Updated Recommendations for the Safe Use of High-Alert Medications

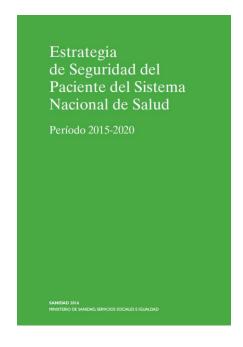
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Background

→ The Spanish Ministry of Health has promoted throughout the "Patient Safety Strategy of the National Health System" the implementation of safety practices for high-alert medications, and has published several documents and materials with recommendations in collaboration with ISMP-Spain.







Background

→ Last year we considered it necessary to update the recommendations, mainly because the degree of implementation of safety practices for high-alert medications is low, both in hospitals and in primary care centers.

Evaluation Item		Percentage on the maximum possible score (%)
35	Definition of a list of high-alert medications and dissemination of error prevention practices.	67.0
36	Availability of protocols, guidelines, dosing scales, and checklists.	55.5
38	Incorporation of maximum dose alerts in the computer order entry systems, infusion pumps, etc.	50.6
96	Standardization of the concentrations for infusions of high-alert drugs in adults.	46.2
97	Standardization of the concentrations for infusions in pediatric patients.	44.4
98	Centralized preparation in the pharmacy service of IV solutions for high-alert medications.	32.4
120	Restriction of vials and ampoules of concentrated potassium and electrolytes in patient care units.	23.3
123	Restriction and/or separate storage for neuromuscular blockers in patient care units.	59.0
150	Utilization of smart infusion pumps to administer high-alert medications.	56.1
205	Information to patients about high-alert medications at discharge.	26.7

⁻ Otero MJ, et al. Analysis of the degree of implementation of medication error prevention practices in Spanish hospitals (2022). Farm Hosp. 2023 Sep 29:S1130-6343. doi: 10.1016/j.farma.2023.08.008.



Recommendations for the Safe Use of High-Alert Medications

- Ministry of Health
- ISMP-Spain
- Scientific societies
- Autonomous regions quality coordinators

Objectives:

- To facilitate the approach and promote the implementation of actions to improve the safety of high-alert medications in healthcare institutions.
- To improve healthcare professionals' knowledge of safe practices with high-alert medications.
- To promote the involvement of patients and caregivers in the safe use of high-alert medications.





Strategies for high-alert medication safety

- Forcing functions and fail-safes
- Limit access or use
- Automation / Maximize access to information
- Standardization
- Simplification
- Redundancies
- Centralize error-prone processes
- Rules and policies
- Education and information



→ Key points:

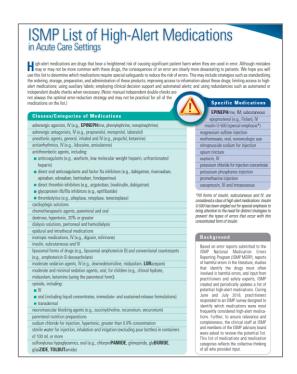
- Improving the safety of high-alert medications must be a priority objective of the center.
- The program should be multidisciplinary and include all professionals.
- Each organization should create its own list of high-alert medications.
- Multiple practices should be introduced at each and every stage of the medication use process.
- Active participation of patients and caregivers in the safe use of these drugs should be promoted.



→ Interventions:

1. Develop the organization's own list of high-alert medications.

 Reference lists: ISMP list in acute care settings and Spanish HAMC list for chronic patients.



High-alert drug classes/drugs for patients with chronic diseases ►Therapeutic classes Anticoagulants, oral Antiepileptics (narrow therapeutic range) Antiplatelets (including aspirin) Antipsychotics β-Adrenergic blockers Benzodiazepines and analogues Corticosteroids long-term use $(\geq 3 \text{ months})$ Cytostatic drugs, oral **Immunosuppressants** Insulins Loop diuretics Nonsteroidal anti-inflammatory drugs Oral hypoglycemic drugs Opioid analgesics ► Specific medications Amiodarone/dronedarone Digoxin Methotrexate, oral (non-oncologic use) Spironolactone/eplerenone

- Institute for Safe Medication Practices (ISMP). ISMP List of High-Alert Medications in Acute Care Settings. ISMP; 2018
- Otero MJ et al. Developing a list of high-alert medications for patients with chronic diseases. Eur J Intern Med.; 2014: 25: 900–8.

