

# REPRODUCTIVE & HORMONAL FACTORS

The magnitude of the associations of reproductive factors with cancer risk is relatively small. However, these factors affect all women. Therefore, they have a large impact at the population level.

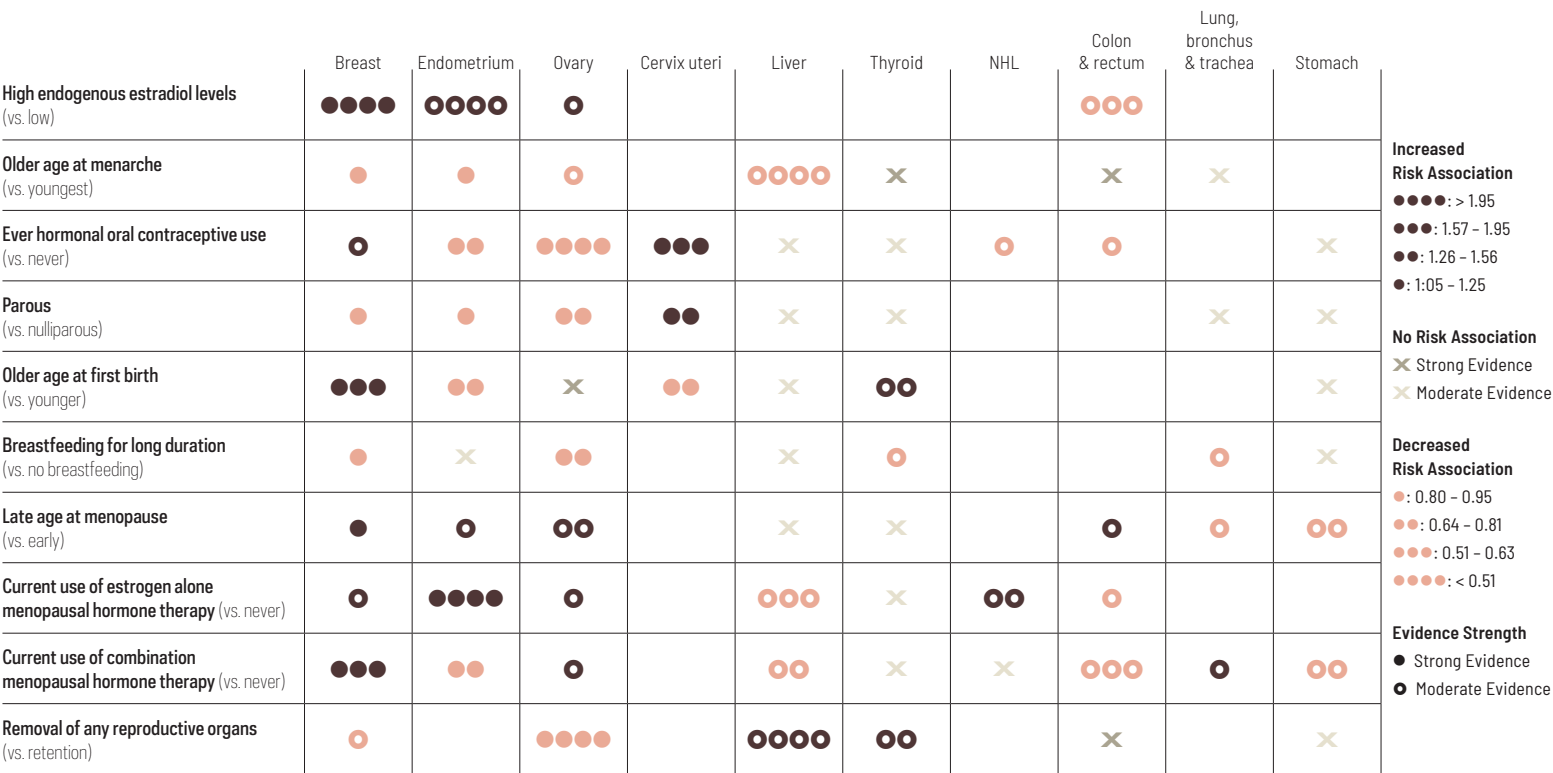
Reproductive patterns and exposure to reproductive hormones play a role in the development of some cancers in women. Economic, political and societal shifts in the last century have been marked by profound changes in sexual maturation and reproductive patterns. These changes have led to increased lifetime number of monthly menstrual cycles, which is associated with higher risk of breast, endometrial and ovarian cancers. Although not fully understood, one mechanism that could underlie these relationships is increased exposure to endogenous estrogen and progesterone levels. Other aspects of menses may play a role in the development of some types of ovarian cancers. Longer-term breastfeeding **MAP & FIGURE 7.1** lowers risk of most types of breast cancer, likely through cessation of the menstrual cycle, changes to the hormonal milieu, and profound cellular changes to the breast tissue.

