## Medication Safety: A Self-assessment Tool

Medication errors may be caused by a multitude of individuals, including ordering clinicians, dispensers, providers and patients. Preventing or mitigating errors is a complex process, requiring more than an annual review of policies and procedures. Medication safety requires an ongoing commitment to evaluate and improve everyday processes, with the goal of ensuring that patients receive the correct medication at the right time, in the right amount, via the correct route.

Consider using this self-assessment tool, which focuses on the following critical issues:

- Treatment team access to patient and clinical data.
- Safeguards for computer order entry.
- Automatic drug-dispensing systems.
- Handoff communication practices.
- Protocols for high-alert, non-standardized, and look-alike and sound-alike drugs.
- Safety parameters for medication administration devices.

| Medication Safety Practice | Present (Yes/No) | Comments |
|---|---|---|
| **Patient and medication data management** | | |
| 1. A complete medication history – including current prescription medications; over-the-counter medications and supplements; alternative therapies; and alcohol, tobacco and illicit drug use – is accessible, as well as medication records from recent episodes of care. | | |
| 2. Medication profiles are readily available at the point of care in electronic or paper form, and reflect up-to-date medication orders. | | |
| 3. Medication profiles include an allergy notation, as well as a tiered severity rating to alert staff about drug intolerances. | | |
| 4. Allergy alerts are visible on all screens or pages of the patient medication administration record (MAR). | | |
| 5. Patient weight and height measurements are always recorded in metric units to avoid potential confusion. | | |
| 6. Laboratory values and diagnostic reports are easily accessible to prescribing practitioners, either through an electronic health record tracking program or conspicuous placement in paper records. | | |
| 7. Two or more patient identifiers (such as patient name, date of birth, home address and telephone number) are used for verification. | | |
| 8. Documentation occurs simultaneously with medication administration to prevent critical gaps or oversights. | | |

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| **Computerized systems** | | |
| 1. The system is linked to a patient's profile, in order to alert ordering practitioners about comorbid or chronic conditions. | | |
| 2. The system interfaces with a pharmacy, in order to facilitate information sharing, if applicable. | | |
| 3. Patient allergies are noted and coded in the system before medications are ordered. | | |
| 4. The system screens against patient profiles for allergies, as well as contra-indicated medications, potential interactions and inappropriate doses. | | |
| 5. The system requires practitioners to document why they are overriding an alert message regarding allergy status, maximum dose or potential drug interactions. | | |
| 6. The system incorporates precautions for look-alike and sound-alike drugs, such as placing them on different screens, showing names in boldface and/or uppercase letters, and triggering alerts for similar suffixes, such as XL, SR, ED and CD. | | |
| 7. Software does not permit error-prone notations and abbreviations (such as q1d and sub q), as well as improper use of trailing/leading zeros. | | |
| 8. Automatic drug dispensing cabinets (ADCs), where available in treatment areas, are customized with medications required for the clinical specialty only. | | |
| 9. ADCs are not stocked with potentially hazardous compounds, such as vials of neuromuscular blocking agents and undiluted electrolytes. | | |
| 10. ADCs are double-checked by staff to ensure that high-alert medications are not present, and these checks are documented. | | |
| 11. ADC security databases are updated at least annually to remove expired access codes and create new passwords. | | |
| 12. ADC override reports and blind counts are monitored and reviewed via quality and audit processes. | | |

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| **Handoff communication** | | |
| 1. All medication containers prepared in advance – including IV and oral syringes, vials, bowls and basins – are appropriately labeled with the name of the patient, the drug's name, strength, dose, frequency and expiration date. | | |
| 2. Unit-doses of medications remain packaged up to the point of handoff/administration, in order to facilitate a final check of the order and medication record. | | |
| 3. All handoffs of prepackaged medications are preceded by a spoken exchange of information, which includes patient and drug name, as well as the dose, route and frequency of administration. | | |
| 4. Verbal drug orders from practitioners are acceptable only during emergencies or sterile procedures, and require the receiving party to transcribe the order, read it back to the prescriber and document the read-back for verification. | | |
| 5. Potential drug side effects are clearly communicated between healthcare staff at points of transition and are documented on accompanying patient care plans and/or handoff reports. | | |
| 6. Written protocol addresses the safe use and disposal of anesthesia-related medications, requiring that syringes be prominently labeled with drug name, strength/concentration and expiration date. | | |
| 7. Patients receiving high-alert drugs via IV or epidural infusion are accompanied by a qualified nurse or licensed practitioner when transported between treatment areas, and the exchange from the accompanying staff member to the receiving staff member involves a formal documented handoff. | | |
| 8. Staff and providers responsible for the ordering, transcribing, dispensing and/or administering of medications participate in documented simulations of higher-risk situations, in order to reinforce effective communication techniques and handoff practices. | | |

