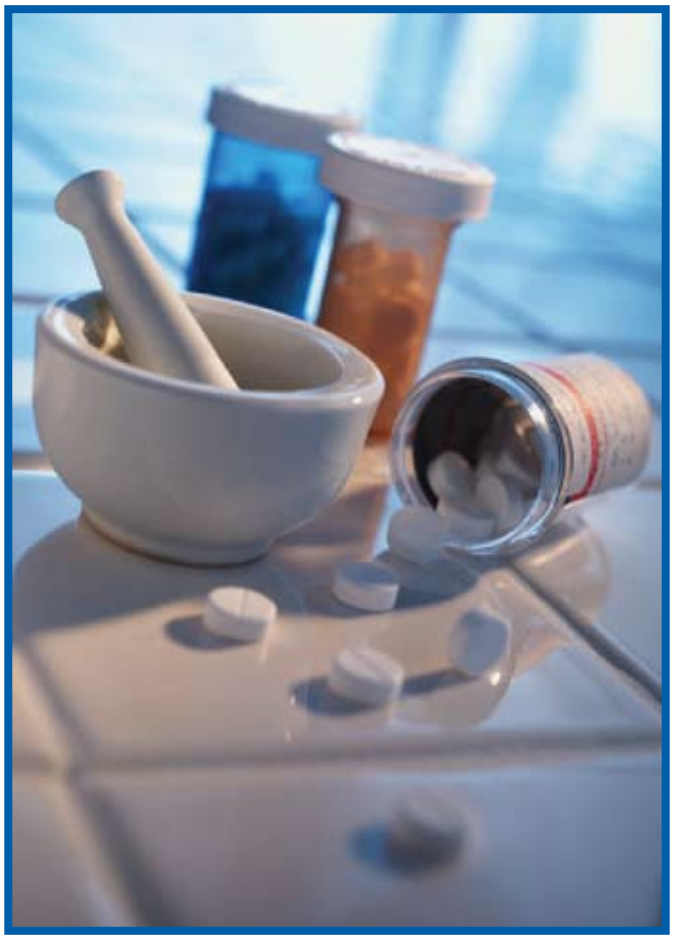
A Systems Approach to Quality Improvement in Long-Term Care:

Safe Medication Practices Workbook



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Betsy Lehman Center for
Patient Safety and Medical Error Reduction

MASSPRO

Massachusetts Coalition for the Prevention of Medical Errors

Massachusetts Extended Care Federation

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How to Use This Workbook

This resource manual outlines a medication management system in long-term care. Each of the 15 tabbed sections focuses on specific processes that make up the system. Each tab includes an explanation of the material found within the tab. Tools that apply to the particular section are listed, as well as "Reminders" and "Resources" to assist the reader in moving through the various sections.

Improving outcomes with regard to medication errors and adverse drug events requires assessment and planning within the major areas of focus addressed in each tab. As you work through the sections, determine your facility's needs and the areas that are your priorities for improvement.

Major Areas of Focus:

Tab 1 Organizational Commitment to Medication Safety

Tab 2 Medication Management Policies

Tab 3 Educating Staff

Tab 4 Prescribing

Tab 5 Documenting - Transcribing

Tab 6 Dispensing

Tab 7 Administering

Tab 8 Monitoring

Tab 9 Error Tracking and Analysis

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Tab 12 Reconciliation

Tab 13 Monthly Edits

Tab 14 Educating Residents and Families

Tab 15 Regulations and Resources

There are a number of Web site listings in the workbook where you can access additional tools and materials. If you want direct access to these sites, you can view this workbook online at www.masspro.org/NH/tools.php. When you come to a Web site in the workbook that you want to visit, simply click on the URL (the address of the site), and you will be sent there directly.

Introduction

In 2005 Masspro, the Massachusetts Extended Care Federation (MECF), the Massachusetts Coalition for the Prevention of Medication Errors (Coalition), and the Betsy Lehman Center for Patient Safety and Medical Error Reduction (Lehman Center) initiated a project with funding from the Lehman Center and the Massachusetts Department of Public Health. The primary aim of this project was to develop the tools needed by the staff in long-term care facilities to assess, change and monitor the medication systems. The long-range goal is to improve these systems in order to reduce the incidence of medication errors in the long-term care setting. To help advise the project staff, a Steering Committee was formed that included the Masspro project staff, the Executive Director of the Coalition, a representative from the Lehman Center, and a representative of MECF. A Consensus Group and an Advisory Group of knowledgeable individuals in long-term care provided advice and recommendations. This workbook is a product of this collaborative endeavor.

Acknowledgments

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Introduction to the Safe Medication Practices Workbook

Overview

The Massachusetts Coalition for the Prevention of Medical Errors, Masspro, the health care quality improvement organization for Massachusetts, and the Massachusetts Extended Care Federation have joined together to collaborate on reducing medication errors within long-term care. The primary aim of this collaborative effort is to develop the essential tools required by health care professionals working in the long-term care setting, which will lead to improved medication management systems and a reduction in the incidence of medication errors and resident harm. The Betsy Lehman Center for Patient Safety and Medical Error Reduction and the Massachusetts Department of Public Health funded and provided ongoing support and assistance to this work.

Summary

A systems approach to medication management in long-term care facilities is outlined in this workbook. This resource is designed to provide nursing home staff with a step-by-step guide through the key processes of a comprehensive medication management system and address areas that can lead to the reduction in medication errors. As the various processes affecting medication use are addressed in each tab of the workbook, focus will be given to key areas that contribute to medication errors. In addition, tools will be offered as strategies to reduce incidence and harm.

The workbook serves to:

- Guide nursing homes in their assessment of current medication practices
- Outline the key processes in the medication use system
- Assist nursing homes in identifying aspects of the medication use process that require improvement
- Specify how each step in the process can be improved
- Provide tools for monitoring the implementation of system changes and tracking accountability for medication errors

The Systems Approach

Adopting a systems approach to improving performance outcomes in nursing homes is the basis for the quality improvement work outlined in this workbook. Points to consider that relate to the successful adoption of a systems approach include the following:

- Failures in quality most commonly are the result not of faulty people, but of faulty processes.
- All activities carried out in an organization can be described in terms of processes. Processes are a series or set of actions carried out to achieve a certain result (Schroeder, 1994). Processes then make up larger subsystems or systems.
- Health care organizations can be described as open systems made up of complex interconnecting elements, such as subsystems and processes that are goal-directed, governed by feedback and have the ability to adapt (Gillies, 1982).
- Quality improvement concepts emphasize that improvement will happen when the assignment of blame is stopped and the process of studying and changing the way the system works begins (Schroeder, 1994).
- Improving the medication management system used in nursing homes by changing or redesigning care processes should lead to improved outcomes in medication errors and adverse drug events for residents in nursing homes.

Tools

- **Jumpstart Flow Diagram**

Background

Health care professionals and administrators in long-term care setting areas are ideally positioned to make significant strides to address the detection and reduction of medication errors. According to the National Coordinating Council for Medication Error Reporting and Prevention (NCC MERP), "a medication error is any 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, health care products, procedures, and systems, including: prescribing: order communication, product labeling, packaging, and nomenclature, compounding, dispensing, distribution, administration, education, monitoring, and use."

Adverse drug events are defined for this workbook as injury resulting from the use of a drug and may have resulted from medication errors as defined previously, or may result from adverse drug reactions in which there was no error. This definition is consistent with the definition used in recent studies (Gurwitz et al., 2000; Gurwitz et al., 2005; Boockvar et al., 2004; Field et al., 2001).

There are approximately 1.6 million residents in nursing homes across the United States. Over 90% of these residents are 65 years old and older (CDC/NCHS, 1999). Review of data from the Minimum Data Set (MDS) indicates a national total average of 58.6% residents receiving nine or more different medications within the seven day assessment period (MDS, 2004) Consistent with these findings, the use of multiple medications has been found to be a significant risk factor for experiencing adverse drug events (Field, 2001; Boockvar, 2004).

Frequent prescribing of medication does not necessarily indicate poor quality of care (Avorn & Gurwitz, 1995). The use of numerous medications in the care of elderly nursing home residents with complex medical problems may be appropriate and necessary to optimize medical and functional status. As the number of medications prescribed to a resident increases, so does the risk for interactions and the likelihood of errors (Vance, 2003). Gurwitz (2005) found that at least 50% of adverse drug events were preventable, therefore caused by errors.

Adverse drug events in nursing home residents and medication error reporting in long-term care (Gurwitz, 2000; Gurwitz, 2005; Handler et al., 2004) point to the extent and complexity of the medication use system in nursing homes and the need for corresponding tools, resources, and education for all those providing care and medication services within the medication management system (Avorn, 1995; Gurwitz, 2005; Handler, 2004).

Gurwitz (2005) found that errors resulting in preventable adverse drug events occurred most often at the stages of ordering (prescribing) and monitoring. Errors in transcription (documenting), dispensing, and administration were less commonly identified. Among preventable adverse drug events, warfarin, atypical antipsychotic agents, loop diuretics, intermediate-acting benzodiazepines, opioids, and angiotensin-converting enzyme inhibitors were most commonly involved.

The authors further concluded that adverse drug events are common and often preventable in nursing homes. Classifying drug-related incidents by the severity of the event (significant, serious, life-threatening, or fatal) found that more serious adverse drug events are more likely to be preventable and that prevention strategies should target the prescribing and monitoring stages of pharmaceutical care. The study found enhanced surveillance and reporting systems for adverse drug events are required. Education regarding the optimal use of drug therapies in frail elderly, and clinical decision support through computerized order entry, hold the greatest promise for reducing medication error rates in the long-term care setting. Further underscoring the importance and need

for adequate medication error reporting systems, Handler (2004) concluded that medication processes of the long-term care facility studied were associated with a low frequency of formal reporting, a narrow perspective on the sources of error, and concerns about disciplinary action. The study found that additional research is needed to better identify medication errors, develop interventions that broaden the monitoring perspective to include all health care professionals, reduce the work of reporting, standardize the information collected, and create an institutional atmosphere of participation rather than punishment.

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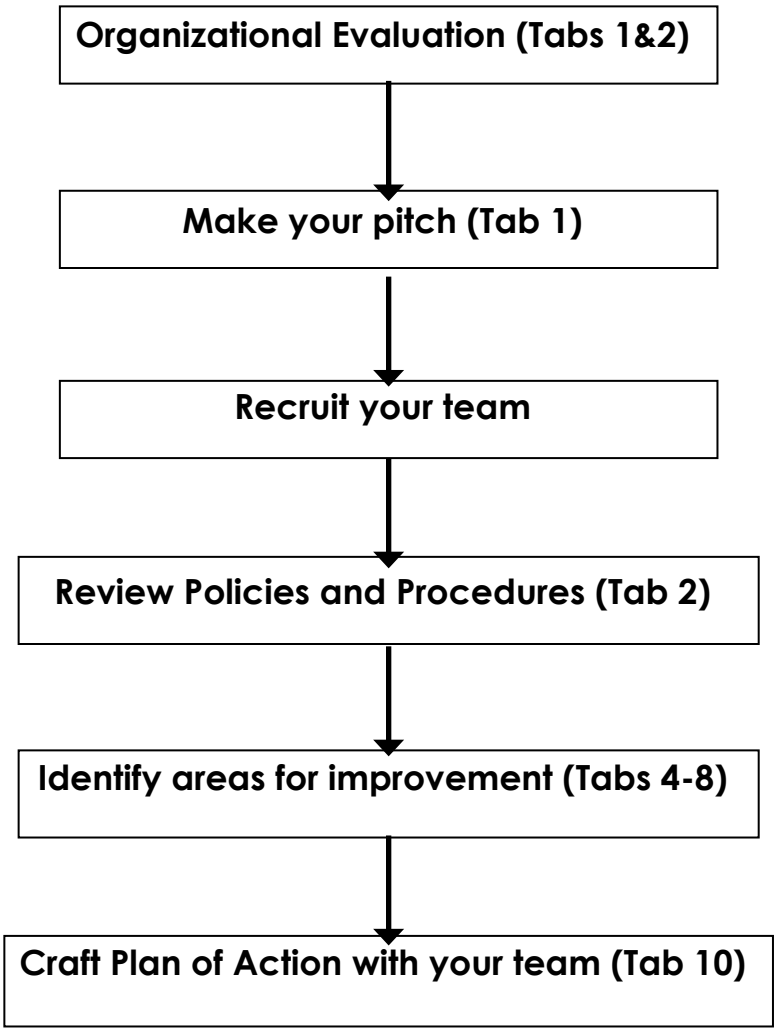
Systems Approach

Quality improvement work in nursing homes needs to acknowledge current organizational barriers and constraints, as well as strengths and positive forces that are found in the long-term care setting.

- **Systems or processes** should be separated into key steps or components
- **Change agents** need tools (not just orders) to affect change
- **Tools** needed for change for each step should be identified or developed
- **Tools and resources** need to provide concise, useful and practical information due to staffing constraints and multiple priorities
- **Learning processes** should be streamlined due to time constraints and offered to all staff affected
- Utilize and respect the **commitment**, knowledge, and expertise of those working and providing care in nursing homes
- **Sharing and collaboration** within the nursing home community spreads best practice and improvement efforts
- **Leadership** commitment–evidenced by teamwork, innovation, and empowerment–drives change necessary for improvement
- Improvement occurs in an environment where both successes and failures can be discussed

Major Areas of Focus:

Jumpstart Flow Diagram



Tab 1 - Organizational Commitment to Medication Safety

Commit Your Organization

The work necessary for the reduction of medication errors begins with organizational commitment and creating an environment where safety is the priority.

The following five steps are the key components of the medication management system in long-term care:

- Prescribing
- Documenting (Transcribing)
- Dispensing
- Administering
- Monitoring

This workbook also includes tabs on three critical issues related to medication systems:

- Reconciliation
- Warfarin
- Monthly edits

These processes related to medication use are outlined in Tabs 4 through 8. Review these processes and commit to approach medication error reduction through the adoption of a process approach.

Review the other tabs that complete the overall medication management system. All areas are integral to the system and require support of leadership to complete the work required.

- Organizational Commitment
- Medication Management Policies
- Educating Staff
- Educating Residents and Families
- Error Tracking and Analysis
- Regulations and Resources

Reminder

Analyzing current practice and determining organizational strengths and weaknesses is critical in planning redesign processes.

Tools

- **Importance of Leadership Commitment**
  Addresses building a facility-wide commitment to reducing medication errors.

- **Checklist: Evaluate Key Steps for Organizational System**
  This tool focuses on the important areas for organizational commitment and major areas of focus in this workbook. It allows the facility to assess areas in need of improvement or development.

- **The Medication Use Process**
  Outlines the steps that occur with medication use in long-term care.

- **Creating a Culture of Safety: Key Points**
  Provides examples of action items for leaders that can be affected to create a safety climate within your organization.

- **Plans of Action: Organizational Commitment**
  Provides a form to use to help plan improvement activities identified on the "Evaluate Key Steps for Organizational System" form.

- **Checklist for Nursing Homes Action Planning**

Importance of Leadership Commitment

The Institute of Medicine's (IOM) 2001 report, "Crossing the Quality Chasm: A New Health System for the 21st Century," stresses the importance of leadership in improving health care and the need to commit to the six aims cited for improvement.

Health care should be:

- **Safe** - avoiding injuries to patients from the care that is intended to help them
- **Effective** - providing services based on scientific knowledge to all who could benefit and refraining from providing services to those not likely to benefit (avoiding under and over-use, respectively)
- **Patient-centered** - providing care that is respectful of and responsive to individual patient preferences, needs, and values and ensuring that patient values guide all clinical decisions
- **Timely** - reducing waits and sometimes harmful delays for both those who receive and those who give care
- **Efficient** - avoiding waste, including waste of equipment, supplies, ideas, and energy
- **Equitable** - providing care that does not vary in quality because of personal characteristics such as gender, ethnicity, geographic location, and socio-economic status

Medication use in the long-term care setting involves multiple disciplines and practitioners: administrator, medical director, director of nursing, attending physicians, nurse practitioners, nurses, pharmacists, supportive personnel, laboratory services, clerical staff, residents, and family caregivers. (Medication Safety Issue Brief #1). Transforming health care systems and making process changes requires leadership to support interdisciplinary teamwork and drive a system approach for their organization (American Hospital Association, 2001).

Leadership in nursing homes needs to make a clear commitment to preventing medication errors through evaluation of the medication use processes and development of effective interventions.

A Commitment to Quality

Quality is not the result of a task, regulation, or committee. It is the result of an integration of people, values, behaviors, and structures focused on a common goal. It is both difficult and time-consuming to take the essential step of reorienting an entire organization toward new values, mindsets, and behaviors. The establishment of a pervasive quality culture will differentiate superior organizations from mediocre ones. Quality improvement, in its truest sense, requires a culture that links quality-related tasks, functions and structures, with all people, elements, and strategies of the organization (Shroeder, 1994).

Genuine organizational commitment involves activity in the following areas:

- Create an organization-wide awareness and priority of medication safety
- Ensure the quality improvement committee monitors medication safety and outcomes for medication errors and adverse drug events and keeps staff aware of progress
- Ensure improvement in the medication management system is approached from an interdisciplinary perspective and represents all staff affected by the processes
- Analysis of medication events is approached from a "just culture" and a system approach allowing for reporting of all errors including near misses
- Organization-wide assessment is performed to look for ways to improve systems and processes to ensure safe medication practices

(American Society, 1997; Medication Safety Issue, Brief #6)

A culture of safety produces an environment where practitioners and senior leaders can learn together about how to create safer systems of care. It requires a philosophy that safety is everyone's business, and an environment in which staff members feel it is safe to report a problem so the system can be changed to prevent a recurrence. "Medication Safety Issue Brief: Creating a Culture of Safety (Medication Safety Issue, Brief # 1 & 4).

Further administrators and senior leaders must understand medication safety as a business issue, as well as an ethical one. Costs related to adverse drug events are realized in payment for extra procedures, redoing work, and claims resulting from harm to patients. ***Excess cost to nursing facilities due to adverse drug events is reported at $7.6 billion*** (Vance, 2003).

Administrators in nursing homes need to model the behavior for creating a resident-directed care setting whereby commitment to the IOM's six aims for improving the quality of health care is evidenced and outcomes reflect meeting safety, quality of care, and quality of life goals for their residents.

To move the effort forward, leaders need to take concrete steps:

- Pursue self-development and education in the area of safer health environments
- Take the lead in establishing an environment of trust and pursuing policies that encourage event reporting and investigation
- Set the expectation of involvement of staff, residents and families in safety planning
- Integrate safeties into every aspect of care delivery through daily implementation of safe practices and allow for the allocation of resources
- Prioritize effective education systems to ensure accountability and competence of staff
- Spread your commitment of safe medication practices outside of your organization, and engage in activities that promote efforts to improve resident/patient safety

(American Hospital Association, 2001)

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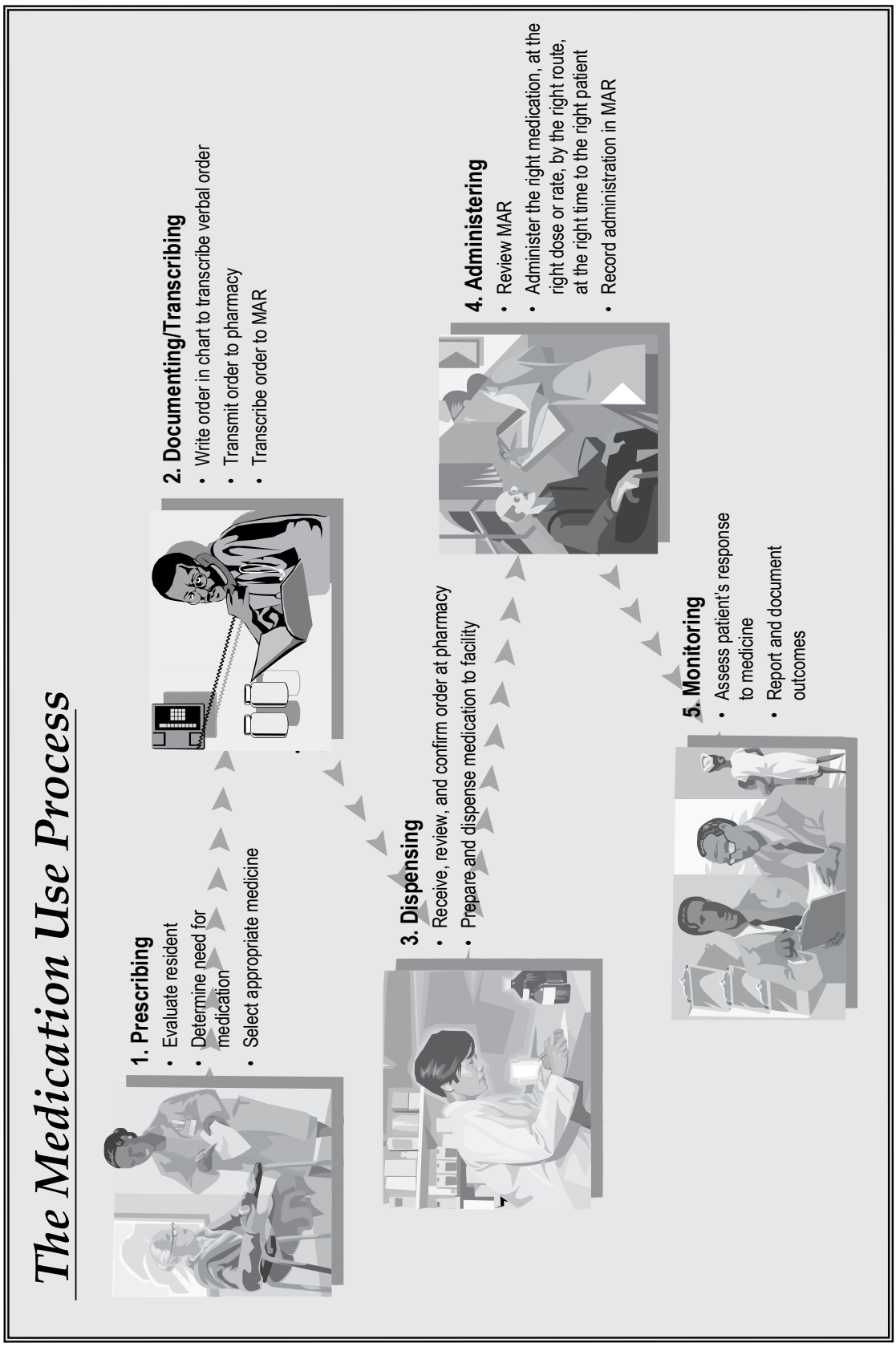
Key Steps: Organizational System Evaluation

Instructions: Consider the following standards as you evaluate your organization

		Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Unable to Agree
		1	2	3	4	5	NA
1.	All leadership including medical director, administrator, director of nursing and department managers demonstrate a personal commitment to safe medication practices—prescribing, documenting, dispensing, administering, monitoring and event reporting.						
2.	Clinical practitioners (physicians, nurse practitioners, pharmacists, nurses) demonstrate a personal commitment to safe medication practices—prescribing, documenting, dispensing, administering, monitoring and event reporting.						
3.	Safe medication use practices have been identified as organizational priorities. Medication safety practices are addressed by an interdisciplinary team and report to quality improvement committee.						
4.	The attitude toward medication events (errors) fosters a systems approach rather than blame assignment.						
5.	Medication events (errors) are thoroughly and candidly evaluated as they occur.						
6.	Evaluation of medication events includes "near misses."						
7.	The approach to medication event analysis is a non-blaming systems approach.						
8.	Employees look for ways to improve the systems and processes to ensure safe medication practices.						
9.	Employees are educated on safe medication practices and regularly utilize information from expert organizations on safe practices to enhance the quality of their work.						
10.	Medication practices are resident-focused and are carried across different healthcare settings.						
11.	Policies and procedures are present for the medication management system and are implemented.						

Areas that score greater than 3 suggest need for improvement.

Checklist adapted from *"ASHP Guidelines on Preventing Medications Errors in Hospitals."* *American Journal of Health Systems Pharm.* 50 (1993): 305-314 and *"Successful Practices for Improving Medication Safety."* American Hospital Association Website (www.aha.org) Feb 1999



The Medication Use Process is adapted with permission from US Pharmacopeia.

Creating a Culture of Safety Key Points

Leaders can use this list of action items to help create a Culture of Safety within their organization.

- Communicate and involve residents, families and staff in creating a safe environment.
- Take a personal interest when something goes wrong. Talk to the resident and family, as well as the health care professionals involved.
- Attend follow-up staff sessions examining what happened to support changes that need to be made to systems.
- Establish a "just atmosphere." Consider eliminating systems that penalize employees for making mistakes that can be traced to system problems.
- Educate your governing board about the systems approach to reducing medication errors.
- Make resident safety one of the organization's top strategic goals.
- Produce an economic analysis of the cost of an error in your organization and make a place for medication safety initiatives in your budget.
- Invite a human factors consultant to observe a care unit or care process.
- Investigate options for automating medication practices. Ensure the option doesn't add complexity and potential for mistakes.
- Work on appropriateness of discipline policies.
- Don't ignore near-misses. They can be an effective early warning system.
- Recognize that, once you reduce barriers to error reporting, the numbers will look worse before they get better. Be prepared to explain.

Adapted from Medication Safety Issue Brief: Creating a Culture of Safety. American Society of Health System Pharmacists. www.ashp.org. Accessed March 2005.

System Plan of Action - Medication Error Prevention

Key Interventions/Tasks	*What is Needed? Action Items*	*Who is Responsible?*	*Target Date*
1. Leaders demonstrate personal commitment to safe medication practices.			
2. Clinical practitioners demonstrate personal commitment to safe medication practices.			
3. Safe medication use practices have been identified as an organizational priority.			
4. The attitude toward medication events (errors) fosters a systems approach rather than blame. The approach is a "just" systems approach.			
5. Medication events (errors) are thoroughly evaluated as they occur.			
6. "Near misses" are evaluated.			
7. Employees look for ways to improve safe medication practices.			
8. Employees are educated on safe medication practices and use information from expert organizations.			
9. Medication practices are resident-focused and carried across different health care settings.			
10. Policies and procedures are present and implemented for the medication management system.			

Checklist for Action Planning

Reduction in Medication Errors in Long-Term Care Facilities

Action/Intervention Required	Responsible Party	Due Date
1. Organizational Commitment		
2. Policies and Procedures		
3. Staff Education		
4. Prescribing		
5. Documenting-Transcribing		
6. Dispensing		
7. Administering		
8. Monitoring		
9. Error Tracking		
10. Quality Improvement		
11. Warfarin		
12. Reconciliation		
13. Educating Residents and Families		
14. Regulations and Resources		

Tab 2 - Medication Management Policies

Safety Established by Policies

Notably, in the past 30 years, there have been major changes in health care, including an increased reliance on prescription drugs and a national spotlight directed on errors in health care (Assistant Secretary for Planning, 2005; Kohn, L. Corrigan, J. & Donaldson, M. 1999). As our population continues to age, consumption of health care services and our dependence on medication use will correspondingly rise. Not surprisingly, medication management practices or standards are areas for increased scrutiny. Policies reflect an organization's position on matters of professional or public concerns. In turn, policies serve to guide organizational decision-making and action. While new policies and procedures on medication management alone will not change behavior, they reflect the organization's commitment to medication safety and the implementation of best practices to prevent medication errors.

Action Steps

Review the Key Points to provide a broad overview on how to examine your current practices. Move to the checklist for medication management to assist in the identification of existing gaps within your medication management system. A sample from a local home's policy and procedure has been included that demonstrates the utility and straightforward approach that may be applied to crafting your policy.

Reminder

- **Creation of policies regarding medication management should be driven by principles related to patient safety.**

Tools

- **Medication Management Policies: Key Points**
- **Medication Management Policies: Checklist**
- **Sample Medication Orders Policy and Procedure**

Medication Management Policies: Key Points

Leaders can use this list of action items to guide medication management policy development:

- Start the process of policy development by reviewing the medication management policies provided by the contracted pharmacy.
- Based upon the unique needs and priorities of your facility, develop policies for medication management that are not provided by the pharmacy.
- Consider forming a medication safety committee to study, implement, and analyze changes in the medication management processes in your facility.
- Ensure that a medication safety committee has representation from all disciplines.
- Changes in policies and procedures related to medication management should be effectively communicated to all clinical practitioners.
- Focus on patient safety when developing medication management policies.
- Keep the focus on patient safety when reviewing errors in the medication management system.
- Avoid blaming an individual when an error in the medication management system occurs.
- Focus on systems analysis and redesign when an error in the medication management system occurs.
- Institute an annual policy refresher for staff to prevent loss of institutional memory regarding policies and procedures that can occur. This is particularly important if there has been a significant turnover in staff.

Checklist for Medication Management and Policies

Each facility should obtain and review policies and procedures regarding medication management from their contracted pharmacy. After review of what has been provided by the pharmacy, the facility can then develop policies and procedures regarding medication management that were not covered by the contracted pharmacy.

A medication safety committee may be the best place for medication policies to be developed. The best medication safety committee has representation from all disciplines. Changes in policies and procedures related to medication management are effectively communicated to all clinical staff.

Suggested checklist for medication management policies:

Does your facility have the following?	Yes	No	Person Responsible	Comments
1. Guidelines for components of the history and physical that the nurse needs to complete prior to calling the practitioner?				
2. Recommendations that the indication for treatment be included in the original medication order?				
3. Standards for legible handwriting?				
4. A policy for medication reconciliation and a tool?				
5. Guidelines for warfarin and a warfarin worksheet or flowsheet?				
6. Access to a list of high alert medications?				
7. A policy about verbal orders?				
8. A policy about monthly editing?				
9. A policy about transmission or medication orders to the pharmacy?				
10. A list of acceptable/unacceptable abbreviations that are the same as the pharmacy?				
11. A list of look-alike/sound-alike drugs?				
12. Access to the pharmacy dispensing protocol and/or policy?				

Checklist for Medication Management and Policies (continued)

Does your facility's policy for medication management include these components?	Yes	No	Person Responsible	Comments
13. A time frame policy in place for timely delivery of routine and "stat" medications?				
14. Access to contracted pharmacy computer system that alerts staff to inappropriate doses, potential side effects, allergies, drug-drug interactions and therapeutic duplication?				
15. A policy for drug administration that includes checking the right patient, dose, route, frequency, and dosage form?				
16. A policy requiring staff to demonstrate competency regarding medication administration upon hire and routinely thereafter?				
17. A morphine sulfate administration chart that is readily accessible to staff?				
18. A Do Not Crush List that is readily available to staff?				
19. Policies in place for monitoring high-risk medications such as psychoactive medications?				
20. A policy in place for monitoring warfarin?				
21. A policy that requires review of patients on nine or more medications?				
22. Standards for therapeutic blood levels and monitoring recommendations for drugs with narrow therapeutic windows such as Digoxin or Phenytoin?				
23. A standard of practice that encourages all caregivers to report a change in condition to the physician or nurse practitioner?				

If any of the above elements in your medication management policies are missing:

- Review the items for which there was a "no" response and rank in order of importance for your facility.

Utilize the information, tools, and resources in Tabs 4-8 to guide your medication management policy and process development.

SAMPLE

MASONIC NURSING HOME, INC.
POLICY/PROCEDURE

DEPARTMENT: **NURSING**

SUBJECT: **MEDICATION ORDERS**

EFFECTIVE DATE: **03/01/98**

I. POLICY/OBJECTIVE: Medications are administered only upon the clear, complete and signed order of a person lawfully authorized to prescribe. Verbal orders are received only by licensed nurses, pharmacists or other persons authorized by state law to do so and confirmed in writing by the prescriber.

II. PROCEDURE

1. Elements of the medication order:
   A. Medication orders specify at least the following:
      1. Patient name
      2. Date of order
      3. Name of medication
      4. Name of person transmitting the order
      5. Strength of medication, where indicated
      6. Dosage
      7. Time or frequency of administration
      8. Route of administration
      9. Quantity or duration (length) of therapy.

   B. Any dose or order that appears inappropriate considering the patient's age, condition or diagnosis is verified with the attending physician.

   C. PRN ("as needed") orders also specify the condition for which they are being administered, e.g. "as needed every four (4) hours for moderate pain," "at bedtime as needed for sleep." When more than one drug within a class of medications is ordered for the same indication (e.g., pain), the order should specify which drug should be given for which type/severity/location of pain (e.g., acetaminophen for mild-moderate knee pain).

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2. Documentation of the medication order:

    1. Each medication order is documented in the patient's medical record with the date, time, and signature of the person receiving the order. The order is recorded on the physician order sheet or the telephone order sheet/Interim Order Form if it is a verbal order, and the Medication Administration Record (MAR).

    2. The following steps are initiated to complete documentation:

        1. Read order back to prescriber.
        2. Clarify the order if needed. If illegible, see Clarification of Physician's Orders/Legibility of Medical Record Documentation.
        3. Enter the orders on the telephone order sheet. Document as T.O./RBV per Dr. _____/nurse name.
        4. Call or fax the medication order to the dispensing pharmacy.
        5. Transcribe newly prescribed medications on the MAR. When a new order changes, the old order will be discontinued according to facility policy.
        6. After completion, document each medication order noted on the physician's order form with date, time, and signature. Document as N&P/nurses signature.

    C. Standing orders for prescription and non-prescription medications or treatments are accepted or implemented only when permitted by state and/or federal regulations.

3. Types of medication orders:

    1. New handwritten orders.
    2. New verbal, telephone or fax orders.
    3. Written transfer orders.
    4. Renewed or recapitulated (recapped) orders.

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SAMPLE

4. Scheduling new medication orders on the medication administration record:

   A. *Non-Emergency Medication Order:* The first dose of medication is scheduled to be given after the regularly scheduled pharmacy delivers to the facility.

   B. *Emergency Medication Order (medication contained in emergency medication supply):* Remove a sufficient number of doses to be administered prior to regularly scheduled pharmacy delivery.

   C. *Emergency Medication Order (medication not contained in emergency medication supply):* An emergency order is placed with the dispensing pharmacy, and the medication is scheduled to be given as soon as received.

5. Receipt of orders from physician assistants and nurse practitioners:

   Orders may be accepted from a physician assistant or nurse practitioner licensed to work with patient's physician, if state law permits.

6. Blanket reinstatement orders are not acceptable.

7. Generic or brand name medications are acceptable.

8. Residents are monitored every 15 minutes X2 after the first dose of a new medication.

9. Critical lab results that are called to the facility will be read back to the lab for verification.

10. When reporting critical or stat labs to the physician/NP, and no orders are given, document "no orders given."

Reviewed/Revised Date:				
Approved by:				

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Tab 3 - Educating Staff

Staff education plays an important role in a system-based effort to reduce medication errors. The goal of an educational program for safe medication practice should be to reduce the occurrence of medication errors and resident harm. Programs should be structured, organized and comprehensive, and directed at all levels of health care providers.

Current trends in nursing reveal that the profile of nurses has been in transition. Today's nurses are older, have prior educational experiences, and represent a broader degree of cultural diversity (Billings & Halstead, 1998). Therefore, leaders in staff development will need to draw from different theories of learning and models of change. Given the great number of theories, discussion is limited to the following two most commonly applied within health care:

- Adult Learning Theory
- Rogers' Model and Diffusion Theory

The most essential elements of Knowles' Principle of Adult Learning Theory reflect an understanding that adults learn differently from children and learning is an internally driven process. The learner is self-motivated and acquisition of knowledge is facilitated by a teacher or guide (Billings, 1998). Other basic tenets include that lifelong learning is an expectation of professional nursing practice and that critical thinking skills should be honed for the simple reason that "every patient deserves caregivers who think critically…The ability to think critically can be empowering" (Jackson, 1995).

Rogers' theory is that innovations (changes) diffuse at different rates through an organization. Try to identify the innovators and early adaptors at your facility. Individuals who will try new approaches and influence others to change.

Keypoints

- **Determine a clinical staff person "proficient" in an area to answer questions from all staff about medication errors and adverse drug events**
- **Conduct learning needs assessment of your staff**
- **Apply adult learning principles and change theories**
- **Provide initial and ongoing education**
- **Provide access to materials on medications errors and adverse drug events**

Tools

- **Checklist: Assessing Staff Education and Training**
- **Presentation: Principles of Patient Safety**
- **Adult Learning Principles**
- **Rogers' Model for the Adoption and Diffusion of Innovation**
- **Nurses' Perspective on a Serious Adverse Drug Event**
- **Checklist: Medication Administration Observation**
- **Checklist: Skills and Experience Checklist for Licensed Nurse**
- **Sample-Clinical Guide to Medication Administration Competency (see Tab 7, Administering)**
- **Additional presentations can be found on www.masspro.org/NH/tools.php**

Background

Prior to employment, basic nursing education provides the foundation and the skills necessary to apply the patient's condition and development in the safe application of medication administration. Practice and continued education programs have placed a heavy emphasis on the administration stage of the medication use process, that includes types of medication orders, dosage calculations, new medications, and applying appropriate equipment to deliver medications. However, current research focused on medication errors and adverse drug events have identified the stages of prescribing and monitoring as most often the root cause of errors.

Staff education leaders' efforts should be directed at the development of curricula that target these components of the medication use system. In addition, nurses are often reluctant to report errors. Studies examining the reasons behind this reluctance often relate to the unfriendly environments and long-standing practices that have existed in health care. Focused efforts directed at culture change within the nursing home can reduce this reluctance.

Planning Learning Activities

The time necessary for planning associated with learning activities requires support from leadership. This time should be factored into systems approach strategic planning sessions. Billings (1998) recommends inclusion of the following six steps:

1. Establish learning outcomes for individual classes or sessions
2. Create an environment of anticipation
3. Select appropriate teaching and learning strategies
4. Factor in barriers and challenges to learning
5. Design closure to the experience
6. Incorporate formative and summative evaluation strategies

Establish Learning Outcomes for Safe Medication Practices

Some outcomes to consider for your facility may be crafted from the list below:

- Describe a culture of safety
- Identify high-alert medications
- Explain error reporting
- Apply warfarin protocols
- Apply reconciliation tools in the admission and the transition of care processes
- Describe monthly editing process
- Assess medication competency as demonstrated by basic calculations and medication knowledge during pre-employment screening and continued employment
- Assess medication administration competency

Case Study as a Teaching Strategy

Adult learners greatly benefit from alternative modes and strategies in their learning. There is good evidence that students learn more effectively when they are actively engaged in the learning process (Bonwell & Elson, 1991; Sivan et al., 2001). A good example of an active teaching strategy is provided by the case study approach. A case study approach allows for the interactive discussion and exchange of complex examples that reflect a problem when multiple components are related. Case studies can be individual activities and may be broadened to include group discussions. A good example is provided in Tab 11.

References:

Bonwell, C. & Eison, J. (1991). Active learning: Creating excitement in the classroom, ASHE-ERIC Higher Education Report No. 1. The George Washington University, School of Education and Human Development, Washington, DC.

Feinberg, J. & Pepper, G. (2004). Improving patient safety in long-term care facilities: An overview of AHRQ funded projects. *Annals of Long-Term Care*, 12(8):34-38.

Billings, D. & Halstead, J. (1998). *Teaching in Nursing: A Guide for Faculty*. W.B. Saunders Company, Elsevier Science.

Jackson, B. (1995). Critical thinking. *Capsules and Comments in Critical Care Nursing*, 3:183-197.

Sivan, A., Wong, L., and Kember, D. (2000). An implementation of active learning and its effect on the quality of student learning. *Innovations in Education and Training Internation*, 37(4):381-389.

Checklist for Assessing Staff Education and Training

Does your facility have initial and ongoing education on safe medication practices for both nursing and non-nursing staff?

___**No**. If no, this is an area for improvement. Use this checklist and the Quality Improvement Worksheets to guide your team in implementing a process for staff education.

___**This is an area we are working on.** Our target date for implementing an education program on safe medication practices is _____.

___**Yes.** Please continue to the questions below.

Does your facility's education program for safe mediation practices include the following components?

	Yes	No	Person Responsible	Comments
1. Are new nursing staff assessed for drug calculation competency and knowledge?				
2. Are current staff provided with ongoing education on the principles of safe medication practices?				
3. Does education staff provide specific education on medication reporting and reconciliation?				
4. Is there a designated clinical expert or champion available at the facility to answer questions from all staff about safe medication practices?				
5. Is the education provided at the appropriate level for the learner (i.e., CNA vs RN)?				

If any of the above elements in your staff education and training process are missing:

- Choose one element to focus your quality improvement effort on first.
- Start with the Quality Improvement Worksheet A: Identifying Areas for Improvement to collect data to investigate further.
- Follow the Quality Improvement Worksheets to implement missing element(s) and monitor regularly to determine whether implementation is successful.

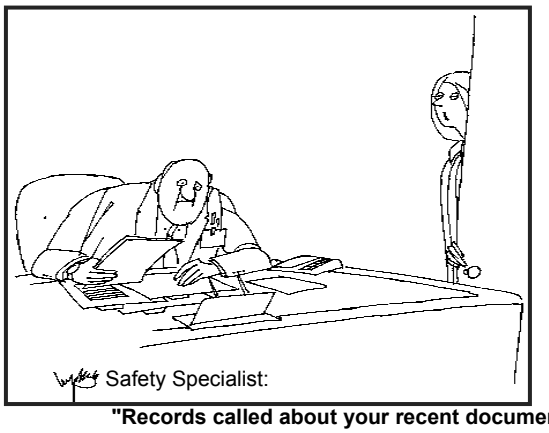
Principles of Medication Safety

Applying Patient Safety Practices

Objectives

- Review the importance of patient safety and medication safety initiatives
- Identify the goal, means, and importance of reporting medication errors
- Recall and apply the Safety Principles
- Identify the systems involved in the medication use process
- Review high-alert medications

How Serious is the Patient Safety Problem?



"Records called about your recent documentation. Colin Oscopy can't possibly be the patient's name."

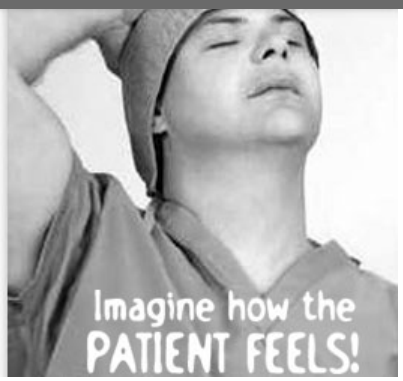
- Preventable medical errors result in 44,000 to 98,000 deaths among hospital patients each year – more than the number of people who die from workplace accidents, motor-vehicle wrecks, breast cancer, and AIDS.
- Medication errors alone cause an estimated 7,000 deaths every year.
- These medication errors cost the nation more than $2 billion annually in terms of lost income, lost household production, disability, and healthcare expenditures.
- Individual hospitals may expend as much as $5.6 million annually to treat the effects of these medication mistakes.

Adverse Drug Events

- A medication error is considered a preventable adverse event (ADE).
- An ADE is defined in the clinical literature as an injury resulting from medical intervention related to a drug. However, not all ADEs can be attributed to error. For example, a patient who has no history of drug allergies may develop an allergic reaction to an antibiotic. This is an ADE but not one attributable to error. By contrast, an ADE is caused by an error if a patient whose history of allergic reaction to an antibiotic drug is documented in the medical record is mistakenly given that particular drug and has a reaction. In this instance, the ADE was preventable.

- Government entities are addressing medication safety through new regulations and legislation.
- Payers and powerful purchasing groups are creating financial incentives to force health care leaders to concentrate on the issue.

Adopting a Safety Culture



- Systems approach
- Blame-free culture

1-Hour Learning Plan page 1

Objective	Strategy	Time
Recall a medication error	**Didactic**	**5 minutes**
Review Patient Safety	**Didactic-Powerpoint**	**15 minutes**
Discuss a systems approach: blame-free culture	**Didactic -Video and powerpoint**	**10 minutes**
Review patient safety principles	**Small Group discussion**	**10 minutes**

1-Hour Learning Plan page 2

Objective	Strategy	Time
Apply safety reporting process with report completion	Slide presentation & Small group discussion	10 minutes
Recall 6 high-alert medications	Didactic & Discussion	5 minutes
State 4 Principles of Patient Safety	Discussion	3 minutes
Summary	Statement	2 minute

Take Home Points

- Blame-free culture of safety
- Promotion of watchfulness

References

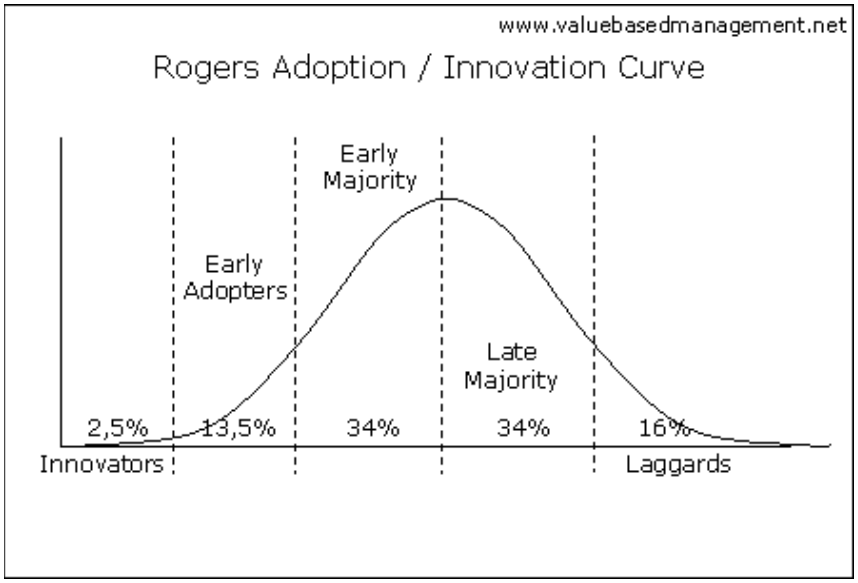
- Principles of Patient Safety. Retrieved http://www.ismp.org/Tools/AllinaOrientation.html Accessed: 8/2/2005.
- Kohn, L.T., Corrigan, J.M., Donaldson, M.S. (Eds.), To Err is Human: Building a Safer Health System. National Academy Press. Washington, DC. 1999.
- "Reducing and preventing adverse drug events to decrease hospital costs," Research in Action. Issue 1. Agency for Health Care Research and Quality. 200. www.ahrq.gov/qual/aderia/aderia.htm

Value Based Management.net

Innovation adoption curve of Rogers

Rogers model for the adoption and diffusion of innovations

Innovation Adoption Curve



The **innovation adoption curve** of **Rogers** is a model that classifies adopters of innovations into various categories, based on the idea that certain individuals are inevitably more open to adaptation than others. Is is also referred to as **Multi-Step Flow Theory** or **Diffusion of Innovations Theory**.

Innovators
Brave people, pulling the change. Innovators are very important communication mechanisms.

Early Adopters
Respectable people, opinion leaders, try out new ideas, but in a careful way.

