APPLICATION OF BEERS CRITERIA AND A BROWN BAG EVENT TO INCREASE PREScribing SAFETY IN OLDER ADULTS

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Background
- Polypharmacy is defined as the use of one or more medicines to treat medical conditions. (Breslin et al., 2017)
- 28% of the older adult population have medication regimens that include polypharmacy. (Patterson et al., 2017)
- Polypharmacy has been previously associated with negative health outcomes. (Patterson et al., 2017)
- Use of clinical guidelines promote polypharmacy and can increase risk of adverse drug events.
- The Beers criteria is widely used throughout literature and is a standard of care for prescribers regarding adults 65 years of age and older. (Terrey & McCotter, 2016)

Significance of Problem
- Prescriptions for the elderly account for 25-40% of all prescriptions written. (Skinner, 2015)
- Many patients over the age of 65 have multiple chronic conditions that require more than 5 medications a day.
- Adverse drug event can have potential to contribute to decline in health. (Yja et al, 2012)
- Risk of adverse drug events with polypharmacy also increases due the aging process. (Wheaton et al, 2015)
- Electronic health records (EHR) provide prescribing safeguards but are not useful for facilities without EHR.
- Medication reviews and the use of screen tools such as the Beers criteria can increase polypharmacy safety. (Jager et al., 2014)

Purpose
- The purpose of the evidence-based practice project was to improve appropriate polypharmacy prescribing by identifying possible inappropriate prescribed medication, discontinue or decrease dosage of possible inappropriate medication, and identify duplicate medication therapies to reduce adverse medication related events in older adults.

Framework
- The theoretical framework utilized was Paterson and Zderad’s Humanistic Nursing Practice Theory. Humanistic Nursing Practice Theory proposes that nurses consciously approach nursing as an existential experience.
- The Stetler Model provided a progressive approach for guidance and implementation of this EBP project. This EBP model reflects a practitioner-oriented approach within context of EBP.

PICO
- Patient Population: Adults 65 and older taking 5 or more prescribed medications.
- Intervention: Application of Beers criteria and brown bag event.
- Comparison: Standard facility medication reconciliation.
- Outcome: Identify inappropriate prescribed medication, discontinue or decrease dosage of possible inappropriate medication, and identify duplicate medication therapies.
- Timeline: Two months.

Decision to Change Practice
- No electronic medical record charting system to provide technological safeguards for safe prescribing.
- Medication reconciliation is compared to previous record or against a list of medication the patient brings in to their scheduled appointment.
- With no electronic medical record technical safeguard there is an increased risk for adverse polypharmacy medication events.

Review of Literature
- Databases included in search: The National Guideline Clearinghouse, Joanna Briggs Institute (JBI), Cochrane Library, Cumulative Index of Nursing and Allied Health Literature (CINAHL), and Medline via EBSCO.
- Search terms used within CINAHL, and Medline via EBSCO included: “polypharmacy”, “reconciliation” OR “Beers criteria”, OR “brown bag”, OR “medication education” OR “duplicate therapy”.
- Search terms used within National Guideline Clearinghouse, JBI, and Cochrane Library included the term “polypharmacy”.
- Inclusion criteria included literature that were scholarly reviewed, written in English, published between 2012-2018, and incorporated interventions for polypharmacy in older adults.
- Literature exclusions included not scholarly reviewed, not written in English, published before 2012, incorporated aspects of polypharmacy in younger adults, and incorporated interventions set in the hospital or outpatient settings.

Synthesis of Evidence
- The Melynk and Finehout (2015), evidence rating system was used to categorize literature in evidence levels.
- The Critical Appraisal Skills Programme (CASP) checklist was chosen to appraise systematic reviews, practice guidelines, and evidence summaries.
- The CASP checklist was designed to be used as an educational tool, but does not suggest a scoring system. (Critical Appraisal Skills Programme, 2011)
- After appraisal, literature was assigned a grade of A (Good quality), B (Fair quality), C (Poor quality).

Evidence
- This EBP project was implemented at a private family practice within Porter County, Indiana.
- 34 patients were selected based on inclusion criteria and demographics and outcome data was collected from October 10th through November 30th.
- Patient meeting inclusion criteria were encouraged to bring all prescribed medication, OTC medication, and supplements to their scheduled appointments to identify duplicate medications.
- Patient medication regimens were compared to the Beers criteria.
- Beers criteria medications were evaluated for possible discontinuation or dosage decreases.

Evaluation
- Outcomes for this project were collected using data collection sheets and consisted of:
  1) Identification of possible inappropriate medication, discontinuing medication, and decreasing medication dosages.
  2) Identifying duplicate medication therapy.
- A paired sample t-test was used to compare the number of medication dosages pre- and post-application of the Beers criteria.
- A simple sample t-test was used to analyze statistical significance of number of possible inappropriate medication identified, number of medication discontinued, number of medication dosages decreased, and duplicate medication identified.

Decision & Recommendations
- There was a statistical significance in the reduction of medication between Pre- and Post- Beers criteria application (t(33) = -1.87, p = .075).
- There was no statistical significance found regarding discontinued medication, decreased medication dosages, and duplicate medications.
- Best practice recommendations was based on literature reviewed.
- Recommendations include multi-modal interventions to decrease inappropriate polypharmacy.
  - Deprescribing strategies, use of Beers criteria, detailed medication reconciliation, yearly brown bag events, verifying prescribed medications with other prescribers to eliminate duplicate therapy.
  - Patient education regarding medication regimen.
  - Encourage patient participation in their care.

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