Reconciling Medications
Safe Practice Recommendations

Reconciling medications is a three-step process entailing 1) creating the most complete and accurate list possible of all pre-admission medications for each patient, 2) using that list when writing medication orders, and 3) comparing the list against the physician's admission, transfer, and/or discharge orders, identifying and bringing any discrepancies to the attention of the physician and, if appropriate, making changes to the orders. Any resulting changes in orders are documented. The process is designed to promote communication and teamwork in order to prevent medication errors associated with patient handoffs.

The following Safe Practice Recommendations for reconciling medications were developed as part of a patient safety initiative jointly sponsored by the Massachusetts Coalition for the Prevention of Medical Errors and the Massachusetts Hospital Association, and funded by a cooperative agreement between the Massachusetts Department of Public Health and the Agency for Healthcare Research and Quality. A multi-disciplinary Consensus Group including representation from physicians, nursing, pharmacy, and quality departments from a cross-section of hospitals across the state identified an initial set of recommendations and accompanying implementation strategies, which were released in December 2002. These recommendations were then refined based on the experience of hospital teams participating in the Coalition's Reconciling Medications Collaborative over the next two years.

Core recommendation: Adopt a systematic approach to reconciling medications, starting with reconciling at admission

Collect complete and accurate pre-admission medication lists

1. Collect a complete list of current medications (including dose and frequency) for each patient on admission
2. Validate the pre-admission medication list with the patient (whenever possible)
3. Assign primary responsibility for collecting the pre-admission list to someone with sufficient expertise, within a context of shared accountability (the ordering prescriber, nurse, and pharmacist must work together to achieve accuracy)

Write accurate admission orders

4. Use the pre-admission medication list when writing orders
5. Place the reconciling form (see Recommendation #8) in a consistent, highly visible location within the patient chart (easily accessible by clinicians writing orders)

Reconcile all variances

6. Assign responsibility for identifying and reconciling variances between the pre-admission medication list and new orders to someone with sufficient expertise
7. Reconcile patient medications within specified time frames

Provide continuing support and maintenance

8. Adopt a standardized form to use for collecting the pre-admission medication list and reconciling the variances (includes both electronic and paper-based forms)
9. Develop clear policies and procedures for each step in the reconciling process
10. Provide access to drug information and pharmacist advice at each step in the reconciling process
11. Improve access to complete medication lists at admission
12. Provide orientation and ongoing education on procedures for reconciling medications to all healthcare providers
13. Provide feedback and ongoing monitoring (within context of non-punitive learning from mistakes/near misses)

*While the Safe Practice Recommendations provided here were developed focusing particularly on reconciling medications at admission, the same vigilance must occur at all critical transitions. The reconciling practices also offer significant safety benefits at patient hand-offs on transfer between services and at discharge.

Reconciling Medications at Admission
Practices for Promoting Medication Safety

Practices	*Strategies, Implementation Context*
COLLECT COMPLETE AND ACCURATE PRE-ADMISSION MEDICATION LISTS	
1. Collect a complete list of current medications (including dose and frequency along with other key information) for each patient on admission List should be as complete and accurate as possible	– Include all current prescription medications, OTCs, and herbals – For each medication include at least: • dose (including dosage form and concentration when relevant) • frequency • time of last dose Other important information: • route (not always required for <u>home</u> med list) • purpose/indication • compliance with prescribed doses and frequency • source of the information – Pursue multiple sources as necessary (patient, family, pill bottles, PCP, specialists, retail pharmacy, outpatient clinic, etc.)
2. Validate the pre-admission medication list with the patient (whenever possible)	– Employ effective interviewing strategies including use of open-ended questions, linking medications to conditions and physicians, and checklists for OTCs/herbals and commonly missed medications (inhalers, eye drops, contraceptives, patches, PRNs, etc) – Especially important to validate any electronically-generated lists – Having patient actually *read* over the compiled list helps ensure completeness – Include patients at your team planning meetings to help develop strategies
3. Assign primary responsibility for collecting the pre-admission list to someone with sufficient expertise, within a context of shared accountability Employ crew resource management strategies for sharing accountability: **ordering MD ultimately responsible** but RN, pharmacists, MD consults all provide input, work together to achieve accuracy	– Generally the nurse at admission (admission nurse if there is one, floor nurse, triaging RN for ED admissions) – Active MD engagement in validating the pre-admission list, especially doses and complex medication regimens must be important part of the strategy – Strong evidence supports expertise of pharmacists/pharm techs in collecting accurate histories – Require pharmacist involvement for special situations (e.g. on high-risk meds, >10 meds, elderly, renal patients...) – Utilize pre-admission testing process – Ensure accountability: verifier initials or other indication of who the historian was

