication Safety – Assessing Bedside Bar – Coding Readiness" and TJC

.   The current processes associated with Pharmacy Order Management to include finishing and verification have been thoroughly examined through flowcharting or process mapping to promote detailed understanding of caregiver needs and workflows.

.   Pharmacists have a thorough understanding of the medication management process.

.   A pharmacist is available 24 hours a day to finish and verify medication orders.

.   If there is no physical pharmacist available, a virtual pharmacist finishes and verifies medication orders.

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.   There are parameters delineating how often the virtual pharmacist will access the system to finish and verify orders.

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.   When a pharmacist is not available, there is a process for a retrospective review of medication orders by the pharmacist as soon as the pharmacy reopens or a pharmacist is available.

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.   Unless RPMS is used, qualified healthcare professional reviews the medication order prior to administration of the medication for appropriateness against a database of information (e.g., drug interaction reference and drug profile).

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.   There is ongoing analysis and monitoring of alternative systems that bypass the pharmacist review for the incidence of medication errors as compared to when the pharmacy is open.

.   A mechanism exists to communicate STAT or NOW orders to the pharmacy.

.   Turnaround time to finish and verify medication orders by pharmacy is consistent with the established time frames for emergent, urgent, and routine medication orders.

.   Pharmacists who enter, finish, and verify orders in the computer consider how the order appears on the BCMA Virtual Due List to avoid possible misinterpretation.

.   Pharmacists routinely spend time in patient care units to observe the drug administration process and understand the barriers to safe medication practices that the nurses face.

.   All inpatient pharmacy staff attends BCMA and RPMS training.

.   Pharmacists have access to RPMS and BCMA.

.   Pharmacists know how to navigate through RPMS and BCMA

.   The impact of BCMA, computerized provider order entry and anticipated changes in pharmacy processes, work rhythm, time requirements, and job responsibilities have been examined and compared against the paper process.
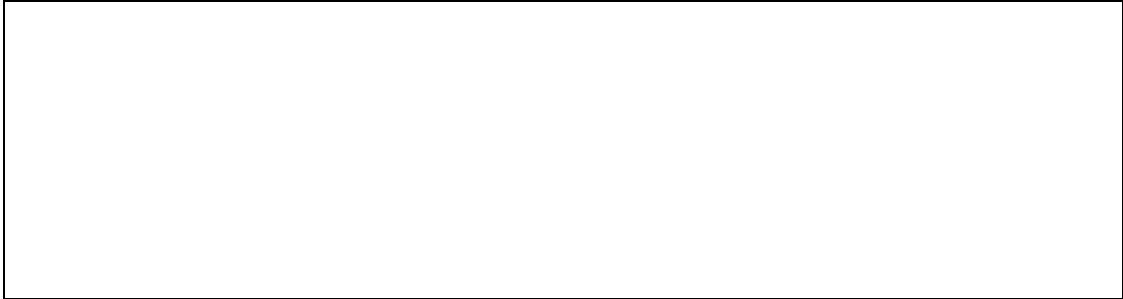
.   Pharmacists receive formalized VistA Pharmacy classes including Package Order Finishing and Verifying as part of their orientation process.

.   New Staff report that the above described orientation is effective. Ask staff once they've been working on the unit for a while to find out much the orientation really helped.

A.6   Pharmacy Labeling and Packaging

Pathways for evaluating Pharmacy Labeling and Packaging related to Medication Management:

.   The current processes associated with inpatient medication labeling have been thoroughly examined through flowcharting or process mapping to promote detailed understanding of caregiver needs and the workflow.

.   Pharmacy printers have the capacity to print a high resolution bar coded label that can be read/scanned easily (ANSI score C or better).

.   A process for receiving medications into pharmacy to assure they contain a machine readable barcode and are active in the pharmacy drug file by scanning the drug to validate it displays correctly.

.   A reporting process for medications that have barcodes that do not scan is established and contains a mechanism to submit them for verification.

.   Unit dose medications are purchased with scannable manufacturer bar code labels.

.   Unit dose medications remain in the manufacturer's (or Pharmacy's) packaging up to the point of actual drug administration at the point-of-care.