Early Majority
Thoughtful people, careful but accepting change more quickly than the average.

Late Majority
Skeptic people, will use new ideas or products only when the majority is using it.

Laggards
Traditional people, caring for the "old ways", are critical towards new ideas and will only accept it if the new idea has become mainstream or even tradition.

The **diffusion of innovations curve** (innovation adoption curve) of Rogers is useful to remember that trying to quickly and massively convince the mass of a new controversial idea is useless. It makes more sense in these circumstances to start with convincing innovators and early adopters first. Also the categories and percentages can be used as a first draft to estimate target groups for communication purposes.

Diffusion research focus was on five elements: 1) the characteristics of an innovation which may influence its adoption; 2) the decision-making process that occurs when individuals consider adopting a new idea, product or practice; 3) the characteristics of individuals that make them likely to adopt an innovation; 4) the consequences for individuals and society of adopting an innovation; and 5) communication channels used in the adoption process.

Source: www.valuebasedmanagement.net
http://www.valuebasedmanagement.net/methods_rogers_innovation_adoption_curve.html

Principles of Adult Learning

Adapted from John Goodlad

Adults prefer learning situations which:

1. ARE PRACTICAL AND PROBLEM-CENTERED, SO...

- Give overviews, summaries, examples, & use stories to link theory to practice.
- Discuss and help them plan for direct application of the new information.
- Use collaborative, authentic problem-solving activities.
- Anticipate problems applying the new ideas to their setting so, offer suggestions.

CAUTION- Guard against becoming too theoretical.

2. PROMOTE THEIR POSITIVE SELF ESTEEM, SO...

- Provide low-risk activities in small group settings.
- Plan for building individual success incrementally.
- Help them become more effective and confident through guided practice and establishing routines.

CAUTION- Readiness to learn depends on self-esteem.

3. INTEGRATE NEW IDEAS WITH EXISTING KNOWLEDGE, SO...

- Help them recall what they already know from prior experience that relates to the topic of learning.
- Share your agenda and assumptions and ask for input. Adjust time for topics to fit their needs.
- Use a continuum that describes a range of skill & knowledge. Ask them to apply stickers or marks showing what their current level of knowledge/skill is in the topic(s).
- Ask what they would like to know about the topic.
- Build in options within your plan so you can easily shift to address needs.
- Suggest follow-up ideas and next steps for support and implementation after the session.

CAUTION- Collect needs data and match the degree of choice to their level of development

4. SHOW RESPECT FOR THE INDIVIDUAL LEARNER, SO...

- Provide for their physical needs through breaks, snacks, coffee, comfort.
- Provide a quality, well organized, differentiated experience that uses time effectively and efficiently.
- Avoid jargon and don't "talk down" to participants.
- Validate and affirm their knowledge, contributions and successes.
- Ask for feedback on your work or ideas, provide input opportunities.

CAUTION- Watch your choice of words to avoid creating negative perceptions.

Retrieved: Best Practice Resources. Principles of Adult Learning.
http://www.teachermentors.com/RSOD%20Site/StaffDev/adultLrng.HTML Accessed: 08/15/05.

5. CAPITALIZE ON THEIR EXPERIENCE, SO...

- Don't ignore what they already know, it's a resource for you.
- Plan alternate activities and choice so they can adjust the process to fit their experience level.
- Create activities that use their experience and knowledge.
- Listen and collect data about participant needs before, during and after the event.

CAUTION- Provide for the possibility of a need to unlearn old habits or confront inaccurate beliefs.

6. ALLOW CHOICE AND SELF-DIRECTION, SO...

- Build your plans around their needs, compare desired behaviors (goals) & actual behaviors.
- Share your agenda and assumptions and ask for input on them.
- Ask what they know already about the topic (their perception).
- Ask what they would like to know about the topic.
- Build in options within your plan so you can easily shift if needed.
- Allow time for planning their next steps.

CAUTIONS- Match the degree of choice to their level of development. Since there may be things they don't know, use a mix that will include their perception of needs AND research based on organizational needs. Be sure to include a calendar to keep planning on track.

Retrieved: Best Practice Resources. Principles of Adult Learning.
http://www.teachermentors.com/RSOD%20Site/StaffDev/adultLrng.HTML Accessed: 08/15/05.

COMMENTARIES

Nurses' perspective on a serious adverse drug event

BARBARA GOLZ AND LINDA FITCHETT

Am J Health-Syst Pharm. 1999; 56:904-7

The psychological trauma from committing a fatal medication error can be overwhelming, especially in the beginning, when you believe it was entirely your fault, as we did. It became even more traumatic for us when the district attorney and the grand jury—for reasons we still find difficult to understand—believed that we and a coworker had committed criminally negligent homicide. Of course the death of a healthy infant was an enormous tragedy, but no one had committed anything more than an error.

The case[1]

A baby boy was born at a community hospital in 1996 to a mother who had been treated for syphilis 13 years earlier during her first pregnancy. This infant was her fourth child. The middle children had not needed treatment for congenital syphilis. As part of prenatal care during this mother's most recent pregnancy, the obstetrician had serologic tests performed to determine whether she still had signs of syphilis. On the basis of those test results, the obstetrician decided that the previous syphilis treatment had been effective.

Information about the middle children and the obstetrician's decision not to treat the mother was not conveyed to the neonatologist, partly because the parents spoke only Spanish. Even though interpreters were available in the hospital, communication with the parents was difficult. The otherwise healthy infant would likely have been discharged before the results of a syphilis test were available. The neonatologist decided to treat the infant for congenital syphilis in the hospital rather than take the chance that he could not effectively communicate to the parents the importance of bringing their son for follow-up care.

Congenital syphilis was not common among the infants born at this hospital. The nursery staff was unfamiliar with the condition, and so was the neonatologist. The neonatologist consulted with an infectious disease specialist at a nearby hospital, who recommended that the infant undergo diagnostic studies and, if found to have congenital syphilis, receive a single i.m. dose of penicillin G 50,000 units/kg. This latter recommendation was not initially documented in the medical record. A nurse practitioner consulted with the health department, which recommended a single dose of penicillin G 50,000 units/kg; the nurse documented this in the medical record as penicillin G 50,000 units/kg, without mention of the route of administration.

The next day, another neonatologist took care of the infant and made plans for discharge. As part of the syphilis workup, the neonatologist obtained a sample of spinal fluid by lumbar puncture, which was very difficult for the infant. Afterward, this neonatologist wrote an order for a single dose of "Benzathine penicillin G" 150,000 units, to be injected intramuscularly.

The hospital pharmacy routinely provided neonatal and pediatric pharmaceutical services. On the day the penicillin order was received in the pharmacy, however, the pharmacist on duty did not have specialty training in neonatal or pediatric pharmacy. Penicillin G benzathine was a nonformulary item. The pharmacist read the medication order and misinterpreted the dose to be 1,500,000 units. She then checked a standard pharmacy reference and misinterpreted the usual infant dose as 500,000 units/kg. No alert popped up when the pharmacist entered this dose into the computer system.

For the neonatal and pediatric care areas, the pharmacy dispensed medications with instructions on how the nurses should calculate or prepare each dose for the infant or child. To dispense the 1.5-million-unit dose of penicillin G benzathine, the pharmacist removed two 600,000-unit/mL, 2-mL syringes (Permapen, Roerig) from the refrigerator, placed a dose-alert sticker on each syringe, and put the syringes in a plastic bag with a label instructing the nurse to administer 1.5 million units, or 2.5 mL. The pharmacist performed her own double-checks.

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Presented at the ASHP Annual Meeting, Baltimore, MD, June 4, 1998. A similar presentation was made at the ASHP Midyear Clinical Meeting, Las Vegas, NV, December 7, 1998.

On receipt of the medication, the primary nurse caring for the infant voiced her concern to colleagues about the number of i.m. injections the infant would have to endure to receive the entire dose. The maximum volume for an i.m. injection to an infant is 0.5 mL. The nurse, the nurse practitioner who had helped with the lumbar puncture earlier in the day, and an advanced-practice nursery nurse examined the infant for appropriate sites to make the injections and expressed concern about subjecting the infant to more discomfort. The nurse practitioner and the advanced-practice nurse investigated the possibility of administering the dose intravenously. They consulted a neonatal drug reference, which had a monograph for penicillin G but not for penicillin G benzathine. The monograph did not mention penicillin G benzathine but did mention that 50,000 units of aqueous crystalline penicillin G per kilogram of body weight could be administered by slow i.v. push for the treatment of congenital syphilis. The nurse practitioner consulted a second neonatal drug reference and found no mention of penicillin G benzathine. Being unfamiliar with penicillin G benzathine and not finding it mentioned in the drug references she consulted, the nurse practitioner assumed that "Benzathine" was the brand name of a penicillin G product.

The infant's primary nurse was not certified to give i.v. injections or i.m. injections other than hepatitis B vaccine. Responsibility for the infant was transferred to the nurse practitioner and the advanced-practice nurse. The advanced-practice nurse administered the drug intravenously to the infant. A pulmonary embolus developed, preventing the infant from breathing, and he died.

Factors contributing to the error

Lack of collaboration. The biggest error that day was lack of collaboration. We should have collaborated with the hospital pharmacist, the neonatologist, and possibly a pharmacist at Children's Hospital in nearby Denver, because that person works daily with infant drug dosages. No one person knows everything about an issue. Because we and the other nursery nurses dealt with infants more regularly than did the pharmacists at this hospital, we believed we knew more about how to treat an infant. Syphilis, however, is much more common among adults than infants. If we had asked a pharmacist, we probably would have been told that penicillin G benzathine can be given only intramuscularly.

Barbara's primary employer now is the 199-bed Children's Hospital, where medical rounds are conducted every day by a team that includes the neonatologist, the nurse practitioner, the pharmacist, the bedside nurse if available, and the nutritionist. The neonatologist values the input of the pharmacist and the other team members. The pharmacist is responsible for providing information about drug sensitivities, drug levels, and times doses are to be started or stopped; we doubt that this happens in the smaller hospitals.

We know it is difficult for a pharmacist to be in the nursery, the intensive care unit, and elsewhere all the time. Spending 15 minutes in the nursery one or two times a week would be an invaluable service, because the nurses would then know who the pharmacist is and what that person's knowledge base is. Trust could be built. Since the error, battles rage between the nursery and the pharmacy at the hospital where the error occurred. Barbara has been unsuccessful at convincing those nurses that she made a horrible mistake by not trusting the pharmacist enough to ask for a double-check.

Poor double-checks. No one verified the mother's information with the health department of the state where she received treatment for syphilis in 1981. Verification was attempted the day the baby was born and should have been tried again the next day, but this did not happen because we did not realize that the initial attempt was unsuccessful. We also did not question the obstetrician as to why she chose not to treat the mother for syphilis. If we had, we might have noted that the final titer for rapid plasma reagin (RPR) was at such a low level that the result would likely be reported as negative.

If the neonatologist or we had had the information from the health department or the laboratory, one of us might have questioned whether the baby really needed to undergo treatment. But that did not happen. None of us knew about the final RPR titer because the prenatal records had been sent to the hospital weeks before the baby's birth. We mistakenly trusted the physicians to know about a condition, congenital syphilis, with which we were unfamiliar. We assumed that the physicians involved understood the condition well and knew what they were doing. Later we found out that this was not true. The physicians knew more about congenital syphilis than we did but not enough to make informed choices.

Barbara assumed that Linda, an advanced-practice nurse, had adequately checked the syringe and the medication order, so Barbara did not check as completely as she should have. We did not follow through on the double-check system. Nurses often ask each other to double-check injectable doses. We hand over a syringe but do not closely watch whether the person is providing a true double-check.

We have learned to double-check all information we receive, whether from a physician or another staff nurse, and anything else that is not routine. If we had double-checked the penicillin dose, this error probably would not have occurred—we would have questioned the pharmacist, and we would have realized that the correct dose was a much smaller volume and thus that an i.m. injection would not have been traumatic to the baby.

Clouded thinking. During the lumbar puncture

procedure, Barbara held the baby, curling him up in a tiny ball. As usual, many breaks had to be taken. Babies, not unexpectedly, do not tolerate lumbar punctures well. Barbara's involvement with the lumbar puncture probably sensitized her to the baby's overall discomfort that day. Linda observed the procedure while feeding another baby in the nursery. Thus, when the medication arrived and we realized that we would have to administer five i.m. shots to a baby who had just suffered through a procedure, we worried about causing more pain. We did not think five shots seemed like a lot for a single dose and did not notice the pharmacist's error. During an interview later in the risk management office, Barbara was handed a syringe and asked if it was similar to the one we had used to inject the penicillin dose. She said it was similar but that that could not be possible because the dose would be much too high to give to an infant. Linda was asked a similar question by the attorney and answered similarly. Why we did not think of that at the time we do not know.

Inadequate reference material. A textbook Barbara had used in graduate school six months earlier grouped penicillin G benzathine with the other penicillins and stated that the injectable penicillins can be given intramuscularly or intravenously and that penicillin VK must be given orally. It did not state that penicillin benzathine and penicillin procaine were exceptions. Then and afterward, we have seen many references stating that penicillin G benzathine can be given intravenously.

Pharmacy could perform a great service by checking the references at the nursing stations and upgrading any references found to be incomplete. Many nursing stations have references that offer only brief synopses of drug information. Pharmacists could help greatly by suggesting which references should be on hand at a particular nursing station. Better than that, pharmacists should consider creating for the nursing units references that deal specifically with medication safety issues and drug incompatibilities. At Children's Hospital, the pharmacy has created such a reference, and the nurses use it constantly.

After the error

People have repeatedly told us that we should have known better than to administer a white substance intravenously—but that instruction was not what we learned in school or knew from practice. We were taught not to give i.v. injections of a cloudy substance or a substance with a precipitate. In the neonatal intensive care unit, we routinely administer i.v. fat emulsions that look the same as penicillin G benzathine. As part of the flight team for Children's Hospital, an earlier job Barbara had, she occasionally administered i.v. propofol, which is white.

If a coworker commits a medication error, support that person. The person can feel overwhelmed by the event. The hospital at which the death occurred helped pay our legal fees. Barbara found emotional support at the hospital where she now works. Linda continued employment at another hospital in the health system, but in areas not involving patient care, and received support from nurse peers and other close friends. We both received emotional support from the Institute for Safe Medication Practices, which, without a fee, also performed a root cause analysis of the event to help defend us against pending criminal charge. The person who makes a medication error needs reassurance that he or she is a good person. Barbara's hardest days were those, after she was asked to terminate her employment, when she sat at home all day and thought about nothing but the dead baby and his parents. Children's Hospital helped her to find a job that did not involve direct patient care and to receive counseling. Most important to us, our being in the work force let our peers and coworkers, as well as the nurses, pharmacists, and physicians, support us emotionally. They asked how we were doing, told us that everyone makes errors, and reassured us that things would improve. Emotional support is dearly needed by everyone who makes an error. Unfortunately for the pharmacist who dispensed the dose of penicillin G benzathine, termination of her employment took away much of her support system.

Legal implications

When an error happens, you need to be accountable and you need to do so by taking action. We accepted plea bargains in exchange for guilty pleas to the charge of criminally negligent homicide because we could not persuade the presiding judge to break the case into three cases—one for each nurse. Kathleen King, the nurse who was taking care of the baby, was not allowed to give most injections. Because the judge would not hear the cases separately, which would allow each of us to take responsibility for only our own defense, going to trial would mean putting Kathleen's career at risk. That was unacceptable to us. We had to plead guilty. At her trial, Kathleen was acquitted.

Fortunately, the major task that the district attorney has required of us since we pleaded guilty is to educate nurses and nursing students about medication errors. We would do that anyway. In fact, it is the best thing we have done since the baby's death. Initially, Barbara wrote to the authors and editors of the references we had used and asked them to clear up what we perceived was ambiguous information about possible routes of administration for penicillin G benzathine. We wanted the references to specifically state that penicillin G benzathine could be administered only intramuscularly.

Contrary to some people's opinion, the pharmacist

in this case did not escape scot-free. Granted, she was not charged with criminally negligent homicide, and her license was not suspended by the board of pharmacy. But she went through an emotional hell far worse than ours. We hear that she is now doing better and is continuing her education.

Reference

1. Smetzer JL, Cohen MR. Lesson from the Denver medication error/criminal negligence case: look beyond blaming individuals. Hosp Pharm. 1998; 33:640-2, 645-6, 654-7.

Bureau of Health Quality Management

- Community Sanitation
- Drug Control
- Food Protection
- Emergency Medical Services
- Health Care Quality
- Radiation Control
- Office of Patient Protection
- Emergency Preparedness Program

Contact Information
Division Of Health Care Quality
10 West Street, 5th Floor
Boston, Massachusetts 02111

Paul Dreyer
Director

Tel (617) 753-8000

CIRCULAR LETTER DHCQ 12-98-386

TO: Administrators, Licensed Long Term Care Facilities

FROM: Paul Dreyer, Ph.D., Director, Division of Health Care Quality

DATE: December 21, 1998

RE: Best Practice Recommendation #1: Assessment of the Medication Knowledge of Individuals A Medications in Long Term Care Facilities.

This is the first in a series of Best Practice Recommendations from the Department of Public Health, Divisic Quality ("Division"). The purpose of these recommendations is to reduce medication errors in Massachuset Facilities.

Several of the medication errors that the Division has investigated in the past two years resulted from a lac knowledge on the part of the nursing staff and others who administer medications. In response to this know Division strongly recommends that each facility:

- Work with its consultant pharmacist to develop an examination that will assess the level of basic dı staff involved in medication administration.
- Administer the examination as part of the pre-employment screening process and to all staff that a administering medications.

The examination should be aimed at testing medication knowledge, identifying educational needs, and help understand their own knowledge deficits. At a minimum, the examination should include the following elem

1. The use of a medication based upon a resident's diagnosis.
2. The common use of a medication.
3. The identification of a medication by both its brand and generic names.
4. Medication contraindications.
5. Basic medication calculation questions-including dosage conversions.
6. Adverse drug reactions associated with a particular drug.
7. Appropriate dosing levels.
8. Common Latin abbreviations.

The Division encourages all facilities to incorporate the testing of staff involved in medication administratior medication administration policies and procedures. The Division further recommends that facilities have a p appropriate interventions when the test results identify the need for further education.

If you have any further questions, please contact your regional manager at (617) 753-8000.

Provider Information

Divison of Health Care Quality

MASONIC HOME INC.
Skills and Experience Checklist for the Licensed Nurse

Name: _____ Date of Hire: _____

☐ Orientation ☐ Review

Preceptor Name: _____ Date Completed: _____

Key: 1=Very Experienced 2=Somewhat Experienced 3=Not Experienced N/A=Not Applicable
The preceptor dates and initials when the skill/experience was observed and/or performed satisfactorily.

Skills/Experience	Self-Assessment	Preceptor Assessment	Preceptor Initials	Comments
1. Maintain Resident Rights				
Safety	1 2 3 N/A	1 2 3 N/A		
Independence	1 2 3 N/A	1 2 3 N/A		
Dignity	1 2 3 N/A	1 2 3 N/A		
Privacy	1 2 3 N/A	1 2 3 N/A		
Infection Control	1 2 3 N/A	1 2 3 N/A		
Abuse Reporting	1 2 3 N/A	1 2 3 N/A		**Keep Resident Safe Then Report – Complete Body Check**
Communication	1 2 3 N/A	1 2 3 N/A		
2. Admission Process				
Physical Assessment	1 2 3 N/A	1 2 3 N/A		
Documentation	1 2 3 N/A	1 2 3 N/A		
Care Plans	1 2 3 N/A	1 2 3 N/A		
3. Medication Administration				
Medication Test	1 2 3 N/A	1 2 3 N/A		
Medication Pass	1 2 3 N/A	1 2 3 N/A		
Do Not Use Abbreviation List	1 2 3 N/A	1 2 3 N/A		**See list posted in MAR**
Narcotic Count	1 2 3 N/A	1 2 3 N/A		
Med Error Procedure	1 2 3 N/A	1 2 3 N/A		
Obtaining & Posting MD Orders	1 2 3 N/A	1 2 3 N/A		**Read back and verify all medication telephone/verbal orders**
4. Fall Prevention				
Fall Assessment	1 2 3 N/A	1 2 3 N/A		
Incident/accident Report Investigation Report	1 2 3 N/A	1 2 3 N/A		
Alarm Systems	1 2 3 N/A	1 2 3 N/A		
Low Bedsmats	1 2 3 N/A	1 2 3 N/A		
Nurse call system	1 2 3 N/A	1 2 3 N/A		
Use of Wanderguard System	1 2 3 N/A	1 2 3 N/A		
5. Care of Equipment				
Oxygen tanks/tubing/sign	1 2 3 N/A	1 2 3 N/A		
Suction Machine	1 2 3 N/A	1 2 3 N/A		
Nebulizers	1 2 3 N/A	1 2 3 N/A		
Pulse Ox	1 2 3 N/A	1 2 3 N/A		
Bladder Scan	1 2 3 N/A	1 2 3 N/A		
Gomco Suctioning	1 2 3 N/A	1 2 3 N/A		
Accuchek Monitor	1 2 3 N/A	1 2 3 N/A		

Used with permission from Overlook Masonic Health Centers – August 10, 2005.

Checklist: Medication Administration Observation

Name: _____ **Date:**_____**Unit:**_____

Techniques Observed	Met	Not Met	N/A
1. Narcotic count completed before accepting keys			
2. Med cart clean, no missing supplies, always visible and/or locked			
3. Fluids and foods covered and dated			
4. Resident properly identified			
5. Resident positioned properly and privacy maintained			
6. V/s and medication parameters checked prior to administration			
7. Correct medication verified by visual check of label, med and MAR			
8. Liquids measured accurately; shaken and diluted as appropriate			
9. Proper crushing technique; non-crushable meds have MD order			
10. AC, PC, w/meals, w/food orders administered correctly			
11. Residents observed to be sure medications are swallowed			
12. Medication charted immediately after administration			
13. Refused/withheld medications properly noted			
14. Meds not left at bedside or on top of med cart			
15. PRN meds administered and documented properly			
16. Proper hand washing technique is utilized			
17. Opthalmics administered using clean technique			
18. Transdermal patches rotated, showing date and initials			
19. Inhalers properly administered, mouthpiece cleaned after use			
20. Injection sites rotated and recorded			
21. Medication via g-tube properly administered			
22. IV, SC, and IM injections administered using proper procedure			
23. Verbalizes procedure for medication error			

Comments: _____

_____

_____

Results Summary:	**Satisfactory**	**Unsatisfactory**
a. Technique	☐	☐
b. Measurement	☐	☐

Used with permission from Soldier's Home of Chelsea, MA.

Supervisor's Signature_____

Checklist: Medication Administration Competency

SAMPLE

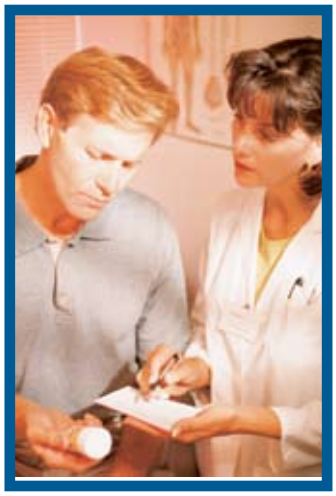
Name _____

Action	Met	Unmet	Comments
1. Washes hands using proper infection control techniques			
2. Checks each label with order on MAR			
3. Punches medication into dispensing cup using proper infection control techniques			
4. Checks label again before placing medication back in cart			
5. Pours liquids at eye level to assure proper dose			
6. Shakes bottles properly as instructed			
7. Uses adequate amount of water or juice with medications (usually 4 to 8 oz.)			
8. Locks medication cart			
9. Maintains confidentiality of resident information			
10. Identifies resident by name band or picture			
11. Observes resident swallow medications			
12. Documents initials after administration of medications			
13. Washes hands before & after administration of eye drops			
14. Waits 3 to 5 minutes between eye drops			
15. Properly administers metered dose inhalers as follows: - shakes well before administering - instructs resident to tilt head back - instructs resident to hold breath for 5-10 seconds, pause ONE to TWO minutes between inhalations of the same medication - Uses broncho-dialators <u>first</u> waits 5 minutes before steroid use			
16. Administers medications in a way that does not disrupt the dining experience			
17. Administers treatments such as eye drops or pulses in private areas			
18. Follows manufacturer guidelines regarding crushing of medications			

Nurse/TMA/CMT/CMA Signature _____

Nurse Observing _____ Date _____

Tab 4 - Prescribing



The Prescribing Process

Prescribing a medication in a long-term care setting involves multiple steps and multiple members of the health care team. Physicians, nurses, nursing assistants, pharmacists, and family members all play a role in the prescription process. Steps of the prescription process include:

- Recognition of the problem/initial assessment of the patient
- Complete assessment of the patient/data collection
- Identification of the need for treatment
- Selection of appropriate medication or modification of existing regimen
- Writing of the prescription (Handler, 2004; American Medical Director M3 Tool Kit, 2003)

Errors in the prescribing process account for the majority of preventable adverse drug events in long-term care. The most frequent errors in prescribing include prescription of the wrong dose, prescription of a drug with known interactions with other drugs, and prescription of the wrong drug *(Gurwitz et al., 2000; Gurwitz et al., 2005).*

Certain classes of drugs are most frequently associated with adverse drug events. These drugs include atypical antipsychotics, anticoagulants, loop diuretics, intermediate-acting benzodiazepines, opiods, and ACE inhibitors (Gurwitz, 2005). Warfarin is often prescribed in the geriatric population and is very frequently associated with adverse drug events.

Errors in prescription frequently occur during transfer of patients between settings. Geriatric patients are frequently transferred between settings and are at high risk for prescription errors related to transfer (Boockvar et al., 2004). The process of reconciling medications, or comparing medication orders upon transfer, and identifying and resolving discrepancies, has been proven to reduce adverse drug events at points of transfer (Rozich & Resar, 2001).

Key Points

- **Errors in the prescribing process account for the majority of preventable adverse drug events.**
- **Analyzing and modifying current prescribing processes offers great potential to decrease adverse drug events.**

Tools

- **Flow Diagram of Steps in Prescribing Process**
- **Checklist: Assessing the Medication Use Process – Prescribing**
- **Sample – Change in Condition**
- **Error-Prone Abbreviations, Symbols, and Dose Designation, ISMP**
- **Use Caution – Avoid Confusion (USP List of look-alike/sound-alike drugs)**
- **High Alert Medications-Concerns in Use of Psychoactive Drugs**
- **Beers Criteria – 1997**
- **Protocol for INR Target**

The Prescribing Process

Prescribing a medication is identified as the first step in the medication administration process, but in reality is the final step of a complete and thorough assessment of a patient involving several steps. To be fully understood, prescribing in the long-term care setting is best characterized as a multidisciplinary process which may involve physicians, nurses, nursing assistants, pharmacists, and even family members.

The prescribing process includes multiple steps:

- Recognize the problem/perform initial assessment of the patient
- Complete assessment of the patient/data collection
- Identify the need for treatment
- Select the appropriate medication or modify existing regimen
- Write the prescription
  (Handler, 2004; American Medical Director's Association, 2003)

Types of Prescribing Errors

Errors in the prescribing (or ordering) stage of the medication use process have been identified as the most frequent cause of preventable adverse drug events in long-term care. The most common types of prescribing errors include:

- Prescribing the Wrong dose
- Prescription of a drug for which there is a clinically important interaction with another drug
- Prescribing the wrong drug
  (Gurwitz, Field, Avorn,et al., 2000; Gurwitz, Field, Judge, et al., 2005).

Actions To Reduce Prescribing Errors:

- Provide easy access to drug references and interaction lists
- Include the diagnosis or reason for treatment on the prescription

Lack of Medication Knowledge Increases Prescribing Errors

Lesar et al. (1997) found "a predominant root cause for prescribing errors to be lack of knowledge about the drug to be administered, as well as detailed and timely information about who is supposed to receive it."

Actions To Reduce Prescribing Errors:

- Complete a thorough assessment of the patient prior to the prescription of a medication
- Assess staff knowledge regarding medications
- Educate your staff regarding drugs in the elderly

Drugs Frequently Associated with Adverse Drug Events

Certain classes of drugs have been associated with preventable adverse drug events. They include:

- Atypical antipsychotics
- Anticoagulants
- Loop diuretics
- Intermediate-acting benzodiazepnes
- Opiods
- ACE inhibitors
  (Gurwitz, 2005)

Of these drugs, warfarin has been most frequently cited as problematic. In one recent study, almost 80 percent of all preventable adverse drug events were associated with the use of warfarin (Gurwitz, 2000). Special attention to high-alert medications during all stages of the medication use process may help to reduce the rate of errors related to high-alert medications.

Actions To Reduce Prescribing Errors:

- Develop easily recognizable list of high-alert medications
- Make list of high-alert medications highly visible to increase staff awareness

Components of a Complete Medication Order

A complete medication order must include all of the following components:

- The right patient
- The right drug
- The right route
- The right time
- The right dose
- Abbreviations allowed from acceptable abbreviation list only

Questions about any component of the medication order are referred back to the provider prior to fulfilling the order.

References

American Medical Director's Association (2003). *M3 Multidisciplinary medication management tool kit (the M3 Tool Kit).*

Gurwitz, J., Field, T., Avorn, J., McCormick, D., Jain, S., Eckler, M., Benser, M., Edmonsdson, A., Bates, D. (2000). Incidence and Preventability of Adverse Drug Events in Nursing Homes. *The American Journal of Medicine*, 109, 87-94.

Gurwitz, J., Field, T., Judge, J., Rochon, P., Harrold, L., Cadoret, C., Lee, M., White, K., LaPrino, J., Erramuspe-Mainard, J., DeFlorio, M., Gavendo, L., Auger, J., Bates, D. (2005). The Incidence of Adverse Drug Events in Two Large Academic Long-Term Care Facilities. *The American Journal of Medicine*, 118(3), 251-258.

Handler, S., Nace, D., Studenski, S., Fridsma, D. (2004). Medication Error Reporting in Long-Term Care. *The American Journal of Geriatric Pharmacotherapy*, 2(3), 190-196.

Lesar, T., Briceland, L., Stein, D. (1997). Factors related to errors in medication prescribing. *Journal of American Medical Association*, 277(4), 312-317.

Flow Diagram for Steps in Prescribing Process

Key Steps	Key Elements	Tools to Utilize
Recognition of the problem/initial assessment of patient	- MD, Nursing, CNA, Family note change in patient condition	
	Triggers	
Complete assessment of patient	- Complete nursing assessment including onset, duration, inventory/character, location, aggravating or alleviating factors, associated symptoms - Current medications • Any high-risk medications, particularly Warfarin • Any new medications or changes within the last week? • Allergies to medications • For new admissions, reconcile or match up medication lists	- AMDA M3 Tool Kit: Protocols for physician notification (See references) - Evercare Change in Condition Form (Tab 4) - Reconciliation form/tool (Tab 12) - Drug/Drug Interaction List for Warfarin (Tab 11) - MAR/Allergy List - MDS/RAPS for falls, delirium, infection, bleeding, with copy sent to pharmacy if patient has + triggers - Drug Book/Reference
	Leads To	
Identification of need for treatment	- Target symptom/problem for monitoring. Treatment objectives identified.	
	Then	
Selection of appropriate medication or modification of existing regimen	- Risk/benefit analysis particularly if high-risk medication - Potential drug interactions - Drug allergies	
	Then	
Medication order is written	- Legible handwriting (illegible orders referred back to authors - Only acceptable abbreviations included - Five Rights: • Right Resident • Right Dose • Right Drug • Right Route • Right Time	- ISMP List of Abbreviations - Look Alike/Sound Alike List

Checklist for Assessing Medication Use Process: Prescribing

Does your facility have a policy for medication prescribing?

___**No**. If no, this is an area for improvement. Use this checklist and the Quality Improvement Worksheets to guide your team in implementing a process for assessing the medication prescribing policy.

___**This is an area we are working on.** Our target date for revising our medication policy is _____. If needed, use the Quality Improvement Worksheets to guide your improvement process.

___**Yes.** Please continue to the questions below.

Does your facility's policy for medication prescribing include these components?

	Yes	No	Person Responsible	Comments
1. Guidelines for components of the history and physical that the nurse needs to complete prior to calling the practitioner?				
2. Recommendations that the indication for treatment be included in the original medication order?				
3. A list of acceptable abbreviations and look-alike, sound-alike drugs that is easily accessible?				
4. Standards for legible handwriting?				
5.. Access to list of high-alert medications?				

If any of the above elements in your prescribing process are missing:

- Choose one element to focus your quality improvement effort first.
- Start with the Quality Improvement Worksheet A: Identifying Areas for Improvement to collect data to investigate further.
- Follow the Quality Improvement Worksheets to implement missing element(s) and monitor regularly to determine whether implementation is successful.

Evercare

Change in Condition Observation

Date: ____/____/____

Age: ____ Allergies: _____ Chest Pain ❒ Yes ❒ No

Current vital signs: T _____ P Lying _____ P Standing _____ B/P lying _____ B/P Standing _____ R _____

Baseline vital signs: T _____ P _____ B/P _____ R _____

Advance Directive: ❒ DNR ❒ DNI ❒ DNH ❒ No IV ❒ No tube feed ❒ Full Code ❒ Other _____

Recent labs (past 30 days) Glucose _____ WBC _____ HGB _____ BUN _____ Creat _____ Na _____ K _____

Primary complaint: ❒ Acute/Sudden onset ❒ Insidious (specify one) _____ days _____ hours

❒ Pain: Location_____ Intensity (scale 1-10) _____

Description:

	sharp		tearful		throbbing		tender
	stabbing		aching		sickening		tiring
	shooting		gnawing		cramping		punishing/cruel
	splitting		burning		heavy		other

Duration: Constant ❒ Periodic ❒ Other (specify) _____

Accompanying symptoms: GI: Nausea ❒ Vomiting ❒ Constipation ❒ Anorexia ❒

CNS: Drowsiness ❒ Periodic ❒ Hallucinations ❒

Other _____

Use of medication to relieve and results:_____

❒ Respiratory: Oximetry _____ % ❒ on room air ❒ on O^2

Cough: ❒ No ❒ Yes If yes, ❒ Non-productive ❒ Productive, describe: _____

Breathing: Labored ❒ Yes ❒ No Shortness of breath ❒ Yes ❒ No

Lung Sounds:_____

❒ Abdomen (GI): Distended: ❒ No ❒ Yes Tenderness ❒ No ❒ Yes Nausea ❒ No ❒ Yes

Vomiting: ❒ No ❒ Yes Describe: _____

Stool present ❒ No ❒ Yes Impacted ❒ No ❒ Yes Loose stools ❒ No ❒ Yes

Last BM: _____ Bowel sounds: _____ Blood in stool _____

❒ Mental/Functional Status Changes (compared to baseline):

Unresponsive ❒ Lethargic ❒ Hard to arouse ❒ Confused ❒ Agitated ❒ Restless ❒

Increased falls ❒ Decreased mobility ❒ slumping/leaning ❒ communication/swallow issue ❒

❒ Decreased ability to participate in ADL's _____

❒ Change in appetite Intake: _____ Output: _____ Adequate ❒ Poor ❒

❒ Urine Output (GU): Normal pattern for resident _____

Odor ❒ No ❒ Yes Concentrated ❒ No ❒ Yes Pain/burning ❒ No ❒ Yes

History of UTI ❒ No ❒ Yes If yes, last Rx date and med: _____

❒ Skin/Wound/Extremities: Location: _____ New Edema ❒ No ❒ Yes

Change in color ❒ No ❒ Yes If yes, describe: _____

New/worsening wounds ❒ No ❒ Yes If yes, describe: _____

Drainage ❒ No ❒ Yes If yes, describe: _____

COMPLETE THIS FORM AND HAVE THE RESIDENT'S CHART AND MAR AVAILABLE WHEN CALLING MD/NP

Name of MD/NP contacted: _____ Time: _____AM / PM

Name of significant other contacted: _____ Time: _____AM / PM

Nurse Signature/Title _____

Resident added to documentation list for follow-up until condition resolved

RESIDENT	PHYSICIAN	ROOM	MR#

467-O2002 7 03

Evercare

PROGRESS NOTES		
DATE	TIME	

LAST NAME	FIRST	PHYSICIAN	ROOM	MR#

CHANGECOND6/03

November 27, 2003 Volume 8 Issue 24

ISMP Error-Prone Abbreviations, Symbols, and Dose Designations

It's been over 2 years since we published a list of abbreviations, symbols, and dose designations that have contributed to medication errors. Now, with the 2004 JCAHO National Patient Safety Goals calling for organizational compliance with a list of prohibited "dangerous" abbreviations, acronyms and symbols, we thought an updated list would be useful. Since JCAHO has specified that certain abbreviations must appear on the organization's list, we've highlighted these items with a double asterisk (**). Also, effective April 1, 2004, each organization must include at least three additional items on their list. However, we hope that you will consider others beyond the minimum JCAHO requirement. Selections can be made from the attached list. These items should be considered for handwritten, preprinted, and electronic forms of communication.

Abbreviations	Intended Meaning	Misinterpretation	Correction
µg	Microgram	Mistaken as "mg"	Use "mcg"
AD, AS, AU	Right ear, left ear, each ear	Mistaken as OD, OS, OU (right eye, left eye, each eye)	Use "right ear," "left ear," or "each ear"
OD, OS, OU	Right eye, left eye, each eye	Mistaken as AD, AS, AU (right ear, left ear, each ear)	Use "right eye," "left eye," or "each eye"
BT	Bedtime	Mistaken as "BID" (twice daily)	Use "bedtime"
cc	Cubic centimeters	Mistaken as "u" (units)	Use "mL"
D/C	Discharge or discontinue	Premature discontinuation of medications if D/C (intended to mean "discharge") has been misinterpreted as "discontinued" when followed by a list of discharge medications	Use "discharge" and "discontinue"
IJ	Injection	Mistaken as "IV" or "intrajugular"	Use "injection"
IN	Intranasal	Mistaken as "IM" or "IV"	Use "intranasal" or "NAS"
HS **hs**	Half-strength At bedtime, hours of sleep	Mistaken as bedtime Mistaken as half-strength	Use "half-strength" or "bedtime"
IU**	International unit	Mistaken as IV (intravenous) or 10 (ten)	Use "units"
o.d. or OD	Once daily	Mistaken as "right eye" (OD-oculus dexter), leading to oral liquid medications administered in the eye	Use "daily"
OJ	Orange juice	Mistaken as OD or OS (right or left eye); drugs meant to be diluted in orange juice may be given in the eye	Use "orange juice"
Per os	By mouth, orally	The "os" can be mistaken as "left eye" (OS-oculus sinister)	Use "PO," "by mouth," or "orally"
q.d. or QD**	Every day	Mistaken as q.i.d., especially if the period after the "q" or the tail of the "q" is misunderstood as an "i"	Use "daily"
qhs	Nightly at bedtime	Mistaken as "qhr" or every hour	Use "nightly"
qn	Nightly or at bedtime	Mistaken as "qh" (every hour)	Use "nightly" or "at bedtime"
q.o.d. or QOD**	Every other day	Mistaken as "q.d." (daily) or "q.i.d. (four times daily) if the "o" is poorly written	Use "every other day"
q1d	Daily	Mistaken as q.i.d. (four times daily)	Use "daily"
q6PM, etc.	Every evening at 6 PM	Mistaken as every 6 hours	Use "6 PM nightly" or "6 PM daily"
SC, SQ, sub q	Subcutaneous	SC mistaken as SL (sublingual); SQ mistaken as "5 every;" the "q" in "sub q" has been mistaken as "every" (e.g., a heparin dose ordered "sub q 2 hours before surgery" misunderstood as every 2 hours before surgery)	Use "subcut" or "subcutaneously"
ss	Sliding scale (insulin) or ½ (apothecary)	Mistaken as "55"	Spell out "sliding scale;" use "one-half" or "½"
SSRI **SSI**	Sliding scale regular insulin Sliding scale insulin	Mistaken as selective-serotonin reuptake inhibitor Mistaken as Strong Solution of Iodine (Lugol's)	Spell out "sliding scale (insulin)"
i/d	One daily	Mistaken as "tid"	Use "1 daily"
TIW or tiw	3 times a week	Mistaken as "3 times a day" or "twice in a week"	Use "3 times weekly"
U or u**	Unit	Mistaken as the number 0 or 4, causing a 10-fold overdose or greater (e.g., 4U seen as "40" or 4u seen as "44"); mistaken as "cc" so dose given in volume instead of units (e.g., 4u seen as 4cc)	Use "unit"
Dose Designations and Other Information	**Intended Meaning**	**Misinterpretation**	**Correction**
Trailing zero after decimal point (e.g., 1.0 mg)**	1 mg	Mistaken as 10 mg if the decimal point is not seen	Do not use trailing zeros for doses expressed in whole numbers
No leading zero before a decimal dose (e.g., .5 mg)**	0.5 mg	Mistaken as 5 mg if the decimal point is not seen	Use zero before a decimal point when the dose is less than a whole unit

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Dose Designations and Other Information	Intended Meaning	Misinterpretation	Correction
Drug name and dose run together (especially problematic for drug names that end in "L" such as Inderal40 mg; Tegretol300 mg)	Inderal 40 mg Tegretol 300 mg	Mistaken as Inderal 140 mg Mistaken as Tegretol 1300 mg	Place adequate space between the drug name, dose, and unit of measure
Numerical dose and unit of measure run together (e.g., 10mg, 100mL)	10 mg 100 mL	The "m" is sometimes mistaken as a zero or two zeros, risking a 10- to 100-fold overdose	Place adequate space between the dose and unit of measure
Abbreviations such as mg. or mL. with a period following the abbreviation	mg mL	The period is unnecessary and could be mistaken as the number 1 if written poorly	Use mg, mL, etc. without a terminal period
Large doses without properly placed commas (e.g., 100000 units; 1000000 units)	100,000 units 1,000,000 units	100000 has been mistaken as 10,000 or 1,000,000; 1000000 has been mistaken as 100,000	Use commas for dosing units at or above 1,000, or use words such as 100 "thousand" or 1 "million" to improve readability
Drug Name Abbreviations	**Intended Meaning**	**Misinterpretation**	**Correction**
ARA A	vidarabine	Mistaken as cytarabine (ARA C)	Use complete drug name
AZT	zidovudine (Retrovir)	Mistaken as azathioprine or aztreonam	Use complete drug name
CPZ	Compazine (prochlorperazine)	Mistaken as chlorpromazine	Use complete drug name
DPT	Demerol-Phenergan-Thorazine	Mistaken as diphtheria-pertussis-tetanus (vaccine)	Use complete drug name
DTO	Diluted tincture of opium, or deodorized tincture of opium (Paregoric)	Mistaken as tincture of opium	Use complete drug name
HCl	hydrochloric acid or hydrochloride	Mistaken as potassium chloride (The "H" is misinterpreted as "K")	Use complete drug name unless expressed as a salt of a drug
HCT	hydrocortisone	Mistaken as hydrochlorothiazide	Use complete drug name
HCTZ	hydrochlorothiazide	Mistaken as hydrocortisone (seen as HCT250 mg)	Use complete drug name
MgSO4**	magnesium sulfate	Mistaken as morphine sulfate	Use complete drug name
MS, MSO4**	morphine sulfate	Mistaken as magnesium sulfate	Use complete drug name
MTX	methotrexate	Mistaken as mitoxantrone	Use complete drug name
PCA	procainamide	Mistaken as Patient Controlled Analgesia	Use complete drug name
PTU	propylthiouracil	Mistaken as mercaptopurine	Use complete drug name
T3	Tylenol with codeine No. 3	Mistaken as liothyronine	Use complete drug name
TAC	triamcinolone	Mistaken as tetracaine, Adrenalin, cocaine	Use complete drug name
TNK	TNKase	Mistaken as "TPA"	Use complete drug name
ZnSO4	zinc sulfate	Mistaken as morphine sulfate	Use complete drug name
Stemmed Drug Names	**Intended Meaning**	**Misinterpretation**	**Correction**
"Nitro" drip	nitroglycerin infusion	Mistaken as sodium nitroprusside infusion	Use complete drug name
"Norflox"	norfloxacin	Mistaken as Norflex	Use complete drug name
"IV Vanc"	intravenous vancomycin	Mistaken as Invanz	Use complete drug name
Symbols	**Intended Meaning**	**Misinterpretation**	**Correction**
ʒ m̃	Dram Minim	Symbol for dram mistaken as "3" Symbol for minim mistaken as "mL"	Use the metric system
x3d	For three days	Mistaken as "3 doses"	Use "for three days"
> and <	Greater than and less than	Mistaken as opposite of intended; mistakenly use incorrect symbol; "< 10" mistaken as "40"	Use "greater than" or "less than"
/ (slash mark)	Separates two doses or indicates "per"	Mistaken as the number 1 (e.g., "25 units/10 units" misread as "25 units and 110" units)	Use "per" rather than a slash mark to separate doses
@	At	Mistaken as "2"	Use "at"
&	And	Mistaken as "2"	Use "and"
+	Plus or and	Mistaken as "4"	Use "and"
°	Hour	Mistaken as a zero (e.g., q2° seen as q 20)	Use "hr," "h," or "hour"

** Identified abbreviations above are also included on the JCAHO's "minimum list" of dangerous abbreviations, acronyms and symbols that must be included on an organization's "Do Not Use" list, effective January 1, 2004. An updated list of frequently asked questions about this JCAHO requirement can be found on their website at www.jcaho.org.

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USP QualityReview

Use Caution—Avoid Confusion

Confusion over the similarity of drug names, either written or spoken, accounts for approximately one-quarter of all reports to the USP Medication Errors Reporting (MER) Program. This issue involves confusion between similar brand names, between similar generic names, and between similar brand and generic names. Such confusion is compounded by illegible handwriting, incomplete knowledge of drug names, newly available products, similar packaging or labeling, and incorrect selection of a similar name from a computerized product list.

