Safety Quality Improvement:
Safe Use of Insulin Pens

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New Orleans, Louisiana
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Team Members

• Team leader
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• Team members
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  – Jason Chou, Pharm.D., MS, Director of Pharmacy
  – Julie Castex, MSN, APRN, ACNS-BC, CMSRN, Clinical Nurse Specialist
  – Ana Dardis, RN, Diabetes Nurse Educator
  – Pavan Chava, MD, Endocrinology Chair
Ochsner Medical Center

- Academic hospital
- 550 beds, acute care hospital

- Accredited by The Joint Commission
- Joint Commission Advanced Disease Certification of the Inpatient Diabetes Program

Background and Description

- Insulin pen use
  - 90% of our insulin use comes from delivery by insulin pen devices
    - Novolog (insulin aspart injection)
    - Levemir FlexTouch (insulin detemir injection)
    - Novolog 70/30 (70% insulin aspart protamine suspension and 30% insulin aspart injection)
  - Participation
    - Safety events with insulin pens, regular insulin dosage, dextrose administration rates, and labeling of pen requirements revealed that we needed resources to improve our practices with insulin
Background

– Baseline data revealed that we saw small risk for the sharing of patient specific insulin pens
– However, other processes need improvement
  • Nurse education: prandial glucose measurement prior to meal intake, insulin stacking of aspart dosages
  • Insulin pen label beyond usage date

Process Improvements

• Policy and procedure
  – Insulin pen labeling
    • Storage
    • Labeling
    • Budget for future to include unit printers for labeling
    • Safety enhancement in development stage
      – Patient receiving intended pen to have additional safeguard with third required scan to ensure pen matches order for specific patient
Process Improvements

• Nurse education
  – CE on insulin products (time to onset, peak, duration of each profile) and patients at risk for hypoglycemia was done January 2015 ---will plan to repeat to reach full effectiveness
  – Insulin dose stacking warning now presents prior to administering dose from bar code scan
  – Tray notification to nursing has improved but need to continue improvement
  – Strategy development for blood glucose check prior to meal consumption

Insulin Observations
Observation Lessons

Improvements Made
- Proper hand hygiene
- Perform patient identification
- Scan patients ID and insulin
- Administration: Keep plunger pressed for 5 seconds after injection

Room to Improve
- Obtain replacement pen if expired
- Return pen device to hospital-approved patient-specific storage area

Pen Storage and Label Audit

<table>
<thead>
<tr>
<th></th>
<th>Baseline</th>
<th>Post-intervention</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient name</td>
<td>97%</td>
<td>77%</td>
</tr>
<tr>
<td>Active order</td>
<td>88%</td>
<td>98%</td>
</tr>
<tr>
<td>Storage per policy</td>
<td>67%</td>
<td>58%</td>
</tr>
<tr>
<td>Properly labeled</td>
<td>86%</td>
<td>83%</td>
</tr>
<tr>
<td>Properly stored and labeled</td>
<td>54%</td>
<td>50%</td>
</tr>
</tbody>
</table>

*Properly labeled:* pen labeled, label attached to barrel, and expiration date on label
*Properly stored and labeled:* active order, storage per policy, and properly labeled
Nurse Survey

• Response rate
  – 5% both baseline and post

• Areas for improvement
  – Insulin time-action profile education
  – Average 30% reported unapproved storage of insulin and insulin without patient-specific name label
  – Results of nursing survey were similar at baseline and post

Lessons Learned

• Nurses had issues with the survey not being able to watch videos
• Baseline and post-intervention observations were not blinded
• Nursing reports reveal the challenges with timing of insulin and meals on demand delivery
Next Steps

• New policies and procedures
  – Development of insulin U-500 policy
  – Regular insulin subcutaneous administration to be converted to aspart to reduce administration errors

• Nursing education
  – Huddle and presentations allowing for daily tips
  – Involvement with onboarding education

• Implementation of third label scan for accurate patient:pen administration

Mentored Quality Improvement Activity: A Broad View

• Patient safety
  – Increased visibility of pen safety efforts across hospital
  – Provided stimulus for developing education
  – Need to develop easier access to approach nursing education
  – Promoted team approach for ensuring insulin pen safety
  – Recognize a need to maintain and sustain safety