Strategies for Ensuring the

Safe Use of Insulin Pens IN THE HOSPITAL

One pen.
One patient.

Insulin Pen Mentorship

Mercy Hospital Joplin
Joplin, Missouri

Sarah Boyd, Pharm.D., BCPS, Team Leader

August 2015

Team Members

One pen.
One patient.

- Team leader
  - Sarah Boyd, Pharm.D., BCPS
    - Director of Pharmacy
- Team members
  - Amy Honey, Pharm.D., BCPS
    - Pharmacy Clinical Manager
  - Tim Holding, Pharm.D.
    - Pharmacy Operations Manager
  - Vicki McCleary, RN, BSN
    - Director Medical Surgical
  - Karen Parsons, RN, BSN
    - Nursing Manager 3MS, 4MS, 6 Surgical
  - Kelli Bigando, M.S., RN, ACNS-BC
    - Director Medical Surgical
  - Kelli Whitehead, RN
    - Nurse Manager
  - Donna Stokes, RN
    - Infection Control Coordinator
  - Melanie McNeill, RN, BSN
    - Infection Control Coordinator
  - Joan Wilson, RN, BSN
    - Clinical Educator, Trauma/ICU/TCU/ED
  - Kristen Fenimore, RN
    - Diabetes Educator

Mercy Hospital Joplin

- Community-based hospital
  - Baseline data
    - Collected at 120-bed replacement facility
  - Post-intervention data
    - Collected at 250-bed facility

Background and Description

- Insulin pens used since 2009
- In March 2015, we moved to our new hospital
- We believed the mentorship program would help us focus on insulin pen safety throughout the move continuum
  - Medication storage would be changing with new hospital
  - Increasing reports of medication errors within ISMP, the need to review our own processes to ensure safe use
    - Although insulin pens have been used for years, the administration had not been observed

Process Improvements

- Storage
  - Completed policy/procedure for in-room patient medication lock boxes
  - Created a work-out group focusing on re-dispensing of insulin pens to address problem of multiple pens being available for one patient
- Labeling
  - Secured the label to the pen with tape
  - Provided education on beyond use date stickers

Process Improvements (cont.)

- Education
  - Quick reference tool created to help education on time-action profiles of the different types of insulin
  - Pharmacy now participates in nursing orientation
    - Discuss insulin pen safety and overall management process

Selected Results: Direct Observations

Insulin Pen Mentorship Direct Observation							
	Step Description	Baseline ICU	Post CVI	Baseline Unit A	Post 4MS	Baseline Unit E	Post 7CM
2	Expiration is documented on label	93%	93%	85%	100%	87%	100%
3	Obtains replacement pen if expiration date is not documented or if expired*	100%	0%	50%	75%	50%	100%
4	Displays use of proper hand hygiene prior to patient contact	92%	93%	73%	93%	93%	100%
6	Checks medication label	86%	87%	100%	87%	100%	100%

Selected Results: Direct Observations

- Efforts focused on those areas in which education could be most impactful
  - Beyond use date stickers are applied to every pen, but through observation learned that our nursing co-workers were unfamiliar with its necessity
  - During the intervention period, education provided via gemba huddles and nursing newsletter

Selected Results: Nurse Survey

- Based on nursing opinion, we focused on time-action profiles
- The education piece was not in place until after the hospital move

Knowledge and Skill Development Needs

12. In your opinion, which of the following is the greatest knowledge or skill gap that nurses have with regard to the safe use of subcutaneous insulin in hospitals? (Select only one)

Answer	Baseline Response	Baseline %	Post Response	Post %
Subcutaneous injection technique	1	3%	0	0%
Hypoglycemia – who's at risk and how to manage it	3	8%	5	25%
Insulin pen devices - unique features and precautions	5	14%	1	5%
Accurately interpreting sliding scale and administering correct insulin dose	1	3%	0	0%
Time action profiles of the different insulin products (e.g., time to onset, peak, and duration of each insulin product) and timing of injections	27	73%	14	70%
Total	37	100%	20	100%

Selected Results: Pen Storage and Labeling Audit

Pt. Care Area	Pens Audited Baseline (#)	Patient Name (%)	Active Order (%)	Storage per Policy (%)	Properly Labeled (%)	Properly Stored & Labeled (%)	Post Pens Audited (#)	Post Patient Name (%)	Post Active Order (%)	Post Storage per Policy (%)	Post Properly Labeled (%)	Properly Labeled Change (%)	Post Properly Stored & Labeled (%)	Properly Stored & Labeled Change (%)
ICU/JOPL 3CVI ICU	18	100%	100%	72%	100%	72%	19	100%	100%	100%	74%	-26%	74%	2%
Unit A/JOPL 4MedSurg	28	100%	100%	89%	64%	61%	20	100%	100%	100%	100%	36%	100%	39%
UnitE/7CardiacMedical	33	97%	94%	91%	91%	82%	27	96%	93%	96%	70%	-21%	70%	-12%
Total	79	99%	97%	86%	84%	72%	66	98%	97%	98%	80%	-18%	80%	8%

- Implementation of in-room lock boxes was successful based on proper storage
- "Smudge proof" labels not requiring tape overlay was not beneficial
  - Additional issues found with labels falling off

Properly labeled = pen labeled, label attached to barrel, and expiration date on label.
Properly stored & labeled = active order, storage per policy, and properly labeled.

Lessons Learned

- Labeling and storage audit provided insight into a couple issues with recent changes
  - New “smudge proof” labels
  - In-room patient medication lock boxes
- Direct observations were integral to ensuring education was received and part of daily practices
- The nurse survey allowed us to see various educational opportunities

Next Steps

- Based on labeling and storage audit
  - Training within the nursing newsletter to highlight labeling requirements of insulin pens
  - Audit the use of patient medication lock boxes on all units
    - Initially 5 medication lock boxes on each unit
      - Based on findings, determine if further audits are necessary

Next Steps

- Based on direct observations
  - Training within the nursing newsletter to highlight administration procedures using insulin pens
  - Increase direct observations
    - Train super users for each unit
      - At minimum 1 RN per unit per shift
      - Super user training to be completed by end of August 2015

Next Steps

- Based on nurse survey
  - Complete posters illustrating the time-action profiles of various types of insulin
    - Laminate and post in all med rooms
  - Increase one-on-one education during both orientation via clinical nurse managers and pharmacy

Mentored Quality Improvement Activity: A Broad View

- The mentorship helped maintain insulin pen safety throughout the hospital move
  - Patient medication lock box storage process and procedure development was an interprofessional process that aided in the success of our educational efforts
  - Direct observations allowed us to validate that the education provided was implemented at the bedside
    - Direct observations were just as educational to the observer in that implementation of new educational tools were based on “real life” needs vs. implied issues