Subject: **Medication Error Reduction and Prevention Performance Improvement Plan**	Original Issue Date: 02/01/14	Procedure # **048**
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Departments Consulted:	Approved By:	Approved by:
DHS Pharmacy Affairs JCHS Department of Medicine JCHS Department of Nursing	(Signature on File) Pharmacy Supervisor (Signature on File) Medical Director	(Signature on File) Health Services Administrator

Plan Purpose and Overview

The purpose of the Medication Error Reduction and Prevention Performance Improvement Plan (MERP PIP) is to promote safe and effective medication use through the reduction of preventable medication-related errors and adverse events.

Medication error reduction and prevention strategies focus on the core procedures and systems of the medication management process; prescribing; prescription order communication; product labeling, packaging and nomenclature; compounding; dispensing; distribution; administration; education; monitoring and medication use.

The Medication Error Reduction and Prevention PI Plan (MERP PIP) is updated on an ongoing basis in consideration of the changing needs of patients, staff, quality management and performance improvement, and risk management processes. Modifications to the plan are assessed for effectiveness.

The effectiveness of the Medication Error Reduction and Prevention Performance Improvement Plan (MERP PIP) is reviewed annually. The methodology used to assess the effectiveness of the plan should provide objective and relevant evidence that informs policy decision makers in the evaluation and development of corrective actions to effectively prevent and reduce medication errors.

The (MERP PIP) includes:

- Creating and embracing an accountable non-punitive culture for identifying and reporting medication errors and near miss events;
- Utilizing a “systems” approach to understanding and eliminating medication errors through multidisciplinary involvement;
- Using organization-wide quality assurance and performance improvement (QAPI) data to identify and analyze medication errors and, near miss events;
- Implementing system changes to minimize the likelihood of future medication errors and near misses;
- Involvement of multidisciplinary teams and committees to direct and monitor the medication safety and performance improvement effort. The Medication Safety Committee provides reports to the Pharmacy and Therapeutics Committee to oversee and coordinate the plan.

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Scope

The Medication Error Reduction and Prevention Performance Improvement Plan (MERP PIP) is applicable to all patients receiving care within the facility or under the licensure of the facility. The MERP PIP pertains to all areas in which medications are prescribed, prescription orders are communicated, products are labeled, packaged and nomenclature used, compounded, dispensed, stored, distributed, administered, monitored and used.

Definitions

Adverse Event -An event that has resulted in an unanticipated death or major permanent loss of function, not related to the natural course of the patient's illness or underlying condition or the risk thereof

Adverse Drug Event (ADE) - An injury resulting from a medical intervention related to a medication, including harm from an adverse drug reaction or a medication error.

Adverse Drug Reaction (ADR)- A response to a medicinal product that is noxious and unintended and that occurs at doses normally used in humans for the prophylaxis, diagnosis or treatment of disease or for the restoration, correction , or modification of physiological or psychological function.

Medication Error - A preventable event that may cause or lead to inappropriate medication use or patient harm while the medication is in the control of the health care professional, patient or consumer. Such events may be related to professional practice, healthcare products, procedures and systems, including prescribing; order communication; product labeling, packaging, and nomenclature; compounding; dispensing; distribution; administration; education; monitoring and use.

Near Miss Event - Any variation during the provision of care, treatment, or services that did not affect an outcome, but for which a recurrence carries a significant risk of an adverse outcome. A near miss is a sentinel event, by definition, but near misses are not subject to review by the Joint Commission under Sentinel Event Policy.

Sentinel Event- An unexpected occurrence involving death or serious physical or psychological injury or the risk thereof. The phrase "or the risk thereof" includes any process variation for which a recurrence would carry a significant chance of serious adverse outcome.

Root Cause Analysis (RCA) - A process for identifying the basic or causal factor(s) that underlying variation in performance, including the occurrence or possible occurrence of a sentinel event.

Failure Mode and Effects Analysis (FMEA) - is a systematic, proactive method for evaluating a process to identify where and how it might fail, and to assess the relative impact of different failures in order to identify the parts of the process that are most in need of change and/or additional safeguards.

