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Staff Education to Improve Knowledge of Probiotic Use and Benefits for Best Patient Outcomes

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Walden University
2025

Executive Summary: Staff Education Project

Staff Education to Improve Knowledge of Probiotic Use and Benefits for Best Patient

Outcomes

by

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MS, Walden University, 2017

BS, Walden University, 2016

Executive Summary Submitted in Partial Fulfillment

of the Requirements for the Degree of

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Summary

I conducted a staff education project to improve staff knowledge of probiotic use and benefits for best patient outcomes. Staff education on probiotic supplements and probiotic food sources was necessary to address the practice gap identified. The practice problem was no standardized use of probiotics to maintain digestive health that is disrupted by loss of gut microbiome when using antibiotics, causing antibiotic-associated diarrhea (AAD) and other diarrhea illness.

The project question was: Can staff education improve knowledge of probiotics with antibiotics to prevent AAD and other digestive disorders? Through providing staff education on probiotics, resources for use, and antibiotic-associated side effects, poor patient outcomes can be prevented.

Probiotics identified for prevention of diarrhea and *clostridium difficile*, associated with antibiotic use when started within 48 hours of antibiotic onset. *Lactobacillus acidophilus* and *lactobacillus rhamnosus* are common types of bacteria that are effective and help maintain healthy gut microbiome, like human's own normal gastric flora. Research has shown that probiotics are beneficial in use of all ages to maintain digestive health with diarrhea disease and antibiotic use.

The most common digestive probiotics are Align and Culturelle daily for preventive health. Fermented and cultured foods containing probiotics include yogurt, kefir, miso soup, kombucha, sauerkraut, kimchi, and pickles. The positive social change implications of the project are that evidence-based practice implementation for the prevention of diarrhea will reduce healthcare costs and improve patient outcomes.

Background

The gap in practice that this project addressed was identified in urgent care practice during the severe flu season of 2024 into 2025. Patients of all ages, birth–100, presented after COVID-19, flu, and RSV infections with secondary infections. The secondary infections ranged from acute otitis media to streptococcus, sinusitis, and bronchitis. Antibiotic use was indicated for treatment and then the patients returned with AAD and gastritis.

I identified this as a practice gap and wanted to research solutions to stop the poor patient outcomes, seen primarily in infants, children, and older people. Research led me to probiotic supplements and probiotic food sources that are easily available for patients. The project question was: Can staff education improve knowledge of probiotics to maintain gut microbiome and healthy digestion to prevent AAD and other digestive disorders?

The staff education project provided prescribers and staff with information, scholarly research, and resources to access on probiotic use. According to Bodke and Jogdand (2022), probiotic supplements or probiotic food sources have nonpathogenic microbes, which are yeast and types of bacteria that can colonize the digestive tract to restore and maintain gut microbiome.

Research studies on probiotics are ongoing and continue to show health benefits for numerous gastrointestinal disorders. Ulcerative colitis, Crohn's disease, AAD, and gastritis have shown improvement and resolution with continued probiotic use (Bodke & Jogdand, 2022). The recommended strain of probiotics for digestive health is *lactobacillus acidophilus* and *lactobacillus rhamnosus*, which have been shown to have

systemic benefits for all areas of the body (Butler et al., 2020). Probiotics are available for over-the-counter purchase. As routine prevention probiotics were prescribed and recommend doses were calculated per patient age and weight.

Probiotics are used by gastrointestinal specialists to treat Crohn's disease and irritable bowel syndrome (Yang et al., 2025). Following recommendations for standards of care to prescribe probiotics with antibiotics will prevent antibiotic complications (Bodke & Jogdand, 2022). Probiotic dosing and indications for use can be referenced on clinical applications, such as Open Evidence.

Probiotics impact positive social change and foster equity and inclusion across a diverse patient population, because they can be used in the treatment of all age groups. Probiotic supplements can be purchased without a prescription. Probiotic food can be used at all ages with many sources to choose from (Bodke & Jogdand, 2022).

Probiotics are not covered by insurance, but there are some affordable brands and probiotic food sources that are affordable and available. Any patient that is compromised would need to be carefully monitored because antibiotic use can cause *clostridium difficile* (Kopacz & Phadtare, 2022). Research is ongoing for the future of probiotic benefits for oral health, cancer prevention, mental health benefits, and many other chronic conditions (Bodke & Jogdand, 2022).

The evidence supporting the project was strong and composed of scholarly, peer-reviewed articles. Probiotics have been shown to be beneficial in use for all ages for maintaining and restoring digestive health (Wang et al., 2022). Dosing is allowed in all ages and recommendations for indications, dosing, and duration are available on Open Evidence, which is a clinical support application. However, there are specific dosage

recommendations for all ages, and may need to adjust dosage for immunosuppressed patients (Roe, 2024).

