

## INTRODUCTION

- **65 years and older population:** increase from 40 million (2010) to 71 million (2030) (United States Department of Health and Human Services, 2010).
- Polypharmacy/ inappropriate prescriptions are BIG problems in this population (Charlesworth, Smit, Lee, Alramadhan, & Odden, 2015).
  - **Polypharmacy** = prescription of too many medications for an individual patient
  - **Potentially inappropriate medications (PIMs)** = prescriptions with dangerous age-related/ drug-drug/ drug-disease interactions.
- Pharmacodynamic/ kinetic changes, co-morbidities, and complex medication regimens = high risk for an **adverse drug event (ADE)** (Moriarty, Bennett, Cahir, Kenny, & Fahey, 2016).
- Mismanaged polypharmacy resulted in 1.3 billion dollars of avoidable healthcare costs in 2012 (Aitken & Valkova, 2013).
  - 1.1 billion \$\$\$ spent on inpatient treatments and emergency room visits from an ADE (Aitken & Valkova, 2013). \$\$\$
- Increased focus on inappropriate medications that can be safely *discontinued* → strengthen the medication review process and improve patient outcomes.
- The **Screening Tool of Older Persons' Prescriptions (STOPP)** aids in the identification of PIMs (O' Mahoney et al., 2015).
  - more sensitive than other medication review tools (i.e., Beers' list)
  - identifies more medications associated with ADEs ( Garcia- Gollarte et al., 2014; Hill-Taylor et al., 2013).

### Purpose Statement:

For primary care patients, aged **65 to 79 years (P)**, does **provider education** of the **STOPP criteria (I)**, decrease the number of patients with PIMs in the medical record in a mid-Western primary care clinic (O), within a 3-month timeframe (T)? **The goal of the project** was to determine if an education intervention reduced the incidence of PIMs in primary care patients' medical records.

### Objectives:

1. **15% reduction** in the number of sample patients with a PIM in their medical record, six weeks after provider education;
2. **50%** of providers within the clinic in attendance at the educational session, as evidenced by a sign in sheet, after the initial chart review.

## REFERENCES

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## MATERIALS AND METHODS

**DESIGN:** longitudinal quality improvement project to decrease the percentage of patients with a PIM in the medical record by improving provider knowledge of the STOPP criteria

- SETTING: southeast MO primary care; nine providers in family and internal medicine
- TARGET POPULATION: purposive, convenience sample of patients seeking care at the clinic
- INDIVIDUAL DEMOGRAPHICS: age, gender, insurance, and race



Assessed for PIMs (according to the STOPP benchmarks) present in the patient medical record (six weeks retrospectively) meeting inclusion criteria:

- age ≥ 65 but ≤ 79 years
- and ≥ 1 prescription medication
- Provider attendance
- ❖ (“as needed” medications included in the analysis).