Developmental Considerations

The following are the fundamental components considered in the development of the MERP PIP:

- Create, communicate, and demonstrate a leadership-driven culture of medication safety.
- Maintain an organization-wide Quality Assurance and Performance Improvement (QAPI) program that addresses key components of medication safety.
- Encourage reporting with a non-punitive reporting process that minimizes individual blame or retribution for involvement in a medication error or near miss event.
- Maintain simple, consistent reporting procedures throughout the organization for reporting both actual and potential medication errors.
- Use internal and external sources to identify and acknowledge risks to medication safety issues that contribute to medication errors.
- Assess measure and implement risk reduction processes designed to improve the safety of medication use.
- Recommend indicators that monitor medication safety and identify areas for improvement.
- Facilitate multidisciplinary teams and committees to address identified medication safety issues.
- Use preventative measures to reduce the risk of medication errors, near miss occurrences and sentinel events.
- Design a data driven medication error reduction process that incorporates comparative data over time.
- Promote education of staff, vendors, providers, patients' families, and volunteers.
- Incorporate improvements consistent with organization-wide and department specific quality assurance and process improvement goals.

Objectives

- Improve error detection, reporting and analysis of data and use of information to improve

medication safety.

- Evaluate on-line reporting and enhance active reporting.
- Enhance awareness of on-line reporting tools and methodologies for capturing data and tracking medication related events.
- Orient and educate staff on processes for reporting medication events. Re-orient staff on a regular basis.
- Establish a system to encourage staff to report medication errors, participate in identifying system-based causes, make recommendations to improve the system, and facilitate necessary changes.
- Create methods to enhance error detection by capturing medication errors and near misses through computer surveillance and trigger events, Medication Administration Records (MAR) reconciliation, pharmacy interventions and competency assessment processes. Use the data to identify additional opportunities to improve medication processes.

- Emphasize an accountable non-punitive reporting process that encourages staff to report potential or actual medication safety risks.
  - Widely communicate the organization's commitment to medication safety in specific terms and with concrete examples in staff newsletters and educational programs.
  - Develop methods to obtain frontline staff feedback about medication/patient safety issues.
  - Review *ISMP Medication Safety Alert* and disseminate information to all staff involved in the medication management process.
  - Establish a blame-free environment for responding to errors.
  - Involve staff in Root Cause Analysis and Failure Mode Effect Analysis to assist in evaluation of systems and procedures that have or may contribute to errors.
  - Incorporate patient safety tenets in evaluation of employee competence and performance evaluations. (Do not include the absence or presence of errors as a criterion.)
- Evaluate and utilize technology to reduce the risk of medication errors.
  - Maintain an up-to-date compendium of system capabilities and reporting functionalities. Set standards for medication safety alerts and educate staff on functionality.
  - Collect and analyze data to identify areas needing improvement and implement appropriate strategies for medication error reduction.
- Reduce the risk of errors with high-alert medications prescribed and administered to high-risk patient populations or at vulnerable periods of transfer through the health care system.

- Evaluate medication management processes for high-risk patients and patients receiving high-alert medications (e.g. pediatric and chemotherapy) to include the following indicators:
  - Establish maximum safe doses for high-alert medications and enter them into the order entry system to electronically alert staff to potentially toxic doses.
  - Evaluate the storage and safe use of high-alert medications and look-alike/sound-alike medications in the facility and initiate safe practice recommendations.
  - Establish standard order sets for the use of high-alert medications, as appropriate.
  - Standardize drug concentrations of high alert medications and medications used in high-risk patient populations such as pediatrics and ICU.
  - Establish a consistent process for a cognitive, independent double check for defined high-alert medications.
- Implement safe practice recommendations from nationally recognized organizations such as ISMP, Joint Commission Sentinel Event Alerts and California Institute for Health Systems Performance.
- Ensure continuous compliance with medication management safety strategies recognized by professional and accreditation standards. Compliance measures may include:
  - Self-assessment tools and gap analysis
  - Survey preparation assessments
  - Medication Safety Checklist

Organization and Responsibility

Leadership
Juvenile Court Health Services leadership is committed to maintaining an environment that emphasizes patient safety and supports ongoing error prevention and reduction activities. Leadership actively encourages medication error identification and reporting by all staff. Preventing and reducing medication errors is a high priority. Errors are analyzed and processes, functions and services are established or; procedures and systems are changed to prevent recurrence and reduce risk to patients.

