

# Does hormonal contraception increase the risk of breast cancer?

These experts analyze the data from a recent large study and provide counseling points for your patients



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**H**ormonal contraception (HC) has long been utilized safely in this country for a variety of indications, including pregnancy prevention, timing pregnancy appropriately, management of symptoms (dysmenorrhea, irregular menstrual cycles, heavy menstrual bleeding), and to prevent serious diseases (such as ovarian cancer, uterine cancer, osteoporosis in women with premature menopause). Like most prescription medications, there are potential adverse effects. With HC, side effects such as venous thromboembolism, a slight increase in liver cancer, and a possible increase in breast cancer risk have long been recognized.

### Danish study compared HC use with breast cancer risk

In the December 7, 2017, issue of *New England Journal of Medicine*,<sup>1</sup> investigators in Denmark published a study of women using HC (oral, transdermal, intravaginal routes, and levonorgestrel intrauterine device

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[LNG-IUD]) and breast cancer risk compared with women who did not use HC. This retrospective observational country-wide study was very large (1.8 million women followed over an average of 10.9 years), which allowed for the detection of even small changes in breast cancer risk.

### Putting results in perspective

It is important to point out that this is an observational study, and small effect sizes (1 in 7,600) should be interpreted with caution. Observational studies can introduce many different types of bias (prescribing bias, confounding bias, etc). Of note, while the LNG-IUD was associated with a small increased risk of breast cancer (relative risk [RR], 1.21; 95% confidence interval [CI], 1.11-1.33), the higher dose continuous progestin administration (medroxyprogesterone) was not (RR, 0.95; 95% CI, 0.40-2.29).<sup>1</sup>

Nonetheless, providing patients with a balanced summary of this new study along with other published and reliable information

about HC that conveys both benefits and risks is important to assure that each woman makes a decision regarding HC that achieves her health and life goals. See “Counseling talking points.”

### Bottom line

This recent study demonstrated that in Denmark, a woman’s risk of *developing breast cancer* is very slightly elevated on HC<sup>1</sup>:

- 1 in 7,690 users overall
- 1 in 50,000 women older than age 35 years.

By comparison, the risk of maternal mortality in the United States is 1 in 3,788.<sup>2</sup> A substantial reduction in HC use would likely increase unintended and mistimed pregnancies with a potential substantial negative impact on quality of life and personal/societal cost.

The best available data indicate that a woman’s risk of *developing any cancer* is **slightly less** on HC than not on HC, even with this incremental breast cancer increase.<sup>3,4</sup> ●

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## Counseling talking points

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### Breast cancer risk relative to benefits of pregnancy prevention

There was a very slight increase in breast cancer in women using HC in the Danish study.<sup>1</sup>

#### Risk of breast cancer

- Overall, the number needed to harm (NNH) was approximately 1 in 7,690, which equates to 13 incremental breast cancers for every 100,000 women using HC (0.013%).
- Breast cancer risk was not evenly distributed across the different age groups. In women younger than 35 years, the risk was 1 extra case for every 50,000 women using HC (0.002%).

#### Risk of pregnancy prevention failure: Maternal mortality

- By comparison, the rate of maternal mortality is considerably higher than either of these risks in the United States. Specifically, the most recently available rate of maternal

mortality (2015) in the United States was 26.4 for every 100,000 women, essentially double that of developing breast cancer on HC.<sup>2</sup>

– Most women who develop breast cancer while on HC will survive their cancer long-term.<sup>5</sup> And most would agree that while neither is desirable, death is a worse outcome than the development of breast cancer.

