

A Logic Model Inspired Review and Analysis of Alternative or Complimentary Approaches to Prevent Group B Streptococcal (GBS) Colonization or Infection in Pregnancy or the Newborn Period

James A. McGregor, Josh Jones, Marti Perhach
Group B Strep International

“Antibiotics taken by mouth instead of through the vein and antibiotics taken before labor and delivery are NOT effective at preventing group B strep disease in babies. Birth canal washes with the disinfectant chlorhexidine also do NOT reduce the risk of a mother spreading group B strep bacteria to her baby or her baby developing early-onset disease. To date, receiving antibiotics through the vein during labor is the ONLY proven strategy to protect a baby from early-onset group B strep disease.”

cdc.gov/groupbstrep/about/prevention

Severe adverse events have been reported using blue cohosh and evening primrose oil.
Dante G, et al. Herbal therapies in pregnancy: what works?
Curr Opin Obstet Gynecol. 2014 April;26(2): 83-91.

Background:

“Definition: In Western culture ‘alternative’ is any healing practice that doesn’t fall within the realm of conventional medicine —rather than scientific (evidence) basis.

Commonly includes Chinese medicine, Unani, Ayurveda, meditation, acupuncture, and diet-based therapies, and can be included under the heading of Complimentary Alternative Medicine (CAM) or Alternative Medicine (AM).

“Prevention of maternal carriage and perinatal infection with GBS has been of intense interest and anecdotal opinion by some pregnancy care providers.”

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Goals:

- 1) As part of a “Logic Model” approach to reduce risk of GBS disease complicating pregnancy.
- 2) We reviewed “Complimentary” and “Alternative” approaches to reducing risks of GBS maternal colonization and perinatal infection
- 3) Further analyzed possibilities for future informed research approaches to prevent GBS disease in perinates.

Methods:

We sought to identify and analyze all articles discovered in computerized searches for “Alternative” and/or “Complimentary” and “GBS” and/or “group B streptococcus”

Results:

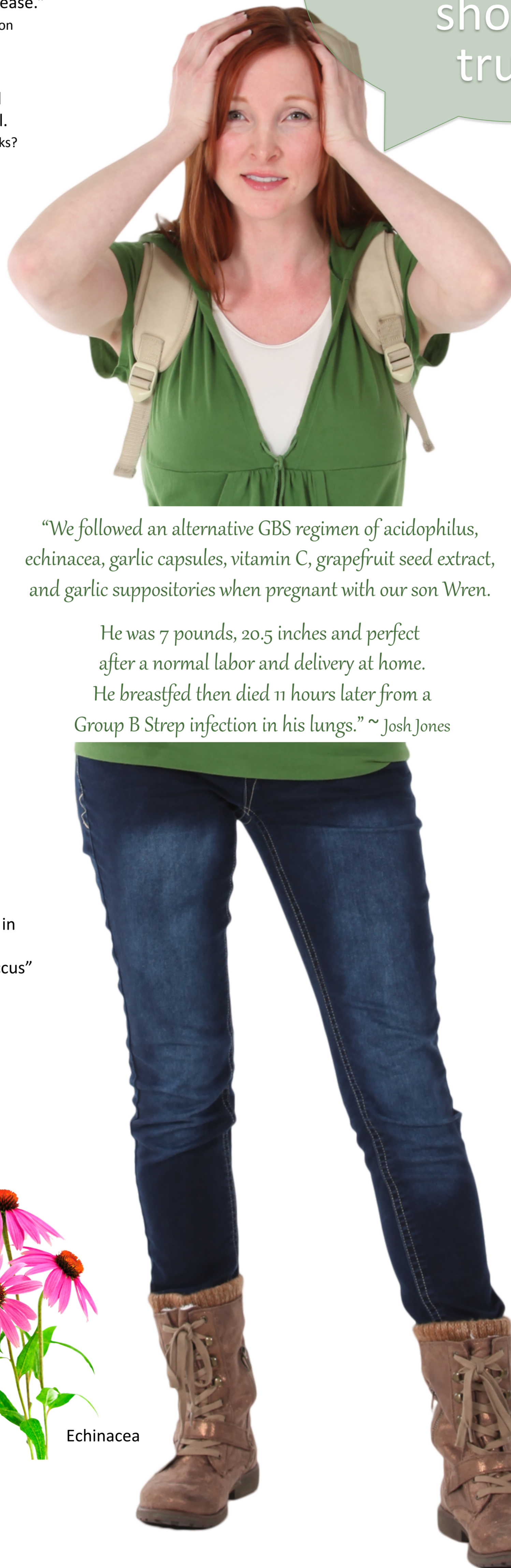
- 1) We found multiple untested suggestions:
 - a) tea tree oil or olive oil tampons x 1 week
 - b) wheatgrass douches x 2 week
 - c) colloidal silver 1 dropper/day
 - d) oral or vaginal garlic (crushed)
 - e) ‘probiotics’ (Lisa Hanson, 2014) ‘yogurts’
- 2) More recent suggestions include:
 - a) stress reduction (P Wadwas, M Lu, 2011)
 - b) vitamin D sufficiency (throughout pregnancy) (CC Akoh, 2017)
 - c) endocrine disrupting toxicants (T Ding, DM Aronoff, 2017)

Discussion:

Despite enthusiasm for alternative treatment for GBS colonization and perinatal infection, no alternative approaches were found to be effective when rigorously tested. New suggested alternatives should be investigated as part of full-fledged investigations.