Staff Education Project Development

The project was developed after a gap in practice was identified with AAD at the project site. I conducted this project to address the gap of the project site having no standardized use of probiotics to prevent diarrhea associated with antibiotic use.

Stakeholders were identified and team members agreed to consult and help when needed. The stakeholders included colleagues, a nurse practitioner, a clinical pharmacist, and RN care managers. The stakeholder analysis showed that staff and stakeholders were favorable for standardizing probiotic use with antibiotic therapy after meetings and discussions.

I collected and analyzed evidence after receiving recommendations from stakeholders for resources. Information sources were reviewed from scholarly, peer-reviewed articles; systematic reviews; and published randomized clinical trials. The levels of evidence of the sources included in the project varied from low to high (see Dang et al., 2021).

I used John Hopkins appraisal tools to evaluate the articles and resources included in this project, determining that they had quality ratings of good to high levels of evidence (see Dang et al., 2021). The John Hopkins University appraisal tool also uses levels of hierarchy for evidence classification (Dang et al., 2021). The types of articles, reviews, and clinical trials are examples of the types of articles rated Level I to V (see Dang et al., 2021). The John Hopkins tools made the appraisal process easy to rate the evidence. The research found provided evidence to complete the project.

Results

I delivered the staff education information as a PowerPoint presentation along with pre- and post-presentation tests. The pre- and post-tests were completed by participants before and after the education session. The test was developed with Likert scale questions in Microsoft Forms (2025). The pre- and posttest results are summarized in Table 1. The results show an improvement in participants' knowledge posttest compared to their pretest results.

Table 1

Pre- and Posttest Quiz Results

Likert scale quiz	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
Strongly agree	Pre:25% Post:53%	Pre:29% Post:60%	Pre:45% Post:53%	Pre:29% Post:46%	Pre:0% Post:53%	Pre:25% Post:60%	Pre:0% Post:53%	Pre:38% Post:33%	Pre:38% Post:46%	Pre:0% Post:40%
Agree	Pre:38% Post:20%	Pre:32% Post:13%	Pre:48% Post:13%	Pre:51% Post:20%	Pre:0% Post:20%	Pre:35% Post:20%	Pre:0% Post:33%	Pre:45% Post:20%	Pre:35% Post:33%	Pre:3% Post:40%
Neutral	Pre:32% Post:26%	Pre:6% Post:26%	Pre:3% Post:26%	Pre:16% Post:33%	Pre:6% Post:20%	Pre:22% Post:20%	Pre:3% Post:13%	Pre:6% Post:26%	Pre:19% Post:20%	Pre:35% Post:20%
Disagree	Pre:3% Post:0%	Pre:22% Post:0%	Pre:3% Post:6%	Pre:3% Post:0%	Pre:64% Post:6%	Pre:12% Post:0%	Pre:51% Post:0%	Pre:9% Post:20%	Pre:6% Post:0%	Pre:38% Post:0%
Strongly disagree	Pre:0% Post:0%	Pre:9% Post:0%	Pre:0% Post:0%	Pre:0% Post:0%	Pre:29% Post:0%	Pre:3% Post:0%	Pre:45% Post:0%	Pre:0% Post:0%	Pre:0% Post:0%	Pre:22% Post:0%

The post-implementation impact of the project is increased awareness of probiotic use and their benefits to prevent AAD at the project site organization. This can lead to reduced healthcare costs and better patient outcomes. I identified no limitations in the project.

Staff education can be used worldwide to prevent digestive diseases with the use of probiotics supplements or probiotic food (Bodke & Jogdand ,2022). Probiotics use is

important now and will continue to be of importance in the future to improve patient outcomes by maintaining gut microbiome and digestive health (Bodke & Jogdand ,2022).

Conclusions

The evidence-based practice solution of a staff education on probiotic use increased the knowledge of prescribers and clinicians and will positively impact the organization. Probiotics can prevent hospitalization and poor patient outcomes with antibiotics to prevent AAD and *clostridium difficile* associated with antibiotic use if started within 48 hours of antibiotics (Kopacz & Phadtare, 2022). This practice change will decrease healthcare costs for patients and the organization and improve patient outcomes by preventing diarrhea.

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Appendix

Appendix A: Probiotic Product Brand and Pricing Examples



Pictures taken by author R. Hoover 10/2025.

Appendix B: Probiotic Product Brand and Pricing Examples



Pictures taken by author R. Hoover 10/2025.

Appendix C: Staff Education Pretest**PROBIOTICS: PRE-TEST**

1. Would you take probiotics every day?

Strongly disagree.

Disagree

Neutral

Agree

Strongly agree.

2. Can probiotics and antibiotics be taken at the same time?

Strongly disagree.

Disagree

Neutral

Agree

Strongly agree.

3. Can children and the elderly take probiotics?

Strongly disagree.