.   Large volumes Intravenous Ward stock fluids have manufacturer generated scannable bar code labels.

.   There is an automated packaging solution which applies a machine readable barcodes along with human readable information to unit dose medications.

.   Pharmacy uses formalized safety processes for packaging medications and replenishment of automated dispensing equipment to ensure the safety of personnel and prevent packaging errors.

.   Pharmacy prepares and packages medications (including labeling and expiration dating) according to United States Pharmacopeia (USP) and national practice standards and all applicable laws and regulations.

.   When pharmacy services are provided, all sterile medications, intravenous admixtures or other drugs that need compounding, mixing, manipulation, or admixing should be prepared and labeled by the pharmacy (includes splitting tablets, mixing solutions from powders).

.   The pharmacy computer system prints bar code labels that provide details of the intravenous (IV) admixture contents as well as patient specific information.

.   Pharmacy prints labels with bar codes for pharmacy-prepared, patient specific medications.

.   A mechanism exists to apply bar code labels on the patients' personal medications if they are to be administered.

.   Non-formulary products are entered into the pharmacy system with a National Drug Code (NDC) number or Internal Entry Number (IEN) before use.

.   Investigational drugs are entered into the pharmacy system with an NDC number or IEN before use.

.   Purchasing decisions are based on whether a product is available from the manufacturer in unit dose packages with a bar code.

.   Pharmacy purchases single dose bar coded packages of respiratory therapy medications, creams, ointments, etc. (versus random packs without individual bar codes) when available or applies bar codes to unit dose packages for which bar coded packages are unavailable.

. Vendor contracts reflect preferential purchasing of products packaged in unit dose with a bar code.

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. Resource allocation plans factor costs associated with repackaging medications with a bar code for distribution (staffing needs).

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A.7   Pharmacy Dispensing and Storage

Pathways for evaluating Pharmacy Dispensing and Storage related to Medication Management:

. The current processes associated with medication dispensing and storage have been thoroughly examined through flowcharting or process mapping to promote detailed understanding of caregiver needs and the workflow.

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.   Pharmacy procures and dispenses all pharmaceutical products.

.   Pharmacists consistently follow existing processes for medication distribution.

.   Manufacturer's pre-filled syringes or single dose vials and ampules are used for at least 90% of the injectable products provided to inpatient care units.

.   Commercially available, pre-mixed IV solutions are used whenever available on the market.

. IV solutions that are not available commercially are prepared in the pharmacy unless needed in emergent, lifesaving situations.

. At least 90% of IV Push medications are dispensed in unit dose form to the patient care units.

. Pharmacy dispenses oral liquid medications in a bar coded label unit dose oral syringe with "Oral Use Only" or unit dose cups/ bottles and avoids dispensing bulk bottles.

. All medications dispensed are appropriately and safely labeled using standardized protocol to include at a minimum drug name, strength, amount, and expiration date.

. All compounded intravenous admixtures and TPN solutions must be labeled with the scheduled date, time, and rate of administration.

. All labels for infusion products should have the label on the container being hung for a patient, not the overwrap.

. When Pharmacy cannot dispense a medication in a patient- specific unit dose, an independent double check of the drug and the dose calculation is performed and documented.

. For oral solid medications available in different strengths, the pharmacy inventory is sufficient enough to avoid unnecessary splitting of tablets or use multiple tablets/capsules.

. Partial doses that require splitting of a tablet will be done in the pharmacy and appropriately labeled by pharmacy personnel and contain at a minimum drug name, dose, expiration date and lot #

. The use of the patient's personal medications is avoided whenever possible and permitted only when the product cannot be obtained by pharmacy (exception: metered dose inhalers, birth control pills, eye drops, and investigational study drugs).

. Multiple-dose insulin vials are dispensed from pharmacy for individual patients.

. Turnaround time for dispensing medications from Pharmacy is consistent with established time frames for emergent, urgent, and routine medications.

.   The use of medication samples is prohibited for inpatients.

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.   First doses of high-alert drugs are not available from ward stock or an automated dispensing cabinet until a pharmacist reviews and screens the patient for safety. (Exceptions: per hospital policy; in urgent or emergent situations or during periods when a pharmacist is not on site).

