

Breast Cancer and Insurance

In the November, 2007 issue of *The Actuary*, Patrick Carroll of the Pension and Population Research Institute in London, England, published a prediction that breast cancer rates among women in England and Wales will increase by 50.9% by the year 2029. The implications for insurance ratemaking and reserving are all the greater because women are now claiming a larger share of the higher paid professional and managerial posts. Employee benefits covering death, sickness and disability are salary related.

Unlike other cancers, breast cancer has a negative or reverse social gradient, whereby upper class women in the higher socio-economic groups have more breast cancer but less of the other cancers. Moreover, professional women tend to be in their years of highest earning at the time when they are diagnosed with breast cancer. The average age at diagnosis is between 62 and 63 in Germany and England. Pensionable age in the USA and in the UK has been raised above 65 to 67, which brings more female breast cancer incidence into the working age range of women.

Given this modern importance of women, Carroll, a British actuary and statistician, urges insurers and reinsurers that they need to develop more new products that are useful to women in such circumstances as when they are diagnosed with life threatening diseases particularly cancer.

Carroll's forecasts are also useful in the public health sector enabling planners to "plan treatment facilities so that women diagnosed can be treated without delay."

According to Carroll's analysis, the best predictor of modern breast cancer trends is abortion incidence and especially nulliparous abortion rates (nulliparous women have had no previous full term pregnancy). Genetic factors are also important in breast cancer. Full term pregnancies, especially those when the woman is young, are protective against this cancer and so is breastfeeding. But hormonal treatments such as combined (estrogen plus progestin) hormone replacement therapy and combined hormonal contraceptives increase breast cancer risks.

The notion of a breast cancer epidemic is now a worldwide reality and quite frightening. Especially with breast cancer already being the most common type of cancer together with skin cancer and having overtaken lung cancer in many countries.

When new screening programs are introduced an apparent increase in the number of breast cancer cases is the result of better mammography and more effective reporting. But when such programs have been running some years, further increases in incidence are not an artefact of screening.

Insurance Industry Changes

Medical texts have long acknowledged that an early first full term pregnancy (the earlier, the lower the risk) provides women with the best means of preventing breast cancer over the long-term, but the American Medical Association refuses to implicate abortion as a contributing factor in the breast cancer epidemic (possibly due to a fear of massive medical malpractice lawsuits). It is indisputable that abortion causes many women to delay the birth of a first child. Additionally, studies show that a premature birth before 32 weeks gestation increases risk, but the AMA does not acknowledge that abortion—which involves the same hormonal changes to the breasts as an early premature birth—also increases breast cancer risk by leaving the breasts with more places for cancers to start (on top of the risk of delaying first full term pregnancy).

Nevertheless, the AMA's position on the abortion-breast cancer link isn't stopping insurers from reacting to Carroll's findings. [Insurers](#) cannot and will not ask questions about women's abortion histories, but it's possible that some will choose to use marital status as a proxy variable for abortion, as abortion rates are so much lower among married women.

Does This Mean I'll Definitely Have Breast Cancer?

No. Not all women who have had abortions will develop breast cancer. According to a review of the worldwide research and a meta-analysis, Brind et al. 1996, the increase in risk for the general population is 30% for women who have abortions after the birth of a first child and 50% for women who have abortions before the birth of a first child. Patrick Carroll's study of abortion, birth control and breast cancer is alarming, but neither of those is the only risk factor that contributes to breast cancer. Other factors include:

- **Genetic Factors:** If you have a multi-generation history of breast cancer, you have a higher risk of getting it yourself. Mutations of the BRCA1 and BRCA2 genes are associated with early-onset cancer. Only 8-10% of all breast cancers are due to genetic factors. The remaining breast cancers are due to the effect of estrogen overexposure on immature, cancer-susceptible breast lobules.
- **Postmenopausal Obesity:** Studies suggest that being overweight is a factor. According to Debbie Haslo, director of breast and gynecological cancer at the American Cancer Society, "Gaining weight means there is a lot more fat that estrogen can sit around in," which means more estrogen circulating in your body. She also says, however, that this is only a strong risk factor for post-menopausal women.
- **Chronic Alcohol Use:** Increases estrogen exposure.
- **Premature Birth before 32 Weeks Gestation:** Leaves the breasts with more places for cancers to start and increases estrogen exposure. During the breast growth in a normal pregnancy, the mother's lobules multiply under the influence of increased estrogen. Since nearly all of the childless woman's lobules are cancer-susceptible, she's left with more places for cancers to start. She misses the protective process in the last months of full term pregnancy known as "differentiation," which matures 85% of her lobules into fully cancer-resistant lobules by the end of a first full term pregnancy.
- **Second Trimester Miscarriage:** Leaves the breasts with more places for cancers to start and increases estrogen exposure.
- **Cigarette Smoking:** Damages DNA.
- **Radiation:** Damages DNA.

- **Childlessness:** Breast lobules remain immature, cancer-susceptible. During every monthly menstrual cycle, estrogen peaks just before ovulation and stimulates the woman's immature, cancer-susceptible breast lobules.
- **Late First Full Term Pregnancy (age 24 or older):** Lengthens the "susceptibility window" (the period during which the lobules remain immature and cancer-susceptible) and increases estrogen exposure.
- **Combined Hormonal Contraceptives (estrogen + progestin):** Increases estrogen exposure.
- **Combined Hormone Replacement Therapy (estrogen + progestin):** Increases estrogen exposure.
- **Personal History of Ovarian or Uterine Cancer**
- **Age:** Most breast cancers are diagnosed in women over age 50.
- **Early Menarche (before age 12):** Increases lifetime estrogen exposure. More menstrual cycles mean more estrogen exposure, unless they are anovulatory cycles.
- **Late Menopause (after age 55):** Increases lifetime estrogen exposure.

What Does This Mean?

All of this information is pretty frightening, but panic is useless. Instead, be informed. Read your insurance policy and understand what is and is not covered, and ask questions about anything unclear.

Also, adopt strategies to reduce your risk for breast cancer. These include exercise; breastfeeding; eating cruciferous vegetables, soy products, vegetables with phytoestrogens and omega-3 fatty acids (flaxseed, walnut and olive oils); having children; avoiding induced abortion; watching your weight; and avoiding alcohol, combined (estrogen + progestin) hormonal contraceptives and combined hormone replacement therapy; and avoiding alcohol and cigarettes.

If you are old enough to require mammograms, insist upon them, and never miss an appointment, and most of all, trust your body. If something feels wrong, do not delay a visit with your physician.

References:

1. Carroll, P. The breast cancer epidemic: modeling and forecasts based on abortion and other risk factors." J Am Phys Surg Vol. 12, No. 3 (Fall 2007) 72-78. Available at: <http://www.jpands.org/vol12no3/carroll.pdf>