**Outcome Measure: Insulin Pen Storage and Labeling Audit**

**Level 5 Outcome (Performance)**

Audit the storage and labeling of insulin pen devices at the hospital during the baseline and post-intervention periods. A sample of at least 60 observations should be collected at the hospital during each observation period using the checklist (see next page).

The sample should be collected from three different patient care areas where insulin administration is common. The number of observations on each ward/unit may vary but a minimum of 20 pens must be audited on each ward/unit. In order to reach a total of 20 observations, the audit may be repeated on 2 or more separate days. A unit/ward should NOT be audited twice on the same day.

Prior to conducting the audit, the auditor should obtain a report from the pharmacy with the names of ALL patients who are admitted to the ward/unit and who have an active insulin pen order. The goal during the audit is to find ALL insulin pen devices that have an active order AND to find pens on the ward/unit that do not have an active order. The auditor is encouraged to check mobile medication carts as well as drawers and cabinets in patients’ rooms and nursing stations to determine if “left over” or expired insulin pen devices are being stored in unapproved locations on the ward or unit. If a patient has an active order but the insulin pen device cannot be located in the “usual” storage location(s), the auditor is encouraged to ask the nursing staff to assist with locating the pen device. If a patient has an active order and the insulin pen device cannot be located, please mark “not found” in the storage per hospital policy column on the form and leave the remaining labeling fields blank.

If a pen device is unlabeled, the patient’s name should be marked as “unknown” on the audit form. The proper storage of insulin products is determined by hospital policy. The pen device should be in a patient-specific location and not comingled with other patients’ medications. A patient-specific label should be attached DIRECTLY to the barrel of the pen device – not a plastic bag or box that may be used to transport and store the device when not in use. A label may also be attached to an outer container (if permitted by hospital policy) but the device must be labeled such that it identifies the patient for whom it is intended and the expiration date is clearly stated.

Implementation Notes:

1. For data analysis,
   1. Calculate simple descriptive statistics for the following items: a) % with active orders and no active order, b) % stored in accordance with hospital policy (Yes, No, and Not Found), c) % of pen devices labeled, d) % with label attached to the barrel, and e) % with expiration date stated on the label.
   2. Determine the % labeled properly by identifying pen devices where the following three conditions are present: pen labeled, label attached to the barrel, and expiration date stated on the label.
   3. Determine the % stored and labeled properly if the following five conditions are present: active order, pen stored per hospital policy, pen labeled, label attached to the barrel, and expiration date stated on the label.
   4. Note: The percentage of pen devices labeled properly and percentage of pen devices stored and labeled properly should be based on pens found.
2. You may also do a sub-analysis by ward (i.e., comparing the percentages for each of these elements by ward). That will provide the hospital with information about insulin pen storage that pose potential safety risks such that attention can be directed there during the intervention phase.

**Insulin Pen Storage and Labeling Audit**

Ward/Unit: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Auditor: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date of Audit: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Instructions:** Use this form to audit the storage and labeling of ALL insulin pens on a single ward or unit. Before conducting the audit, obtain a report with the names of ALL patients who are admitted to the ward/unit and who have an active insulin pen order. The goal is to find ALL insulin pen devices that have an active order **AND** to find any pens on the ward/unit that do not have an active order. If a patient has an active order and the insulin pen device cannot be located, mark “not found” in the storage per hospital policy column and leave the remaining labeling fields blank. Use additional forms if needed.