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.   High risk drugs (sound alike, look alike) are segregated per policy and TJC regulations to reduce errors.

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.   When non-pharmacist healthcare professionals are used to obtain medications when the pharmacy is closed, the supply of medications is limited to an approved set of medications stored in a night cabinet, automated dispensing machine, or a limited section of pharmacy.

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.   There is a special double check or other quality control measures to prevent medication retrieval errors.

.   Limited personnel are trained on the process and the medications available.

.   A qualified pharmacist is available on call or at another location to answer staff drug information questions or provide medications not available in the limited supply.

.   There is ongoing analysis and monitoring as to which medications are accessed and why as well as the incidence of medication errors as compared to when the pharmacy is open.

. Resource allocation plans have factored in the costs associated with a full unit dose dispensing system and a full IV Admixture service for products not commercially available as premixed solutions (including staffing needs).

A.8   Infrastructure

Pathways for evaluating Infrastructure related to Medication Management

. The current processes associated with infrastructure have been thoroughly examined through flowcharting or process mapping to promote detailed understanding of caregiver needs and the workflow

. Appropriate hardware (computers, laptops, palm-held devices) are available in patient care units and are well utilized by clinicians.

.   Various clinical applications of information technology are available at point-of-care and well utilized by nurses.

.   A reliable and tested wireless network to support information transfer is available in patient care areas.

.   IRM has completed a thorough assessment of the wireless infrastructure ensuring there are no "dead zones" that would affect scanning and data transmission at the bedside.

.   Information systems are protected with security and access control systems that include a log in mechanism.

.   The Network time out is long enough to not disrupt patient care.

.   The BCMA site-specific time out is long enough to not disrupt patient care.

.   The VistA time out is long enough to not disrupt patient care.

.   Hospital interface systems are capable of managing data transfers between servers and point of care devices

. There is both an information back-up process and a business recovery plan to handle technological failures to include BCMA.

. These plans cover BCMA and are regularly tested as defined by local policy.

. Contingency devices are easily accessible from all patient care areas and easily identified.

. There is a defined routine preventive maintenance of contingency devices by IRM.

.   There is adequate space in the pharmacy for repackaging of medications into unit doses with a bar code if necessary. This includes space to prepare 90% of the IVs and to store the unit dose medications once they are prepared.

.   There are sufficient electrical outlets in nurses' stations and medication rooms for charging electrical equipment associated with BCMA.

.   The facility has successful experience with integrating/ interfacing various information system technologies throughout the organization.

A.9 Hardware and/or Software

Pathways for evaluating Hardware and Software related to Medication Management:

. The current processes associated with hardware and/or software have been thoroughly examined through flowcharting or process mapping to promote detailed understanding of caregiver needs and the workflow

. There is someone on site available 24/7 to assist with end user needs such as passwords, codes, and equipment failures.

. There is easily accessible replacement equipment when devices fail.

. There is adequate space in patient care units for medications, equipment, and hardware (including computer terminals) associated with BCMA.

.   There is adequate space at the patient's bedside (point-of-care) for the equipment and hardware associated with BCMA (including width of doorways to enter rooms with equipment and medication carts).

.   The battery life of the BCMA device is sufficient to complete a major med pass.

.   IRM has a defined life cycle replacement for BCMA hardware (scanners, computers, batteries, and mouse).

.   BCMA dedicated equipment undergo routine preventive maintenance by IRM staff.

.   Resource allocation plans for BCMA have factored in the costs associated with hardware replacement.

A.10   Nurse Order Verification

Pathways for evaluating Nurse Order Verification related to medication administration:

.   The current processes associated with nurse order verification have been thoroughly examined through flowcharting or process mapping to promote detailed understanding of caregiver needs and the workflow.

.   Passwords/ access codes, menus and keys are provided to all nurses upon employment to allow appropriate level of access to information.

.   Nurse orientation includes a session on Order Entry and Order Verification including Pharmacy finish and verification through Inpatient Medications Package.

.   A mechanism exists to provide training for agency/ registry staff nurses on BCMA and RPMS.

.   A mechanism exists to alert the nurses of pending, active, discontinued, expired, and STAT/NOW orders.