Juvenile Court Health Services (JCHS) Executive Team
The JCHS Executive Team (comprised of the Medical Director, Nursing Director, and Administrator) is responsible for reviewing the progress and effectiveness of the medication-related error reduction and prevention plan as reported by the Pharmacy and Therapeutics Committee, and to take action when necessary based on report findings.

Pharmacy and Therapeutics Committee

The Pharmacy and Therapeutics Committee advises and reviews the activities of the Medication Safety Committee for progress and effectiveness. The P&T Chairperson reports progress and effectiveness of the MERP PIP to the JCHS Executive Team.

The Medication Safety Committee

The Medication Safety Committee is a collaborative forum in which Pharmacy, Quality and Nursing address medication safety issues. This committee is responsible for the Medication Error Reduction and Prevention Performance Improvement Plan's implementation, monitoring, revisions, and improvements; and is responsible for reporting progress at least quarterly to the Pharmacy and Therapeutics Committee, which provides advice and direction. Quarterly reports are also presented to the Quality Improvement Committee to respectively apprise the medical staff and facility Administration of the MERP PIPs progress. (The Medication Safety Committee's responsibilities are further defined in Appendix C)

Processes of the Plan

Plan Development

A multidisciplinary group comprised of core team members from the Medication Safety Committee is responsible for development of the Medication Error Reduction and Prevention Performance Improvement Plan (MERP PIP). The core team is also responsible for recommending the MERP PIP's approval through the Pharmacy and Therapeutics Committee, Quality Improvement Committee, and JCHS Executive Team.

Membership of the MERP PIP core team includes:

- Director of Pharmacy
- Quality Improvement Program Manager
- Director of Risk Management
- Director of Nursing
- Medical Staff representative(s)

Plan Implementation and Assessment

The Medication Safety Committee provides primary oversight of MERP PIP. The team/committee's role is to guide and direct others within the organization towards; the provision of safe medication use; the prevention and reduction of medication errors and the improvement of medication management processes /procedures and systems. The Medication Safety Committee works collaboratively with the facility and medical staff leadership, medical staff, and facility staff; working across interdepartmental boundaries as needed, to address medication safety issues and to assess the effectiveness of the MERP PIP. Methodology used to evaluate each of the eleven medication management procedures or systems to identify weakness or deficiencies which could contribute to medication errors may include but are not limited to:

- Evaluation of external alerts (e.g. ISMP Alert, FDA Alerts, etc.)

- Observation of medication pass
- QAPI studies
- FMEA studies
- Medication Use Evaluations
- Analysis of medication error reports to identify system vulnerabilities
- Root Cause Analysis
- Monitoring and adjusting implementations of practices/process changes to evaluate and enhance effectiveness
- Technology upgrade feasibility is reviewed when needed, but at least annually.
- GAP analysis of the plan is performed, and priorities are established annually.

Improvement Strategies
Current literature is reviewed on an ongoing basis for the development and ongoing review and revision of the Medication Error Reduction and Prevention Plan's improvement strategies. The literature includes publications from the Institute of Medicine (IOM), Institute for Safe Medication Practices (ISMP), American Society of Health System Pharmacists (ASHP), the Joint Commission and other publications/organizations as appropriate.
Medication use systems and procedures are identified to include both current and future improvement strategies.

Implementation Strategies
Annually, improvement strategies are evaluated, and resultant implementation strategies are identified. Strategies include both technology and non-technology approaches.

- Review the effectiveness of the existing plan, and make adjustments, when needed, to improve the plan.
- Implement medication use safe practice recommendations
- Optimize medication error prevention and reduction potential of technology systems
- Respond rapidly and effectively to potential errors of, and errors caused by workflow processes

Education and Awareness
Entity specific core curriculums are created to support the MERP PIP initiative. The following methodology will be used to assist with identifying and reporting medication errors with the goal of reducing their incidence:

- An annual medication safety assessment will be used to identify needs.

