

Neil Arya . All chemicals have risks

Neil Arya

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The Ontario government has recently concluded that we must ban cosmetic uses of most pesticides, for the health of Ontario's children. It made the right decision.

Dan Gardner missed the point, in suggesting that the recent Pest Management Regulatory Agency (PMRA) decision to re-register the weed killer 2,4-D should derail this legislation ("You read it here first ... but you shouldn't have," May 28).

Following the release of the 2004 Ontario College of Family Physicians report on the number of serious health problems associated with exposures to pesticides, the PMRA was taken to task for failing to take into account human exposure studies. As a result, I was appointed to represent the OCFP on the federal Pest Management Advisory Council. In 2005, we advised the PMRA to not say "safe" when referring to the pesticides that they registered for use in Canada as all pesticides have inherent hazards, as well as benefits when used in prescribed circumstances.

Science cannot say 2,4-D, or any other toxic chemical designed to kill a biological organism, is safe. Problems with DDT were found in peregrine falcons years before carcinogenicity had been definitively established in humans, and DDT and later other organochlorine insecticides were withdrawn from the market. We know of no safe levels of exposure to lead in children or of alcohol in pregnancy; we therefore minimize exposure. Sweden, Norway and Denmark have de-registered 2,4-D, citing the precautionary principle to protect their most vulnerable citizens, especially fetuses, infants and children, from environmental hazards.

Scientific evidence is immensely broader than the toxicologic (laboratory animal) risk assessment on which the PMRA primarily relies. Sadly, the PMRA demonstrates little understanding of the limitations of its methods, and has not developed a systematic process to incorporate epidemiology, studying humans in the real world, in risk assessment. In fact, until recently the PMRA has actually not even had an epidemiologist on staff.

Decisions are predicated on industry-supplied, highly controlled toxicology studies on genetically purified species with biological properties such as de-toxifying enzymes that are often quite dissimilar to human beings.

Epidemiologic data, on the other hand, need a high level of expertise since human beings are exposed to a wide range of chemicals, often working synergistically and antagonistically. Studies often rely on people employed in jobs where they are frequent users, or those that have been exposed accidentally or on cross sectional surveys of large populations, which may be subject to faulty recall of people, giving less clear, but more meaningful and relevant data.

In the recent 2,4-D decision, the PMRA demonstrated a basic misunderstanding of epidemiology. In discussing a large U.S. study of a type of non-Hodgkin lymphoma and pesticides, our regulator amazingly concluded that people using phenoxy herbicides (2,4-D is the most common chemical of this type) were less likely to develop the cancer. The PMRA limited its analysis of the study to comparing the group using phenoxy herbicides to a very small group using other pesticides, and concluded there was no risk.

But compared to the much larger group not using pesticides, those working on farms with these herbicides were about three times as likely to develop the cancer. Together with new knowledge of biological mechanisms and other recent studies linking 2,4-D to cancers and other health effects, there is ample reason for caution.

Determination of "acceptable risk" involves not only science, but an assessment of what society finds acceptable. The Ontario government's decision to follow Quebec and many of Canada's major municipalities reflects a judgment as to what is acceptable that is more aligned with opinions of epidemiologists working with public health bodies and the Canadian Cancer Society.

At Health Canada, drug registrations are commonly reconsidered. Within 25 years of licensure at least 20 per cent of drugs receive "blackbox" warnings (potentially lethal) for some uses, or are withdrawn from market. As such, calling pharmaceuticals safe just because they are licensed would undermine the credibility of the Health Protection Branch.

Dan Gardner rightly opined that the media give undue attention to scaremongering. However, media may also be unduly influenced by corporate agenda. A few years ago, when governments decided to restrict smoking, studies by industry-financed toxicologists decrying "junk science" received much ink.

In 2002, the recently deceased Dr. Sheela Basrur, then medical officer of health (MOH) for Toronto and later Ontario MOH, reviewed the literature related to home and garden pesticides. Ottawa's MOH issued its report in 2005 shortly after the OCFP report; all three called for a ban on the cosmetic use of pesticides. The Registered Nurses of Ontario, the Ontario Public Health Association, CHEO and the Canadian Cancer Society are just a few other health organizations supporting such a ban.

The public trusts the family doctors of this country; they trust their nurses and hospitals. Many times, each and every day, family physicians advise patients on health risks of a wide variety of issues such as medication for blood pressure, cholesterol or depression and how to remain as healthy as possible as long as possible.

We assist people by interpreting large amounts of raw data and spin, incorporating judgment and experience. My own patients expect neither perfection from me, nor a perfect solution to their problems.

To acknowledge that all chemicals have risk, to be transparent, respectful of its own responsibility as regulator, to acknowledge its limitations, is what will regain confidence of Canadians in our regulator, rather than false attempts to reassure. PMRA can do better.

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