Pathways for Patient Safety™

Module Three:

Creating Medication Safety

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Pathways for Patient Safety™

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Overview

The Pathways for Patient Safety™ modules, *Working as a Team* and *Assessing Where You Stand,* covered the importance of team building and assessing current safe practices and the safety climate in physician practice settings. This module, *Creating Medication Safety*, presents materials to facilitate safe medication management and includes specific recommendations for:

- obtaining and sharing a current list of the patient's medications, and
- safeguarding your patients from errors involving high alert medications.

Additional readings and tools are provided as examples to be used by your designated Patient Safety Officer to lead improvement, inform discussion, and assist your team in helping patients be more aware of their role in medication safety.

Medication management plays an essential role in protecting patients from harm. Over-use, under-use, and misuse of medications are all important health care concerns.[1, 2] Although all health care practitioners have a role in preventing adverse drug events (ADEs), the majority of medication treatment begins in the physician practice setting.

Complete medication management is a multidisciplinary, team-based process that includes physicians, pharmacists, nurses, and other health care professionals as well as patients and lay caregivers working to achieve optimum and safe use of medication. Medication safety should be a standing item in the regular patient safety staff meetings and be a key part of your practice's patient safety plan. Module Three is designed to assist office-based physician practices safeguard their patients from ADEs by using **medication reconciliation** and building staff awareness of **high alert medications**. Here is what you will learn in each area:

Medication Reconciliation
- understand the importance of medication reconciliation
- define the current process in place
- initiate and/or improve the process of medication management in your office
- measure success

Medication safety should be a standing item in the regular patient safety staff meetings and be a key part of your practice's patient safety plan.

High Alert Medications
- define high alert medications
- identify high alert medications used and prescribed by the practice
- understand the ranking of strategies to prevent harm from misuse of medications
- employ safeguards when prescribing or administering high alert medications
- measure success

Why Medication Safety Matters

Preventable adverse drug events (pADEs) are estimated at 14.9 per 1,000 person-months.[3] The drug therapy problems most frequently associated with pADEs that required hospital admission were:
- inadequate monitoring (45.4%),
- patient nonadherence (36.6%), and
- dosing/frequency errors (26.8%).

In office-based studies, 3 drug categories were responsible for 86.5% of pADEs:
- cardiovascular drugs,
- analgesics, and
- hypoglycemic agents.

When the Physician Practice Patient Safety Assessment (PPPSA)[4] tool (discussed in detail in Module Two, *Assessing Where You Stand*) was completed by a representative sampling of physician practices from across the country, full implementation of action items related to medication safety scored lowest (40%) when compared to other patient safety areas such as handoffs and transitions, practice management and culture, and personnel qualifications and competency. The average score in the medication safety domain was 63%. Some specific items onhow well practices performed when obtaining and sharing medication information are noted in the tables below.

When it comes to medication safety, where do you *think* your practice stands? After taking the PPPSA assessment, where does your practice *actually* stand? It is important to look at the tables below in the context of your own practice and to remember that there is always room for improvement.

Table 1 PPPSA Items related to medication reconciliation	NONE	PARTIAL	FULL
Item 29.1: A complete medication history, including over-the-counter medications, vitamins and herbal products is obtained and documented on every patient during each office visit.	5.6%	48.8%	45.6%
Item 29.3: Patients are provided with an up-to-date list of all medications they are receiving upon leaving the practice or other encounter.	64.8%	23.3%	11.9%
Item 29.9: All patients who are taking medications are asked at each office visit what medications they are currently taking and if they have had side effects, and their responses are documented in their medical record.	11.3%	48.8%	40%
Item 30.3: The practice maintains a process to communicate all medications [name, dose, frequency, route, and purpose] that a patient is receiving when they are admitted to a hospital, nursing home, home care agency, rehabilitation center, etc.	19.5%	39.6%	40.9%

Further information on the importance of items related to medication reconciliation as well as recommendations for improving these results will be presented later in this module in the section on **medication reconciliation**.

Table 2 **PPPSA Items related to medications**	NONE	PARTIAL	FULL
Item 29.4: A system is in place to track all patients receiving warfarin therapy that includes notices to patients for periodic laboratory testing of INRs and a documented review of INRs before prescription renewals are approved.	36.5%	19.7%	43.8%
Item 29.6: Indications for medications are included on written and electronic prescriptions.	63.5%	20.5%	16%
Item 29.7: A list of high alert drugs [e.g. warfarin, low molecular weight heparin, oral methotrexate for nononcology use] is established from a list of drugs often prescribed in the practice that require direct contact of the physician and pharmacist for phoned-in prescriptions including renewals.	64.7%	15.3%	20%

Items related to high alert medications will be described in further detail, along with recommendations for safeguarding patients from harm with high alert medications, in this module's section on **high alert medications**.

Medication Reconciliation

A contributing factor in the incident described above and many similar events is poor communication of a patient's drug therapy at the interfaces of care (office-based, acute, or long-term). This case illustrates the importance of communicating to the patient and to other health care providers a full list of the patient's current medications—in written, printed, or electronic form—along with changes in therapy.

An important process to help improve communication among health care practitioners and patients during transitions of care is medication reconciliation. Medication reconciliation is the process of identifying the most current list of all medications a patient is taking. Ideally, the patient should provide the actual pill bottles to the health care professional. The *inside* of containers should be checked to ensure that the correct medication is contained therein.

Each medication is then reconciled with other health care providers and the patient. This list, continually updated at each episode of care, is used to:

- evaluate current therapy,
- add or discontinue medications, and
- evaluate whether proper monitoring of medications is being done.

The list is then communicated to the next provider of care.

Patients play a role in the process of medication reconciliation, but that role must be directed and coordinated by their health care providers. All health care practitioners who are involved with medications must understand their current system of reconciling medications and work to optimize it. Nine steps for assessing and improving medication reconciliation for every patient in your practice are described below.

STEPS TO SUCCESS

Step One—Identify a Patient's Current List of Medications

An important place to start in error prevention is to ensure that the patient and whoever is caring for the patient has a complete list of the patient's medications. This begins by compiling an accurate and complete list of all the patient's current medications including over-the-counter medications, vitamins, and herbal products. The list must be:

- current,
- complete, and
- communicated to, and between, health care professionals and the patient.

To keep the list up-to-date, a list of current medications should be obtained from patients at each office visit and should include the following information for each medication:

- Name, both brand and generic name
- Strength (e.g., lisinopril 10 mg)
- Dosage (e.g., lisinopril 20 mg – two 10 mg tablets)
- Frequency, including times medication is taken (e.g., twice a day at 9 am and 4 pm, once a week on Monday)
- Route (e.g., oral, transdermal, inhalation, subcutaneous)
- Indication for the medication

Patients play a role in the process of medication reconciliation, but that role must be directed and coordinated by their health care providers.

Again, the ideal process would be to refer to the pill containers that patients bring with them. The name of a medication without the strength, dose, and frequency is insufficient for a medication list and is a problem that is likely to be compounded with additional clinical encounters. Complete information is especially important for medications that are used in treating disease states that are being monitored with laboratory testing (e.g., diabetes and the exact insulin brand, dose, and frequency).

Patients may have a pocket card with their medications written on it, a printed list, an actual container of medication, or may just cite the medications they are receiving from memory. If they do not have a list (or if their list does not solicit complete information), the practice should be prepared to supply them with one. Links to several examples of medication lists are provided in this section.

Some physician practices have electronic health records (EHRs) that can help keep lists of patients' medications up-to-date and provide ease in communicating the list to other health care providers. Practices may also have connectivity to insurers, pharmacies, and pharmacy benefit managers who can assist in obtaining a patient's current medications. Although this connectivity will help with constructing a current list, many providers do not include medications that are assumed to be covered by HIPAA compliance (e.g., HIV medications, antipsychotics), medications paid for by cash, over-the-counter medications, vitamins and herbals, and other medications. Although EHRs with electronic prescribing capabilities and connectivity to other providers should be

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Tools You Can Use

A variety of handy forms to share with your patients to help them keep track of their medications is available online:

- *My Medicine Record*, Food and Drug Administration
- *Medlist*, Massachusetts Coalition for the Prevention of Medical Errors
- *Know it Show it Tell it*, Iowa Healthcare Collaborative
- *My Personal Medication Record*, AARP
- *My Medicine List*, American Society of Health-System Pharmacists
- *MyMediList*, MediModules Inc.
- *Shared Care Plan*, Whatcom Health Information Network
- *ConsumerMedSafety.org*, Institute for Safe Medication Practices

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considered by all physician practices, such systems do not currently replace manual systems to obtain the patients' entire current list of medications.

