

Shortly after the quake, numerous emergency service workers and relief agencies started responding to the needs of the masses. World Relief, an international relief agency, and Christian Relief, a Des Moines-based multi-church coalition were present to offer assistance to churches in the area interested in helping quake victims

Christian Relief was formed in response to the Great Iowa 500 Year Flood that took place in July, 1993. The mission of both World Relief and Christian Relief is to provide local churches with guidance and training in the formation of a locally run coalition of churches. The purpose of the training is to provide physical, emotional, and spiritual support to disaster victims. *Physical*

needs are met by offering: 1) Temporary Shelter; 2) Food, clothing, medicine, etc.; 3) Help with clean-up and repairs; 4) Furniture, lumber, appliances; etc. *Emotional needs* are met by offering: 1) Group stress debriefings; 2) One-on-one interventions; 3) Stress education; 4) Referrals for professional help; and 5) Assistance in dealing with the Federal Emergency Management Agency (FEMA), the American Red Cross, and other relief agencies. *Spiritual needs* are met by offering: 1) Prayer; 2) Spiritual/Biblical answers to questions; 3) Bibles; 4) Church repairs or relocation; and 5) Hope for the future.

The thoughts and fears experienced by the people in the quake area *during* the quake included: 1) Thought it was

the "Big One"; 2) Thoughts of personal death; 3) Fear of injury or death to family or relatives; 4) Fear of heart attacks; and 5) Feeling totally out of control. *After* the quake, there were feelings of *fear and despair* due to: 1) Damaged or lost homes; 2) Loss of personal items; 3) Loss of work; 4) Extreme fatigue; 5) Aftershocks; 6) No quake insurance; 7) Having quake insurance, but a high deductible; and 7) Loss of family and friends to relocation or death.

It has been nine months since the quake and Northridge has lost over 20,000 residents to relocation. Those who continue to show signs of trauma are children, (usually ≤10 years of age and younger), the elderly, and those with pre-existing emotional conditions.

Appendix I: Christian Relief: After The Critical Incident (Educational Materials)

HAVING JUST EXPERIENCED THE SHOCK AND PAIN OF A CRITICAL INCIDENT, YOU MAY EXPERIENCE SOME NORMAL EMOTIONAL REACTIONS AS A RESULT OF THIS INCIDENT. **SOME COMMON AND NORMAL REACTIONS ARE:**

- Sadness/Apathy/Fear
- Feelings of Helplessness
- Loss of Appetite
- Headaches
- Agitation/Anger
- Gastro-Intestinal Symptoms
- Memory Loss
- Nightmares
- Sleep Disorders
- Inability To Concentrate
- Skin Disorders/Rashes
- Increased Use Of Alcohol

- Depression/Anxiety/Guilt
- Urge To Cry Or Hide
- Fatigue
- Difficulty Making Decisions

Many people involved in critical incidents will experience at least one of these reactions. Being aware of your feelings and acknowledging them is the first step towards feeling better.

- 1) Other things to do to help in your emotional recovery include: Talk about your experience: share your feelings rather than keeping them to yourself;
- 2) Don't be afraid to reach out for help if stress, anxiety, depression, or physical problems continue;
- 3) Keep a journal: write your way

- through those sleepless hours;
- 4) Take care of your health by getting physical exercise;
 - 5) If possible, take time for yourself. Get away from home for a few hours by going to a movie or out for dinner, read a book, visit friends, get a hobby or activity which takes your mind away from work;
 - 6) Pray. Have a conversation with God about your feelings and ask for His help and strength;
 - 7) Do not depend upon alcohol or other drugs to manage stress;
 - 8) Do not expect perfection from yourself or others; and
 - 9) Go to a church worship service or continue to keep a regular routine of attending the church of your choice.

Public Health Problems After Large-Scale Disasters

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Ensuring the health of people over a long-term period after a disaster often is more difficult than dealing with the immediate consequences of the disaster. Broad and specific policies and procedures need to be developed well in advance of disasters, if these are to be implemented in a timely manner and the long-term health of the public is to be preserved.

