



BPA IS A DIRTY WORD

by Nicole Bijlsma

BPA (BISPHEENOL A) is a dirty word for anybody in the know. Essentially it is a hormone disrupting chemical found in polycarbonate plastics (used in some baby bottles, office and drinking water bottles), paper products (receipts, toilet paper, newspapers, tickets, magazines, business cards), CDs and in the lining of many of our food tins. BPA is just one of a growing number of hormone disrupting chemicals that has permeated our everyday life.

Of concern is that, unlike any other toxins that we've previously been exposed to, these chemicals exert their effect at levels far below what is considered to be harmful. Research shows that it is the timing and duration of exposure and not the dose that determines what impact these chemicals have on the body, which makes children most vulnerable to them. Like any hormone, the body is programmed to react to minute levels – levels that are typically found in everyday products. So the lower the levels, the greater the response. In contrast, at high levels, the hormone receptors in our body shut down altogether through a process known as receptor downregulation. Animal studies have demonstrated that exposing a male rat foetus to BPA can significantly alter its production of testosterone.

The authorities' way of regulating hormone disrupting chemicals, by providing acceptable limits in everyday products, is

futile as these chemicals can cause serious adverse health effects at levels well below what is currently accepted.

BPA has been banned in children's products in Canada, France, Denmark, and the European Union because of its association with breast and prostate cancer, infertility, early puberty in girls, type-2 diabetes, obesity and attention deficit hyperactivity disorder.

There are inherent problems with the way in which science evaluates hormone disrupting chemicals like BPA.

Our regulatory authorities wait until there is concrete scientific evidence that an agent can cause harm, essentially waiting for the disease to occur in the population before they react. This underlying presumption of 'innocent until proven guilty' enables hazards to remain on the market where they may harm our (children's) health. Asbestos and lead dust are two such examples.

Just because there is insufficient scientific evidence to prove that an agent is harmful, doesn't mean it is safe. Historically the problem may lie with technology.

Setting a 'safe' level of chemicals in consumer products is meaningless as it does not account for the total exposure to thousands of chemicals in multiple products, let alone those in our food, air and water.

These limits do not consider the impact of chemical synergy. For example if sodium

lauryl sulphate – the foaming agent in your shampoo – combines with an amine (such as triethanolamine), it may result in the formation of nitrosamines which are carcinogenic. Disturbingly, you will find this combination in the majority of your personal care products.

It fails to account for the fact that breast-fed babies are at the end of the food chain. Numerous chemicals such as the pesticide DDT and polychlorinated biphenyls (PCBs) have been found in higher levels in a child's blood in proportion to their body weight, than most adults.

There is a misguided assumption that all products on our shelves have been rigorously tested for safety. While this may be so for the great majority of Australian made products, the importation of hazardous products is an unfortunate yet common occurrence. Part of the problem lies with the inconsistencies in Occupational Health and Safety laws, or lack of, amongst countries. Another issue is the lack of resources to check the hundreds of thousands of shipping containers that reach our shores. Consequently product recall is an ongoing phenomenon.

Children are not adults, and yet these limits are based on adult exposure. Infants and children are inherently different from adults because they breathe more air, drink more water and eat more food

relative to their body weight. They also have a higher metabolic and absorption rate, compromised immune system as well as a decreased capacity to detoxify and excrete chemicals. In addition, children are exposed to significantly higher levels of airborne pollutants when compared with adults because they put objects in their mouths and their breathing zone is closer to the floor. Children are uniquely susceptible to environmental pollutants and yet, despite this awareness, there is currently little or no legislation to protect children from these hazards.

What we require is a radical shift in the way we assess new technologies coming onto the market and this can be achieved with the 'precautionary principle'. It works on the premise that, if an agent cannot be proven to be completely safe, care or avoidance should be implemented. This is the underlying philosophy of building biology. Global warming is a prime example of the precautionary principle because the stakes of not acting – the extinction of the human race and every other species – are too high. Based on the precautionary principle, it is up to the companies who wish to bring new technologies and products onto the market to prove their safety before they are released on the market.