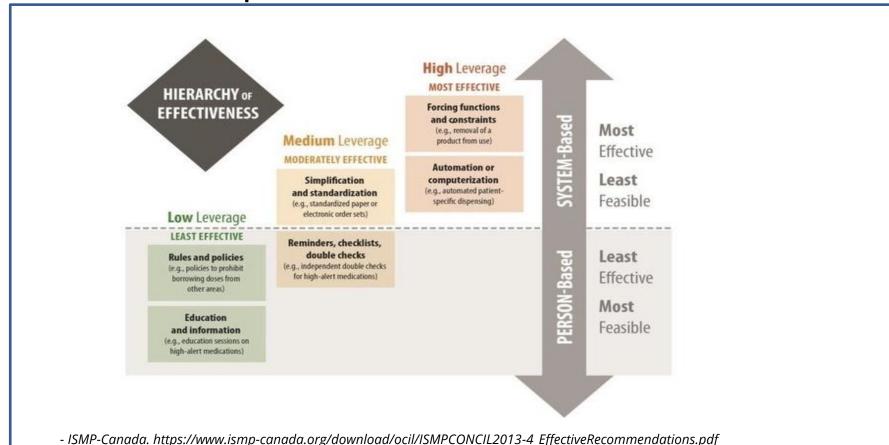


- The list should include, as a minimum:
 - in hospitals: anticoagulants, insulins, opioids, neuromuscular blockers, IV potassium, methotrexate (non-oncological use) and chemotherapeutic agents.
 - in primary care centers and nursing homes: anticoagulants, insulins, opioids, methotrexate (non-oncological use) and oral chemotherapeutic agents.
- The list should not be so extensive as to make it impractical to implement the necessary safety practices.
- Additional specific medications not covered in the reference lists may also be incorporated (e.g. medications that have been implicated in serious errors according to the center's reporting system).
- It may be adapted to specific units, such as pediatric units, adding medications, such as IV acetaminophen.
- The list must be reviewed and updated at least every two years.



→ Interventions:

2. Select and implement multiple practices at all stages of the medication-use process.



→ Interventions:

2. Select and implement multiple practices at all stages of the medication-use process.

- Centers should review information on recognized practices for high-alert medications. (With this end, a section with this information is included in the document).
- For each medication included in the list, multiple safety practices should be selected considering:
 - They should address each stage of the medication use process and consider all professional involved.
 - Consider the hierarchy of effectiveness: prioritize the selection of practices that are highly or moderately effective, and combine them with practices of low effectiveness.
 - Avoid making error prevention dependent solely on low-effective practices.
 - Limit the use of independent double-checking to certain critical points and for certain high-alert medications and vulnerable patients.



→ Interventions:

- 3. Promote the active participation of patients and caregivers in the safe handling of high-alert medications.
 - Inform patients and caregivers about the high-alert medications they use, and about the possible errors and adverse effects that may occur. Ensure that they have understood the information.
 - Provide them with means to ensure their safe use, such as written information in easily understandable language.

(Information leaflets for anticoagulants, opioids, insulins and oral methotrexate are included in the document).



→ Interventions:

- 4. Disseminate the list and the safety practices selected and train healthcare professionals.
 - Organize briefings or courses to explain the medication errors and adverse events they will prevent, and why it is essential to apply each risk reduction practice.
 - Survey professionals to get their opinion of the list of high-alert medications and the established practices, as well as to find out the possible barriers that could compromise their application.
 - Encourage the reporting of incidents with high-alert medications and periodically provide feedback concerning those that occurred in the center.



