



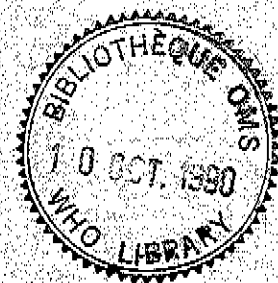
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Working Group on Psychological Effects of Nuclear Accidents

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TARGET 19

Monitoring, assessment and control of risks in the environment

By 1990, all Member States should have adequate machinery for the monitoring, assessment and control of environmental hazards which pose a threat to human health, including potentially toxic chemicals, radiation, harmful consumer goods and biological agents.

Index:

NUCLEAR REACTORS
ACCIDENTS
RADIOACTIVITY
ANXIETY

Introduction

The Working Group was convened as part of the special project on the public health response to nuclear accidents, undertaken by the WHO Regional Office for Europe following the serious accident at the Chernobyl nuclear power station in April 1986.

Whereas a great deal of scientific knowledge exists on the physical effects of radiation, much less is known about the psychological damage that can occur, both immediately and on a long-term basis, and how this can best be handled by the responsible authorities, by individual health care workers and by those affected.

In the USSR, the All-Union Scientific Centre for Radiation Medicine in Kiev has been established to undertake a systematic follow-up of the health consequences of the Chernobyl accident and it has now been designated a WHO collaborating centre. The Centre asked that its first collaboration with the Regional Office for Europe should cover the psychological dimension. This Working Group was therefore held to bring together experienced individuals in the field of radiation protection, the psychosocial aspects of health and public health in general.

The Group discussed the results of several psychosocial surveys conducted by Soviet scientists, and a psychological service initiated for the victims of the accident. A whole day was dedicated to visiting the town of Korosten, in an area with a level of contamination of 185-555 GBq/km² (5-15 Ci/km²), for discussions with the public, medical professionals and the town authorities. The Group was impressed by the level of anxiety, evident in part from the comments and questions raised at the three meetings as well as from the great number of people who have recently left the area apparently out of fear. This had caused considerable social disruption, such as a shortage of labour.

The Group also paid a visit to the All-Union Scientific Centre for Radiation Medicine in Kiev for discussions with the staff, and for some more intensive exchange of experience in the psychotherapy unit.

The following conclusions and recommendations were drafted on the basis of the collective experience of the members of the Working Group: inevitably the background information on which they were founded was in some respects incomplete.

Conclusions

The Working Group is convinced that the population in the affected areas is experiencing very serious worries about the health effects of the Chernobyl accident. People's concerns appear to be increasing with time, and urgent steps are therefore necessary to improve the situation. Appropriate action requires, however, that the psychosocial context of the nuclear accident (as well as the radiation levels and their medical nonstochastic and stochastic sequelae) receive detailed consideration.

The psychosocial implications of what has happened and is still happening were impressed upon the Group by: the research findings presented by Soviet

scientists; the discussions with the public, health professionals and community officials during the visit to the affected town of Korosten; and the discussions with patients of the All-Union Scientific Centre for Radiation Medicine in Kiev.

In order to understand fully the complexity of the situation, its various interrelated dimensions have to be analysed. The following can be distinguished:

- the sociopsychological dimension of the perception of risk involved in radiation, and the part information policy plays;
- the sociocultural dimension of the displacement and consequent social disruption of communities;
- the general pathogenic factor relating to physiological stress reactions and to changes in lifestyle, such as dietary habits and the consumption of alcohol;
- the medical sociological dimension concerning changes in the illness behaviour of the population and in the diagnostic behaviour of the doctors;
- the socioeconomic dimension relating to the large-scale effects of the Chernobyl accident, such as the closure of nuclear plants and the reversion to other sources of energy; and
- the radiopathological dimension and its nonstochastic and stochastic effects.