Echinacea



So many choices! Who should I trust?

“We followed an alternative GBS regimen of acidophilus, echinacea, garlic capsules, vitamin C, grapefruit seed extract, and garlic suppositories when pregnant with our son Wren.

He was 7 pounds, 20.5 inches and perfect after a normal labor and delivery at home. He breastfed then died 11 hours later from a Group B Strep infection in his lungs.” ~ Josh Jones

“The typical treatment for (Group B Strep) is antibiotics, but effective, alternative treatment for GBS may be a better option for you and your baby.”
holisticsquid.com/alternative-treatment-for-gbs/

“A fresh garlic clove inserted into the vagina for one or two nights will also, most likely, reduce the colonization of the vagina with GBS, with no known side effects, besides garlic breath.”
JS Cohain, *Midwifery Today* Sept 1, 2003.



Garlic

Conclusion:

- 1) A computer-assisted literature search under CAM and AM headings discovered multiple suggestions, which were untested except for chlorhexidine vaginal washes
- 2) The most enthusiastically recommended regimen included crushed garlic and multiple herbal preparations.
- 3) Potentially promising prophylactic strategies could be
 - a) vitamin D sufficiency, early in pregnancy
 - b) reduced exposure to reproductive toxicants

Comment:

The most promising approaches to preventing GBS colonization and perinatal infection probably include immunologic and novel bacterial therapies.



Yogurt

References

- 1) Howell AB, Vorsa N, et al. Inhibition of the adherence of P-fimbriated *Escherichia coli* to uroepithelial-cell surfaces by proanthocyanidin extracts from cranberries. *N Engl J Med.* 1998 Oct 8;339(15):1085-6.
- 2) Hanson L, Vandevusse L, et al. Feasibility of oral prenatal probiotics against maternal group B *Streptococcus* vaginal and rectal colonization. *J Obstet Gynecol Neonatal Nurs.* 2014 May-Jun;43(3):294-304. 10.1111/1552-6909.12308. Epub 2014 Apr 22.
- 3) Avorn J, et al. Reduction of bacteriuria and pyuria after ingestion of cranberry juice. *JAMA.* 1994 Mar 9;271(10):751-4.
- 4) Edwards MS, Nicholson-Weller A, Baker CJ, Kasper DL. The role of specific antibody in alternative complement pathway-mediated opsonophagocytosis of type III, group B *Streptococcus*. *J Exp Med.* 1980 May 1;151(5):1275-87.
- 5) Patel R, DuPont HL. New approaches for bacteriotherapy: prebiotics, new-generation probiotics, and synbiotics. *Clin Infect Dis.* 2015 May 15;60 Suppl 2:S108-21.
- 6) Chen HC, Chang MD, Chang TJ. [Antibacterial properties of some spice plants before and after heat treatment]. [Article in Chinese] *Zhonghua Min Guo Wei Sheng Wu Ji Mian Yi Xue Za Zhi.* 1985 Aug;18(3):190-5.
- 7) Ding T, Lambert LA, Aronoff DM, Osteen KG, Bruner-Tran KL. Sex-Dependent Influence of Developmental Toxicant Exposure on Group B *Streptococcus*-Mediated Preterm Birth in a Murine Model. *Reprod Sci.* 2017 Jan 1:1933719117741378.
- 8) Christensen KK, Dykes AK, Christensen P. Reduced colonization of newborns with group B streptococci following washing of the birth canal with chlorhexidine. *J Perinat Med.* 1985;13(5):239-43.
- 9) Akoh CC, Pressman EK, Whisner CM, Thomas C, Cao C, Kent T, Cooper E, O'Brien KO. Vitamin D mediates the relationship between placental cathelicidin and group B streptococcus colonization during pregnancy. *J Reprod Immunol.* 2017 Jun;121:42-48.
- 10) Akoh CC, Pressman EK, Cooper E, Queenan RA, Pillittere J, O'Brien KO. Low Vitamin D is Associated With Infections and Proinflammatory Cytokines During Pregnancy. *Reprod Sci.* 2017 Jan 1:1933719117715124.
- 11) Wadhwa PD, et al. The Contribution of Maternal Stress to Preterm Birth: Issues and Considerations. *Clin Perinatol.* 2011 Sep; 38(3): 351-384.