Below is a list of similar drug names reported to the USP MER Program. Remember that these names may not sound alike as you read them or look alike in print, but when handwritten or communicated verbally, these names have caused or could cause a mix-up. (Brand names are *italicized.*)

Accupril	*Accutane*
Accupril	*Monopril*
Accutane	*Accupril*
Acetazolamide	Acetohexamide
Acetohexamide	Acetazolamide
Acular	*Ocular*
Adderall	*Inderal*
Adenosine	Adenosine Phosphate
Adenosine Phosphate	Adenosine
Adriamycin	*Aredia*
Adriamycin	*Idamycin*
Akarpine	Atropine
Aldara	*Alora*
Allegra	*Viagra*
Allopurinol	*Apresoline*
Alora	*Aldara*
Alprazolam	Lorazepam
Altace	*Amaryl*
Altace	*Artane*
Alupent	*Atrovent*
Amantadine	Ranitidine	Rimantadine
Amaryl	*Altace*
Ambien	*Amen*
Amen	*Ambien*
Amicar	*Amikin*
Amikin	*Amicar*
Amiloride	Amlodipine
Amiodarone	Amrinone
Amlodipine	Amiloride
Amoxicillin	*Amoxil*
Amoxicillin	*Atarax*
Amoxil	Amoxicillin
Amrinone	Amiodarone
Anaspaz	*Antispas*
Ansaid	*Asacol*
Antispas	*Anaspaz*
Anusol	*Anusol-HC*
Anusol-HC	*Anusol*
Apresoline	Allopurinol
Aredia	*Adriamycin*
Artane	*Altace*
Asacol	*Ansaid*
Asacol	*Os-Cal*
Asparaginase	Pegaspargase
Atarax	Amoxicillin
Atarax	*Ativan*
Ativan	*Atarax*
Atropine	*Akarpine*
Atrovent	*Alupent*
Attenuvax	*Meruvax*
Azithromycin	Erythromycin
Benadryl	*Benylin*
Benylin	*Benadryl*
Benylin	*Ventolin*
Bepridil	*Prepidil*
Betagan	*Betagen*
Betagan	*Betoptic*
Betagen	*Betagan*
Betoptic	*Betagan*
Betoptic	*Betoptic S*
Betoptic S	*Betoptic*
Brevibloc	*Brevital*
Brevital	*Brevibloc*
Bumex	*Buprenex*
Bumex	*Permax*
Buprenex	*Bumex*
Buspirone	Bupropion
Bupropion	Buspirone
Cafergot	*Carafate*
Calan	*Colace*
Calciferol	Calcitriol
Calcitriol	*Calciferol*
Captopril	Carvedilol
Carafate	*Cafergot*
Carboplatin	Cisplatin
Cardene	*Cardizem*
Cardene	*Cardura*
Cardene	Codeine
Cardene SR	*Cardizem SR*
Cardiem	*Cardizem*
Cardizem	*Cardene*
Cardizem	*Cardiem*
Cardizem CD	*Cardizem SR*
Cardizem SR	*Cardene SR*
Cardizem SR	*Cardizem CD*
Cardura	*Cardene*
Cardura	*Coumadin*
Cardura	*Ridaura*
Carteolol	Carvedilol
Carvedilol	Captopril
Carvedilol	Carteolol
Cataflam	*Catapres*
Catapres	*Cataflam*
Cefaclor	Cephalexin
Cefazolin	Cefprozil
Cefol	*Cefzil*
Cefotan	*Ceftin*
Cefotaxime	Cefuroxime
Cefprozil	Cefazolin
Cefprozil	Cefuroxime
Ceftazidime	Ceftizoxime
Ceftin	*Cefotan*
Ceftin	*Cefzil*
Ceftin	*Cipro*
Ceftizoxime	Ceftazidime
Cefuroxime	Cefotaxime
Cefuroxime	Cefprozil
Cefuroxime	Deferoxamine
Cefzil	*Cefol*
Cefzil	*Ceftin*
Cefzil	*Kefzol*
Celebrex	*Celexa*	*Cerebyx*
Celexa	*Cerebyx*	*Celebrex*
Celexa	*Zyprexa*
Centoxin	*Cytoxan*
Cephalexin	Cefaclor
Cephalexin	Ciprofloxacin
Cerebyx	*Celebrex*	*Celexa*
Chlorpromazine	Chlorpropamide
Chlorpromazine	Prochlorperazine
Chlorpropamide	Chlorpromazine
Cipro	*Ceftin*
Ciprofloxacin	Cephalexin
Cisplatin	Carboplatin

U.S. PHARMACOPEIA
The Standard of Quality℠

May 1999

USP Quality Review

Claritin-D		*Claritin-D 24-hour*
Claritin-D 24-hour		*Claritin-D*
Clinoril		*Clozaril*
Clinoril		*Orwail*
Clomiphene		Clomipramine
Clomipramine		Clomiphene
Clomipramine		Desipramine
Clonazepam	Clonidine	*Klonopin*
Clonazepam		Clorazepate
Clonidine		*Klonopin*
Clonidine	*Klonopin*	Clonazepam
Clorazepate		Clonazepam
Clozaril		*Clinoril*
Codeine		*Cardene*
Codeine		Iodine
Codeine		*Lodine*
Cognex		*Corgard*
Colace		*Calan*
Corgard		*Cognex*
Cortef		*Lortab*
Coumadin		*Cardura*
Covera		*Provera*
Cozaar		*Zocor*
Cyclobenzaprine		Cyproheptadine
Cyclophosphamide		Cyclosporine
Cycloserine		Cyclosporine
Cyclosporine		Cyclophosphamide
Cyclosporine		Cycloserine
Cyproheptadine		Cyclobenzaprine
Cytarabine	*Cytosar*	*Cytoxan*
CytoGam		*Gamimune N*
Cytosar		*Cytovene*
Cytosar	*Cytoxan*	Cytarabine
Cytosar-U		*Neosar*
Cytotec		*Cytoxan*
Cytovene		*Cytosar*
Cytoxan		*Centoxin*
Cytoxan	*Cytosar*	Cytarabine
Cytoxan		*Cytotec*
Danazol		*Dantrium*
Dantrium		Danazol
Darvon		*Diovan*
Daunorubicin		Doxorubicin
Daypro		*Diupres*
Deferoxamine		Cefuroxime
Demerol		*Desyrel*
Denavir		Indinavir
Depakote		*Senokot*
Depo-Estradiol		*Depo-Testadiol*
Depo-Testadiol		*Depo-Estradiol*
Desferal		*DexFerrum*
Desipramine		Clomipramine
Desipramine		Imipramine
Desipramine		Nortriptyline
Desyrel		*Demerol*
DexFerrum		*Desferal*
DiaBeta		*Zebeta*
Diamox		*Dobutrex*
Diazepam		*Ditropan*
Diazepam		Lorazepam
Dicyclomine		Diphenhydramine
Diflucan		*Diprivan*
Diovan		*Darvon*
Diovan		*Dioval*
Diovan		*Zyban*
Dioval		*Diovan*
Diphenatol		Diphenidol
Diphenhydramine		Dicyclomine
Diphenidol		*Diphenatol*
Diprivan		*Diflucan*
Ditropan		Diazepam
Diupres		*Daypro*
Dobutamine		Dopamine
Dobutrex		*Diamox*
Dolobid		*Slo-Bid*
Dopamine		Dobutamine
Doxepin		Doxycycline
Doxorubicin		Daunorubicin
Doxorubicin		Doxorubicin Liposomal
Doxorubicin		Idarubicin
Doxorubicin Liposomal		Doxorubicin
Doxycycline		Doxepin
Dynabac		*DynaCirc*
Dynacin		*DynaCirc*
DynaCirc		*Dynabac*
DynaCirc		*Dynacin*
Edecrin		*Eulexin*
Efudex		*Eurax*
Elavil		*Orwail*
Elavil		*Plavix*
Eldepryl		Enalapril
Elmiron		*Imuran*
Enalapril		*Eldepryl*
Equagesic		*EquiGesic*
EquiGesic		*Equagesic*
Erex		*Urex*
Erythrocin		*Ethmozine*
Erythromycin		Azithromycin
Eskalith		Estratest
Estraderm		*Testoderm*
Estratab		*Estratest*
Estratest		*Eskalith*
Estratest		*Estratab*
Estratest		*Estratest HS*
Estratest HS		*Estratest*
Ethmozine		*Erythrocin*
Etidronate		Etomidate
Etidronate		Etretinate
Etomidate		Etidronate
Etretinate		Etidronate
Eulexin		*Edecrin*
Eurax		*Efudex*
Fam-Pren Forte		*Parafon Forte*
Fentanyl Citrate		Sufentanil Citrate
Fioricet		*Fiorinal*
Fiorinal		*Fioricet*
Flomax		*Fosamax*
Flomax		*Volmax*
Flucytosine		Fluorouracil
Fludara		*FUDR*
Fludarabine		*Flumadine*
Flumadine		Fludarabine
Fluorouracil		Flucytosine
Flurazepam		Temazepam
Folic Acid		Folinic Acid
Folinic Acid		Folic Acid
Fosamax		*Flomax*
FUDR		*Fludara*
Furosemide		Torsemide
Gamimune N		*CytoGam*
Gemzar		*Zinecard*
Glipizide		Glyburide
Glucophage		*Glutofac*
Glucotrol		*Glucotrol XL*
Glucotrol		Glyburide
Glucotrol XL		*Glucotrol*
Glutofac		*Glucophage*
Glyburide		Glipizide
Glyburide		*Glucotrol*
Granulex		*Regranex*
Haldol		*Stadol*
Haloperidol		Halotestin
Halotestin		Haloperidol
Hemoccult		*Seracult*
Heparin		*Hespan*
Hespan		Heparin
Humalog		*Humulin*
Humulin		*Humalog*
Hydralazine		Hydroxyzine
Hydrocodone		Hydrocortisone
Hydrocortisone		Hydrocodone
Hydromorphone		Morphine
Hydroxyzine		Hydralazine
Idamycin		*Adriamycin*
Idarubicin		Doxorubicin
IMDUR		*Imuran*
IMDUR		*Inderal LA*
IMDUR		*K-Dur*
Imipenem		*Omnipen*
Imipramine		Desipramine
Imovax		*Imovax I.D.*
Imovax I.D.		*Imovax*
Imuran		*Elmiron*
Imuran		*IMDUR*
Imuran		*Tenormin*
Inderal		*Adderall*
Inderal		*Isordil*
Inderal		*Toradol*
Inderal LA		*IMDUR*
Indinavir		*Denavir*
Iodine		Codeine
Iodine		*Lodine*
Isordil		*Inderal*
K-Dur		*IMDUR*
K-Phos Neutral		*Neutra-Phos-K*
Kefzol		*Cefzil*
Klonopin		Clonidine
Klonopin	Clonidine	Clonazepam
Lamictal		*Lamisil*
Lamictal		*Lomotil*
Lamictal		*Ludiomil*
Lamisil		*Lamictal*
Lamisil		*Lomotil*
Lamivudine		Lamotrigine
Lamotrigine		Lamivudine
Lanoxin	*Lasix*	*Lomotil*
Lanoxin		*Lonox*
Lanoxin		*Xanax*
Lasix	*Lomotil*	*Lanoxin*
Lasix		*Luvox*
L-Dopa	Levodopa	Methyldopa
Leucovorin	*Leukine*	*Leukeran*
Leukeran	Leucovorin	*Leukine*
Leukine	*Leukeran*	Leucovorin
Levbid		*Lithobid*
Levbid		*Lopid*
Levbid		*Lorabid*
Levobunolol		Levocabastine
Levocabastine		Levobunolol

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Levodopa. . . . . L-Dopa . . . . Methyldopa
Levoxyl . . . . . *Luvox*
Librax . . . . . *Librium*
Librium . . . . . *Librax*
Lioresal . . . . . *Lotensin*
Lisinopril . . . . . *Risperdal*
Lithobid . . . . . *Levbid*
Lithobid . . . . . *Lithostat*
Lithostat . . . . . *Lithobid*
Lodine . . . . . Codeine
Lodine . . . . . Iodine
Lomotil . . . . . *Lamictal*
Lomotil . . . . . *Lamisil*
Lomotil . . . . . *Lanoxin* . . . . *Lasix*
Loniten . . . . . *Lotensin*
Lonox . . . . . *Lanoxin*
Lopid . . . . . *Levbid*
Lopid. . . . . *Lorabid* . . . . *Slo-Bid*
Lorabid . . . . . *Levbid*
Lorabid . . . . . *Lortab*
Lorabid . . . . . *Slo-Bid* . . . . *Lopid*
Lorazepam . . . . . Alprazolam
Lorazepam . . . . . Diazepam
Lortab . . . . . *Cortef*
Lortab . . . . . *Lorabid*
Lortab . . . . . *Luride*
Losartan . . . . . Valsartan
Lotensin . . . . . *Lioresal*
Lotensin . . . . . *Loniten*
Lotensin . . . . . Lovastatin
Lotrimin . . . . . *Lotrisone*
Lotrisone . . . . . *Lotrimin*
Lovastatin . . . . . *Lotensin*
Loxitane . . . . . *Soriatane*
Ludiomil . . . . . *Lamictal*
Luride . . . . . *Lortab*
Luvox . . . . . *Lasix*
Luvox . . . . . *Levoxyl*
Medi-Gesic . . . . . *Medigesic*
Medigesic . . . . . *Medi-Gesic*
Medrol ADT . . . . . *Medrol Dosepak*
Medrol Dosepak . . . . . *Medrol ADT*
Medroxyprogesterone . . . . . Methylprednisolone
Megace . . . . . *Reglan*
Mepron . . . . . *Mepron*
(Atovaquone in U.S.) (Meprobamate in Australia)
Meruvax . . . . . *Attenuvax*
Methadone . . . . . Methylphenidate
Methotrexate . . . . . Metolazone
Methyldopa . . . . L-Dopa . . . . Levodopa
Methylphenidate . . . . . Methadone
Methylprednisolone . . . . . Medroxyprogesterone
Methylprednisolone . . . . . Prednisone
Metoclopramide . . . . . Metolazone
Metolazone . . . . . Methotrexate
Metolazone . . . . . Metoclopramide
Metoprolol . . . . . Misoprostol
Micro-K . . . . . *Micronase*
Micronase . . . . . *Micro-K*
Minoxidil . . . . . *Monopril*
Misoprostol . . . . . Metoprolol
Mitomycin . . . . . Mitoxantrone
Mitoxantrone . . . . . Mitomycin
Monoket . . . . . *Monopril*
Monopril . . . . . *Accupril*
Monopril . . . . . Minoxidil
Monopril . . . . . *Monoket*

Morphine . . . . . Hydromorphone
Murocel *Murocoll-2*
Murocoll-2 . . . . . *Murocel*
Naprelan . . . . . *Naprosyn*
Naprosyn . . . . . *Naprelan*
Narcan . . . . . *Norcuron*
Nasalcrom . . . . . *Nasalide*
Nasalide . . . . . *Nasalcrom*
Nasarel . . . . . *Nizoral*
Navane . . . . . *Norvasc*
Nebcin . . . . . *Nubain*
Nelfinavir . . . . . Nevirapine
Neocare . . . . . *Neocate*
Neocate . . . . . *Neocare*
Neoral . . . . . *Nizoral*
Neosar . . . . . *Cytosar-U*
Nephrox . . . . . *Niferex*
Neumega . . . . . *Neupogen*
Neupogen . . . . . *Neumega*
Neurontin . . . . . *Noroxin*
Neutra-Phos-K . . . . . *K-Phos Neutral*
Nevirapine . . . . . Nelfinavir
Niacin . . . . . *Nispan*
Nicardipine . . . . Nifedipine . . . Nimodipine
Nicoderm . . . . . *Nitroderm*
Nifedipine . . . . . Nicardipine . . Nimodipine
Niferex . . . . . *Nephrox*
Nimbex . . . . . *Revex*
Nimodipine . . . . Nicardipine . . Nifedipine
Nispan . . . . . Niacin
Nitroderm . . . . . *Nicoderm*
Nizoral . . . . . *Nasarel*
Nizoral . . . . . *Neoral*
Norcuron . . . . . *Narcan*
Norflex . . . . . *Noroxin* . . . . Norfloxacin
Norfloxacin . . . . *Norflex* . . . . . *Noroxin*
Noroxin . . . . . *Neurontin*
Noroxin. . . . . *Norflex* . . . . Norfloxacin
Norpramin . . . . . Nortriptyline
Nortriptyline . . . . . Desipramine
Nortriptyline . . . . . *Norpramin*
Norvasc . . . . . *Navane*
Nubain . . . . . *Nebcin*
Ocufen . . . . . *Ocuflox*
Ocufen . . . . . *Ocupress*
Ocuflox . . . . . *Ocufen*
Ocular . . . . . *Acular*
Ocu-Mycin . . . . . *Ocumycin*
Ocumycin . . . . . *Ocu-Mycin*
Ocupress . . . . . *Ocufen*
Omnipen . . . . . Imipenem
Ortho-Cept . . . . . *Ortho-Cyclen*
Ortho-Cyclen . . . . . *Ortho-Cept*
Orwail . . . . . *Clinoril*
Orwail . . . . . *Elavil*
Os-Cal . . . . . *Asacol*
Oxycodone . . . . . *OxyContin*
OxyContin . . . . . Oxycodone
Paclitaxel . . . . . Paroxetine
Paclitaxel . . . . . *Paxil*
Parafon Forte . . . . . *Fam-Pren Forte*
Paraplatin . . . . . *Platinol*
Parlodel . . . . . Pindolol
Paroxetine . . . . . Paclitaxel
Paxil . . . . . Paclitaxel
Paxil . . . . . *Taxol*
Pediapred . . . . . *Pediazole*

Pediazole . . . . . *Pediapred*
Pegaspargase . . . . . Asparaginase
Penicillamine . . . . . Penicillin
Penicillin . . . . . Penicillamine
Penicillin G Potassium . . . . . Penicillin G Procaine
Penicillin G Procaine . . . . . Penicillin G Potassium
Pentobarbital . . . . . Phenobarbital
Perative . . . . . *Periactin*
Periactin . . . . . *Perative*
Percocet . . . . . *Percodan*
Percodan . . . . . *Percocet*
Permax . . . . . *Bumex*
Phenobarbital . . . . . Pentobarbital
Pindolol . . . . . *Parlodel*
Pindolol . . . . . *Plendil*
Pitocin . . . . . *Pitressin*
Pitressin . . . . . *Pitocin*
Platinol . . . . . *Paraplatin*
Plavix . . . . . *Elavil*
Plendil . . . . . Pindolol
Plendil . . . . . *Prilosec*
Plendil . . . . . *Prinivil*
Pondimin . . . . . Prednisone
Potassium Phosphates . . . . . Sodium Phosphates
Pravachol . . . . . *Prevacid*
Pravachol . . . . . Propranolol
Precare . . . . . *Precose*
Precose . . . . . *Precare*
Prednisone . . . . . Methylprednisolone
Prednisone . . . . . *Pondimin*
Prednisone . . . . . *Prilosec*
Prednisone . . . . . Primidone
Premarin . . . . . *Primaxin*
Premarin . . . . . *Provera*
Prepidil . . . . . Bepridil
Prevacid . . . . . *Pravachol*
Prevacid . . . . . *Prinivil*
Prilosec . . . . . *Plendil*
Prilosec . . . . . Prednisone
Prilosec . . . . . *Prinivil*
Prilosec . . . . . *Prozac*
Primaxin . . . . . *Premarin*
Primidone . . . . . Prednisone
Prinivil . . . . . *Plendil*
Prinivil . . . . . *Prevacid*
Prinivil . . . . . *Prilosec*
Prinivil . . . . . *Proventil*
Prochlorperazine . . . . . Chlorpromazine
Proctocort . . . . . *Proctocream HC*
Proctocream HC . . . . . *Proctocort*
Profen . . . . . *Profen II* . . . *Profen LA*
Profen II . . . . . *Profen* . . . . . *Profen LA*
Profen LA . . . . . *Profen* . . . . . *Profen II*
Promethazine . . . . . Promethazine w/Codeine
Promethazine w/Codeine . . . . Promethazine
Propranolol . . . . . *Pravachol*
Propranolol . . . . . *Propulsid*
Propulsid . . . . . Propranolol
Proscar . . . . . *ProSom*
Proscar . . . . . *ProSom* . . . . *Prozac*
ProSom . . . . . *Proscar*
ProSom . . . . . *Prozac* . . . . . *Proscar*
Proventil . . . . . *Prinivil*
Provera . . . . . *Covera*
Provera . . . . . *Premarin*
Prozac . . . . . *Prilosec*

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Prozac . . . . . *Proscar* . . . . . *ProSom*
Quinidine . . . . . Quinine
Quinine . . . . . Quinidine
Ranitidine . . . Amantadine . . . Rimantadine
ReFresh . . . . . *Refresh*
(breath drops) (lubricant eye drops)
Refresh . . . . . *ReFresh*
(lubricant eye drops) (breath drops)
Reglan . . . . . *Megace*
Regranex . . . . . *Granulex*
Relafen . . . . . *Rezulin*
Remeron . . . . . *Zemuron*
Reno-M-60 . . . . . *Renografin-60*
Renografin-60 . . . . . *Reno-M-60*
Reserpine. . . . . *Risperdal* . . . Risperidone
Retrovir . . . . . Ritonavir
Revex . . . . . *Nimbex*
Revex . . . . . *ReVia*
ReVia . . . . . *Revex*
Rezulin . . . . . *Relafen*
Ridaura . . . . . *Cardura*
Rifabutin . . . . . Rifampin
Rifampin . . . . . Rifabutin
Rimantadine . . Amantadine . . Ranitidine
Risperdal . . . . . Lisinopril
Risperdal . . . . . Reserpine . . Risperidone
Risperidone . . . . Reserpine . . . *Risperdal*
Ritonavir . . . . . *Retrovir*
Roxanol . . . . . *Roxicet*
Roxicet . . . . . *Roxanol*
Rynatan . . . . . *Rynatuss*
Rynatuss . . . . . *Rynatan*
Salbutamol . . . . . Salmeterol
Salmeterol . . . . . *Salbutamol*
Selegiline . *Serentil* . . . . Sertraline . . . . *Serzone*
Selegiline . . . . . Sertraline
Senokot . . . . . *Depakote*
Seracult . . . . . *Hemoccult*
Serentil . . . Selegiline . . Sertraline . . . . *Serzone*
Serentil . . . . . *Serzone*
Serentil . . . . . *Sinequan*
Seroquel . . . . . *Serzone*
Serzone . . . Sertraline . . Selegiline . . . . *Serentil*
Serzone . . . . . *Seroquel*
Sinequan . . . . . *Serentil*
Slo-Bid . . . . . *Dolobid*
Slo-Bid . . . . . *Lopid* . . . . . *Lorabid*
Sodium Phosphates . . . . . Potassium Phosphates
Solu-Medrol . . . . . *Depo-Medrol*
Soma . . . . . *Soma Compound*
Soma Compound . . . . . *Soma*
Soriatane . . . . . *Loxitane*
Stadol . . . . . *Haldol*
Sufentanil Citrate . . . . . Fentanyl Citrate
Sulfadiazine . . . . . Sulfasalazine
Sulfasalazine . . . . . Sulfadiazine
Sulfasalazine . . . . . Sulfisoxazole
Sulfisoxazole . . . . . Sulfasalazine
Sumatriptan . . . . . Zolmitriptan
Symmetrel . . . . . *Synthroid*
Synagis . . . . . *Synvisc*
Synthroid . . . . . *Symmetrel*
Synvisc . . . . . *Synagis*
Taxol . . . . . *Paxil*
Tegretol . . . . . *Toradol*
Temazepam . . . . . Flurazepam
Tenormin . . . . . *Imuran*
Tenormin . . . . . Thiamine
Tenormin . . . . . *Trovan*
Testoderm . . . . . *Estraderm*
Tetracycline . . . . . Tetradecyl Sulfate
Tetradecyl Sulfate . . . . . Tetracycline
Thiamine . . . . . *Tenormin*
Tiagabine . . . . . Tizanidine
Tiazac . . . . . *Ziac*
Tizanidine . . . . . Tiagabine
Tobradex . . . . . *Tobrex*
Tobrex . . . . . *Tobradex*
Tolazamide . . . . . Tolbutamide
Tolbutamide . . . . . Tolazamide
Toradol . . . . . *Inderal*
Toradol . . . . . *Tegretol*
Toradol . . . . . *Torecan*
Toradol . . . . . Tramadol
Torecan . . . . . *Toradol*
Torsemide . . . . . *Furosemide*
Tramadol . . . . . *Toradol*
Tramadol . . . . . *Voltaren*
Trandate . . . . . *Tridrate*
Triad . . . . . *Triad*
(Butalbital/ (topical)
Acetaminophen/Caffeine)
Tridrate . . . . . *Trandate*
Trifluoperazine . . . . . Trihexyphenidyl
Trihexyphenidyl . . . . . Trifluoperazine
Tri-Norinyl . . . . . *Triphasil*
Triphasil . . . . . *Tri-Norinyl*
Trovan . . . . . *Tenormin*
Ultane . . . . . *Ultram*
Ultram . . . . . *Ultane*
Ultram . . . . . *Voltaren*
Urex . . . . . *Erex*
Uricit-K . . . . . *Urised*
Uridon . . . . . *Vicodin*
Urised . . . . . *Uricit-K*
Valsartan . . . . . Losartan
Vancenase . . . . . *Vanceril*
Vanceril . . . . . *Vancenase*
Vancomycin . . . . . Vecuronium
Vantin . . . . . *Ventolin*
Vecuronium . . . . . Vancomycin
Ventolin . . . . . *Benylin*
Ventolin . . . . . *Vantin*
VePesid . . . . . *Versed*
Verapamil . . . . . *Verelan*
Verelan . . . . . Verapamil
Verelan . . . . . *Virilon*
Versed . . . . . *VePesid*
Versed . . . . . *Vistaril*
Vexol . . . . . *VoSol*
Viagra . . . . . *Allegra*
Vicodin . . . . . *Uridon*
Vinblastine . . . . . Vincristine
Vincristine . . . . . Vinblastine
Viracept . . . . . *Viramune*
Viramune . . . . . *Viracept*
Virilon . . . . . *Verelan*
Vistaril . . . . . *Versed*
Vistaril . . . . . *Zestril*
Volmax . . . . . *Flomax*
Voltaren . . . . . Tramadol
Voltaren . . . . . *Ultram*
VoSol . . . . . *Vexol*
Xanax . . . . . *Lanoxin*
Xanax . . . . . *Zantac*
Xanax . . . . . *Zantac* . . . . . *Zyrtec*
Yocon . . . . . *Zocor*
Zagam . . . . . *Zyban*
Zantac . . . . . *Xanax*
Zantac . . . . . *Zofran*
Zantac . . . . . *Xanax* . . . . . *Zyrtec*
Zebeta . . . . . *DiaBeta*
Zemuron . . . . . *Remeron*
Zestril . . . . . *Vistaril*
Ziac . . . . . *Tiazac*
Zinacef . . . . . *Zithromax*
Zinecard . . . . . *Gemzar*
Zithromax . . . . . *Zinacef*
Zocor . . . . . *Cozaar*
Zocor . . . . . *Yocon*
Zocor . . . . . *Zoloft*
Zofran . . . . . *Zantac*
Zofran . . . . . *Zosyn*
Zoloft . . . . . *Zocor*
Zolomitriptan . . . . . Sumatriptan
Zonalon . . . . . *Zone A Forte*
Zone A Forte . . . . . *Zonalon*
Zosyn . . . . . *Zofran*
Zyban . . . . . *Zagam*
Zyrtec . . . . . *Xanax* . . . . . *Zantac*
Zyprexa . . . . . *Celexa*
Zyprexa . . . . . *Zyrtec*
Zyrtec . . . . . *Zyprexa*

To report a medication error or to receive further information, call the USP Medication Errors Reporting Program at 800-23-ERROR (800-233-7767). On-line reporting is available through the **Internet** at **www.usp.org.** The USP Medication Errors Reporting Program is presented in cooperation with the Institute for Safe Medication Practices.

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High Alert Medications - Concerns in Use of Psychoactive Drugs

- *Document symptoms/behaviors indicating a potential condition*
- *Rule out other causes for distress*
- *Evaluate non-pharmacological options*
- *Persistent, not preventable*
- *Cause a danger, distress or impairment*
- *Environment/psychosocial*
- *Medical (e.g. treatable condition or medication side effects)*

- *Drug appropriate for use in older patient*
- *Drug appropriate for specific patient*
- *Dosage adjusted to account for patient's status*
- *Avoid drugs with high potential for adverse effects*
- *Cause a danger, distress or impairment*
- *Potential interactions with existing diseases or concurrent medications*
- *Age, health, concurrent medications*

- *Monitor benefit and continuing need*
- *Gradual dose reduction after treatment period*
- *Prolonged treatment only if withdrawal unsuccessful*
- *Improved status documented with treatment*
- *Anxiolytic/sedative drugs <4 consecutive months*
- *Sleep induction medication <10 continuous days*

- *Recognize and document side effects related to medication*
- *Discontinue/switch treatment if severe effects occur*
- *Avoid treating medication side effects with additional medication*
- *Tardive dyskinesia*
- *Postural hypotension*
- *Cognitive/behavioral impairment*
- *Akathesia*
- *Parkinsonism*

Medication Management and Polypharmacy
Beer's List

The Beer lists are used as a national guideline and reference guide for pharmacists and physicians to improve the use of medication in the elderly. For several years, gerontologist Mark H. Beers, MD, has been advocating the use of explicit criteria developed through consensus panels for identifying inappropriate use of medications. In a 1991 paper that looked at the nursing facility population, he wrote with colleagues that these explicit criteria were "based on the risk-benefit definition of appropriateness, i.e., that the use of a medication is appropriate if its use has potential benefits that outweigh potential risks." [i] His first set of criteria was developed specifically with the frail elderly nursing facility resident in mind.

In 1997, Beers updated his criteria to include medication therapy inappropriate in all patients over 65 years old.[3] Consultant pharmacists can use both sets of criteria in prescription processing and drug regimen review to improve the pharmacotherapeutic regimens of their elderly patients.

Below are the two tables developed by the study's Beer conducted. Table 1 is MEDICATIONS TO AVOID OR USE WITHIN SPECIFIED DOSE AND DURATION RANGES IN ELDERLY PATIENTS and Table 2 is MEDICATIONS TO AVOID IN ELDERLY PATIENTS WITH SPECIFIC CONCOMITANT DISEASES.

The important question to ask is, what can facility's do with this information in managing medication use in the elderly? Below is a list of recommendation standards:

- Make sure your consultant pharmacist has the lists.
- Mail the lists to the medical director and attending physicians with a cover letter stating the lists are used as a national guideline and reference guide for pharmacists and physicians to improve the use of medication in the elderly. Ask if there are any new systems or procedures they would like to see at the facility.
- Set a standard that the pharmacist must address these drugs during drug regimen review.
- The dispensing pharmacy reviews Table 1 list of drugs and discuss procedurally how the dispensing of these drugs could be handled on a case by case basis.
- Inservice the licensed staff and CMA's on the two tables, especially table 2.

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[i] Reference: Beers MH, Ouslander JG, Rollingher I, Reuben DB, Brooks J, Beck JC. Explicit criteria for determining inappropriate medication use in nursing home residents. Arch Intern Med 1991;151:1825-32.

2,3 Beers MH. Explicit criteria for determining potentially inappropriate medication use by the elderly: an update. Arch Intern Med 1997;157:1531-6.

12/00 Best Practices Committee

TABLE 1: MEDICATIONS TO AVOID OR USE WITHIN SPECIFIED DOSE AND DURATION RANGES IN ELDERLY PATIENTS[a]

MEDICATION(s)[b]	EXPLANATION OF PROBLEM	SEVERITY
PSYCHOTROPIC MEDICATIONS		
Amitriptyline, alone or in combination products	Strong anticholingeric and sedating properties	High
Barbiturates (other than phenobarbital)	Side effects and addictive properties	High
Chlordiazepoxide (alone or in combination) or diazepam	Long half-lives, risk of sedation and increased falls	High
Doxepin	Strong anticholinergic and sedating properties	High
Ergot mesylates, cyclandelate isoxsuprine[c]	Not proven effective at doses studied	Low
Flurazepam	Long half-life; risk of sedation and increased falls	High
Haloperidol[c]	Doses > 3mg/day should be avoided; residents with psychotic disorders may require higher doses	. . .
Lorazepam 3 mg, oxazepam 60 mg, alprazolam 2 mg, temazepam 15 mg, zolpidem 5 mg, triazolam 0.25 mg	Total daily doses should not exceed these amounts; in the nursing facility resident, avoid any single dose of oxazepam > 30 mg or triazolam > 0.25 mg	Low
Meperidine	Not effective orally and has disadvantages compared with other narcotic analgesics	High
Meprobamate	Highly addictive and sedating. Avoid unless patient is already addicted to it.	High
Pentazocine	Has more CNS side effects, including confusion and hallucinations; is a mixed agonist-antagonist	High
Propoxyphene	Few advantages over acetaminophen	Low
Thiordiazine[c]	Avoid doses > 30 mg/day; residents with known psychotic disorders may require higher doses.	. . .
EENT AGENTS		
Antihistamines (alone or in combination, including chlorapheniramine, diphenhydramine, hydroxyzine, cyproheptadine, promethazine, and dexchlorpheniramine)	Strong anticholingeric activity. Substitute cough and cold products without these antihistamines	Low
Decongestants (oxymetazoline, phenylephrine, pseudoephedrine)[c]	Avoid daily use for > two weeks	. . .

MEDICATION(s)[b]	EXPLANATION OF PROBLEM	SEVERITY
Diphenhydramine	Do not use as a hypnotic. For allergies, use the lowest possible dose.	Low
GASTROINTESTINAL AGENTS		
Cimetdine[c]	Avoid doses > 900 mg/day and therapy for > 12 weeks	. . .
Dicyclomine, hysoscyamine, propantheline, belladonna alkaloids, clidinium, chlordiazepoxide	Strong anticholinergic activity and questionable efficacy as antispasmodic agents. Avoid long-term use; other use is questionable	High
Ranitidine[c]	Avoid doses > 300 mg/day and therapy for > 12 weeks	. . .
Trimethobenzamide[c]	One of the least effective antiemetic agents; produces extrapyramidal side effects	Low
ENDOCRINE AGENTS		
Chlorpropamide	Can cause prolonged and serious hypoglycemai. Also can cause syndrome of inappropriate antidiuretic hormone	High
CARDIAC AGENTS		
Digoxin	Except for treatment of atrial arrhythmias, doses > 0.125 mg in the elderly should rarely exceed this amount	High
Disopyramide	May induce heart failure because of strong negative inotropic activity. Also has strong anticholinergic activity	High
VASCULAR AGENTS		
Dipyridamole	Causes orthostatic hypotension. Beneficial only in patients with artificial heart valves.	Low
Hydrochlorothiazide[c]	Avoid doses > 50 mg/day	. . .
Methyldopa (alone or in combination)	Causes bradycardia and exacerbates depression	High
Propranolol[c]	Avoid except when used to treat violent behaviors; other beta blockers offer less CNS penetration or more beta-receptor selectivity	. . .
Reserpine (alone or in combination)	Causes depression, impotence, sedation, and orthostatic hypotension	Low
Ticlopidine	More toxic than aspirin, yet no more effective	High
MUSCULOSKELETAL AGENTS		
Indomethacin	Most CNS side effects of any NSAID	Low

MEDICATION(s)[b]	EXPLANATION OF PROBLEM	SEVERITY
Methocarbamol, carisoprodol, oxybutynin, chlorzoxazone, metaxalone, cyclobenzaprine, orphenidrate[c]	Poorly tolerated by the elderly; cause anticholinergic side effects, sedation, and weakness. Effectiveness at tolerated doses questionable	Low
Phenylbutazone (off U.S. market)	Serious hematologic side effects	Low
HEMATOPOIETIC AGENTS		
Iron supplements exceeding 325 mg of ferrous sulfate	Higher doses no more effective but cause constipation	Low
ANTI-INFECTIVE AGENTS		
Oral antibiotics[c]	Avoid therapy for > four weeks except when treating osteomyelitis, prostatis, tuberculosis, or endocarditis	. . .

a Adapted from references 2 and 3. Abbreviations: CNS=central nervous system; EENT=eyes, ears, nose, and throat; NSAID=nonsteroidal anti-inflammatory drugs.
b Unless otherwise stated in the "Problems" column, use of these medications should be avoided completely in all patients 65 years and older.
c These criteria were developed specifically for the frail elderly patient, especially those who are residents of nursing facilities. Use in other elderly patients may be acceptable.

TABLE 2: MEDICATIONS TO AVOID IN ELDERLY PATIENTS WITH SPECIFIC CONCOMITANT DISEASES

DISEASE	MEDICATION(s)	PROBLEM	SEVERITY
	NEUROLOGIC DISORDERS		
Epilepsy	Clozapine, chlorpromazine, thioridazine, chlorprothixene	Agents lower seizure threshold	Low
	Metoclopramide	Agents lower seizure threshold	High
	PSYCHIATRIC DISORDERS		
Insomnia	Decongestants	May cause or worsen insomnia	Low
	Theophylline	May cause or worsen insomnia	Low
	Desirpramine, serotonin selective reuptake inhibitors, and monoamine oxidase inhibitors	May cause or worsen insomnia	Low
	Beta agonists	May cause or worsen insomnia	Low
	GASTROINTESTINAL DISORDERS		
Constipation	Anticholinergics	Will worsen constipation	Low
	Narcotics	Will worsen constipation	Low
	Tricyclic antidepressants	Will worsen constipation	High
Ulcers	NSAIDs	May exacerbate ulcer disease, gastritis, GERD	High
	Aspirin	May exacerbate ulcer disease, gastritis, GERD	Low
	Potassium supplements	May exacerbate ulcer disease, gastritis, GERD	Low
	ENDOCRINE DISORDERS		
Diabetes	Beta blockers	In people being treated with insulin or oral agents, beta blockers may worsen symptoms	Low
	Corticosteroids (started recently)	May worsen diabetic control	Low
	RESPIRATORY DISORDERS		
Asthma	Beta blockers	May worsen respiratory function	High

Chronic obstructive pulmonary disease	Beta blockers	May worsen respiratory function	High
	Sedative-hypnotics	May slow respirations and increase carbon dioxide retention	High
CARDIAC DISORDERS			
Arrhythmias	Tricyclic antidepressants	May induce arrhythmias	High if started recently
Heart failure	Disopyramide	May worsen heart failure because of negative inotropic action	High
	Drugs with high sodium content	Large sodium load may lead to fluid retention and thereby worsen heart failure	Low
VASCULAR DISORDERS			
Blood-clotting disorders being treated with anticoagulants	Aspirin	May cause bleeding	High
Hypertension	Amphetamines and other weight-control agents	May increase blood pressure	High
Peripheral vascular disease	Beta blockers	Negative chronotropic and inotropic activity	Low
Syncope	Beta blockers	Negative chronotropic and inotropic activity	Low
	Long-acting benzodiazepines	May contribute to falls	High
UROLOGIC DISORDERS			
Benign prostatic hypertropy	Anticholinergic antihistamines	May impair micturation and cause obstruction	High
	Gastrointestinal antispasmodics	May impair micturation and cause obstruction	High
	Muscle relaxants	May impair micturation and cause obstruction	Low
	Narcotic drugs (including propoxyphene)	May impair micturation and cause obstruction	Low
	Flavoxate, oxybutyin	May cause obstruction	Low
	Bethanechol	May cause obstruction	Low
	Anticholinergic antidepressants	May impair micturation and cause obstruction	High
Incontinence	Alpha blockers	Relaxes the external bladder sphincter	High

Adapted from references. These criteria apply to all elderly patients, not just nursing facility residents. Abbreviations: NSAID=nonsteroidal anti-inflammatory drugs; GERD=gastroesophagal reflux disease.

Protocol for INR Target 2.0-3.0

IF INR IS:	ADJUST DOSE BY…	Number of doses to omit:	RETEST IN…
<1.5	Increase weekly dose by 10%	0	1 week
1.6-1.9	2 results or 2 of last 3: increase by 10%	0	1 week
1.6-1.9	No change if single result	0	1 week
2.0-3.0	No change	0	2-4 weeks
3.1-3.5	No change if single result	0	1 week
3.1-3.5	2 results or 2 of last 3: decrease by 10%	0	1 week
3.6-4.5	Decrease by 20%	1	2 days
>4.5	Decrease by 20%	2	2 days
>5.0	See additional table	p.2	American Geriatric Society

Source: Fallon Community Health Plan; developed from the American Geriatric Society, Current Practice Guidelines.

INR Target-page 2

Managing High INR Values	**INR 5.0-9.0 No significant bleeding**	▪ Withhold 1-2 doses, resume when INR in desired range ▪ Consider Vitamin K1 (1-2.5 mg p.o.), especially if increased bleeding risk ▪ If urgent correction required, give Vitamin K1 (2-4 mg p.o.); if INR remains high give additional Vitamin K1 (1-2 mg p.o.) *Grade 2C evidence as compared with no treatment*
	INR > 9.0 No significant bleeding	▪ Withhold warfarin; give Vitamin K1 (3-5 mg p.o.) ▪ Closely monitor INR; if not substantially reduced in 24-48 hrs, may require additional Vitamin K1
	Significant bleeding	▪ Discontinue warfarin ▪ Administer Vitamin K1 (10 mg slow IV infusion); supplemented with fresh plasma or prothrombin complex concentrate, depending on urgency; Vitamin K1 injections can be repeated every 12 hours *Grade 2C*

Source: Fallon Community Health Plan; developed from the American Geriatric Society, Current Practice Guidelines. May be viewed at http://www.americangeriatrics.org/products/positionpapers/Ant_Coag_Pocketv61.pdf

Tab 5 - Documenting – Transcribing

Transcription, or writing out, of a medication order can be done by a physician who can write the order directly into the chart or by a nurse who transcribes an order into the chart after receiving a verbal order from a physician. In both cases, the medication order must then be transcribed onto the medication administration record (MAR) and then onto a pharmacy order sheet or communication sheet. Even under the best circumstances, a medication order will be transcribed at least twice and sometimes many more times than that. Attention to accurate spelling, legible handwriting, use of appropriate abbreviations, and good communication skills are all aspects of transcribing a medication order. Specific features of the transcribing process include:

- Verbal orders
- Illegible handwriting and noisy work environment
- Monthly editing process
- Transmission of medication order onto the MAR
- Transmission of medication order to the pharmacy
- Computerized physician order entry

Key Point

- **Transcription of medication orders requires attention to handwriting, abbreviations, and good communication skills.**

Tools

- **List of acceptable abbreviations (see Prescribing Tab)**
- **Look-alike/sound-alike medications (see Prescribing Tab)**
- **Checklist - Assessing Medication Use Processes: Transcribing**
- **Steps to Consider to Reduce Transcription Errors**

Transcription /Documentation

Medication orders may be written by hand, entered directly into a computer system, or given verbally (verbal orders given face-to-face or over the telephone). Regardless of the method used, the medication order must be correctly transcribed onto the telephone order sheet and/or onto the physician's order sheet, transmitted to the pharmacy and then transcribed onto the medication administration record (MAR). Errors can occur at each stage of this process

Factors Affecting Transcribing

Verbal Orders

The use of verbal orders, defined as prescription or medication orders that are communicated as oral or spoken communications between senders and receivers, are a common source of errors reported to the National Coordinating Council for Medication Error Reporting and Prevention (NCC MERP, 2001). Accurate transcription of verbal orders requires adequate communication between the person ordering and the person receiving the order. Twenty-five percent of all errors reported to the NCC MERP involved confusion over the similarity of drug names (NCC MERP, 2001). Additionally, misunderstanding, misspelling, or unfamiliarity with drug names and actions contribute to errors in appropriate transcription of medication orders. In their National Safety Goals, the Joint Commission on Accreditation of Healthcare Organizations requires organizations to improve the effectiveness of communication among caregivers (Joint Commission Resources). The use of verbal orders is specifically targeted in their recommendations for improvement.

The use of verbal orders should be limited to situations when the ordering MD/NP/PA is not in the building. All efforts should be made to have the MD/NP/PA who is giving the order write the order when in the building. When taking a verbal order over the phone, the nurse transcribing the verbal order should "read back" the order verbatim to the ordering provider. Included in the "read back" should be the exact spelling of the medication (particularly if the medication may have a look-alike or sound-alike potential) and the exact dose clearly stated. For example, an order for 16 units of insulin should be read back: "Sixteen units…one six units" to avoid possible confusion with 60 units of insulin. Only standard abbreviations should be used. Easy access to the facility list of standard and unacceptable abbreviations and look-alike/sound alike drugs is recommended. Posting laminated copies on brightly colored sheets of these resources in the MAR and in the front of the orders sheets in each chart can increase their use.

Verbal orders may require that the order be written several times. The nurse receiving the order may initially write it on a piece of scrap paper or report sheet, then transcribe it to the physician's order sheet and then to the pharmacy order sheet, and finally to the MAR. Whenever possible, the verbal order should be transcribed directly into the patient's chart to minimize the rewriting of the medication order, and therefore minimize potential for error. All elements of a complete medication order are necessary for a verbal order (i.e., right resident, right drug, right route, right time, and right dose). Verbal orders should be countersigned by the ordering MD/NP/PA on his/her next visit to the facility. Inquiry about unclear or incomplete verbal orders should be encouraged and supported by facility administration. A medication order must be completely clarified by the nurse prior to transmission to the pharmacy or transcription on the medication administration record.

Illegible Handwriting and Noisy Environment

Incomplete or illegible handwriting, transcription of the wrong drug name, dose, route or frequency, are examples of potential errors in the transcription process and account for 14 percent of reports to the NCC MERP (M3 Tool Kit, 2003). Noisy work environments and the many distractions at the nurse's station are factors that have been shown to increase medication errors and may negatively impact the transcription process. When handwriting is not clearly legible, the author of the medication order must be contacted for clarification. This may be the MD/NP/PA who wrote the order or the nurse who

transcribed a verbal order. Block-type printing is suggested for illegible handwriting styles. When a wrong dose, route, or frequency is suspected, referral to drug reference books, facility pharmacy, and MD/NP/PA are ways to resolve questions. Nursing stations should be equipped with updated drug references which are frequently available from the contracted pharmacy. Whenever possible, medication orders should be written and transcribed in a manner that is free of distractions. Consider visual cue cards or reminders near nursing stations highlighting the need for attention to transcribing medication orders.

Monthly Editing

Transcription of medication orders routinely occurs with the monthly editing of each resident's medication administration record. A new list of medication orders is printed at the end of each month and must be edited for changes in medications prior to the start of the new month. These new order sheets are typically printed during the last week of the month. New orders given after the list is printed must be transcribed onto the current order sheets and onto the new order sheets. Errors in transcribing the order onto both sets of order sheets, as well as errors in the correct name, route, and dosage of medication and errors related to illegible handwriting may occur during this process. Because of the importance of this issue, a separate tab about Monthly Edits (Tab 13) is included in this Workbook.

Transcription of Medication Order onto the MAR

Whether the medication order has been written onto the physician order sheet by the MD/NP/PA or the nurse after receiving a verbal order, it must always be transcribed onto the MAR. Standards for legible handwriting, use of only acceptable abbreviations, and knowledge about appropriate routes and dosages of medications should be employed to minimize errors in this process.

Transmission of Medication Order to the Pharmacy

Several factors previously described such as illegible handwriting, use of unapproved or vague abbreviations, and incomplete or incorrect orders can also occur when medications are transmitted to the pharmacy. Technological barriers such as unclear fax printouts or unclear carbon copies may increase risks of transcription errors. Standards for legible handwriting, use of approved abbreviations, and attention to technological processes will mitigate problems with transmission of medication orders to the pharmacy. Open communication between the pharmacy and nursing home when there is a question about a medication order should be encouraged and is consistent with JCAHO goals to improve communication among caregivers.

