

# Public Health and the Precautionary Principle

Steven G. Gilbert

## Bioethics

*“A thing is right when it tends to preserve the integrity, stability, and beauty of the biotic community. It is wrong when it tends otherwise.”*  
Aldo Leopold, *A Sand County Almanac*, 1949

## Precautionary Principle

*“When an activity raises threats of harm to human health or the environment, precautionary measures should be taken even if some cause and effect relationships are not fully established scientifically.”*  
Wingspread Statement, 1998

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Ensuring public health, and most importantly children’s health, is not only a matter of knowledge or resources but also of policy. In his 1968 paper on the commons, Garrett Hardin pointed out that many of the problems that we face have no technical solutions but must be managed. Management often requires regulations, from which we need not shy away. Basic research in the biological and toxicological sciences, combined with experience, gives us the knowledge to make decisions that protect public health and the environment. Before discussing the precautionary principle as one approach to decision making, I will define bioethics and then consider our ethical and social responsibilities.

Van Rensselaer Potter was the first to use the term *bioethics* in his 1971 book, but Aldo Leopold probably provided the best definition in his 1949 book, *A Sand County Almanac*. Bioethics, as Leopold and Potter define it, is a broad concept that is inclusive of public health and environment. When we distribute lead, mercury, or PCBs into the environment, we not only expose our children to compounds that rob them of their potential, we also harm the much broader biotic community. While protecting our children, we must also acknowledge a responsibility to the fish and other wildlife that accumulate mercury and PCBs. Thus defined, bioethics provides us with a foundation upon which to consider our ethical and social responsibilities combined with our knowledge.

We know from research that fetal or childhood exposure to even low levels of chemicals, such as alcohol, or environmental contaminants, such as lead, adversely affect the developing nervous system. This knowledge implies that we have a duty to protect those who cannot protect themselves, such as children, who have a right to develop in an environment that allows them to reach and maintain their full potential. Protecting our children is also a good investment. Environmentally related childhood diseases cost approximately \$55 billion per year. Preventing harm to public health and the environment will require society, including the public, businesses, and government, to make fundamental changes in their approach to regulatory policy and decision making.

One approach to preventing harm is to more broadly incorporate the precautionary principle (PP) into our decision-making process. The PP promotes a broader ethical perspective as well as taking action to protect public health even in the face of uncertainty. This is in contrast to a risk assessment approach, which asks, “How much harm can we tolerate?” Instead the PP asks, “What actions can we take to prevent harm?” A key provision is that the proponent of an activity has the responsibility to demonstrate safety. For example, the Food and Drug Administration takes a precautionary approach by requiring the manufacturer of a new drug to submit data demonstrating both efficacy and safety prior to marketing the product. In contrast, thousands of new chemicals are introduced into commerce each year with only minimal knowledge of their potential effects on human health or environmental consequences, which puts society in the position of proving harm after exposure. Our knowledge and technical capabilities have progressed to the point where not everything that could make money is necessarily good for society.

The precautionary principle consists of four basic concepts:

- Taking preventive action in the face of uncertainty
- Shifting the burden of responsibility (proof) of demonstrating safety to the proponents of an activity
- Exploring a wide range of alternatives to possibly harmful actions
- Increasing public participation in decision making

Emphasizing human health and a precautionary approach provides a common framework for decision making. Many of our cities, counties, and states are required to develop comprehensive plans addressing issues of growth, transportation, land use, and the environment. These plans should address human health issues by setting targets for specific indicators, such as reducing incidence of asthma, obesity, low infant birth weight, learning disabilities, and cancer. Health indicators, combined with a precautionary approach, would integrate decision making across the plan promoting both sustainable growth and public health.

We have the knowledge and resources to make appropriate decisions to protect public health and the environment. The precautionary principle supports an approach to policy making that emphasizes our responsibility to future generations as we work together to manage the Commons. 🐾