

## What About Those “Convenient” Patches and Rings?

Contraceptive hormonal patches, manufactured by Janssen-Ortho under the brand name Evra, have been promoted for their convenience. But the used patches contain large amounts of a persistent, synthetic hormone that can feminize male fish. Instructions say to fold them in half and discard in the garbage after use, but the hormone can still leach into the environment. Dr. Joakim Larsson, a Swedish endocrinologist who has researched the patches, questions whether they should be sold at all since birth control pills are more environmentally friendly. A new product making its appearance on the Canadian market is the NuvaRing, a contraceptive ring manufactured by Organon. The ring, on disposal, contains 1/3 more estrogen than a month’s worth of discarded patches, and up to 6 times as much hormone as a month’s supply of birth control pills. The Canadian drug approval process has, to date, included no review of safe disposal requirements and no environmental impact assessment component. Proposed new regulations are still several years from becoming law and current regulations do not deal adequately with pharmaceutical products. Pharmaceutical companies appear to adjust their practices, and information to consumers, according to the regulations in each country. If Canada’s regulations are less demanding than those of the US and Europe, manufacturers may well apply lower standards in the Canadian market.

## WHAT YOU CAN DO cont’d

your provincial Ministers of the Environment and Health and the manufacturer of any drugs you take regularly. Urge them to collaborate on a take-back and safe-disposal program.

- Call your public works department and ask if your municipality includes discarded pharmaceuticals in its household hazardous waste program. Question Environment Canada, Health Canada and your provincial Ministries of the Environment and Health about why more stringent precautions for disposal are not in place.
- Contact Janssen-Ortho, the Canadian manufacturer of the patch Evra, (Tel: 1-866-848-3872) and insist that the product be labelled with instructions to return used patches to a pharmacy for disposal.
- Contact Health Canada’s Environmental Impact Initiative (Tel: 1-888-492-1104 or e-mail ear-ree@hc-sc.gc.ca) and the manufacturers of drugs you use to insist on federally mandated drug labelling that tells consumers how to dispose of unused drugs. Demand action on proposed regulations to eliminate PPCPs with potentially harmful ingredients that contaminate the environment. Demand immediate labelling as an interim measure.
- Contact pharmaceutical industry groups ([www.canadapharma.org](http://www.canadapharma.org), e-mail [info@canadapharma.org](mailto:info@canadapharma.org) and [www.cdma-acfpp.org/en/about.html](http://www.cdma-acfpp.org/en/about.html), e-mail [info@canadiangenerics.ca](mailto:info@canadiangenerics.ca)) and individual manufacturers to protest ads that promote prescription drugs. Such ads are illegal in Canada, but the ban is not adequately enforced. Tell them you want unbiased information about prescription drugs from an independent source.
- For collective action, support a group that recognizes the links between health and the environment, such as Women’s Healthy Environments Network, The Canadian Coalition for Green Health Care, Health Care Without Harm, Stop Cancer.org., Alliance for a Healthy Tomorrow or The Campaign for Safe Cosmetics.

## FOR MORE INFORMATION...

For a detailed report on PPCPs, see *Full Circle: Prescription Drugs, the Environment and Our Health*, written by Sharon Batt, on the website of Women and Health Protection, at [www.whp-apsf.ca](http://www.whp-apsf.ca)

For more detail on current government regulations and their impact on environmental protection, see “Evra and the Environment” at [www.whp-apsf.ca](http://www.whp-apsf.ca)

Health Canada’s Environmental Impact Initiative, including the proposed environmental assessment regulations, is online at [www.hc-sc.gc.ca/ear-ree/index\\_e.html](http://www.hc-sc.gc.ca/ear-ree/index_e.html)

*Written by Sharon Batt in collaboration with Women and Health Protection*



Over the past decade, researchers have been detecting trace amounts of pharmaceutical products in Canada’s lakes, rivers, streams and tap water. Other chemical ingredients, from cosmetics, toiletries, food additives and veterinary drugs, have also been found. As a group, these chemicals have been dubbed “PPCPs” (pharmaceuticals and personal care products). Even though the amounts detected are minute, scientists and policy makers have begun to worry about possible harm to human health and the environment.

This fact sheet summarizes what is known about this new health and environmental concern. It also describes what individuals, governments and industry can do to reverse the threat these products pose to our health and to the environment.

## Pharmaceuticals in Our Water:

### A New Threat to Public Health?

#### How Do PPCPs Get Into Our Water?

Here are some of the ways PPCPs enter the environment:

- We flush unused medications down the toilet or sink.
- We rinse soaps, shampoos and cosmetics down the drain when we bathe.
- Between 50% and 90% of the active ingredients in medications are not absorbed by our bodies—we excrete them into the sewage system.
- Drug residues leach from the deceased into cemeteries and groundwater.
- Farm animals excrete veterinary drugs, including hormones and antibiotics, into fields where they run off into lakes and streams.

Tests on water in North America have found trace amounts of antibiotics, painkillers, anti-inflammatories, hormones, tranquilizers, chemotherapy drugs and drugs used to treat epilepsy and blood cholesterol. A family of chemicals called phthalates, found in many cosmetics, perfumes and hair products, has also been detected. Some of the substances (e.g., anti-epileptic drugs) persist in the environment; others are “pseudo-persistent”—they break down but are continually replaced because of widespread use.