Computerized Prescription Order Entry

Computerized prescription order entry (CPOE) involves the MD/NP/PA directly entering the order into the computer and offers great potential in reducing medication errors. Problems related to illegible handwriting are essentially eliminated. Many CPOE programs allow the MD/NP/PA easy access to known drug interactions and provide prompts if high-risk medications are ordered. It has been shown to reduce serious prescribing errors by as much as 55 percent (M3 Tool Kit, 2003). Few nursing homes currently have access to CPOE so at present, the recommendation is to note that this technology exists and to consider investigating costs/risks/benefits within individual facilities.

Checklist for Assessing Medication Use Processes: Transcribing

Does your facility have a policy for transcribing and documentation of medication orders?

___No. If no, this is an area for improvement. Use this checklist and the transcribing and documenting section in this workbook to guide your team in implementing a process for assessing transcribing and documenting of medication orders.

___This is an area we are working on. Our target date for revising our transcribing and documenting of medication orders process is _____. If needed, use the transcribing and documenting of medication orders section of this workbook to guide your improvement process.

___Yes. Please continue to the questions below.

Does your facility's policy for transcribing and documenting medication orders include these components?

			Person	Comments
1. Does your facility have a policy about verbal orders?				
2. Does your facility have a policy about legible handwriting?				
3. Does your facility have a policy about monthly editing?				
4. Does your facility have a policy about transmission of medication orders to the pharmacy?				
5. Does your facility have a list of acceptable/ unacceptable abbreviations?				
6. Does your facility have a list of look-alike/ sound-alike medications?				

If any of the above elements in your transcribing process are missing, choose one element to focus your quality improvement effort first.

- Start with the Quality Improvement Worksheet A: Identifying Areas for Improvement to collect data to investigate further.
- Follow the Quality Improvement Worksheets to implement missing element(s) and monitor regularly to determine whether implementation is successful.

Steps to Consider to Reduce Transcription Errors

1. The use of verbal orders should be limited to circumstances when direct written or electronic communication is not possible.

2. The verbal order should be "read back" by the nurse receiving the order. The read back should be verbatim to the ordering physician and should include the name, dose, and route of the drug. The spelling of the drug and dosage should be verified…i.e. "M" as in "Mary"; "16" should be read as "one six" to avoid possible confusion with 60.

3. The order should be transcribed directly into the chart whenever possible. Minimize the number of times the order is transcribed.

4. All elements of a medication order (refer to prescribing tab) also need to be present for a verbal order. Name and signature of person receiving the verbal order should be included.

5. Only accepted abbreviations should be used.

6. Any questions or concerns should be verified prior to sending the order to the pharmacy to be filled. Utilize drug reference books, facility list of standard abbreviations and similar sounding medications. Facility protocol should encourage nurses to contact MD/NP/PAs with any questions or concerns about a verbal order.

7. Adopt standards for legible handwriting. Any illegible handwriting should trigger automatic review and contact of MD/NP/PA for clarification. Block writing minimizes errors related to illegibility.

8. Verbal orders should be reviewed and countersigned by the MD/NP/PA as soon as possible.

9. To prevent errors in the monthly editing process, the editing should ideally be done on the 11-7 shift on the last day of each month. Delegation of this task to two nurses who would work together to edit and verify orders may also help reduce transcription errors.

Joint Commission Resources; M3 Tool Kit, 2003; NCC MERP, 2001; Massachusetts Coalition for the Prevention of Medical Errors, 2001

Tab 6 - Dispensing

Dispensing medication is a process that occurs primarily at the pharmacy and follows a predictable, logical process. Errors in the dispensing process are infrequent but can occur in any of the "five rights" with patient medication; the right patient, drug, dose, route, and time can all be misinterpreted and dispensed improperly. Safeguards in the dispensing process include:

- Pharmacist check of the medication order prior to release from the pharmacy for delivery
- Nurse check of the medication order upon receipt of the medication order
- Computer alerts to the pharmacist regarding appropriate drug-drug interactions, therapeutic duplication, and potential side effects

Medications are also dispensed from the emergency kit in long-term care facilities. Special attention to resident allergies and the five rights by the nursing staff is particularly important when dispensing medication from the emergency kit.

Timely delivery of medication will reduce adverse drug events related to dose omission because the medication was not available. Policies regarding delivery times for routine and "stat" orders can be developed by a team of caregivers consisting of staff from the nursing home and the pharmacy.

Key Points

- **Dispensing errors are infrequent but can occur**
- **Maximize safeguards in dispensing process to minimize errors.**

Tool

- **Checklist - Assessing Medication Use Process: Dispensing**

Dispensing

The dispensing step in the medication administration process occurs primarily at the contracted pharmacy. The medication order is called in by telephone, faxed, or received in written form. Once the medication order reaches the pharmacy, the following steps occur:

1. The medication order is received and is evaluated for clarity, complete information, and legibility.
2. Any problems identified with the medication order are clarified by the pharmacy staff with the nurse at the facility or the prescribing MD/NP/PA. Problems may include unclear handwriting, questions about dose, route, or drug.
3. The medication order is interpreted as the MD/NP/PA intended and is therapeutically sound.
4. The medication order is then entered into the pharmacy computer system and the pharmacist is alerted to allergies, potential drug interactions and possible therapeutic duplications.
5. The medication is prepared, packaged, labeled, and stored appropriately.
6. The medication order is checked by the pharmacist for completion, appropriate label, allergies, drug interactions, potential therapeutic duplication, and right patient, drug, dose, route, and time.
7. The medication is dispensed to the facility.
8. Upon receipt of the medication, the nurse at the facility verifies the patient, drug, dose, route, and timing of the medication against the order in the medication administration record and stores the medication in appropriate place (i.e., the refrigerator, medication cart, or locked controlled substance box). The nurse should visually inspect the medication in the "blister pack" prior to storing it. If a controlled substance is delivered, it is appropriately logged into the facility controlled substance logbook according to facility policy and procedure. (Source: ASCP Guidelines)

Dispensing errors are uncommon, accounting for only 0.5% of preventable adverse drug events in a study done by Gurwitz, et al. (2005), but they can occur. Errors in dispensing can occur when any of the five "rights" becoming a "wrong." The wrong patient label, the wrong drug, the wrong time instructions, the wrong dose, and the wrong instructions for the route of administration can occur. Safeguards against this include order verification by the pharmacist prior to sending the dose from the pharmacy and verification of the order by the nurse at the facility upon receipt from the pharmacy. Additionally, the nursing home and pharmacy should have the same list of acceptable abbreviations and policies for order clarification if the order is not clear or if there are any concerns about any aspect of the order.

Timely delivery of medication after the order is received will help decrease adverse drug events related to omission of doses because of unavailability. A policy for delivery of routine and "stat" orders can be developed with pharmacy and nursing home staff.

Pharmacy computer software is available to alert the pharmacist for allergies, drug-drug interactions, therapeutic duplication, potential side effects, and acceptable dose ranges. Nursing homes can benefit from knowing what technology is available to their contracted pharmacy and how they may access or benefit from their resources.

Dispensing Medication from the Emergency Kit

In the nursing home, medications may also be dispensed from the facility emergency kit or "e-kit." The contents of the e-kit are limited to medications

that would need to be administered immediately after they are ordered and could not be delayed until the next delivery from the contracted pharmacy. Some examples of medications in the e-kit include antibiotics, narcotics, and anticonvulsants. Facilities should have policies to ensure safe dispensing from the e-kit. Suggestions to consider in e-kit dispensing include:

- Requiring two nurses to verify the name, dose, and route of the medication being signed out.
- A sign-out form attached to the e-kit which would require the nurse to provide the patient name and allergies each time a medication is dispensed from the e-kit,
- Each order is countersigned by a second nurse.

References

American Society of Consultant Pharmacists. Guidelines: Medication system and potential breakdown points. Retrieved www.ascp.com/public/pr/guidelines/appendixa.shtml. Accessed June 5, 2005

Gurwitz, J., Field, T., Avorn, J., McCormick, D., Jain, S., Eckler, M., Benser, M., Edmondson, A., & Bates, D. (2005). Incidence and preventability of adverse drug events in nursing homes. *The American Journal of Medicine*, 109: 87-94.

Checklist for Assessing Medication Use Processes: Dispensing

Does your facility have a method for assessing the dispensing process in the medication administration procedure?

___**No**. If no, this is an area for improvement. Use this checklist to guide your team in implementing a method for assessing the dispensing process of the medication administration procedure.

___**This is an area we are working on.** Our target date for implementing a method for assessing the process of the medication administration procedure is _____.

___**Yes.** Please continue to the questions below.

Does the assessment of the dispensing process include all of the following?

			Person	Comments
1. Does the nursing home have access to and knowledge about the pharmacy dispensing policy and/or protocols?				
2. Does your facility have a time frame policy in place for timely delivery of routine and "stat" medications?				
3. Does the pharmacy have a computer system that alerts them to inappropriate doses, potential side effects, allergies, drug-drug interactions and therapeutic duplication?				
4. Do your facility and contracted pharmacy have the same list of accepted abbreviations?				
5. Does your facility have a policy about dispensing medications from the emergency kit?				

1. If any of the above elements in your dispensing process are missing, choose one element to focus your quality improvement effort first.
2. Start with the Quality Improvement Worksheet A: Identifying Areas for Improvement to collect data to investigate further.
3. Follow the Quality Improvement Worksheet to implement missing element(s) and monitor regularly to determine whether implementation is successful.

Tab 7 - Administering

In the nursing home, the nursing staff is primarily responsible for the administration of medication.

Accurate medication administration is built on what is commonly referred to as the "five rights."

- The right resident
- The right drug
- The right dose
- The right route
- The right time

In addition, the AMDA M3 Toolkit expands the "five rights" to "ten commandments for the right medication process." Additional safety measures that must be "right" include the following:

- The label must be read right
- The reason for administering is right
- The patient has the right to refuse
- The right dosage form is given
- The documentation is right

Any concerns or discrepancies in any of these areas require clarification by the nurse administering the medication. Resources for clarification include drug books, the pharmacist, or the prescribing practitioner. The National Coordinating Council for Medication Error Reporting and Prevention (NCC MERP) issued recommendations to reduce errors related to medication administration in 1999. According to the recommendations, staff should be knowledgeable about medications, the indications for use, and potential side effects if they are responsible for administering medication. These recommendations also included suggestions that assessment of work environment such as lighting, noise level, and occurrence of distractions be considered when evaluating medication administration processes.

Key Points

- **When administering medication, check the "five rights" each time.**
- **Pay special attention to high-alert medications, particularly morphine sulfate.**

Tools

- **Checklist: Assessing Medication Use Processes: Medication Administration**
- **Sample- Clinical Guide Medication Administration Competency**
- **Sample- General Guidelines for Medication Administration**
- **Morphine Sulfate Conversion Charts (3)**
- **Do Not Crush List**

Medication Administration

While any one of the five "rights" could go "wrong," errors in the administration step of the medication use process are relatively uncommon, accounting for only three percent of preventable adverse drug events (Gurwitz et al., 2000). Vigilance is recommended nonetheless, as staff-to-patient ratios in nursing home remain low, staff turnover in nursing homes remains high, and nurses who care for patients in the nursing home are frequently distracted and interrupted during the medication pass. The responsibility for clarifying any outstanding questions about a medication order, handwriting legibility, pharmacy delivery or whether to give the medication in the presence of a potential side effect falls to the nurse who administers the medication.

Staff who are responsible for administering medications should be knowledgeable about the medication itself, indications for its use, expected outcomes, potential adverse reactions associated with the medication, and the appropriate route of administration. For instance, staff should appropriately shake suspensions, and inhalers, and use caution not to touch the eye with a tube or bottle of eye medication and be knowledgeable about which medications can/cannot be crushed. The Best Practice Recommendation #1 from the Division of Health Care Quality at the Massachusetts Department of Public Health suggests that an examination to assess basic knowledge about drugs and medication administration should be administered to staff as part of the pre-employment screening process and to all staff already employed that are responsible for medication administration. The facility should collaborate with the consultant pharmacist to develop the examination. The examination should include the following:

1. The use of a medication based upon the resident's diagnosis.
2. The common use of a medication.
3. The identification of a medication by both its brand and generic names.
4. Medication contraindications.
5. Basic medication calculation questions—including dosage conversions.
6. Adverse drug reactions associated with a particular drug.
7. Appropriate dosing levels.
8. Common Latin abbreviations.

(Circular Letter: DHCQ 12-98-386)

High-Alert Medications

See Staff Education Tab for more information

Special attention should be paid to high-alert medications in all aspects of the medication use process. In the administration phase of the medication use process, the use of morphine sulfate merits brief discussion. In August 1999, the Massachusetts Department of Public Health issued a circular letter, which addressed the issue of medication errors involving morphine sulfate in Massachusetts nursing homes (Circular Letter: DHCQ 8-99-395, included in the Tab Tools). Several errors in the administration of morphine had been reported over the previous three years that were attributed to miscalculation by the person administering the medication. The letter recommended that the prescription of morphine should be as simple as possible, requiring the simplest conversion possible by the nursing staff. Additional recommendations included standardization of strengths of morphine sulfate that are ordered by the facility such as prepackaged syringes instead of multidose syringes. Morphine sulfate conversion charts were provided. The facilities were encouraged to utilize the conversion charts and standardize prescribing practices with morphine sulfate. Opiods are frequently listed among the most common classes of drugs involved in adverse drug events.

Administration Tips

- Assure the medication is for the right patient using the resident identification band, photo of the resident, or confirmation by another staff member.
- Medications should be prepared for one resident at a time.
- Medications should only be administered that are appropriately labeled with the right patient, right drug, right dose, and right route. The label should match the order.
- The medication administered should be documented on the MAR after it is administered, not before.
- Expiration date on medication should be checked each time the medication is administered.
- An oral dose syringe should be used for preparing small volumes of liquid (i.e., 0.4 ml).
- Do not leave medications unattended on medication cart.
- The medication should be administered within the timeframes specified by the facility. (M3 Toolkit).

References

Gurwitz, J., Field, T., Avorn, J., McCormick, D., Jain, S., Eckler, M., et al. (2000). Incidence and preventability of adverse drug events in nursing homes. *The American Journal of Medicine*, 109: 87-94.

American Medical Directors Association (2003). Multidisciplinary medication management tool kit (M3 Tool kit), 26-28.

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Circular Letter: DHCQ 8-99-395. Massachusetts Department of Public Health. Best practice recommendation #2: Methods to facilitate the appropriate administration or morphine sulfate. Retrieved www.mass.gov/Eeohhs2/docs/dph/quality/hcq_circular_letters/ltc_facilities_899395.rtf. Accessed July 10, 2005.

Checklist for Assessing Medication Administration Processes:
Medication Administration

Does your facility have a policy on medication administration processes?

___**No**. If no, this is an area for improvement. Use this checklist and the Quality Improvement Worksheet to guide your team in implementing a process and/or staff education on medication administration.

___**This is an area we are working on.** Our target date for implementing an education program on medication administration is _____. If needed, use the Quality Improvement Worksheets to guide your improvement process.

___**Yes.** Please continue to the questions below.

Does the assessment of the administration process include all of the following?

	Yes	No	Person Responsible	Comments
1. Description of the medication administration process that includes checking the right patient, dose, route, frequency, and dosage form?				
2. Staff knowledge about and competency regarding medication administration is assessed when hired and then routinely thereafter.				
3. Morphine Sulfate administration charts are readily available to assist with calculations.				
4. Do Not Crush List is readily available.				

1. If any of the above elements in your administration process are missing, choose one element to focus your quality improvement effort first.
2. Start with Quality Improvement Worksheet A: Identifying Areas for Improvement to collect data to investigate further.
3. Follow Quality Improvement Worksheets to implement missing element(s) and monitor regularly to determine whether implementation is successful.

BEVERLY HEALTHCARE

Clinical Guide: Medication Administration

Competency

Staff responsible for medication administration has received competency review using the following guidelines:

- New hires successfully complete the Medication Competency Testing prior to independently passing meds
- New hires demonstrate correct administration techniques using the Med Pass Observation checklist. This is completed before the nurse/medication aide independently passes medications.
- Nurses/medication aides are observed at least annually using the Med Pass Observation checklist and demonstrate competency
- Procedural steps that are deemed unmet on the Med Pass Observation checklist should be addressed immediately and analyzed by the DNS for need of additional training
- Any common negative trends should be reviewed by the Q & A Committee

Monitoring Compliance
The following elements are in place for the facility to demonstrate satisfactory compliance with the guide:

- New hires are successfully completing the Medication written competency testing and medication administration demonstration prior to independently passing medications
- Nurses and medication aides are observed at least annually utilizing the Med Pass Observation checklist

Attachments: *Medication Administration Testing and Answer Key*
Medication Administration Checklist

Clinical Guide: Medication Administration Competency

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Attachments: *Medication Administration Testing and Answer Key*
Medication Administration Checklist

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Medication Administration Competency Page 1 of 1

SAMPLE

Medication Administration ~ General Guidelines

Medications are administered as prescribed, in accordance with good nursing principles and practices and only by persons legally authorized to do so. Personnel authorized to administer medications do so only after they have familiarized themselves with the medication.

1. Medications are prepared, administered, and recorded only by licensed nursing, medical, pharmacy, or other personnel authorized by state laws and regulations to administer medication.

2. Medications are administered in accordance with written orders of attending physicians, manufacturer's specifications, and professional standards of practice.

3. Patients are allowed to self-administer medications when specifically authorized by the attending physician and the interdisciplinary team (IDT) and in accordance with procedures for self-administration of medications.

4. Medications are administered at the time they are prepared. Medications are not pre-poured.

5. All current medications and dosage schedules are listed on the patient's medication administration record (MAR) or treatment administration record (TAR) according to facility policy.

6. Patients are identified before medication is administered. When in doubt:
    a. Check identification band if resident is wearing one
    b. Check photograph attached to medical record
    c. Ask patient his/her name, but do not rely solely on response
    d. If necessary, verify patient identification with other facility personnel

7. Explain to the patient what you are about to administer. The patient has the right to be informed of all medications that are administered.

8. Privacy must be provided if the patient so desires and especially for medications such as treatments, injections, rectal and vaginal preparations.

9. Only the licensed or legally authorized personnel who prepares a medication may administer it. This individual records the administration on the patient's MAR/TAR to ascertain that all necessary doses were administered and all administered doses were documented. In no case should the individual who administered the medication report off-duty without first recording the administration of any medications.

10. Medications are administered within one hour before and one hour after the scheduled time, except for orders relating to before, after, and during meal orders, which are administered according to the established medication administration schedule for the facility.

11. The patient's MAR/TAR is initialed by the person administering a medication, in the space provided under the date, and on the line for that specific medication dose administration. Initials on each MAR/TAR are verified with a full signature in the space provided.

12. When PRN medications are administered, the following documentation is provided:
    a. Date and time of administration, dose, route of administration (if other than oral), and, if applicable the injection site
    b. Complaints or symptoms for which the medication was given
    c. Results achieved from giving the dose and the time results were noted
    d. Signature or initials of person recording administration and signature or initials of person recording effects, if different from person administering

13. If a dose of regularly scheduled medication is withheld, refused, or given at other than the scheduled time (e.g., patient not in facility at scheduled dose time, initial dose of antibiotic), the space provided on the front of the MAR/TAR for the dosage administration is initialed and circled. An explanatory note is entered on the reverse side of the record provided for PRN documentation. If several doses of a vital medication are withheld or refused, the physician and responsible party are notified and documentation of notification is made.

14. Medications supplied for one patient should not be administered to another patient.

15. For patients not in their rooms or otherwise unavailable to receive medication on the pass, the MAR/TAR is "flagged" according to facility policy. Before completing the medication pass, the nurse returns to the missed patient to administer the medication.

16. During routine administration of medications, the medication cart is brought to the doorway of the patient's room with open drawers facing inward and all other sides closed. No medications are left unattended on top of the cart. The cart must be locked if not clearly visible and under the control of the personnel administering medications. All outward sides must be inaccessible to patients or others passing by.
17. An adequate supply of disposable containers (e.g., soufflé cups) is maintained on the medication cart for the administration of medications. Disposable containers are never reused.

18. Prior to administration, the medication and dosage schedule on the MAR/TAR is compared with the medication label. Information on the medication label should be checked against the MAR/TAR at least three times during the med preparation and administration process. If the label and MAR/TAR are different and the container is not flagged indicating a change in directions or if there is ant other reason to question the dosage or directions, the physician's orders are checked for the correct dosage schedule. If the medication is discontinued, outdated, or unusable, remove the medication for proper disposal.

19. When administering PRN medications at times other than the medication pass, or scheduled odd-time medications, the dose may be prepared in the medication cart storage area and taken along with necessary identifying documentation to the patient's bedside, leaving the cart locked and secured.

20. If it is safe to do so, medication tablets may be crushed or capsules emptied out when a patient has difficulty swallowing or is tube-fed, using the following guidelines, and state regulations:
    a. Long-acting or enteric coated dosage forms should generally not be crushed and require a physician's specific order to do so.
    b. Each medication preparation area includes a device that is specifically used for crushing medications.
    c. When soufflé cups are used, medications are crushed in two soufflé cups, one cup to hold the medication, the other above it, to prevent contact between the medication and the crushing device.
    d. For patients able to swallow, tablets may be crushed coarsely and mixed with the appropriate vehicle (e.g., applesauce) so that the patient receives the entire dose ordered.
    e. If the patient is tube-fed, medications are crushed finely to prevent clogging tubes or pump. If a mortar and pestle are used, they are cleaned thoroughly after use.
    f. The need for crushing medications is indicated on the patient's MAR/TAR so that all personnel administering medications are aware of this need and the consultant pharmacist can advise on safety and alternatives, if appropriate, during, MAR/TAR reviews.

21. If breaking tablets is necessary to administer the proper dose, hands are washed with soap and water or alcohol gel and gloves are used prior to handling tablets, and the following guidelines are adhered to:
    a. A tablet-splitter is used to assure accuracy.
    b. If the tablet is scored, every attempt is made to break along the score lines.
    c. For controlled drug, another licensed nurse witnesses the disposition and both nurses sign on the back of MAR or other controlled drug record.
    d. The administration of partial tablets is clearly identified.
    e. Since unscored tablets may not be accurately broken, their use is discouraged if a suitable alternative is available (e.g., liquid, half-strength tablet).

22. When administering potent medications in liquid form or those requiring precise measurement, such as digoxin, devices provided by the manufacturer or obtained from the dispensing pharmacy are used to allow accurate measurement of doses. An appropriately calibrated syringe will suffice.

23. Certain medications are recommended to be given with or without food. Food can affect absorption as well as cause side effects.

24. Certain medications interact with enteral products resulting in altered drug response.

25. Intense cutaneous reactions can occur in patients due to drug-induced photosensitivity after only brief exposure to sunlight in warm or cold weather.

Medication Discrepancies

Medication discrepancies are documented and reported to the patient's attending physician, the pharmacy provider, and the Quality Assessment and Assurance Committee. In addition, reporting discrepancies that result in the patient receiving an incorrect medication are documented and reported.

Medication Discrepancy: *An inappropriate or incorrect medication prescribed for, dispensed for, or given to a patient. It is also an omission of a medication due to a prescribing, dispensing, or administering error.*

1. In the event of a medication discrepancy, immediate action is taken, as necessary, to protect the patient's safety and welfare.

2. The attending physician is notified promptly of the error or significant medication discrepancy.

3. The physician's orders are implemented, and the patient is monitored closely for 24 to 72 hours or as directed.

4. The following information is documented in the patient's medical record:
    a. Factual description of the discrepancy in the case of errors
    b. Name of physician and time notified
    c. Physician's subsequent orders
    d. Patient's condition for 24 to 72 hours as directed

5. A medication discrepancy/error/incident report is completed.

6. The incident is included on the shift change report.

7. Medication/error/incident reports and follow-up reports are reviewed on a regular basis by the Quality Assessment and Assurance Committee and acted upon a appropriate.

Adverse Drug Reactions (ADR)

Adverse drug reactions are documented and reported to the patient's attending physician, the dispensing pharmacy, the consultant pharmacist, and the Quality Assessment and Assurance Committee (QA& A Committee).

Adverse Drug Reaction (ADR): *An undesirable or unintended harmful effect occurring as a result of a medication (e.g., heavy sedation, extrapyramidal symptoms, agitation, psychotic manifestations, severe cramping, nausea, vomiting, diarrhea, ataxia, etc.): an allergic reaction in a patient with no documented history of allergy to the medication.*

1. In the event of an adverse drug reaction, immediate action is taken, as necessary, to protect the patient's safety and welfare.

2. The attending physician is notified promptly of significant adverse drug reaction.

3. Any physician's orders are implemented, and the patient is monitored closely for 24 to 72 hours or as directed.

4. The following information is documented in the patient's medical record:
    a. Factual description of the adverse reaction
    b. Name of physician and time notified
    c. Physician' s subsequent orders
    d. Patient's condition for 24 to 72 hours as directed

5. An adverse drug reaction report is completed.

6. The incident is included on the shift change report.

7. The follow-up adverse drug reaction report is completed within 72 hours. For unexpected or especially severe adverse drug reactions, the ADR report follow-up form is completed and shown to the consultant pharmacist who decides whether or not to complete FDA Form 1639a. When an incident appears to involve a problem with a drug formulation or other aspects of drug quality, the information is given to the dispensing pharmacy with a request to investigate the incident and report to the Drug Quality Reporting Program, if appropriate.

8. ADR's and follow-up reports are reviewed on a regular basis by the QA& A Committee and acted upon as appropriate.

9. Information regarding adverse drug reactions including those identified in the process of screening for side effects of medications during drug regimen review by the consultant pharmacist are reported to the QA& A Committee.

Bureau of Health Quality Management

- Community Sanitation
- Drug Control
- Food Protection
- Emergency Medical Services
- Health Care Quality
- Radiation Control
- Office of Patient Protection
- Emergency Preparedness Program

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Methods to facilitate the appropriate administration of morphine sulfate

To:	Hospital Administrators, Long-Term Care Facilities
From:	Paul I. Dreyer, Ph.D., Director
Date:	August 5, 1999
Re:	Best Practice Recommendation #2: Methods to facilitate the appropriate administration of morphine sulfate.

This is the second in a series of Best Practice Recommendations from the Department of Public H Division of Health Care Quality ("Division"). The purpose of these recommendations is to assist fa in their efforts to reduce medication errors in Massachusetts long-term care facilities.

Several of the medication errors that the Division has investigated in the past three years have re from the failure to properly administer morphine sulfate. Specifically, many errors were the result administration of the incorrect dosage of morphine due to a miscalculation by the person who administered the medication. These errors resulted in serious harm to residents of the facilities. In response to these errors, the Division strongly recommends that each facility:

- Work with its consultant pharmacist to encourage prescribers to prescribe the strength of morphine sulfate that is the least complex for the nurse to convert to the prescribed dose.
- Work with its consultant pharmacist to standardize the strengths of morphine sulfate that a ordered by the facility and dispensed by the pharmacy. Such standardization might include manufacturers' original packaged syringes for injectable morphine sulfate (not multidose syringes), where appropriate, in order to minimize dosing calculations.
- Use the enclosed morphine conversion charts as an aid in the administration of morphine. charts should be posted where medication is prepared for administration and used in orde double check calculations that are made when converting from milligrams of morphine ord milliliters of morphine administered.

Enclosed you will find the following:

1. Emergency Kit Conversion Chart- a conversion chart for insertion in the facility Emergency This conversion chart lists the milligram and milliliter dosages of the morphine sulfate stren that are available in most emergency kits.
2. Oral Morphine Sulfate Conversion Chart-this conversion chart provides the milligram and r dosages of the three most commonly dispensed strengths of morphine sulfate that are administered orally.
3. Morphine Sulfate Conversion Chart for SC & IM Administration-this conversion chart provi milligram and milliliter dosages of the three most commonly dispensed strengths of morphi sulfate that are administered by subcutaneous or intramuscular injection.

The Division urges all licensed long term care facilities to familiarize themselves with these tools, incorporate them into their medication administration policies and procedures, and to use these o equivalent tools as part of their overall medication administration process. The Advisory Committe continue to work to assist facilities in their efforts to reduce medication errors in long-term care fac in the Commonwealth.

If you have any further questions, please contact your regional manager at (617) 753-8000.

Morphine Sulfate Conversion Charts for SC & IM Administration

Oral Morphine Sulfate Conversion Charts
Morphine Sulfate Available in the LTCF Emergency Kit

Provider Information

Health Care Quality

Please note: PDF files can be viewed with Adobe's free Acrobat Reader. For assistance viewing files, please go to Massachusetts' PDF page. Microsoft Word, Excel, and PowerPoint files can be with Microsoft's free viewers. If you need DPH files in an alternate format, please contact us.

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ORAL MORPHINE SULFATE CONVERSION CHARTS

MORPHINE SULFATE SOLUTION - ORAL STRENGTH: 10MG PER 5ML	
As Ordered mg dose	Administered Quantity ml dose
30 mg	15 ml
20 mg	10 ml
15 mg	7.5 ml
10 mg	5 ml
8 mg	4 ml
6 mg	3 ml
5 mg	2.5 ml
4 mg	2 ml
3 mg	1.5 ml
2 mg	1 ml
1 mg	0.5 ml

9/28/2005

MORPHINE SULFATE SOLUTION - ORAL STRENGTH: 20MG PER 5ML	
As Ordered mg dose	Administered Quantity ml dose
30 mg	7.5 ml
20 mg	5 ml
15 mg	3.75 ml
10 mg	2.5 ml
8 mg	2 ml
6 mg	1.5 ml
5 mg	1.25 ml
4 mg	1 ml
3 mg	0.75 ml
2 mg	0.5 ml
1 mg	0.25 ml

MORPHINE SULFATE SOLUTION - ORAL STRENGTH: 20MG PER 1ML	
As ordered mg dose	As Ordered ml dose
30 mg	1.5 ml
20 mg	1 ml
15 mg	0.75 ml
10 mg	0.5 ml
8 mg	0.4 ml
6 mg	0.3 ml
5 mg	0.25 ml
4 mg	0.2 ml ***
3 mg	0.15 ml ***
2 mg	0.1 ml ***
1 mg	0.05 ml ***

http://www.mass.gov/dph/dhcq/cicletter/cir8395.htm

*** IMPORTANT - WHEN MEASURING SUCH SMALL QUANTITIES YOU MUST HAVE THE APPROPRIATE DEVICE. ESTIMATIONS COULD LEAD TO ERROR. PLEASE CONTACT YOUR CONSULTANT PHARMACIST.

NOTE: THIS CHART IS INTENDED AS A GUIDE ONLY. IT IS STILL THE RESPONSIBILITY OF THE NURSING STAFF TO VERIFY THE ACCURACY OF CALCULATIONS.

MORPHINE SULFATE CONVERSION CHARTS FOR SC & IM ADMINISTRATION

MORPHINE SULFATE INJECTABLE - SC & IM STRENGTH: 15MG PER 1ML	
As Ordered mg dose	Administered Quantity ml dose
20 mg	1.33 ml
15 mg	1 ml
10 mg	0.67 ml
8mg	0.53 ml
6 mg	0.4 ml
5 mg	0.33 ml
4 mg	0.27 ml
3 mg	0.2 ml
2 mg	0.13 ml
1 mg	0.07 ml

9/28/2005

MORPHINE SULFATE INJECTABLE - SC & IM STRENGTH: 10MG PER 1ML	
As Ordered mg dose	Administered Quantity ml dose
20 mg	2 ml
15 mg	1.5 ml
10 mg	1 ml
8 mg	0.8 ml
6 mg	0.6 ml
5 mg	0.5 ml
4 mg	0.4 ml
3 mg	0.3 ml
2 mg	0.2 ml
1 mg	0.1 ml

MORPHINE SULFATE INJECTABLE - SC & IM STRENGTH: 5MG PER 1 ML	
As Ordered mg dose	Administered Quantity ml dose
20 mg	4 ml
15 mg	3 ml
10 mg	2 ml
8 mg	1.6 ml
6 mg	1.2 ml
5 mg	1 ml
4 mg	0.8 ml
3 mg	0.6 ml
2 mg	0.4 ml
1 mg	0.2 ml ***

http://www.mass.gov/dph/dhcq/cicletter/cir8395.htm

*** IMPORTANT - WHEN MEASURING SUCH SMALL QUANTITIES YOU MUST HAVE THE APPROPRIATE SYRINGE - ESTIMATIONS COULD LEAD TO ERROR. PLEASE CONTACT YOUR CONSULTANT PHARMACIST

NOTE: THIS CHART IS INTENDED AS A GUIDE ONLY. IT IS STILL THE RESPONSIBILITY OF THE NURSING STAFF TO VERIFY THE ACCURACY OF CALCULATIONS.

MORPHINE SULFATE AVAILABLE IN THE LTCF EMERGENCY KIT

MORPHINE SULFATE SOLUTION - ORAL STRENGTH: 20MG PER 5 MLS	
As Ordered mg dose	To Be Administered ml dose
30 mg	7.5 ml
20 mg	5 ml
15 mg	3.75 ml
10 mg	2.5 ml
8 mg	2 ml
6 mg	1.5 ml
5 mg	1.25 ml
4 mg	1 ml
3 mg	0.75 ml
2 mg	0.5 ml
1 mg	0.25 ml

9/28/2005

MORPHINE SULFATE - INJECTABLE - SC & IM STRENGTH: 10MG PER 1ML	
As Ordered mg dose	To Be Administered ml dose
20 mg	2 ml
15 mg	1.5 ml
10 mg	1 ml
8 mg	0.8 ml
6 mg	0.6 ml
5 mg	0.5 ml
4 mg	0.4 ml
3 mg	0.3 ml
2 mg	0.2 ml ***
1 mg	0.1 ml ***

*** WHEN MEASURING SUCH SMALL QUANTITIES IT IS IMPORTANT THAT YOU HAVE THE APPROPRIATE MEASURING DEVICE-ESTIMATIONS COULD LEAD TO ERROR. PLEASE CONTACT YOUR CONSULTANT PHARMACIST.

http://www.mass.gov/dph/dhcq/cicletter/cir8395.htm

Tab 8 - Monitoring

Monitoring errors are among the most common sources of adverse drug events in nursing homes, responsible for 70-80% of preventable adverse drug events (Gurwitz, et al., 2000; Gurwitz, et al., 2005). At first glance, it would appear that monitoring for medication effectiveness, as well as side effects would be an intuitive process for health care providers. A patient develops a symptom such as a cough, a medication is ordered and providers wait to see if the patient gets better or worse. While the process does involve assessing the patients' clinical response to an intervention and can sometimes be fairly straightforward, medication monitoring in frail elders in the nursing home poses unique challenges. Health care providers in the nursing home frequently observe the following patterns:

- Residents have multiple chronic medical illnesses.
- Residents are on multiple medications for those illnesses.
- Cognitive impairment occurs often and residents are unable to tell providers if they are feeling better or worse.
- Acute illness frequently presents as an atypical clinical picture. For example, the first sign of pneumonia may be lethargy instead of a cough or fever.

These factors, in addition to others, may contribute to the high rate of errors related to medication monitoring in the nursing home. When assessing and developing medication monitoring policies, consider the following:

- Medication monitoring is a multi-disciplinary process involving nursing home staff, pharmacists, and medical practitioners. It involves both qualitative and quantitative assessments.
- Monitoring for neuropsychiatric symptoms–such as lethargy, confusion, hallucination, and delirium–should be priority characteristics of a monitoring process because these symptoms are the most common adverse drug events in the nursing home (Gurwitz, 2003).
- ANY new symptom in a nursing home patient should prompt consideration of an adverse drug event.
- Specific classes of drugs have consistently been associated with adverse drug events. These drugs include atypical antipsychotics, anticoagulants, loop diuretics, intermediate-acting benzodiazepines, opiods, and ACE inhibitors (Gurwitz, 2005). Monitoring of these medications should take priority in the design of a monitoring process in the nursing home.
- The risk of an adverse drug event increases proportionally with the number of medications a patient takes. Greater number of medications means greater risk of adverse events.

Knowledge of and education about these points can direct efforts to improve medication monitoring in nursing homes.

Key Points

- **Monitoring errors are very common and account for a large number of adverse drug events.**
- **Medication monitoring is a multi-disciplinary process**
- **Practitioners should assess medications at each visit**
- **Health care providers should consider medication FIRST as a possible cause whenever there is ANY change in patient condition.**
- **Monitoring should be guided by knowledge of and assessment for side effects of prescribed medications. Pay close attention to high-risk drugs and know their side effects**
- **Know the indication for why the resident is taking the drug. This will guide monitoring efforts for efficacy, as well as adverse drug events.**

Tools

- **Checklist for Assessing the Medication Use Process: Monitoring**
- **Abnormal Involuntary Movement Scale**
- **Geriatric Depression Scale**
- **Mini-Mental State Exam**
- **Functional Assessment Staging**
- **Psychoactive Drug Use Reference Card**
- **Unnecessary Psychoactive Drug/Quality Assurance Sheet**
- **Medication Side Effects and Adverse Effects**
- **Sample Change in Condition Observation (See Tab 4-Prescribing)**
- **Monitoring for Drugs with Strong Anticholinergic/Sedative Side Effects**

Medication Monitoring

In a landmark study of adverse drug events in nursing homes, Gurwitz, et al., (2000) found that 70% of preventable adverse drug events occurred in the monitoring stage of the medication use process. In a 2005 study also done by Gurwitz and colleagues, the rate of preventable adverse drug events occurring in the monitoring stage was even higher at 80%.

Types of Monitoring Errors

Types of medication monitoring errors found by the study included:

- Inadequate monitoring of drug therapy
- Inadequate, delayed, or failure to respond to subjective or objective signs of drug toxicity

Actions To Reduce Monitoring Errors

- Collaboration between the facility and consultant pharmacist to develop recommended monitoring schedules for drugs with narrow therapeutic windows (e.g., Digoxin, phenytoin)
- Include schedules for lab monitoring when patients are on a drug with narrow therapeutic window (e.g., Digoxin, phenytoin) in the patient's care plan
- Follow up with providers regarding the consultant pharmacist's monthly drug reviews and recommendations for monitoring
- Increase staff awareness about medication monitoring via printed materials or posters in high visibility areas
- Include discussion of medication-related topics at every staff meeting and at change of shift

Types of Adverse Drug Events Related to Monitoring

Types of adverse drug events recorded were falls, bleeding, and gastrointestinal events. However, the most common adverse drug events were neuropsychiatric in nature.

Most Common:

Neuropsychiatric events including:

- Over-sedation
- Confusion
- Hallucinations
- Delirium

Actions To Reduce Monitoring Errors

- Development of systems within the facility that will IDENTIFY, MONITOR, AND TRACK symptoms such as confusion or over sedation that are commonly associated with adverse drug events
- Education targeting nursing assistants since they spend so much time at the bedside and are often the first to notice that a resident is "not right"
- Enhance the change of shift report to include two-way exchange of information between caregivers
- Rename the change of shift report to "team huddle"

Any New Symptom Should Prompt Evaluation for Adverse Drug Event

While it is important to note that the development of neuropsychiatric symptoms can signal an adverse drug event, it is important to recognize that ANY new symptom should prompt consideration of an adverse drug event. In fact, the Centers for Medicare & Medicaid Services (CMS) Interpretive Guidelines suggest that "treatments, including medications, should be considered as possible causes or contributing factors and the results must be acted upon when there is a significant change, a new significant symptom or problem, a worsening of an existing problem an otherwise unexplained decline in function or cognition, or a non-specific symptom that is not otherwise attributable to a specific underlying physical or functional cause"

Monitoring for the Use of Unnecessary Drugs

In recent Interpretive Guidelines, CMS recommended close attention in the state survey process regarding the possible use of unnecessary drugs. A drug can be deemed unnecessary if, among other things, there is not adequate monitoring even if the drug is indicated. Failure to monitor medication therapy can be detected during the state survey process as part of an assessment of the use of unnecessary drugs. A drug will also be deemed unnecessary if there is no indication for treatment, if the drug dose or duration is excessive, or if the drug is given in the presence of an adverse drug event without adequate documentation

Actions To Reduce Use Of Unnecessary Drugs

Provide the following documentation:

- Indication for treatment
- Rationale for dosing or duration orders that are outside of recommended guidelines
- Rationale for the continuation of treatment in spite of the presence of adverse effects

Risk of Adverse Drug Events Increases as Number of Medications Increase

The number of medications a patient takes is proportionally related to the risk of an adverse drug event. In fact, if a resident is taking 10 or more medications, the potential of at least one significant adverse drug event is nearly 100% (American Medical Director M3 Tool Kit, 2003).

Action To Reduce Adverse Drug Events Related To Multiple Medications

Develop and implement a process for medication review and assessment for residents taking greater than five medications.

Tools and Measures for Medication Monitoring

Medication monitoring involves both qualitative and quantitative measures. In addition to clinical observation for the occurrence of symptoms, there are many objective tests available to assist with monitoring. Some examples include:

- The Geriatric Depression Scale
- The Abnormal Involuntary Movement Scale (AIMS) Test
- The Mini-Mental Status Exam

Utilization of standard checklists, assessment tools, or monitoring sheets can streamline medication monitoring and keep observations objective and consistent. Some of these tools are included in the Tools section of this tab and are easily accessible to facilities interested in utilizing them. Examples of additional strategies for medication monitoring include:

- Serum levels of medications with narrow therapeutic windows
- Hematologic markers such as WBC monitoring for Remeron or INR monitoring for warfarin
- Electrolyte monitoring for diuretics

Knowledge about the medication ordered and the clinical indication for treatment will guide monitoring activities.

CMS guidelines prompt surveyors to assess if the facility "identified the risk, determined and documented that the benefit of a drug outweighs the risk, and periodically assessed that the drug continued to be a valid therapeutic intervention." If an adverse drug event occurs, surveyors are instructed to determine if it was identified, reported, and responded to (Dimant, 2001).

Monitoring for Appropriate Discontinuation of Medication

Finally, the medication monitoring process includes assessment for appropriate discontinuation of a medication. Indications for discontinuation of a medication include:

- Therapeutic goals have been achieved
- There is no further benefit that can be expected from the treatment
- An adverse drug event has occurred
- Risk outweighs benefit

Who is Responsible for Medication Monitoring?

The best medication monitoring process is multidisciplinary. Industry guidelines and standards mandate pharmacy, MD/NP/PA and nursing roles and responsibilities in the monitoring process.

CMS guidelines dictate that each resident has a medication record review performed by a licensed pharmacist at least monthly. The pharmacist performs a comprehensive review of the patient's medication regimen, assessing for the use of medication without a supporting diagnosis, the use of a medication deemed inappropriate for frail elders, drug interactions, duplicate therapy, and adverse drug reactions. The pharmacist must report any irregularities to the attending physician and the director of nursing and the report must be acted upon. The attending physician is required to assess the resident's overall condition and plan of care including medication and assess for and document the presence or absence of adverse drug effects at each visit. Front line caregivers including nurses, nursing assistants, and therapy staff are frequently the first ones to observe a change in patient status suggesting an adverse drug event. Upon recognition, the nurse performs a complete assessment of the presenting problem, considers any recent changes in the medication treatment, and then communicates the change to the attending MD/NP/PA.

Medication Monitoring and Technology

Technological advances are becoming available to assist with medication monitoring. The Geriatric Risk Assessment MedGuide (GRAM) software has been developed through funding from the Agency for Healthcare Research and Quality's (AHRQ's) Clinical Informatics to Promote Patient Safety (CLIPS) initiative. The GRAM software is based on the MDS Med Guide which was developed by the ASCP Foundation to link MDS and RAPs items such as falls, delirium, and incontinence with medications which might contribute to these common geriatric symptoms. The GRAM software builds on this system, utilizing data from the MDS and RAPs assessments to foster early identification and prevention of medication-related problems by integrating medication monitoring into the patient care plan (Lapane, et.al). Knowledge of current technology that is available can inform facility decisions regarding possible integration or purchase of software to assist with the medication use process.

High-Risk Drugs and Medication Monitoring

Specific classes of medications are frequently implicated in adverse drug events and therefore merit close attention in the monitoring phase of the medication use process. Much attention has been focused over the years on psychotropic meds, beginning with OBRA in 1990 and continuing with ongoing CMS guidelines updates. State surveyors are instructed to scrutinize psychopharmacologic drugs in particular. Two findings in the literature merit

attention and priority when designing a program to improve monitoring for adverse drug events:

Warfarin

First, because warfarin was associated with nearly 80% of preventable adverse drug events in one study (Gurwitz, 2000), initial program development for drug monitoring could begin with warfarin. Examples of interventions include:

- Warfarin clinic
- Warfarin protocols
- Warfarin flow sheets

Psychotropic Medications

Monitoring psychotropic medications should also be a priority (given the frequency of adverse drug events with these drugs) and would be consistent with state and federal priorities regarding monitoring of psychotropic medications.

Actions To Improve High-Risk Medication Monitoring

- Staff education and training regarding high-alert medications
- Staff education and training for early recognition of symptoms
- Attach brightly colored stickers with side effects listed on them to each blister pack of these medications

References

American Medical Director's Association (2003). M3 Multidisciplinary Medication Management Tool Kit (the M3 Tool Kit).

Centers for Medicare & Medicaid Services (2004). Interpretive guidelines: Unnecessary medications. Department of Health and Human Services, Maryland.

Dimant, J. (2001). Medication errors and adverse drug events in nursing homes: Problems, causes, regulations, and proposed solutions. *Journal of American Medical Directors Association*, March/April: 81-93.

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Lapane, K., Cameron, K., & Feinberg, J. Technology for Improving Medication Monitoring in Nursing Homes. Retrieved www.ahrq.gov/downloads/pub/advances/vol.4/Lapane.pdf
Accessed July 10, 2005.

Checklist for Assessing the Medication Use Process: Monitoring

Does your facility have policies and/or tools to assist with medication monitoring?

___**No**. If no, this is an area for improvement. Use this checklist and the Quality Improvement Worksheet to guide your team in implementing a process and/or staff education regarding medication monitoring.

___**This is an area we are working on.** Our target date for implementing an education program on the medication monitoring process is _____.

___**Yes.** Please continue to the questions below.

			Person	Comments
1. Are there policies and/or tools in place for monitoring high-risk medications such as psychoactive medications?				
2. Does your facility have a policy in place for monitoring warfarin?				
3. Are patients on greater than 9 meds routinely assessed for adverse drug effects?				
4. Does your facility have standards for therapeutic blood levels and monitoring recommendations for drugs with narrow therapeutic windows such as Digoxin or Phenytoin?				
5. Are all caregivers encouraged to report any change in patient condition to the nurse or practitioner responsible for the patient?				

- If any of the above elements in your monitoring process are missing, choose one element to focus your quality improvement effort first.
- Start with the Quality Improvement Worksheet A: Identifying Areas for Improvement to collect data to investigate further.
- Follow the Quality Improvement Worksheets to implement missing element(s) and monitor regularly to determine whether implementation is successful.