.   Nurse verification occurs after the order is finished and verified by pharmacy.

.   Nurse verification of medications includes reviewing the following information: schedule type, schedule, and administration times (if applicable), start date/time, stop date/time, Dispense Drug, and Units per dose for accuracy.

.   Nurses who verify medication orders consider how the order displays on the BCMA Virtual Due List to avoid possible misinterpretation.

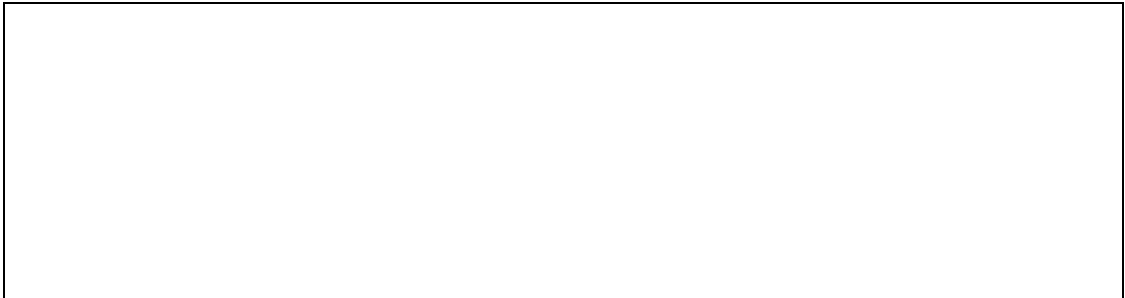.   Standardized times for routine drug administration are established and are followed consistently on all inpatient care units.

A.11 Administration and Circumvention

Pathways for evaluating Administration and Circumvention related to Medication Management:

.   The current processes associated with medication administration have been thoroughly examined through flowcharting or process mapping to promote detailed understanding of caregiver needs and the workflow.

.   Policies and procedures for medication administration include special precautions and requirements for high- risk or high- alert drugs, guidelines for prescriber notification, and infection control measures (aseptic technique).

.   BCMA menus are assigned to staff nurses after the successful completion of hands-on BCMA training.

. Basic BCMA training includes a supervised medication pass with a preceptor/ nurse educator.

. Nurses consistently follow existing local processes and policies for medication administration. Examine reasons why nurses may not follow policy and change system as needed.

. Little to no variation exists with how medications are administered on each inpatient care unit.

. Activities associated with medication administration are guided and documented in BCMA in all inpatient care areas including protocol or pathway orders, Intravenous catheter care orders, etc.

.   BCMA is available at or taken to the patient's bedside for point-of-care documentation of drug administration.

.   Nurses (Respiratory Therapists) in all inpatient care areas use BCMA to guide and document activities associated with medication administration including Unit Dose, IV Push, IV Piggybacks, and large volume IV Fluids. (respiratory therapy drugs)

.   All inpatient medication administration is documented through BCMA (includes respiratory therapy medications).

.   Bar code technology is used as one of the patient identifiers during medication administration.

. Patient wristbands can be printed in patient care areas to facilitate re-application in the event the band is removed or unreadable.

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. Policy prohibits printing multiple wristbands for patients unless a replacement is needed and applied immediately to the patient.

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. Nurses prepare and administer only one patient's medications at a time at the point-of-care.

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. If the nurse prepares an injectable medication or solution, the medication is brought to the patient bedside in its original container, drawn into the syringe and administered immediately.

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.   The nurse administering the medications verifies there is no contraindication of the medication based on: patient's known allergies, medication incompatibility for potential interaction, the patient's physical and mental condition, relevant laboratory results, and the patient's previous reactions to the medication.

.   All drugs requiring compounding, manipulation, or admixing are prepared by pharmacy.

.   All bar codes that do not scan are reported and returned to Pharmacy in a timely fashion.

.   Administration of the medication occurs after the medication has been nurse verified.

.   The nurse ensures the medication is being administered at the proper time, in the prescribed dose, and by the correct route.

.   Nursing staff has access to updated drug reference manuals.