The Patient's Role

Patients may be unaware of their role in ensuring that medication reconciliation is performed each time they have a health care encounter that involves the administration of medications or a change in their therapy. The practice should counsel patients on how important it is that they and/or their caregivers are aware of all the medications they are receiving.

- Ask that patients bring a list of their medications upon making an appointment. Following the appointment, tell the patient that the list should be maintained.
- Include information on medication reconciliation in any printed brochures about the practice and on any Web sites that the practice may have.

Contact information for any sources that may assist your practice in obtaining medication information about patients should be kept readily available.

Non-prescription Medications

Patients may not readily provide information about non-prescription medications they are receiving unless questioned specifically about such medications and remedies as:

- Over-the-counter medications
- Vitamins and herbals
- Homeopathic medications
- Investigational medications
- Home remedies
- Transdermal medications
- Sample medications

One technique to use when obtaining a current list of medications is to have a scripted list of questions to ask along with prompts for the information that you should obtain with each medication. (See **Attachment 3B, Sample Patient Medication Interview Questions** for sample interview questions.) Reference cards, with prompts for the above information and examples of medications, should be available for practice personnel performing this important function. The use of headers with prompts on written or electonic forms assists the health care professional in remembering what information to obtain and adds consistency to that information.

Below are suggestions for obtaining a current list of medications for patients who come to the practice in different circumstances—new, returning, recently discharged, and with multiple providers. Contact information for any sources that may assist your practice in obtaining medication information about patients should be kept readily available. This list should include area pharmacies that your patients may use and any area emergency departments, rehabilitation centers, nursing homes or assisted living facilities where they may receive care. Standardized forms, fax numbers, and names of specific personnel to contact if questions arise should be part of your practice's procedure and process. Be sure to alert pharmacies that all patients in your practice will be asked to obtain an updated current listing of medications on each encounter at the pharmacy and that you will call if questions arise on medications. (See **Attachment 3C, Sources for Patients' Medication Information** for a template for maintaining a readily available list of resources.)

Situation 1: New patients to the practice

A complete medication history and a current list of medications must be obtained when new patients are admitted to the practice.

- During scheduling, ask patients or their caregivers to bring to their appointment either a list of medications or the actual medications that a patient is receiving. Patients can obtain a list of their medications from the pharmacy they use most often.

Story:

I recently received a referral, in my nephrology practice, for an 82-year-old man with severe edema secondary to poor kidney function. Our new patient intake nurse while gathering a history asked what medications he was currently taking, and the patient produced a list and gave it to her. One of the medications listed was Fosamax 70 mg orally weekly. The nurse asked what day of the week he was taking the medication. He stated he was taking Fosamax daily. She asked him if he knew why he was taking it and he said no. She then asked what pharmacy he went to and called the pharmacy because she was concerned about the large daily dose. Upon speaking with the pharmacist she discovered that the patient was taking Flomax 0.4 mg daily. The patient had been taking Fosamax in the past but it was discontinued due to side effects he was having with his declining renal function. The patient had not received an updated medication list from his primary care physician or pharmacy for several months.

- Contact previous or concurrent providers to request copies of prior medical records and lists of any medications that patients have or are currently receiving.
- If the practice has connectivity to any third-party insurer or pharmacy benefit-plan database, download lists of a new patient's current medications to use as a baseline.
- If a patient was recently an inpatient or cared for in a rehabilitation center, nursing home, or assisted living facility, seek discharge summaries, including listings of current medications.

Situation 2: Repeat patients who have not visited other health care providers or settings

- Since their last visit, repeat patients may have stopped taking medication or begun self-medicating. As with new patients, request that they bring current lists or the actual medications that they are taking. If possible, ask patients obtain a list from the pharmacy they use most often.
- Review the last current medication list with the patient to ensure that it is still correct. Use specific, scripted questions to ask about over-the-counter medications. (For example, ask if patients have taken anything for headaches, indigestion or colds or if they have begun taking any new vitamins, herbal remedies or vitamin supplements.)

Situation 3: Patients recently discharged from an acute care or rehabilitation setting

- Seek a discharge summary that includes a listing of current medications.
- Establish a process by which hospitals, nursing homes, and other facilities in which the practice admits or receives patients will send copies of discharge medications to the practice at the point of discharge. This should also occur whenever the practice has patients who are admitted to these facilities.
- Communicate with area emergency departments to obtain details of medication treatments for patients who recently have been seen in the emergency department.

Situation 4: Patients who have visited other office-based care providers or diagnostic centers

- When scheduling appointments for patients, check medical records for any appointments with specialists or diagnostic testing facilities.
- Contact the consultant or diagnostic center to see if any medications were given or prescribed for the patient.
- Establish a procedure that provides—as part of the consultative report or test results—a section on medications that includes drug, strength, dose, frequency, and route.

Step Two—Reconcile the List

Once a list of medications is compiled, the most difficult part of the process is verifying the list and its important details with the patient, the patient's caregiver, and/or other health care providers to ensure accuracy. Here are some tips to help you:

- When reviewing medication lists with patients, use specific, scripted interview questions. (See **Attachment 3B, Sample Patient Medication Interview Questions**) If the patient has visited a specialist or was recently discharged from a hospital, and you have not received a consultant report or discharge summary, ask the patient specifically if anything new was prescribed or changed in his/her therapy.
- If there is a discrepancy between the list a patient provides and a list from another provider or a previous list your practice has, a Patient Safety Team member should investigate which regimen is correct. First, the patient or the patient's caregiver should be queried. If the patient forgets, seems confused, or does not have the medications available, a call to their pharmacy or the place of their last health care encounter may be necessary.
- When appropriate, ask patients to demonstrate how they are administering their medications to verify the correct dose (for instance, half tablets, insulin dose, or spray inhaler). This confirms that they understand the directions and may uncover possible health literacy concerns.
- Asking another individual or the patient's caregiver to participate, with the patient's permission, in reviewing the list upon registration and again at the end of the visit is a good way to gain more accurate information and obtain buy-in on this process from the patient and those who assist in their care.

Working together, the patient and health care professional can determine if the original reason for talking a medication is still valid.

Step Three—Evaluate the List

Once the current medications list is complete, it is essential to evaluate each medication that a patient is taking. This process is separate from, but no less important than, obtaining a medication history. Working together, the patient and health care professional can determine if the original reason for talking a medication is still valid. This process helps make the list of medications manageable for patients and streamlines the medications a patient may be receiving. A sample algorithm on the medication reconciliation process can be viewed in the **Attachment 3A, Sample Medication Reconciliation Process Algorithm**.

Step Four—Update the List

Many patients do not take acute or chronic medications, so updating the practice file on any changes in their medication history may be all that is necessary. If a short course of therapy for a defined ailment is recommended (such as an antibiotic for infection, steroid cream for rash, etc.) then reconciliation and passing a list to another provider may not be necessary. However, patients should be counseled to tell any health care provider they may encounter during the course of therapy about medications they are taking.

> ### *Did You Know?*
> *Two out of every three patients who visit a doctor leave with at least one prescription for medication, leading to a record volume of nearly 3.4 billion prescriptions dispensed in 2005. This is an increase of nearly 60% since 1995. In fact, 81% of adults in the U.S. take at least one medication during a given week and 27% take at least five.[5] Misuse of medications can interfere with desired treatment and cause harm. In 2000, the annual costs of drug-related illness and death in office-based care settings alone were estimated at more than $177 billion.[6]*

Step Five—Share the List

Once the list is developed, verified, corrected, and updated, it will be useful as a communications tool to be shared with the appropriate people in the patient's care process to help the patient use medications safely. The following recommendations apply to patients returning home, returning to another facility, or scheduling an office visit with a different provider.

