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New Hampshire Comprehensive Cancer Collaboration
Together-Eliminating Cancer

Dartmouth-Hitchcock Norris Cotton Cancer Center

Breastfeeding and Cancer Prevention

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Breastfeeding has many significant health benefits for both mothers that breastfeed and children who are breastfed, including cancer prevention for both participants in the breastfeeding dyad. All major health organizations including the American Academy of Pediatrics (AAP), American College of Obstetricians and Gynecologists (ACOG), American Academy of Family Physicians (AAFP) and the World Health Organization endorse at least a year of breastfeeding as important for overall health of both mothers and infants. They also all endorse exclusive breastfeeding for the first six months of life, as research over the past two decades has demonstrated that most of breastfeeding's benefits are derived from a diet that is only human milk, without additional liquids such as infant formula, or solid foods, before the sixth month [1-4].

Women who have breastfed have reduced risk for reproductive cancers

The evidence that breastfeeding protects against both breast and ovarian cancer for women who have breastfed their children is well established epidemiologically. Recent evidence finds a 26% reduction for breast cancer and a 37% reduction for ovarian cancer for women who have breastfed for a year or more [5]. Reduced risk of reproductive cancers related to breastfeeding makes sense physiologically as breastfeeding, particularly prolonged and exclusive breastfeeding, results in longer periods of time during which women do not ovulate or have their menstrual cycles. Later onset of puberty and first menstrual cycles, and an earlier menopause, both of which mean fewer lifetime ovulatory cycles, are associated with decreased risk of breast and ovarian cancer. Conversely, women who have never had children are at increased cancer risk, as they typically experience more lifetime ovulatory cycles [6, 7]. In addition to the 9 months of pregnancy during which a woman does not ovulate, exclusive and frequent breastfeeding for baby's first year can lead to an additional 6 to 12 months without a menstrual cycle, which is the

likely source of the cancer protection. Longer periods of lifetime breastfeeding confer additional cancer risk reductions [5]. Furthermore, new research suggests that the physical characteristics of breastmilk itself, such as fluidity and calcium concentration, may play a direct role in breast cancer prevention [8].

Breastfeeding confers particular protection against an aggressive and hard to treat breast cancer subtype, "triple negative" breast cancer. The triple negative refers to being negative for estrogen, progesterone and HER2 receptors, cancers which have a poor prognosis and are more likely to occur in younger women [9].

Ovarian cancer risk is reduced by about half for women who have experienced two pregnancies and who breastfeed each child for at least 6 months [10, 11, 12]. The overall length of breastfeeding appears to be a protecting factor independent of the total number of lifetime births [5]. Emerging evidence suggests that longer lifetime breastfeeding is also protective against endometrial cancer [13].

Children who have been breastfed have reduced risk of leukemia, possibly lymphoma and adult cancers

Though conclusive evidence had been lacking, a recent large study demonstrated that 14 to 19% of childhood leukemia could be prevented by breastfeeding for 6 months or more [14]. The evidence for prevention of childhood lymphomas is mixed, and is inconclusive at this time [15]. As breastfeeding is also protective against obesity later in life for the breastfed child, it is possible that over the life-course, the breastfed child will have a lower risk of obesity associated cancers such as pancreatic, esophageal and kidney cancers [16].

How does breastfeeding get off to the best start?

Most women set their breastfeeding goals before they become pregnant or during the first trimester, so there is an important role for primary care and obstetrical practices in encouraging women to breastfeed for at least a year, and to practice exclusive breastfeeding for the first 6 months of their children's lives [17]. Unfortunately, many U.S. women do not reach their breastfeeding goals. Some of this is due to less than ideal hospital policies and practices during the birth hospitalization, some is due to lack of access to trained breastfeeding professionals to help new mothers through common but surmountable breastfeeding problems, and some is due to social factors such as a lack of universal paid maternity leave [18, 19].

The WHO endorses a set of hospital and birth center practices known as the "Ten Steps to Successful Breastfeeding," to help get breastfeeding off to the best start. These Ten Steps are part of an international effort to certify best practices known as the "Baby Friendly Hospital Initiative", and include items such as allowing newborns to room with their mothers, providing skilled assessment and support of early breastfeeding, and limiting the use of supplemental formula to established medical indications [20]. Recent research has shown that lack of practice of some of the Ten Steps, particularly the unnecessary use of supplemental formula during the birth hospitalization, can keep women from reaching their own breastfeeding goals [18]. Research on women's barriers to breastfeeding indicate that common problems such as nipple pain, poor latch and perceived insufficient milk supply (true insufficient supply is much less common), are among the top reasons for early cessation or supplementation with formula [21]. Social barriers to breastfeeding include lack of support among family members and difficulties with continuing breastfeeding or milk expression upon return to work [19]. The Affordable Care Act (ACA) requires health insurers to cover the expense of a pump for milk expression, and a provision of the ACA found in the Fair Labor Standards Act requires employers with more than 50 employees to provide reasonable break time for expressing milk for one year after the child's birth. Though some states and cities have enacted similar legislation to promote and protect lactation, women and children may lose these health protections if this provision of the ACA is repealed.

New Hampshire is a top ranked state for hospital policies and practices that best support breastfeeding. The Centers for Disease Control and Prevention (CDC)'s Maternity Practices in Infant Nutrition and Care (mPINC) survey has ranked NH first or second since its inception in 2007 [22]. Between 2010 and 2012 there was an active collaborative project to improve the implementation of the Ten Steps to Successful Breastfeeding across the state's birthing hospitals, an effort that led to 84% of New Hampshire newborns being exclusively breastfed at hospital discharge in the intensive arm of the project [23]. Currently, 8 of 18 NH birthing hospitals have Baby Friendly USA designation, and none distribute the formula company sample packs ("diaper bags") that have been shown to be detrimental to breastfeeding establishment [24, 25].

Promoting breastfeeding for optimal health and cancer prevention

Promotion of exclusive or any breastfeeding requires sustained efforts of medical and health professionals, as well as support through public health entities, policies, legislation, and social support. In addition to the cancer protections for women and children described above, breastfeeding has numerous other health benefits, including lower rates of cardiovascular disease and type 2 diabetes for women who breastfeed, and protection from common childhood infections and from sudden infant death syndrome (SIDS) in infants [1]. Continued and improved provision of and support for lactation professionals in our hospitals and communities, and policies and legislation that promote and support breastfeeding are evidence-based ways to prevent cancer across the life course for both mothers and children.

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