#### Small Amounts Can Have Large Effects

The concentrations of these chemicals detected in water are minute, typically between 20 parts per billion (ppb) and less than one part per trillion (ppt) for each substance. But drugs are designed to have an effect in small quantities and small amounts of different



chemicals can add up or interact. We are exposed to a mix of PPCPs on a daily basis, throughout our lives. The substances and quantities will vary depending on where we live; each community has its own “chemical soup”. Many drug compounds dissolve in water but about 30 per cent dissolve only in fat. This enables them to enter cells and move up food chains to become more concentrated. Another concern is that, as a society, we are using more drugs than ever before, setting the stage for increased contamination over time.

Deformities in the reproductive systems of fish and frogs show that these chemicals are not harmless. Risks to humans are not known, but could include resistance to antibiotics and the disruption of endocrine (i.e., hormonal) systems. Recent research shows that humans and other forms of life have “windows of vulnerability,” times when exposure to very small amounts of toxic chemicals can be harmful. A developing fetus, an infant, or a person with a compromised immune system would typically be at more risk than a healthy adult.

**“An Ounce of Prevention ...”**

History shows we need to pay attention to early warning signs if we are to prevent problems to our health and the environment. This is the basis for a policy approach called the “precautionary principle.” When we suspect harm is being done but the scientific evidence is still not conclusive, the precautionary principle directs us to act to prevent the possible harm. Marine life deformities tell us PPCPs have already affected the ecosystem on which we depend. We need to act now, to reverse these problems and to prevent others.

Prevention should be our first line of defence against PPCPs. We can begin immediately with programs to reduce over-use and inappropriate use of pharmaceuticals and other PPCPs and by disposing safely of unused products. These precautions are more economical and ecological than trying to extract PPCPs from the water after the fact. Improved municipal filter systems and redesigned products, while necessary, are long-term, costly approaches.

**Is the Government Protecting Us?**

The Canadian government has begun to look at the problem of PPCPs under a program called the Environmental Impact Initiative. This program includes research, public education, and the introduction of environmental assessment regulations (EAR). But the development of regulations is proceeding at a snail’s pace and new regulatory requirements are unlikely to take effect for several years. In addition to speeding up the enactment of regulations, Women and Health Protection believes the federal government should broaden its program from narrow risk assessment to a holistic “green pharmacy” approach. This would include an emphasis on prevention, through reduced use of drugs and other PPCPs. Drug use can be reduced by promoting better nutrition for disease prevention, increasing the

use of non-polluting complementary and alternative approaches to treatment, enforcing Canada’s ban on prescription drug advertising, and providing unbiased, publicly funded information on prescription drugs. We have also urged the government to recognize the role of gender in its policy approaches (see “Women and PPCPs,” below).

At the moment, only British Columbia, Alberta and Saskatchewan have comprehensive programs that encourage consumers to return unused drugs to pharmacies. Other provinces should follow suit. The National Association of Pharmacy Regulatory Authorities (NAPRA) has shown leadership on this issue, but in order to succeed, programs need support from industry groups, medical associations and federal and provincial governments.

**Women and PPCPs**

Women have a particularly strong connection to PPCPs. Because of cultural influences, women are the family members most often responsible for health, including the purchase of drugs and food, food preparation, family hygiene, care of sick family members and disposal of home-use products. A survey of Canadians found more women than men flushed unwanted drugs down the toilet or sink. This probably reflects the responsibility women take for children’s safety in the home, rather than a disregard for the environment. In fact, the same survey found that more women than men are interested in learning how to dispose of drugs safely and are willing to go out of their way to do so.

Many drugs are prescribed more often to women than to men (e.g., anti-depressants); others are gender-specific (e.g., birth control pills, menopausal hormone therapy). Drug company ad campaigns often target women to expand the use of existing drugs, as in the promotion of anti-depressants for “mood disorders.”

Women are the main users of cosmetics, perfumes

and hair products. Synthetic musk fragrances from perfumes and other toiletries have been detected in drinking water. So have phthalates, a family of industrial chemicals used in cosmetics and linked in animal studies to permanent birth defects in the male reproductive system.

Biologically, women have different life cycle vulnerabilities to chemicals than men. Pregnancy is the most obvious example. A woman’s exposure to minute quantities of certain chemicals while she is pregnant can harm the developing fetus. Such exposure at a critical time in the fetal growth cycle can cause deformities, cancer or subtle effects on a child’s ability to learn. Some health specialists believe no dose of synthetic hormones is safe for the developing embryo and fetus.

Women also experience adverse reactions to drugs more often than men. This difference is only in part because women use more drugs than men. A US government report concludes that physiological differences, such as smaller average body size and differences in metabolism, may make women more susceptible than men to some drug-related health risks.

**Reduce Use**

- Eliminate any unnecessary use of toiletries, cosmetics and drugs.
- If you are using a contraceptive patch, switch to contraceptive pills, a more environmentally friendly choice.
- Only purchase cosmetics that are phthalate-free (see “Skin Deep: A Safety Assessment of Ingredients in Personal Care Products,” available online at [www.ewg.org/reports/skindeep](http://www.ewg.org/reports/skindeep), for a list of tested brand name products). Contact the manufacturer of any cosmetics you use regularly and ask them to publicly pledge to remove all chemicals linked to cancer and birth defects from their products, with labelling of all product ingredients as an interim measure.
- If you eat meat, eat organic to reduce your intake of hormones and antibiotics and to support the green livestock and poultry industries.

**Dispose Safely**

- Never dispose of unused and expired medications in the sink, toilet or garbage.
- Return unused and expired prescription and over-the-counter drugs to your pharmacist. Ask your pharmacist to ensure proper disposal. Ask your pharmacist and prescribing physician to educate consumers/patients, in their own printed matter and verbally, about proper disposal of unused drugs.

**Take Action**

- If your province does not have an organized medications take-back program, contact the provincial pharmacy regulatory agency, the provincial medical association, ►