Disagree

Neutral

Agree

Strongly Agree

4. Can probiotics prevent and treat diarrhea?

Strongly disagree.

Disagree

Neutral

Agree

Strongly agree.

5. Are all probiotics the same

Strongly Disagree

Disagree

Neutral

Agree

Strongly Agree

6. Are probiotics used to treat Crohn's and other digestive disease?

Strongly Disagree

Disagree

Neutral

Agree

Strongly Agree

7. Do you have to have a prescription to get probiotics?

Strongly Disagree

Disagree

Neutral

Agree

Strongly agree.

8. Are probiotics a type of bacteria?

Strongly Disagree

Disagree

Neutral

Agree

Strongly agree.

9. Are probiotics a living organism?

Strongly Disagree

Disagree

Neutral

Agree

Strongly agree.

10. Do all dairy products contain probiotics?

strongly disagree.

Disagree

Neutral

Agree

Strongly agree.

Submit



Appendix D: Posttest Probiotics**Probiotic Use and Information**

Power Point Presentation Post test



1. Antibiotic use is associated with loss of gut microbiome essential to digestion.

strongly disagree.

Disagree

Neutral

Agree

Strongly agree.

2. Probiotics have shown to be beneficial for maintain and restoring digestive health in all ages.

Strongly disagree.

Disagree

Neutral

Agree

Strongly agree.

3. Probiotics are recommended to be started within 48hours of antibiotic use to prevent Antibiotic Associated Diarrhea and Closterium Difficile.

Strongly disagree.

Disagree

Neutral

Agree

Strongly agree.

4. Probiotics recommended for treating digestive disorders are Lactobacillus Acidophilus and Lactobacillus Rhamnosus.

Strongly disagree.

Disagree

Neutral

Agree

Strongly agree.

5. Medical applications like Open evidence can assist with probiotic dosing and use in all ages.

Strongly disagree.

Disagree

Neutral

Agree

Strongly agree.

6. Probiotic food sources are yogurt, kefir, cottage cheese, olives, pickles, pickle juice, miso soup, kimchi, kombucha and sauerkraut.

Strongly disagree,

Disagree

Neutral

Agree

Strongly agree.

7. Preventing ADD-antibiotic associated diarrhea with probiotic use would lower healthcare cost and increase best patient outcomes through EBP-evidence based practice.

Strongly disagree.

Disagree

Neutral

Agree

Strongly agree.

8. Probiotics are not currently covered by insurance but are affordable.

Strongly disagree.

Disagree

Neutral

Agree

Strongly agree.

9. Probiotics are a type of bacteria that helps the body maintain balance.

- Strongly disagree.
- Disagree
- Neutral
- Agree
- Strongly agree.

10. Probiotics, although safe for use in all ages have specific dosing and frequency.

- Strongly disagree.
- Disagree
- Neutral
- Agree
- Strongly agree.

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Appendix E: PowerPoint Presentation Materials for Staff Education

Section PowerPoint

Staff Education Power Point

How and when would you use Probiotics?

PROBIOTICS Use and Benefits

Staff Education to Improve Patient Outcomes

Rebecca M Hoover RN, ASN, BSN, MSN, APRN, FNP-BC, DNP CANDIDATE



Agenda

- Why probiotics?
- What are Probiotics?
- How and when would you use Probiotics?
- Probiotic supplements and Probiotic food choices.



Why Probiotics?

During the flu season last year working in urgent care the flu season progressed from 2024-2025. Patients of all ages birth-100 years old presented after Covid ,Influenza and RSV infections with secondary infections.

The secondary infections ranged from acute otitis media, streptococcus, sinusitis, pneumonia and bronchitis. Antibiotic use as indicated in many patients. The patients were returning with returned with non retractable diarrhea and or mild gastritis.

Continued

I identified the Antibiotic Associated Diarrhea as a practice gap and wanted to research solutions to stop the poor patient outcomes, seen primarily in infants and children and the elderly.

Research led me to probiotic supplements and identifying probiotic food sources easily obtained .

What are Probiotics ?

According to [Bodke and Jogdand \(2022\)](#), Probiotics are supplements or probiotic food sources that have non-pathogenic microbes, like yeast and types of bacteria that can colonize in our digestive tract to restore and maintain gut microbiome.

Studies on Probiotics are ongoing and continue to show health benefits for numerous gastrointestinal disorders like, Ulcerative Colitis, Crohn's Disease, Antibiotic Associated Diarrhea, and gastritis ([Bodke and Jogdand, 2022](#)).

How and when would you use Probiotics?

> **Recommendations:** Probiotics are recommended to be started within 48 hours of antibiotic onset ([Kopacz & Phadtare, 2022](#)).

