Facilitating the Prophylactic use of Probiotics to Decrease the Incidence of Clostridium Difficile Infection in the Hospital Setting

Aim of project
By encouraging the use of the probiotic saccharomyces boulardii (s. boulardii) with antibiotic use in adult medicine patients at UNM, we aim to decrease the incidence of clostridium difficile (c. difficile) colitis and antibiotic associated diarrhea (AAD).

Background of project
Saccharomyces boulardii is a non-pathogenic yeast that has been shown in multiple randomized controlled trials and metaanalyses to decrease AAD and c. difficile colitis when used prophylactically in patients receiving antibiotics. The approximate number needed to treat to prevent an episode of AAD is 8 and to prevent an episode of c. difficile infection is 29 according to results of recent metaanalyses. S. boulardii is the only probiotic currently available on the UNM inpatient formulary that has been proven to be efficacious in clinical trials. By promoting the use of s. boulardii in adult inpatients at UNM we intend to decrease the incidence of c. difficile infection and AAD and to decrease hospital costs and overall length of hospital stay.

Planned interventions tested
Incorporate an s. boulardii protocol into preexisting powerplans including the admission order set and antibiotic order sets, and to create a stand-alone probiotic powerplan that will facilitate the safe and appropriate prophylactic use of probiotics with antibiotics. The powerplans will include clinical decision support text to guide providers in determining whether a patient is an appropriate candidate for probiotic therapy. The details of the probiotics protocol will be disseminated through educational interventions including academic lectures for UNM providers. A joint multi-disciplinary probiotics committee involving healthcare providers, nursing, nutrition, and pharmacy will meet on a monthly basis to evaluate the changes in probiotic prescription rate as a function of antibiotic prescription for UNM inpatients and to brainstorm and enact new interventions to improve this ratio.

Prediction of Results and/or Intended Results
Our goal is to attain greater than 80% compliance rate of probiotic prophylaxis for appropriate inpatient populations on the Internal Medicine services. Once probiotic prophylaxis at UNM has reached this goal, our group intends to perform a retrospective chart review to assess the change in c. difficile infection and AAD incidence at UNM for one year before and one year after widespread probiotic use at our facility. Total hospital costs associated with c. difficile infection and overall length of hospital stay will also be calculated before and after the quality intervention.

Next Steps and Timeline for Project Completion
We are currently reviewing the efficacy and safety literature on s. boulardii, specifically as pertains to hospitalized patients and their specific population comorbidities. By April 1, 2013 we will finalize the probiotic protocol and start disseminate this information to UNM providers, dietitians, pharmacists, and nursing staff. By April 15 we will submit requests for the addition of s. boulardii into preexisting powerplans including the adult medicine inpatient order set and all existing antibiotic order sets. By this date we will also submit a template for a stand-alone probiotic order set. We anticipate these additions to the electronic ordering system to take effect within two months. Starting in May 2013 the Probiotics committee will begin meeting on a monthly basis to review the frequency of probiotic prophylaxis being used by Internal Medicine inpatient services and to discuss changing interventions to improve the utilization of probiotic prophylaxis by providers. The committee goal will be to achieve and maintain probiotic utilization for appropriate patients at greater than 80 percent. In April of 2014 a
retrospective review of c. difficile and AAD incidence for a year before and a year after the start of the quality improvement interventions will be performed to assess the efficacy of the project.

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