



ISMP Canada Guidelines for Subcutaneous Insulin Order Sets

❖ **These guidelines only apply to orders for subcutaneous insulin injections** (i.e., these guidelines do not address orders for insulin to be administered by other methods (e.g., intravenous or subcutaneous continuous infusion [insulin pump therapy]))

GENERAL RECOMMENDATIONS:

- Involve an inter-disciplinary team in the development of the order set
- Follow the official standard format for order sets that has been approved by your organization
- Adhere to your organization's specific policies & procedures on appropriate ordering practices **and/ or** ISMP "Do Not Use Dangerous Abbreviations, Symbols and Dose Designations", in particular:
 - The word "units" should always be written out and not represented by "U"
 - Always use a leading 0 before a decimal point
 - Never use a trailing zero after a decimal point when expressing medication doses
- Use separate lines / entries for each medication order; multiple orders should not appear on one line or within a single entry
- Ensure that the name of the drug and dose/strength appear together on the same line / entry
- Avoid listing products with look-alike names near each other
- When choices between orders must be made:
 - Precede the options with the statement: "Choose one of the options below"
 - Use the word "OR" between the options
 - Provide specific information to guide the choice
- Provide adequate space between the medication name and the dose and between the numerical dose and the unit of measure
- Provide adequate space between numbers used to sequence orders and the actual orders themselves
- Include drug name, dose, route of administration, frequency

*** Refer to ISMP's Guidelines for Standard Order Sets for more complete and comprehensive recommendations.**

INSULIN SPECIFIC RECOMMENDATIONS:

GENERAL INFORMATION

- All orders for subcutaneous insulin should be ordered via an order set – including orders for correction dose insulin. Consider whether this should also be required for one-time orders (e.g., for one dose of one insulin product)
- Add a statement prompting user to take into consideration if patient is on non-insulin antihyperglycemic agents or corticosteroid therapy to highlight potential impact on glycemic control

NUTRITIONAL STATUS

- Ensure that the order set(s) address the patient's nutritional status (e.g., eating meals, NPO, enteral or parenteral nutrition etc.) with respect to:
 - Timing and frequency of blood glucose testing
 - Type and timing of insulin injections

MANAGEMENT OF HYPOGLYCEMIA

- Include hypoglycemia management protocol in the order set(s) or include a statement referring to your institution's medical directive for the management of hypoglycemia
 - Specific hypoglycemia protocol should take into consideration the ability of the patient to take oral treatment and presence of IV access
 - Before implementation of subcutaneous insulin order sets, hypoglycemia management protocol should be in place and appropriate education and training completed

BLOOD GLUCOSE MONITORING

- Include frequency and timing of blood glucose monitoring
- Consider including the target blood glucose range
- Establish a critical upper limit for blood glucose values for which the most responsible physician is to be notified

INSULIN ORDERS

- Nomenclature:
 - Use a standardized naming convention for insulin order sets
 - In establishing the naming convention, consider how the name of the insulin is displayed on:
 - the manufacturer's label on the product
 - computer and/or electronic medication administration records
 - the pharmacy catalogue generated label
 - To the extent possible, work to make all these match
 - Where possible include both the brand and generic names for insulin



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- If both the brand and generic names can be included, it is preferable to list the brand name first, followed by the generic name in brackets
- Present choices of insulin products organized in the following categories:
 - Scheduled Insulin**
 - Basal:
 - Intermediate-acting
 - Long-acting
 - Bolus (mealtime):
 - Rapid-acting
 - Short-acting
 - Premixed:
 - Rapid- + Intermediate-acting analogues
 - Short- + Intermediate-acting human insulin
 - Correction Dose Insulin**
 - Rapid- or short-acting insulin used to correct hyperglycemia
- Provide information on the action profile (onset, peak and duration) for all insulin products on the reverse side of pre-printed order sets or supplemental information for computerized order sets.
- Scheduled basal insulin orders
 - List orders for basal insulin before orders for bolus insulin.
 - Require prescribers to indicate if an intentional decision has been made to omit basal insulin. Consider using a “tick box” followed by the statement “no basal insulin order” to provide a prompt to remind prescribers to consider the need for basal along with bolus insulin where appropriate.
 - Also include a reminder to reassess the “no standing basal insulin order required” after 24-48h.
- Scheduled bolus (mealtime) insulin orders
 - Provide directions to hold the scheduled bolus insulin dose if less than 50% of a meal is consumed.
- Provide parameters on frequency and timing of insulin doses
 - The administration times for bolus insulin should be ordered in relation to mealtimes for patients who are eating (e.g., "before lunch") rather than an actual time on the clock (e.g., "1130 h"). For patients who are not eating, administration times should be specified as a frequency (e.g., "q4h" or "q6h").
 - Standard Medication Administration Times (SMAT) set by individual organizations may not apply in these situations.
 - The term “bedtime” should be interpreted to mean a specific standard time of the evening as defined by the institution's policy on Standard Medication Administration Times (e.g., 2200 h) and not the time an individual goes to sleep.

- Provide guidance on appropriate dosing times for specific types of insulin to discourage the selection of times that may be inappropriate.
 - Consider methods that could be used to designate certain times as inappropriate (e.g., use shading for that area or delete text [leave that area blank]).
 - Rapid- and short-acting insulins are generally not recommended to be given in the late evening (e.g., ~2200) due to the risk of nocturnal hypoglycemia. This also applies to premixed insulin products which contain rapid or short acting insulin.
 - Consider a using a different correction dose insulin algorithm for high blood glucose at 2200h that is 50% of the algorithm used before meals.
- Correction dose insulin
 - Use only short- or rapid-acting insulin
 - Provide different correction dose insulin algorithms – usual, insulin sensitive and insulin resistant (based on body weight, total daily insulin dose and other factors that influence insulin requirements).
 - Provide an option to order an individualized algorithm
- Consider providing guidelines for when to consult endocrinology / internal medicine / diabetes management team.

Issues for Consideration by Individual Organizations

- Development of separate insulin order sets for:
 - Gestational Diabetes /peri-partum
 - Peri-procedure
 - Peri-operative
 - Intravenous insulin therapy
 - Personal insulin pump therapy (continuous subcutaneous insulin infusion)
- Assessment of the quality of the blood glucose control at your institution by looking at systems to generate glucometric data and also consider automating this process.
- Possible quality indicators include:
 - mean blood glucose levels
 - proportion of blood glucose levels within optimal range
 - rate of hypoglycemic and hyperglycemic events
- Regular analysis of your institution's glucometric data to enhance the quality of your individual institution's inpatient glucose management



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