Situation 1: Patients returning home

- If any changes have been made, provide patients with an updated list of all medications. The practice should document what is on the list and the date of the encounter. Organize such discharge lists with an explicit notation regarding which drugs are newly added, to be changed (dosage, frequency), or which medications previously taken should now be discontinued.
- On the list, include the practice phone number and a contact person in case questions arise from the patient or another health care provider.
- If a new prescription or over-the-counter medication was ordered, tell the patient and/or the patient's caregiver to share the list with their local pharmacy. This gives the patient's local pharmacy an opportunity to reconcile their profile of the medications.
- Tell the patient to keep the most current medications list in a wallet or purse or to place it in a plastic, see-through casing. Suggest that patients keep the forms in a safe place in their home. A good way to quickly share information with other health care providers is by giving patients additional copies of the medication list and/or keeping an extra copy with their medical records.
- Remind patients to take their list with them whenever they anticipate health care encounters; if the list is kept at their home, other family members should know where it is located in case of an emergency.

Situation 2: Patients returning to a rehabilitation center, long-term care facility, or other health care setting

- Give patients their updated list of medications and ask that they share it with other health care professionals who are caring for them.
- Ask patients if they would like a copy of their list transmitted to the rehabilitation center, nursing home, etc. This enables the practice to be certain the information is passed on and helps establish relationships with providers in other health care settings.

Situation 3: Patients scheduled for a visit to another office-based care provider, diagnostic center, or acute care facility

- Provide patients with an updated list of medications and ask them to share it with other health care providers during scheduled encounters. Tell patients that offering the list will save time and give their next provider a current, complete list of their medications.

- Request that your patients ask their next provider to update the list, noting whether any medications were administered, changed, or prescribed during the encounter. Patients should also request that that information be shared with your practice. To expedite the process, the list should include your practice's phone and fax number or email address.

Step Six—Implement and Improve the Process

Many health care providers may not have a standardized process in place to obtain, verify, and communicate current listings of medications that a patient is receiving. As with the introduction of any new process or change in a current process, the participation of as many Patient Safety Team members as possible in the medication reconciliation process will increase its success rate. Use the recommendations in *Working as a Team* about how to organize your Patient Safety Team to begin a new process or to change an existing process.

A review of your process for obtaining and updating a current list of a patient's medications should be completed. Under the direction of your practice's *Patient Safety Officer* this might be incorporated into the monthly meeting suggested in the module, *Working as a Team*. After completing the **Physician Practice Patient Safety Assessment™ (PPPSA)**, your practice can review your responses to questions that deal with medication reconciliation for a quick understanding of where improvements are needed. The process does not need to be lengthy, but should address each of the implementation questions listed below.

...the participation of as many Patient Safety Team members as possible in the medication reconciliation process will increase its success rate.

Implementation Question 1: Is it a standard process?

Standardization is a key to any successful process. Documenting how the process should be performed so that all physician practice staff—especially part-time staff—are aware of it is a successful tactic. Documenting also helps when orienting new staff and when reviewing the process if it begins to break down.

- Ask several staff members about their process for obtaining and updating a patient's current medication list and communicating it to the patient and other providers. Determine whether everyone is performing the process in a uniform manner.

- Document any new procedure and explain the importance of having everyone follow it as thoroughly as possible.

- In the procedure, include as much scripting as necessary to ensure that everyone can perform the process in a standardized way.

- Pick a template for a patient medication list for internal use, and then improve and update it as a team.

- Once your procedures and lists are agreed upon, maintain the process and review the template periodically to see if any changes are required. This can be an item for quarterly review at the Patient Safety Team meeting.

Implementation Question 2: Is the process performed consistently?

- Once the process is standardized, follow up with staff to make sure it is followed consistently by everyone. This should be done with quick, one-on-one discussions with several staff members over a period of time.

- If deviations from the procedure are encountered, determine whether these are due to common or rare occurrences and either change the process or note the rare exceptions in the procedure. (See **Pitfall 3** later in this section.)

Implementation Question 3: Does someone "own" the process?

Although patient safety is everyone's responsibility, assigning individuals to make sure certain functions are performed will help maintain the reliability of the function for each patient and each encounter. Based on the size and patient flow in the practice, decide who should perform the initial review of a patient's medications, give the updated list to the patient and, when necessary, pass the list along to other health care providers. Do not expect 100% adherence, but if the first attempt at assigning responsibilities does not work, evaluate whether the process should be adjusted or if staff should be re-educated about the process.

- The nurse who is the first to see the patient and to perform vitals may be best to review the medication list with the patient, check the chart for any discrepancies, and reconcile the list.

- The physician, nurse practitioner, or physician assistant who will be attending to the patient may be best to perform the final review, answer any questions, and make sure that the patient has an updated list including anything that may be added or changed.
- The receptionist who will be scheduling the next visit or encounter with another provider may be best to make sure the next provider receives a copy of the updated list.
- For practices that combine many of these functions, the decision on who is responsible will differ.

Implementation Question 4: How is the process communicated externally?

As medication reconciliation is incorporated into processes for more health care organizations, each organization should be aware of the activities of others, especially those with whom they interact frequently. Here are some tactics for making outside providers aware of and involved in your process

- Notify area hospitals, emergency departments, nursing homes, office-based facilities, and pharmacies about your practice's activities in standardizing its medication reconciliation process.
- Expand communication with area providers of care (i.e., organizations, diagnostic centers, consultants, dentists) on ways to improve the exchange of all patient information. (See the list of sources in **Attachment 3C, Information Sources for Patients' Information** which can be used as a model on how to pass information to these sources.).

Step Seven—The Role of Information Technology

Practices that have instituted Electronic Medical Records (EMR) have an opportunity to incorporate a process to obtain a medication history and current listing of medications, communicate it to others, and receive changes in the medication list all via electronic transfer. This should be achievable but, because of shortcomings in available technology, many pieces of this process may be difficult to implement, including a full EMR with electronic prescribing software (e-prescribing) and complete electronic transfer of a patient's entire list of medications. However, this should not inhibit a practice from considering the incorporation of an EMR or e-prescribing software into their practice. Even if incomplete, the ability to capture even a percentage of a patient's medications in an electronic medium will save time and help prevent errors in medication use. Here are some tips for office practices considering an EMR with e-prescribing software, establishing an EMR with e-prescribing software, or upgrading an existing system.

Tip 1: Choose an e-prescribing vendor who provides connectivity with insurers and pharmacies in your area.

Ask each vendor you are considering what insurers (including state Medicare providers and pharmacies) are currently transferring medication information electronically. The number of providers in the vendor's network will limit the amount of medication information you will have on patients. This should not inhibit you from moving forward but must be

considered in processes to make sure you have all the available information on patients' medications.

Tip 2: What prescribing decision support is provided in the software?

Not all e-prescribing vendors will provide complete medication decision support software (e.g., allergy checking, drug-drug interactions, and dosing limits for age and/or drug). Evaluate vendors for their offerings and for how they maintain and update decision support.

Tip 3: Does the system communicate with hospitals and other health care entities?

The capability of transferring and receiving medication information electronically between healthcare entities may not yet be available in your area. Ask vendors whether they have area facilities that use their services or that can be easily connected into your system when electronic transfer is expanded. Ask what pharmacies are connected to their system. Contact those pharmacies to ask about their experiences with the network and the vendor. Ask how prescriptions are transmitted to them, what information is transmitted on prescriptions and what they can communicate back to the practice.

Tip 4: How do the actual print-outs or screen displays look?

Purchasers of electronic software should view how information is presented in printed form and how it appears to others on the screen display. This is particularly important if a goal is to decrease medication errors. Check that the print-out of information for patients is patient-friendly and that the information transferred to pharmacies and other health-care is presented in a format that minimizes the potential for errors. View print-outs and screen displays as they appear to pharmacies and other vendors.