#### Risk of pregnancy prevention failure other than maternal mortality

- Other than the copper IUD and sterilization methods, all other nonhormonal contraceptive methods are by far inferior in terms of the ability to prevent unintended pregnancy.
- Unintended pregnancy has substantial health, social, and economic consequences to women and infants, and contraception use is a well-accepted proximate determinant of unintended pregnancy.<sup>5</sup>

- Unintended pregnancy is a serious maternal-child health problem with potentially long-term burdens not only for women and families<sup>7-10</sup> but also for society.<sup>11-13</sup>
- Unintended pregnancies generate an estimated \$21 billion direct and indirect costs for the US health care system per year,<sup>14</sup> and approximately 42% of these pregnancies end in abortion.<sup>15</sup>

#### HC cancer risk and HC cancer prevention

- HC use increases risk of breast and liver cancer but reduces risk of ovarian, endometrial, and colorectal cancer; the net effect is a modest reduction in total cancer.<sup>3,4</sup>
- In addition, there appears to be additional cervical cancer prevention benefit from IUD use.<sup>16</sup>
- In a recent meta-analysis, IUDs (including LNG-IUD) have been associated with a 33% reduction in cervical cancer.<sup>16</sup>

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### References

1. Mørch, LS, Skovlund CW, Hannaford PC, et al. Contemporary hormonal contraception and the risk of breast cancer. *N Engl J Med.* 2017;377(23):2228-2239.
2. GBD 2015 Maternal Mortality Collaborators. Global, regional, and national levels of maternal mortality, 1990-2015: a systematic analysis for the Global Burden of Disease Study 2015. *Lancet.* 2016;388(10053):1775-1812.
3. Bassuk SS, Manson JE. Oral contraceptives and menopausal hormone therapy: relative and attributable risks of cardiovascular disease, cancer, and other health outcomes. *Ann Epidemiol.* 2015;25(3):193-200.
4. Hunter D. Oral contraceptives and the small increased risk of breast cancer. *N Engl J Med.* 2017;377(23):2276-2277.
5. American Cancer Society. *Breast Cancer Facts & Figures 2015-2016.* Atlanta, Georgia: American Cancer Society, Inc; 2015.
6. Sonfield A. What the Agency for Healthcare Research and Quality forgets to tell Americans about how to protect their sexual and reproductive health. *Womens Health Issues.* 2015;25(1):1-2.
7. Brown SS, Eisenberg L. *The best intentions: Unintended pregnancy and the wellbeing of children and families.* Washington, DC: National Academy Press; 1995:50-90.
8. Klein JD; American Academy of Pediatrics Committee on Adolescence. Adolescent pregnancy: current trends and issues. *Pediatrics.* 2005;116(1):281-286.
9. Logan C, Holcombe E, Manlove J, Ryan S. The consequences of unintended childbearing. *The National Campaign to Prevent Teen Pregnancy and Child Trends.* <https://pdfs.semanticscholar.org/b353/b02ae6cad716a7f64ca48b3e4ae63544c03e.pdf>. Published May 2007. Accessed January 11, 2018.
10. Finer LB, Sonfield A. The evidence mounts on the benefits of preventing unintended pregnancy. *Contraception.* 2013;87(2):126-127.
11. Trussell J, Henry N, Hassan F, Prezioso A, Law A, Filonenko A. Burden of unintended pregnancy in the United States: potential savings with increased use of long-acting reversible contraception. *Contraception.* 2013;87(2):154-161.
12. Sonfield A, Kost K. Public costs from unintended pregnancy and the role of public insurance program in paying for pregnancy and infant care: Estimates for 2008. *Guttmacher Institute.* <http://www.guttmacher.org/pubs/public-costs-of-UP.pdf>. Published October 2013. Accessed January 15, 2018.
13. Forrest JD, Singh S. Public-sector savings resulting from expenditures for contraceptive services. *Fam Plann Perspect.* 1990;22(1):6-15.
14. Sonfield A, Kost K. Public costs from unintended pregnancies and the role of public insurance programs in paying for pregnancy-related care: National and state estimates for 2010. *Guttmacher Institute;* 2015. <http://www.guttmacher.org/pubs/public-costs-of-UP-2010.pdf>. Accessed January 29, 2018.
15. Finer LB, Zolna MR. Declines in unintended pregnancy in the United States, 2008-2011. *N Engl J Med.* 2016;374(9):843-852.
16. Cortessis VK, Barrett M, Brown Wade N, et al. Intrauterine device use and cervical cancer risk: A systematic review and meta-analysis. *Obstet Gynecol.* 2017;130(6):1226-1236.