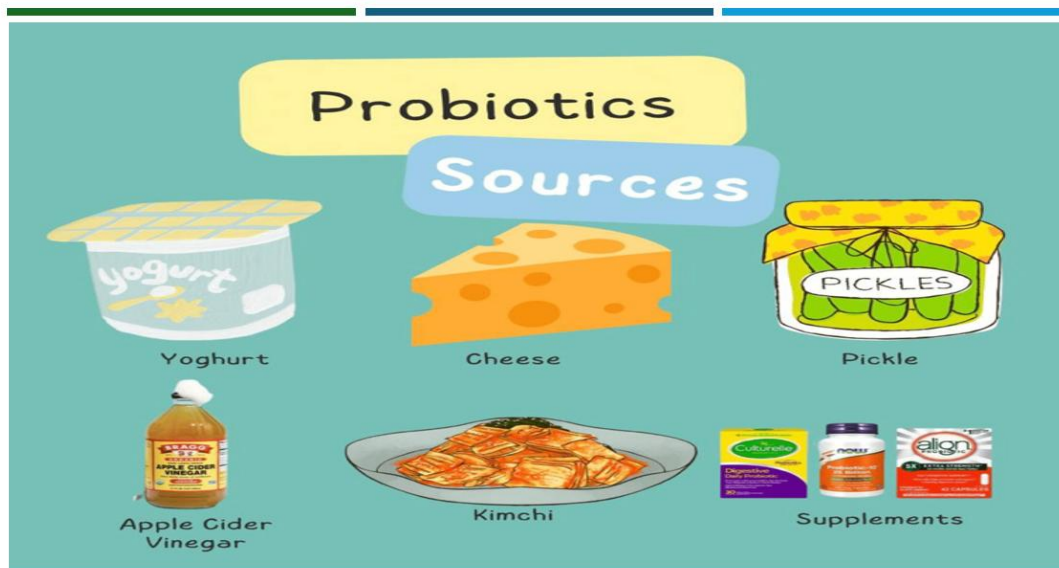
- Digestive health probiotics *Lactobacillus Acidophilus* and *lactobacillus rhamnosus* are the two strains recommended and can be used together ([Kopacz & Phadtare, 2022](#)).
- Probiotics Food sources : Yogurt, [kefir](#), cottage cheese, miso soup, kombucha, sauerkraut, kimchi, pickles ([Cleveland Clinic, 2023](#)).

Probiotic supplements and Probiotic food choices.

Digestive health probiotics *Lactobacillus Acidophilus* and *Lactobacillus rhamnosus* are the two strains recommended and can be used together (Kopacz & Phadtare, 2022).

Probiotics Food sources : Yogurt , kefir, cottage cheese, miso soup, kombucha, sauerkraut, kimchi, pickles (Cleveland Clinic, 2023).

Microsoft AI generated (2025).





Communicating the need for probiotic food sources or supplements is an important factor in best patient outcomes.

Discussing probiotics with patients

It's important to explain why you want them to take a probiotics and how often and the choices of the food probiotics or supplements.

Explain that the good bacteria in our digestive system can be harmed by antibiotics . Although necessary antibiotics kill the good bacteria in our stomachs and can cause antibiotic associated diarrhea and other illness like *Closterium difficile*.

Using probiotic supplements or probiotic food sources will help to maintain and restore this natural flora in our digestion.





Not All Probiotics Are The Same

- The importance of Choosing probiotics is choosing the correct probiotic for the area you want to treat. Digestive probiotics are very specific, and there are numerous strains (Yang et al ,2025).

CONTINUED:

There are recommended strains Bifidobacterium is found In infants and works well with them, and *Lactobacillus acidophilus* and *Lactobacillus Rhamnosus*, are also popular recommendations to protect and restore digestive conditions (Kopacz,, & Phadtare, 2022).

Remember when looking at labels and ingredients the first listed has the majority of ingredient in it.

Photo by Rebecca Hoover DNP Candidate/Author

Probiotics Not all the same Continued.



Probiotics can be used in all persons and ages (Kopacz, & Phadtare 2022).

Probiotics are not covered by insurance but there are some affordable brands available.

The elderly or any patient that are immune compromised would need to be carefully monitored as it can cause Clostridium Difficile (Kopacz, & Phadtare, 2022).

Final tips and takeaways

Importance

- **To organization:** This would lower healthcare cost and result in best patient outcomes through evidence-based practice by preventing diarrhea and poor patient outcomes.
- **Positive social change:** Prevent antibiotic and treat other diarrhea related diseases and decrease poor patient outcomes.

Thank you

Post test link Below
Please Complete it is
very Short and Quick
and needed to Guage
Knowledge from the
Staff Education.



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POST TEST

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- Click in link to access post test or QR code , I will also send test through email.
- Thank you for your time and participation in this presentation and most exciting research about probiotics and all the benefits of use. The research continues and we will find how much knowledge we were missing .

POST TEST QR CODE

Copy will also be sent to your email

Thank you again