ABNORMAL INVOLUNTARY MOVEMENT SCALE (AIMS)

Public Health Service
Alcohol, Drug Abuse, and Mental Health Administration
National Institute of Mental Health

NAME:_____
DATE: _____
Prescribing Practitioner: _____

CODE: 0 = None
1 = Minimal, may be extreme normal
2 = Mild
3 = Moderate
4 - Severe

INSTRUCTIONS:
Complete Examination Procedure (attachment d.) before making ratings

MOVEMENT RATINGS: Rate highest severity observed. Rate movements that occur upon activation one less than those observed spontaneously. Circle movement as well as code number that applies.		RATER Date	RATER Date	RATER Date	RATER Date
Facial and Oral Movements	**1. Muscles of Facial Expression** e.g. movements of forehead, eyebrows periorbital area, cheeks, including frowning blinking, smiling, grimacing	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4
	2. Lips and Perioral Area e.g., puckering, pouting, smacking	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4
	3. Jaw e.g. biting, clenching, chewing, mouth opening, lateral movement	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4
	4. Tongue Rate only increases in movement both in and out of mouth. NOT inability to sustain movement. Darting in and out of mouth.	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4	O 1 2 3 4
Extremity Movements	**5. Upper (arms, wrists,, hands, fingers)** Include choreic movements (i.e., rapid, objectively purposeless, irregular, spontaneous) athetoid movements (i.e., slow, irregular, complex, serpentine). DO NOT INCLUDE TREMOR (i.e., repetitive, regular, rhythmic)	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4
	6. Lower (legs, knees, ankles, toes) e.g., lateral knee movement, foot tapping, heel dropping, foot squirming, inversion and eversion of foot.	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4
Trunk Movements	**7. Neck, shoulders, hips** e.g., rocking, twisting, squirming, pelvic gyrations	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4
Global Judgments	**8. Severity of abnormal movements overall**	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4
	9. Incapacitation due to abnormal movements	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4
	10. Patient's awareness of abnormal movements. Rate only patient's report No awareness 0 Aware, no distress 1 Aware, mild distress 2 Aware, moderate distress 3 Aware, severe distress 4	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4
Dental Status	**11. Current problems with teeth and/or dentures**	No Yes	No Yes	No Yes	No Yes
	12. Are dentures usually worn?	No Yes	No Yes	No Yes	No Yes
	13. Edentia?	No Yes	No Yes	No Yes	No Yes
	14. Do movements disappear in sleep?	No Yes	No Yes	No Yes	No Yes

Final: 9/2000 Available at www.atlantapsychiatry.com/forms/AIMS.pdf

Geriatric Depression Scale (short form)

Instructions: Circle the answer that best describes how you have felt over the past week:

1. Are you basically satisfied with your life?	Yes	No
2. Have you dropped many of your activities and interests?	Yes	No
3. Do you feel that your life is empty?	Yes	No
4. Do you often get bored?	Yes	No
5. Are you in good spirits most of the time?	Yes	No
6. Are you afraid that something bad is going to happen to you?	Yes	No
7. Do you feel happy most of the time?	Yes	No
8. Do you often feel helpless?	Yes	No
9. Do you prefer to stay at home, rather than going out and doing new things?	Yes	No
10. Do you feel you have more problems with memory than most?	Yes	No
11. Do you think it is wonderful to be alive now?	Yes	No
12. Do you feel pretty worthless the way you are now?	Yes	No
13. Do you feel full of energy?	Yes	No
14. Do you feel that your situation is hopeless?	Yes	No
15. Do you think that most people are better off than you are?	Yes	No
Total Score		

Geriatric Depression Scale (GDS) Scoring Instructions

Instructions: Score one point for each bolded answer. A score of 5 or more suggests depression.

1. Are you basically satisfied with your life?	Yes	**No**
2. Have you dropped many of your activities and interests?	**Yes**	No
3. Do you feel that your life is empty?	**Yes**	No
4. Do you often get bored?	**Yes**	No
5. Are you in good spirits most of the time?	Yes	**No**
6. Are you afraid that something bad is going to happen to you?	**Yes**	No
7. Do you feel happy most of the time?	Yes	**No**
8. Do you often feel helpless?	**Yes**	No
9. Do you prefer to stay at home, rather than going out and doing new things?	**Yes**	No
10. Do you feel you have more problems with memory than most?	**Yes**	No
11. Do you think it is wonderful to be alive now?	Yes	**No**
12. Do you feel pretty worthless the way you are now?	**Yes**	No
13. Do you feel full of energy?	Yes	**No**
14. Do you feel that your situation is hopeless?	**Yes**	No
15. Do you think that most people are better off than you are?	**Yes**	No
Total Score		

Answers in bold indicate depression. Although differing sensitivities and specificities have been obtained across studies, for clinical purposes a score of >5 points is suggestive of depression and should warrant a follow-up interview. Scores >10 are almost always depression.

Available at www.stanford.edu/%7Eyesavage/GDS.html

MINI-MENTAL STATE EXAM

standard version - Folstein, Folstein, McHugh, 1975
(to be completed by a trained clinician)

PATIENT NAME: _____

DATE: [ ] TIME (24hr): [ ]

Enter birthdate (mm) [ ] (dd): [ ] (yyyy): [ ]

Sex: [ ] Male [ ] Female Enter education (years): [ ]

Race: [ ] Caucasian [ ] Black [ ] Hispanic [ ] Asian [ ] Other

right / wrong

Orientation Questions: Ask the following questions:

[ ] [ ] 1. What is today's date?
[ ] [ ] 2. What is the month?
[ ] [ ] 3. What is the year?
[ ] [ ] 4. What day of the week is today?
[ ] [ ] 5. What season is it? DATE [ ]
[ ] [ ] 6. What is the name of this clinic (place)?
[ ] [ ] 7. What floor are we on?
[ ] [ ] 8. What city are we in?
[ ] [ ] 9. What county are we in?
[ ] [ ]10. What state are we in? PLACE [ ]

IMMEDIATE RECALL: Ask the subject if you may test his/her memory. Then say "ball", "flag", "tree" clearly and slowly, about 1 second for each. After you have said all 3 words, ask him/her to repeat them. The first repetition determines the score (0-3), but keep saying them until he/she can repeat all 3, up to 6 tries. If he/she does not eventually learn all 3, recall cannot be meaningfully tested:

[ ] [ ]11. BALL
[ ] [ ]12. FLAG
[ ] [ ]13. TREE Note # trials: [ ] IMMEDIATE RECALL: [ ]

ATTENTION
A) Ask the subject to begin with 100 and count backwards by 7. Stop after 5 subtractions. Score the correct subtractions.
[ ] [ ] 14. "93"
[ ] [ ] 15. "86"
[ ] [ ] 16. "79"
[ ] [ ] 17. "72"
[ ] [ ] 18. "65" SERIAL 7's TOTAL: ☐

B) Ask the subject to spell the word "WORLD" backwards. The score is the number of letters in correct position. For example, "DLROW" is 5, "DLORW" is 3, "LROWD" is 0.
[ ] [ ] 19. "D"
[ ] [ ] 20. "L"
[ ] [ ] 21. "R"
[ ] [ ] 22. "O"
[ ] [ ] 23. "W" "DLROW" TOTAL: ☐ Greater score of A or B: ☐

DELAYED VERBAL RECALL: Ask the subject to recall the 3 words you previously asked him/her to remember.
[ ] [ ] 24. BALL?
[ ] [ ] 25. FLAG?
[ ] [ ] 26. TREE? DELAYED VERBAL RECALL: ☐

NAMING: Show the subject a wrist watch and ask him/her what it is. Repeat for pencil.
[ ] [ ] 27. WATCH
[ ] [ ] 28. PENCIL
[ ] [ ] 29. REPETITION

3-STAGE COMMAND: Give the subject a plain piece of paper and say, "Take the paper in your hand, fold it in half, and put it on the floor."
[ ] [ ] 30. TAKES
[ ] [ ] 31. FOLDS
[ ] [ ] 32. PUTS

READING: Hold up the card reading, "Close your eyes", so the subject can see it clearly. Ask him/her to read it and do what it says. Score correctly only if the subject actually closes his/her eyes.

[ ] [ ] 33. CLOSES EYES

WRITING: Give subject a piece of paper and ask him/her to write a sentence. It is to be written spontaneously. It must contain a subject and verb and be sensible. Correct grammar and punctuation are not necessary.

[ ] [ ] 34. SENTENCE LANGUAGE:

[ ] [ ] 35. PENTAGONS

To calculate MMSE score automatically, click here:

TOTAL MMSE (s7s): MMSE (dlrow): MMSE (max):

(MMSE maximum score = 30)

24 - 30 normal, depending on age, education, complaints
20 - 23 mild
10 - 19 moderate
1 - 9 severe
0 profound

TIME-INDEX for MMSE (max) (estimated years into Alzheimer's disease):
(for MMSE > 24, indefinite periord before expected dx; for MMSE = 0, at least this number)
(calculation derived from Ashford et al., 1995; Mendiondo et al., 2000)

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Psychoactive Drug Use Reference Card

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Representative Drugs in the following classes include but are not limited to the following:

1. ANTIPSYCHOTIC DRUGS

SIDE EFFECTS

1. dystonia: torticolis (stiffness of neck)
2. pseudoparkinsonism:
   a. cogwheel rigidity
   b. bradykinesia
   c. drooling
   d. tremors
3. confusion
4. akathisia:
   a. restlessness
   b. pacing
   c. inability to sit still
   d. anxiety
   e. sleep disturbances
5. tardive dyskinesia
   a. lip smacking/chewing
   b. abnormal tongue movement
   c. spasmodic movement of arms/legs
   d. rocking/swaying
6. anticholinergic symptoms:
   a. dry mouth,blurred vision
   b. constipation, urinary retension
7. orthostatic hypotension
8. blood abnormalities

APPROPRIATE INDICATION

- schizophrenia
- schizo-affective disorders
- delusional disorder
- psychotic mood disorder (including mania & depression with psychotic features)
- acute psychotic episodes
- brief reactive psychosis
- schizophreniform disorder
- atypical psychosis
- Tourette's disorder
- Huntington's disease
- organic mental syndromes[1]

[1] Organic Mental Syndromes (delirium, dementia, amnestic & other cognitive disorders) with associated psychotic and/or agitated behaviors which:
- have been quantitatively & objectively documented
- are persistent
- are not caused by preventable reasons
- present danger to the resident or others
- or causes the resident to continuously scream, yell, pace, or experience psychotic symptoms (hallucinations, paranoia, delusions) any of which, cause distress or impaired functional capacity.

INAPPROPRIATE USE

Antipsychotics should not be used if one or more of the following is/are the **only** indication.

- Wandering.
- Poor self care.
- Restlessness.
- Impaired memory.
- Anxiety.
- Depression (Without psychotic features).
- Insomnia.
- Unsociability.
- Indifference to surroundings.
- Fidgeting.
- Nervousness.
- Uncooperativeness, or
- Agitated behaviors which **do not** represent danger to the resident or others.

DRUGS/DOSES

** not maximum doses

GENERIC	BRAND	Daily antipsychotic oral dosage for residents with organic mental syndromes (mg./day) **
Acetophenazine	(Tindal)	20 mg
Chlorpromazine	(Thorazine)	75 mg
Chlorprothixene	(Taractan)	75 mg
Clozapine	(Clozaril)	50 mg
Droperidol	(Inapsine)	5 mg
Fluphenazine	(Prolixin, Permitil)	4 mg
Fluphenazine decanoate	(Prolixin decanoate)	Q 2 weeks 12.5 - 25 mg
Haloperidol	(Haldol)	4 mg
Haloperidol decanoate	(Haldol decanoate)	Q 2 weeks 50 - 100 mg
Loxapine	(Loxitane)	10 mg
Mesoridazine	(Serentil)	25 mg
Molindone	(Moban)	10 mg
Olanzapine	(Zyprexa)	10 mg
Perphenazine	(Trilafon)	8 mg
Prochlorperazine	(Compazine)	10 mg
Promazine	(Sparine)	150 mg
Quetiapine	(Seroquel)	200 mg
Risperidone	(Risperdal)	2 mg
Thioridazine	(Mellaril)	75 mg
Thiothixene	(Navane)	7 mg
Trifluoperazine	(Stelazine)	8 mg
Triflupromazine	(Vesprin)	20 mg
OTHER		

2. BENZODIAZEPINES or other ANXIOLYTIC/SEDATIVE DRUGS

SIDE EFFECTS

1. anticholinergic symptoms:
   a. dry mouth, blurred vision
   b. constipation, urinary retention
2. orthostatic hypotension
3. increase in behavior
4. sedation/drowsiness
5. hangover effect
6. increased falls/dizziness

APPROPRIATE INDICATION

- generalized anxiety disorder
- organic mental syndromes[1]
- panic disorders
- symptomatic anxiety that occurs in residents with another diagnosed psychiatric disorder (depression, adjustment disorder).
- sleep induction

Indications as defined by the Diagnostic and Statistical Manual of Mental Disorders (fourth edition - revised) or subsequent edition.

LONG-ACTING * BENZODIAZEPINES/SEDATIVE HYPNOTICS - DOSES

GENERIC	BRAND	GERIATRIC DAILY ORAL DOSAGE
Chlordiazepoxide	(Librium)	20 mg
Clonazepam	(Klonopin)	1.5 mg
Clorazepate	(Tranxene)	15 mg
Diazepam	(Valium)	5 mg
Flurazepam	(Dalmane)	15 mg
Halazepam	(Paxipam)	40 mg
Quazepam	(Doral)	7.5 mg
OTHER		

* Use only after short-acting agents have failed

SHORT-ACTING * BENZODIAZEPINES/SEDATIVE HYPNOTICS - DOSES

GENERIC	BRAND	GERIATRIC DAILY ORAL DOSAGE
Alprazolam	(Xanax)	0.75 m
Estazolam	(Prosom)	0.5 mg
Lorazepam	(Ativan)	2 mg
Oxazepam	(Serax)	30 mg
Temazepam	(Restoril)	7.5 mg
Triazolam	(Halcion)	0.125 mg
Zolpidem	(Ambien)	5 mg
OTHER		

OTHER ANXIOLYTIC/SEDATIVE DRUGS - DOSES

GENERIC	BRAND	GERIATRIC DAILY ORAL DOSAGE
Chloral hydrate	(Many brands)	500 - 750 mg
Diphenhydramine	(Benadryl)	25 - 50 mg
Hydroxyzine	(Atarax, Vistaril)	50 mg

3. ANTIDEPRESSANTS

The under diagnosis and under treatment of depression in nursing homes has been documented in a Journal of the American Medical Association paper entitled *"Depression and Mortality in the Nursing Home"* (JAMA, February 27, 1991 - vol. 265, No. 8). HCFA continues to support the accurate identification and treatment of depression in nursing homes.

The surveyor should not urge a facility to use behavioral monitoring charts (e.g. documenting quantitatively (number of episodes) and objectively (e.g. withdrawn behavior such as staying in their room, refusal to speak, etc.) when antidepressant drugs are used in nursing homes. Such charts are promoted in the interpretative guidelines for antipsychotic and benzodiazepine and other anxiolytic/sedative drugs, but NOT for antidepressant drugs. These charts may be helpful for monitoring the effects of antidepressant drugs in nursing homes, but they may place additional paperwork burden on the facility and thus act as a deterrent to the appropriate diagnosis and treatment of their condition.

DRUGS/DOSES

Dosing guidelines for antidepressants are not specifically addressed in the OBRA Guidance to Surveyors. However, aggressive diagnosis and treatment of depressive illnesses is encouraged. Depending on the antidepressant chosen, this may mean some dosage adjustment for geriatric patients, but facilities are encouraged to set their own guidelines in the absence of federal ones. Some common antidepressants are listed below for reference.

GENERIC	BRAND
Amitriptyline*	(Elavil)
Amoxapine	(Asendin)
Bupropion	(Wellbutrin)
Clomipramine*	(Anafranil)
Desipramine	(Norpramin, Pertofrane)
Doxepin*	(Adapin, Sinequan)
Fluoxetine	(Prozac)
Fluvoxamine	(Luvox)
Imipramine*	(Tofranil)
Isocarboxazid*	(Marplan)
Maprotiline	(Ludiomil)
Mirtazapine	(Remeron)
Nefazodone	(Serzone)
Nortriptyline	(Pamelor, Aventyl)
Paroxetine	(Paxil)
Phenelzine*	(Nardil)
Protriptyline	(Vivactil)
Sertraline	(Zoloft)
Tranylcypromine*	(Parnate)
Trazodone	(Desyrel)
Trimipramine*	(Surmontil)
Venlafaxine	(Effexor)
OTHER	

* These are not necessary drugs of choice in depression in the elderly. They are listed here only in the event of their potential use.

4. OTHER DRUGS

NAME		DAILY ORAL DOSAGES	Indications for Use	Side Effects
Methylphenidate	(Ritalin)	10 - 15 mg	stimulant; depression	insomnia, tachycardia, restlessness, nervousness
Pemoline	(Cylert)	18.75 - 37.5 mg	stimulant; depression	insomnia, tachycardia, restlessness, nervousness
Carbamazepine	(Tegretol)	600 - 1000 mg	anticonvulsant; behavior control	ataxia, sedation, blood abnormalities

For additional information regarding the use of Psychotropic Drugs and the necessary documentation ***contact:***

SEE REVERSE SIDE FOR OTHER PSYCHOACTIVE DRUG USE AND BEHAVIOR/INTERVENTION DOCUMENTATION & REFERENCE TOOLS.

UNNECESSARY PSYCHOACTIVE DRUG/QUALITY ASSURANCE EVALUATION SHEET

Date 10/5/00

Unnecessary drugs. F329-31 and F429 Guidance to Surveyors: 483.25 (l)(1) & 483.60 (c)(1)
Each resident's drug regimen must be free from unnecessary drugs.
An unnecessary drug is any drug when used:
- in excessive dose (including duplicate therapy - see back▲); or
- for excessive duration; or
- without adequate monitoring; or
- without adequate indications for use; or
- in the presence of adverse consequences which indicate the dose should be reduced or discontinued; or
- any combination of the reasons above.

This form applies only to psychoactive drugs; additional information about other categories of drugs which may be unnecessary or innappropriate in the elderly can be found in MP5932 and MP5501N.

E. ADRs - potentially inappropriate psychoactive drugs for the elderly due to high potential for causing adverse drug reactions of either high or low severity. Rule out ADRs or confirm benefits of use outweigh risks.

D. DOSAGE - use of drug is equal to or less than total daily dose (listed on back) unless higher dose is necessary for maintenance or improvement in resident's functional status as evidenced by response or clinical record.

C. DURATION OF DRUG USE - Guidelines are followed for individual drug class.

B. RESIDENT'S FUNCTIONAL STATUS - is maintained or improved by use of drug, as evidenced by 483.25 (a) through (k) (Quality of Care) and MDS Sec. B through P.

A. INDICATION - Drug is used for specific acceptable DX (see back) and other causes of distress have been considered and ruled out.

	A	B	C	D	E
I. LONG-ACTING BENZODIAZEPINE DRUGS					
1. Name of Drug _____ (see back for list)	DX:				
2. **Note:** These drugs should **not** be used unless attempt with shorter-acting agent or other Anxiolytic/Sedative/Hypnotic Drug (see back for list) has failed. Date of Attempt / Alternate Drug / Outcome: ☐ Success ☐ Failure					
3. Continual daily use must be less than 4 months. Number of months of continual use before Med d/c'd: _____ (should be less than 4 mo.). -UNLESS-					
4. 2 attempts within 1 year at Gradual Dose Reduction (GDR) have failed as evidenced by decrease in resident functional status, after which GDR may be considered clinically contraindicated					
GDR ATTEMPT # 1 Date _____ OUTCOME: ☐ Successful ☐ Unsuccessful COMMENT: _____					
GDR ATTEMPT # 2 Date _____ OUTCOME: ☐ Successful ☐ Unsuccessful COMMENT: _____					
5. Use of long-acting benzodiazepines either alone or in combination with a patient diagnosis of COPD has a high potential for high severity ADRs in the elderly.	Yes	Yes	Yes	Yes	High
6. NOTES: A. Valium (diazepam) can be used for neuromuscular syndromes (Cerebral Palsy, Tardive Dyskinesia or Seizures). B. Long-acting Benzodiazepines can be used to withdraw resident from short-acting Benzodiazepines C. Klonopin (clonazepam) can be used for Bi-polar disorders, Tardive Dyskinesia, Nocturnal Myoclonus or Seizures.	No	No	No	No	Low
II. SHORT-ACTING BENZODIAZEPINES OR OTHER ANXIOLYTIC/SEDATIVE DRUGS					
1. Name of Drug Meprobamate (see back for list)	DX:				
2. See back for list of acceptable indications for using drug.					
3. Duration - Continual daily use must be less than 4 months. No. of months of continual use before Med d/c'ed: 5 (should be less than 4 mo.). -UNLESS-					
4. 2 attempts within 1 year at Gradual Dose Reduction (GDR) have failed as evidenced by decrease in resident functional status, after which GDR may be considered clinically contraindicated.					
5. Use of anticholinergic antihistamines, including diphenhydramine, has a high potential for low severity ADRs in the elderly.	Yes	Yes	Yes	Yes	✓
GDR ATTEMPT # 1 Date 8/30/00 OUTCOME: ✓ Successful ☐ Unsuccessful COMMENT: COPD improved	✓	✓	✓	✓	Low
GDR ATTEMPT # 2 Date 9/20/00 OUTCOME: ✓ Successful ☐ Unsuccessful COMMENT: D/C'd					
III. DRUGS FOR SLEEP INDUCTION (HYPNOTIC DRUGS)					
1. Name of Drug _____ (see back for list)	DX:				
2. Evidence exists ruling out other sources of insomnia (such as: Depression, Pain, Noise, Light, Caffeine use) ☐ No ☐ Yes - see documentation from: _____ Date:					
3. Duration - Daily use is less than 10 continuous days ☐ Yes ☐ No -UNLESS-					
4. At least 3 attempts within 6 months at Gradual Dose Reduction (GDR) have failed, after which GDR may be considered clinically contraindicated.					
GDR ATTEMPT # 1 Date _____ OUTCOME: ☐ Successful ☐ Unsuccessful COMMENT: _____	Yes	Yes	Yes	Yes	
GDR ATTEMPT # 2 Date _____ OUTCOME: ☐ Successful ☐ Unsuccessful COMMENT: _____					
GDR ATTEMPT # 3 Date _____ OUTCOME: ☐ Successful ☐ Unsuccessful COMMENT: _____					
5. **NOTE:** Diminished sleep in the elderly is not necessarily pathological.	No	No	No	No	
IV. MISCELLANEOUS HYPNOTIC/SEDATIVE/ANXIOLYTIC DRUGS					
1. Name of Drug _____ (see back for list)	DX:				
2. Initiation of these drugs should not occur in any resident (see notes).					
3. Resident currently using or admitted on these drugs should receive Gradual Dose Reduction (GDR).					
4. GDR attempted at least twice within 1 year.					
5. Use of barbiturates or meprobamate either alone or in combination with a patient diagnosis of COPD has high potential for high severity ADRs in the elderly.					
GDR ATTEMPT # 1 Date _____ OUTCOME: ☐ Successful ☐ Unsuccessful COMMENT: _____					
GDR ATTEMPT # 2 Date _____ OUTCOME: ☐ Successful ☐ Unsuccessful COMMENT: _____					
6. NOTE: A. If GDR is unsuccessful in a 1 year period then further attempts may be considered clinically contraindicated. B. Newly admitted residents on these drugs may have an adjustment period before GDR is attempted. Date of Scheduled GDR _____	Yes	Yes	Yes		High
C. Rapid withdrawal of these drugs is not encouraged - Severe physiological withdrawal symptoms may occur. D. Amobarbital can be used as a single dose sedative for medical/dental procedures. E. Phenobarbital can be used for seizure disorders.	No	No	No		Low
V. ANTIPSYCHOTIC DRUG DOSAGE LEVELS					
1. Name of Drug _____ (see back for list)	DX:				
2. These drugs when used for DX. of Organic Mental Syndromes (Dementia, Delirium) should not be used in excess of listed doses (see back) unless higher doses are necessary to maintain or improve resident's functional status as evidenced by resident's response or documented in clinical record.					
3. GDR ATTEMPT # 1 Date _____ OUTCOME: ☐ Successful ☐ Unsuccessful COMMENT: _____					
GDR ATTEMPT # 2 Date _____ OUTCOME: ☐ Successful ☐ Unsuccessful COMMENT: _____					
4. Compazine (prochlorperazine) dose may be exceeded for treatment of nausea/vomiting.	Yes	Yes	Yes	Yes	
5. The "Specific Conditions" for use of Antipsychotic Drugs are listed under the Interpretive Guidelines 483.25 (l)(1) and (2) and are on the back of form # MP5561 and form # MP5945. - If on antipsychotic drug for any reason go to section VI.	No	No	No	No	
VI. MONITORING FOR ANTIPSYCHOTIC DRUG SIDE EFFECTS					
1. Facility assures that residents on these meds are being monitored for significant side effects such as: A. Tardive Dyskinesia B. Postural (Orthostatic) Hypotension C. Cognitive/Behavior Impairment D. Akathisia E. Parkinsonism		Yes			High
2. Adequate monitoring (AIMS or other tests) is being done ☐ Yes ☐ No		No			Low
3. Use of antipsychotic drugs with a patient diagnosis of seizures/epilepsy for more than 72 hours (in absence of psychosis) has a high potential for low severity ADRs in the elderly.					
NOTE: For documentation of side effect monitoring see Monthly Psychoactive Flow Record (Form # MP5945) and Quarterly Quality Assurance Sheet (Form # MP5561).					
VII. OTHER PSYCHOTROPICS					
1. Name of Drug _____ (see back for list)					
2. Use of either amitriptyline (except for neurogenic pain) or doxepin has a high potential for high severity ADR sin the elderly.					High
3. Continuous use of anticholinergic antihistamines or tricyclic antidepressants in combination with a patient diagnosis of either BPH or cardiac arrythmias has a high potential for high severity ADRs in the elderly.					Low
4. Continuous use of anticholinergic antihistamines, including diphenhydramine, either alone or in combination with a patient diagnosis of constipation has a high potential for low severity ADRs in the elderly and worsening constipation.					
5. Use of anticholinergic antidepressants either alone or in combination with a patient diagnosis of constipation has a high potential for low severity ADRs in the elderly and worsening constipation.					
6. Use of SSRI antidepressants, MAO inhibitors, methylphenidate or desipramine in combination with a patient diagnosis of insomnia has a high potential for low severity ADRs in the elderly and worsening insomnia.					

INSTRUCTIONS: The appropriate section of this form should be filled out for each resident on the following classes of medication: Antianxiety (Anxiolytics), Sedatives/Hypnotics and Antipsychotic Agents (see back for list of drugs). **NOTE:** A resident may be on more than 1 type of medication. This form should be reviewed and updated as necessary on a monthly basis. If the recommendations for use of these agents are followed and supportive documentation is available then use of the drug(s) should be considered **necessary** for the resident.

Resident Name	ID #	Room #	Physician
Perkins, Sam	72751	10-3	D. Smith

Date

MEDICATION SIDE EFFECTS AND ADVERSE EFFECTS

NOTE: Adverse effects and side effects were chosen for inclusion in this listing based upon their potential severity, cost and frequency, and the clinical experience of the pharmacist advisory panel. This listing is not intended to identify all possible adverse effects and the healthcare professional should consult other sources of drug information as necessary.

Instructions:
Please draw a circle around the drug(s) that are ordered for this resident. When drug(s) are discontinued, strike through the circle. A resident is not likely to experience all of the listed side effects/adverse effects associated with each medication. You may choose to highlight the effects that you believe are particularly likely for this individual resident.

Interpretive Guideline F272 (xiv) Drug therapy
"Drug therapy" is defined as all prescription and over-the-counter medications taken by the resident, including dosage, frequency of administration, and recognition of significant side effects that would be most likely to occur in the resident. The information need not appear in the assessment. However, it must be in the resident's clinical record and included in the care plan.

DRUG CATEGORY / GENERIC NAME / (BRAND NAME)						SIDE EFFECTS / ADVERSE EFFECTS
ALZHEIMER'S DISEASE TREATMENT						
Cholinesterase Inhibitors	donepezil (Aricept)		rivastigmine (Exelon)		tacrine hydrochloride (Cognex)	*Nausea, vomiting, agitation, rash, anorexia, confusion, diarrhea, dyspepsia, myalgia, ataxia*
Ergot Mesyloids ❶	ergot mesylates (Hydergine) ❶					*Sublingual irritation, nausea, GI disturbances*
ANALGESICS/ANTI-INFLAMMATORY AGENTS						*All side effects are rare*
Acetaminophen (Tylenol)						
Non-Steroidal Anti-Inflammatory Drugs						*Hives, rash, dyspepsia, nausea, diarrhea, abdominal pain, epigastric discomfort, weakness, tiredness, difficulty breathing, dizziness, fluid retention, drowsiness, increased heart rate, dark yellow or brown urine, yellowing of eyes or skin*
aspirin	(Anacin, Ascriptin, Aspergum, Bufferin, Ecotrin, Empirin)		(Nalfon) (Ansaid, Orudis) (Advil, Motrin, Nuprin, Exodrin IB)	meclofenamate nabumetone naproxen oxaprozin	(Meclomen) (Relafen) (Naprosyn, Aleve, Anaprox) (Deypro)	
choline magnesium salicylate diclofenac diflunisal etodolac	(Trilisate) (Voltaren, Cataflam) (Dolobid) (Lodine)	ibuprofen indomethacin ketoprofen ketorolac	(Indocin) ❶ (Orudis, Orudis KT, Actron, Oruvail) (Toradol, Acular)	phenylbutazone piroxicam salsalate sulindac tolmetin zileuton	(Buazolidin) ❶ (Feldene) (Disalcid, Mono-gesic) (Clinoril) (Tolectin) (Zyflo)	
Selective Cox-2 Inhibitors						*Hives, rash, dyspepsia, nausea, diarrhea, abdominal pain, epigastric discomfort, weakness, tiredness, difficulty breathing, dizziness, fluid retention, drowsiness, increased heart rate, dark yellow or brown urine, yellowing of eyes or skin*
celecoxib (Celebrex)	rofecoxib (Vioxx)					
Opioid (Narcotic) Analgesics						*Drowsiness, dizziness, headache, confusion, vertigo, nausea/vomiting, constipation, hypotension, flushing, urinary retention or hesitancy, rash, bradycardia, palpitations, miosis, respiratory depression*
butorphanol codeine fentanyl hydrocodone hydromorphone	(Stadol) (Duragesic, Oralet) (Lortab, Vicodin) (Dilaudid)	levorphanol meperidine methadone morphine nalbuphine	(Levo-Dromoran) (Demerol) ❶ (Dolophine, Methadose) (Duramorph, MS Contin, Roxanol, MSIR) (Nubain)	oxycodone pentazocine propoxyphene tramadol	(Percocet, Roxicet, Tylox, Roxicodone) (Talwin) ❶ (Darvon) ❶ (Ultram)	
ANTI-ANXIETY AGENTS						*Drowsiness, fatigue, impaired coordination, lightheadedness, memory impairment, insomnia, dysarthria, anxiety, decreased libido, depression, headache, dry mouth, constipation, nausea, vomiting, diarrhea, tachycardia, chest pain, blurred vision, sweating, rash, appetite change, confusion, nervousness, syncope, hypotension, palpitations*
Benzodiazepines						
alprazolam diazepam chlordiazepoxide	(Xanax) (Valium) (Librium)	clonazepam clorazepate hydroxyzine lorazepam	(Klonopin) (Tranxene) (Atarax, Vistaril) ❶ (Ativan)	meprobamate oxazepam prazepam	(Equanil, Miltown) (Serax) (Centrax)	
Buspirone (BuSpar)						*Dizziness, lightheadedness, headache, nausea, restlessness, drowsiness, constipation, diarrhea, dry mouth*
ANTICONVULSANTS						*Edema, syncope, hypertension, hypotension, arrhythmias, CHF, syncope, sedation, dizziness, fatigue, slurred speech, ataxia, rash, hyponatremia, nausea, constipation, anorexia, diarrhea, abdominal pain, dry mouth, stomatitis, arthralgias, nystagmus, dyspnea, diplopia, hematologic changes, SIADH*
Carbamazepine (Tegretol)						
Primidone (Mysoline)						*Drowsiness, vertigo, ataxia, lethargy, behavior changes, impotence, rash, nausea, vomiting, leukopenia, megaloblastic anemia, diplopia, nystagmus*
Gabapentin (Neurontin)						*Drowsiness, dizziness, ataxia, nystagmus, nausea, vomiting, fatigue, peripheral edema, hypertension, rhinitis, pharyngitis, diplopia, myalgia, impotence*
Valproic Acid/Divalproex Sodium (Depakene, Depakote)						*Peripheral edema, drowsiness, ataxia, tremor, irritability, confusion, restlessness, sedation, headache, malaise, dizziness, depression, psychosis, aggression, alopecia, rash, hyperammonemia, abnormal thyroid tests, nausea, vomiting, dyspepsia, diarrhea, abdominal cramps, constipation, anorexia, weight changes, pancreatitis, bruising, dysarthria, incoordination, weakness, diplopia, "spots before eyes"*
Phenytoin (Dilantin) Mephenytoin (Mesantoin)						*Ataxia, slurred speech, dizziness, drowsiness, lethargy, confusion, fever, mood changes, peripheral neuropathy, rash, hirsutism, nausea, vomiting, gingival hyperplasia, blurred vision, diplopia, coarsening of facial features*

1 - Beers criteria applies for oral meperidine therapy only ❶ - Beers criteria agents

Please tear off this stub and discard before using form.

Tab 9 - Error Tracking and Analysis

Improving the Safety of the Medication Use Process and Creating a Culture of Safety: *A Systems Approach to Error Tracking and Analysis*

Essential systems related to the medication use process have been discussed throughout this workbook. Through analysis of current processes that make up these systems, the facility can determine problems or areas in need of improvement.

Revision of current processes or development of processes that are lacking can then take place. As outlined in this workbook, using a systems approach can lead to a decrease in medication errors and adverse drug events in nursing homes.

Each section of this workbook provides tools that assist with the analysis of system areas. Checklists can help focus on important criteria necessary for a particular process. Flow diagrams outline the steps and elements that are vital to the process.

Additionally, there are tools that can assist with the quality improvement process. Process improvement involves a series of logical steps, and the tools provided in this tab provide assistance with these steps.

Key Points

- **The system for reporting medication errors should be free of blame and focused on patient safety and systems analysis.**
- **A culture of patient safety should be the foundation of medication error tracking and analysis.**

Tools

- **USP Medication Errors Reporting Program Form**
- **US Department of Health and Human Services Med Watch Reporting Form**
- **Yale-New Haven Hospital Medication Use Variance Report**
- **Potential Error Reporting Tool**

Improving the Safety of the Medication Use Process and Creating a Culture of Safety:
A Systems Approach to Error Tracking and Analysis

Historically, the approach that many nursing homes have used for medication error reporting has been punitive, seeking to assign blame and to discipline the health care worker involved in the error. The root cause of the error was assumed to be the individual involved most directly with the error., and the health care worker involved in the incident was the focus of corrective action. Little attention was given to the many aspects of the medication use process and the health care system until a study done by Leape, et al. in 1995. This study highlighted the systems failures that contributed to adverse drug events and recommended that **assessment of the system of medication use be the focus of the evaluation of a medication error.** These recommendations have been endorsed many times since 1995 (David, 2001; Stump, 2000; Cohen, 2000) but have been slow to translate to practice.

Improving patient safety by reducing medication errors involves reformation of the error reporting system so that the individual who reports the error does not fear disciplinary action. The error report should provide meaningful and useful information that can be translated to system improvement rather than disorganized pieces of data that do not allow analysis. This is accomplished:

1. By performing a Root Cause Analysis of each error that is reported so that systematic and objective measures can be taken to determine what contributed to the error. A "culture change" that shifts the focus from blame and punishment to **patient safety** may frame an institutions' error reporting system.
2. Health care leaders are urged to create an environment focused on **patient safety** that actively promotes the reporting and tracking of medication errors. When medication errors are reported in a comprehensive manner, there is an opportunity to evaluate the reason the error occurred (the root cause) and develop strategies to prevent recurrence. Programs aimed at improving the reporting of medication errors anticipate an increase in the number of errors reported as staff become aware of and engaged in the value of the reporting process. Tracking medication errors improves the quality and safety of the medication use process.

Error Tracking and Analysis

Accepting the premise that the focus of medication error reporting is improved **patient safety** can set the stage for restructuring of the medication error reporting system in nursing homes. Development of a culture of safety free of blame, that seeks to reduce the rate of medication errors through systematic categorization and evaluation of medication errors can be accomplished using the following strategy:

1. Institutional commitment to a change in culture focused on **patient safety**.

   (Refer to Tab 1 - Organizational Commitment to Medication Safety).
2. Utilize systems already in place in the nursing home to implement the changes.

   Identify a medication error "champion" in the nursing home who can spearhead the move towards improved reporting and analysis. This "champion" can leverage resources already in place and may help in identifying systems that work well and systems that need improvement.
3. Development of a medication safety committee including the medical director, consultant pharmacist, and facility staff. The committee may promote system-wide emphasis on patient safety. Examples of systems or processes that can be utilized to enhance medication error identification and evaluation include:

   a. Change of shift report. Inquiry about medication errors can occur at the end of each shift and can be forwarded to facility leaders for further evaluation. Increased awareness can prompt enhanced reporting

and thus offer opportunities for improvement.

b. Weekly care plan meetings offer a forum to discuss occurrence of medication errors for individual patients.

c. Quality improvement or quality assurance meetings may be the forum where data is analyzed and plans for improvement are generated.

d. Multidisciplinary team meetings are essential in facility-wide "buy in" to patient safety and offer opportunities to discuss how systems can impact medication errors. For instance, a nursing home notes that medications are frequently omitted at 5:00 pm because patients are being transported to meals. Including multiple members of the care team in analysis of the problem capitalizes on the expertise of all providers for an optimal solution.

e. Timely analysis of the error with feedback to the staff as soon as possible following the error.

f. Screening for potential medication errors or adverse drug events utilizing identified risk factors. Patients taking greater that nine medications are at higher risk for adverse drug reactions. Patients on warfarin and other high-risk medications are at a higher risk for adverse drug reactions. Early identification of these patients may guide efforts aimed at prevention.

Making the Most of the Incident Report

In the long-term care setting, medication errors are typically reported using incident reports. In order to avoid adding another form for staff to fill out, utilization of a thorough incident report can provide all of the information needed to analyze an incident and direct efforts to reduce recurrence. Some programs have changed the terminology in their medication error reporting system. To reduce the stigma attached to incident reports, phrases such as Medication Use Variance report (Stump, 2000) have been substituted and can be considered as a technique to assist with a change in attitude about medication error reporting.

To maximize the usefulness of the information obtained from an incident report, the incident report should define the category of the medication error. The stage of the medication use process should be identified, as well as the name of the medication and the type of error (i.e., omission, extra dose, wrong patient). Contributing factors such as environmental distractions or "look-alike" drugs should be described. Severity of the incident should also be included with attention to the level of harm to the patient.

Analysis of the incident should occur as quickly as possible. This allows system improvements to be implemented in a timely fashion to reduce the probability that errors will be repeated (Tab 10 provides a form for analyzing incident reporting).

Systematic analysis of medication errors can be done as frequently as facility scheduling allows or could routinely be part of the weekly care planning meeting.

Near Misses

Incident reports are appropriate for a medication error that ALMOST occurred, or "near misses." For instance, the pharmacy sends MS Contin instead of Oxycontin. The nurse receiving the medication delivery identifies the error and returns the drug to the pharmacy. No harm to the patient, but an error in the medication use process nonetheless and a potential medication error. Capturing these "near misses" on incident reports will provide useful information for system improvement and can validate the value and merit of nursing attention to medication errors.

The Yellow Card system (in the Tools section of this tab) placed on the med cart or at workstations allows staff to jot down the quick facts to compile. Using this card system:

- Promotes safe reporting
- Promotes near miss analysis
- Identified risks without harm to residents

Voluntary completion of incident reports has been

shown to be superior to mandatory reporting in terms of staff participation and enthusiasm, as well as data generation (David, 2001). Voluntary, anonymous error reporting allows staff access to real blame-free reporting and can enhance participation in error reporting.

National Medication Error Reporting

While it is clearly important for each facility to report, track, and analyze medication errors for the purposes of improving patient safety in their buildings, it is also important to consider error reporting to a national error tracking and reporting program. Participation in these programs provides useful data for national health care policy decisions, research efforts, and resource allocation. A list of programs is available at the end of this tab.

Additional Methods of Error Detection

Trigger tools are tools devised to detect adverse drug events that have occurred. Adverse drug events are defined as an injury resulting from the use of a drug that may have resulted from a medication error or from an adverse drug reaction in which there was no error. Typically, a trigger tool is used as part of a retrospective chart review. An individual or team of reviewers is trained in the use of the tool and proceeds to a comprehensive chart review, which looks for identified triggers that may indicate an adverse drug event. Some triggers include the administration of Vitamin K or diphenhydramine, which may indicate an adverse drug reaction with warfarin or an allergic reaction to a medication requiring antihistamine treatment. Utilization of a trigger tool can be both labor and time intensive, but can be very helpful in describing the type and frequency of adverse drug events and can uncover medication errors that may not have been discovered or reported using the incident report. An initial attempt at incorporating a trigger tool into the adverse drug event monitoring may focus on warfarin. Since warfarin is frequently identified as a high-risk drug and is commonly associated with both medication errors and adverse drug events, priority should be given to warfarin in data tracking and analysis. When a facility is ready to move towards measuring all adverse drug events, utilization of the Institute for Healthcare Improvement's Trigger Tool (2004) should be considered.

The Consultant Pharmacist has frequent opportunities to assist in the identification of adverse drug events and medication errors through chart reviews done for the monthly drug regimen review. The ASCP guidelines (2005) suggest that the "pharmacist must assume responsibility for developing and implementing a plan for adverse drug reaction detection, reporting, and evaluation." Collaboration with the consultant pharmacist in the development of a system for medication error reporting and analysis will enhance opportunities for medication error reporting and make the most of a valuable resource already involved in the medication use system.

Direct observation of a nurse performing a medication pass. This method is sometimes used by state surveyors to assess the medication administration process and can also be used to detect medication errors. Care should be taken in this process to focus on opportunities for education and system support rather than fault finding and blame. For example, observation of a medication pass could reveal that a nurse is frequently called away from the medication cart to attend to phone calls, causing a disruption in the medication administration and potential error.

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Stump, L. (2000). Re-engineering the medication error-reporting process: Removing the blame and improving the system. *American Journal of Health-Systems Pharmacy*, 57: Supplement 4; S10-S17.

National Medication Error Reporting Programs:

National Coordinating Council for Medication Error Reporting and Prevention
www.nccmerp.org/reportMedError.html

US Food and Drug Administration Medwatch Program: The FDA Safety Information and Adverse Drug Event Reporting Program
www.fda.gov/medwatch/index.html

USP MEDICATION ERRORS REPORTING PROGRAM

Presented in cooperation with the Institute for Safe Medication Practices

USP is an FDA MEDWATCH partner

Reporters should not provide any individually identifiable health information, including names of practitioners, names of patients, names of healthcare facilities, or dates of birth (age is acceptable).

Date and time of event:

Please describe the error. Include description/sequence of events, type of staff involved, and work environment (e.g., code situation, change of shift, short staffing, no 24-hr. pharmacy, floor stock). If more space is needed, please attach a separate page.

Did the error reach the patient? ✎ Yes ✎ No

Was the incorrect medication, dose, or dosage form administered to or taken by the patient? ✎ Yes ✎ No

Circle the appropriate Error Outcome Category (select one—see back for details): A B C D E F G H I

Describe the direct result of the error on the patient (e.g., death, type of harm, additional patient monitoring).

Indicate the possible error cause(s) and contributing factor(s) (e.g., abbreviation, similar names, distractions, etc.).

Indicate the location of the error (e.g., hospital, outpatient or community pharmacy, clinic, nursing home, patient's home, etc.).

What type of staff or healthcare practitioner made the initial error?

Indicate if other practitioner(s) were also involved in the error (type of staff perpetuating error).

What type of staff or healthcare practitioner discovered the error or recognized the potential for error?

How was the error (or potential for error) discovered/intercepted?

If available, provide patient age, gender, diagnosis. Do not provide any patient identifiers.

Please complete the following for the product(s) involved. (If more space is needed for additional products, please attach a separate page.)

	Product #1	Product #2
Brand/Product Name (If Applicable)		
Generic Name		
Manufacturer		
Labeler		
Dosage Form		
Strength/Concentration		
Type and Size of Container		

Reports are most useful when relevant materials such as product label, copy of prescription/order, etc., can be reviewed.

Can these materials be provided? ✎ Yes ✎ No Please specify:

Suggest any recommendations to prevent recurrence of this error, or describe policies or procedures you instituted or plan to institute to prevent future similar errors.

Name and Title/Profession ( ) Telephone Number ( ) Fax Number

Facility/Address and Zip E-mail

Address/Zip (where correspondence should be sent)

Your name, contact information, and a copy of this report are routinely shared with the Institute for Safe Medication Practices (ISMP). Copies of reports will be sent to third parties such as the manufacturer/labeler, and to the Food and Drug Administration (FDA). You have the option of including your name on these copies.