| **Audit #** | **Patient’s Initials** | **Insulin Product\*** | **Active Order** | **Storage per Hospital Policy#** | **Labeling&** | **Notes / Observations** |
| --- | --- | --- | --- | --- | --- | --- |
| 1 | ☐ Unknown | ☐ AP ☐ HL ☐ NV  ☐ LN ☐ LV ☐ MX  ☐ R ☐ NPH | ☐ Yes  ☐ No | ☐ Yes  ☐ No  ☐ Not found | Pen is labeled ☐Yes ☐No  Attached to barrel ☐Yes ☐No  Expiration date stated ☐Yes ☐No |  |
| 2 | ☐ Unknown | ☐ AP ☐ HL ☐ NV  ☐ LN ☐ LV ☐ MX  ☐ R ☐ NPH | ☐ Yes  ☐ No | ☐ Yes  ☐ No  ☐ Not found | Pen is labeled ☐Yes ☐No  Attached to barrel ☐Yes ☐No  Expiration date stated ☐Yes ☐No |  |
| 3 | ☐ Unknown | ☐ AP ☐ HL ☐ NV  ☐ LN ☐ LV ☐ MX  ☐ R ☐ NPH | ☐ Yes  ☐ No | ☐ Yes  ☐ No  ☐ Not found | Pen is labeled ☐Yes ☐No  Attached to barrel ☐Yes ☐No  Expiration date stated ☐Yes ☐No |  |
| 4 | ☐ Unknown | ☐ AP ☐ HL ☐ NV  ☐ LN ☐ LV ☐ MX  ☐ R ☐ NPH | ☐ Yes  ☐ No | ☐ Yes  ☐ No  ☐ Not found | Pen is labeled ☐Yes ☐No  Attached to barrel ☐Yes ☐No  Expiration date stated ☐Yes ☐No |  |
| 5 | ☐ Unknown | ☐ AP ☐ HL ☐ NV  ☐ LN ☐ LV ☐ MX  ☐ R ☐ NPH | ☐ Yes  ☐ No | ☐ Yes  ☐ No  ☐ Not found | Pen is labeled ☐Yes ☐No  Attached to barrel ☐Yes ☐No  Expiration date stated ☐Yes ☐No |  |
| 6 | ☐ Unknown | ☐ AP ☐ HL ☐ NV  ☐ LN ☐ LV ☐ MX  ☐ R ☐ NPH | ☐ Yes  ☐ No | ☐ Yes  ☐ No  ☐ Not found | Pen is labeled ☐Yes ☐No  Attached to barrel ☐Yes ☐No  Expiration date stated ☐Yes ☐No |  |
| 7 | ☐ Unknown | ☐ AP ☐ HL ☐ NV  ☐ LN ☐ LV ☐ MX  ☐ R ☐ NPH | ☐ Yes  ☐ No | ☐ Yes  ☐ No  ☐ Not found | Pen is labeled ☐Yes ☐No  Attached to barrel ☐Yes ☐No  Expiration date stated ☐Yes ☐No |  |
| 8 | ☐ Unknown | ☐ AP ☐ HL ☐ NV  ☐ LN ☐ LV ☐ MX  ☐ R ☐ NPH | ☐ Yes  ☐ No | ☐ Yes  ☐ No  ☐ Not found | Pen is labeled ☐Yes ☐No  Attached to barrel ☐Yes ☐No  Expiration date stated ☐Yes ☐No |  |

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| --- | --- | --- | --- | --- | --- | --- |
| **Audit #** | **Patient’s Initials** | **Insulin Product\*** | **Active Order** | **Storage per Hospital Policy#** | **Labeling&** | **Notes / Observations** |
| 9 | ☐ Unknown | ☐ AP ☐ HL ☐ NV  ☐ LN ☐ LV ☐ MX  ☐ R ☐ NPH | ☐ Yes  ☐ No | ☐ Yes  ☐ No  ☐ Not found | Pen is labeled ☐Yes ☐No  Attached to barrel ☐Yes ☐No  Expiration date stated ☐Yes ☐No |  |
| 10 | ☐ Unknown | ☐ AP ☐ HL ☐ NV  ☐ LN ☐ LV ☐ MX  ☐ R ☐ NPH | ☐ Yes  ☐ No | ☐ Yes  ☐ No  ☐ Not found | Pen is labeled ☐Yes ☐No  Attached to barrel ☐Yes ☐No  Expiration date stated ☐Yes ☐No |  |
| 11 | ☐ Unknown | ☐ AP ☐ HL ☐ NV  ☐ LN ☐ LV ☐ MX  ☐ R ☐ NPH | ☐ Yes  ☐ No | ☐ Yes  ☐ No  ☐ Not found | Pen is labeled ☐Yes ☐No  Attached to barrel ☐Yes ☐No  Expiration date stated ☐Yes ☐No |  |
| 12 | ☐ Unknown | ☐ AP ☐ HL ☐ NV  ☐ LN ☐ LV ☐ MX  ☐ R ☐ NPH | ☐ Yes  ☐ No | ☐ Yes  ☐ No  ☐ Not found | Pen is labeled ☐Yes ☐No  Attached to barrel ☐Yes ☐No  Expiration date stated ☐Yes ☐No |  |
| 13 | ☐ Unknown | ☐ AP ☐ HL ☐ NV  ☐ LN ☐ LV ☐ MX  ☐ R ☐ NPH | ☐ Yes  ☐ No | ☐ Yes  ☐ No  ☐ Not found | Pen is labeled ☐Yes ☐No  Attached to barrel ☐Yes ☐No  Expiration date stated ☐Yes ☐No |  |
| 14 | ☐ Unknown | ☐ AP ☐ HL ☐ NV  ☐ LN ☐ LV ☐ MX  ☐ R ☐ NPH | ☐ Yes  ☐ No | ☐ Yes  ☐ No  ☐ Not found | Pen is labeled ☐Yes ☐No  Attached to barrel ☐Yes ☐No  Expiration date stated ☐Yes ☐No |  |
| 15 | ☐ Unknown | ☐ AP ☐ HL ☐ NV  ☐ LN ☐ LV ☐ MX  ☐ R ☐ NPH | ☐ Yes  ☐ No | ☐ Yes  ☐ No  ☐ Not found | Pen is labeled ☐Yes ☐No  Attached to barrel ☐Yes ☐No  Expiration date stated ☐Yes ☐No |  |
| 16 | ☐ Unknown | ☐ AP ☐ HL ☐ NV  ☐ LN ☐ LV ☐ MX  ☐ R ☐ NPH | ☐ Yes  ☐ No | ☐ Yes  ☐ No  ☐ Not found | Pen is labeled ☐Yes ☐No  Attached to barrel ☐Yes ☐No  Expiration date stated ☐Yes ☐No |  |
| 17 | ☐ Unknown | ☐ AP ☐ HL ☐ NV  ☐ LN ☐ LV ☐ MX  ☐ R ☐ NPH | ☐ Yes  ☐ No | ☐ Yes  ☐ No  ☐ Not found | Pen is labeled ☐Yes ☐No  Attached to barrel ☐Yes ☐No  Expiration date stated ☐Yes ☐No |  |
| 18 | ☐ Unknown | ☐ AP ☐ HL ☐ NV  ☐ LN ☐ LV ☐ MX  ☐ R ☐ NPH | ☐ Yes  ☐ No | ☐ Yes  ☐ No  ☐ Not found | Pen is labeled ☐Yes ☐No  Attached to barrel ☐Yes ☐No  Expiration date stated ☐Yes ☐No |  |
| 19 | ☐ Unknown | ☐ AP ☐ HL ☐ NV  ☐ LN ☐ LV ☐ MX  ☐ R ☐ NPH | ☐ Yes  ☐ No | ☐ Yes  ☐ No  ☐ Not found | Pen is labeled ☐Yes ☐No  Attached to barrel ☐Yes ☐No  Expiration date stated ☐Yes ☐No |  |

