Implementation of Standardized Insulin Administration for Improved Glycemic Control

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Implementation of Standardized Subcutaneous Insulin Administration for Improved Glycemic Control

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PURPOSE

▪ To educate patients and staff on best practice for insulin administration with the overall goal of improving inpatient glycemic control and increasing staff compliance
TRIGGER?

Current Practice: Best practice is to rotate site in same area for 1-2 weeks.

Triggers:
- Knowledge deficit on best practice regarding insulin administration guidelines
- To achieve improved glycemic control
- Iowa Model: Evidence Based Practice to promote quality care
PICO QUESTION

- In adult hyperglycemic patients requiring subcutaneous insulin, how does the implementation of standardized insulin administration affect glycemic control compared to current practice?

**P:** Adult hyperglycemic patients requiring subcutaneous insulin

**I:** Education of staff on best practices of standardized rotation of insulin injection sites

**C:** Current practice

**O:** Improved glycemic control and staff compliance
EVIDENCE

- Keywords: DM, insulin, subQ injections, glycemic control, rotating injection sites
- Search Engines:
  - CINAHL
  - Medline
  - Google Scholar
Practice of rotating anatomic regions for insulin injections may increase day-to-day variation in blood glucose levels

- This practice should be replaced by the use of a single anatomic region for all injections. The abdomen is preferred because of the large size and it is the most rapid absorption site for insulin (Bantle et al., 1990).

- Insulin in the abdomen produced a greater reduction in plasma glucose compared to an injection in the thigh (Bantle et al., 1993).

- Researchers found that injecting insulin into the same anatomical region rather than different regions may diminish daily variation in insulin absorption (Kovisto & Felig, 1980).
Patients should be taught quadrant rotation scheme moving in clockwise manner

- This technique should be taught from the onset of diagnosis/insulin treatment and should be continually reviewed with HCP in the outpatient setting (Frid, A., et al., 2010).

Clinicians should inspect injection sites and technique on a regular basis along with providing diabetes education

- Questionnaire was performed, followed by a diabetes nurse specialist that inspected injection site. Study found that 65% of patients reported injection site problems (Partanen, T. & Rissanen., 2000).

- Questionnaire and education lecture revealed that education in insulin injection is crucial to glycemic control improvement (Nakatani et al., 2013).
Current Practice at LVHN

- Insulin is injected at random rotation into any subcutaneous anatomical region - mostly the arms and the abdomen.
- RNs typically administer insulin into the arms to ‘give the patient a break’ from injections in their abdomen.
- There is inconsistent documentation related to insulin administration sites.
- **Teach back education:** Rotate sites in same area for 1-2 weeks
IMPLEMENTATION

- **Process Indicators**
  - Pre-Survey of Nursing Staff
    - Surveyed staff’s knowledge of practice

- **Outcome Indicators**
  - Post-Survey of Nursing Staff
  - PCM Screen on CE
IMPLEMENTATION (cont.)

- Implementation of evidence-based technique on unit 6K
  - Education via ppt slides, emails, unit poster, and small group/individual in-services

- Key points for education
  - Evidence shows that abdominal injection sites have best absorption rates.
  - Clockwise quadrant rotation of injections is best practice.
Implementation Instructions

1. Educate patients that the abdomen is the best absorption site for insulin and therefore produces a more consistent glycemic control.

2. Educate patients that rotation of sites refers to staying in the same anatomical region. Since the abdomen is the best absorption site, insulin should be injected into that region in a quadrant/clockwise manner.

3. Educate patients on utilizing an imaginary clock on their abdomen to assist with rotation of each insulin injection throughout the day.

4. Staff must appropriately document location in PCM screen. Please see the screen shot on next slide.

5. To document more accurately, a laminated grid of the quadrant/clockwise abdomen will be placed in every med drawer. Please update the grid with a dry erase marker by documenting location, date, and time. This will serve as another reference for other nurses and a teaching tool for patients.
http://www.primarycaretoday.co.uk/practicebusiness/new-uk-recommendations-for-best-practice-in-diabetes-injection-technique-
To view previous administration sites, highlight the medication and click on ‘action level’.

<table>
<thead>
<tr>
<th>Ln</th>
<th>DO</th>
<th>Status</th>
<th>Date</th>
<th>Time</th>
<th>Result</th>
<th>Medication</th>
<th>Dose</th>
<th>Units</th>
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<td>0930</td>
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<td>NICOTINE</td>
<td>21</td>
<td>mg</td>
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<tr>
<td>4</td>
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<td></td>
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<td>1 to 7 UNITS</td>
<td>1000 mL</td>
<td>100 mL/HR</td>
<td>RXQDNOW</td>
<td>TD</td>
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<tr>
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</table>
View the last column on the right and note the last documented administration site. In this patient, it was the left arm.
Practice Change

▪ Standardization of insulin administration using the abdomen as the preferred anatomical site
▪ Education on proper documentation of the selected site
▪ Staff and patient education on best practice for insulin administration
RESULTS

- **Pre Survey (53% Response rate)**
  - Arm: 81%
  - Abdomen: 19%

- **Post Survey (96.7% Response rate)**
  - Arm: 14%
  - Abdomen: 86%

Education of insulin administration resulted in increased use of abdominal site supported by EBP.
Insulin Administration Sites

PRE-SURVEY

ANATOMICAL REGION USED

- ARMS: 81%
- ABDOMEN: 19%
- THIGH: 0%
Insulin Administration Sites

POST-SURVEY

- ANATOMICAL REGION USED
- ARMS
- ABDOMEN
- THIGH

- 86% ABDOMEN
- 0% ARMS
- 14% THIGH
Implications for LVHN

- Project suggests that more education is needed on insulin administration among nursing and patients.

- Implementation of project network wide supports LVHN’s focus on patient centered care and Magnet standards.
Strategic Dissemination of Results

Plan:

- UHC/AACN Nurse Residency Graduation
- Share results with 6K and other medical-surgical units (unit meetings)
- Create abstract for UHC conference
Lessons Learned

• Education and an evaluation of the evidence is key to best practice and quality patient care.

• Collaborating with other disciplines and using multiple resources is vital to project success.


Thank you to all those who have supported us with our project and first year of nursing!

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  - Susan M. Fink, MLS and Kristine Petre, MLS- Medical Librarians
MAKE IT HAPPEN

Questions?

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