Objective:

- Reduce the number of ASB (asymptomatic bacteriuria) conditions treated with antibiotics by assisting LTC staff in distinguishing between symptomatic UTI and ASB through implementation of a Comprehensive UTI Prevention Protocol.
- This project examined the impact of the UTI education and prevention program on (1) antibiotic use for possible UTIs and (2) the number of urine cultures performed.

Background:
In long term care (LTC), UTIs are considered one of the most common infections treated. Also highly prevalent in LTC is asymptomatic bacteriuria (ASB), which mirrors a UTI with a positive culture, but lacks specific symptoms arising from the urinary tract (dysuria, frequency, flank pain, etc.). ASB does not benefit from antibiotic (ABX) treatment thus distinguishing between a symptomatic UTI from ASB is imperative to reduce inappropriate ABX use which can lead to increased ABX resistance and transmission of resistant bacteria to other LTC residents (1,2,4,5).

Review of Literature:
The prevalence of ASB:25-50% among women and 15-40% among men in LTC, much higher than the prevalence in community-dwelling elders. Although ASB and symptomatic UTI look alike on paper, treatment is not warranted for ASB (1-5).

Method:
The quality improvement project took place in a 200-bed LTC facility. Residents were place on a 3-day UTI prevention protocol if 1-2 vague UTI symptoms were noted. The protocol consisted of monitoring the symptom(s) every shift for 3 days as well as instituting specific nursing interventions. If 3 symptoms occurred at any time during the protocol, the PCP was notified and a catheterized UA and culture were sent.

UTI Prevention Protocol:
House-wide implementation in LTC facility in Iowa:
* Nursing education for Prevention of UTIs, and
* Implementation of UTI Prevention Protocol for Residents with < 3 generalized signs/symptoms of a UTI.

Observational Length: 51 months total
* 31 – post-intervention
* 20 – pre-intervention

Objectives:

- Nursing education for Prevention of UTIs, and
- House-wide implementation in LTC facility in Iowa:

Results:
Both group data showed normal distribution, Independent t-test for assessing the difference between group means for:
- The # of urine cultures obtained per month: t = 2.46, df = 29.37, p < 0.01
- The # Residents on antibiotics for UTI treatment per month: t = 6.54, df = 25.48, p = 0.000005

Study Weakness:
- Group size unequal
- Data by month vs patient level
- Duplicate patient inclusion possible for a given month
- # Urine cultures ≠ # Residents on antibiotics
- “All-opt-out” patients included – inflating monthly frequencies

Study Strengths:
- Bonferroni correction increased significance level to be met
- Used one-tailed hypothetical distribution (vs. 2)
- Patient safety paramount throughout protocol

Conclusions:
A decrease in the number of urine cultures drawn per month, p < 0.01
A decrease in the number of residents on antibiotics for UTI treatment, p < 1 x 10^-6

This type of intervention provides an opportunity for WOC Nurses to offer services that prevent UTIs while developing a plan of care to attack inappropriate antibiotic use for ASB.

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References:
4. Nicole LE. Infectious Diseases Society of America Guidelines for the Diagnosis and Treatment of Asymptomatic UTI in Adults. Clinical Infectious Diseases; 40:643-64.

Data:

- Data tracking was done monthly and included: # of urine cultures, # of patients on antibiotics for UTI treatment, # of patients on ASB/UTI Prevention protocol.
- Data was not tracked for: Residents who opted out of the protocol by Primary Care treatment, Hospice Coverage, or Family wishes. However, these “opt-out” residents with their urinary diagnostics and UTI antibiotics treatment were still included in the monthly totals.

Data Analysis:

- Statistical macro was used to: Assess normality of distribution, Graph box plot, Obtain simple descriptive statistics; Employ independent t-test to compare the mean between the 2 groups on: Urine cultures performed and Number of residents on antibiotics for UTI treatment.
- Due to the QI project assumptions: Level of significance was set at p ≤ 0.01.
- A cautious approach was taken to establish a more conservative level of significance (2 variables: 2 * 0.05 = 0.01)

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