



EDITORIAL

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EDITORIAL

Chernobyl—20 years on

Twenty years ago on 26 April 1986, the Chernobyl nuclear reactor accident occurred (or, more precisely, the explosion that marked the start of the accident occurred—the resultant fire lasted several days). This is by far the largest unintentional release of radioactive material into the environment and caused widespread contamination in Europe, which was sufficiently great in the vicinity of Chernobyl to require evacuation of the population. Much attention has been paid to the possible effects on health of the resulting exposure to radiation, but the rapidity of the appearance and the magnitude of the excess cases of childhood thyroid cancer in the heavily contaminated areas of Belarus, Ukraine and Russia took most people by surprise. The striking excess of thyroid cancer among those exposed as children is undoubtedly attributable to the high thyroid doses received from radioiodine released during the accident; but many of these cases might have been prevented by the swift administration of stable iodine to block the uptake of the short-lived radioisotopes of iodine (as occurred in the town of Pripyat, close to Chernobyl) and especially by the prevention of the consumption of contaminated foodstuffs, in particular milk. It was a milk ban in the most affected parts of West Cumbria in the immediate aftermath of the Windscale reactor accident in October 1957 that significantly reduced thyroid doses and the risk of thyroid cancer (and the dose and risk calculations upon which this milk ban was based were largely conducted by John Dunster, whose death has recently been announced). However, the Chernobyl accident and the consequent contamination was on a much larger scale than occurred after the Windscale fire, and the logistics of determining the areas upon which the greatest attention should have been focused should not be underestimated. Nonetheless, the authorities in the former USSR did obtain, with some rapidity, information on the extent of the contamination from experts that were dispatched to Chernobyl immediately after the accident, and at least some action could have been taken to alleviate the risk of thyroid cancer due to radioiodine intake. The high radiation levels that were found in some locations close to Chernobyl show how fortunate it was that population centres were not worse affected, or the consequences of the accident could have been much more serious, and with the relatively swift evacuation of people from the area surrounding the reactor, doses that would have posed a risk of acute health effects were avoided.

Apart from thyroid cancer, what health effects attributable to the Chernobyl accident have been found so far? In the general population, there are indications of excess cases of childhood leukaemia and breast cancer among those living in the heavily contaminated regions of Belarus, Ukraine and Russia, although the evidence is still equivocal. Such excesses would be predicted given the magnitude of the doses and number of people involved. The significant psychological impact of the accident should not be forgotten. This impact is understandable when people are uprooted from their villages and sent to towns where their presence may not be entirely welcome, and the worry of the possible effect on health of the exposure to radiation must also take its toll. Then there are those sent to deal with the accident and its aftermath. Of course, the most heavily exposed emergency workers received doses that were sufficiently high to kill them in the weeks and months after the accident, but the doses received by the many recovery workers used to clean up Chernobyl once the release of radioactivity had ceased were sufficient for an excess risk of leukaemia to be detected. It should be remembered

that all these studies have been carried out during a period when the consequences of the break-up of the USSR have had a profound effect upon the health of the population. Not only has this produced dramatic changes in the background of risk factors against which the influence of the Chernobyl accident must be assessed, but the record-keeping that is necessary for proper epidemiological studies has inevitably suffered. Clearly, this does not assist the reliable evaluation of any radiation-related effects.

It is unfortunate, although entirely predictable, that the issue of the effects on health of the Chernobyl accident has become part of the political debate over the future role of nuclear energy in the generation of electricity, which has inevitably led to dispute over the level of effects either observed or anticipated. It is difficult to avoid the inference that some of the more extreme claims are driven by a political agenda rather than a desire to arrive, in an objective a manner as possible, at the best estimates of the excess risks due to Chernobyl radioactivity. This is why the review of Cardis *et al* that appears in this issue of the journal (pages 127–140) is to be especially welcomed. These experienced and reputable scientists have endeavoured to derive a balanced and impartial picture of the health effects of the Chernobyl accident on the basis of the presently available evidence. It is only through such efforts that a proper perspective of the impact of the accident can be gained—otherwise we are lost in a sea of campaigning rhetoric and partisan posturing. Reviews like that produced by Cardis *et al* are not easy to write because they will certainly come in for noisy criticism from the extreme wings; but their value in allowing a broader audience to gain a reasonable impression of what is (and is not) understood about the health impact of events like the Chernobyl accident is great and the authors are to be applauded.

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