While shifting patterns of reproductive factors, such as decreasing age at menarche, increasing age at first birth, and fewer births per woman, continue in many developing countries—and may have contributed to increases in incidence rates for hormone-related cancers—these trends have plateaued in many developed countries. **MAP 7.2, FIGURE 7.2** In addition, many women in higher-income counties are exposed to sustained use

of exogenous hormones for contraception, reproductive assistance, and menopausal symptoms. Hormonal contraceptive users have a slight, transient increase in the risk of breast cancer, but a moderate and long-term reduction in the risk of some types of ovarian cancer and endometrial cancer. **FIGURE 7.3** Although use of fertility drugs is a relatively recent exposure, early studies indicate that use of these powerful hormones does not increase cancer risk. Menopausal hormone therapy increases risk of breast and endometrial cancer dependent on formulation, timing of use, and body size, but may be associated with a decreased risk of colorectal cancer.

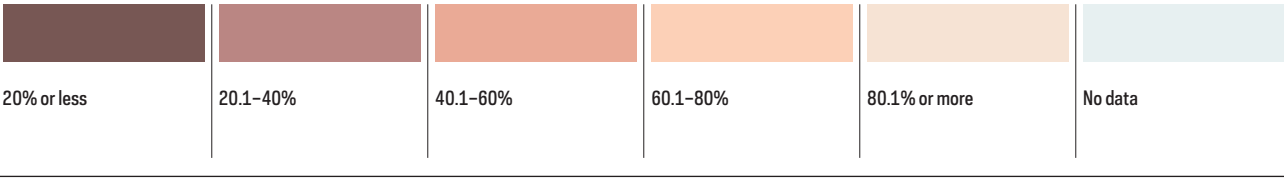
**Increasing breastfeeding duration from present levels to 12 months per child in high-income countries and 2 years per child in low- and middle-income countries could avert 22,000 breast cancer deaths per year.**

**FIGURE 7.3**  
Associations of reproductive and hormonal risk factors with the ten most common cancers among women worldwide