Practices	*Strategies, Implementation Context*
WRITE ACCURATE ADMISSION ORDERS	
4. Use the pre-admission medication list when writing orders	– Key patient safety tenet: avoid reliance on memory – MD use of list prevents unreconciled medications, prevents inadvertent omission of any pre-admission medications, and also supports recognition of potential drug-drug interactions
5. Place the reconciling form in a consistent, highly visible location within the patient chart (easily accessible by clinicians writing orders) (see Recommendation #8 for details about the reconciling form itself)	– Identify most common place ordering prescribers reference (e.g. first page of MD progress notes, first sheet in chart, stapled on top of chart) – Use special color (hospitals report strong recognition of "that yellow form")
RECONCILE ALL VARIANCES	
6. Assign responsibility for identifying and reconciling variances between the pre-admission medication list and new orders to someone with sufficient expertise Requires comparing admission orders to the pre-admission medication list, identifying discrepancies, and reconciling variances As for recommendation #3, this must be done within a context of shared accountability (the ordering prescriber, nurse, and pharmacist work together to achieve accuracy)	– Either nursing or pharmacy can successfully take the lead role in initiating the identification of variances – Develop clear procedures for contacting ordering prescriber: when to stat page MD, when to escalate to on-call if ordering prescriber does not respond – Document how variances were reconciled in the orders – Support crew resource management concepts, including communication against the authority gradient – Explore opportunities to involve case managers especially for reconciling at discharge Hospitals using their reconciling form as an order sheet still need to follow through on the verification step: were all pre-admit meds ordered unless specifically discontinued or held?
7. Reconcile patient medications within specified time frames **Within 24 hours of admission; shorter time frames for high-risk drugs, potentially serious dosage variances, and/or upcoming administration times**	Guidelines based on time of admission and medication risk have included: – before next therapeutically prescribed dose – before morning rounds – no after-hours calls for OTCs, non-critical – reconcile a specified set of high-risk medications w/in 4 hours of admission, others within 24 hours (example list of high-risk meds provided on Coalition WEB site)

<table>
<tr><th>Practices</th><th>Strategies, Implementation Context</th></tr>
<tr><td colspan="2">PROVIDE CONTINUING SUPPORT & MAINTENANCE</td></tr>
<tr><td>8. Adopt a standardized form to use for collecting the pre-admission medication list and reconciling the variances*

Form includes <u>two sections</u> for entering information on each medication:

A) Columns for <u>info on each pre-admission medication:</u>
• dose
• frequency
• time of last dose
• other information (route, purpose, compliance)

B) Columns to capture <u>reconciling status</u>:
• Admit order matches pre-admission med exactly?
• If no, MD contacted?
• Variance resolved?

*Includes both electronic and paper-based forms</td><td>Copies of sample forms being used successfully by organizations implementing reconciling are provided on the Coalition WEB site

Other items on hospital forms include:
– patient identification
– allergies
– patient’s pharmacy contact
– other patient information (weight, liver/kidney failure, pregnant/breast feeding, etc)
– checklists for capturing OTC, herbals
– coding for indicating disposition of each pre-admission med in hospital (Continue, Hold, Discontinue, Change)
– source of med list (checklists for indicating if from patient/family, PCP, pharmacy, bottles, etc)
– historian signature or space for verifier initials
– physician signature line
– space for indicating patient verification of list
– phone list for local pharmacies
– list of unacceptable abbreviations</td></tr>
<tr><td>9. Develop clear policies and procedures for each step in the reconciling process