Tip 5: Does the vendor provide specific software to assist in medication reconciliation?

Many technology vendors have incorporated software into their acute-care hospital systems to assist in medication reconciliation. Such software creates a list of a patient's medications drawn from the medication history and admission and discharges orders. The list may include a medication's name, route, frequency, and indication. This software should also be available for physician practices. Ask if the vendor offers a list of current medications that can be interfaced with external information (e.g., from insurers and pharmacies) and can be printed for the patient as well as transmitted to other providers of care. Find out if the software can be easily customized for the practices' needs.

Tools You Can Use

PPPSA respondents reported that they used a manual system using paper documents, fax and telephone requests 64% of the time Paper medical records/ charts were filed in record cabinets 71% of the time. If your practice has yet to begin its implementation journal to electronic medical records, here are a few tools to get you started:

- *EHR Chart the Course*, Massachusetts Medical Society
- *Practice Management Technology*, Massachusetts Medical Society
- *Center for Health Information Technology*, American Academy of Family Physicians
- *Get RX Connected*, MGMA Collaborative Portal
- *A Clinician's Guide to Electronic Prescribing*, eHealth Initiative

Step Eight—Avoid Potential Pitfalls

Even the best planned processes will experience difficulties when starting out. Well-established processes will also need to be reviewed along the way and changed if necessary. Sometimes it is easy to become sidetracked by common pitfalls. The *Patient Safety Officer* might be charged with monitoring and strategizing to minimize such potential pitfalls.

Pitfall 1: Lack of definition of who is in charge

Staff members can sometimes assume that *someone else* is responsible for medication reconciliation. It is important to assign responsibility for each component of the process. All responsible parties can make updates and changes. However, to enhance situational awareness, staff members should be aware of who holds ultimate responsibility at a given time. (Situational awareness is described in Module One, *Working as a Team*.)

Pitfall 2: Lack of differentiation between a complete medication history versus a current medication list

The shorter *medication list* should be updated during every health care encounter a patient has. A complete *medication history* can be included as part of a patient's current medication list, but does not need to be reviewed and updated at each visit unless something new has occurred (i.e., a recent vaccination, a new allergy, or a newly diagnosed disease or

A simple process to handle the majority of patients and providers is better than a complicated process to handle all the outliers.

co-morbidity). [A *medication history* includes such items as age; weight (preferably in pounds and kilograms); height in inches and centimeters; allergies with reactions; prior medication treatments for prior or current conditions (for instance, tuberculosis testing or treatment and vaccinations); and other information that may not necessarily be asked at each primary care or ongoing consultant and specialist office visit.]

Pitfall 3: Not understanding that everything isn't always black or white

Although you will strive to maintain standardization and consistency in your medication reconciliation process, staff members should be aware that deviations from the established process can and do occur.

- A simple process to handle the majority of patients and providers is better than a complicated process to handle all the outliers.
- When it is evident that there is an increase in the number of deviations, then it is time to re-evaluate your standard process and account for the occurrence of deviations. Be flexible and willing to change the process.
- If a procedure works for most of your staff, do not abandon or change it to accommodate one or two non-conformers. Instead, continue with your process and work with the non-conformers to get them on board.

Story:

I was treating a patient with oral methotrexate for arthritis

at a dose of 7.5 mg once a week using three 2.5 mg tablets to make up the dose. She wasn't receiving the desired effect so I told her to increase her dose to six tablets (15 mg) per week. When the patient returned to see me several weeks later I discovered that she had been taking the tablets (2.5 mg) once daily for six days a week instead of taking all six tablets one time a week. The patient found that it was easier for her to remember to take the medication by taking the tablets on this schedule. When I had instructed her to increase the dosage, I never explained the importance of staying on a once a week schedule. I immediately admitted her to the hospital for a work up and unfortunately she had pancytopenia, developed an infection, and died while in the hospital.

Pitfall 4: Lack of patient disclosure of visits with other health care providers

Patients often visit other specialists and do not inform their primary care physician. For patient safety, it is important for staff members to find out if other practitioners have prescribed prescription or non-prescription medications.

- Remind staff to anticipate that patients may be receiving care from other providers. Add an appropriate query to the scripted questions asked of patients when reviewing their current medications. (See **Attachment 3B, Sample Patient Medication Interview Questions** for an example.)
- Thank patients for providing such information and tell them how important it is to have a complete listing of their providers and medications.
- Offer to share any information you obtain with a patient's other providers.

Pitfall 5: Time needed for detail verification

Often, patients are unable to provide detailed information on medications they are receiving. Unless the information is important for a clinical decision or in scheduling a diagnostic test or procedure, inform staff members that additional information can be obtained at a later time. Have a mechanism and responsible party in place to follow up after the visit.

Tools You Can Use

A variety of good Web sites exist to help you provide information on medications for consumers:

- **Safe Medicine**, *Institute for Safe Medication Practices*
- **Tips for Taking Medicines Safely (video)**, *Agency for Healthcare Research and Quality*
- **Talk about Prescriptions**, *National Council on Patient Information and Education*
- **MedlinePlus**, *National Library of Medicine*

Pitfall 6: Lack of confirmation that patients understand all their medications

Never underestimate—or overestimate—patients' understanding and knowledge about medications. "Simple" directions regarding taking medications or watching for side effects can be confusing to those outside the medical field. Such "health literacy" goes beyond just reading comprehension and writing. In the case described above, the patient did not understand that she still had to take her medication once a week. During medication reconciliation, team members should review exactly how patients are taking their medications and use techniques such as "teach back" to check for the patient's understanding of how to administer their medications. (Videos and other information on health literacy can be found in Module One, **Working as a Team**.)

To infuse error awareness and improvement into daily work, establish a "good catch" program that encourages employees to record and share errors that have been avoided and note any hazardous conditions.

Pitfall 7: Failure to Fully Anticipate Time Commitment

All staff members must realize that instituting a process for medication reconciliation will not be an easy undertaking and will need several process changes over time. Doing it right will require extra staff time and time from patients and/or their caregivers during an era when time is at a premium. A complete and accurate listing of patients' medications will involve extra work and documentation from several staff members, including physicians. Although you may think you have "nailed it," problems will be discovered that must be addressed. Even a good e-prescribing system with communication with insurers and pharmacies and with dedicated staff doing their best may not guarantee complete information on patients' medications

Step Nine—Measure and Celebrate Success

Module Two, *Assessing Where You Stand* discussed the importance of assessing where you are and measuring improvement. To evaluate how your practice is achieving its medication reconciliation goals, you can use several simple measures, including:

- A periodic review of charts to see if the information asked for by the prompts (name, dose, frequency, etc.) is recorded for each medication. If several charts lack this information, determine whether the cause is staff not obtaining it or patients' inability to provide it. This can help you pinpoint where process changes are required.
- Review charts for over-the-counter, herbal, and vitamin information. If none are mentioned, check to see if the information was missed by making a notation on the charts to specifically ask patients about these medications the next time they are in the practice.
- Patient follow-up by phone. Call a small number of patients following their recent visits. Ask patients if they obtained an updated list of medications following their visit and review the list in the chart with the patient to determine if it is complete.
- Track the number of patients who bring medications lists with them to their appointments. Use this information to determine whether your practice is consistently providing an updated list to patients in a format that is convenient for them. You can also determine whether more patient education is required on the importance of sharing their list with health care providers.

These are just a few easy metrics to determine if your medication reconciliation process is working and if changes may be needed. Whatever measures you use, make sure they can be gathered without a great deal of time and effort and that the information is useful to help you evaluate your process.

To infuse error awareness and improvement into daily work, establish a "good catch" program that encourages employees to record and share errors that have been avoided and note any hazardous conditions. Any notations can be placed in a box or file for the Patient Safety Officer to review and share with the Patient Safety Team. Huddles can also be used to share safety issues; one team member should be in charge of recording the information for further review and follow up.

