Should you be concerned that a product on the shelf in your local supermarket or drugstore may cause cancer? Some people are. In this issue of the Journal, Jacob et al. (1) have accessed cancer-related reports concerning cosmetic products on file with the Adverse Event Reporting System within the US Food and Drug Administration’s Center for Food Safety and Applied Nutrition. They note from the outset the impact of media coverage on community awareness and that the majority of associations made between product usage and cancer incidence currently lack conclusive evidence. But even if the evidence is equivocal at best in most cases, the burden of anxiety born by many people is evident from this study. Can that burden be lifted, or at least reoriented with reference to proven causes of cancer, through initiatives by cancer professionals?

Anxiety about insidious causes of cancer is not focused on cosmetics. From pesticide and packaging residues in food through to electromagnetic fields generated by mobile phones, there has been both research and media attention. Cancer is the most feared disease, and the medico-scientific sector, the politico-legal sector, and the media can all be recognized as having striven to protect the general community from exposure to carcinogens.

Recognition that there can be no safe level of exposure to a known carcinogen has served to reduce the incidence of workplace cancers, often belatedly and mainly in high-income countries. On the matter of particular chemicals in consumer products, however, reduced cancer incidence has not been recognized, mainly because no burden of attributable malignant disease has been established.

The term “consumer products” as used in this Editorial excludes tobacco products and alcoholic beverages.

Tabulation of the proportion of cancer attributable to particular risk factors in high-income countries identifies the usual suspects: tobacco smoking, diet and obesity, alcohol drinking, sun exposure, infections, pharmaceutical drugs, occupation, and pollution (2). The category “consumer products” is never mentioned. Confidence that the burden of cancer due to consumer products is, at worst, very low, however, does not negate the consideration that even a single case of such cancer is an outrage to the community.

Most commonly, specific chemical carcinogens have been identified or confirmed as causing cancer in humans by studies of particular workers (3). In addition to proven carcinogens, there are likely carcinogens: chemicals that cause cancer in experimental animals and for which epidemiological data are equivocal or nonexistent. Through using some consumer products, people may be exposed to levels of particular carcinogens that most commonly are orders of magnitude less than occurred in the circumstances identifying or implicating their carcinogenicity. Even so, under the “no safe dose” argument presented above, such exposure obliges manufacturers to reduce levels, with this imperative being supported by regulation in many contexts (4).

Even when evidence of carcinogen exposure is unequivocal, and specifically exposure that has occurred as a result of using a particular consumer product, a consequential burden of cancer in the population that has used the product in question cannot be presumed. There may be no increased incidence, or an increased incidence that is so small as not to be evident using currently available epidemiological procedures. Such an understanding may emerge when reference is made to the level of exposure that using the product in question has entailed by comparison with the levels of exposure documented in other contexts that have been the basis of epidemiological or experimental studies of that carcinogen. Yet media notification of exposure often includes specific comment on the likelihood of cancer causation to engage public attention.

For a very limited number of consumer products, specifically including cosmetics, epidemiological data involving consumer usage are available. Primary among these, as Jacob et al. specifically address, are hair dyes. In the 1970s, experimental data inferring a carcinogenic risk prompted replacement of simple aromatic diamines in semipermanent dyes (5). Available epidemiological data concerning personal use of hair colorants fell short of a “possibly carcinogenic to humans” evaluation in a recent International Agency for Research on Cancer (IARC)
evaluation, whereas professional use of hair colorants established that occupational exposures experienced by hairdressers were probably carcinogenic to humans (6). There is an IARC evaluation of perineal use of talc-based body powder as possibly carcinogenic to humans (7). Those matters acknowledged, for the vast bulk of cosmetic categories—skin moisturizers, lipsticks, eye shadow, deodorants, nail polish, and so on—either no epidemiological data are available or such data as are available do not merit an IARC evaluation (8).

So what of the concerns documented by Jacob et al.? The consideration that anecdotal evidence is not relevant when assessing carcinogenic hazards does nothing to reduce individual or community anxiety. Likewise, reference to the lack of conclusive evidence that cancer in consumers is attributable to specific cosmetics is hardly adequate reassurance for someone who sincerely believes that harm has been done. These matters indicate the need for improved communication about cancer causation.

Although causation of lung cancer by tobacco smoking is well understood by the wider community, other causes of cancer are not recognized or confused with trivial considerations (9). The joke that “everything causes cancer” is fueled by media reports about carcinogen exposure that fail to make clear that the occurrence of exposure cannot be equated with increased cancer incidence. Unfortunately, an assertion to the wider community that use of this or that product may cause cancer is not regarded as possibly reckless, but as relevant. In part, such advice about possible cancer is well received because the community in United States and elsewhere views authorities, and statutory authorities in particular, with suspicion.

An awareness of the extent of cancer-related concern, thanks to Jacob et al. and similar work, may prompt cancer-based organizations, statutory authorities, and perhaps the media to more adequately communicate current knowledge. Although identifying many causes of cancer in humans over past decades, research has not revealed a burden of malignant disease in the community that could have been prevented by greater vigilance concerning consumer product formulation and marketing.

Although everyone has the right to scrutinize the contents listing on any product, such scrutiny does not result in reduced cancer incidence by comparison with consumers who don’t scrutinize. A cancer “scare” about any consumer product, in the absence of action by a relevant authority to recall the product in question, does not warrant a burden of individual anxiety about past usage of that product.

There are myths concerning consumer products exemplified by rumors of asbestos in tampons. However, most media reports of this type, such as those notifying cancer from deodorants, are prompted by the peer-reviewed literature (10): hardly the source of myths. Unfortunately, statements in peer-reviewed papers qualifying speculation based on the observations recorded are rarely duplicated in media releases. Responsible communication concerning carcinogenic hazards begins with the readers of this Journal.

Notes
Affiliations of author: School of Women’s and Children’s Health, University of New South Wales, Sydney, Australia; Cancer Control Program, South Eastern Sydney Public Health Unit, Sydney, Australia.

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