

## ISSUE 17, AUGUST 2009

- Rising cancer rates: attention on the environment in the struggle to explain increase in incidence
- Medical society recommends action to limit risks posed by hormone-like chemicals
- Materials in medical devices found to contribute to health complications for premature infants

## Rising cancer rates: attention on the environment in the struggle to explain increase in incidence

Although the number of people dying from the most common cancers has been declining since 1971, the number of people being diagnosed with cancer is rising. This is often attributed to ageing populations and improved diagnosis.

However, an age-adjusted breakdown of cancers in both men and women paints a more complex picture. While figures from the UK Office for National Statistics (ONS) show a considerable reduction in lung and stomach cancer, incidence of prostate cancer has risen by 212% between 1971 and 2003 and testicular cancer by 115%.

In women for the same period, breast cancer has risen by 80%, leukaemia by 43% and ovarian cancers by 24%. The overall incidence of cancer in women has increased by 38% since 1971.

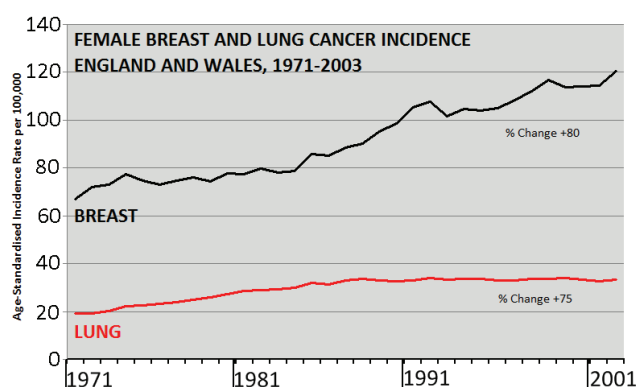
Since the figures are age-adjusted, the rises in incidence cannot be down to an ageing population. And neither can improved diagnosis explain these rises.

In Norway, prostate cancer cases increased by around 100%, and breast cancer cases increased by almost 80%, prior to the introduction of screening and PSA tests. The UK saw prostate cancer rise by 179% between 1971 and 1993, again prior to screening, while UK childhood cancer incidence rose by 1% annually between 1978 and 1997. [Eur J of Cancer 42:1961-1971; Kaatsch et al.]

Awareness of increased incidence and concern about rising healthcare costs is drawing attention to the question of why cancer rates are so stubbornly going up and what can be done to prevent it.

Appeals to lifestyle choices and risk factors such as obesity and sun exposure are familiar, but recently there has been a less-heralded but significant trend towards acknowledging the role environmental exposure to chemical contaminants may have in cancer.

*Between 1971 and 2003, age-standardised incidence of non-Hodgkin's lymphoma rose from 5.2 per 100,000 population to 15.8. (Source: ONS)*



Charting the relative change in age-adjusted breast and lung cancer incidence in women in the UK. Source: ONS

In 2008, the WHO and the International Agency for Research on Cancer (IARC) formally acknowledged a link between chemicals and cancer. In June this year the European Parliament officially recognized that exposure to certain chemicals may be the cause of many cancers, while in July the French Agency for Environmental and Occupational Health identified chemicals as a “huge” cancer risk factor.

The case is being built on a fast-growing body of animal and epidemiological research. The IARC now lists 216 chemicals linked to breast cancer in animals [Breast Diseases: A Year Book Quarterly 19: 17-19; Brody JG et al.], while studies of PCBs indicate increased risk of breast cancer in the presence of a certain gene. [Cancer 109:2667-2711; Brody JG et al.]. A recent study in Martinique connected long-term exposure to pesticides with the very high rates of breast and prostate cancers there. [Int J Oncol 34:1037-1044; D.Belpomme et al.]

The nature of epidemiological study and the fact people are exposed to thousands of chemicals in the environment makes establishing causal links between cancer and exposure to synthetic chemicals problematic. However, the environment is coming under ever-closer scrutiny as the rise in rates of cancer and other diseases becomes increasingly difficult to explain.

By James Black

## MEDICAL SOCIETY RECOMMENDS ACTION TO LIMIT RISKS POSED BY HORMONE-LIKE CHEMICALS

A new review of the science around the health effects of exposure to endocrine-disrupting chemicals (EDCs), including a series of research and policy recommendations, has been published.

One of the most far-reaching documents of its type, the statement from the US Endocrine Society, a leading medical and scientific body, examines how exposure to both natural and man-made hormones can harm health.

The statement covers a wide range of topics, both familiar and new. Many readers will be aware of such issues as windows of development, the role of oestrogens in breast cancer, and the role of EDCs in hypospadias and cryptorchidism.

However, the statement also discusses newer territory in depth. One chapter is dedicated to epigenetic mechanisms, a growing research area which looks at how EDCs can affect the germ line, altering inheritable traits in an almost neo-Lamarckian manner.

The Society pinpoints endocrinologists as being particularly well-suited for developing environmental health research along the lines discussed in the document.

There are also recommendations to link research to clinical practice in order to equip physicians with adequate information about EDCs to help diagnose health problems, and a strong endorsement of the precautionary principle to guide policy.

- Endocrine Society Statement: <http://is.gd/1Wjxz>

## Materials in medical devices found to contribute to health complications for premature infants

The type of material used in administering total parenteral nutrition is a risk factor in the development of liver problems in premature infants, a new study has concluded.

The research, published in the journal *Pediatrics*, found that PVC infusion kits containing the phthalate DEHP substantially increased the chance of developing cholestasis. (1)

Other research has already shown that DEHP leaches out of TPN infusion systems, leading to substantial exposures for patients (2), and also that TPN itself is an added risk factor for cholestasis. (3)

What is new in this study is the comparison between cholestasis incidence in infants treated with PVC PVC-free infusion systems, which allowed an association between DEHP-containing TPN and cholestasis to be determined.

In this specific study, the use of infusion systems containing DEHP increased the risk for cholestasis by a factor of 5.6. After changing to systems free from DEHP, the incidence of cholestasis dropped from 50% to 18%.

(1) Study: *Pediatrics* 124:710-716; [von Rettberg et al](#)

(2) DEHP: *J Pharm.* 262(1-2):83-91; [Kambia K et al](#)

(3) TPN: *Clin Liver Dis.* 12(1):97-110; [Guglielmi FW et al](#)

**Editor's note:** The study was heavily, and in our opinion unfairly, criticized by the American Chemistry Council. You can read our response here: <http://is.gd/20n85>

## RECENT NEWS AND SCIENCE ABOUT THE ENVIRONMENT AND HEALTH

**Forty Years' War - Limited benefits in push for cancer screening:** Cancer screening is receiving increased attention and funding. Unfortunately, for many cancers, there is little evidence that it helps reduce deaths. <http://is.gd/1Wh49>

**Exposed - industry strategy to defend BPA:** Recruiting a pregnant woman as a spokesperson and hints of a scare campaign about losing tinned food suggest industry can't defend BPA using science. <http://is.gd/1Wh6l>

**Urinary phthalate levels and preterm birth:** Human study indicating that high phthalate levels increase the chance of premature birth. Authors speculate that phthalates alter the timing of labour by reducing progesterone production. <http://is.gd/1Wh8N>

**Effects of hormone disruptors on reproductive physiology and behaviour:** Review of the effects of endocrine disruptors on ecosystems and health, including changed behaviours and epigenetic disruption of the germ line. <http://is.gd/1Wh9F>

**French agency identifies environment as "huge" cancer risk:** Says cancer is "cross-factorial" and that interactions need to be included in chemical safety assessments. French cancer rates have nearly doubled in the last 25 years. <http://is.gd/1WhbP>

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