Patients can be included in "good catch" programs by being told that the practice espouses safety in their mission and that their feedback is welcome. If patients ever feel that safety is compromised or see what they consider an unsafe practice, they can either inform an employee or use a more anonymous card/suggestion box at the registration desk. Patient feedback should be reviewed by the Patient Safety Officer and discussed as a standing agenda item in the practice's monthly safety meetings.

Practices can take the "good catch" program to the next level by rewarding employees who identify unsafe practices and offer suggestions for improvement. Rewards can take the form of gift cards, movie tickets, or other inexpensive tokens of appreciation. Consider celebrating successes with the entire staff. A celebration could be in the form of a free lunch for all staff, gift cards, or even just a formal announcement of appreciation from the practice administrator.

High Alert Medications

Story:

I recently performed a routine colonoscopy in our outpatient gastroenterology center. Upon completion of the procedure I entered "Resume all meds" in the patient record rather than write out each medication or specifically check if any prior medication should be stopped or restarted since I had several other procedures to perform that morning. The "Resume all meds" order was interpreted by staff to not apply to the warfarin the patient was receiving post hip replacement, since I had discontinued this medication several days prior to the procedure but intended to restart it upon competition of the procedure. As a result, the patient went without warfarin for six days and on the seventh day her INR was 1.3 and she suffered a right hemisphere embolic stroke.

DEFINITIONS

A review of the Adverse Event Reporting System of the US Food and Drug Administration revealed that, from 1998 through 2005, serious adverse drug events increased 2.6 fold and fatal adverse drug events increased 2.7 fold. This was four times faster than the total number of out-patient prescriptions during that period.[7] Not surprisingly, 20% of the identified medications accounted for 87% of the reported events and an even smaller subset of medications accounted for 43.6% of the total adverse event reports in the study. Included in this subset were opiates, warfarin, anticonvulsants, anti-psychotic and

Tools You Can Use

This free article can help generate ideas for your general medication error reduction initiatives:

Jenkins RH, Vaida AJ. **Simple strategies to avoid medication errors**. *Family Practice Management 2007 February; 41-47.*

antidepressant medications, immunomodulator medications, and insulin.[7] These medications—along with low molecular weight heparin, oral methotrexate, and several other high-harm medications—are referred to as **high alert medications**. Medications used for anesthesia and conscious sedation also appear on the Institute for Safe Medication Practices (ISMP) *list of high alert medications*.[8]

High-alert medications bear a heightened risk of causing significant patient harm when they are used in error. Although mistakes may or may not be more common with these medications, the consequences of an error are more devastating to patients.[9] Lists of these medications and categories of medications have been identified and studied in the acute care setting. Many are also used in the physician practice setting. A sample listing of high alert medications that you can use to prepare your own list is in the **Attachment 3D, Sample High Alert Medication List for Physician Practices**.

STRATEGIES FOR SAFEGUARDING HIGH ALERT MEDICATIONS

The processes associated with prescribing, dispensing, and administering medications that have been involved in serious, preventable adverse drug events are a primary target for medication safety improvements. Approaching improvement activities from the perspective of preventing patient harm helps ensure that the efforts will be meaningful and productive and will significantly impact the health, safety, and well-being of patients. Strategies to reduce the risk of errors and the potential for patient harm from high alert medications have been advocated by ISMP, the Institute for Healthcare Improvement, The Joint Commission, National Quality Forum, and other national organizations. For high alert medications, these strategies include:

- improving access to information;
- limiting access to personnel trained and credentialed in their use;
- using auxiliary labeling and electronic alerts;
- standardizing prescribing, storage, preparation, and administration;
- employing redundancies in processing;
- enforcing mandatory monitoring guidelines;

The processes associated with prescribing, dispensing, and administering medications that have been involved in serious, preventable adverse drug events are a primary target for medication safety improvements.

- educating patients with training techniques such as "teach back" or "repeat back";
- reading back phone and other verbal orders;
- prescribing by generic name;
- using electronic prescribing with safety alert software; and
- learning, reporting, and sharing error information associated with the use or prescribing of these medications.

These strategies can be incorporated as team goals into the planning process or drive project assignments supporting the launch of your practice's medication safety initiatives.

IMPLEMENT SAFEGUARDS AND IMPROVE THE PROCESS—STEPS TO SUCCESS

Step One—Construct a List of High Alert Medications

Review the medications contained in *ISMP's list of high alert medications* and the studies presented previously to construct a list for your practice. Your list should include medications that are stored and administered in the practice as well as medications that are frequently prescribed. Include medications in categories such as:

- opiates
- hypoglycemics
- anticoagulants
- oncology agents
- anticonvulsants

Your practice should also identify specific medications and add other categories of medications with which you may have had experiences of patient harm and medications that have been reported in the literature. All staff should review the list and offer comments on the medications included as well as participate in establishing safeguards. A sample list to get you started is included as the **Attachment 3F, Pathways High Alert Medication Charts**.

Step Two—Incorporate Safeguards

Once a list is established, begin putting safeguards in place to prevent patient harm when these medications are administered or prescribed. One immediate safeguard might be that these medications are not stored or administered in the practice unless it is absolutely necessary for your type of practice and the patients you treat.

An easy way to begin the process of establishing safeguards is to create a chart listing safeguards and specific strategies for each category or specific medication. (Sample charts are provided in the **Attachment 3F**.) Your practice may want to list—in a single chart—all of the medications or categories that you identified and the safeguards that you will use.

Additional safeguards to consider when prescribing any high alert medications are described below.

Safeguard 1: Prescribe clearly and include all patient information

When prescribing *any* medications, especially those identified as high alert, complete and clear information should be included. Handwritten prescriptions must be written clearly. Full directions and the indication must always be included. "As directed" should never be a proxy for specific directions. Discuss with patients the exact times of administration including, when appropriate, exact time and day of the week. Monitoring parameters should also be clearly written out for the patient and provided to the pharmacy for their patient profile. If your practice uses electronic software to relay prescriptions, make sure the vendor has significant alerts and reminders in the software (e.g., interactions, allergy checking, and laboratory parameters to order or check). Finally, any prescriptions or orders for administering medications in the practice that are given verbally should first be written or electronically documented and then be read back to the prescriber.

Safeguard 2: Use only the metric system and proper measuring devices

Eliminate non-metric measures when prescribing medications. For liquid medications, the practice should consider providing oral syringes or other safe measuring devices to the patient. If the devices aren't provided, patients should be instructed to obtain a correct device from their pharmacy. Practices should also ask patients and/or caregivers to "show how" they would measure the dose of the medication. Parenteral syringes should never be used by patients for oral medication because of the risk of asphyxiation if the tip of the syringe is not removed before drawing up and administering the medication. The FDA/ISMP video clip noted in the "Tools You Can Use" box highlights this serious occurrence.

Tools You Can Use

- *Dosing Oral Liquids, FDA* **video** *and* **transcript**.
  This FDA video and transcript illustrates the types of tools available from the FDA/ISMP news service. This service will provide your staff with examples of how medication errors can happen and recommendations to minimize their impact.
- **ConsumerMedSafety.org**, ISMP

Story:

I recently received a call from a hospice nurse about one of

my patients who was found severely sedated and nearly comatose in her home. Upon further investigation by the nurse it was discovered that the patient had been taking a five fold overdose of a high potency oral solution of morphine sulfate. I had written the prescription with a dosage of one and ½ mL (30 mg of a 20 mg/mL solution) every four hours as needed. The pharmacy label stated the correct dose but, unfortunately. the patient was using a spoon to deliver the dose and mistakenly was taking one and ½ teaspoonfuls of the medication, which equaled approximately 150 mg per dose.

Safeguard 3: Know how to use the measuring and monitoring devices prescribed

To effectively teach patients the proper use of devices and monitoring equipment (including measuring devices for liquid medications, oral and nasal inhalers, insulin pen devices, and glucose monitoring equipment) your team members must be familiar with these devices. Obtain sample devices from the manufacturer, then make sure that several team members are proficient in their use and are available for patient education whenever the device is first dispensed or prescribed. Contact nearby pharmacies to ensure that the devices you prescribe or recommend are available and that the pharmacy also has devices for teaching purposes. State on written or electronic prescriptions that patients must demonstrate their proficiency in using the device to someone at the pharmacy before the device is dispensed.