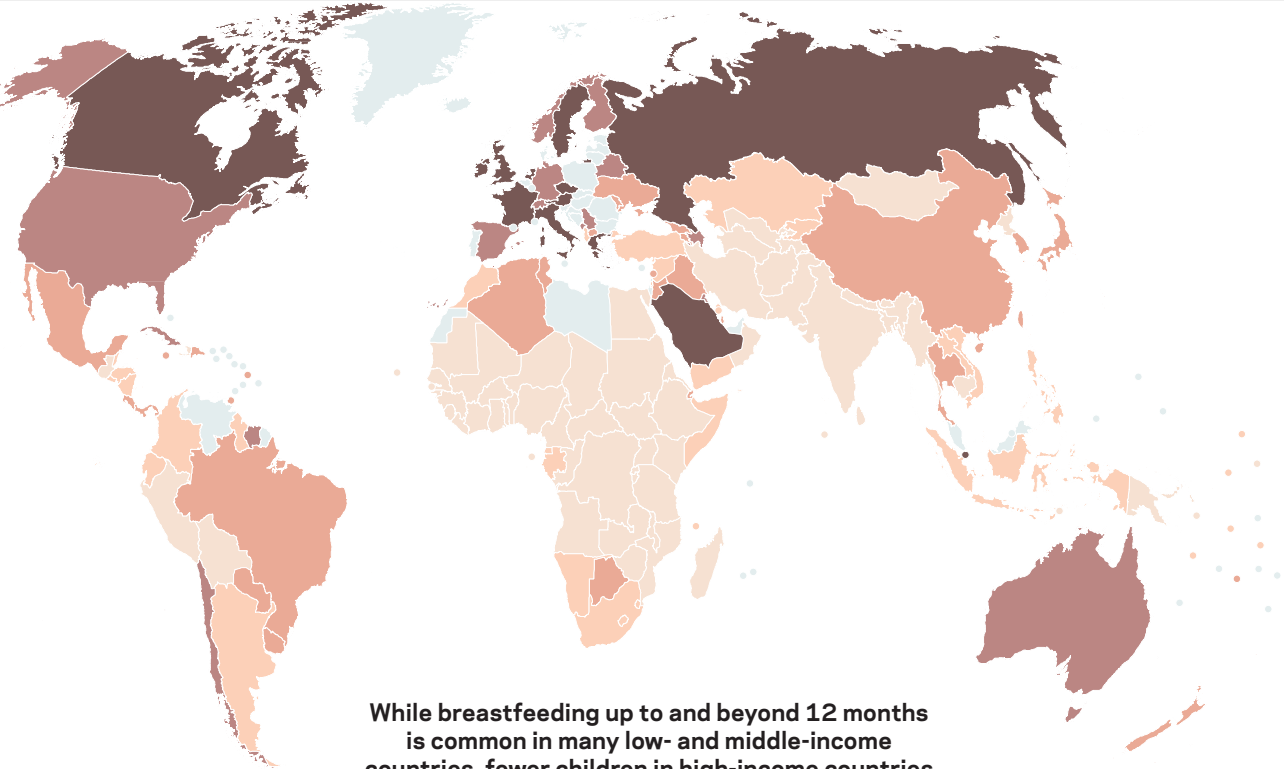
**MAP & FIGURE 7.1**

Percent (%) of children who receive any breast milk at 12 months of age



Global breast cancer deaths averted through current breastfeeding rates, by region

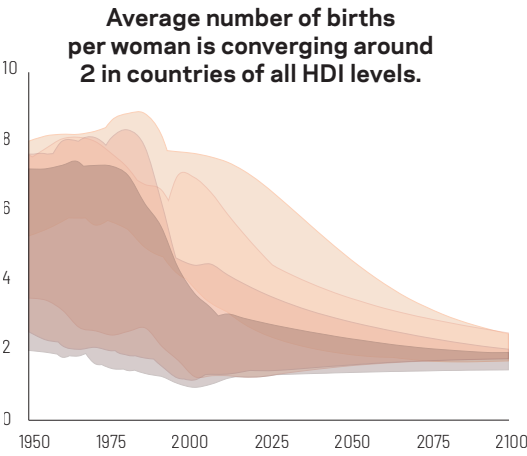
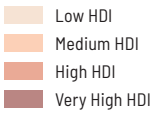
ANNUAL DEATHS AVERTED	
Central & Eastern Europe	417
Middle East & North Africa	853
Eastern & Southern Africa	1,452
West & Central Africa	1,264
Latin America & Caribbean	1,266
High-income countries	2,602
East Asia & Pacific	2,990
South Asia	8,651



While breastfeeding up to and beyond 12 months is common in many low- and middle-income countries, fewer children in high-income countries are breastfed to this point.

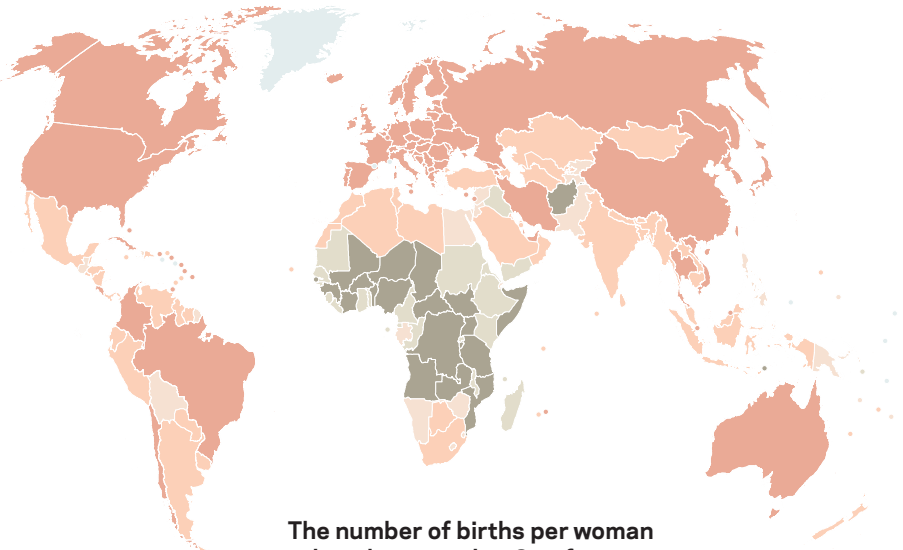
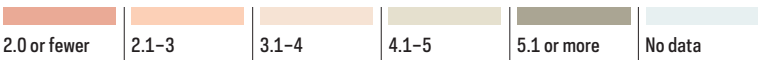
**FIGURE 7.2**

Mean number of births per woman in representative countries by level of Human Development Index (HDI) from 1950–2100



**MAP 7.2**

Average births per woman, 2010–2015



The number of births per woman has decreased to 2 or fewer in most higher-HDI countries.