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What you see is what you fear

Visual imagery of vaccine-preventable diseases as a tool to counteract vaccine rejection

Robert I Field
Drexel University; Philadelphia, PA USA

Visual imagery can powerfully shape perceptions of risks as is clearly demonstrated by research on the use of graphic warnings on cigarette packs. Government efforts to counteract public fears of vaccines could harness this phenomenon by using public information campaigns that present visually the effects of vaccine-preventable diseases. Visual representations can also be used to communicate the relative risks of vaccines, which are generally negligible, and of the diseases they prevent. Such initiatives have the policy advantage of minimizing the sense of government intrusion that measures such as vaccine mandates and social restrictions could engender and the legal advantage of avoiding claims of infringement on civil liberties. Government policy should take advantage of this important and accessible tool.

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*Corresonpondence to: Robert I Field; Email: rif24@drexel.edu

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David Ropeik presents a thorough catalog of emotional aspects of risk perception underlying the fear of vaccines to support his proposed legal responses. As he points out, numerous studies document the importance of such non-rational factors in swaying attitudes toward health and safety hazards. However, there is an additional factor to add to his list that supports a different kind of policy response. That is the power of visual imagery to shape emotional responses to risk.

A large body of research has assessed the effects of visual images on risk perception.[1] Much of it has focused on attitudes toward the risks of tobacco and specifically on the effectiveness of graphic warnings on cigarette packs. Such warnings are required in several countries, and they have been shown to exert a much stronger impact than text-only messages.

For example, Hammond et al. found that use of graphic images on warning labels in Canada was associated with less smoking among about one-fifth of study participants.[2] Borland et al. found that the introduction of graphic images in Australia was associated with an increase in behaviors that are predictive of smoking cessation activity.[3] Thrasher et al. compared pictorial and text-only warning labels and found that graphic images have the most noticeable impact on adult smokers.[4] A review of several studies by Fong, Hammond and Hitchman found consistent support for the value of graphic images in discouraging smoking.[5]

In the context of vaccines, graphic images of the consequences of vaccine-preventable diseases could significantly enhance the effectiveness of warnings to parents of the dangers of letting their children forgo vaccination. Ropeik notes that for some parents, the risks of vaccines are much more emotionally compelling than the risks of the diseases they prevent because vaccine-preventable diseases have become quite rare. Parents can more easily visualize vaccine complications, whether or not scientifically substantiated, than the effects of diseases like polio, rubella, mumps, and measles. The ability to conjure up an image of one kind of hazard but not of another tends to sway perceptions of which is the more serious.

This phenomenon presents an additional possibility for government intervention in the form of public information campaigns to disseminate visual

representations of symptoms and consequences of vaccine-preventable diseases. For example, brochures distributed at physicians' offices could include photographs of disease manifestations. Public service announcements on television and radio could include brief interviews with patients and former patients who have lingering symptoms. Websites containing public health information could include similar content.

A related body of research has demonstrated the value of visual representations in conveying the relative magnitudes of different risks.[6] Pictorial images, graphs, and charts tend to be more accessible to broader ranges of the public than statistics or verbal descriptions of relative risks alone. They make the underlying message more immediately clear and understandable. Just as they could present graphic warnings of disease effects, public information campaigns to promote vaccination could include visual images that represent the relative risks of vaccines, which are typically negligible, and of the diseases they prevent.

Public information campaigns based on graphic information also hold advantages over some of the initiatives that Ropeik recommends with regard to both policy and law. In terms of policy, they avoid the sense of government intrusion that stricter and broader vaccine mandates and social restrictions on unvaccinated people might promote. They do not force anyone to do anything but rather enable them to make more informed decisions. They use a less top-down approach that lets parents see for themselves the nature of the risks they are creating for their children.

From a legal perspective, such public information campaigns avoid various issues related to the scope of government authority. Mandates and social restrictions face objections that they infringe on civil liberties. Although courts have consistently upheld mandatory vaccination and quarantine efforts in the face of serious infectious threats, the government bears the burden of demonstrating their necessity should a legal challenge arise. Moreover, under the federalist structure of American government, such efforts must generally be conducted at the state, rather than the federal, level.

In contrast, truthful public information efforts raise few, if any, legal issues. They do not constrain individual rights but rather expand the scope of public discourse. Limits would apply were the government to require that private parties disseminate the information, an issue that has stalled rules concerning the inclusion of graphic images on cigarette packs in the United States. However, no such limits apply when the government disseminates the information itself. Moreover, such initiatives can be conducted at the federal level under Congress's constitutional power to spend for the general welfare, thereby eliminating the possibility of inconsistent and uncoordinated state efforts.

Public information that graphically depicts the risks of vaccine-preventable diseases and that visually ranks them in relation to vaccine risks would not preclude the efforts that Ropeik recommends. To the contrary, such initiatives could work in concert with them. By enhancing the understanding of disease risks, visual information could increase public acceptance of more intrusive initiatives. Research has demonstrated the power of visualization to direct risk perception. Public policy should take advantage of this important and accessible tool.

Disclosure of Potential Conflicts of Interest

No potential conflicts of interest were disclosed.

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