In addition to releasing my name and contact information to ISMP, USP may release my identity to these third parties as follows (check boxes that apply):

✎ The manufacturer and/or labeler as listed above ✎ FDA ✎ Other persons requesting a copy of this report ✎ Anonymous to all third parties

Signature Date

Return to:
USP CAPS
12601 Twinbrook Parkway
Rockville, MD 20852-1790

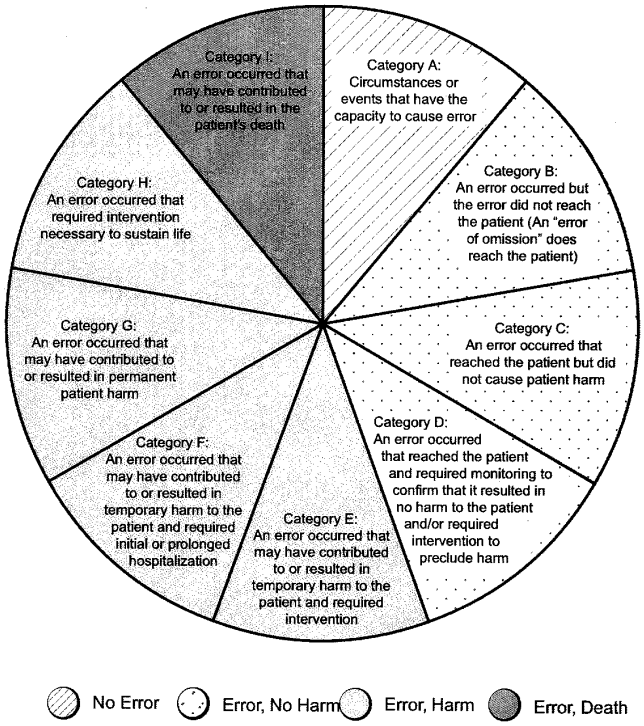
Submit via the Web at www.usp.org/mer
Call Toll Free: 800-23-ERROR (800-233-7767)
or FAX: 301-816-8532

Date Received by USP | File Access Number

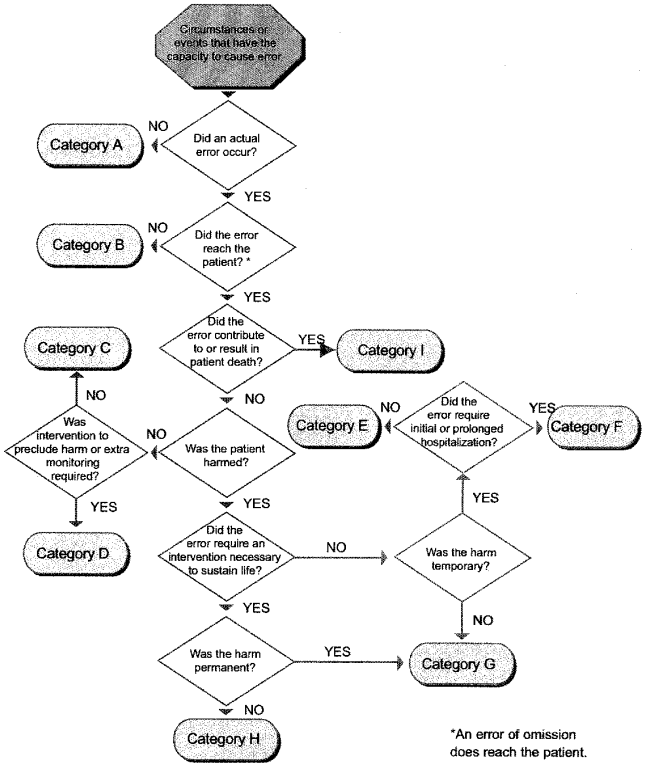
PSF116G

WEPDF

NCC MERP Index for Categorizing Medication Errors



NCC MERP Index for Categorizing Medication Errors Algorithm



Full-size copies are available: INDEX—www.nccmerp.org/010612_color_index.pdf; ALGORITHM—www.nccmerp.org/010612_color_algo.pdf

National Coordinating Council for Medication Error Reporting and Prevention Definitions

Harm
Impairment of the physical, emotional, or psychological function or structure of the body and/or pain resulting therefrom.

Monitoring
To observe or record relevant physiological or psychological signs.

Intervention
May include change in therapy or active medical/surgical treatment.

Intervention Necessary to Sustain Life
Includes cardiovascular and respiratory support (e.g., CPR, defibrillation, intubation, etc.).

U.S. Pharmacopeia
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ROCKVILLE MD 20897-5211

U.S. Department of Health and Human Services

Form Approved: OMB No. 0910-0291, Expires: 03/31/05
See OMB statement on reverse.

MEDWATCH

The FDA Safety Information and Adverse Event Reporting Program

For VOLUNTARY reporting of adverse events and product problems

Page ____ of ____

FDA USE ONLY
Triage unit sequence #

PLEASE TYPE OR USE BLACK INK

A. PATIENT INFORMATION

1. **Patient Identifier** — In confidence
2. **Age at Time of Event:** or **Date of Birth:**
3. **Sex** ☐ Female ☐ Male
4. **Weight** ____ lbs or ____ kgs

B. ADVERSE EVENT OR PRODUCT PROBLEM

1. ☐ **Adverse Event** and/or ☐ **Product Problem** *(e.g., defects/malfunctions)*

2. **Outcomes Attributed to Adverse Event** *(Check all that apply)*
   - ☐ Death: _____ *(mo/day/yr)*
   - ☐ Life-threatening
   - ☐ Hospitalization - initial or prolonged
   - ☐ Disability
   - ☐ Congenital Anomaly
   - ☐ Required Intervention to Prevent Permanent Impairment/Damage
   - ☐ Other: _____

3. **Date of Event** *(mo/day/year)*

4. **Date of This Report** *(mo/day/year)*

5. **Describe Event or Problem**

6. **Relevant Tests/Laboratory Data, Including Dates**

7. **Other Relevant History, Including Preexisting Medical Conditions** *(e.g., allergies, race, pregnancy, smoking and alcohol use, hepatic/renal dysfunction, etc.)*

C. SUSPECT MEDICATION(S)

1. **Name** *(Give labeled strength & mfr/labeler, if known)*
   #1
   #2

2. **Dose, Frequency & Route Used**
   #1
   #2

3. **Therapy Dates** *(If unknown, give duration)* *from/to (or best estimate)*
   #1
   #2

4. **Diagnosis for Use** *(Indication)*
   #1
   #2

5. **Event Abated After Use Stopped or Dose Reduced?**
   #1 ☐ Yes ☐ No ☐ Doesn't Apply
   #2 ☐ Yes ☐ No ☐ Doesn't Apply

6. **Lot #** *(if known)*
   #1
   #2

7. **Exp. Date** *(if known)*
   #1
   #2

8. **Event Reappeared After Reintroduction?**
   #1 ☐ Yes ☐ No ☐ Doesn't Apply
   #2 ☐ Yes ☐ No ☐ Doesn't Apply

9. **NDC#** *(For product problems only)*
   – –

10. **Concomitant Medical Products and Therapy Dates** *(Exclude treatment of event)*

D. SUSPECT MEDICAL DEVICE

1. **Brand Name**

2. **Type of Device**

3. **Manufacturer Name, City and State**

4. **Model #** | **Lot #**
   Catalog # | **Expiration Date** *(mo/day/yr)*
   Serial # | **Other #**

5. **Operator of Device**
   - ☐ Health Professional
   - ☐ Lay User/Patient
   - ☐ Other: _____

6. **If Implanted, Give Date** *(mo/day/yr)*

7. **If Explanted, Give Date** *(mo/day/yr)*

8. **Is this a Single-use Device that was Reprocessed and Reused on a Patient?**
   ☐ Yes ☐ No

9. **If Yes to Item No. 8, Enter Name and Address of Reprocessor**

10. **Device Available for Evaluation?** *(Do not send to FDA)*
    ☐ Yes ☐ No ☐ Returned to Manufacturer on: _____ *(mo/day/yr)*

11. **Concomitant Medical Products and Therapy Dates** *(Exclude treatment of event)*

E. REPORTER *(See confidentiality section on back)*

1. **Name and Address**

Phone #

2. **Health Professional?** ☐ Yes ☐ No

3. **Occupation**

4. **Also Reported to:**
   - ☐ Manufacturer
   - ☐ User Facility
   - ☐ Distributor/Importer

5. **If you do NOT want your identity disclosed to the manufacturer, place an "X" in this box:** ☐

FDA

Mail to: MEDWATCH
5600 Fishers Lane
Rockville, MD 20852-9787

-or-

FAX to:
1-800-FDA-0178

FORM FDA 3500 (12/03) **Submission of a report does not constitute an admission that medical personnel or the product caused or contributed to the event.**

ADVICE ABOUT VOLUNTARY REPORTING

Report adverse experiences with:

- Medications *(drugs or biologics)*
- Medical devices *(including in-vitro diagnostics)*
- Special nutritional products *(dietary supplements, medical foods, infant formulas)*
- Cosmetics
- Medication errors

Report product problems - quality, performance or safety concerns such as:

- Suspected counterfeit product
- Suspected contamination
- Questionable stability
- Defective components
- Poor packaging or labeling
- Therapeutic failures

Report SERIOUS adverse events. An event is serious when the patient outcome is:

- Death
- Life-threatening *(real risk of dying)*
- Hospitalization *(initial or prolonged)*
- Disability *(significant, persistent or permanent)*
- Congenital anomaly
- Required intervention to prevent permanent impairment or damage

Report even if:

- You're not certain the product caused the event
- You don't have all the details

How to report:

- Just fill in the sections that apply to your report
- Use section C for all products except medical devices
- Attach additional blank pages if needed
- Use a separate form for each patient
- Report either to FDA or the manufacturer *(or both)*

Confidentiality: The patient's identity is held in strict confidence by FDA and protected to the fullest extent of the law. FDA will not disclose the reporter's identity in response to a request from the public, pursuant to the Freedom of Information Act. The reporter's identity, including the identity of a self-reporter, may be shared with the manufacturer unless requested otherwise.

If your report involves a serious adverse event with a device and it occurred in a facility outside a doctor's office, that facility may be legally required to report to FDA and/or the manufacturer. Please notify the person in that facility who would handle such reporting.

Important numbers:

- 1-800-FDA-0178 -- To FAX report
- 1-800-FDA-1088 -- To report by phone or for more information
- 1-800-822-7967 -- For a VAERS form for vaccines

To Report via the Internet:

http://www.fda.gov/medwatch/report.htm

The public reporting burden for this collection of information has been estimated to average 30 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to:

Department of Health and Human Services
Food and Drug Administration
MedWatch; HFD-410
5600 Fishers Lane
Rockville, MD 20857

Please DO NOT RETURN this form to this address.

OMB statement:
"An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number."

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
Food and Drug Administration

FORM FDA 3500 (12/03) (Back) **Please Use Address Provided Below -- Fold in Thirds, Tape and Mail**

DEPARTMENT OF HEALTH & HUMAN SERVICES

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Food and Drug Administration
Rockville, MD 20857

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MEDWATCH
The FDA Safety Information and Adverse Event Reporting Program
Food and Drug Administration
5600 Fishers Lane
Rockville, MD 20852-9787

SYMPOSIUM Improving the system

Figure 1. Front (top) and back sides of the medication-use variance report. It is printed on 8½ by 5½-inch white cardstock with a neon orange and black border. (CCSS stands for clinical care support system, which is the computerized physician order-entry system.)

YALE-NEW HAVEN HOSPITAL MEDICATION USE VARIANCE REPORT

Section 1. Patient Age: _____	Section 3. Practitioner/Staff Involved
Section 2. Time and Location of Incident Day of the week: Sa Su Mon Tu Wed Th Fr Occurrence Time ___:___ (circle) AM or PM Unit/Location_____	*Classification* ☐ Nurse ☐ Pharmacist ☐ Physician ☐ Technician ☐ Other _____ *Status* ☐ Regular staff ☐ Float ☐ Agency/contract ☐ Student ☐ Traveler ☐ Other
Section 4. Medication and Doses Involved	Section 5. What Happened? (Type of variance)
Name each medication involved: 1. drug ordered & route: (circle one) _____ IVpush IVdrip IM SC PO PR Number of DOSES ffected:_____ 2. drug ordered& route: (circle one) _____ IVpush IVdrip IM SC PO PR Number of DOSES affected:_____ drug given & route: _____ __ IVpush IVdrip IM SC PO PR drug given & route: _____ __ IVpush IVdrip IM SC PO PR	INCORRECT... ☐ patient ☐ drug ☐ dose ☐ route ☐ formulation ☐ IV rate ☐ IV solution ☐ time ☐ Given when criteria (e.g., BP, blood sugar, pain) not met ☐ Extra dose given (e.g., more than the scheduled doses, or dose given after stop date or after d/c) ☐ Given in the presence of documented allergy to drug ☐ Dose omitted ☐ Other: _____

Section 6. Description of Incident (Causes of Variance)

1. In your opinion, why did this incident occur? Please be specific and refer to the example descriptions below. Variance in:
   - ☐ PRESCRIBING (e.g., incomplete or unclear order, excessive quantity prescribed, etc.)
   - ☐ TRANSCRIBING (e.g., order entered on wrong patient, order content changed during schedule revision, verbal order incorrectly entered onto MAR.)
   - ☐ DISPENSING (e.g., medication mislabeled, wrong medication stocked in med cart, wrong medication withdrawn from med cart, inaccurate dose calculation, etc.)
   - ☐ ADMINISTERING (e.g., medication label misread or not read, previous dose given but not charted or charted incorrectly, patient ID band not verified, patient not available on unit, etc.)
   - ☐ MONITORING (e.g., inaccurate documentation of patient weight, necessary tests or procedures not ordered, test/procedures not ordered, test/procedure results misinterpreted, test/procedure results charted incorrectly or not charted, lapse in profile or new order review, etc.)

Explain:

Section 7. Contributing Factors

In your opinion, were there factors that made this incident difficult to prevent or detect? Please be specific and refer to the descriptions below:

Factors related to the:

- ☐ PRODUCT (e.g., unclear manufacturer labeling, “sound-alike” drug names, look-alike packaging, omission or misuse of a prefix or suffix such as “fos” phenytoin or diltiazem “CD”, etc.).
- ☐ medication use SYSTEM (e.g., side-by-side storage of look-alike drugs, lack of standardization in practice, competing distractions, etc.)
- ☐ OTHER _____

Explain:

Section 8. Severity of the Incident

Using your best judgment, please rate the SEVERITY of this incident:

- ♦ Circumstances or events that have the capacity to cause a medication-use variance
- ♦ Variance occurred but was detected before it reached the patient – near miss
- ♦ Variance occurred, reached the patient, but caused no harm or is unlikely to cause harm
- ♦ Variance will require additional patient monitoring but is unlikely to result in a change in vital signs or patient harm
- ♦ Variance requires intervention and caused or is likely to cause temporary patient harm
- ♦ Variance caused or is likely to cause temporary patient harm and prolonged hospitalization
- ♦ Variance caused or is likely to cause permanent patient harm
- ♦ Variance resulted in a near death event (e.g., anaphylaxis, cardiac arrest)
- ♦ Variance resulted in or contributed to patient death

Section 9. Your Comments

In your opinion, are there improvements or changes that can be made to help prevent a similar incident from occurring again?

Explain:

Return to Pharmacy

Am J Health-Syst Pharm—Vol 57 Dec 15, 2000 Suppl 4 (Adapted with permission.)

Yellow Card
Keeping It Simple
Potential Error Reporting Tool

POTENTIAL MEDICATION ERROR ALERT

Date: _____Patient: _____Unit: _____Shift: _____

Drug Name: _____

Circle one, "Wrong:" **drug route dose time omission**

Circle one: **Prescribing Transcribing Dispensing Administering**

What happened?

_____

_____

What contributed to this near miss?

_____

_____

Congratulations on identifying this patient safety risk–you have helped to make our medication system safer. Keep those cards and letters coming!

Source: Jennifer Costain, Director of PI @ North Shore Medical Center

Tab 10 - Quality Improvement

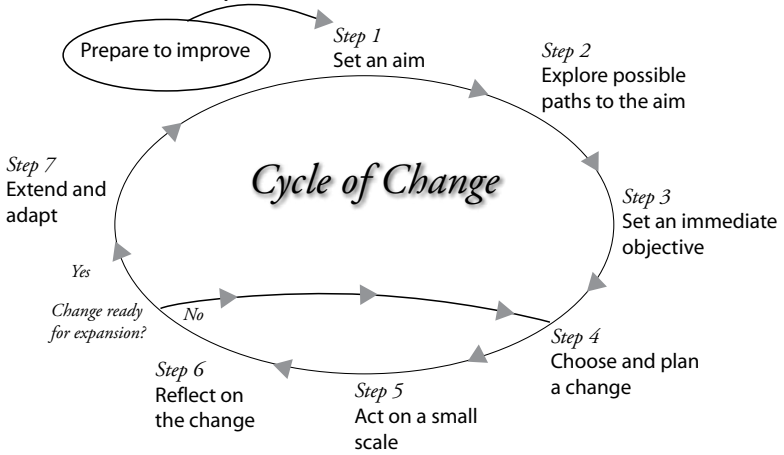
A Systems Approach to Quality Improvement

Essential systems related to the medication use process and medication errors have been discussed throughout this workbook. The medication safety group defines the action plan and spearheads thoughtful analyses of the current processes that make up these systems in order to determine problems or areas in need of improvement.

Making change happen is the challenge. Applying a stepped approach to the team's plan of revision or defining the processes will keep things on track. The over-arching method applied has been derived from Deming's cycle: Plan, Do, Study, Act (PDSA). This straightforward process model for quality improvement has been used extensively in health care (Watson, 1986). It is a simple way to test an idea before putting a change into effect, and participants learn as they proceed and refine their changes in small steps.

Reasons to test a change before it's implemented include:

- Powerful learning tool
- Requires less time, money, and risk
- Safer and less disruptive for residents and staff
- When people are involved in testing and developing ideas, resistance to implementation is reduced



Each section of this workbook provides tools that assist with the analysis of system areas. Checklists help you to focus on important criteria necessary for a particular process. Flow diagrams depict the steps and elements that are vital to the process.

Quality Improvement Tools

- **Steps to Quality Improvement Worksheets (A through L)**
- **Rapid Cycle Change Model**
- **Quality Improvement Plan and Report**
- **Data Tracking Tool and Instructions:**
  – Medication Use Processes
  – Incident Reporting
- **Quality Improvement Reporting:**
  – Medication Use Processes
  – Incident Reports

References

Walton, M. (1986). The Deming management method. New York, NY: The Berkley Publishing Group.

Langley, G, Nolan, K, et al. (1996). The improvement guide: A practical approach to enhancing organizational performance. New York, NY: Jossey-Bass, Inc.

Brassard, M, Ritter D. (1994). The memory jogger II: A pocket guide of tools for continuous improvement and effective planning. Salem, NH: Goal/QPC.

"Every system is perfectly designed to achieve the results it achieves."

– Donald Berwick

Background

For over 50 years quality improvement has been the goal of organizations around the world. Quality improvement has been traced back to the work of Florence Nightingale in the Crimean War. The modern movement of total quality improvement (TQI) is based on the principles first articulated by Juran and Deming in the 1940s. The first group to incorporate them into their work was Japanese industrialists after the Second World War. Since the mid-1990s, quality improvement has increasingly moved into the operations and boardrooms of all major health care providers in this country. As standard systems of care and comparative data have become more widely available, it has become more important for organizations to understand the steps used in identifying where a problem of quality exists. It is also critical to know how to use the tools that can assist in determining the cause of the problem and the process to use to change the existing systems to improve outcomes. To achieve this goal, nursing home leadership must be committed to instituting a policy of continuous quality improvement, and supporting the staff given the responsibility of carrying out this policy.

In 2001, responding to increasing concerns about the quality and safety of health care, the Institute of Medicine issued a report, Crossing the Quality Chasm, that succinctly stated the current state of health care quality in this country and the steps needed for improvement. The authors identified six core principles for health care:

- Safe
- Effective
- Patient-centered
- Timely
- Efficient
- Equitable

It is obvious how these principles are applicable to any program aimed at having safe medication practices in long-term care settings.

QI programs

QI programs should start by addressing three fundamental questions:

- **Aim:** What are we trying to accomplish?
- **Measure:** How will we know that a change is an improvement?
- **Intervention:** What system changes will result in improvement?

Increasingly, health care organizations are using a rapid cycle model for improvement. This model is often referred to as the Plan, Do, Study, Act (PDSA) model.

- **Plan:** Identify what is not working as expected (poor outcomes), identify the causes of the problem and then design a planned intervention
- **Do:** Carry out your system changes, starting with small "rapid cycle" changes in one unit, with a few residents, for a few days.
- **Study:** Monitor the effect of the system changes to be sure the results are what's expected. (Be sure there is sufficient time to allow the improvements to take place.) If you are not getting the expected results, modify the changes you made. Check in with staff to gage their reaction to the changes.
- **Act:** If the changes were successful, continue to roll them out across the organization, and look for ways to continually improve the processes.

These rapid PDSA cycles are valuable in terms of learning how current systems are constructed and operate, and where the system problems exist.

This process is often referred to as a "root cause" analysis. Rapid cycles do not require the expenditure of resources, can be completed in short periods of time (from a day to one-to-two weeks), and allow for multiple cycles to be carried out simultaneously. In addition, by starting small, you can test changes with the knowledge that all changes may not have the impact you expected. If they do not, you can more easily modify the intervention than if the changes were made throughout the entire organization.

The tools in this section will help to guide you through the steps in developing a QI plan, conducting a root cause analysis and a rapid cycle test. Remember, when you staff a quality improvement effort, always involve staff who are impacted by the changes in the decision making process. Their understanding of the system is invaluable, and their acceptance of the changes is critical to sustained success.

Steps to Quality Improvement - Worksheet A
Identifying Areas for Improvement

1. **Select one question (from the Facility Assessment Checklist, if applicable) to examine further.**

   Example: Does our facility routinely ask all residents upon admission or readmission if they were taking other medications at home?

   Question:_____

2. **Randomly select five or more medical records or other data source, depending on the question, to review. Determine a question that will be asked.**

   Example: Was this resident asked about his/her medications upon admission/readmission?

   Question:_____

3. **Collect data:**
   - Data can help you separate what you think is happening from what is really happening.
   - Data will establish a baseline so you can measure improvement.
   - Data will help you avoid putting solutions in place that will not solve the problem.

   Record findings here:

Case #	*Yes*	*No*
1.		
2.		
3.		
4.		
5.		

4. **If data is not readily available from medical records, what sources did you use to collect your data, and what steps did you take to collect this data?**

Courtesy of Quality Partners of Rhode Island. Material available in the Nursing Home section of the MedQIC web site (www.MedQIC.org).

Error Tracking Worksheet B
Forming a Team

A team is identified as a small number of people with complementary skills that are committed to a common purpose and hold themselves mutually accountable.

1. **Identify team members who will work on this project:**
    - Teams should have 3-4 members who will plan, implement and evaluate their work.
    - If you already have a team, make sure that it includes appropriate members related to the topic chosen for improvement. Suggested members:
        - One Staff Nurse
        - One CNA
        - In-Service/Education Director
        - Director of Nursing or Administrator
    - Involve staff from different shifts, units and departments.

Name	***Position***
Alternates	

2. **Identify time and place for short weekly meetings (no more than 30 minutes).**
    - Team does not have to meet at same time and place each week.
    - Meetings can be more or less frequent as needed.

Post meeting schedule in a place accessible to all team members:

Date	***Time***	***Place***

Teams always outperform an individual!

Courtesy of Quality Partners of Rhode Island. Material available in the Nursing Home section of the MedQIC web site (www.MedQIC.org).

Error Tracking Worksheet C
Team Meeting Notes

Team Members: _____

Team Start Date:_____

Team Goal: _____

Date	*Main Points of Discussion*	*Next Steps*	*Person Responsible*	*Expected Outcomes*	*Due Date*

Continue to jot down team meeting notes on other pages. Share updated Team Meeting Notes with all members of team after each meeting.

Error Tracking Worksheet D
Goal Setting

1. **A goal is a clear statement of the intended improvement and how it is to be measured.**

2. **Use your goal statement to stay focused, to establish boundaries for what is and is not included in your team's work and to define success.**

3. **Post your goal where it is visible at every team meeting.**

Write a goal for improvement:

- Your goal should:
  - *Answer the question, "What do you want to accomplish?"*
  - *Be measurable.*
  - ***Be short** so that everyone can remember it.*
- Does *not* include *how* you will achieve goal.
- May include a beginning and end date.
- Your goal may be taken directly from an item on the Facility-Assessment checklists.

Example: *Increase number of care plans that address appropriate medication monitoring for new medications on a regular schedule from 50% to 75% over the next two months.*

Courtesy of Quality Partners of Rhode Island. Material available in the Nursing Home section of the MedQIC web site (www.MedQIC.org).

Error Tracking Worksheet E
Current Process Analysis

- **A process is a series of activities or steps that are meant to achieve a particular result.**
- **When defining a process, think about staff roles in the process, the tools or materials staff use, and the flow of activities.**
- **Everything is a process, whether it is admitting a resident, serving meals, assessing pain or managing a nursing unit. The ultimate goal of defining a process is identifying problems in the current process.**

Have the team identify and define every step in the current process that the facility has chosen to improve:

Tips

- Take time to "brainstorm" and listen to every team member.
- Take time to understand and document the process.
- Make each step in the process very specific.
- Use one post-it note, index card or scrap piece of paper for each step in the process.
- Lay out each step, move steps, add and remove steps until the team agrees on a final process.
- If the problem is that a process does not exist (*for example, there is no current process to screen for medication interactions upon admission and readmission)*, then identify the related processes (*for example, the process for admission and readmission).*
- If the process is different for different shifts, identify each individual process.

Example: Process for making buttered toast.

Step	*Define*
1	Check to see if there is bread, butter, knife and toaster.
2	If supplies are missing, go to the store and purchase them.
3	Check to see if the toaster is plugged in; if not, plug in the toaster.
4	Check setting on toaster; adjust to darker or lighter as preferred.
5	Put a slice of bread in toaster.
6	Turn toaster on.
7	Wait for bread to toast.
8	When toast is ready, remove from toaster and put on plate.
9	Use knife to cut pat of butter.
10	Use knife to spread butter on toast.

Write the steps of your defined process on the other side of page or attach additional sheet.

Error Tracking Worksheet E
Current Process Analysis (continued)

TEAM DISCUSSION
Evaluate your current process as you define it:

- What policies and procedures do we have in place for this process?
- What forms do we use?
- How does our physical environment support or hinder this process?
- Which staff are involved in this process?
- What part of this process does not work?
- Do we duplicate any work unnecessarily?
- Are there any delays in the process? Why?

Continue asking questions that are important in learning more about this process.

When you discover a problem in your current process, continue to Worksheet F: Root-Cause Analysis, to determine the root cause(s) of the problem.

Courtesy of Quality Partners of Rhode Island. Material available in the Nursing Home section of the MedQIC web site (www.MedQIC.org).

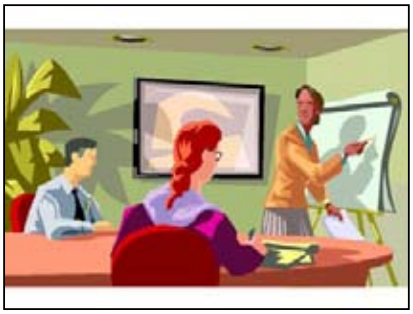
Error Tracking Worksheet F
Root-Cause Analysis

- The root-cause analysis allows you to identify the "root" of the problem you discover in your process, where and why the problem exists.
- You can then make decisions based on data rather than on "hunches," and look for lasting solutions rather than relying on "quick fixes" and "band-aid" approaches.

1. Begin with brainstorming:

- All facets/aspects of the problem are considered. "We don't assess for medication side effects because . . . ."
- Once all factors are listed and developed, they should be categorized.
- Then you can create a "cause and effect" diagram, such as a Fishbone Diagram (explained below).
- General categories for causes are:
  - Environment
  - Equipment
  - People
  - Methods (processes)
  - Materials

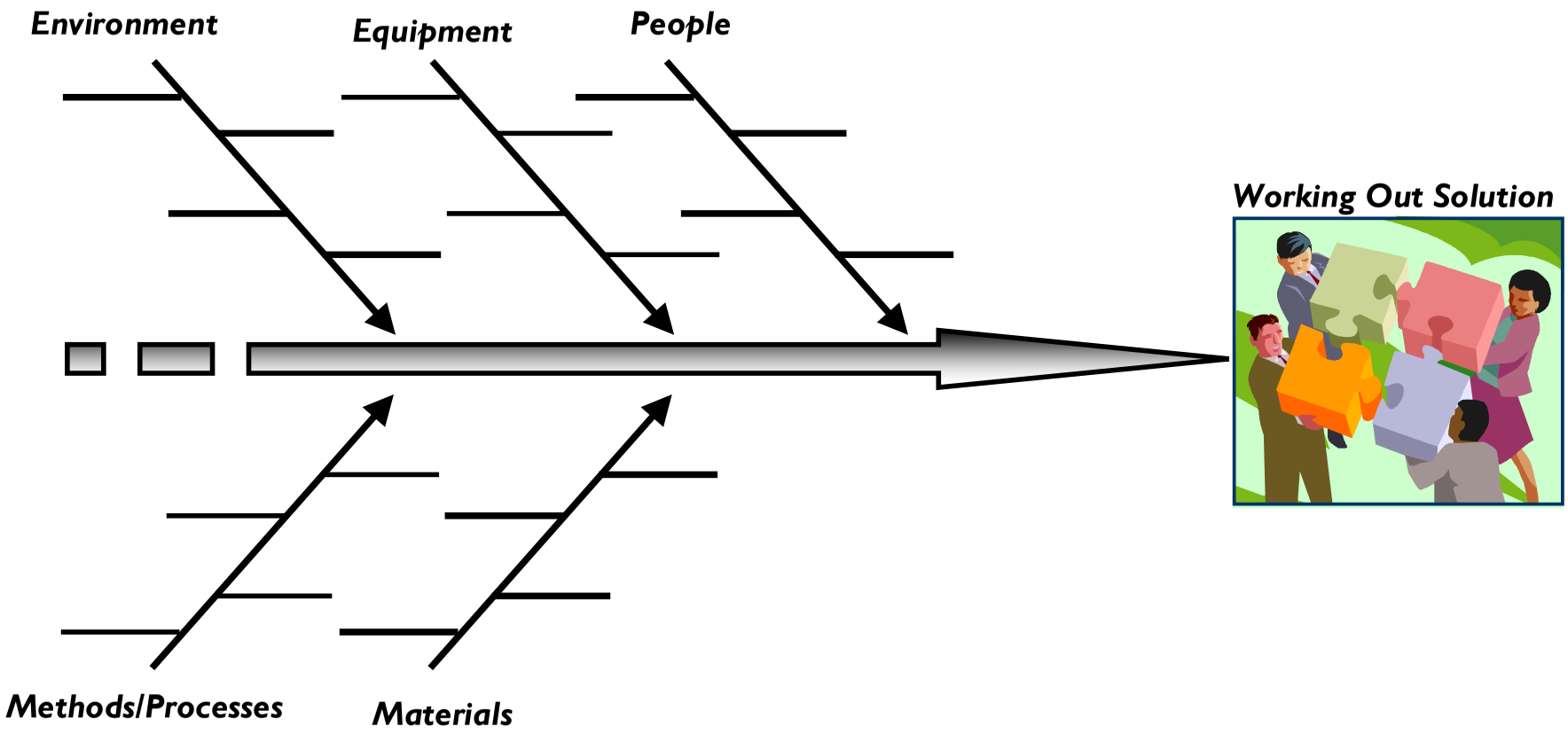
2. The Fishbone Diagram



- The cause and effect diagram (Fishbone) starts with the problem at the head of the fish.
- Under each general category of the Fishbone, answer the question, "Why?" in regards to the problem identified.
- Once the Fishbone Diagram is completed, the various causes are discussed to determine the root of the problem or the *real* reasons why the problem exists. It is from the result of this discussion that the focus for the improvement plan begins.

Error Tracking Worksheet G
Fishbone Diagram

Goal:_____



Courtesy of Quality Partners of Rhode Island. Material available in the Nursing Home section of the MedQIC web site (www.MedQIC.org).

Error Tracking Worksheet H
Process Improvement Plan

Identify a manageable change based on the outcome of root-cause analysis. What will we do/change to address the root of the problem?

1. **Identify criteria that will help evaluate potential solutions to the problem, such as:**
   - Cost
   - Potential facility/resident/staff benefits
   - How easy it would be to implement

2. **Brainstorm all potential solutions before rejecting any ideas.**

   Use this space for brainstorming:

3. **Evaluate a few solutions listed above. Don't be afraid to combine ideas! Come to a team consensus on the best solution to test.**
   - Consensus means that each team member can "live with" with solution.
4. **Write consensus decision on one process change or improvement to make:**

_____
_____
_____
_____
_____
_____

Courtesy of Quality Partners of Rhode Island. Material available in the Nursing Home section of the MedQIC web site (www.MedQIC.org).

Error Tracking Worksheet I
Implementation Strategy

- Identifies **how** we will accomplish change.
- Planning will help coordinate the activities of the team.
- The implementation strategy includes how the change will be communicated, implemented and evaluated.

1. **Create an implementation strategy that incorporates the following questions:**

   - **What** is the change?
   - **Why** has the team suggested this change? What is the goal?
   - **Who** will be involved in the change? Are there other staff members who may be affected by this change?
   - **Where** will the change take place? Remember to start small!
   - **When** will the change be made (start date)?
   - **When** will it be evaluated (evaluation date)?
   - **How** will it be evaluated – how will we know if we can expand this change to other areas?

2. **Implementation Strategy:**

_____

_____

_____

_____

_____

_____

_____

_____

Communication is the Key!

- **Share** the answers to the above questions with the staff who will be involved in making the change.
- **Talk** about the change positively.
- **Ask** for feedback on how to implement the proposed change.

Courtesy of Quality Partners of Rhode Island. Material available in the Nursing Home section of the MedQIC web site (www.MedQIC.org).

Error Tracking Worksheet J
Pilot Testing

- Pilot testing gives your team a chance to see how to implement a change on a small scale
- Pilot testing can also give your team some early results to see if the change you make has any impact.
- The team has a role to play in helping to implement any change that is recommended.

What can the team do to make the change happen?	***Who***
Who will train staff?	
Who will monitor to see if process has changed?	
Who will update/revise/remove tools, if necessary?	
Who will team contact if they need support implementing change?	
Who will audit outcome of process change?	
Additional team roles:	

Indicate here any revisions to the implementation strategy that the team makes during the pilot test:

Error Tracking Worksheet K
Pilot Test Evaluation Worksheet

- Evaluating the pilot test allows your team to organize observations that the team has made through the pilot test.
- Evaluation also includes collecting data to check whether the change has helped you reach your goal.

Ask these evaluation questions at a team meeting, a staff meeting, in an anonymous questionnaire or via informal communication with staff.

1. Do we need to reevaluate our initial goal?

2. What is working well? Why?

3. What is not working? Why?

4. What can be done differently?

5. Do we need to revise the materials we are using (if any)?

6. How does staff feel about the change in process?

7. Are residents positively affected by the change in process?

Error Tracking Worksheet L
Ongoing Monitoring

- Monitoring the implemented change allows your team to evaluate, on an ongoing basis, whether or not the implemented change has made an impact on overall care delivery.
- Decide who on staff will perform tracking related to the facility-wide implementation.
- Decide when this monitoring will be completed (i.e. monthly, bimonthly, quarterly).
- Decide on how this data will be collected and evaluated.

Goal:_____
Example: Medication reconciliation will be completed on all residents upon admission when orders are verified with provider.

Date of facility-wide implementation:_____

How will you know if you have achieved implementation?
Example: We will know when 10 out of 10 admissions this month show that medication reconciliation was completed upon admission.

We will know when _____

_____

Record Findings:

Date	# of Cases Reviewed (A)	# of Cases with Positive Results (B)	B out of A (B/A)

Review the following:

1. Based on the data collected, check to see if the process has been implemented 100%. If it has, continue to monitor as long as the team feels necessary.
2. Based on the data collected, check to see if implementation of the new (improved) process has had an impact on the delivery of care. If it has not, you may wish to explore the following questions:
    a. Has the process been successful on some shifts or units and not on others? If so, why?
    b. Is further staff education needed? In what areas?
    c. Does the process need to be revised for facility-wide implementation? If so, plan a pilot test of some revision to the process. Use these worksheets to plan the pilot if necessary.

Error Tracking Worksheet L
Ongoing Monitoring (continued)

Collect data to evaluate change.

Has the change in process or in form had an impact? The chosen measure for evaluation can be taken directly from an item on the Facility-Assessment Checklist (if applicable) used to begin this project.

Examples:

- *5 out of 5 new admissions have completed medication reconciliation forms within 24 hours*
- *5 out of 5 call lights received response within X minutes*

Goal: _____

_____

Data source (medical records, staff survey, etc.):_____

_____

Example:

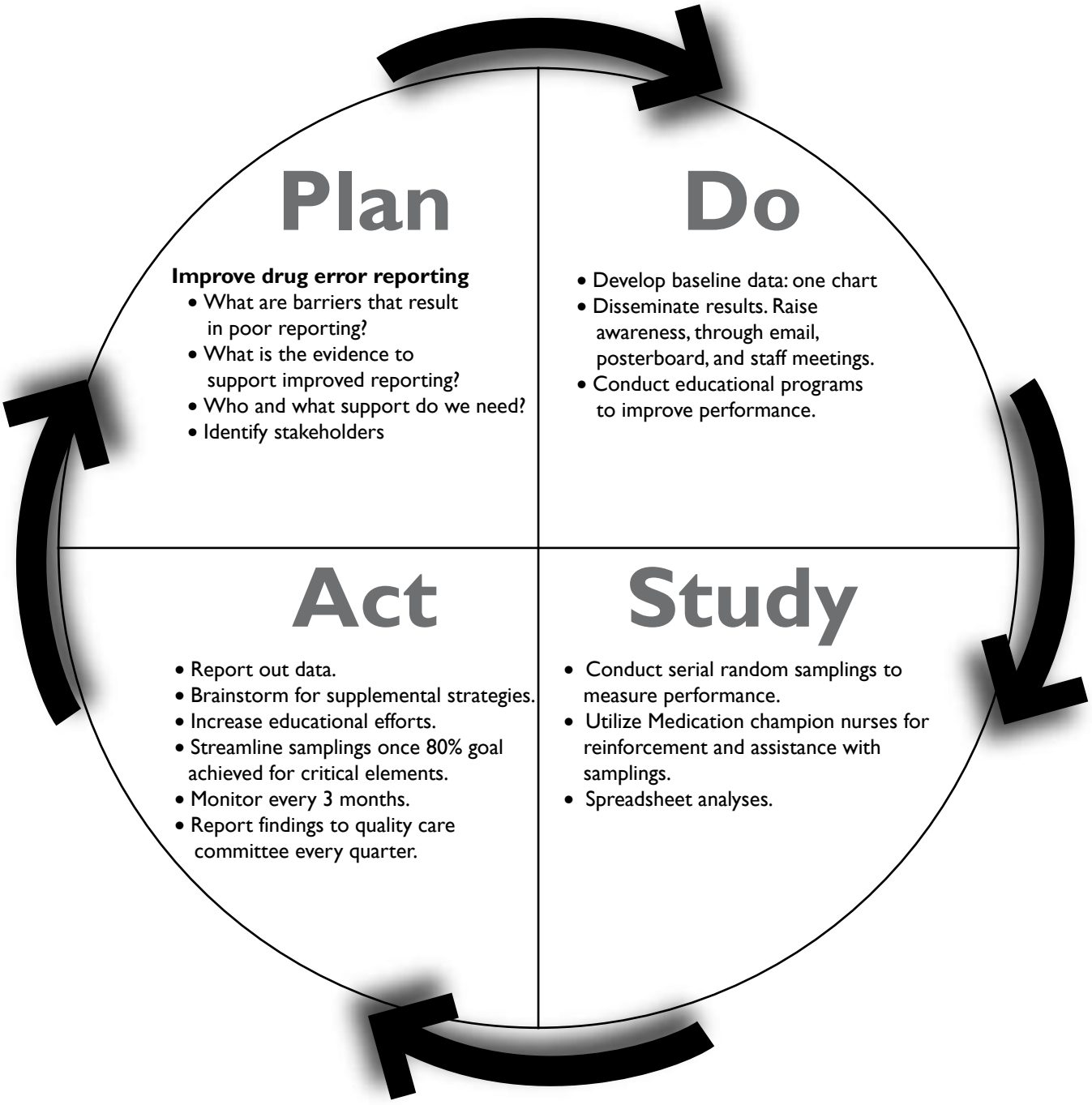
Date	Chosen measure for evaluation (i.e. assessment for new admission is completed within 24 hours. See Facility-Assessment Checklists for possible measures.)	# of Cases Reviewed (A)	# of Cases with Positive Results (B)	B out of A (B/A)

Continue data collection as often as desired during the pilot test.

Results

- Dates of pilot test:
- Did team reach its goal? ☐ Yes ☐ No
- Does the team need to revise the process or make changes? ☐ Yes ☐ No
  - If yes, what changes? Repeat the pilot test if necessary.
  - If no, continue to Worksheet I to design implementation strategy facility-wide. Use Worksheet L to monitor improvement once a change to the process has been implemented.

Rapid Cycle Change Model



SAMPLE

Quality Improvement Plan & Report

This report documents progress in quality improvement related to the quality measures.

Date_____Facility Name_____

Submitted
by_____

Quality Measure – Reduction in Medication Errors

Goal or aim statement

_____
_____
_____
_____

Team positions

___Administrator	___DON	___QI representative
___MDS coordinator	___Staff nurse	___CNA
___Dietary	___Housekeeping	___Maintenance
___Social services	___Activities	___Pharmacist
___Medical Director	___Therapy	___Business office
___Medical records	___Others	

_____

Self-assessment of changes made or in progress

1. _____
   _____
   This change is currently in which phase of the PDSA cycle?
   _____Plan_____Do_____Study_____Act

2. _____
   _____
   This change is currently in which phase of the PDSA cycle?
   _____Plan_____Do_____Study_____Act

3. _____
   _____
   This change is currently in which phase of the PDSA cycle?
   _____Plan_____Do_____Study_____Act

Summarize process changes as a result of this team's efforts or actions on the quality measure. Please compare these changes to last report.

Source: Adapted from the Medicare Quality Improvement Organization,
http://www.hce.org/Medicare/NHQI/Kentucky_Nursing_Home_Awards_Program/KY.AwardTemplateSpring2005.doc
Retrieved 09/11/2005

Data Tracking Tool Instructions

Medication Use Process

The purpose of the Data Tracking Tool is to track medication use processes in your facility as they occur from month to month. The tool should be completed each week on all residents who are scheduled for a care-planning meeting for that week. Fill out the tool as you proceed through the assessment and care planning process for those residents being reviewed.

Please follow these instructions for answering the questions on the tool. Begin by filling in your facility name, the week during which the tool was completed (e.g. April 1-7) and the initials and title of the person completing this form.

1. In the first column enter the resident's MR# or other non-identifying number.
2. Place a check in the second column if the resident is on warfarin.
3. Place a check in the third column if the resident has a warfarin flow sheet in the chart.
4. Place a check in the fourth column if the warfarin flow sheet is filled out and up to date.
5. Place a check in the fifth column if the resident is on an antipsychotic medication.
6. Place a check in the sixth column if there is a diagnosis to support the use of an antipsychotic mediation in the list of diagnosis on the medication order sheets.
7. Place a check in the seventh column if there is documentation of monitoring for effects of antipsychotic medication in the progress notes or in the MAR via monitoring
8. Place a check in the eighth column if the resident is on 9 or more medications.
9. If the resident is on 9 or more medications, place a check in column 9 if the care plan addresses potential adverse drug events related to polypharmacy.
10. Tally the weekly finding on the Quality Improvement Reporting Form. Determine goals for medication use processes being tracked.

Identify areas for improvement, determine action plan and recommendations to affect the process.

Data Tracking Tool: Medication Use Process

Facility:	Week Covered:	Initials:

1 MRH	2 ✓ box if resident on warfarin	3 ✓ box if warfarin flow sheet in chart	4 ✓ box if warfarin flow sheet is filled out/ up to date	5 ✓ box if resident on antipsychotic	6 ✓ box if indication for treatment listed as diagnosis	7 ✓ box if monitoring for antipsychotics performed	8 ✓ box if patient is on 9 or more medications	9 Does care plan address?

Quality Improvement Reporting Form

Medication Use Process

Report To: Quality Improvement Committee
From: (QI Team or Work Group submitting report)
Team: _____
Chair: _____

Area of Care/Function Being Tracked: ***Medication Use Processes***
Monthly Report Period: _____

1.	According to directions, complete "Data Tracking Tool-Medication Use Processes" weekly at the Interdisciplinary Care Planning Meeting
2.	Summarize the weekly tracking tools for the month. Use the grid under *Data Collection* on this form. Determine percentages. Determine acceptance goals for parameters being tracked.
3.	Interpret data. Relate to set goals.
4.	Determine action plans related to findings.

DATA COLLECTION

1	2	3	4	5	6	7	8	9
Week	# Residents on Warfarin	# Residents on Warfarin w/ Warfarin flow sheet in front of chart	# Residents w/filled out/up to date Warfarin flow sheet	# Residents on antipsychotic	# Residents on antipsychotic for which diagnosis is present	# Residents on antipsychotic for which monitoring is documented	# Residents on 9 or more medications	# Residents on 9 or more medications that have problem identified in care plan
1								
2								
3								
4								
Total								
%		% of #2=	% of #3=	% of #4=	% of #5=	% of #6=	% of 7=	% of 8=
Goal	N/A							

INTERPRETATION OF DATA:

1. What do the data tell you about each parameter?
2. What else would you want to know about the parameters?
3. What further audits or data do you want to obtain?
4. Address your stated goals.

_____
_____
_____
_____
_____

ACTION PLAN/RECOMMENDATIONS	***STAFF RESPONSIBLE***
Next Goal: Next Report Due:	

Data Tracking Tool Instructions

Incident Reporting of Medication Errors

The purpose of the Data Tracking Tool is to track medication use processes in your facility as they occur from month to month. The tool should be completed each week on all residents who are scheduled for a care-planning meeting for that week. Fill out the tool as you proceed through the assessment and care planning process for those residents being reviewed.

Please follow these instructions for answering the questions on the tool. Begin by filling in your facility name, the month during which the tool was completed and the initials and title of the person completing this form.

For each incident report filled out during the month that involved the medication use process, please answer the following questions:

1. Place a check in the first column if the name of the medication was identified.

2. Place a check in the second column if the type of error was identified (i.e., incorrect patient, drug, dose, route, extra dose given, given in presence of documented allergy).

3. Place a check in the third column if the cause of the error was identified (i.e., incomplete or unclear order, the order was transcribed wrong, the medication was mislabeled, the dose was calculated wrong).

4. Place a check in the fourth column if contributing factors were identified (i.e., "sound-alike" medication, multiple distractions on the unit, medication not available from pharmacy).

5. Place a check in the fifth column if the severity of the incident is identified. (i.e., what happened to the patient as a result of the error?)

6. Tally the monthly findings on the Quality Improvement Reporting Form. Determine goals for incident reporting in your facility.

7. Identify areas for improvement, determine action plan and recommendations to affect the process.

Data Tracking Tool: *Incident Reporting of Medication Errors*

For all incident reports filled out in last week, were the following components present?

Name and Dose of Drug Involved	Type or Error Described	Cause of Error Included	Contributing Factors	Severity of Incident Described

Quality Improvement Reporting Form

Incident Reporting of Medication Errors

Report To: Quality Improvement Committee
From: (QI Team or Work Group submitting report)
Team: _____
Chair: _____

Area of Care/Function Being Tracked: Incident Reports for Medication Errors
Monthly Report Period: _____

PLAN/DESIGN

1.	According to directions, complete "Data Tracking Tool-Incident Reports for Medication Errors" at the weekly Planning Meeting. Tool assesses incident report process.
2.	Summarize the weekly tracking tools for the month. Use the grid under *Data Collection* on this form. Determine percentages. Determine acceptance goals for parameters being tracked.
3.	Interpret data. Relate to set goals.
4.	Determine action plans related to findings.