.   The nurse does not remove from floor stock or automated dispensing cabinets first doses of medication until a pharmacist reviews and screens the specific patient for safety (Exception: per hospital policy; in urgent or emergent situations where the risk of delay outweighs the safety benefit of pharmacy review of the order).

.   Local facility policy delineates best practice standards for STAT and NOW doses.

.   Local facility policy delineates nurse responsibility for accepting verbal/ telephoned medication orders.

.   The impact of BCMA and anticipated changes in nursing processes, work rhythm, time requirements, and job responsibilities have been examined and compared against the paper process.
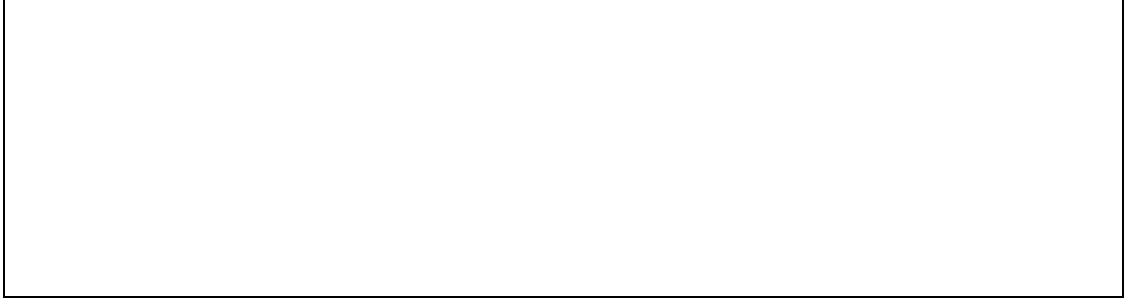
.   Nurses routinely spend time in Pharmacy to observe the medication order finishing, verification, and drug dispensing processes and understand the barriers to safe medication practices that Pharmacy faces. (Promotes more effective communication between nurses and pharmacists).

A.12   Patient Wristbands

Pathways to Assess Patient Wristbands related to Medication Management:

.   The current processes associated with patient wristbands have been thoroughly examined through flowcharting or process mapping to promote detailed understanding of caregiver needs and the workflow

.   Upon admission to the hospital, a bar-coded wristband is applied to all inpatients using appropriate checks of patient identity by one or more hospital staff members.
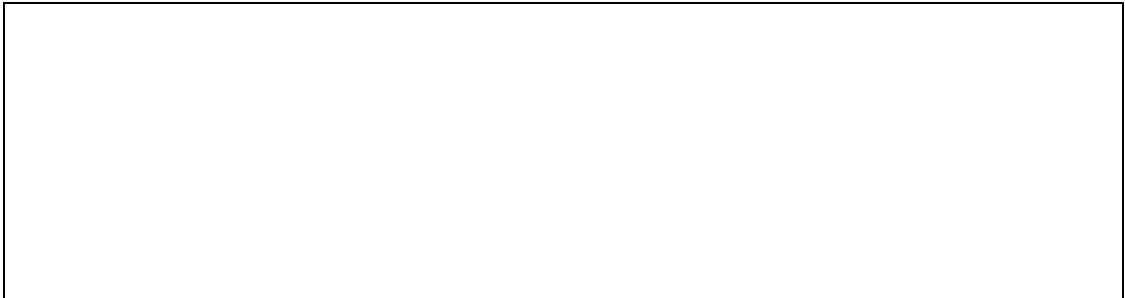
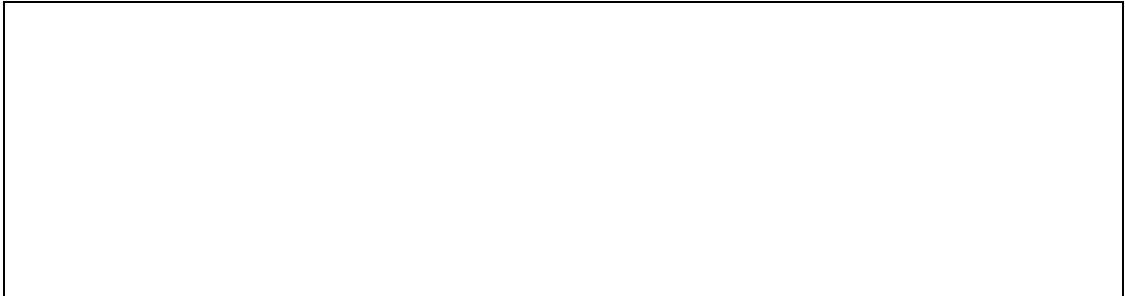.   Upon registration, a bar coded wristband is applied to all outpatients that will receive medications

. The bar code on the wristband includes a unique patient identification number and a patient photo identifier.