- Systems will be reviewed to identify current practice and compared to nationally recognized safe medication practices to identify gaps.
- Expected outcomes and measures of success will be defined for identification and reporting of medication errors and to identify process changes for error reduction and prevention.
- Clinical education will include medication safety core curriculum during orientation and annual competency reviews for pharmacy, nursing and other allied health professionals.
- The medical staff will be informed of MERP PIP progress via committee presentations and updates in the JCHS newsletters.

Monitoring

The Medication Safety Committee will monitor multiple data sources which may include:

- Adverse drug event reporting (medication errors, near misses, adverse drug reaction and incompatibilities)
- Concurrent chart reviews and audits (e.g. Medication Use Evaluations)
- Computerized surveillance (e.g. Trigger drug utilization, Automated Dispensing Cabinet (ADC) Reports, Bar-Code Medication Verification (BMV) data reports, etc.

Reporting

- Findings and recommendations from the Medication Safety Committee are first reported to the P&T Committee, which through its representative reports to the JCHS Executive Team
- The Medication Safety Committee also presents its findings to the Quality Improvement Committee, which is comprised of leadership from the facility's functional departments.
- If findings or recommendations have an *immediate* impact on patient safety, focused memos and direct communication to affected functional areas is utilized.

Annual Review

The Medication Error Reduction and Prevention Performance Improvement Plan (MERP PIP) is reviewed annually and modified as needed to focus efforts to reduce medication related errors. The analysis will consist of both concurrent and retrospective review of patterns and trends of clinical care, weakness and deficiencies, and focus on procedure and system related opportunities for improvement. Individual performance issues will not be addressed during an annual review.

The annual assessment of the effectiveness of the MERP PIP will include, but not be limited to, a comprehensive review of prescribing, prescription order communication, labeling, packaging, nomenclature, compounding, dispensing, distribution, administration, patient and staff education, monitoring tools and overall medication use.

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Annual review of the MERP PIP will be a function of the Medication Safety Committee will be reported to the Pharmacy and Therapeutics Committee, the Quality Improvement Committee, and the JCHS Executive Team.

Attachments:

Appendix A: Computer Surveillance Methodology
Appendix B: Medication Error Reduction and Prevention Strategies by Medication Use Process
Appendix C: Medication Safety Committee

Appendix A: Computer Surveillance Methodology

Rescue Medications and Trigger Drugs

Rescue medications and trigger drugs are agents which, when used, may indicate adverse medication events. Using the reporting functions of the medication order entry system (PEMRS), utilizations of the following medications may be monitored.

Utilization of these medications is investigated by a pharmacist to identify adverse drug related events. Adverse Drug Event (ADE) data is trended and analyzed to identify opportunities for improvement. ADEs are reported to, and recommendations (if any) are made to the Medication Safety Committee and reported quarterly to the P&T Committee.

Medication	Possible Adverse Medication Event
Acetylcysteine (Acetadote, Mucomyst)	Acetaminophen overdose
Dextrose 50%	Hypoglycemic agent overdose
Diphenhydramine (Benadryl)	Drug allergy
Flumazenil (Romazicon)	Benzodiazepine overdose
Mephyton (Oral Vit K)	Warfarin Overdose
Methylprednisolone Succinate (Solu-Medrol)	Anaphylaxis, severe drug allergy
Naloxone (Narcan)	Opiate overdose
Phytonadione (Vit K)	Warfarin overdose
Protamine	Heparin overdose
Sodium Polystyrene Sulfonate (Kayexelate)	Potassium overdose

Medication Use Evaluation

Utilization reports from electronic medication administration records can be used to obtain data specific to health services approved medication use evaluation criteria. Deviations may identify adverse drug events or outcomes. Findings are reported to the Medication Safety Committee and to the P&T Committee based on the MUE calendar.

Medication Integrity

Medication storage area (i.e. refrigerators, med rooms, etc.) temperatures are monitored manual. Deviations beyond acceptable limits are reported to the Director of Pharmacy or designee, who will assess the viability of the affected products, and confirm action for adjustments or repairs. Events should be reported using the electronic reporting system.

Variances affecting medication integrity and drug recall information is reviewed by to the Medication Safety Committee and reported to the P&T Committee quarterly.

Appendix B: Medication Error Reduction and Prevention Strategies by Medication Use Process/Procedure/System

The following medication use practices have been shown to be effective in reducing medication-related errors.