We do not have such policies and procedures in place. It will be necessary to involve a wide range of public health professionals to devise the preventive strategies necessary for maintaining the physical and psychological well-being of populations who have been subjected to major disasters. For example, millions of people and thousands of scientists have been involved in the process of recovery

in the eight years since Chernobyl, yet it is unclear when the problems related to living on contaminated soil will be alleviated. Post-disaster medical and public health planning must evaluate specific disease outcomes and the impact of alterations of the physical environment on human health, and must assess the deleterious effects of societal and economic changes on the well-being of populations.

This report focused on the current weaknesses in medical planning and

response to nuclear disasters in the period after an acute emergency (i.e., the mid- and long-term health consequences). These are critical times in dealing with many problems related to chemical, biological, and other human-made disasters, as well as natural disasters. The medical and social sciences are least developed in dealing with post-disaster health concerns in the mid- and long-term. Major deficiencies include the need for adequate testing methods that can be applied to large groups for

monitoring their physical and psychological health.

The creation of mobile units to evaluate mid- and long-term health risks among populations exposed to releases of nuclear radiation at Chernobyl, in the Ural mountains, and following other disasters is described. The findings indicate substantial, long-term physical and psychological health effects, and illustrate the importance of regular screening in assessing disaster impacts on health.

MONITORING AND ASSESSMENT: DIFFERENT PERSPECTIVES

Medical Monitoring

The Health of the Chernobyl Patients During the Late Consequences Period of the Acute Radiation Syndrome

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The Clinical Department of the Institute of Biophysics admitted 129 victims who were acutely exposed during the Chernobyl radiation accident in April 1986. Acute radiation syndrome (ARS) of different degrees of severity were diagnosed in 108 patients. Of this group, 27 patients died during the acute period (26 in Moscow and one in Kiev). The ARS diagnosis was verified in a total of 134 persons (including patients in Kiev). The number of patients under the dynamic observation of the Clinic gradually decreased during

the 8 years following the accident. In 1993–1994, the number patients being observed was 14.

During the later period, other serious problems occurred in some individuals who had sustained severe local radiation injuries (third degree); these included the development of radiation ulcers on the background of the severe scarring and trophic changes in the skin which required repeated plastic surgery. Nine patients developed radiation cataracts; eight patients from this group had *beta* radiation burns of the eyelids during the acute period, which documents the contribution of high-penetrative *beta* radiation to the etiology of radiation cataracts in the Chernobyl patients.

The oncological consequences in patients continuing to be followed in our Clinic are hypernephroma that developed in the seventh year in a

patient who survived ARS of a moderate degree of severity.

The most frequently observed consequences of ARS during the latent period include: 1) astheno-neurotic syndrome; 2) vegetative vascular dystonia; and 3) transient moderate leukopenia and thrombocytopenia.

Somatic diseases frequently observed during the late period in ARS survivors include: 1) Gastrointestinal disease; 2) Different neurological diseases and syndromes; and 3) Upper pulmonary tract diseases.

Thus, the similarity of the morbidity structure for nosological forms of somatic disease at the pre-accident time (anamnesis data) and at the late consequences of ARS (without dependence from the severity, i.e., from the dose of exposure) testifies to the absence of radiation factors contributing to the development of chronic somatic diseases.

Immunobiology and Psychosocial Aspects of the Health of Children After the Chernobyl Disaster

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Immunobiology

Various population groups who have suffered after the Chernobyl accident showed marked differences in irradiation levels that were combinations of external irradiation and radionuclide incorporation. Acute radiation syn-

drome patients, clean-up workers who were exposed to doses under the 1 Gy limit in 1986 and in subsequent years, those evacuated to Prypjat and those within a 30 km zone, and those who are still living in the territories contaminated with radionuclides comprise the