

Chemical danger

Day-to-day chemicals have been blamed for recent increases in several diseases including asthma and childhood cancer. Fighting this threat means tackling some of the biggest companies in the world. But, says Robert Walgate, WHO is prepared for battle

Chemicals could be the next tobacco for WHO, which put this issue high up on the agenda of their 52-country conference on environment and health in Budapest, Hungary. There are thousands of artificial chemicals floating around in each individual and according to Vyvyan Howard, a toxicopathologist at Liverpool University, this chemical "soup" is major worry. "We're talking literally of 10s of thousands of novel molecules", he says.

Far from being harmless, as the chemical industry protests, these substances have been linked to several diseases—and children are particularly at risk. "We know these chemicals are contributing to disease in children. This is not speculation. It's fact", says Philip Landrigan, Chair of the Department of Community and Preventive Medicine at the Mount Sinai School of Medicine, New York.

The danger posed by day-to-day chemicals has led WHO to make moves to strengthen existing guidelines on safety testing. The chemical industry looks set to take on WHO's challenge, but if past tussles with industry are anything to go by, WHO could be in for a fight. The organisation's anti-tobacco legislation was met by massive opposition from industry leaders and similar reactions were seen by the food industry to WHO's resolution on diet, nutrition, and exercise, announced earlier this year. But the chemical industry is keeping a close eye on developments. Observers and lobbyists from large companies journeyed to Budapest to argue their case.

According to Marc Danzon, European regional director for WHO, the chemical industry has "ignored health for many years". He said chemical industry executives have "been a bit stressed by what's happening with the tobacco industry" and nerves are starting to show. But, he emphasised that WHO was looking for "consensus and

dialogue" not conflict. "Health cannot be negotiated. . . . We cannot be weak on that."

The European council for the chemical industry (CEFIC) welcomed a European Commission directive on chemical safety that was put together in 2000. "Broadly we agree there's a need for sensible precaution" said Colin Humphris, Executive Director for Research and Science at CEFIC. "No manufacturer would want to put out products that harm children". He says that industry representatives want a framework, proportionality, and a fair basis in relative risk—which they believe the EC guidelines provide—but he says WHO wants to move further.

WHO seems committed to targeting chemicals. Although the conference declaration had no targets or timelines, even environmental groups came away impressed at WHO's motivation.

Danzon believes the conference marked a real achievement. He has made his name by establishing detailed interactions with countries in Europe,

and does not believe in setting global targets. Using the Declaration, WHO's European office will help member countries define their own specific priorities, and measure progress during the next 3 years. "We are not obsessed by models", he explains. "We give directions, share experience, and then help every member state adapt."

Chemical soup

Howard says chemicals can be found in breast milk and travel across the placenta. They can cause malformation of tissues in the growing fetus because as they occur in similar concentrations to the cell signalling molecules at work during organ building.

According to Landrigan, chemicals also contribute to asthma, childhood cancer, birth defects, and learning disabilities. "Asthma has more than doubled. Pollution is part of the problem. Rates of cancer are going up. Rates of certain birth defects of the male reproductive organs in baby boys have doubled", he says.

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Children are particularly at risk from diseases caused by chemicals

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"These are new problems that relate to new exposures that need new solutions", he adds.

Landrigan believes a change of a change in thinking is required. He suggests that chemicals need to be tested more thoroughly before they get on the market. And that agents already approved for sale should be retested with revised criteria. "Individuals, families, leaders of local and national governments must know what is in the products they are purchasing so they can make decisions", he says.

The precautionary principle

According to Howard politicians need to take steps that will minimise exposure to chemicals by first assuming they cause harm. "If chemicals persist and accumulate in the body then they should be phased out. That's the short message", he says.

Adherence to this "precautionary principle" will be the new bone of contention between WHO and industry. It was endorsed in the Rio Declaration on Environment and Development in 1992, and was reiterated in a more subtle way in the EC document that satisfied CEFIC in 2000.

Now, the health and environment ministers of the 52 delegate countries that participated in the Budapest conference, have also pledged to abide

by the precautionary principle "as a risk management tool".

Great scientific uncertainty about many of the issues debated remains, however. "We know from painstaking efforts over decades what lead, PCB and methyl mercury can do, and we have a long list of chemicals that we believe can act the same way but we just don't have the evidence", says Philippe Grandjean, of the Institute of Public Health, University of Southern Denmark.

The precautionary principle is one immediate solution, but there were also calls for a European version of the US National Children's Study, which aims to follow environmental exposures and consequences to brain development in 100 000 children from birth to 21 years of age. "They'll be enrolled when their mums come in for prenatal care" says Landrigan.

Unlike previous studies which have looked at one chemical at a time, attraction of the NCS cohort, according to Landrigan, is that investigators will be able to look at several chemicals in a vast number of children and look at how these agents interact.

The study will cost a huge \$250 million. But Landrigan says this figure is tiny compared to the cost of exposure-related disease. He estimates that the annual cost of environmental diseases in children in the USA is \$54.9 billion.

"While Europe is ahead of us in policy, we have made some good advances in the science", he says.

McGlade affirms the need for more large-scale studies. "If we told our children what we don't know and what we do know, I think many of them would be shocked", he says.

Meanwhile WHO is addressing the fact that the impact of the environment on health, especially of children, is not just an issue for Europe. All the six WHO regions are likely to become involved.

WHO Director-General Lee Jong-wook told *The Lancet* in Budapest "To me this meeting is very important because WHO Euro is not only traditional Western Europe, but East Europe, Central Asia and the Far East." A spokeswoman added: "We hope all six regions of WHO will take up the issue."

But Lillian Corra, of INCHEM in Argentina, is concerned that European resolutions will mean chemical companies look to the developing world for business. "Many European chemical companies make profits on dirty business outside Europe" she claims. "We want equality. When [European country] makes a decision we want the same decision to be made for our industry. And we want to be sure that the dirty business and chemicals are not going to be relocated [to the developing world]."

Margaret Chan, Director of Health and Environment Coordination at WHO in Geneva, told *The Lancet* that WHO is looking at this issue. "Globally 25-35% of diseases have an environmental cause, particularly in vulnerable people like children and women . . . So WHO is working with other regional offices trying to role out the same kind of process as Europe's meetings of ministers of environment and health."

Lee concluded that environmental action in Europe is providing the lead to WHO. "Yesterday, [22 June] I spent a whole day in a meeting on the implementation of the tobacco free initiative. Countries of the EU like Norway and Ireland are already taking very strong measures" by banning smoking in public places. "WHO is concerned with whole world", he said, "but Europe is giving us lessons."

Robert Walgate

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Still Pictures

Pollution means children are exposed even while at play