Medication Use Process	*Safe Practice Recommendations*
Prescribing	▪ Minimize and eliminate symbols and abbreviations ▪ Use of CPOE-Computerized prescriber order entry system ▪ Automatic drug-drug interaction alerts ▪ Minimum/maximum dose alerts ▪ Automatic allergy checking ▪ Automatic duplication alerts ▪ Abnormal laboratory value alerts; e.g., creatinine ▪ Potential antidote orders ▪ Alerts on automatic stop orders ▪ Use of preprinted medication order forms ▪ Do not use trailing zeroes; e.g., 20.0 mg ▪ Always use a zero before a decimal point; e.g., 0.5 mg ▪ Make current drug information readily available ▪ Make laboratory information readily available ▪ Minimize verbal - telephone orders ▪ Develop and implement dosing protocols ▪ Require all physician orders to be complete and legible ▪ Use of standardized critical pathways ▪ Digital transmission of orders ▪ Alerts on look alike, sound alike drugs ▪ Include indication for use in the order
Prescription Order Communication	▪ Minimize verbal – telephone orders

	▪ Authenticate and verify verbal order by prescriber as soon as possible ▪ Use of CPOE ▪ Use of preprinted order sheets ▪ Simplify and streamline the communication of orders ▪ Clarify all irregular or ambiguous orders ▪ Reduce or eliminate transcription
Product Labeling, Packaging, & Nomenclature	▪ Print trade & generic names on the label ▪ Include indication on label ▪ Ensure all medications are labeled ▪ Use of appropriate warning labels ▪ Attach specific dose instructions if multiple dose vials must be dispensed ▪ Highlight critical parts of the label; e.g., strength, unusual dose, look alike and sound alike names, etc. ▪ Distinctive labeling for similar or sound alike names ▪ Use metric system not apothecary or English units
Dispensing	▪ Utilize Rx computer software with clinical screening ▪ Computerized Pharmacy system ▪ Automatic drug-drug interaction alerts ▪ Minimum and maximum dose alerts ▪ Automatic allergy checking ▪ Automatic duplication alerts ▪ Automatic stop alerts ▪ Automatic alerts for critical laboratory values; e.g., creatinine ▪ Automatic alerts for clinical contraindication ▪ Unit dose all medications ▪ Pharmacist reviews and verifies all orders before drug is dispensed or administered

	▪ Identify and restrict the availability of high risk medications; e.g., o Look alike, sound alike medications o Insulin o Standardize concentrations of medications o Heparin ▪ Double check system for built in redundancy for high risk, problem prone medications; e.g., chemotherapy, heparin ▪ Dispense drugs in ready to administer dosage form ▪ Bar coding bedside technology ▪ Automatic drug delivery systems ▪ Restrict floor stock to emergency medications
Distribution	▪ Maintain a unit of use distribution system ▪ Remove excess medication floor stock ▪ Identify and restrict the availability of high risk medications ▪ Restrict use of medications to formulary approved items unless clinical circumstances mandate an exception ▪ Remove discontinued medications (from the nursing unit)
Administration	▪ Computer generated e-MAR or daily updated MARs ▪ Periodic & continual staff re-education ▪ Patient education ▪ RN double check for defined high alert medications (before medication is administered) ▪ Print generic and trade names of medication on MAR ▪ Standardized administration times ▪ Ensure proper administration times for medications; e.g., 1 hour before meals prints a correct time on the MAR ▪ No medication is unlabeled ▪ All syringes are labeled ▪ Bar coding bedside technology

	▪ Electronic charting or medication administration record (MAR) ▪ Ensure the five rights of administration
Education	▪ Develop special procedures for high risk drugs with special guidelines ▪ Complete, current, and accessible drug information for all staff ▪ Publish Pharmacy newsletter ▪ Provide in-services for professional staff ▪ Administer competency/certification medication exams ▪ Develop and provide nursing with dosing charts ▪ Make drug and Formulary information available on line ▪ Provide training before new drugs or non-formulary drugs are used ▪ Patient, caregiver education, and or family education on the proper use of medication and possible adverse events ▪ Computerized patient education ▪ Alerts on look-alike/sound-alike and High Risk Drugs
Monitoring	▪ Pharmacist based monitoring with problematic or high risk patients and medications ▪ Healthcare professionals' access to laboratory information ▪ Computer tracking of medication related errors for trending and analysis ▪ Direct observation of medication administration ▪ Use of trigger drugs to identify medication error related events; e.g., naloxone, flumazenil, epinephrine etc. ▪ Encourage the reporting of errors by focusing on process and systems problems. Individual blame and involvement should be minimized ▪ Use of protocols for drugs with a narrow therapeutic index
Use	▪ Medication use evaluations- including medications with frequent interventions and/or "near misses"