DATA COLLECTION

1	2	3	4	5	6
Week	# Incident Reports related to medications	# Incident Reports for which type of error was identified	# Incident Reports for which cause of error was identified	# Incident Reports for which contributing factors were identified	# Incident reports for which severity of incident was identified
1					
2					
3					
4					
Total					
%		% of #2=	% of #3=	% of #4=	% of #5=
Goal	N/A				

INTERPRETATION OF DATA:

1. What do the data tell you about each parameter?
2. What else would you want to know about the parameters?
3. What further audits or data do you want to obtain?
4. Address your stated goals.

_____
_____
_____
_____
_____
_____

ACTION PLAN/RECOMMENDATIONS	***STAFF RESPONSIBLE***
Next Goal: Next Report Due:	

Tab 11 - Warfarin

Treatment with warfarin is indicated for a variety of conditions, including prophylaxis of venous thromboembolism, prevention of systemic embolism, and treatment of acute deep vein thrombus or pulmonary embolism.

In the long-term care setting, warfarin is frequently cited as the cause for adverse drug events (Gurwitz et al., 2005). It is universally accepted as a high-alert medication with regard to potential adverse events.

Warfarin has a narrow therapeutic index. Close monitoring of lab values is necessary to prevent adverse events. It also interacts with many medications and special attention to warfarin is indicated when new medications are added for a resident already on warfarin.

Warfarin therapy requires vigilant prescribing and monitoring practices in order to prevent adverse drug events.

Key Point

Warfarin is a high-alert medication and requires special attention in assessment and redesign of medication use processes.

Tools

- **Warfarin Case Study**
- **Flow Chart: How to Use Warfarin Tools**
- **Sample Warfarin Policy, Procedure, & Care Plan**
- **Sample Warfarin Flow Sheet**
- **Warfarin Therapy Audit Tool & Instructions**
- **Quality Improvement Reporting Form**
- **Trigger Tool for Warfarin**
- **Trigger Tool for Warfarin: Monthly Summary Sheet**
- **High-Alert Medications: Concerns in Use of Warfarin**
- **Examples of Interactions with Warfarin**

Reference

Gurwitz, J., Field, T., Avorn, J., McCormick, D.L, Jain, S., Eckler, M., Benser, M., Edmondson, A., & Bates, D. (2005). Incidence and Preventability of Adverse Drug Events in Nursing Homes. *The American Journal of Medicine*, 109,87-94.

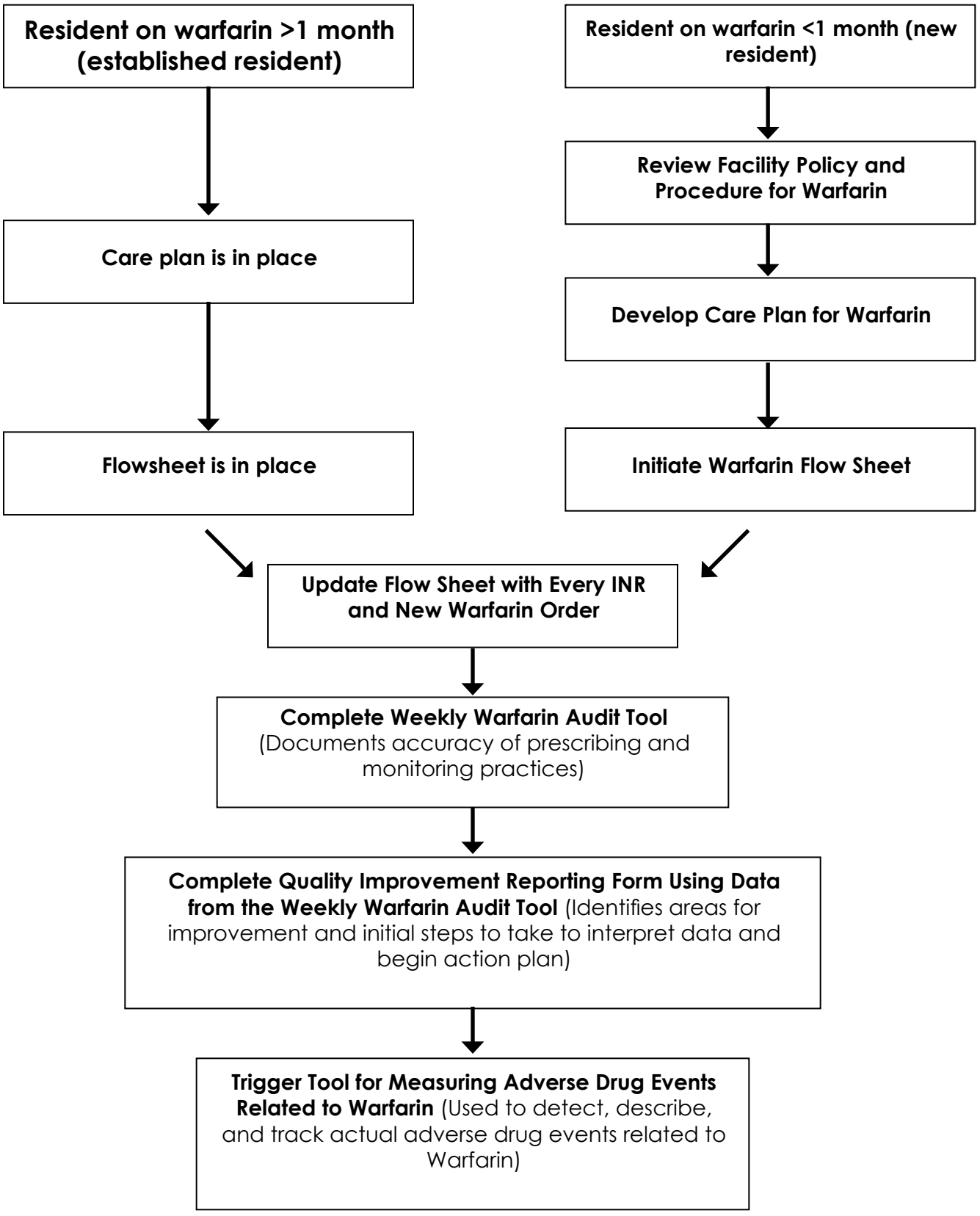
Following Warfarin through the Prescribing Process: A Case Study

Key Steps	Case Scenario	Key Elements Present/Absent
Recognition of the problem	Mrs. Jones' nursing assistant notifies the charge nurse that Mrs. Jones' nose has been bleeding. She was her usual self. She had not had any falls or trauma. The nursing assistant applied pressure and ice and kept Mrs. Jones in bed resting quietly. The bleeding would stop periodically but start up again as soon as pressure was removed from her nose.	History of present illness decribed including onset, duration, aggravating and alleviating factors.
Complete Assessment of the Patient	The nurse assesses Mrs. Jones, finding her to be comfortable, alert and conversant. There is scant bleeding from her right nave, which is relieved with pressure. There is no evidence of trauma. Her mouth and posterior oropharynx are clear. Her vital signs are: BP 110/60, HR 76, RR 16, T 98	Focused physical exam
Need for Treatment is Identified	The nurse then returns to the desk and reviews Mrs. Jones' chart. She notes that she is chronically on Warfarin for atrial fibrillation. She also notes that Mrs. Jones was started on Bactrim 5 days previously for a UTI. She reports the chief symptom, history of the present symptom and medication list to the physician. She requests a stat INR which is ordered and returns at 13.8.	High Risk Medication and Drug Interactions Identified
Selection of Appropriate Medication and Modification of Existing Regimen	The physician is notified and orders that Warfarin be held for two days and Vitamin K 2.5mgpo x1 stat be given. The charge nurse reviews the nurse's notes for the day that antibiotic therapy was initiated and spoke to the nurse caring for the patient that day. When asked why an INR wasn't ordered sooner with knowing potential drug interaction with Warfarin, the nurse reported that the physician had not asked for the medication list when he called and probably did not know the patient was on Warfarin.	• High Risk Drug Not Identified to Prescriber • Potential Drug Interaction Not Considered

"Take Home Message"

- This Adverse Drug Event was likely preventable.
- **ALWAYS** inform prescribers when a patient is on Warfarin and a new medication is added to the regimen.
- **REQUEST** more frequent monitoring of the INR when a new medication is added for a patient on Warfarin.
- **BEWARE** of many drug interactions with Warfarin.
- **Help Prevent** prescribing errors with Warfarin:
  - Use Warfarin flow sheets
  - Post drug/drug interaction in high visibility area
  - Develop policy for Warfarin therapy and monitoring

How to Use Warfarin Tools



SAMPLE

Notre Dame LTCC – POLICY AND PROCEDURE

Anticoagulation Therapy

Policy:

Anticoagulation therapy is the administration of certain drugs (i.e. Coumadin, Heparin and Lovenox) that reduce the tendency of blood to coagulate, thus reducing the risk of thrombosis. Anticoagulation is indicated for a variety of conditions, including prophylaxis of venous thromboembolism and the prevention of systemic embolism.

The administration of anticoagulant therapy must be individualized, and the dosing is done by monitoring the resident's INR value.

Anticoagulant therapy may be contraindicated in residents who have a high risk of hemorrhage, alcoholism/drug abuse, dementia/psychosis or gait instability. They must be evaluated for the potential clinical benefits vs. adverse effects.

Nursing considerations including awareness that antibiotic therapy increases the PT/INR. Residents who receive Coumadin and are put on antibiotics should have more frequent PT/INR draws; for example, every THREE DAYS while receiving the antibiotics.

1. Observe for signs of bleeding
   - Blood in urine or stool (black, tarry stools)
   - Bleeding of gums, nose
   - Small purplish, hemorrhagic spots on skin
   - Excessive and easy bruising
   - Bleeding from tumors, ulcers, or lesions
   - Confusion, change in mental status

2. Monitor routine - PT, INR
   - Report to physician and hold medication if INR greater than 3.0 until physician responds.

3. Administer at the same time daily, 5:00 p.m.

4. Recognize possible food interactions.
   - Dietary Vitamin K
   - Protein

5. Recognize possible drug interactions
   - See attached

6. Be aware of changes in hepatic and renal function.

Procedure:

1. All Coumadin orders will be on a separate Medication Sheet. The pharmacy will send the new month EDIT with Coumadin on a separate sheet.

2. Before calling physician to report labs or obtain an initial order for anticoagulation therapy, review the chart for the following:
   - Hemorrhage, culcers
   - Hepatic/renal dysfunction
   - Frequent falls
   - Signs of recent bleeding
   - Baseline of recent labs, CBC, PT, INR and date of labs
   - Current dosage, how long?
   - Drugs that may influence INR (see appendix)

3. When obtaining a new order for anticoagulation therapy, use a NEW Medication Sheet and Time the medication for 5:00 p.m.
   - Request lab orders for next INR

4. A yellow "Coumadin Flow Sheet" will be placed in the chart in front of the "Interim Orders." The "Coumadin Flow Sheet" will be updated with each Coumadin order and/or INR order. This yellow flow sheet will serve as a continuous record of anticoagulant therapy.

5. If the resident is to have different dosages on different days, use a different block on the MAR for each dosage and carefully place "Xs" in the appropriate blocks. Also be specific about what dose is given on what day. (see attached example).

6. All Coumadin orders must be written out with specific dose. (Not "continue same dose.")

7. Coumadin orders and INR due dates will be transcribed on the MAR in the same block. INR results will be written in the allocated space on the due date when the results are received. A blank box will identify the date of the next INR.

8. All nurses administering Coumadin are responsible for reviewing the most recent INR results and date the next INR is due. This information is available on the MAR or Coumadin flow sheet.

SAMPLE

Notre Dame LTCC – Care Plan

Name: _____ **Mr#** _____ **Rm#** _____

Physician: _____ **Current Adm. Date** _____

Problem/Strength	*Goal*	*Disc./Approach*
At risk for bleeding due to Coumadin therapy	S/S of bleeding would be observed promptly and appropriate measures taken	Coumadin as ordered INR as ordered and report results to MD/NP Monitor for S/S of bleeding such as bleeding gums, bruises, petechiae, nosebleeds, melena, tarry stools, hematuria, and hematemesis. Call MD/NP if any symptoms of bleeding occur.

Used with permission from Notre Dame Long-Term Care Center – July 18, 2005.

Anticoagulation Therapy

APPENDIX A - DRUG INTERACTIONS

Acetaminophen	Fuoroquinolone Antibiotics	Phenylbutazone Displaces
Acetylsalicylic Acid	Fluorouracil	Phenytoin
Alcohol +	Gemfibrozil	Piroxicarn
Allopurinol	Glucagon	Propoxyphene
Aminosalicylic acid	Heparin	Propafenone
Amiodarone HCL	Hepatotoxic drugs	Pyrazolones
Anabolic steroids	Indomethacin	Quinidine
Anesthetics (inhalational	Influenza virus vaccine	Quinine
Chenodiol	Ifosfamide	Ranitidine+
Chloral hydrate+	Itraconazole	Salicylates
Chlorpropamide	Ketoprofen	Simvastatin
Chymotrypsin	Lovastatin	Sulfinpyrazone
Cimetidine	Mefenamic acid	Sulfonamide, long acting
Clofibrate	Methyldopa	Sulindac
Cotrimoxazole	Methylphenidate	Tamoxifen
Dextran	Metozalone	Tetracycline
Dextropropoxyphene	Metronidazole	Thyroid drugs
Estrogen -/'s clothing factors		Pentoxifylline
Dextrothyroxine	Miconazole	Tolbutamide
Diazoxide	Mitronidazole	Tolmetin
Diuretics+	Monoamine oxidase	Topical salicylates
Disulfiram	Inihibitors	Trimethoprin
Disopyramide	Moricizine	Ethaorynic
Erythromycin	Nalidixic acid	Vitamin E
Sulfamethoxazoe	Narcotics, prolonged	Warfarin overdosage
Acid	NSAIDS	
fluconazole	Omeprazole	
	propranolol	

Drugs which attenuate the effect of Coumadin and therefore decrease the INR response.		
Adrenocortical steroids	Cholestyramine	Nafcillin
Alcohol+	Cyclosporine	Oral contraceptives
Aminoglutethimide	Diuretics+	Paraldehyde
Azathioprine	Dicloxacillin	Primidone
Antacids	Ethchlorvynol	Ranitidine+
Antihistamines	Glutethimide	Rifampin
Antithyroid drugs	Griseofulvin	Sucralfate
Barbiturates	Haloperidol	Trazodone
Carbamazepine	Meprobarnate	Vitamin C
Chloral hydrate+	Moricizine	Vitamin K
Chlordiazepoxide	Hydrochloride+	Warfarin underdosage

Warfarin may affect the action of other drugs. Hypoglycemic agents (Chlorpropamide and Tolbutaminds) and anticonvulsants (Phenytoin and Phenobarbital) may accumulate in the body as a result of interference with either their metabolism or excretion.

Anticoagulation Therapy

APPENDIX B

Conditions Affecting Coumadin Anticoagulant Effect

Potentiate Increase INR Response	Attenuate Decrease INR Response
Low Vitamin K Intake	High Vitamin K Intake
Poor Nutritional State	Hypothyroidism
Low Serum Albumin	Nephrotic Syndrome
Diarrhea, Steatorrhea	Hyperlipidermia
Liver Disease	
Congestive Heart Failure	
Infections	
Hyperthyroidism	
+Increased and decreased INR responses have been reported	

5

Warfarin Flowsheet
NOTRE DAME LONG TERM CARE CENTER

Resident Name: ______________________ **Dr.:** ____________________

Room #: ______________________ **MR#:** ___________________

Target INR: __________ **Hold Coumadin if INR greater than:** _________

**Please advise if any new meds added since last PT/INR – add to comment section*

Diagnosis for the Use of Coumadin: ___________________________________

Date	INR	Coumadin Order	Date of Next Lab	Comments; i.e. Antibiotics, Interfering Meds

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Warfarin Audit Tool: Instructions

The purpose of the Warfarin Therapy Audit Tool is to track warfarin prescribing and monitoring processes in your facility as they occur from week to week. The tool should be completed each week on all residents who receive warfarin.

- Begin by identifying an individual who will be responsible for weekly audits.
- Determine forum where weekly audits will be reviewed.
- Allow approximately 60-90 minutes to complete audits.

Please follow these instructions for answering the questions on the tool. Begin by filling in your facility name, the unit, and the dates included for review. (e.g. Week of Aug. 1-Aug 7) and the initials and title of the person completing this form.

For each resident receiving warfarin, please complete the following, using data gathered from the chart and the warfarin flow sheet:

1. In the first column, put the patient medical record or name.
2. In the second column, place the date of the chart audit.
3. The current order for warfarin on the MAR for that date is written in the third column.
4. For column four, compare the current warfarin order on the MAR with the warfarin order in the physicians order sheet. If they match, place a check under "yes", if they do not match, place a check under "no."
5. Record the date and result of the last PT /INR in column 5.
6. Look in the nursing notes for the date of the last INR to determine if MD was notified of the INR results. Check the appropriate box.
7. Is there a care plan in place for warfarin monitoring? Check the appropriate box.

Look at the physician's order sheet for next ordered INR. Look next at the lab book to determine if order is in lab book. Check the appropriate box.

Warfarin Audit Tool

Facility: _____ **Unit:**_____ **Week Audited** *(ex. Aug 1 – Aug 7)*_____

Initials and Title of Person Completing Form: _____

	Date	Current Coumadin Orders on MAR	Order Correlates w/MD Orders	Date/ Result last PT/INR	MD Notified of INR Report	Care Plan in Place	Is next INR ordered in the lab book?
			Yes No		Yes No	Yes No	Yes No

Adapted with permission from Radius Healthcare- Millbury's Individualized Coumadin Therapy Audit Tool.

Quality Improvement Reporting Form

Report To: Quality Improvement Committee
From: (QI Team or Work Group submitting report)
Team: _____
Chair: _____

Area of Care/Function Being Tracked: Warfarin Audit
Monthly Report Period: _____

1.	According to directions, complete Warfarin Audit Tool weekly.
2.	Summarize the weekly tracking tools for the month. Use the grid under *Data Collection* on this form. Determine percentages. Determine acceptable goals for parameters being tracked.
3.	Interpret data. Relate to set goals.
4.	Determine action plans related to findings.

DATA COLLECTION

1	2	3	4	5	6
Week	# Residents on Warfarin	# Residents on Warfarin w/ discrepancy between MAR and MD order	# Residents on Warfarin where INR not reported to MD	# Residents on Warfarin without care plan for Warfarin	# Residents on Warfarin without follow-up INR ordered in lab book
1					
2					
3					
4					
Total					
%		% of #2=	% of #2=	% of #2=	% of #2=
Goal	N/A				

INTERPRETATION OF DATA:

1. What do the data tell you about each parameter?
2. What else would you want to know about the parameters?
3. What further audits or data do you want to obtain?
4. Address your stated goals.

_____
_____
_____
_____
_____

ACTION PLAN/RECOMMENDATIONS	***STAFF RESPONSIBLE***
Next Goal: Next Report Due:	

IHI TRIGGER TOOL for Measuring Adverse Drug Events
Measuring Adverse Drug Events Related to Warfarin

Assessment for adverse drug events can include a review of the patient chart to evaluate for the presence of "triggers" or clues that an adverse drug event may have occurred. Assessing for adverse drug events related to Warfarin includes assessment for the following triggers:

1. A new order for Vitamin K. "If Vitamin K was used as a response to a prolonged prothrombin time or elevated International Normalized Ratio (INR) levels, it may signal an adverse drug event (ADE). If either lab value is high, review the chart for evidence of bleeding. Look in the lab section for a drop in hematocrit or for guiac-positive stools. Check the progress notes for evidence of excessive bruising or gastrointestinal bleeding. Less likely, a hemorrhagic stroke or other internal bleeding may have occurred. If any of these is found, it is likely that an ADE has occurred".

   (IHI page 4)

2. An INR value of greater than 6. "An elevated INR is not infrequent when patients are on Warfarin. Look for evidence of bleeding to determine if an ADE has occurred."

   (IHI, page 5)

Instructions:
Identify all of the patients taking Warfarin in the facility.
Complete a chart review for each patient on Warfarin and complete the following tool:

1. **Patient Identification Number:** _____
2. **Is Warfarin a new drug in the last three months?**_____

Triggers Found	ADE Found?	Harm Category*	Description of ADE
	Yes No		

(IHI page 14)

Source: IHI Trigger Tool for Measuring Adverse Drug Events. Retrieved http://www.ihi.org/NR/rdonlyres/8D970CE4-BF8C-4F35-9BC1-51358FC8B43F/3074/TriggerToolforMeasuringAdverseDrugEventsCorrected.pdf Accessed July 15, 2005.

Harm Category (Categories A-D do not cause harm)**:**

Category E: Temporary harm to the patient and required intervention
Category F: Temporary harm to the patient and required initial or prolonged hospitalization
Category G: Permanent patient harm
Category H: Intervention required to sustain life
Category I: Patient death

(IHI page 3)

*After completion of the ADE Patient Record Review Sheet for all of the patients on Warfarin in the facility, summarize the findings in the ADE Monthly Summary Sheet. For each record reviewed, document the following: whether an ADE occurred.

*Use the data in the ADE Monthly Summary Sheet to calculate the percent of patients on Warfarin with an ADE:

> The total number of patients identified as having experienced any ADE's from a sample of patient records, divided by the total number of records in the sample; multiplied by 100 to express as a percentage.

* Track the percentage of patients on Warfarin who have experienced an ADE over time to evaluate if the changes in the medication use processes are making the medication use system safer.

(IHI page 16)

Adverse Drug Event MONTHLY SUMMARY SHEET
Anticoagulant Complications

Trigger Clinical Signals:

- INR >6
- New order for Vitamin K
- Signs and Symptoms of bleeding that include:
  - Bleeding gums
  - Petechiae
  - Ecchymosis
  - Hemorrhage

Trigger clinical signals for Warfarin are guided by the knowledge that the most common adverse effect of heparin is hemorrhage. Bleeding is the most frequent complication of long-term anticoagulant therapy. In the geriatric population, this risk is directly influenced by duration and dosing of anticoagulant therapy, age, renal insufficiency, and any history of occult disease of the gastrointestinal and genitourinary tracts. Source: The Merck Manual of Geriatrics. Retreived http://www.merck.com/mrkshared/mmg/sec1/ch6/ch6a.jsp August 25, 2005.

Resident	Adverse Drug Event Signal Present		Percent of Residents Experiencing ADE
	Yes	No	
1		1	
2		1	
3	1		
4		1	
5		1	
6		1	
7		1	
8		1	
9		1	
10	1		
11		1	
12		1	
13	1		
14		1	
15		1	
16		1	
17		1	
18		1	
19		1	
20		1	
Totals	3	17	15%

High Alert Medications - Concerns in Use of Warfarin

Ensure starting dose is appropriate for patient

- Be aware of usual dosing ranges and policies; i.e. typical dose range 2.5-7.5 mg, start at 2.5 mg for older patient
- Check for presence of interacting drugs or conditions that may indicate need for further lowering dose

Titrate dose up from a low, safe dose

- Know target drug levels
- Have instructions/policies for dose adjustment to reach target
  - Increase dose if INR increases by <_____
  - Give same dose if INR increases by <_____
  - Decrease dose (by _____%) if INR increases by >_____

Frequent monitoring of INR levels until proper drug levels stabilized

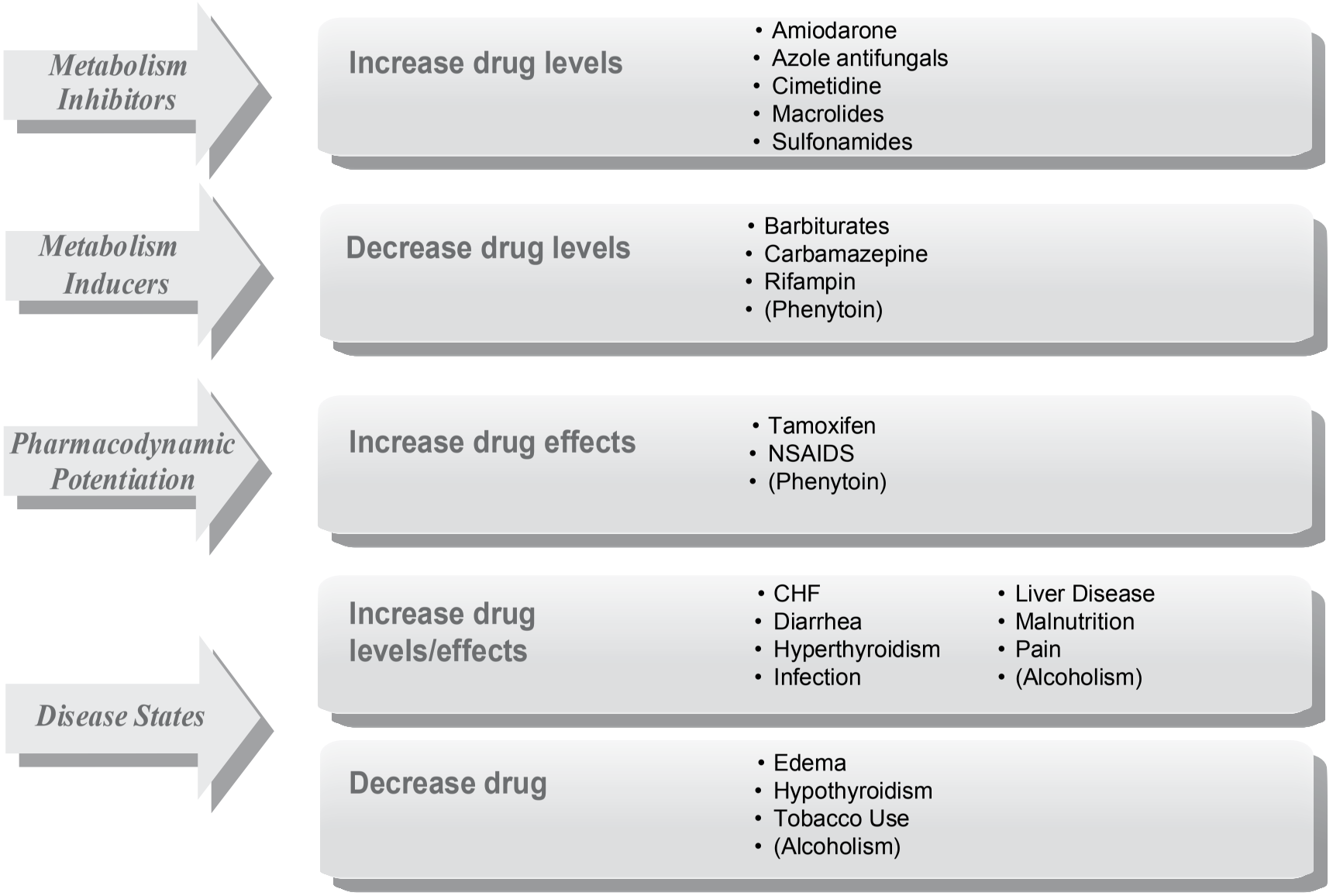
Schedule in place for continued INR monitoring throughout treatment

- Know parameters for increasing/decreasing dose, and when to hold medication
  - Cardiology INR range: 2-3
  - Reduce dose 3-3.9, Hold >4
  - Consider hold if >1.5 increase in one day, even if still in range
- Know protocol for Vitamin K reversal
  - INR of ____-____: hold Warfarin, no Vitamin K
  - INR of ____-____: Vitamin K ___ mg PO
  - INR of ____-____: Vitamin K ___ mg PO
  - Specific conditions for rapid reversal by IV Vitamin K

Continued attention to concurrent medications throughout Warfarin treatment

- Check any new medications given for potential interactions
- Adjust dose and/or careful monitor of INR to keep Warfarin drug levels in range when new medications are initiated

Examples of Interactions with Warfarin



Seymour RM, and Routledge PA. Important Drug-Drug Interactions in the Elderly. Drugs & Aging. 1998; 12(6)

Fairview Southdale Hospital, Department of Pharmacy Services, Anticoagulation Guidelines, 2002.

Tab 12 - Reconciliation

Prescribing errors frequently occur when a patient changes location (i.e., is transferred from one treatment setting to another). Boockvar (2004) found that these changes resulted in adverse drug events. Medication changes and adverse drug events occurred when patients went from the nursing home to the hospital but were more common upon transfer from the hospital back to the nursing home. **Incomplete or inaccurate communication between facilities was identified as a potential factor in these occurrences.** The authors suggest that an intervention at the time of nursing home readmission holds the most potential for impacting these problems. Medication reconciliation is a process that can be utilized to minimize prescribing errors when a patient changes location.

The Massachusetts Coalition for the Prevention of Medical Errors and the Massachusetts Hospital Association undertook an initiative aimed at reducing adverse drug events at the time of transfer. Together, they developed a workbook that hospitals could use to systematically address medication reconciliation upon admission. Simply stated, the reconciliation process involves developing an accurate medication list upon admission and comparing physician orders upon admission to the hospital discharge summary and/or the list of medications provided by the family, the community primary care physician, or the outpatient pharmacy where the patient has prescriptions filled. Discrepancies are identified and resolved within an established period of time. In their workbook, a systematic approach to reconciling medications is described and includes, among other things, the recommendation that hospitals adopt a standardized form for reconciling medications. Efforts to reconcile medications upon admission to the nursing home would be consistent with recommendations from the work done in 2004 by Boockvar and may reduce prescribing errors when a patient is admitted to a nursing home.

Organizational processes involved in developing a reconciliation tool and implementing a reconciliation process within an institution are outlined in the workbook described previously. Although the workbook was targeted specifically to hospitals, the content and processes could be adapted to the nursing home and could be used as a framework for institutional movement towards reconciling medications. Examples of some key aspects of the processes involved in developing a reconciliation process are included in the following pages.

Key Point

Medication reconciliation is a process that can be utilized to minimize prescribing errors when a patient changes location.

Tools

- **Flow Chart for Medication Reconciliation in Long-Term Care**

  Step 1:
  – Reconciling Medications- Tool and Instructions
  – Quality Improvement Form

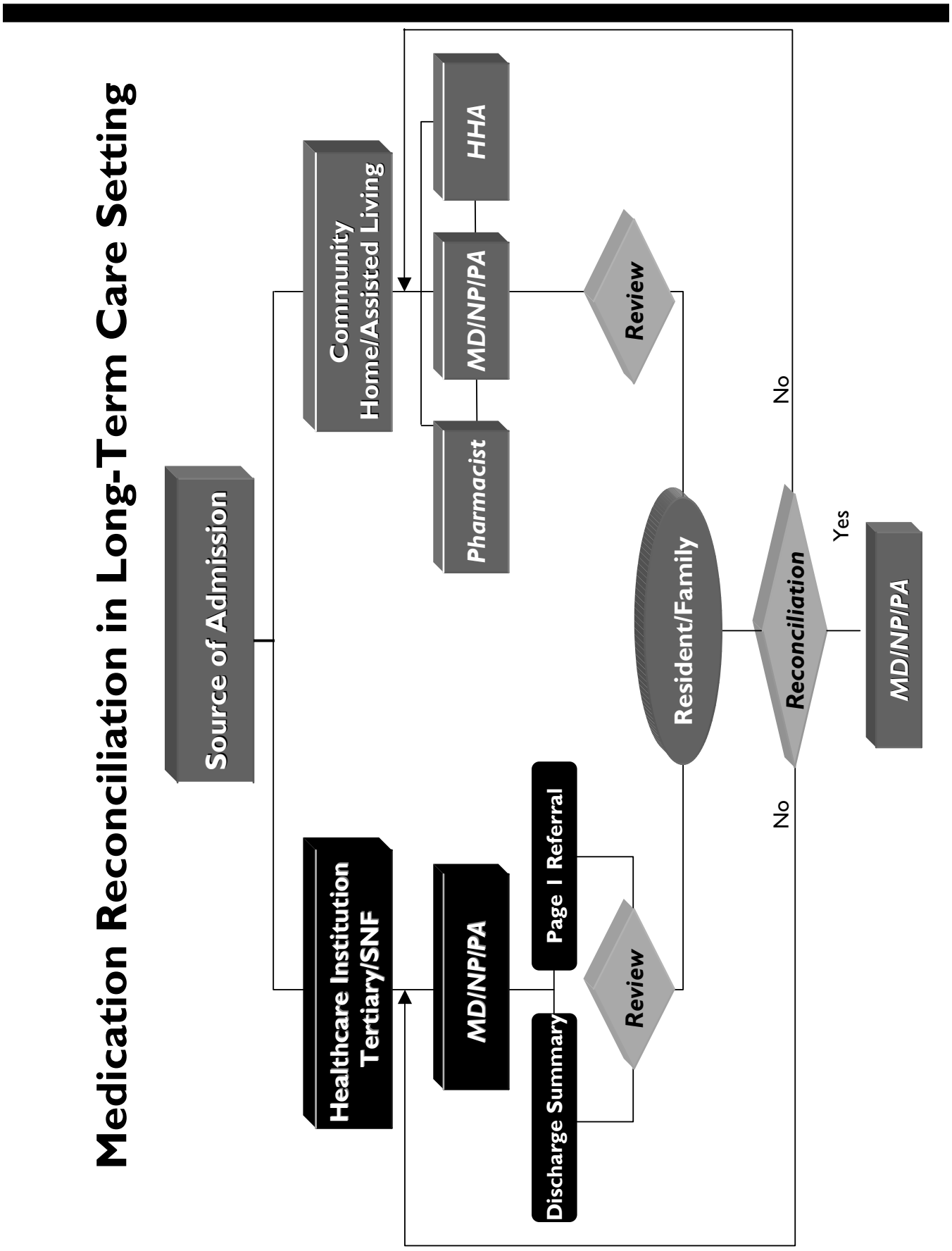
  Step 2:
  – Sample Reconciliation Form
  – Instructions

- **Developing Patient Medication Profile at Admission**
- **Sample Reconciliation Policy and Sample Form from The Boston Center for Rehabilitative and Subacute Care**
- **Sample Medication Reconciliation Form from the Soldiers' Home in Chelsea, MA**

References

Boockvar, K., Fishman, E., Kyriacou, C., Monias, A., Gavi, S., Cortes, T. (2004). Adverse events due to discontinuations in drug use and dose changes in patients transferred between acute and long-term care facilities. *Archives of Internal Medicine*, 164, 545-550.

Reconciling Medications: Safe practice recommendations and implementation tools. Available at: www.macoalition.org/publications.shtml


Medication Reconciliation in Long-Term Care Setting
Source of Admission
Community Home/Assisted Living
HHA
MD/NP/PA
Pharmacist
Review
Healthcare Institution Tertiary/SNF
MD/NP/PA
Page I Referral
Discharge Summary
Review
Resident/Family
Reconciliation
Yes
MD/NP/PA
No
No

Incident Reporting of Medication Errors - STEP 1

Medication Reconciliation-- Instructions

While your facility builds the team for a reconciliation initiative and evaluates the type of reconciliation tool that best suits the needs of your facility, baseline assessment of the scope of the problem and current processes in place can occur.

Utilization of the following data collection tool can guide the development of reconciliation processes in your facility.

To be completed by the admitting nurse for each new admission:

1. Did you find a discrepancy between the medications on the page 1 referral form, the hospital discharge summary, the medication list the family or patient provided or the previous MAR if the patient is a readmission?

2. How did you resolve the discrepancy?
   - Called the nurse in hospital to clarify question
   - Called the doctor in the hospital to clarify question
   - Discussed with patient who was able to clarify question
   - Called family to clarify question
   - Called primary care doctor in community to clarify question
   - Called outpatient pharmacy that patient used to clarify question
   - Called admitting physician or nurse practitioner for the facility and made them aware of discrepancy
   - Discrepancy was not resolved this shift
   - Other

3. How did you communicate unresolved discrepancies?
   - Notified supervisor
   - Passed on to next shift
   - Notified physician
   - Other (please describe)

This form could be formatted into a master checklist that could be copied onto a brightly colored cardboard paper that can be posted at the nurses' station with cues to take 5 minutes to complete.

STEP I Medication Reconciliation on Admission

Please Complete on All New Admissions

Patient MR#	Date of Admission	Did you find a discrepancy between the medications listed on page I referral form, the hospital discharge summary, the medication list provided by family or previous MAR		How did you resolve the discrepancy?								How did you communicate unresolved discrepancies?			
		Yes	No	Called nurse in hospital to clarify	Called MD in hospital to clarify	Called family to clarify	Called primary care MD to clarify	Called outpatient pharmacy to clarify	Called admitting MD or NP for facility and made them aware	Discrepancy not resolved this shift	Other	Told Supervisor	Told next shift	Told MD	Other

STEP 1
Quality Improvement Form: Medication Reconciliation

Facility: _____ **Month Covered:** _____ **Initials**_____

Week	Date:	# Admissions	# Yes responses re: discrepancy	# Discrepancies not resolved
Week 1				
Week 2				
Week 3				
Week 4				
Total			% of 2 =	% of 3 =
Goal				

Instructions: Tally responses from Medication Reconciliation Tool on Admission and fill in columns above.

STEP 2

Prior to Starting Reconciliation Process

- **Find area free of distraction**
- **Assemble all relevant documentation: dc summary, page 1, most recent MAR**

1. List full patient name, allergies, d.o.b. or use addressograph stamp or sticker list what allergy is to medication (i.e. rash, hives, GI upset)
2. List date and time of admission and from where patient was admitted. Include name of community PCP or previous MD in nursing home.
3. Copy medications listed on page 1, reported by patient, family or written on prescription bottle onto this column.
4. Using all available documentation, compare list of medications in Column 1 to admission orders, dc summary, MAR. Compare all elements and note if they match on each source: admission orders, dc summary, previous MAR.

List all medications identified on page 1 reported by family, patient, med bottles, include dose, frequency, route and prn medications	*Do all medication elements match?*			*If "No," which element requires review?*				*Outcome of review of discrepancy (orders written on physian order sheet)*		
	Admitting orders	DC Summary	MAR if readmit	Drug	Dose	Frequency	Route	Continue Drug	Discontinue Drug	Modify Order
Lasix 60 mg p.o.qd	**Y**	**Y**	**N**		✓			✓		

Mark "Y" for Yes. ***Mark "N" for No.***

5. If "No" response to any aspect of Step 4, note which element does not match.
   a. Example, Lasix 60mg previous MAR dose 40mg -- New Dose
   b. Cipro 250 mg not on previous MAR because started in hospital—New Drug
6. Discrepancy must be reviewed and any changes in medications written on physician order sheet. Sources for review: patient, family, community or hospital physician, ordering provider in NH
7. Look at page 1, diagnosis summary, previous MAR if available. Is there a corresponding diagnosis to support medication ordered?
   a. ✓ "Y" for Yes ✓ "N" for No
8. If no diagnosis to support use of medication, utilize all available sources including patient, family, hospital and community physicians. If diagnosis identified, add to diagnosis list.
9. Are any labs or monitoring parameters ordered?
   a. Reconciliation Tool should be completed within 24 hours.
   b. Reconciliation Tool should be completed by individual with demonstrated competency and knowledge about medication process. Consider focused training for charge nurses, supervisors and have specific individuals responsible for doing.

Admission/Readmission Medication Reconciliation Form

② **Facility Name** _____

Admitted From _____

Admission Date_____ **Time**_____

① **Name:**

Allergies:

Date of Birth:

Community or NH PCP:

STEP 3

③ List all medications identified on page 1 reported by family, patient, med bottles, include dose, frequency, route and prn medications	④ *Do all medication elements match? "Y –Yes "N"-No*			⑤ *If "No," which element requires review?*				⑥ *Outcome of review of discrepancy (orders written on physian order sheet)*			⑦ *Is there a diagnosis in dc summary, page 1 to support med ordered?*		⑧ *If "No," seek info from providers in hospital, community, physician, family, patient & document diagnosis or rationale on order sheet*	⑨ *Any labs or monitoring ordered*	
	Admitting orders	DC Summary	MAR (if readmit)	Drug	Dose	Frequency	Route	Continue Drug	Discontinue Drug	Modify Order	Yes	No		Yes	No

Signature: _____

Adapted from Children's Hospital San Diego Medication Coordination Form

Date & Time: _____

Developing Patient Medication Profile at Admission

Patient language to obtain drug/medication information

NOTE: Never use YES/NO questions!

Prescriptions:

What pharmacy/pharmacies do you use?
What prescription medications do you take every day?
Tell me about the medications that you take
What drugs/pills do you take regularly?
What do you take for your_____ ? (i.e. high blood pressure, diabetes, heart problems)
Are you taking any other medications prescribed by specialists like your dentist/ophthalmologist/chiropractor?*
When do you take your medications?
What medications do you take every day?
Are there any medications that you take only sometimes or when you need it? What are they?
Does your doctor give you any sample drugs to take?

OTC (Over-the-Counter):

What over-the-counter medicines do you take?
What do you take when you get an upset stomach/ heartburn/ cold/ cough/ headache?
How often? How much?
What do you take when you get sick? How often?
What other things do you buy when you are at the drug store i.e., Metamucil, laxative, vitamins?

Herbals:

Do you take any herbal medications?
Do you take any natural supplements?
How many pills do you take each day in addition to prescription medications?

Compliance:

When do you forget or not take your medications?
How often do you forget to take your medicine?
Why do you not take them? (SE, ADR, cost)
How do you take your medications? (with food, morning, night, etc.)
Are there any medications that you have stopped taking? Why did you stop them?

Allergies:

What medication allergies do you have?* (penicillin, tetracyclines, etc.)
What type of adverse (bad) reactions did you have?*
What other allergies do you have?* (food, environmental, latex, etc.)

MEDICATION HISTORY SCRIPTING GUIDELINES

Medication Allergies

What medications are you allergic to? What did you experience last time it was given to you?

How long ago did this reaction occur? Have you received and tolerated the medication since then?

What other medications would you rather not receive because of a bad drug reaction (other than allergy)?

Current Prescription Medications

What prescription medications do you currently take? Why (or for what reason)?

Are there any that you take only sometimes or when you need it? What and now often?

Current Nonprescription Medications/Supplements

What over-the-counter nor nonprescription medications/supplements do you take? What (or for what reason)?

Are there any that you take only sometimes or when you need it? What and how often?

Compliance/Education Opportunity

How do you take your medicines (with food, morning, night, etc.)?

What barriers prevent you from taking your medications as prescribed? (time, money, etc.)

What medications have you recently stopped on your own? When and why?

Who assists you with your medications? Have you taken anyone else's medications recently?

Do you bring your medications with you to your doctor's office or carry a wallet med card?

Physician/Pharmacy

What pharmacy/pharmacies do you currently use?

Do you see more than one physician (cardiologist, endocrinologist, oncologist, family physician, etc.)?

Things to remember when interviewing:

- ❑ Utilize open-ended questions (what, how, why, when) and balance with yes/no questions
- ❑ Use nonbiased questions that do not lead the patient into answering something that may not be true
- ❑ Pursue unclear questions until they are clarified
- ❑ Asked simple questions, avoid using medical jargon, and always invite the patient to ask questions
- ❑ Let patients know the importance of using one central pharmacy/pharmacist
- ❑ Educate patients on the importance of using a med wallet card and bringing their meds to the hospital, physician's office, etc.
- ❑ When asking about all medications, be sure to get name, dosage form, dosage, dosing schedule, last dose taken-be as specific possible about prn medications
- ❑ Prompt the patient to try and remember patches, creams, eye drops, inhalers, sample meds, shots, otc, herbals, vitamins, minerals
- ❑ When discussing allergies, educate patients on the difference between a side effect and a true allergy-rash, breathing problem, hives
- ❑ Have patients describe how and when they take their medications (more vague responses may indicate noncompliance)

Steps to take if patient cannot remember a medication or if clarification is needed:

- ❑ Obtain a detailed description of the medication from the patient or family member – dosage form, strength, size, shape, color, markings
- ❑ Talk to any family members that are there or contact someone that could possibly bring in the medication or read it over the phone
- ❑ Try calling the patient's pharmacy to obtain a list of medications that patient has been regularly filling
- ❑ Contact the patient's physician/physicians to try and get an accurate listing of their current medications
- ❑ Obtain previous medical records

Source: MA Coalition For the Prevention of Medical Errors, Reconciliation Workbook. **OSF Saint Francis Medical Center**, IL, Howard S. Cohen, MD, Patient Safety Officer; developed by Ryan Taylor.

Sample Reconciliation Policy and Sample Form from The Boston Center for Rehabilitative and Subacute Care

Medication Reconciliation Process

Policy
Accurately reconcile medications across the continuum of care to contribute to the creation of the patient master medication list.

Process
Medication reconciliation is the process of creating the most accurate list possible of all medications a patient/resident is taking. It compares that list against the physician's admission, transfer and/or discharge orders. The goal is to provide correct medications to the patient at all transition points within the continuum of care.

Procedure
When a patient/resident is admitted to the Skilled Nursing Facility (SNF), the list of all medications ordered upon admission to the SNF must be compared and reconciled with the list of medications the patient was taking at home.

- ✓ The box when the admission nurse has reviewed admission medications with the patient and compared them with the list of medications the patient was taking at home.

- ✓ The other medications (prescriptions or over the counter) the patient was taking at home.

  If the patient has answered yes to any of the medications, list the medications, dose route and frequency.

- ✓ Yes or No if the MD has ordered the medication.

- ✓ The box if the patient is unable to provide you with a list of medications, doses, and frequency of the medications taken at home.

- ✓ The box when the family member has been contacted to obtain the home medication history.

  Identify the name of family member contacted.

  Identify the name of the MD/NP that was notified.

  Patient/Responsible Party to sign and date Medication Reconciliation Form.

  Admission Nurse to sign and date Medication Reconciliation Form and file the form in the Physician Order section of the medical record.

