Warning labels are everywhere. They alert us to the risks of eating unhealthy foods, smoking cigarettes, taking prescription drugs, driving cars, using power tools, and performing many other activities. Ideally, these warnings provide requisite risk
information, allowing people to decide for themselves whether an activity or a product’s benefits outweigh its risks, whether to take those risks, and, if so, with what precautions.

But are our current warnings effective? Do they convey sufficient information for individuals to balance the risks and benefits? Our answer is a resounding “no.” Our reasoning is that the present system fails miserably at distinguishing between large and small risks. A way to understand this is what we term wolves and puppies. Wolves are rarely seen but may eat your sheep — and perhaps you as well, according to the fable of the shepherd boy. Puppies occasionally nip, but when they do, the results are rarely serious.

The problem with our present warning system is that it shouts “Danger!” for both wolves and puppies. Such a system is of little value; people quickly learn to ignore warnings since they encounter vastly more puppies than wolves. The result is that when a wolf is truly present, people pay little heed.

How did we get here? Warnings on widely used consumer products are a relatively new phenomenon. In the United States, beginning in 1927 with the Federal Caustic Poison Act, government policies requiring warnings initially focused on exposures that posed immediate, toxic hazards. Warnings for food and drugs followed in 1938 with the Federal Food, Drug, and Cosmetic Act. Cigarette warnings emerged in 1966. In the 1980s warnings for less-immediate, and often far less substantial, risks blossomed, mostly due to government requirements. Now, in the early 21st century, despite the large differences among products bearing warnings, our system is often one-style-fits-all.
Obviously, we can’t simply ban activities or products that bring some risks along with their benefits. We’d have to live without medicinal drugs, challenging sports, sugary foods, and useful tools. But designing an efficient warning system is more complicated than it might appear. For example, as a leading cause of preventable deaths, cigarette smoking is one of the most studied and most complex public health problems. For over 50 years the U.S. government has mandated various on-product warnings and pursued many educational efforts designed to alert consumers to smoking’s substantial risks. In combination with other policy initiatives, such as cigarette taxes and bans on smoking in public, these efforts have led to a considerable drop in the percentage of the adult population that currently smokes, from 42.4% in 1965 to 16.8% in 2014.

This is a major victory. However, attempts to emulate this successful risk-communication effort across many other products and practices haven’t necessarily helped consumers. Why? First, the wolf risks posed by cigarettes dwarf the puppy risks of most other consumer products, suggesting that warnings patterned on those for cigarettes may lead to other hazards being overestimated. Second, the proliferation of warnings for minor risks creates both a surfeit of information and a skepticism about all warnings. As a result, truly serious hazards like smoking may get slighted. Finally, such warnings do not exist in a vacuum. Most are accompanied by other restrictions, such as taxes and smoking bans in the case of cigarettes, which means it is difficult to disentangle the effects of warnings from other factors that influence behavior.

One example of this is California’s Proposition 65, the Safe Drinking Water and Toxic Enforcement Act of 1986, which established warning requirements for carcinogens and reproductive toxicants. A label may read, for example: “WARNING: This product contains a chemical known to the state of California to cause cancer.” Many consumers regard this cancer warning as comparable in severity to cigarette warnings,
even though the risk levels depend on the chemical present and often differ markedly. For context, there are more than 800 different hazardous chemicals listed in California at present.

At the same time, the warnings are so prevalent in California that they are likely ignored by many. And consumers may mistakenly assume that items without warnings are safe even though many risky products are exempted, such as foods containing natural carcinogens.

A second example is warnings related to mercury in seafood. In 2001 the U.S. Food and Drug Administration and the U.S. Environmental Protection Agency issued advisories targeted at women who were pregnant or of childbearing age. The advisories encouraged them to avoid eating certain fish species containing potentially high levels of mercury, while noting that everyone should eat more seafood because it contains healthful omega-3 fatty acids. The policy sought to encourage vulnerable individuals to reduce consumption of fish species high in mercury and increase the general population’s consumption of other seafood types. But the mixed messages confused many people and may have led to decreases in seafood consumption, harming rather than improving health. As a result, there have been several efforts to fix the warning.

While we can’t provide a specific formula for creating the perfect warning system, we can offer some recommendations for better approaches, taking into account how they might inform behavioral change.

First, here’s what not to do: Stamp any and every product bearing even modest risk as dangerous or hazardous. This practice leads highly cautious consumers to lump low-risk products in with mass-marketeted products that actually merit such a warning and encourages many others to simply ignore warnings. In addition, warnings should be
worded so that consumers can at least roughly estimate the actual risk (perhaps as high, medium, or low), given how each product is typically used. They should help people make sensible decisions regarding any beneficial use of a product by clarifying precautions as well as safe levels.

Second, keep in mind that when orchestrated correctly, warnings influence producers as well as consumers. A 2003 U.S. regulation that required nutrition labels to indicate the amount of trans fat present in foods and dietary supplements is a good example of this. While seemingly neutral in isolation, this information becomes a warning when combined with the associated efforts by government agencies, public interest groups, and others to disseminate information on the dangers of trans fat consumption. The warning was accompanied by many other actions, such as limits on trans fat in restaurant food in several cities, court cases targeting specific food producers, and bans or limits on trans fat content in other countries. The warnings and related efforts led many producers to substantially reformulate numerous products to reduce or remove trans fat.

Going forward, we must remember that in our time of revolutionary technological progress, almost any innovation brings minor risks along with its benefits. A few innovations impose major risks, or even worse. Unfortunately, there has been little effort, and hence little progress, in developing warning systems that readily differentiate big from little dangers. Our cluttered system of warnings must reserve real warnings for the biggest risks. Empowering individuals to make appropriate risk decisions is a worthwhile goal. The present system fails to provide people with the requisite information to do it.
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