	▪ Assign clear responsibilities for investigation and review ▪ Perform root cause analysis and if applicable, assign a severity grade

Appendix C: Medication Safety Committee

Mission

Medication Safety

- Oversee and maximize the safety of the medication use process throughout the continuum of care by incorporating fail-safe procedures and safety surveillance systems.
- Assure systems are in place to conduct and review root-cause analysis and trends for reported medication errors and preventable adverse drug events. Facilitate implementation and monitoring of procedure or system changes to help prevent similar events in the future.

Medication Error Reporting

- Maintain simple, consistent reporting procedures for both actual and potential medication errors in all areas of the organization.
- Ensure that a non-punitive system exists so that fear of retribution is not a barrier to medication error reporting.

Awareness

- Increase health care practitioner and administrator awareness about medication safety.
- Ensure that employees know how the medication error reporting process works and how to report an adverse drug event, including near misses, using the electronic reporting system.
- Increase patient awareness about medication safety.

Role

The Medication Safety Team/Committee is a collaborative forum in which Pharmacy, Quality and Nursing address medication safety issues. The role and function of the Medication Safety Team/ Committee should be purposefully structured to achieve the goal of a "culture of safety" with primary oversight of the Medication Error Reduction and Prevention Performance Improvement Plan (MERP PIP). The team/committee will guide and direct others within the organization towards process improvements that support the prevention and reduction of adverse drug events and other factors that contribute to unintended adverse patient outcomes.

The committee provides leadership for safety assessments, coordinates the activities of the MERP PIP, educates other practitioners on the system-based causes for medication errors, consults with the facility management and communicates literature-based ideas regarding effective patient safety strategies to others.

The committee will establish and maintain direct communication with all accountable functions such as Quality Management, Risk Management, Nursing Services, Pharmacy Services, etc.

Responsibilities

- Oversees the development, review, and ongoing refinement of the Medication Error Reduction and Prevention Performance Improvement Plan. Reviews the effectiveness of the MERP PIP and sets goals on an annual basis.
- Supports and encourages error reporting through a non-punitive error reporting system.
- Reviews internal error reports and medication use safety issues. Prepares reports and analyses identifying progress and adverse trends with appropriate recommendations or conclusions.
- Promptly investigates medication errors and sentinel events in order to improve staff performance and patient care. Participates in root cause analyses (RCA) and follow-up.
- Collaborates on the development of policy and procedures and medication use safety standards.
- Recommends failure mode effect analysis (FMEA) when developing procedures or implementing systems with a high propensity for adversely affecting patient or medication safety.
- Develops a mechanism for internal communication of medication safety related information.
- Designs and implements educational presentations that facilitate the understanding and implementation of medication use safety initiatives.
- Serves as a resource on issues of safe medication use. Serves as an expert resource for medication safety standards and process improvement strategies.
- Identifies, develops, coordinates and drives medication safety initiatives. Ensure consistent practices across all areas where medications are prescribed, prescription orders are communicated, products are labeled, packaged and nomenclature used, compounded, dispensed, stored, distributed, administered, monitored and used.

Work Performed

- Sets annual goals for medication error reduction and medication use safety improvement, under the direction of the Pharmacy and Therapeutics Committee and Quality Improvement Committee.
- Collaborates on development of tools for effective training, implementation and monitoring of medication safety initiatives.

- Develops safe medication use policies and incorporates safe medication use procedures and safety surveillance systems.
- Reviews trending data on medication errors, near misses and adverse drug events.
- Reviews results of root cause analyses (RCA).
- Reviews results of failure mode effect analyses (FMEA).
- Facilitates implementation and monitoring of system changes to evaluate effectiveness and sustainability.