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. Patient wristbands are durable and are able to withstand typical abuse without rendering the printed information unreadable.

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. Patient wristbands should be machine and human readable after 2 weeks of patient wear

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. Wristband printers are readily accessible to all staff that may need to reprint unscannable or missing wristbands.

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.   Identified staff receives access to the print menu option for the wristband printer including unit clerks and following appropriate safety check process upon re-application of wrist band.

.   New staff receives training on how to use the print menu option and hands-on training on the print device.

.   There are processes in place to ensure patient privacy and confidentiality of patient information is maintained.

.   Bar code technology is used to verify patient identity in clinical applications (blood administration, blood specimen collection, medication administration)

.   Wristband printers have the capacity to print a high resolution bar coded label that can be read/scanned easily (ANSI score C or better).

A.13   Patient Safety

Pathways for evaluating Patient Safety related to Medication Management process:

.   The patient bar coded wristband is applied as soon as the patient is admitted.

.   Two forms of patient identifiers are used before medication administration, blood administration, and blood specimen collection.

.   Patient allergy information is reviewed and updated during every clinic visit and upon admission into the facility.

. Patients are oriented to bar code scanning for medication administration upon admission.

. Resources are available to create educational materials explaining BCMA to patients and their families advising them on how they can facilitate the use of this technology.

. Patients are provided with a list of their medications they are receiving while in the hospital for reference during the drug administration process.

. The nurse or other individual administering the medication informs the patient of the medication and the dose before administration.

. The nurse discusses any significant contraindication or concern about administering the medication with the patient's physician, the staff involved with the patient care, the patient, and his/ her family.

. Medications are reviewed and patients receive instruction from a pharmacist on the discharge medications before discharge.

A.14 Staff Training and Education

Pathways for evaluating Staff Training and Education related to Medication Management processes:

. The current processes associated with staff training have been thoroughly examined through flowcharting or process mapping to promote detailed understanding of caregiver needs and the workflow.

.   The information technology staff includes personnel with specialty training in clinical informatics, not just general computing support.

.   IRM staff with specialty training in clinical informatics holds leadership and decision making roles in the organizations.

.   When software enhancement training is planned staff (pharmacists, nurses, respiratory therapists) are scheduled to attend training during duty hours.

.   New incoming staff is assessed for computer skills to include graphical user interface (GUI) navigation and basic keyboarding.

.　　There are basic computer training classes including Windows provided to employees during orientation and as determined necessary.

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.　　All frontline nurses receive training on the computerized information technology (RPMS, BCMA, automated dispensing cabinets).

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.　　Providers know how to look up and retrieve drug administration information from the computerized medical record.

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.　　The facility has a policy mandating order entry training in RPMS for all physicians new to the facility.

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. A mechanism is in place that requires returning house staff to attend RPMS training upon the beginning of their clinical rotation.

. The use of nursing and pharmacy agency staff that has little or no hospital- specific orientation to clinical functions is minimized.

. In the past year, educational programs have been held with frontline staff r/t RPMS, BCMA, and Inpatient Medications Packages.

. In the past year, educational programs and interactive discussions have been held with senior leaders about RPMS, BCMA, and Inpatient Medications packages.

.   In the past year, interactive discussions have been held with frontline clinical staff about potential anxieties and job dissatisfaction related to the use of technology in order to reduce the risk of circumventing or ignoring technology.

.   Qualified hospital personnel are available for ongoing staff training throughout all tours of duty.

.   Training plans for BCMA include instruction on how to handle electronic health record and BCMA unscheduled down times

.   Nursing staff is cognizant of existing contingency plans in the event of technological failure.

.   Staff receives training on access and use of contingency plans.