→ Interventions:

- 5. Monitor the implementation of the practices and evaluate their effectiveness.
 - Use process and outcome indicators to assess the implementation and to determine the effectiveness of established practices.
 - Results should be periodically analyzed in meetings with the Risk
 Management Committee, the Pharmacy and Therapeutics Committee
 and the center's management, and make the necessary changes to
 the list and practices.



→ General safety practices:

- Ensure that healthcare professionals can access essential patient information, laboratory values and medication history while working in their respective locations.
- Develop protocols, guidelines and/or checklists for high-alert drugs available to all healthcare professionals.
- Include alerts into computer order entry systems with maximum doses, interactions, duplicities, etc.
- Standardize the concentrations for infusions of high-alert drugs used for adult and for pediatric patients.
- Use smart infusion pumps with full functionality to administer high-alert medications.
- Inform patients about the potential for error with these drugs and about strategies to help prevent them.
- Etc...



→ Practices for specific medications:

The document provides information on the most common errors and safety practices aimed at healthcare centers and at healthcare professionals for:

- Oral anticoagulants.
- Heparin and other parenteral anticoagulants.
- Opioids.
- Insulins.
- Neuromuscular blocking agents.
- IV potassium.
- Methotrexate (non-oncologic use).



Oral anticoagulants:

• Errors more frequently detected:

- Dosing errors, due to failure to adjust the dose according to patient characteristics (e.g. age, renal or hepatic function).
- Prescription errors with vitamin K antagonists (VKAs) and sometimes with direct oral anticoagulants (DOACs), due to failure to consider interactions.
- Wrong strength errors in dispensing or administration due to confusing the different available dosages of the same anticoagulant.
- Inappropriate INR monitoring in patients under treatment with VKA anticoagulants.
- Duplication of therapy and other errors (e.g. delays, omissions) in care transitions, particularly at hospital discharge.
- Incorrect administration by patients or caregivers, due to a lack of education on how to use these drugs correctly.

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Oral anticoagulants:

Risk reduction practices for healthcare centers:

- Develop prescribing and dosing protocols for initiation and maintenance of anticoagulation therapy for each indication (e.g., atrial fibrillation, deep vein thrombosis, pulmonary embolism).
- Protocols should address how to convert from one type of anticoagulant to another, and how to discontinue and restart anticoagulation therapy during the perioperative period.
- Incorporate prompts and reminders into the electronic prescription systems to assist in prescribing and monitoring treatment.
- Standardize the presentations available for all oral anticoagulants and limit them to including only what is necessary to cover all approved indications.
- Provide training of healthcare professionals on dosage, interactions and possible adverse events, and on the importance of reconciling treatments during transitions in care, as well as educating patients and caregivers.

Etc.....



Oral anticoagulants:

Risk reduction practices for healthcare professionals:

- Before prescribing, prescribers must perform an initial review of the patient's medical and medication history, renal and liver function, and check for interactions and existing comorbidities with a high-risk of bleeding.
- Determine the dose considering the recommended dosage for each indication and patient factors (age, renal or hepatic function and/or weight).
- At each control, comprehensively review the patient's treatment: drug changes, changes in the patient's clinical situation, dose adjustment, interactions, possible adverse reactions, and treatment adherence.
- At transitions of care, review the prescriptions and perform medication reconciliation.
- Provide clear and understandable information (verbal and written) to patients and caregivers:
 - Verify that patients know how to take the medication correctly, understand potential adverse events and and who to contact for help.
 - In patients with VKAs, emphasize the need for regular INR checks and maintaining a balanced diet.
 - In patients with DOACs, emphasize the need for therapeutic compliance.

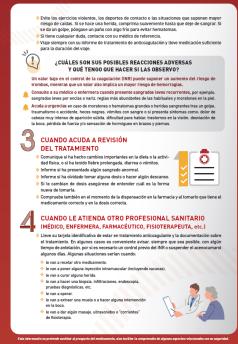
Etc.....



Leaflets for patients and caregivers about high-alert medications

- Oral anticoagulants and enoxaparin (7)
- Opioids (5)
- Insulins (8)
- Oral methotrexate









Muchas gracias



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