resort following multiple recurrences. Probiotics have also been used as a preventive treatment with mixed results. Vaccines are not yet available. Within healthcare facilities, preventive measures include judicious use of antibiotics and infection control practices. Use of monoclonal antibodies has also been studied with the aim of improving host resistance to CDI, however this approach has yielded mixed results.

[0005] There is a need in the art for better treatment modalities leading to improved health benefits for subjects. The current invention provides nutritional compositions and methods to decrease incidence of infections from CD and improve subject outcomes.

SUMMARY

[0005a] In one aspect, provided herein is a nutritional composition comprising: a fucosylated human milk oligosaccharide and/or a sialylated human milk oligosaccharide; a non-digestible, fermentable polysaccharide; and *Bifidobacterium;* wherein the nutritional composition is free of short-chain fructooligosaccharide having at least about 50% of molecules with a degree of polymerization of less than about 5.

[0005b] In another aspect, provided herein is use of the nutritional composition as disclosed herein in the manufacture of a medicament for treating a subject at risk of developing a *Clostridium difficile* infection or a subject having a *Clostridium difficile* infection.

[0005c] In another aspect, provided herein is the nutritional composition as disclosed herein for use in therapy.

[0006] In accordance with the present disclosure, a nutritional composition is provided. The nutritional composition comprises fucosylated human milk oligosaccharide and/or a sialylated human milk oligosaccharide, a non-digestible, fermentable polysaccharide, and *Bifidobacterium*. The nutritional composition is free of short-chain fructooligosaccharide (scFOS) having at least about 50% of molecules with a degree of polymerization of less than about 5.

[0007] In accordance with the present disclosure, a method of treating a subject at risk of developing a CDI or a subject having a CDI is provided. The method comprises administering to a subject a nutritional composition comprising a fucosylated human milk oligosaccharide and/or a sialylated human milk oligosaccharide, a non-digestible, fermentable polysaccharide, and *Bifidobacterium*. The nutritional composition is free of scFOS having at least about 50% of molecules with a degree of polymerization of less than about 5.

BRIEF DESCRIPTION OF THE DRAWINGS

CLAIMS

1. A nutritional composition comprising:

a fucosylated human milk oligosaccharide and/or a sialylated human milk oligosaccharide;

a non-digestible, fermentable polysaccharide; and

Bifidobacterium;

wherein the nutritional composition is free of short-chain fructooligosaccharide having at least about 50% of molecules with a degree of polymerization of less than about 5.

2. Use of the nutritional composition of claim 1 in the manufacture of a medicament for treating a subject at risk of developing a *Clostridium difficile* infection or a subject having a *Clostridium difficile* infection.

3. The nutritional composition of claim 1 or the use of claim 2, wherein the nutritional composition comprises a powdered nutritional composition comprising, by weight of the nutritional composition:

the fucosylated human milk oligosaccharide in a range from 0.01 wt% to 10 wt% and/or the sialylated human milk oligosaccharide in a range from 0.01 wt% to 10 wt%;

the non-digestible, fermentable polysaccharide in a range from 0.1 wt% to 25 wt%; and

the *Bifidobacterium* in a range from 10 cfu/g to 10^9 cfu/g.

4. The nutritional composition of claim 1 or the use of claim 2, wherein the nutritional composition comprises a liquid nutritional composition comprising:

the fucosylated human milk oligosaccharide in a range from 0.01 wt% to 2 wt% and/or the sialylated human milk oligosaccharide in a range from 0.01 wt% to 2 wt%;

the non-digestible, fermentable polysaccharide in a range from 0.1 wt% to 5 wt%; and

the *Bifidobacterium* in a range from 10 cfu/ml to 10^9 cfu/ml.

5. The nutritional composition of claim 1, wherein the nutritional composition comprises a supplement comprising:

the fucosylated human milk oligosaccharide and/or the sialylated human milk oligosaccharide in an amount of up to about 50 wt% of the supplement;

at least 10 wt% of the non-digestible, fermentable polysaccharide, based on the weight of the supplement; and

from 5 x 10^2 to 5 x 10^8 cfu/g of the *Bifidobacterium*.

6. The nutritional composition or the use of any one of the preceding claims, wherein the nutritional composition comprises the fucosylated human milk oligosaccharide and the sialylated human milk oligosaccharide.

7. The nutritional composition or the use of any one of the preceding claims, wherein the fucosylated human milk oligosaccharide is 2'-fucosyllactose, and the sialylated human milk oligosaccharide is 6'-sialyllactose.

8. The nutritional composition or the use of any one of the preceding claims, wherein the non-digestible, fermentable polysaccharide comprises gum arabic, corn fiber, or a combination of the gum arabic and the corn fiber.

9. The nutritional composition or the use of any one of the preceding claims, wherein the *Bifidobacterium* comprises *Bifidobacterium animalis*, *Bifidobacterium breve, Bifidobacterium longum, Bifidobacterium infantis,* and/or *Bifidobacterium bifidum*.

10. The nutritional composition or the use of any one of the preceding claims, wherein the nutritional composition further comprises *Lactobacillus* (*L.*) *rhamnosus* GG, *L. rhamnosus* HN001, *L. acidophilus* LA-5, *L. acidophilus* NCFM, *L. fermentum* CECT5716, *L. reuteri* ATCC55730, *L. reuteri* ATCC PTA-6475, *L. reuteri* DSM 17938, *Streptococcus thermophilus* Th4, *Akkermansia, Bacteroides, Enterococcus, Enterococcus, Eubacterium, Fecalibacterium, Roseburia,* and/or *Saccharomyces*.

11. The nutritional composition or the use of any one of the preceding claims, wherein the nutritional composition further comprises an anti-inflammatory compound.

12. The use of claim 2, wherein the subject has a primary infection of *Clostridium difficile*.

13. The use of claim 2, wherein the subject has a recurrent infection of *Clostridium difficile*.

14. The use of claim 2, wherein the subject has tested positive for *Clostridium difficile* toxin A and/or B, and wherein the nutritional composition is to be administered to reduce the risk of diarrhea or colonic inflammation.

15. The use of claim 2, wherein the subject at risk for a *Clostridium difficile* infection was administered an antibiotic and/or a gastric acid supplement from 1 to 7 days prior to the use of the nutritional composition.

16. The use of claim 14, wherein the subject was administered an antibiotic, and the antibiotic was vancomycin or fidaxomicin.

17. The use of claim 2, wherein the subject has inflammatory-bowel disease, chronic kidney-disease, an immunodeficiency disease, a malignant lesion, or has had a solid organ transplant.

18. The nutritional composition or the use of claim 4, wherein a 237 ml serving of the liquid nutritional composition is to be administered to the subject.

19. The use of claim 2, wherein the nutritional composition is to be administered to the subject daily for a time period of from 4 weeks to 7 weeks.

20. The use of claim 2, wherein the nutritional composition is to be administered to the subject via tube-feeding.

21. The use of claim 2, wherein the nutritional composition is to be administered to reduce the risk of the primary infection of *Clostridium difficile*.

22. The use of claim 2, wherein the nutritional composition is to be administered to reduce the risk of the recurrent infection of *Clostridium difficile*.

23. The nutritional composition of claim 1 for use in therapy.