THE BOSTON CENTER
For Rehabilitative & Subacute Care

PATIENT IDENTIFICATION AREA

MEDICATION RECONCILIATION

3 Hole 1/4 4 1/4 c-to-c

On admission the nurse has reviewed admission medications with patient ❒ / family ❒ _____
Were you taking any **OTHER** medications (prescription or over the counter) at home including:

Inhalers	❒ Yes ❒ No	Blood Thinners	❒ Yes ❒ No	Sugar Pills	❒ Yes ❒ No
Eye Drops	❒ Yes ❒ No	Water Pills	❒ Yes ❒ No	Herbals	❒ Yes ❒ No
Vitamins	❒ Yes ❒ No	Heart Pills	❒ Yes ❒ No	Other	❒ Yes ❒ No

** If patient has answered yes to any of the above list the medications, dose, route and frequency below:*

Medication	Dose	Route	Frequency	MD Ordered	
				Yes	No

❒ Unable to obtain home medication history from patient.
❒ Family member contacted to obtain home medication history.
Name of family member contacted:_____

Admission nurse has attempted to reconcile patient's entire medication list, and has notified MD/NP of any medications listed above: Practitioner notified:_____

INFLUENZA (FLU) VACCINE

❒ I give my consent to receive an annual flu immunization. Offered 10/01 - 3/31
- I have never had a serious allergic reaction to eggs or to a previous dose of influenza vaccine
- I have never had a history of Guillain-Barre Syndrome (GBS)

❒ I have already received a flu immunization this season. Date:_____
❒ I refuse to receive the flu vaccine.
❒ Not applicable at this time

PNEUMOCOCCAL POLYSACCHARIDE 23 VALENT (PPV23) VACCINE

Pneumococcal (PPV 23) vaccine is recommended:
1. Every 5 years for 65 years of age and younger
2. One time only for older than 65

❒ I give my consent to receive a pneumococcal (PPV 23) immunization.
❒ I have already received a pneumococcal (PPV 23) immunization.
Date of immunization:_____
❒ I refuse to receive the pneumococcal (PPV 23) vaccine

I hereby give the facility permission to administer the vaccines as indicated above.
I have been given the fact sheets on the influenza vaccine and the pneumococcal (PPV 23) vaccine that contains information regarding the benefits and risks of the vaccines.

Signature - Patient / Responsible Party_____ Date: _____

Admission Nurse' Signature:_____ Date: _____

MD/NP has attempted to reconcile medications across the continuum.

MD/NP Signature: _____ Date: _____

BC1118 (1/06)

Soldiers' Home in Chelsea
Medication Reconciliation Form

addressograph

Date:_____Time:_____

Drug	Dose	Route	Frequency	Ordered Yes or No	MD contacted Yes or No	Result of MD contact: med ordered or med not ordered
Herbal/Homeopathic remedies:						
Disposition of patient's medications upon admission:						
Comments: (if physician did not order med after notification-state why):						

_____ _____

Nurse's Signature/Date **Physician Signature/Date**

Da/rev5/05

Attention Physician: Please Reconcile Medications

Tab 13 - Monthly Edits

Monthly edits are a potential trouble spot for transcription errors.

Standard nursing home practice is to reconcile the information on residents' medications sent from the pharmacy to the nursing home – every month. The process begins when the off-site pharmacy serving the nursing home generates a new medication order sheet (MAR), and sends it by fax, by delivery, or by the Internet, to the nursing home. The list may have been generated one-to-two weeks prior to the end of the month, and as a result, it may not have captured recent changes in medications. The MAR is reviewed by the nursing staff for accuracy prior to the start of each month. If any differences are found between the pharmacy list and the MAR, they must be reconciled.

In a world that is still primarily bounded by written records, this reconciliation process is not only time and resourse consuming, it requires multiple checks by different staff to be sure that the MAR is completely accurate. The introduction of electronic records (in nursing homes) that allow for transmission of medication data without the manual transcribing of information has the potential of reducing these editing errors. But for most nursing homes, this is not currently an option.

The nursing staff understand the challenges noted above, and experience these issues on an ongoing basis. What is surprising is how little has been written addressing this issue. Various search engines reveal no citations or reports that address this issue. The citations found on transcription errors were largely for hospital-based reports. The information and tools in this section are based solely on the expert guidance from project staff, consultants, and advisors. The section identifies the key areas where errors can occur, including staffing, environmental, and standards, and provides examples of how to reduce errors from these causes.

An important consideration in this process is the role and responsibilities of the consulting pharmacist. A consulting pharmacist can assist in educating nursing staff regarding writing complete physicians orders and in editing MARs. He/she can also review the medication sheets every month to ensure new orders received during that month are properly transcribed onto the MARs, and can periodically do an in-depth focused review of the medication sheets and make recommendations to nursing for editing.

Tools

- **Sample Monthly Edit Procedure**
- **Checklist for Monthly Edits**

(This section was written with the assistance of Jaime Leigh McGee, PharmD, CGP, Consultant Pharmacist, Kindred Pharmacy Services)

Background

The process for renewing a medication varies across the health care system. In the community, medications are prescribed by the physician and dispensed from the pharmacy as a one-month supply. The physician specifies how many times the prescription may be renewed on the original prescription. The individual goes to the pharmacy once a month and refills, or renews his prescription until the renewals run out. In the hospital, medication orders are typically valid for one week. At the end of one week, new medication order sheets are generated by the pharmacy and the physician must sign, or renew, the orders. In the nursing home, medication orders are renewed monthly.

The Process

The process for monthly medication renewal that has evolved in Massachusetts' nursing homes requires multiple steps, multiple checks, and double-checks to ensure accuracy. Local practice dictates that medications are renewed for the entire facility on the first day of every month. The off-site pharmacy generates a new medication order sheet (called the Medication Administration Record, or MAR) at the end of the month and sends it to the nursing home during the last week of the month. The MAR is reviewed by the nursing staff for accuracy prior to the start of the month. It is not uncommon to discover errors on the new MAR involving wrong doses, or medications not discontinued. Close scrutiny is required for this task. Because of the volume of medication lists generated, a full week is typically needed to review the new MAR and assure accuracy for each patient. During the last week of the month, any new orders must be transcribed onto the current MAR, and the new MAR. All of the previously described factors that impact transcription errors may be multiplied when the order is transcribed multiple times (legibility, clarity, accuracy, misplaced zeros). The phrase used to describe the process for medication renewal is therefore called "monthly edits" because the nursing staff must edit the MAR several times to ensure accuracy.

State and federal regulations require that a physician, nurse practitioner, or physician assistant must review the medication regimen for each patient regularly (i.e., upon admission, then every 30 days for three months and then every 60 days thereafter). Monthly edits, however, are NOT required by state or federal regulation and there are no "best practices" described in the literature.

The Problem

Throughout the course of this collaborative, the pilot nursing homes have identified this monthly edit process as a source for many medication errors. Difficulties with the current system were readily identified and include:

- Workload
- Paper-based system
- Lack of training
- Interruptions
- No standards for editing
- Staff experience with edits
- Lack of space
- Staffing turnover
- Resources
- Noise
- Lighting

Effective Practices for Monthly Edits

Many discussions with the pilot homes and among consensus group, advisory group, and steering committee members have resulted in the following list of suggested effective practices for monthly edits. Review these suggestions, consider where your facility's strengths and weaknesses are in comparison, and pick one or two suggestions to begin with. Continue adding suggestions until the process is satisfactory and you have demonstrated fewer errors on the monthly edits.

Workload Issues

Many pilot facilities describe excessive workload for nursing staff associated with the monthly editing process. These proposed practices may distribute the workload related to monthly editing more appropriately:

- Conduct monthly edits on the last day of the month on the 11p-7a shift.
- Consider staggering the renewals over 2-3 days.
- Consider implementing 24-hour medication checks by night nurses. This daily check includes a review for any new orders from the day. The new order is verified with a check mark. If the order was missed, it is noted and posted, along with a flag in the chart for review by the next shift.

Issues with the Editing Process

Inconsistent practices and processes for monthly editing are widespread challenges. In a single facility, two different nurses describe two very different processes for completing the monthly edits. Staffing patterns and staff training can impact the errors associated with monthly edits. Consider the following suggestions when developing a process to reduce medication errors related to the monthly editing process:

- Require that two experienced nurses verify or double-check order sets. One nurse reads the current medication orders and one nurse verifies the orders on the new list to assure that all changes have been transcribed.
- Review the most recent orders first beginning with:
  - Telephone orders
  - Handwritten interim orders by prescriber
- When adding new medication orders to the monthly order set, write the new order in the medication block with the date.
- Any item that needs to be discontinued or clarified:
  - Draw a line through the order or highlight.
  - Document the date the order was discontinued and initial.
  - Do not "add in" information or change any information on the order.
- If medication is only to be given on specific days:
  - Highlight days to administer medication
  - Block off the number of days the medication list is to be held
  - Check prior MAR to verify days are correct/no doses missed
- Always write legibly and neatly; remind your peers to do so
- Provide education specific to standardizing the format of orders
- Provide education regarding safe and effective editing
- Standardize the process so all staff are doing the same thing
- Assure that treatment orders are most current

Resources

Limited time/resources/staff have been identified as challenges in the monthly editing process. In order to reduce medication errors associated with the monthly editing process, assessment of resources allocated for the task could include:

- Consider expanding the responsibilities of the consultant pharmacist in your facility to include monthly edits
- Schedule staff specifically for editing
- Avoid adding editing to daily duties
- Use two MAR books side-by-side for comparison of old and new order sets

Environment

The monthly editing process requires focused attention and concentration. The following environmental modifications may maximize staff attention to the task and minimize errors associated with distractions and interruptions:

- Provide a designated quiet place, free of distractions
- Post signage identifying that "Editing is in progress; Do not disturb"
- Enhance lighting in area
- Provide adequate workspace, such as an office

A Note About "House Stock" Medications

Many pilot facilities report errors discovered on their state survey associated with "house stock" or over the counter medications (OTC). Typically, the order on the MAR was just slightly different from the actual medication in the medication cart. For example, the order reads: "Tums (wintergreen) 2 tabs TID". The bottle in the cart is for generic fruit flavored calcium carbonate. This type of change typically occurs when the contracted pharmacy changes or the pharmacy changes the brand of medication provided as house stock, usually favoring a less costly product with the same properties. A quarterly "edit" done with the consultant pharmacist and the nursing staff may rectify this situation. The process could include:

- Quarterly rounds with the pharmacist and nursing staff to match the order in the MAR with the product in the medication cart.
- Any discrepancy between the order and the product would be clarified with the physician or NP/PA and new orders would be written.

Sample Monthly Edit Procedure

(Courtesy of the Masonic Home)

1. Pharmacy sends new MAR on the 22nd of the month.

2. Within four or five days, the day shift nurse goes through and does the first set of edits by comparing new MAR with old MAR.

3. Any new orders written between the 22nd and 31st of the month are added to the current MAR and the new MAR. This is done as the new order is noted and posted by the nurse.

4. The night nurses do daily check of each resident's chart every night all through the month, looking for orders that were missed.

5. On the 31st, the new MAR is placed in the med book. There is a second set of edits at this point, by the day shift nurses, to catch any orders that were missed.

6. The new and old MARs are both in the med book for 1-2 weeks, for easy reference.

Checklist: Monthly Edits

Does your facility have a policy for performing monthly edits?

___ No. If no, this is an area for improvement. Use this checklist and the transcribing and monthly edit sections of this workbook to guide your team in implementing a process for assessing monthly editing.

___ This is an area we are working on. Our target date for revising our monthly editing process is _____.

___ Yes. Please continue to the questions below.

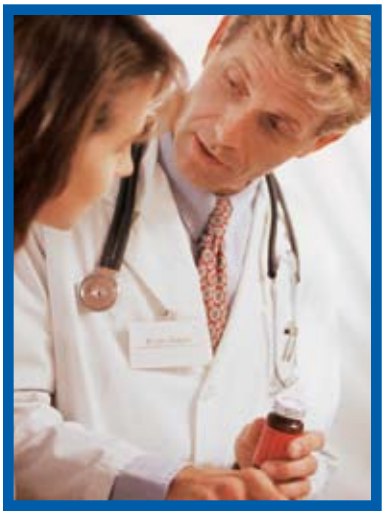
Does your facility's policy for monthly edits include these components?

	Yes	No	Person Responsible	Comments
1. Does your facility provide training for staff regarding monthly edits?				
2. Does your facility schedule nurses to do monthly edits while not on duty taking care of patients?				
3. Does your facility require two experienced nurses to verify or double-check order sets?				
4. Does your facility provide a quiet space free of distraction for monthly edits?				
5. Does your facility require night nurses to check charts on each patient daily to double check new orders?				

If any of the above elements in your monthly editing process are missing, choose one element to focus your quality improvement effort first.

- Start with the **Quality Improvement Worksheet A:** Identifying Areas for Improvement to collect data to investigate further.
- Follow the **Quality Improvement Worksheets** to implement missing element(s) and monitor regularly to determine whether implementation is successful.

Tab 14 - Educating Residents and Families



Everyone plays a role in making health care safe. Access to information via the Internet, print and television advertisements, and a societal shift towards increased consumer participation in health care has resulted in a highly informed public. Residents now routinely ask questions about their symptoms, diagnosis, and treatment plans. The Centers for Medicare & Medicaid Services supports initiatives that encourage residents to get involved in their care. In addition, research shows that residents who participate in decisions about their health care experience better outcomes. (A few samples of resident/patient education materials are included in this tab.)

The nursing home setting poses particular challenges to patient education. The typical nursing home resident may suffer from mild to severe cognitive impairment and may not be a candidate for learning new materials. While every effort should be made to include the resident when teaching about medication safety, including family members provides another safety net for reinforcement. It is the resident's right to be informed about the medications administered, as well as the indications. It is always advisable to heed a resident's objection should they not recognize the appearance or name of a medication administered. Take the time to provide additional safety checks (beyond the "Five Rights") if the resident expresses concern.

When educating residents and family members, consider the following strategies:

- Inform residents and families when medication changes are made.
- Encourage questions about medications, side effects, and monitoring. A team of people observing the benefits or side effects of the medication is helpful to the patient and increases the chance of early recognition and treatment of an adverse drug event.
- Be ready to provide written materials to the resident and family. A simple list of medications and schedule will facilitate the organization of information.
- Check with the contracted pharmacy about preprinted handouts for specific medications to be given to the resident and family.

Note: The Massachusetts Coalition for the Prevention of Medical Errors has developed a consumer guide that encourages patients to become "part of the health care team" along with their physicians, nurses, and pharmacists, to prevent medication mistakes. The guide was developed in conjunction with the Washington, D.C.-based Institute for Family-Centered Care and is based on input solicited from patients, families, and health care professionals. The brochure is available online at www.macoalition.org/documents/ConsumerGuide.pdf (and is also available in Spanish). For more information, contact the Coalition by calling 781-272-8000 ext.221 or via e-mail at: macoalition@mhalink.org.

Tools

- **"Speak Up-Help Prevent Errors in Your Care" Brochure**
- **Sample - Your Role in Safe Medication Use**
- **Drug and Supplement Diary**
- **Patient Fact Sheet**

SpeakUP™

To prevent health care errors, patients are urged to...

SpeakUP™

Help Prevent Errors in Your Care

The Joint Commission

Everyone has a role in making health care safe. That includes doctors, health care executives, nurses and many health care technicians. Health care organizations all across the country are working to make health care safe. As a patient, you can make your care safer by being an active, involved and informed member of your health care team.

An Institute of Medicine report says that medical mistakes are a serious problem in the health care system. The IOM says that public awareness of the problem is an important step in making things better.

The "Speak Up™" program is sponsored by The Joint Commission. They agree that patients should be involved in their own health care. These efforts to increase patient awareness and involvement are also supported by the Centers for Medicare & Medicaid Services.

This program gives simple advice on how you can help make health care a good experience. Research shows that patients who take part in decisions about their own health care are more likely to get better faster. To help prevent health care mistakes, patients are urged to "Speak Up."

Current version of this brochure can be found at http://www.jointcommission.org/NR/rdonlyres/484AD48F-C464-4B5B-8D70-AA79179B3970/0/Speakup.pdf.

Speak up if you have questions or concerns. If you still don't understand, ask again. It's your body and you have a right to know.

- Your health is very important. Do not worry about being embarrassed if you don't understand something that your doctor, nurse or other health care professional tells you.
- Don't be afraid to ask about safety. If you're having surgery, ask the doctor to mark the area that is to be operated on.
- Don't be afraid to tell the nurse or the doctor if you think you are about to get the wrong medicine.
- Don't be afraid to tell a health care professional if you think he or she has confused you with another patient.

Pay attention to the care you get. Always make sure you're getting the right treatments and medicines by the right health care professionals. Don't assume anything.

- Tell your nurse or doctor if something doesn't seem right.
- Expect health care workers to introduce themselves. Look for their identification (ID) badges. A new mother should know the person who she hands her baby to. If you don't know who the person is, ask for their ID.
- Notice whether your caregivers have washed their hands. Hand washing is the most important way to prevent infections. Don't be afraid to remind a doctor or nurse to do this.
- Know what time of the day you normally get medicine. If you don't get it, tell your nurse or doctor.
- Make sure your nurse or doctor checks your ID. Make sure he or she checks your wristband and asks your name before he or she gives you your medicine or treatment.

Educate yourself about your illness. Learn about the medical tests you get, and your treatment plan.

- Ask your doctor about the special training and experience that qualifies him or her to treat your illness.
- Look for information about your condition. Good places to get that information are from your doctor, your library, respected websites and support groups.
- Write down important facts your doctor tells you. Ask your doctor if he or she has any written information you can keep.
- Read all medical forms and make sure you understand them before you sign anything. If you don't understand, ask your doctor or nurse to explain them.
- Make sure you know how to work any equipment that is being used in your care. If you use oxygen at home, do not smoke or let anyone smoke near you.

Ask a trusted family member or friend to be your advocate (advisor or supporter).

- Your advocate can ask questions that you may not think about when you are stressed.
- Ask this person to stay with you, even overnight, when you are hospitalized. You will be able to rest better. Your advocate can help make sure you get the right medicines and treatments.
- Your advocate can also help remember answers to questions you have asked. He or she can speak up for you when you cannot speak up for yourself.
- Make sure this person understands the kind of care you want. Make sure he or she knows what you want done about life support and other life-saving efforts if you are unconscious and not likely to get better.
- Go over the consents for treatment with your advocate before you sign them. Make sure you both understand exactly what you are about to agree to.
- Make sure your advocate understands the type of care you will need when you get home. Your advocate should know what to look for if your condition is getting worse. He or she should also know who to call for help.

Know what medicines you take and why you take them. Medicine errors are the most common health care mistakes.

- Ask about why you should take the medication. Ask for written information about it, including its brand and generic names. Also ask about the side effects of all medicines.
- If you do not recognize a medicine, double-check that it is for you. Ask about medicines that you are to take by mouth before you swallow them. Read the contents of the bags of intravenous (IV) fluids. If you're not well enough to do this, ask your advocate to do it.
- If you are given an IV, ask the nurse how long it should take for the liquid to run out. Tell the nurse if it doesn't seem to be dripping right (too fast or too slow).
- Whenever you get a new medicine, tell your doctors and nurses about allergies you have, or negative reactions you have had to other medicines.
- If you are taking a lot of medicines, be sure to ask your doctor or pharmacist if it is safe to take those medicines together. Do the same thing with vitamins, herbs and over-the-counter drugs.
- Make sure you can read the handwriting on prescriptions written by your doctor. If you can't read it, the pharmacist may not be able to either. Ask somebody at the doctor's office to print the prescription, if necessary.

Use a hospital, clinic, surgery center, or other type of health care organization that has been carefully checked out. For example, The Joint Commission visits hospitals to see if they are meeting The Joint Commission's quality standards.

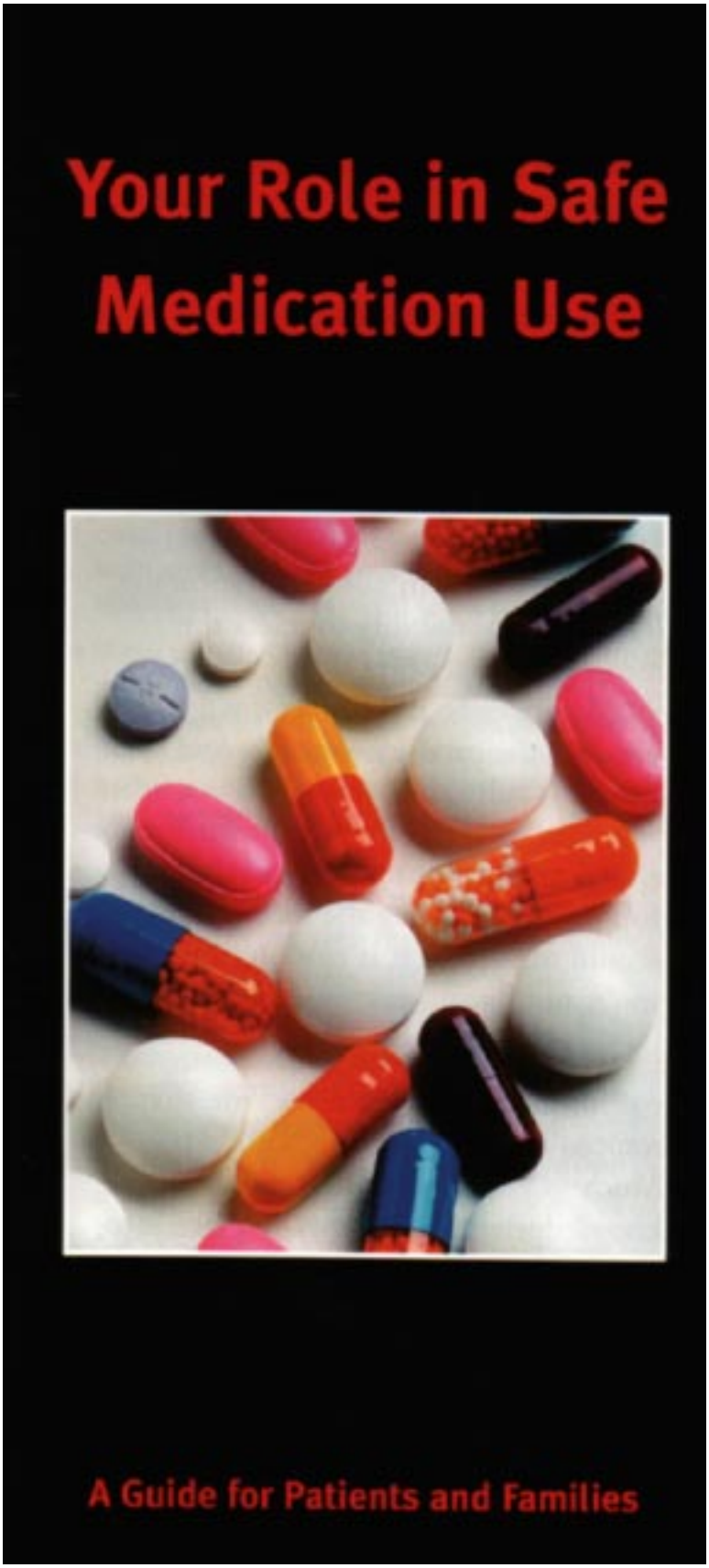
- Ask about the health care organization's experience in taking care of people with your type of illness. How often do they perform the procedure you need? What special care do they provide to help patients get well?
- If you have more than one hospital to choose from, ask your doctor which one has the best care for your condition.
- Before you leave the hospital or other facility, ask about follow-up care and make sure that you understand all of the instructions.
- Go to Quality Check at www.qualitycheck.org to find out whether your hospital or other health care organization is "accredited." Accredited means that the hospital or health care organization works by rules that make sure that patient safety and quality standards are followed.

Participate in all decisions about your treatment. You are the center of the health care team.

- You and your doctor should agree on exactly what will be done during each step of your care.
- Know who will be taking care of you. Know how long the treatment will last. Know how you should feel.
- Understand that more tests or medications may not always be better for you. Ask your doctor how a new test or medication will help.
- Keep copies of your medical records from previous hospital stays and share them with your health care team. This will give them better information about your health history.
- Don't be afraid to ask for a second opinion. If you are unsure about the best treatment for your illness, talk with one or two additional doctors. The more information you have about all the kinds of treatment available to you, the better you will feel about the decisions made.
- Ask to speak with others who have had the same treatment or operation you may have to have. They may help you prepare for the days and weeks ahead. They may be able to tell you what to expect and what worked best for them.

The goal of the Speak Up™ program is to help patients become more informed and involved in their health care.

Current version of this brochure can be found at http://www.jointcommission.org/NR/rdonlyres/484AD48F-C464-4B5B-8D70-AA79179B3970/0/Speakup.pdf.


Your Role in Safe Medication Use
A Guide for Patients and Families

Medications can cure diseases and alleviate symptoms. They can relieve pain. They make it possible for people with long-term illness to lead healthier lives.

Medications are also powerful chemicals. It is essential that they be properly used. This means that every patient must receive the right medication, in the right amount, and at the right time.

Your doctor, nurse, and pharmacist have major roles in safe medication use. It's their responsibility to select the medication that's best for you. They should prescribe the correct dosage, dispense the product correctly, and label it clearly. It's also their job to tell you what you need to know about your medications and to answer your questions. Once you've started taking the medication, they should make sure it is working and that you're not having any serious side effects.

As a patient or family member, you are part of the health care team. You share the responsibility for safe medication use. Much as you trust your care provider's knowledge and judgment, you owe it to yourself and your family to learn as much as you can about medication use.

Here are some things you can do to ensure safe medication use for you and your family.

At the Clinic, Doctor's Office, and Pharmacy

- Learn as much as you can about the disease or condition for which the medication was prescribed. Are there alternatives to the recommended therapy? What are they?
- Find out everything you can about the medication. Listen to what your doctor or pharmacist says. Take notes. Ask as many questions as you think are necessary. If you don't understand the answer, ask again!
- Before you leave, ask the doctor, nurse or pharmacist if you can repeat the instructions that you've been given. This is a good way to clear up misunderstandings that might cause problems later.
- Make sure that each of your doctors is aware of medications that other physicians have prescribed for you. Tell them about any over-the-counter medications and homeopathic and herbal products you are taking. If you have any allergies, tell your doctor about them.
- Pharmacists are excellent sources of medication information. Try to take your new prescriptions and refill requests to the same pharmacy, so that you get to know your pharmacist, and he or she gets to know you.
- When you pick up a newly prescribed prescription, request to speak to a pharmacist and be sure to read all written handout materials thoroughly. If you are taking more than one prescription or, if you are obtaining medication at a site other than at the dispensing pharmacy, be sure to disclose this to the pharmacist. This is very important for the pharmacist to know.
- Make sure that the pharmacist knows about any allergies you have and any alternative/herbal therapies you may be taking.

- If you're greeted at the counter by a pharmacy technician or cashier, ask to see the pharmacist if you have questions. Some pharmacies have areas where you may speak privately with your pharmacist. If it's an especially busy time, you might want to call the pharmacist after you return home.
- Before you leave the pharmacy, open the bag and double-check the medication to make sure you've received the correct product.
- Remember that nurses can also share information about medications with you.

At Home

- Before taking the first dose:
  - Read the label. Make sure that the medication you have received is the one that your doctor ordered. If there is any difference in the appearance or shape of your medication between refills do not take it until you've discussed it with a pharmacist. Remember, many medications have names which sound or look alike.
  - Read the directions on the label and any written information you've been given. If any of it seems to contradict what you already know about the medication, call your doctor, nurse, or pharmacist.
- Recheck the label before each dose. Never take medications in the dark.
- If you develop itching or swelling or if you have trouble breathing after taking a new medication, get medical help immediately.
- Be alert for other side effects. If they become troublesome, call your pharmacist, nurse, or doctor.
- Take the medication exactly as prescribed. In some cases, you can stop taking a medication when your symptoms improve. In other cases, you must complete the course of therapy, even though you're feeling much better.
- Keep medications in their original container and store them out of the reach of children.
- Check the expiration date on all medications. Throw away outdated products.
- You may find it useful to keep a medication log. This record will be helpful for both you and your care provider. Bring it with you to your appointments.
- Invest in a reference book on medications. Several are available in low-cost paperback editions. Ask your health care provider for a recommendation.

Things you should know about your medications

1. What are brand and generic names of the product?
2. What is the purpose of the medication?
3. What does the medication look like?
4 What is the dosage?
5. How should I take this medication?
6. How often should I take this medication? What should I do if I miss a dose?
7. Does this medication have any side effects? What are they? What should I do if they occur?
8. Does this medication interact with any other medications? With foods? What are these interactions, and what should I do if they occur?
9. How should I store this medication?

In the Hospital

If you are hospitalized, you may not be feeling strong enough to take an active role in medica-

tion use. Often it's family members who provide the comfort and support needed to promote your return to good health. In either case, you rely on the hospital staff to ensure that medications are administered correctly and on time.

Hospitals are deeply aware of this responsibility to patients and families. They have systems of checks and balances in place to make sure that medications are used safely and effectively. Each medication order is checked and double-checked by pharmacy and nursing staff, and medication records are often maintained on computer systems.

Even during this critical time, however, you can do things to help ensure safe medication use. If you are too ill or tired, your family member or caregiver may be able to help. For example:

- When you are admitted to the hospital, bring a list of the medications you are taking. If there isn't time to make a list, bring the medications. Keep them in their containers.
- Each time a new medication is prescribed, make sure that the doctor, nurse, or pharmacist answers the questions listed above. Ask to see what the medication looks like (for example, the shape and color of tablets and capsules, or the color of liquids and intravenous medications) and how often it is administered.
- If a nurse comes to replace an I.V. solution or administer a medication, ask what it is for. If a dose is not administered on time, ring the nursing station. If the nurse gives you a green tablet and you think it should be orange, question it.

In some cases, the answers are simple. For example, if you've been taking a brand-name product at home and the hospital uses a generic product, the color or shape of the tablet may be different. In other cases, asking questions can prevent a medication error.

Handling a Hospital or Retail Pharmacy Medication Error

Serious medication errors are very rare. But what if an error does occur or you suspect an error? If you are concerned that an error has occurred, ask your doctor. Here are some things patients and families can do.

- Remember that the effects of most medication errors are minimal. Ask what the probable impact of the error will be.
- Ask for a full explanation of why the error occurred. Expect an honest dialogue.
- If you feel that your questions are not being answered satisfactorily, ask to talk with the hospital's designated patient advocate (for example, a nurse manager or patient representative).
- If you have suggestions about how to prevent medication errors, share them with your care provider or a patient representative.
- Encourage your hospital to include patients and family members on its quality improvement committees.

Teamwork Pays Off

Taking an active role in safe medication use has many advantages. Not only will it help prevent medication errors, it will also make you a more informed health care consumer. Your doctor, nurse, and pharmacist welcome your involvement. Teamwork has advantages for everyone.

This pamphlet is provided by The Massachusetts Coalition for the Prevention of Medical Errors

Members of the coalition are:

- AARP
- American College of Physicians
- Boston University School of Medicine Center for Primary Care
- Harvard Risk Management Foundation
- Health Care Financing Administration Regional Office
- Harvard School of Public Health
- Institute for Healthcare Improvement
- Joint Commission on Accreditation of Healthcare Organizations
- Massachusetts Association of Behavioral Health Systems
- Massachusetts Board of Nursing
- Massachusetts Board of Registration in Pharmacy
- Massachusetts Board of Registration in Medicine
- Massachusetts Department of Public Health
- Massachusetts Extended Care Federation
- Massachusetts Hospital Association
- Massachusetts Medical Society
- Massachusetts Nurses Association
- Massachusetts Organization of Nurse Executives
- Massachusetts Peer Review Organization
- Professional Liability Foundation
- PRO Mutual Group

Written by the Institute for Family-Centered Care. Patients, families, and health professionals served as advisors to the project.

For further information about the Institute, see www.familycenteredcare.org or write IFCC, 7900 Wisconsin Avenue, Suite 405, Bethesda, MD 20814.

My Drug and Supplement Diary

In order for medications to work properly they must be taken correctly. Many things can affect how medications work:

Diet — some foods affect the effectiveness of medicine.

Lifestyle — standing up or lying down and even when a medicine is taken may be important.

Other medications — Drug-to-drug interactions are a concern. Some interactions may cause serious medical conditions.

Make sure that your doctor knows exactly what drug you are taking. Include medicines you buy without a prescription and any dietary supplements such as vitamins, minerals and herbals. Use the form on the reverse side to write down what medications you are taking, the dosage and when you take it. Be sure to keep this record up-to-date, and to keep a copy with you at all times, as well as a copy at home.

By providing your doctor with this completed record during each of your appointments, you are ensuring that they are able to properly prescribe medications for you.

Your Name

_____

Address

_____

Phone Number

_____

Doctor's Name

_____

Doctor's Phone Number

_____

My Current Medications & Supplements

Name of Drug _____
Dose _____ When Taken _____

Name of Drug _____
Dose _____ When Taken _____

Name of Drug _____
Dose _____ When Taken _____

Name of Drug _____
Dose _____ When Taken _____

Name of Drug _____
Dose _____ When Taken _____

Name of Drug _____
Dose _____ When Taken _____

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Dose _____ When Taken _____

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Dose _____ When Taken _____

Name of Drug _____
Dose _____ When Taken _____

Name of Drug _____
Dose _____ When Taken _____

The AGS Foundation for Health in Aging,
The Empire State Building, 350 Fifth Avenue, Suite 801,
New York, NY 10118,
Tel: 212-755-6810, Toll Free: 800-563-4916
www.healthinaging.org

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Source: AGS Panel on Persistent Pain in Older Persons. The Management of Persistent Pain in Older Persons. American Geriatrics Society. J Am Geriatr Soc 2002; 50: June supplement.

Five Steps to Safer Health Care

1 Ask questions if you have doubts or concerns.

Ask questions and make sure you understand the answers. Choose a doctor you feel comfortable talking to. Take a relative or friend with you to help you ask questions and understand the answers.

2 Keep and bring a list of ALL the medicines you take.

Give your doctor and pharmacist a list of all the medicines that you take, including non-prescription medicines. Tell them about any drug allergies you have. Ask about side effects and what to avoid while taking the medicine. Read the label when you get your medicine, including all warnings. Make sure your medicine is what the doctor ordered and know how to use it. Ask the pharmacist about your medicine if it looks different than you expected.

3 Get the results of any test or procedure.

Ask when and how you will get the results of tests or procedures. Don't assume the results are fine if you do not get them when expected, be it in person, by phone, or by mail. Call your doctor and ask for your results. Ask what the results mean for your care.

4 Talk to your doctor about which hospital is best for your health needs.

Ask your doctor about which hospital has the best care and results for your condition if you have more than one hospital to choose from. Be sure you understand the instructions you get about follow-up care when you leave the hospital.

5 Make sure you understand what will happen if you need surgery.

Make sure you, your doctor, and your surgeon all agree on exactly what will be done during the operation. Ask your doctor, "Who will manage my care when I am in the hospital?" Ask your surgeon: Exactly what will you be doing? About how long will it take? What will happen after the surgery? How can I expect to feel during recovery? Tell the surgeon, anesthesiologist, and nurses about any allergies, bad reaction to anesthesia, and any medications you are taking.

U.S. Department of Health and Human Services, in partnership with

American Hospital Association

American Medical Association

Tab 15 - Resources and Regulations

Resources

There are a number of resources available online to assist nursing homes in implementing a safe medication practice and establishing a culture of safety.

Survey Protocol for LTCF:
http://cms.hhs.gov/manuals/Downloads/som107ap_p_ltcf.pdf

Appendix PP, Guidance to Surveyors/ Regulations:
http://cms.hhs.gov/manuals/Downloads/som107ap_pp_guidelines_ltcf.pdf

Regulations

Long-term care facilities participating in Medicare and Medicaid must meet certain federal requirements necessary to assure the health and safety of individuals to whom services are furnished. There are specific federal regulations related to the quality measures. This section contains information, which is published by the Centers for Medicare & Medicaid Services for use in the long-term care inspection process. The information included in this section is taken from the federal regulations, guidance surveyors, and survey protocols. These items are used by state and federal regional office personnel to conduct surveys of long-term care facilities for compliance with the requirements at 42 CFR Part 483 Subpart B (2003) to receive payment under Medicare or Medicaid. Both facility staff members and the state survey agency can use this information in order to provide consistent quality care for the resident (available on www.MedQIC.org).

Unnecessary drugs

- Residents' drug regimens must be free from drugs used in excessive doses, excessive duration, without adequate monitoring, without adequate indications of use, or in the presence of adverse consequences
- Drugs inappropriate in the elderly (based on Beers criteria)
- Specific designations of appropriate drugs/doses of psychoactive medications (benzodiazepines, anxiolytic/sedative, hypnotic, antipsychotic, antidepressant)
- Facility must be able to provide evidence of risk/benefit analysis to justify the use of drugs outside these guidelines

Antipsychotic drug use

- Must have diagnosed and documented one of the "specific conditions"
- Must exhibit behavior that necessitates drug therapy (persistent, not preventable, and cause a danger or significant distress or functional impairment)
- Must have gradual dose reductions with supervision and behavioral modifications to try to discontinue drug use
- Facility must have proper justification if dose reduction is deemed "clinically contraindicated"

Medication errors

- Preparation or administration of drugs not in accordance with physician orders, manufacturer specifications, or professional standards
- Rate of errors may not be greater than 5%
- Free of "significant" errors (causes discomfort or risks resident's health/safety) as determined by resident's condition, drug category, frequency or error

Pharmacy Services

- All medications must be available in a timely manner
- Must have a licensed pharmacist that consults on provision of all pharmacy services
- Records of receipt and disposition of all controlled drugs maintained and reconciled at least monthly by pharmacist
- Review of all residents' drug regimens at least once a month by pharmacist; any irregularities must be reported and acted upon
- Requirements for labeling and storage of drugs and biologicals

Tool

- **National and Local Resource List**

National Organizations

Agency for Healthcare Research and Quality (AHCPR)
Department of Health and Human Services
2101 E. Jefferson Street, Suite 501
Rockville, MD 20852
301-594-1364
Federal agency that conducts research on health care quality issues, health care cost and patient safety. Their mission includes translating research into better patient care.
www.ahcpr.gov

American Association of Nurse Assessment Coordinators (AANAC)
1780 South Bellaire Street, Suite 150
Denver, CO 80222-4307
303-758-7647
Non-profit professional association representing nurse assessment coordinators and others involved in resident assessment. Provides access to information on clinical assessment, regulatory requirements, reimbursement, etc. (RNs, Administrators)
www.aanac.org

American Hospital Association (AHA)
One North Franklin
Chicago, IL 60606-3421
312-422-3000
AHA ensures that members' perspectives and needs are heard and addressed in national health policy development, legislative and regulatory debates, and judicial matters. Advocacy efforts include the legislative and executive branches and include the legislative and regulatory arenas.
www.aha.org

American Pharmaceutical Association
2215 Constitution Avenue, NW
Washington, DC 20037-2985
202-628-4410
The Association is a leader in providing professional information and education for pharmacists and an advocate for improved health of the American public through the provision of comprehensive pharmaceutical care.
www.aphanet.org

American Society for Healthcare Risk Management
One North Franklin Street
Chicago, IL 60606
312-422-3980
ASHRM promotes effective and innovative risk management strategies and professional leadership through education, recognition, advocacy, publications, networking and interactions with leading healthcare organizations and government agencies.
www.ashrm.org

American Society of Health-System Pharmacists
7272 Wisconsin Avenue
Bethesda, MD 20814
301-657-3000
ASHP believes that the mission of pharmacists is to help people make the best use of medications. The mission of ASHP is to advance and support the professional practice of pharmacists in hospitals and health systems and serve as their collective voice on issues related to medication use and public health.
www.ashp.org

American Society on Aging
833 Market Street, Suite 511
San Francisco, CA 94103-1824
415-974-9600
National association providing educational programs, publications and training resources on age-related issues.
www.asaging.org

Institute for Healthcare Improvement (IHI)
20 University Road, 7th Floor
Cambridge, MA 02138
617-301-4800
IHI is a reliable source of energy, knowledge, and support for a never-ending campaign to improve health care worldwide. The Institute helps accelerate change in health care by cultivating promising concepts for improving patient care and turning those ideas into action.
www.ihi.org

Institute for Safe Medication Practices
1800 Byberry Road, Suite 810
Huntingdon Valley, PA 19006
215-947-7797
We are a non-profit health care agency comprised of pharmacists, nurses, and physicians. Founded in 1994, our organization is dedicated to learning about medication errors, understanding their system-based causes, and disseminating practical recommendations that can help health care providers, consumers, and the pharmaceutical industry prevent errors.
www.ismp.org

Institute of Medicine (IOM)
500 Fifth Street NW
Washington, DC 20001
202-334-2352
The Institute provides a vital service by working outside the framework of government to ensure scientifically informed analysis and independent guidance. The Institute provides unbiased, evidence-based, and authoritative information and advice concerning health and science policy to policy-makers, professionals, leaders in every sector of society and the public at large.
www.iom.edu/

Joint Commission
One Renaissance Boulevard
Oakbrook Terrace, IL 60181
630-792-5000
Non-profit organization that is the predominant standards-setting and accrediting body in health care. Develops professional standards and evaluates compliance of health care organizations.
www.jointcommission.org

Massachusetts Coalition for the Prevention of Medical Errors
c/o Massachusetts Hospital Association
Five New England Executive Park
Burlington, MA 01803
781-272-8000
The goals of the Coalition are to disseminate knowledge and information about the causes of sentinel events and develop strategies for prevention. The Coalition plans to drive improvement by making this information available to health professionals and health care institutions for use in their own quality improvement programs through a statewide campaign.
www.macoalition.org

National Coordinating Council for Medication Error Reporting and Prevention
630-792-5916
Linda S. Hanold, M.H.S.A., Chairperson
Director, Department of Performance Measurement & Health Infomatics
Division of Research
Joint Commission on Accreditation of Healthcare Organizations
One Renaissance Boulevard
Oakbrook Terrace, IL 60181
lhanold@jcaho.org
The Council intends to mount a nationwide campaign for medication error reporting and prevention that will promote recommendations broadly to colleges, schools, and state associations of medicine, pharmacy, and nursing; national professional associations; managed care organizations; and third-party payers.
www.nccmerp.org

National Council on Aging (NCOA)
409 Third Street SW, Suite 200
Washington, DC 20024
202-479-1200
NCOA works primarily with community organizations and professionals to help them enhance the lives of older persons. Provides online links to other useful web sites.
www.ncoa.org

National Gerontological Nursing Association (NGNA)
7794 Grow Drive
Pensacola, FL 32514
850-473-1174, 800-723-0560
Professional organization of nurses whose mission is to improve the care and wellbeing of older adults through professional and public education, dissemination of research findings and support of innovative approaches in gerontological health care.
www.ngna.org

National Guideline Clearinghouse (NGC)
Web-based comprehensive database of evidence-based clinical practice guidelines and related abstract, summary and comparison materials widely available to health care professionals. NGC is operated by the U.S. Department of Health and Human Services (DHHS) and the Agency for Healthcare Research and Quality (AHRQ) in Partnership with the American Medical Association (AMA) and the American Association of Health Plans (AAHP).
www.guidelines.gov

National Institute on Aging
Building 31, Room 5C27
31 Center Drive, MSC 2292
Bethesda, MD 20892
301-496-1752
One of the 25 institutes and centers of the National Institute of Health. Conducts research on age-related issues, disseminates information and communicates with the public and other interested groups on health and research advances.
www.nia.nih.gov

National Patient Safety Foundation
1120 MASS MoCA Way
North Adams, MA 01247
413-663-8900
Mission: To improve the safety of patients through our efforts to: identify and create a core body of knowledge; identify pathways to apply the knowledge; develop and enhance the culture of receptivity to patient safety; raise public awareness and foster communications about patient safety; and improve the status of the Foundation and its ability to meet its goals.
www.npsf.org

The AGS Foundation for Health in Aging
The Empire State Building
350 Fifth Avenue, Suite 801
New York, NY 10118
202-755-6810, 800-563-4916
National non-profit organization established in 1999 by the American Geriatrics Society to build a bridge between research and practice of geriatrics and the public and to advocate on behalf of older adults and their social health needs.
www.healthinaging.org

The Alzheimer's Association
225 North Michigan Avenue, Floor 17
Chicago, IL 60601-7633
800-272-3900, 312-335-8700
Offers the latest news and information about Alzheimer's disease, studies and research, treatment methods, contributing factors, and related topics.
www.alz.org

The American Academy of Pain Medicine
4700 West Lake
Glenview, IL 60025
847-375-4731
The American Academy of Pain Medicine offers the latest news and information about pain management, studies and research, treatment methods, contributing factors and related topics.
www.painmed.org

The American Academy of Allergy, Asthma, and Immunology
555 East Wells Street, Suite 1100
Milwaukee, WI 53202-3823
414-272-6071
The American Academy of Allergy, Asthma and Immunology is the largest professional medical specialty organization in the United States representing allergists, asthma specialists, clinical immunologists, allied health professionals, and others with a special interest in the research and treatment of allergic disease.
www.aaaai.org

The American Cancer Society
2200 Century Parkway NE, Suite 950
Atlanta, GA 30345
404-315-1123
The American Cancer Society is the nationwide community-based voluntary health organization dedicated to eliminating cancer as a major health problem by preventing cancer, saving lives, and diminishing suffering from cancer, through research, education, advocacy, and service.
www.cancer.org

The American Geriatrics Society
The Empire State Building
350 Fifth Avenue, Suite 801
New York, NY 10118
212-308-1414
The American Geriatrics Society (AGS) is the premier professional organization of health care providers dedicated to improving the health and well-being of all older adults. With an active membership of over 6,800 health care professionals, the AGS has a long history of effecting change in the provision of health care for older adults. In the last decade, the Society has become a pivotal force in shaping attitudes, policies and practices regarding health care for older people.
www.americangeriatrics.org

The American Heart Association
National Center
7272 Greenville Avenue
Dallas, TX 75231
800-242-8721
American Heart Association site provides tools to assist with patient compliance. The site offers downloadable patient brochure, compliance-related fact sheets and recommendations.
www.americanheart.org

The American Medical Directors Association (AMDA)
10480 Little Patuxent Parkway, Suite 760
Columbia, MD 21044
410-740-9743, 800-876-2632
National professional association for medical directors and other MD's who practice in long-term care, committed to continuous improvement of quality in patient care.
www.amda.com

The American Society of Consultant Pharmacists
1321 Duke Street
Alexandria, VA 22314-3563
703-739-1300
Offers information and guidelines on medication use in older adults.
www.ascp.com

The Center for Disease Control and Prevention
1600 Clifton Road
Atlanta, GA 30333
404-639-3311
The Center for Disease Control and Prevention (CDC) is recognized as the lead federal agency for protecting the health and safety of people at home and abroad, providing credible information to enhance health decisions, and promoting health through strong partnerships. CDC serves as the national focus for developing and applying disease prevention and control, environmental health, and health promotion and education activities designed to improve the health of the people of the United States.
www.cdc.gov

The Food and Drug Administration Center for Drug Evaluation and Research
5600 Fishers Lane
Rockville, MD 20857-0001
888-463-6332, 301-827-4570
The Center makes sure that safe and effective drugs are available to improve the health of consumers. CDER ensures that prescription and over-the-counter drugs, both brand name and generic, work correctly and that the health benefits outweigh known risks.
www.fda.gov

U.S. Pharmacopeia
12601 Twinbrook Parkway
Rockville, MD 20852
800-822-8772
USP helps to ensure that consumers receive quality medicines by establishing state-of-the-art standards that pharmaceutical manufacturers must meet. As the world's most highly recognized and technologically advanced pharmacopeia, USP provides standards for more than 3,800 medicines, dietary supplements, and other health care products.
www.usp.org