Safeguard 4: Communicate the potential dangers in pill splitting

In order to save on medication costs, splitting tablets to obtain the prescribed dose has become more common. This is an especially common practice with antihypertensive, cholesterol-lowering medications, and even warfarin. The concern is that many patients may not be able to properly split the dose or may forget and instead take a whole tablet resulting in twice their recommended dose. If this practice is recommended for some patients, then patients should be provided a device to properly split the tablet and be observed to ensure that they can split a tablet correctly.

Safeguard 5: Monitor patients effectively

All patients receiving high alert drugs should have their therapy properly monitored and documented in their charts. Certain monitoring parameters must always be checked with the patient on each visit; a reminder system for needed laboratory tests and when results are expected should be initiated; and the monitoring that the patient may be doing at home should also be reviewed and documented. Monitoring is also important for a practice's patients who are residing in nursing homes. A recent study of nursing facility residents found that errors resulting in preventable events occurred most often at the prescribing and monitoring stages of warfarin management.[10]

Safeguard 6: Secure medication storage

Although the storage of any high alert medications in the practice site is discouraged, there may be instances when, because of the scope of services provided in the practice, sedatives or other high alert medications must be stored on-site. Secured storage, with limited access to only those personnel who are trained to use them, should be included in the safeguards for these medications. A log of the medications, including the drug, amount, when used and on whom, etc. should be maintained. If your practice stores and administers vaccines, especially for different patient age groups, ensure that they are segregated by type and age group, and that formal logs note information such as the drug, date received, lot number, expiration date, and the administration information.

Step Three—Avoid Potential Pitfalls

Ensuring that process changes in your practice will be implemented requires an awareness of potential barriers that may inhibit such changes.

Pitfall 1: Identifying too many medications for specific safeguard policies

Be judicious when choosing the medications identified as high alert and the number of extra safeguards (i.e., limiting access or performing an independent double check of dosing calculations) placed around them.

Pitfall 2: Lack of specificity when describing safeguards

When developing safeguards for certain medications, be specific about what actions/procedures you expect the staff to perform. If the procedure is difficult to measure, then it is probably too vague. *"Monitor INRs for warfarin,"* for example, is vague, and its effect on care is hard to measure. *"Obtain a baseline INR, one after two weeks of therapy, then every month for three months, and then every three to six months unless a change in therapy or complication is reported,"* is specific and compliance can be easily be checked.

During medication reconciliation, if team members find that a physician outside your practice has prescribed a high alert medication to a patient, you should act to ensure that your practice's established guidelines are followed.

Pitfall 3: Expectation that all other providers are on board

Other health care providers may not have the same safeguards for high alert medications that you have instituted. During medication reconciliation, if team members find that a physician outside your practice has prescribed a high alert medication to a patient, you should act to ensure that your practice's established guidelines are followed. Accomplishing this may entail direct communication with the other provider, an action that creates an opportunity to share the safeguards your team has developed with a wider audience.

Pitfall 4: Inadequate information sharing

Valuable information about the effectiveness of your processes for high alert medications can be obtained by seeking out and sharing information about errors that are caught before they reach a patient. The internal errors identified by your Patient Safety Team are a good starting point. Those outside your practice—local pharmacists, hospitals, nursing homes, and frequently used consultants—can be an important source of information

for improving internal polices. Take the time to periodically inquire about any errors and miscommunications originating in your practice that they may have observed.

Pitfall 5: Lack of clear instructions for patients

Although health literacy is always important, heightened awareness of this issue is especially necessary for high alert medications. Whatever process you develop to help you identify and manage low health literacy among your patients should be added to your safeguard list under patient education.

Step Four—Maintain and Update Safeguards

Once your practice has established a list of high alert medications and has implemented safeguards for the storage, administration, or prescribing of these drugs, members of your Patient Safety Team should periodically:

- review and update the high alert medications list;
- compare and share lessons learned and experiences with colleagues in other practices; and
- measure to ensure safety processes are being followed.

Your high alert drug list and safety processes should also be updated in response to:

- internal error or hazardous situation reporting;
- external information from the literature; and
- alerts received from the Food and Drug Administration, ISMP, risk insurers, and drug manufacturers.

Tools You Can Use

A variety of tools can help your practice stay informed of problems with medications and review their processes to improve them:

- *Medication Process Improvement Observational Tool Attachment*
- *FDA Alerts*
- *FDA Patient Safety News*
- *ISMP Acute Care Newsletter*

When deciding on ways to measure success with safeguarding the use of medications, especially high alert medications, consider the following measures:

Measure 1: Observational review of processes

Develop a table that can be used to perform periodic review of the processes put in place to safeguard high alert medications. A sample table is included in **Attachment 3E, Pathways Medication Process Improvement Observation Tool**. Review several patient charts and/or observe current practices against this table. If deviations are discovered, the entire Patient Safety Team should meet to:

- re-evaluate and, if necessary, refine the process;
- re-educate personnel on the process; and
- use a specific checklist (such as the table discussed above) to help with compliance.

Measure 2: Monthly review of internally reported variances

The electronic or manual program used by the practice to report internal errors should be reviewed by a designated member of the Patient Safety Team on an ongoing basis. When necessary, further information should be gathered—in an open and non-threatening manner—on occurrences or hazardous conditions. These internal reports as well as any patient complaints, suggestions from satisfaction surveys, or communication from pharmacies on interventions performed due to prescribing errors should be reviewed by the entire team to:

- discuss why the existing process wasn't followed,
- refine a process, or
- institute a new process.

Tools You Can Use

There are a variety of free services you can use to communicate problems with high alert medication and their safe use. See the set below for an example.

- *FDA advisory*
- *Patient Information Sheet*
- *ISMP newsletter story*
- *FDA News video segment*

Measure 3: Review of external reports and alerts

The practice should have an established review of external information on medication errors reported in the literature, ISMP publications, FDA alerts, letters to physicians from drug manufacturers, alerts from insurers, and other sources of information. Consider designating one person to review each of these ongoing resources or divide up the list with different team members each responsible for one source. Your team should funnel any new information collected to a designated Patient Safety Team member and/or report on it at team meetings when variances are discussed. A procedure—such as a staff bulletin board, memos in staff mailboxes, or daily huddles as described in *Working as a Team* should be established to disseminate critical and/or time-sensitive information. An insert in this section provides tools to educate your team on this issue and illustrates the resources available via the FDA to combat medication errors.

Summary of Key Points

This module described the importance of medication reconciliation and building awareness of high alert medications. You learned how each member of the physician practice staff can contribute to the success of safeguarding their patients from ADEs through the use of **medication reconciliation**. Using the information and tools in this module, staff members will be able to work together to define and analyze the current process, suggest improvements, and measure success over time.

