

ISSUE 19, OCTOBER 2009

- A question of when: can timing of conception affect child health?
- Swedish County Councils plan to stimulate development of PVC-free blood bag
- Differences in breast milk may hold clues to high cancer rates in Danes

A question of when: can timing of conception affect child health?

Decisions about when to conceive could affect the chances of having a healthy child, at least if suggestions in epidemiological research turn out to be true.

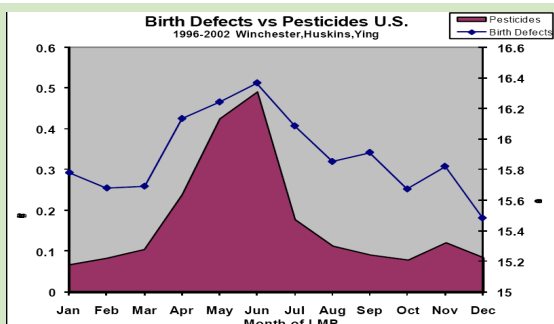
While most countries keep national databases of birth defects in order to detect spatial clustering, some recent studies have shown there is a possible correlation between season of conception and the likelihood of a child being born with a variety of problems.

Infants conceived through April to July have been shown to have a significantly higher chance of being born preterm, with low birth weight, birth defects, developing cancer, or even having lower academic achievement, according to new research by Dr Paul Winchester, Clinical Professor at the Indiana University School of Medicine. [Acta Pædiatrica 2009 98, Winchester et al.]

Some scientists have been pointing to high usage of agrichemicals during these months as a putative culprit.

Studies in Australia [Am J Epidemiol 119 no.4, Dorsch et al.] and the US [EHP 114 no.3 Manasaram et al.] have shown that nitrate contamination of ground water can result in adverse birth outcomes in the developing foetus. Other US research has shown levels of pesticides and nitrates peaking in the spring and summer.

Pesticide and nitrate concentrations in water supplies also peak during spring and summer.



Winchester et al. have found higher rates of birth defects during months of heavy agrichemical use.



Foetus from an ectopic pregnancy—one of the many health problems whose increasing rates of incidence is motivating Winchester's research. (Image Wikimedia Commons)

"I think we have this mystical belief that you can pour 1.2 billion pounds [0.5 billion kg] of pesticides into the environment, and it's not going to end up in your body," Winchester says.

One major problem for epidemiologists looking for answers is lack of data. Most water testing is done by private organizations who generally only release averaged annual data to the public. In the EU, water quality statements only include annual data, making it difficult for researchers to determine when levels of contaminants are the highest. In the US, there is no requirement to test water for chemical contaminants in the month of June when it is likely that the highest levels of agrichemicals are present.

Steve Nixon, from the European Topic Centre on Water, says, "Sampling would ideally be targeted to when concentrations are expected to be highest but in practice this probably does not happen on a routine basis."

Despite the lack of data, the evidence suggests it might be advisable for doctors to discuss the implications of seasonal variation in agrichemical use with women of child-bearing age. Meanwhile environmental health experts such as Dr Philip Landrigan, Chair of the Department of Preventive Medicine at Mount Sinai Medical Center, US, are calling for revised "child-protective" approaches to determining regulations and standards.

SWEDISH COUNTY COUNCILS PLAN TO STIMULATE DEVELOPMENT OF PVC-FREE BLOOD BAG

In what would be a new application of purchasing techniques already widely-used in the military, county councils in Sweden are planning to procure PVC-free blood bags.

Phasing out PVC is a high-priority environmental goal in Swedish healthcare. Because there are no PVC-free blood bags available on the market, the Councils are turning to innovation procurement to secure supply.

In innovation procurement, a buyer encourages a supplier to develop a new product by guaranteeing to buy enough of the product to offset development costs.

This technique is commonly used by the military and has been successfully applied by Swedish county councils to the development of environmentally-friendly heat pumps.

The main challenge for innovation procurement in healthcare is that, unlike the military, it is not a single large-volume buyer. Instead the purchasing of many small organisations needs to be coordinated.

"The question is not so much can the technology be developed, as can Sweden reorganise its blood banking service to allow purchase in enough volume to encourage suppliers to develop it," says Fredrik Persson, General Manager of medical technology company Macopharma AB.

The first stage of the project is a feasibility assessment and finishes in September 2010.

Differences in breast milk may hold clues to high cancer rates in Danes

New research comparing Finnish to Danish breast milk is likely to fuel speculation about the role environmental endocrine disrupting chemicals (EDCs) have in health.

Danes have unusually high rates of testicular cancer and other male reproductive disorders, including cryptorchidism and hypospadias.

In contrast, Finland, a similarly industrialized Nordic country, exhibits much lower incidences of these disorders.

By looking at breast milk as a proxy for foetal exposure to EDCs, the researchers claim to have for the first time revealed differing country-specific chemical signatures in Danes and Finns.

Danes were found to have generally higher exposure than Finns to persistent bioaccumulative chemicals, in particular such as dioxins, PCBs and some pesticides.

Both these classes of EDCs have been implicated in testicular cancer or in adversely affecting development of the foetal testis in humans and animals.

Why women in Denmark should have higher levels of these chemicals in their breast milk remains unclear.

Study leader Niels Skakkebaek, from Denmark's National University Hospital, said: "Environmental exposure to EDCs may explain some of the temporal and between-country differences in incidence of male reproductive disorders."

RECENT NEWS AND SCIENCE ABOUT THE ENVIRONMENT AND HEALTH

Chemicals leach from packaging: Excellent reminder that plastic and packaging is not the inert stuff people often think it is. <http://tinyurl.com/plasticleach>

Key environmental epigenetics paper challenged: Researchers are having difficulty reproducing the results of a 2005 epigenetics study. An interesting piece which bears careful reading. <http://tinyurl.com/epichallenge>

US EPA target drugs in water: For the first time, the agency is considering regulation of pharmaceuticals in drinking water. <http://tinyurl.com/EPAdrugs>

Seeking chemical culprits for those deformities: Nice piece about the search for chemicals seen as likely suspects in feminization and reproductive anomalies being spotted worldwide. <http://tinyurl.com/chemculprits>

Born to be big: Excellent Newsweek article about how obesogens - not just lifestyle - may be behind the obesity epidemic. <http://tinyurl.com/obesogens>

Health & Environment is published by Health Care Without Harm Europe (registered in Rijswijk, NL, Association number 27258195) and the Cancer Prevention and Education Society (charity registered in England and Wales, No. 1089082).



HCWH Europe: www.noharm.org/europe
CPES: www.cancerpreventionsociety.org

Editorial Contact Information

Paul Whaley, Editor
1 Rue de la Pepiniere
B1000 Brussels
Belgium
Tel: +32 (0) 22 891 040
Email: europe@hcwh.org