Copies of <u>sample policies and procedures</u> are provided on the Coalition WEB site.</td><td>Policies should be developed covering procedures for:
– Generating patient’s pre-admission medication list
– Comparing that list to physician orders
– Specifying when to call/stat page physician to review discrepancies
– Back-up procedures for special situations: unavailability of ordering physician, evening/weekend admissions
– Process for nurses to pass off non-reconciled meds at shift change for follow-up by next shift
– Identify high-risk situations requiring pharmacist involvement (e.g. on high-risk meds, >5 meds, elderly)
– Identify high-risk situations for involving specialist consults, case managers
– Prohibit blanket orders such as “continue home meds”, “resume all meds”</td></tr>
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Practices	Strategies, Implementation Context
10. Provide access to drug information and pharmacist advice at each step in the reconciling process *Evidence-based: good data supporting benefits*	– Offer failsafe backup plan to ensure pharmacist expertise is available 24/7 (pharmacist hotline, satellite pharmacy agreements, etc.) – Specify conditions when consult should be required (anticonvulsants, >10 meds, patient not able to provide lists, abnormal doses reported) – Provide access to drug information, available to clinicians at the time when it is needed; address access to computer terminals, access to up-to-date resources covering new drugs, infrequently used drugs, non-formulary drugs, etc.
11. Improve access to complete medication lists at admission *Recognize as a long-term strategy but stabilize your reconciling process first*	– Pharmacy-to-pharmacy fax transmission of medication regimen at time of admission to hospital whenever possible – Amend all pre-admission patient materials to include bringing in a home med list (along with their insurance card) – Special initiatives for scheduled surgery: list generated at all pre-op medical risk assessment/clearances, pharm tech used to take medication history by phone – Provide completed medication wallet cards at discharge as starting point – Outreach to amb. clinics, SNFs, PCPs – Outreach in community (senior centers) – Develop open-access patient record including all prescriptions
12. Provide orientation and ongoing education on procedures for reconciling medications to all healthcare providers Cover all care givers: nursing, pharmacists, and clinical staff	– Involve nursing education department in project planning phase – Build training into orientation, inservice – Ensure clinicians well informed of errors prevented and efficiency gains
13. Provide feedback and ongoing monitoring Needs to be implemented within ***culture of safety:*** – adopt a systems approach – create non-punitive environment – learn from mistakes – promote teamwork	– Define parameters for data collection clearly; ensure consistent measurement over time – Minimally, draw random sample of 20 charts/month (from units and/or patient population of implementation) – Have strategy to share results: data and examples of errors prevented (e.g. *Great Catches Log*) – Encourage reporting of errors identified through reconciling and potential hazardous conditions, within context of learning from mistakes/near misses – Ensure engagement of leadership

Background Notes on Updated Safe Practice Recommendations for MA Reconciling Medications Collaborative

The Reconciling Medications Consensus Group developed an original set of safe practice recommendations following four Consensus Group meetings over the course of 2002. These were released on November 12, 2002. Insights provided by hospital teams participating in the Reconciling Medications Collaborative during 2003 and 2004 have been used to enhance the original recommendations. Changes include breaking the reconciling process into three distinct steps (collecting the pre-admission medication list, writing orders, and reconciling (identifying and resolving variances between the pre-admit list and the orders) and emphasizing the importance of engaging the patient in the process. The following table provides a comparison of the two sets of recommendations.

Original Safe Practice Recommendations	Updated Recommendations (Reconciling at admission...)
Policies 1. Assign primary responsibility for reconciling to someone with sufficient expertise, within a context of shared accountability (the ordering physician, RN, and pharmacy work together to achieve accuracy) 2. Reconcile patient medications within specified time frames 3. Develop clear policies and procedures for the steps in the reconciling process ***Technique*** 4. Adopt standardized form for reconciling medications* 5. Place reconciling form in consistent, highly-visible location in patient chart 6. Provide access to drug information and pharmacist advice at reconciling 7. Improve access to complete medication lists at admission ***Support & Maintenance*** 8. Provide orientation and ongoing education on procedures for reconciling medications to all healthcare providers 9. Provide feedback, ongoing monitoring (within context of non-punitive learning from mistakes/near misses) *Includes both electronic and paper-based forms	***Collect complete and accurate pre-admission medication lists*** 1. Collect a complete list of current medications (including dose and frequency) for each patient on admission 2. Validate the pre-admission medication list with the patient (whenever possible) 3. Assign primary responsibility for collecting the pre-admission list to someone with sufficient expertise, within a context of shared accountability (the ordering prescriber, nurse, and pharmacist work together to achieve accuracy) ***Write accurate admission orders*** 4. Use the pre-admission medication list when writing orders 5. Place the reconciling form in a consistent, highly visible location within the patient chart (easily accessible by clinicians writing orders) ***Reconcile all variances*** 6. Assign responsibility for identifying and reconciling variances between the pre-admission med list and new orders to someone with sufficient expertise 7. Reconcile patient medications within specified time frames ***Provide continuing support & maintenance*** 8. Adopt a standardized form to use for collecting the pre-admission medication list and reconciling the variances* 9. Develop clear policies and procedures for each step in the reconciling process 10. Provide access to drug information and pharmacist advice at each step in the reconciling process 11. Improve access to complete medication lists at admission 12. Provide orientation and ongoing education on procedures for reconciling medications to all healthcare providers 13. Provide feedback and ongoing monitoring (within context of non-punitive learning from mistakes/near misses)

SOURCE

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