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| --- | --- | --- | --- | --- | --- | --- |
| **Audit #** | **Patient’s Initials** | **Insulin Product\*** | **Active Order** | **Storage per Hospital Policy#** | **Labeling&** | **Notes / Observations** |
| 20 | ☐ Unknown | ☐ AP ☐ HL ☐ NV  ☐ LN ☐ LV ☐ MX  ☐ R ☐ NPH | ☐ Yes  ☐ No | ☐ Yes  ☐ No  ☐ Not found | Pen is labeled ☐Yes ☐No  Attached to barrel ☐Yes ☐No  Expiration date stated ☐Yes ☐No |  |
| 21 | ☐ Unknown | ☐ AP ☐ HL ☐ NV  ☐ LN ☐ LV ☐ MX  ☐ R ☐ NPH | ☐ Yes  ☐ No | ☐ Yes  ☐ No  ☐ Not found | Pen is labeled ☐Yes ☐No  Attached to barrel ☐Yes ☐No  Expiration date stated ☐Yes ☐No |  |
| 22 | ☐ Unknown | ☐ AP ☐ HL ☐ NV  ☐ LN ☐ LV ☐ MX  ☐ R ☐ NPH | ☐ Yes  ☐ No | ☐ Yes  ☐ No  ☐ Not found | Pen is labeled ☐Yes ☐No  Attached to barrel ☐Yes ☐No  Expiration date stated ☐Yes ☐No |  |
| 23 | ☐ Unknown | ☐ AP ☐ HL ☐ NV  ☐ LN ☐ LV ☐ MX  ☐ R ☐ NPH | ☐ Yes  ☐ No | ☐ Yes  ☐ No  ☐ Not found | Pen is labeled ☐Yes ☐No  Attached to barrel ☐Yes ☐No  Expiration date stated ☐Yes ☐No |  |
| 24 | ☐ Unknown | ☐ AP ☐ HL ☐ NV  ☐ LN ☐ LV ☐ MX  ☐ R ☐ NPH | ☐ Yes  ☐ No | ☐ Yes  ☐ No  ☐ Not found | Pen is labeled ☐Yes ☐No  Attached to barrel ☐Yes ☐No  Expiration date stated ☐Yes ☐No |  |

**\*Insulin Products**

AP = Apidra (insulin glulisine) HL = Humalog (insulin lispro) NV = Novolog (insulin aspart)

LN = Lantus (insulin glargine) LV = Levemir (insulin detemir) MX = Pre-mixed insulin product

N = NPH (neutralized protamine Hagedorn) R = Regular (human insulin)

**#Storage**

The proper storage of insulin products is determined by hospital policy. It should be in a patient-specific location and not comingled with other patient’s medications.

**&Labeling**

A patient-specific label should be attached DIRECTLY to the pen barrel – not the pen cap or a plastic bag or box that may be used to transport and store the device when not in use. A label may also be attached to an outer container (per hospital policy) but the device must be labeled such that it identifies the patient for whom it is intended and clearly states the expiration date.