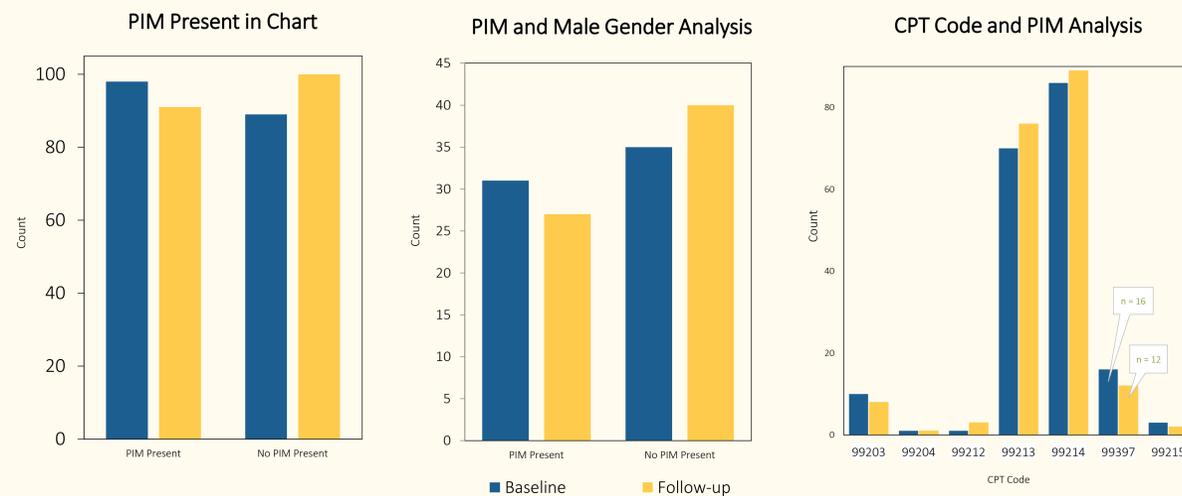
Interactive, multimedia presentation

- Topics:
  - significance of polypharmacy and PIM,
  - introduction to the criteria,
  - benefits for the population and providers,
  - utilization of the benchmarks.
- reference pocket books for use in the session / daily practice.

Assessed patient medical records for PIMs

Utilized same inclusion criteria to search charts to review

## RESULTS

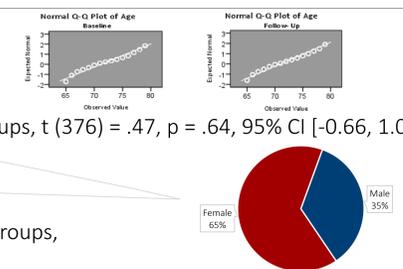


### Discussion of the Results

- ✓ **Objective 1: Not Met.** 7% reduction in patients with a PIM, six weeks post- provider education.
  - Baseline: 52% (n = 98) of patients had a PIM in the medical record → Follow-up: 48% (n = 91)
    - $\chi^2 (1) = 0.86, p = .36.$
    - $\phi (\Phi)$  of .10 = small, clinically significant reduction in incidence of PIM post-education intervention.
- ✓ **Objective 2: Met.** 78% (n = 7) of the providers in the clinic attended the education session.

### Demographics

- The mean **age** of both groups was 71 (SD = 4.36; SD = 4.24)
  - no statistical significance between age in the baseline and follow-up groups,  $t (376) = .47, p = .64, 95\% \text{ CI } [-0.66, 1.08]$
- The baseline group was 35% **male** (n = 66) and 65% **female** (n = 121)
- The follow-up group was 35% **male** (n = 67), and 65% **female** (n = 124)
  - no statistical significance between gender in the baseline and follow-up groups,  $\chi^2 (1) = .002, p = .97$



## RESULTS

- **Analysis of PIMs & Gender:**
  - reduction in PIMs in the **male** sample between baseline (n = 31) and follow-up (n = 27)
  - $\chi^2 (1) = 0.6, p = .44, \phi (\Phi)$  of .1 – **small, clinically significant reduction** between **male** gender and PIMs
  - **Female:** decrease in PIMs between baseline (n =67) and follow-up (n= 64)- not statistically or clinically significant  $\chi^2 (1) = 0.35, p = .56, \phi (\Phi) =.04$
- **STOPP Benchmarks:**
  - types of PIM most often identified not statistically significant between groups
  - $\chi^2 (31) = 24.6, p = .79,$  the  $\phi (\Phi)$  of .3 indicates a **moderate, clinically significant difference** in benchmarks/ PIM identification
    - ❖ “benzodiazepine prescriptions for greater than four weeks’ therapy” decreased by six cases between baseline (n = 21) and follow-up chart review (n = 15)
    - ❖ “Duplicate medications from the same drug class” fell by 3 cases between baseline (n =7) and follow-up(n =3)
- **CPT Code and PIM:**
  - small, clinically significant decrease in PIM for visits coded, \***“99397”**
  - $\chi^2 (6) = 2.25, p = .89, \phi (\Phi)$  of .10

\*periodic comprehensive preventative medicine evaluation & management with history and exam

## CONCLUSIONS

- To *apply* the criteria in clinical practice, *reduce* PIMs, and *improve* patient safety, providers need education on the application and rationale for the STOPP criteria.
- **Primary care** providers are in position to *identify* PIMs, *evaluate* the harm/ benefit ratio of the medication and *prescribe* potentially **safer** medications.
- Education targeting PIMs has potential to improve **patient outcomes** and promote **safe prescribing practices**.
- Future educational opportunities for multiple disciplines including nursing, pharmacy and social workers would encourage a **team approach** to care in a multitude of settings.
- Incorporating *all* members of the patient care team, opportunities to *identify* PIMs grow and a greater level of *patient monitoring* obtained.

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