Increasing Patient Safety by Decreasing Medication Usage in the Long Term Care Setting

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BACKGROUND:

While pharmaceutical advances are likely the single most important factor in improving quality of life for seniors, the elderly are especially at risk for medication-related problems. There are many reasons for this increased risk, including: a higher incidence of multiple chronic diseases and conditions, physiological changes of aging, and greater consumption of prescription and over-the-counter medications.

According to the American Society of Consultant Pharmacists (ASCP), the economic impact of medication-related problems in persons over the age of 65 now rivals that of Alzheimer's disease, cancer, cardiovascular disease, and diabetes. Medication-related problems are estimated to be one of the top five causes of death in that age group, and a major cause of confusion, depression, falls, disability, and loss of independence. Because many of these negative outcomes are also quality indicators for nursing facilities, Parker's administration chose to target reduction in medications through a quality improvement program.

This study hypothesized a significant, safe reduction in the number of medications used by long-term care residents through the implementation of a program review process at Parker Jewish Institute for Health Care and Rehabilitation, using the researched standard that a threshold of 9 or more medications was considered excessive utilization. We hypothesized significant decreases in the measures of numbers of medication, PRN orders, and treatments over the sixteen week period of program implementation.

METHODOLOGY:

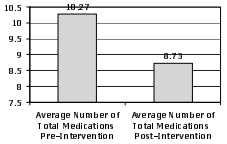
The study population selected were *164 long term care patients*. A one-group, pretest-posttest design was utilized. The intervention consisted of unit-specific meetings with the attending physician, fellow, director of pharmacy, pharmacy consultant, head nurse and nurse manager. The charts of each patient on the unit were reviewed, treatments were discussed, as well as behaviors, vital signs, and weight loss/gain. Nurses and physicians provided input/feedback, and a collective decision was implemented immediately. It should be noted that to ensure patient safety, discontinuance of a medication was implemented only if **all** parties agreed that the change was beneficial. Program efficacy was measured specifically through: 1) total number of medications, 2) total number of PRN orders, and 3) total number of treatments (Treatments are defined as creams, lotions and ointments for wound care, including bacitracin, hydrocortisone, hydrogel, and perishield®).

RESULTS:

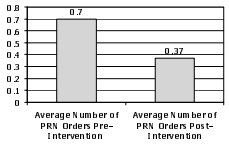
Data, mainly on the three measures listed above, was analyzed using SPSS (Statistical Package for the Social Sciences). Pre-intervention numbers, collected at the start of the four-month implementation period, were compared to post-implementation numbers. The results of these comparisons were tested for significance by using paired-samples t-tests. Four units received the intervention, targeting 164 patients (or 31% of total number of patients residing at the facility). *The intervention was found to have a significant impact on utilization across targeted units: for the four units combined, all three outcomes measures showed statistically lower medication utilization.*

Prior to intervention, the average total number of medications used was 10.27 (n=164); after the intervention, the average number of medications used was 8.73 (n=164). The t-test shows that the average number of medications used significantly decreased after the intervention was introduced (t=10.534, α =.000) across targeted units. Similarly, the average total number of PRN orders dropped from .70 (n=164) to .37 (n=164) after the intervention, also a significant decrease (t=6.066, α =.000). Finally, the average total number of treatments decreased from 1.05 (n=164) to .87 (n=164). A t-test shows that the decrease in average number of treatments after (t=3.8, α =.000) the intervention was initiated.

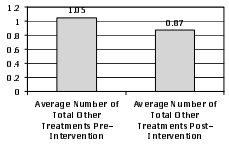
TOTAL UNITS RECEIVING INTERVENTION
Average Number of Total Medications (N=164)



TOTAL UNITS RECEIVING INTERVENTION
Average Number of PRN Orders (N=164)



TOTAL UNITS RECEIVING INTERVENTION
Average Number of Total Other Treatments* (N=164)



* Prescription non-oral medications such as lotions, creams, salves*

CONCLUSIONS:

This very simple intervention was found to be effective in that: 1) all three outcome measures showed statistically lower medication utilization overall and 2) 9 out of 12 or 75% of unit-specific analyses also showed statistically lower medication utilization post-intervention. We hypothesized that this program would bring about decreases in medication utilization. The results of this study suggest that it is possible to safely reduce medication utilization in the nursing home environment. Further research must be conducted to determine the impact of medication utilization decreases on therapeutic outcomes and medication-related problems. In addition to the potential for improvement in residents' health, there are economic implications of decreased medication utilization. More widespread awareness of these issues may lead to betterment of quality of life for a growing senior population.

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