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| 9. Patients are included in the handoff dialogue, when possible, in order to prevent errors, reinforce their awareness of the medication regimen and enhance post-discharge compliance. | | |
| **High-alert, non-standardized and look-alike/sound-alike drugs** | | |
| 1. Documented procedures are implemented in order to prevent wrong dosages or concentrations of identified high-alert drugs (e.g., anti-coagulants, muscle relaxants, insulin, potassium chloride, opioids, adrenergic agents, dextrose solutions, chemotherapeutic agents). | | |
| 2. High-alert medications are accompanied by standardized orders and/or computerized safe-dosing guidelines, and are verified by two persons before administration. | | |
| 3. Pediatric medications are accompanied by standardized orders and/or computerized dosing guidelines, and are stored separate from adult dosages of the same medications. | | |
| 4. Infusions of high-alert drugs – such as IV opioids, epidural narcotic infusions and vasopressors – are standardized to a single concentration for use in the majority of cases. | | |
| 5. Dosages, formulations and concentrations of drugs on medication carts and in medication cabinets are secured and reflect emergency drug guidelines for both adult and pediatric patients. | | |
| 6. Antidotes and reversal agents for medications, as well as dosing guidelines, are available at the point of care. | | |
| 7. Appropriate measures are taken to avoid the risk of contrast-induced nephrotoxicity or allergic response, including use of nonionic contrast, adequate hydration and postponement of treatment, if necessary. | | |
| 8. Non-standardized drugs approved for therapeutic use have accompanying safety enhancements, including but not limited to parameters for use, prescription guidelines, administration checks, monitoring protocols and separate storage areas apart from other medications. | | |
| 9. Medications requiring multiple dilutions or extensive calculations are made available only when necessary, and are maintained in limited quantities for safety reasons. | | |
| 10. Clinical staff is educated about minimizing the risks associated with look-alike and sound-alike products, and their training is documented. | | |
| 11. Drugs with look-alike and sound-alike names are kept separate from each other, are not stored alphabetically with other stock medications, and have enhanced labels or other auxiliary warnings. | | |

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| 12. Clinical staff is notified when medication stock is relocated or storage areas are reorganized, in order to reduce the likelihood of confusion or error. | | |
| 13. Pharmacists are available onsite or by telephone to consult with providers regarding prescribed medications. | | |
| **Medication device safety** | | |
| 1. Staff is educated about operating medication devices – including standard infusion pumps, "smart pumps" and ancillary equipment – and undergo documented competency testing on their safe use on a cyclical and routine basis. | | |
| 2. Smart pumps and related devices are programmed to deliver maximum-dose alerts when administering potentially hazardous medications. | | |
| 3. Only one type or model of epidural pump is utilized, and it differs noticeably in appearance from standard IV infusion pumps. | | |
| 4. The type and number of syringe pumps used to deliver medications are limited, and all pumps are clearly marked to prevent mistakes. | | |
| 5. IV and epidural infusions are prominently labeled with the intended route of administration, and dosing concentration is consistent with infusion-pump programming (e.g., mg/kg/min). | | |
| 6. Tubing for epidural infusions differs noticeably from peripheral or central venous IV access tubing and does not contain Y-connector access ports. | | |
| 7. The distal ends of all tubing are clearly labeled for patients receiving multiple solutions via different routes, such as peripheral, central venous, arterial, epidural, enteral, bladder or other access sites. | | |
| 8. Syringes containing medications intended for oral/enteral administration are incompatible with the luer-locking mechanisms of IV infusion tubing, in order to prevent potentially catastrophic accidents. | | |
| 9. Solutions intended for infusion are verified jointly by two persons, unless the facility employs smart pump technology that checks doses and verifies bar codes at the point of care. | | |
| 10. The infusion verification procedure includes patient name and ID number, as well as:<br>• Drug and base solution.<br>• Drug concentration and rate of infusion.<br>• Channel of administration (for pumps that offer multiple channels).<br>• Line attachment. | | |
| 11. Written policy prohibits the administration of IV boluses via an infusion pump, unless smart pump technology recognizes and permits programming for bolus doses. | | |
| 12. Trained technicians are available to provide prompt assistance in the event of a medication device malfunction. | | |