The psychosocial effects of the Chernobyl nuclear power station accident, amplified by unreliable information and conflicting opinions, have caused a large number of health problems.

Now that the tenth anniversary of the Chernobyl accident has passed into history, it is useful to see what we can learn from the extensive “raking over” of history that took place earlier this year. This is important not least because another Chernobyl is clearly not only possible but even likely.

It was on 26 April 1986 that fires and explosions at the Chernobyl nuclear power plant near Kiev, in Ukraine, released large quantities of radioactive material over much of Europe. How do we gauge the extent of industrial accidents such as Chernobyl? Doom-laden forecasts of millions of deaths and deformed children being born, made shortly after the accident and even before the fire was extinguished, have been shown to be mistaken. Does that mean that from the public health point of view Chernobyl was trivial? It clearly was not.

Ought we to judge the impact of the accident simply in terms of a death toll or even a tally of health effects such as cancer and birth defects? Chernobyl tells us very clearly that the answer to this is a definite no.

The rational Western scientific approach, which tends to quantify events solely with objective measures of the consequences in terms of numbers of health effects, rests uneasily in the public mind, which evaluates such events in a much more complex way. Scientists must accept a very simple fact, namely that most people, for all sorts of reasons, do not like the environment to be damaged by such accidents. Health concerns are among these reasons, but they are far from being the only ones.

Throughout our evolutionary history the survival of humankind has depended primarily on the environment being kind to us. So it is hardly surprising that there should be concern at the possibility of an irreversible change in the environment that may make it less benign or less supportive of life. Experts are confident that radioactive fallout, even at the levels experienced after the Chernobyl explosion, does not pose a serious threat to the environment and that the health effects will be within predictable bounds. But those experts do not present a unified opinion. Far from it. Some said there would be no health effects from the accident at Chernobyl; they were wrong. Others said millions would die; they also were wrong.

The major public health impact of radiation resulting from the Chernobyl accident is a highly significant increase in the incidence of thyroid cancer in persons who were living in the affected areas as children in 1986. To date about 1000 cases have occurred, and about 8000 cases are expected to occur in Belarus during the next 50 years.

Extreme and conflicting predictions lie perhaps at the origin of what we call the psychosocial effect of the accident. This may be the most far-reaching and damaging health effect of the Chernobyl accident so far, since it ensures that any future accident will have more serious psychosocial consequences.

"Flight" or "fight" responses

How do mere perceptions, true and false, cause ill-health? The answer is through modification of physiology and behaviour. Fear is a valuable response to certain situations because the body liberates energy...
enabling either “flight” or “fight” responses. Usually fear is transitory and, over and over again, it has saved lives. When fear is prolonged over months or years, however, it may be much less beneficial since it marks an imbalance in normal physiology. Thus, declining to eat fresh fruit and vegetables because of fear that they are contaminated can clearly lead to dietary deficiencies and ill-health.

Finding solace in cigarettes, alcohol or drugs is clearly a route to ill-health. The migration from contaminated areas by those most able to find other work — teachers, doctors, nurses — leaves a residue of socially disrupted communities and again a potential legacy of ill-health.

On the basis of investigations made after the Chernobyl accident, a WHO working group identified five dimensions of the psychosocial effect (see box) in 1991. An effect of changed behaviour was observed much further afield in Italy, where there was a marked drop in live births nine months after the accident, due, presumably, to the avoidance of conception. This desire to avoid conception is attributed to the perceived risk of radiation.

The five dimensions of the psychosocial effect of the accident are present, even today, in the regions around Chernobyl. Their mitigation is a serious and complex problem to which we know few answers. Their origins are clearer, however, and so we can plan ways to minimize the effect should future accidents occur. A key factor is people’s trust in the information provided to them about the dangers by the appropriate authorities. This information must be communicated well, but it is far more important that it should be true and reliable. Reliable information was lacking from the outset with regard to the Chernobyl accident, and the legacy of distrust that was created then still persists today.

Europe is in a special position because of the large number of nuclear facilities and the high densities of population potentially within range of being affected should nuclear accidents occur. WHO has developed contingency plans for dealing with the health aspects of nuclear accidents, and these plans are kept constantly under review. This activity is carried out through the Radiation Emergency Medical Preparedness and Assistance Network (REMPAN). In addition, a Nuclear Emergency Response Centre is planned for Europe. From here the circumstances of any accident will be assessed and the likely developments in terms of public health predicted, so that governments can be advised what actions are most appropriate to minimize the public health impact. Of course, it is to be hoped that an accident such as that at Chernobyl will never be repeated — but it would still be wise to be prepared.

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The five dimensions of the psychosocial effect

- The sociopsychological dimension is people’s perception of the risk involved in radiation and the part that information policy plays in influencing this perception.
- The general pathogenic factor relates to physiological stress reactions to change in lifestyle, such as altered dietary habits and the consumption of alcohol.
- The medical sociological dimension concerns changes in illness-related behaviour of the population and in the diagnostic behaviour of doctors.
- The sociocultural dimension is displacement (through relocation due to heavy contamination) and the consequent social disruption of communities.
- The socioeconomic dimension relates to the large-scale effects of the Chernobyl accident, such as the closure of nuclear plants and reversion to other sources of energy.