

**Abstract Title:** The Effects of Probiotics on Antibiotic Associated Diarrhea in the Elderly Residing in an Extended Care Facility

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**Purpose & Rationale:** Antibiotic associated diarrhea (AAD) is defined as the self limiting diarrhea that occurs during or following a course of antibiotics. This can pose a serious problem for the elderly, especially the vulnerable elderly living in extended care facilities. Diarrhea leading to dehydration and electrolyte imbalance in the elderly complicates the treatment of a simple infection. ). The prevention of all types of diarrhea associated with antibiotic use would decrease negative outcomes, avoid adverse events save healthcare dollars and increase adherence.

**Research Questions:** Can the addition of Probiotics reduce the incidence of AAD in a vulnerable elderly population? What is the cost savings of preventing AAD?

**Synthesis of Review of Literature:** A search of the literature for discussions on AAD; this produced many articles specific to *Clostridium difficile* but not the broader issue of antibiotic associated diarrhea. No guidelines were found regarding prevention of ADD. The literature for prevention of AAD using probiotics has many small studies with different endpoints, poor methodology making comparisons between the studies difficult at best, and there is the suggestion conditional support of the use of probiotic monotherapy to prevent AAD. However, none of the studies were able to agree on which probiotic to use, dose of probiotic and length of use.

**Methods/Procedures:** This study was conducted at an extended care facility. The only criteria for inclusion were the appropriate use of any antibiotic for any infection, regardless of other disease processes or medication regime. A convenience sample all patients at a local long term care facility in the town where the author practices, over a three month period. Based on the literature that was reviewed, it was proposed to use probiotics and yogurt every time an antibiotic was ordered regardless of infection type or antibiotic used. The outcome was the prevention of antibiotic associated diarrhea, this would include *Clostridium difficile*, but our true end point was no diarrhea.

**Results:** During the time frame of the study there were no cases of AAD at the facility. The cost benefit analysis found that for every case of diarrhea prevented from a hospitalization \$6000 was saved and for every case of diarrhea prevented that did not require an IV at the nursing home a \$600 saving was realized.

**Discussion/Application to Practice:** In the setting of this particular extended care facility Probiotics have proved to be cost effective as well as reduce the number of cases of AAD to zero. Further study is needed to see if what has been achieved with this vulnerable population can be applied to a broader population. The next

step is to propose a standard of care that can be applied across the life span as well as varied practice settings.