Mitigating Risks Associated with Inhaled Medications

March 8, 2021

West Hospital

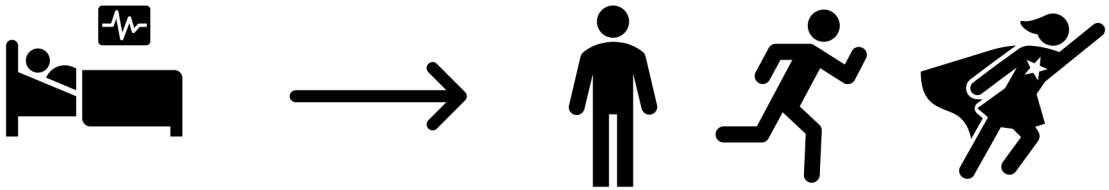
Implementing a Therapeutic Interchange for MDI/DPIs to Nebs for Short Stay Hospital Patients

Disclosure: This pilot was implemented October 2019 (pre-Covid19 pandemic)

West Hospital

SBAR - *Situation*

The Respiratory Therapy and Inpatient Pharmacy leadership identified an increase in drug waste and expense related to patients with short hospital stays (i.e. Observation and Outpatient in a Bed/Post-Surgical). Patients would have their maintenance inhalers re-ordered on admission. These patients' length of stay is typically less than 24 hours.



SBAR - *Background*

A Metered Dose Inhaler (MDI) or Dry Powder Inhaler (DPI) order was entered as part of the Admission Medication Reconciliation process (continuation of patient's maintenance therapy) on admission. The inhalers were sent by pharmacy to the unit and administered by Respiratory Therapy. The patient typically would receive 1 to 2 doses during their 24 hour stay. If the inhaler is what the patient was already taking at home, the pharmacy would relabel the inhaler to send home with the patient per our hospital's *Discharge Medication: Respiratory Inhalers* **policy**. However, if the inhaler has been therapeutically interchanged from their home inhaler (i.e. Advair® interchanged to Breo™®), per policy we do not send the inhaler home with the patient and therefore it is disposed of in pharmacy. This results in additional cost/waste of the inhaler not only to the hospital, but also to the patients.

SBAR - *Assessment*

Therapeutic Review

- Abundance of evidence in literature to support the effectiveness of nebulizers and inhalers when used optimally.
- Current NebuTech nebulizer that is used in the hospital, provides delivery of 80% of particles in the respirable range.
- Listserv discussion/review on the American Association for Respiratory Care (AARC) leadership/management section supported that numerous hospitals have a MDI → Neb Interchange program in place.
- Most LABA, LAMA, and ICS medications can be mixed in the same nebulizer and administered in 5 minutes or less

Financial Review

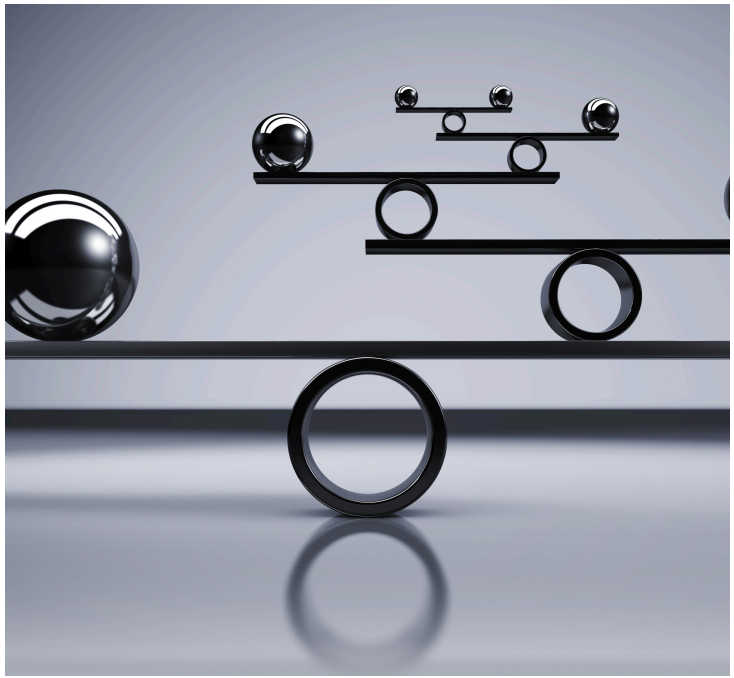
- Respiratory Therapist
  - Increased time at patient bedside
  - Less time looking for inhalers in med room/at bedside/locked patient bin
  - Neb delivery allows for higher RVU billable than Inhaler administration
- Decrease in inhaler waste
  - Subsequent decrease in RCRA waste
- Potential Cost Savings Example: 24 Hour Stay Patient on Breo® converted to Arformoterol/Budesonide nebs (including cost of medication, supplies, & labor)
  - ~$78 savings per patient

SBAR – *Assessment (cont.)*

Safety Review

- In 2019 – 5 reported Medication Variances at our institution involving MDI/DPI devices
  - Look-a-like/Sound-a-like (LASA) error:
    - **Arnuity® DPI dispensed instead of Anoro® DPI. Not caught until after several doses administered.**
    - **Anoro® DPI dispensed instead of Incruse® DPI (Multiple Ellipta devices on formulary)**
    - **MD changed patient order from Breo® 100/25 to Breo® 200/25. Previous inhaler left in patient's med box and continued to be administered to patient.**
  - Prescribing Error:
    - **MD unaware that there were 2 different strengths of Spiriva Respimat® in system, ordered incorrect strength.**
  - Process Error:
    - **Two patient's inhalers were mixed together in clear locked box in patient room. Discharged patient's inhalers were not removed from box at discharge.**

Implementation Pilot – October 2019



- Pilot conducted in Observation unit for 1 month
- N size: 14 patients converted to Nebs from MDI
- 12 of 14 patients stayed in OBS. 2 patients were admitted as inpatients (cardiac & monitoring)
- No documented respiratory issues/concerns during stay for all 14 patients
- 13 of 14 patients discharged on correct home MDI/DPI. 1 patient had Advair discontinued at discharge with no new therapy started.
- Total cost savings during pilot: $954.75
- Cost savings per patient ranged from $19.24 to $242.92

Next Steps…

1. Successful Pilot Project → Local P&T committee and Physician Chair for Respiratory Department approved to expand pilot from Observation to include Post-Op/Surgical Inpatients.
2. Therapeutic Interchange suspended at onset of Covid19 pandemic (March 2020) due to concern of unnecessarily aerosolizing particles/potential disease spread/lack of negative pressure rooms.
3. Multiple benefits observed during Pilot:
    1. Potential for less medication variances (More barcode checkpoints w/Nebs)
    2. Increased patient satisfaction – more facetime/education opportunities with RT
    3. Increase financial savings/Less Waste/More billable RVUs

*****Looking Forward to Resuming Program in 2021!*****

Thank You!

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West Hospital