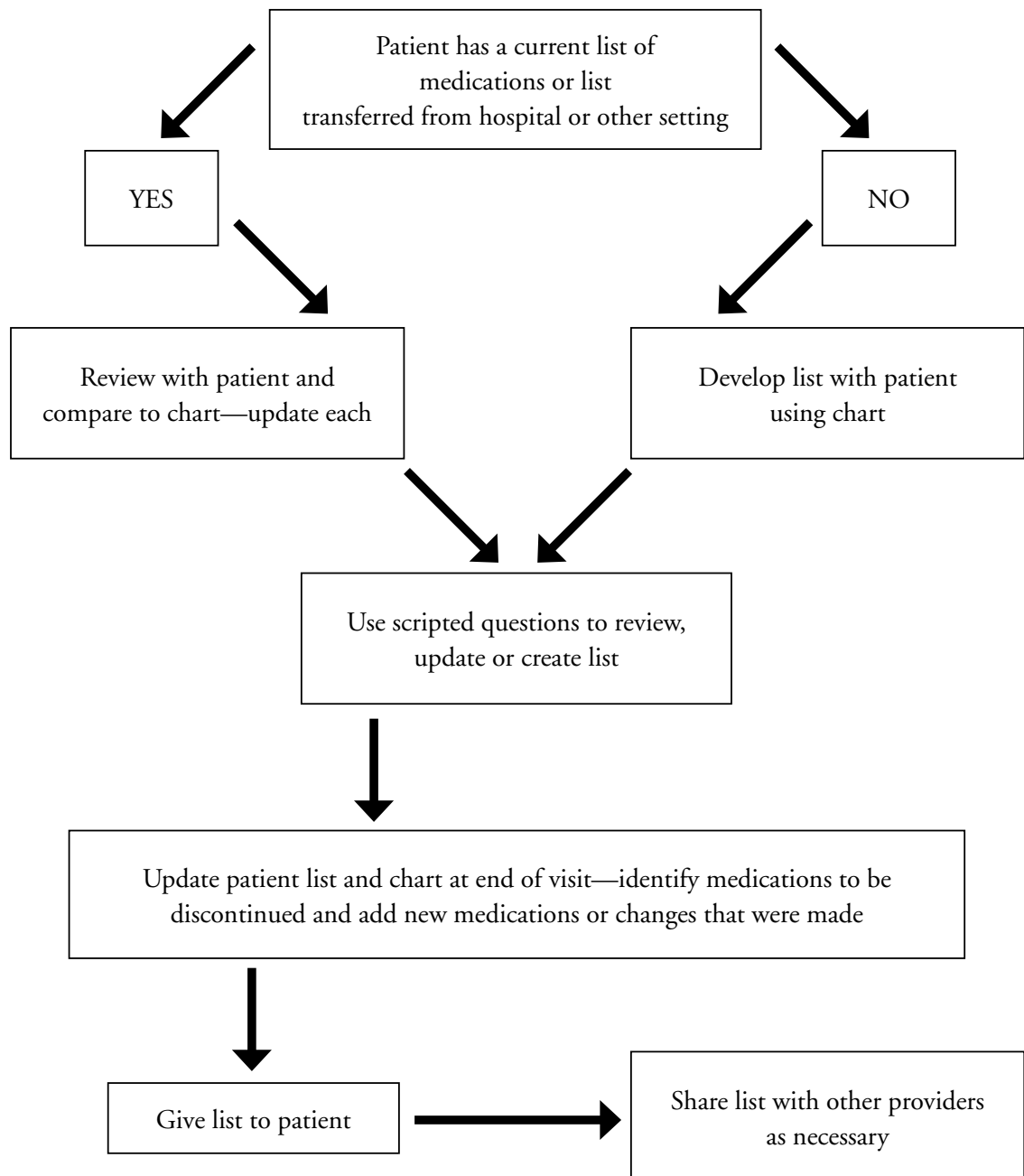**Module Three** also explained the importance of designating **high alert medications** and knowing why it is essential to build staff awareness of how such medications are used in your practice. The information and tools in this module should enable your staff to use proven strategies to prevent harm from these drugs and to employ collectively designed safeguards when prescribing or administering them.

Attachments

3A. Sample Medication Reconciliation Process Algorithm

An important first step in the medication reconciliation process is evaluating all the medications on the patient's list to ensure that they are needed and appropriate. This process makes the list of medications more manageable for the patient and streamlines the medications a patient may be receiving. The illustration below can help your staff visualize the process they might take to build this step into their daily interactions with patients.

```
        ┌────────────────────────────────┐
        │  Patient has a current list of │
        │       medications or list      │
        │ transferred from hospital or   │
        │         other setting          │
        └────────────────────────────────┘
     ↙                                      ↘
 ┌───────┐                              ┌───────┐
 │  YES  │                              │  NO   │
 └───────┘                              └───────┘
      ↘                                  ↙
┌──────────────────────┐      ┌──────────────────────┐
│ Review with patient  │      │ Develop list with    │
│ and compare to       │      │ patient using chart  │
│ chart—update each    │      │                      │
└──────────────────────┘      └──────────────────────┘
          ↘                      ↙
        ┌────────────────────────────┐
        │ Use scripted questions to  │
        │ review, update or create   │
        │ list                       │
        └────────────────────────────┘
                    ↓
┌──────────────────────────────────────────────────────┐
│ Update patient list and chart at end of visit—identify│
│ medications to be discontinued and add new            │
│ medications or changes that were made                 │
└──────────────────────────────────────────────────────┘
          ↓
┌───────────────────┐        ┌──────────────────────────┐
│ Give list to      │──────▶ │ Share list with other    │
│ patient           │        │ providers as necessary   │
└───────────────────┘        └──────────────────────────┘
```

3B. Sample Patient Medication Interview Questions

Patients may not readily provide information on all prescription and non-prescription medications they are receiving unless questioned specifically about certain products. One technique to use when obtaining a current list of medications is to have a scripted list of questions to ask along with prompts for the information that you should obtain with each medication. The tool below provides a sample sheet that may be useful to your staff.

1. What medications are you currently taking that have been prescribed by one of your doctors?

2. Are you taking a new medication that has been prescribed to you or has a medication been changed by a provider from outside this office? (Note: A trigger for this question would be if a patient has recently been to a referral, hospital, or rehab center.)

3. Have you included any patches you may be wearing, inhalers you may use, birth control pills, injections you may take or receive, or any sample medications that were provided to you?

4. What over-the counter medications are you currently taking or take when you may need them? (Note: Staff should ask the following questions and name specific medications in each category.)
   • Do you use any creams or ointments for itching, dry skin, irritation? (hydrocortisone, Benadryl®)
   • Do you take any medications for headache, arthritis, indigestion, constipation…? (acetaminophen, ibuprofen)
   • Do you take any vitamins, herbal medications, supplements (calcium, iron)?

5. Where do you get your prescription medications? [Local pharmacy, mail order, internet…]

3C.   SOURCES FOR PATIENTS' MEDICATION INFORMATION

While working to reconcile a record of all your patient's medications, it is important to have a resource containing the contact information for the organizations, providers and other individuals who may be able to clarify or confirm medication-related questions the practice may have regarding a patient. The handy chart on the following page illustrates a sample tool that your practice may adapt for this purpose.

Sources for Information on Patients' Medications
That Should Be Available in the Practice

- Phone and fax numbers and contact names for local
  - pharmacies
  - hospitals
  - nursing homes
  - rehabilitation centers
- A caregiver for each patient with contact information listed in the chart
- Contact information for local major insurers the practice deals with

Sources	Location	Phone	Fax	Contact
PHARMACIES				
Walgreens				
CVS				
Medicine Shop				
HOSPITALS				
Regional Medical Center				
St. Joseph's				
Memorial				
NURSING HOMES				
Britiany Point				
St. Luke's				
Green Acres				
REHAB CENTERS				
Rehab Station				
INSURERS				
Aetna				
Blue Cross				

3D.   Sample High Alert Medication List for Physician Practices

Review the medications contained in ISMP's list of high alert medications and the literature to construct a list for your practice. The practice should identify specific medications and add other categories for medications with which they have had experiences of patient harm or that are reported in the literature, alerts, and the Health Care Notification Network (at www.hcnn.net). All staff should review the list and offer comments on the medications included as well as participate in establishing safeguards. The sample set of medications below can serve as a conversation starter for your team as they begin to explore this process and craft a list specific to your practice needs.

Specific Medications
- Chloral hydrate – for sedation
- Fentanyl – transdermal, bucal
- Insulin
- Methotrexate oral, non-oncologic use
- Warfarin

Classes/Categories of Medications
- Anticonvulsants
- Antipsychotics
- Cardiovascular agents
- Chemotherapeutic drugs, oral and injections (CeeNU, cyclophosphomide)
- Hypoglycemics, oral
- Immunomodulator agents
- Local anesthetics (lidocaine, benzocaine sprays)
- Low molecular weight heparins
- Narcotics and opiates (oxycodone products, morphine products)
- Sedating agents, injections for conscious sedation (midazolam, lorazepam)
- Steroid injections, long acting

3E. Pathways Medication Process Improvement Observation Tool

The example on the following pages can be used by your team to review the processes in place to safeguard high alert medications and to review several charts and/or observe current practice among staff when handling these medications. Each section of this table can be checked as compliant or non-compliant with the processes that are in place. If deviations are discovered or observed, a review with the entire staff is conducted to re-educate them on the process, develop a checklist to help with compliance, or refine the process. These tools can be used to provide content for the regularly scheduled Patient Safety Meetings that are a part of improved team communication advocated in **Module One**.