Several surveys conducted by Soviet researchers have shown that anxiety and its concomitant physiological reactions have spread far beyond the population of the more heavily contaminated areas. People's awareness of their own health status has increased enormously since the accident, and they now attribute manifold subjective and objective symptoms to radiation exposure. The public's understanding of exposure to radiation and its consequences is incomplete, and that of community physicians appears only marginally better. Except for reports from independent sources, the public assigns low credibility to what the media publish. Finally, the findings indicate that dissatisfaction with medical and other authorities is considerable.

The Working Group's discussions with the population tend to support the above findings. In order to cope with general anxiety and uncertainty about the possible health effects of exposure to radiation, people focus on the more tangible aspects of their physical state of health, seeking out the health care system and requesting explanations. In the absence of reliable data about the health effects of the accident, the medical profession lacks adequate explanations and responds predictably with more extensive and intensive diagnostic screening of populations and individual patients. As a result, hitherto unobserved morbidity patterns and individual variations emerge which are without explanation and which confuse the situation further. The paradox in the situation, however, is that attempts to reduce such illness behaviour and such extensions of the diagnostic procedures, in order to diminish the doubtful attribution of symptoms to exposure to radiation, would deprive people of a coping strategy if no alternative were made available.

The complexity of the total picture is increased by the sociocultural and socioeconomic forces that relate to the balance of losses and gains incurred by the nuclear accident. Some individuals have lost their health and others are living with a known or unknown received dose of radiation, including plant operators and rescuers, and the many hundreds of thousands of civilians and army personnel involved in the clean-up and containment operation.

Whole communities have faced or are facing evacuation and relocation, or have to cope with restrictions on ordinary life, including diet, school, work and recreation. In this respect, the accident has already caused, and is still generating, widespread disruption to social networks and traditional ways of life and expectations, which normally guide people throughout their life. Families are breaking up, with parents of young children being much more eager to move away from the affected areas, whatever the level of radiation, than elderly people who sometimes even prefer to return to the more contaminated areas.

The situation is further complicated by the lack of confidence in the measured and published average levels of external radiation and radioactivity in foods, the lack of data about the health effects, as well as the financial compensations involved in living in a controlled area or in moving out. In Korosten, for example, which is supposed to be an area of low contamination but where information about external radiation has proved ambiguous, about 2500 families (about 10 000 people in all) had left the area during the last four months. Financial compensation has recently become available, and this may have influenced the decision of individuals and families.

This brings us to the final dimension to be discussed, that of the perception of risk and the ambiguities of the information policy adopted. After several years of withholding information about the accident and its consequences, the authorities face the double burden of establishing their credibility and of providing the public with strategies for coping with anxiety about having lived with a situation of which they were largely unaware at the time. Proper information is important but wrought with difficulties. Research elsewhere has shown that there is no uniform or consistent perception of risk in general and in radiation problems in particular. Public perceptions of radiation risk tend to differ from the assessments of experts on radiation and its effects. In some cases, members of the public perceive far greater risks from radiation exposure, if it results from sources associated with nuclear energy, than if it comes from other sources, such as radon exposure in buildings or medical diagnostic procedures. While experts are inclined to base their assessment of risk more on annual deaths, lay people incorporate other factors in their judgements of risk, such as unobservability, uncontrollability, dread, catastrophic potential, threat to future generations and its unintentional nature. Furthermore, people's acceptance of certain risks is conditioned by their perceptions of benefits and by their trust in the managers of the technology, in this case both the scientists and the authorities. Thus, people may believe the information provided by independent experts, but this may not lead them to accept the messages conveyed by the actual planners, managers and scientists involved with nuclear energy. The Chernobyl accident served as a strong signal of poor technology and incompetence, which cannot easily be overcome by better information about the present situation.

It should be emphasized that the descriptive comments above apply equally to highly exposed and to minimally exposed areas. The psychological sequelae of Chernobyl appear to be extremely widespread, and the factors promoting continued concern operate throughout.

The Working Group was aware that the above dimensions need further consideration and discussion before comprehensive recommendations can be formulated. In order to alleviate the more immediate and widely prevailing anxiety, it therefore selected the area of appropriate information and education of the public and the medical profession on the relationship between health and exposure to radiation on which to make the following detailed recommendations.