.   Resource allocation plans factored the costs associated with training clinicians on the use of BCMA.

A.15   Quality Management

Pathways for evaluating Quality Management related to Medication Administration

.   Senior leaders are committed to expanding use of clinically proven technologies to improve patient safety.

.   Senior leaders are committed to allocating the resources necessary to promote patient safety.

. The organization utilizes multidisciplinary teams to improve the safety or quality of patient care services.

. Several clinicians including a clinical informatics staff member have been identified as champions for BCMA.

. There is a dedicated local BCMA program/ project manager.

. A multidisciplinary team is involved with vendor selection, clinical support, and address technology issues related to BCMA.

.   The BCMA multidisciplinary team is charged with facilitating implementation of BCMA and its enhancements; has the authority to set timelines; define specifications and processes, and work closely with the users to elicit feedback and remedy technology and workflow issues.

.   Trained staff performs regular, ongoing literature searches on potential sources of errors with new and existing technology. Is this something this group could do and share with the field?

.   Frontline nurses and pharmacists are aware there is an increase in error detection with BCMA.

.   Effective mechanisms are in place (RCAs, HFMEAs) to provide regular, meaningful reports to clinicians about progress with medication safety objectives.

.   Effective mechanisms are in place to provide regular, meaningful reports to senior leaders about the progress with medication safety objectives.

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.   Medication safety objectives are celebrated and widely communicated when met.

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.   Senior leaders and clinicians demonstrate a strong interest in being able to intercept potential medication errors in "real time" to prevent adverse drug events that harm patients.

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.   Senior leaders and clinicians demonstrate a strong interest in detection of medication errors that may otherwise remain undetected without BCMA.

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.   Senior leaders and clinicians desire a means of measuring medication safety during drug administration for the purpose of demonstrating improvement over time.

.   Time and resources have been allocated to analyze and use averted error data.

References

Carayon P, TB Wetterneck, A Schoofs Hundt, et al. 2007. "Evaluation of Nurse Interaction with Bar Code Medication Administration Technology in the Work Environment." *J. Patient Saf.* 3(1):34-42.

Hook J, J Pearlstein, A Samarth, C Cusack. 2008. "Using Barcode Medication Administration to Improve Quality and Safety: Findings from the AHRQ Health IT Portfolio" (Prepared by the AHRQ National Resource Center for Health IT under Contract No. 290-04-0016). *AHRQ Publication No. 09-0023-EF.* Rockville, MD: Agency for Healthcare Research and Quality. December 2008.

Sipe M, (2011) Mastering the Art of Barcoding. UnSummit presentation. http://www.unsummit.com/pdf/2010slides/D2S6S_The_3_Ps.pdf

Spetz J, PhD; J Burgess, PhD; C Phibbs, PhD. 2012. "What Determines Successful Implementation of Inpatient Information Technology Systems?" Volume 18: March 2012 Number 3. http://www.ajmc.com/publications/issue/2012/2012-3-vol18-n3/What-Determines-Successful-Implementation-of-Inpatient-Information-Technology-Systems

Spetz J, D Keane. 2009. "Information Technology Implementation in a Rural Hospital: A Cautionary Tale." *J Healthc Manage.* 54(5):337-348

United States Congressional Budget Office. 2007. "The Health Care System for Veterans: An Interim Report." Washington, DC: Congressional Budget Office, Pub. No. 3016; December 2007.

--------------------. (2002). "Pathways for Medication Safety: Assessing Bedside Bar Coding Readiness." A partnership with American Hospital Association, Health Research and Educational Trust, Institute for Safe Medication Practice. Retrieved on July 1, 2003 from http://www.ismp.org

Acronym List

ANSI	American National Standards Institute
BCMA	Bar Code Medication Administration
FMEA	Failure Mode Effects Analysis
GUI	Graphical User Interface
IEN	Internal Entry Number
IHS	Indian Health Service
IRM	Information Resources Management
ISMP	Institute For Safe Medication Practices
IV	Intravenous
NDC	National Drug Code
OIT	Office of Information Technology
RCA	Root Cause Analysis
RPMS	Resource and Patient Management System
TJC	The Joint Commission
USP	United States Pharmacopeial Convention

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