Medication	Storage	Access	Administration Verification Check Required	Prescribing or Refill Check Required
Fentanyl Patches	Not stored in practice	Not available	Not administered	Patients must be opioid tolerant – follow procedures as described in policy #
Warfarin	Not stored in practice	Not available	Not administered	Check recent INR – physician approval for refills
Steroid Injections	Secured in orthopedic exam room only – separate marked storage containers for short and long acting. Only single does products are used.	Nurse or physician	By physician only – nurse verifies dose and syringe contents with physician before administration. Syringe is labeled if not immediately administered.	Only administered onsite with verification check of last dose and product given.

Medication	Storage	Access	Administration Verification Check Required	Prescribing or Refill Check Required
Vaccines	All different vaccines are separated and are differentiated (highlighting, additional sticker [i.e. pediatric only]. Unit dose syringes used whenever available. Multi-dose products are date with expiration date.	Nurse or physician	Upon order two personnel (nurses, physicians) verify correct dose and product. Syringes are labeled if not immediately administered.	Verify medical record for previous administration and/or timing of a series of vaccinations. Log immediately after administration. Notify CDC and ISMP if errors in administration.
Local Anesthetics	Secured in procedure exam room – separate marked storage area for different agents. Single use products use whenever available. Multi-dose products are dated with expiration date (no longer than 28 days)	Nurse or physician	Physician only. Syringes are labeled if not immediately injected when withdrawn. Physician verifies the medication with nurse.	N/A

3F.   Pathways High Alert Medication Charts

These charts illustrate two examples of how to begin the process of establishing safeguards for high alert medications that are often used in your practice. Sample 1 organizes the medications by category or specific medication and lists safeguards and specific strategies. In Sample 2, a chart combines in one place all the medications or categories your staff has identified and the safeguards they will use.

Sample 1: Anticoagulant Chart	
Standardize	- all warfarin and low molecular weight heparin (LMWH) orders will be prescribed by generic name - all instructions for administration will be written out and not abbreviated (i.e.,daily not QD, Monday – Wednesday - Friday not 3 x week or MWF)
Redundancies	- all orders for LMWH will include a verification of renal function - all orders for warfarin will include a verification of a recent INR
Patient Education	- all patients prescribed LMWH or warfarin will receive written information and be asked to repeat back instructions, laboratory appointments, and adverse effects
Checklist	- all patients prescribed warfarin will receive a checklist on important food interactions, side effects, and laboratory appointments

Sample 2: Combination Chart

Fentanyl patches	- patients must be opiate tolerant and started at a dose of not higher than 25 mcg - patients must be instructed to keep a diary of when they apply the patch and when it is removed - instructions explaining proper disposal of patches must be provided to the patient and/or caregiver
Methotrexate for rheumatoid arthritis	- prescriptions will ordered for dosepacks unless the patients insurance will not over it or the patient doesn't have insurance coverage - methotrexate will never be abbreviated (i.e., MTX) - patients will be asked when is most convenient for them to take the drug and that information will be contained on the prescription (i.e., Monday not once a week)
Insulin	- insulin pen devices will be prescribed unless a patient has a specific reason for not using a pen device - patients will be asked to show how they prepare their dose and monitor their glucose level - patients will be provided with a chart to keep track of their dose and glucose level

Additional Resources

Section One - Medication Reconciliation

Tool:
Leonhardt, K., D. Bonin, and P. Pagel. 2007. "How to Create an Accurate Medication List in the Outpatient
Setting through a Patient-Centered Approach." *Aurora Health Care* (Walworth County, Wisconsin). This AHRQ-funded toolkit shares a variety of tools for engaging patients in creating a medication list. *http://patientsafety.org/page/109587/* It includes a sample letter (pdf) to send to patients as a reminder to bring in for their appointments their list of medications and invite them to be partners in their safe medication use.

Article:
Varkey, P., J. Cunningham, and D. S. Bisping. 2007. "Improving Medication Reconciliation in the Outpatient Setting." *Joint Commission Journal on Quality and Patient Safety* 33: 286-292.

Article:
Nassaralla, C.L., J. M. Naessens, R. Chaudhry, M. A. Hansen, and S. M. Scheitel. 2007. " Implementation of a Medication Reconciliation Process in an Ambulatory Internal Medicine Clinic. *Quality and Safety in Health Care* 16: 90-94.
Available at: *http://qshc.bmj.com/cgi/reprint/16/2/90*

Tool:
Northwestern University. "Medications at Transitions and Clinical Handoffs (MATCH) Initiative." *http://www.medrec.nmh.org/nmh/medrec/index.htm*

Tool:
Patient Safety Authority. "Verbal Orders Tookit." *http://www.psa.state.pa.us/psa/cwp/view.asp?a=1293&q=446890*

Section Two - High Alert Medications

Poster:
California Department of Health. "poster for vaccines."
[hyperlink to hosted PDF]

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References

1. Kohn, L., and M. Donaldson, eds. 2000. *To Err Is Human: Building a Safer Health System*. Washington, DC: Committee on Quality of Health Care in America, Institute of Medicine. National Academy Press.

2. Aspden, P., J. Wolcott, J. L. Bootman, and L. R. Cronenwett, eds. 2007. P*reventing Medication Errors: Quality Chasm Series*. Washington, DC: The National Academies Press.

3. Thomsen, L.A., A. G. Winterstein, B. Sondergaard, et al. 2007. "Systematic Review of the Incidence and Characteristics of Preventable Adverse Drug Events in Office-Based Care." *Annals of Pharmacotherapy* 41:1411-1426.

4. Medical Group Management Association Center for Research, Health Research and Educational Trust, Institute for Safe Medication Practices. 2005. "The Physician Practice Patient Safety Assessment." Available at ***www.physiciansafetytool.org***

5. D. W. Kaufman, J. P. Kelly, L. Rosenberg, and A. A. Mitchell. 200. "Recent Patterns of Medication Use in the Office-Based Adult Population of the United States: The Slone Survey." *Journal of the American Medical Association* 287:337-344.

6. Ernst, F. R., and A. J. Grizzle. 2001. "Drug-Related Morbidity and Mortality: Updating the Cost of Illness Model." *Journal of the American Pharmaceutical Association* 41:192-199.

7. Moore, T.J., M. R. Cohen, and C. D. Furberg. 2007. "Serious Adverse Drug Events Reported to the Food and Drug Administration, 1998-2005." Archives of Internal Medicine 167:1752-1759.

8. Institute for Safe Medication Practices. 2007. "ISMP's List of High-Alert Medications." ***http://www.ismp.org/Tools/highalertmedications.pdf***

9. Cohen, M.R., ed. 2006. *Medication Errors*. 2nd ed. Washington, DC: American Pharmaceutical Association.

10. Gurwitz, J.H., T. S. Field, M. J. Radford, et al. 2007. "The Safety of Warfarin Therapy in the Nursing Home Setting." *American Journal of Medicine* 120:539-544.

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About ISMP

The Institute for Safe Medication Practices is a nonprofit organization recognized worldwide as the premier education resource for understanding and preventing medication errors. ISMP represents more than 30 years of experience in helping keep patients safe, and continues to lead efforts to improve the medication use process. Working with health care practitioners and institutions, regulatory and accrediting agencies, consumers, professional organizations, the pharmaceutical industry, and others, ISMP also provides timely, accurate medication safety information to the healthcare community, policy makers, and the general public. For more information on ISMP, or to read more about its other self-assessment tools for hospitals and community pharmacies, visit the Institute's web site at www.ismp.org.

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