Recommendations

1. There are conflicting and contradictory data on environmental levels of contamination. This unclear and uncertain situation is contributing to the anxiety of the population and demonstrates the need for reliable, trustworthy and comprehensible information on levels of environmental contamination. Each republic should therefore have named individuals responsible for ensuring that accurate information about ground deposition levels and environmental monitoring is made publicly available.

In particular, an accurate map of radionuclide ground deposition should be made for every settlement with contamination levels above 37 kBq/m^2 (1 Ci/km^2). The measurements should make use of the results of the current intercalibration exercise and assessment of environmental contamination being carried out by the International Atomic Energy Agency. These measurements should be made using an agreed methodology and should be carried out with the active involvement of local communities.

2. In view of the impossibility of checking radioactivity concentrations in all batches of food, an extensive whole body monitoring programme is needed in contaminated regions, in addition to the regular monitoring of food. It appears that considerable whole body monitoring is already being done, but this needs to be coordinated in each republic under the responsibility of named individuals who should:

- check any gaps in the programme
- analyse the results
- make the results publicly available, and
- investigate any unexpectedly high results.

Mobile whole body counting equipment should be available for regular screening in places where there is public concern about food contamination. The results should be accompanied by an easily understood explanation.

3. The concept of 350 mSv (35 rem) being a safe limit for the lifetime dose from the accident may be justified if considered only from the radiological point of view. It may, however, only be possible to keep to that limit by imposing restrictions on daily living such as exclusion of locally grown food, which substantially reduce the quality of life and serve as constant reminders of the radiological situation, thus producing stress and anxiety. The criteria for the relocation of populations should therefore include consideration of such factors as well as of the radiological situation.

4. Consistent with a Red Cross recommendation, simple but reliable handheld Geiger counters should be provided to properly instructed medical and allied health personnel, in order to reduce the uncertainty of the population living in affected areas, by providing actual measurements.

5. There are many conflicting and anecdotal reports of some of the adverse health effects attributable to the Chernobyl accident. Both the public and some members of the medical profession believe that there is a general increase in morbidity, but there are insufficient reliable health data to make an objective assessment of the situation. This uncertainty will tend to increase the anxiety of the population.

In each republic, the Ministry of Health should therefore ensure that a clearly defined organizational structure exists, with named responsible individuals to collect health data, to identify and correct any deficiencies in data collection, and to ensure that reliable health data are made publicly available.

The epidemiological data prior to 1986 are incomplete. To assess whether there has been a change in health status in the affected areas, therefore, comparisons should be made between contaminated and noncontaminated regions.

Particular attention needs to be paid to the collection of accurate information on cancer incidence and mortality and congenital malformations, in order to provide an accurate database for epidemiological studies and to assess any possible late increase in cancer incidence or genetic effects. If feasible, mental retardation should also be recorded.

Collaboration between international and Soviet epidemiologists should be encouraged to ensure the optimal design of studies. It is important that the public should be made aware of the existence and nature of such studies, and when they are completed the results should be made publicly available.

6. Psychological and psychosomatic effects seem to have increased since the Chernobyl accident but the data are insufficient to permit an objective assessment of the magnitude of the increase. In each republic, the Ministry of Health should therefore:

- organize the collection of mental health and social data at the community level; and
- integrate these data with other health data and with radiation and other environmental data.

The data from each affected republic should be consolidated, compared and published.

7. It is important to differentiate between reported health effects that may be attributable to radiation and those that are unlikely to be attributable to radiation. The reported health effects can be divided into five categories:

- (a) those that may be due to radiation, such as certain thyroid disorders; these should be investigated carefully, bearing in mind that much of the affected area is an endemic goitre area; wherever possible, the incidence of such thyroid disorders in areas that had iodine contamination should be compared with the incidence in the less contaminated areas;
- (b) those that may be an indirect effect of the accident due to changes in diet (e.g. iron deficiency anaemia), or other factors including possible lead contamination;
- (c) those that are unlikely to be due to radiation because they would not be expected to occur with the reported levels of contamination, e.g. immune deficiency or cataracts;
- (d) those that are not associated with radiation but that may be more frequently detected because of better medical surveillance resulting in increased case-finding, e.g. diabetes; and
- (e) somatic and psychological reactions that may be partly due to the stresses of living in an affected area, e.g. heart diseases, hypertension and some gastrointestinal disorders.

It is important that these reported health effects be investigated and explained. Otherwise physicians and the general population may continue to believe that they are all due to radiation.

8. Research into the health effects of the Chernobyl accident should be better integrated in order to avoid conflicting views that could increase confusion, anxiety and rumour. In particular:

- consolidated data from all affected republics should be published;
- all multilateral and bilateral activities should be harmonized;
- Soviet and international scientists should have mutual exchanges of views, to avoid confusion in terminology and diagnostic criteria and to ensure the use of the most up-to-date methods of treatment in various branches of medicine.

9. Educational programmes and training courses should be aimed at increasing the level of knowledge about radiation and (a) its possible effects on health, including psychosocial and psychosomatic dimensions, and (b) the environmental consequences of the accident. These programmes need to be tailored to specific groups, such as medical personnel, school teachers, civic and religious leaders, and the general public. It may be advantageous for these to be developed in collaboration with international organizations.

Programmes for health care providers should include: the health aspects of radiation exposure, general psychological and psychophysiological concepts about people's reactions after a disaster and other stressful situations, and variations in the way different groups of people perceive the risk from different types of hazard. They should also include simple and effective ways of dealing with psychosocial problems.

Radiation experts, psychosocial experts, general medical practitioners, teachers and others in contact with the public should talk to each other (e.g. in seminars or workshops) to ensure that they have a general understanding of the effects of radiation on health and the psychosocial consequences of nuclear accidents and that accurate information is given to the general public.

It will be essential to train trainers for each of these education programmes and to organize training courses.

10. Accurate, trustworthy, and easily understood information about radiation and its health effects should be provided to the population at a local level. Such information should be provided in collaboration with local leaders and community representatives. In particular:

- specially prepared brochures and pamphlets, updated as necessary, should be widely distributed to the population of the affected areas, as far as possible in collaboration with the local media;
- dialogue should be encouraged between the community and the authorities, scientists and health professionals, as envisaged by the European Charter on Environment and Health; the cooperation of the local media should be sought in this endeavour.

11. Of special concern are the estimated half a million civilians who took part in the clean-up and containment in the heavily contaminated areas, and who have now returned to their homes throughout the Soviet Union.

Registration of these people appears to be incomplete. Special efforts should be made to trace them and to provide those who need special attention with the appropriate health care, including adequate information or psychological counselling.

12. One of the serious consequences of major accidents such as that at Chernobyl is the displacement of populations. Large numbers of people were relocated shortly after the accident. Other communities from the contaminated areas are now facing possible relocation, while many families and individuals have voluntarily moved away from the affected areas.

People who were relocated immediately after the accident require an assessment of their changed situation and medical follow-up, including psychosocial support as necessary.

Communities and individuals now confronted with the possible need for relocation face additional uncertainties, because it is difficult for the individual to assess the balance between the benefits and drawbacks of relocation. These people therefore need full information and support to guide their decision, facilitate their relocation and buffer its possible adverse effects.

13. Health workers dealing with patients from the affected areas are confronted with the extra burden of patients with psychological problems. These health workers should themselves have access to psychological support.

14. The large population identified as needing psychological attention is at present without access to such services. Medical personnel, allied health professionals and lay people should be trained in simple counselling skills, to enable them to allay many of the fears people have by spending time listening to their problems, advising them and comforting them. One of the aims of such an activity would be to reduce the burden of health care demand on medical services. A training programme should be set up to train trainers for this purpose.

15. WHO should follow up the present meeting with the establishment of a steering group on the psychological aspects of nuclear accidents, which should initiate research, information and training activities, and consider a follow-up meeting.