ry Airway Disease; 2) Lower Respiratory Airway Disease; 3) Conjunctivitis; 4) Viral Fever; 5) Musculoskeletal Problem; and 6) Gastroenteritis.

**Results**: The results indicate that upper respiratory airway disease is not directly dependent on the PSI level ($p = 0.104$), while the incidence of lower respiratory airway disease and conjunctivitis show a significant direct correlation with the PSI level ($p = 0.037$ and $p = 0.020$).

**Conclusion**: The incidence of asthma, bronchitis, and conjunctivitis increases with the level of air pollution. Thus, more precautionary measures should be taken while engaged in strenuous physical activities.

**Keywords**: air, asthma; pollution of; bronchitis; conjunctivitis; effects; haze; impact; physical activity; pollution; Pollution Standard Index; Singapore

## G-59

## Tasks of Disaster Medicine Service in Radiation Accidents

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Qualitative and quantitative characteristics of an injured structure on stationary radiation hazardous facilities (NPP, other enterprises and organizations using nuclear and radiation technologies or scientific irradiation equipment) in local or general (large scale) radiation accidents, and in the transport of radiation and fission materials (transport accidents) generally are well-known.

We propose a useful classification scheme for persons involved in a radiation accident: 1) *Personnel* — specialists of radiation hazardous facilities, personnel of travel facilities, involved in radioactive materials transportation; 2) *Liquidators* — participants in relief operations (members of emergency-rescue teams, other persons enlisted to provide response measures); and 3) *Population* — persons living on affected territory. A person who in an emergency accidentally found her/himself within boundaries of sanitation/protective zone of emergency facility is called a "witness of the accident". The health response tasks for medical units in responding to a radiation accident are well-grounded.

The structure, purposes, and main tasks of All-Russian service for disaster medicine are presented.

**Keywords**: accidents; classification; facilities; radiation; relief; transportation

## G-60

## Disaster and Emergency Medical Systems in Nuclear Plant Accidents in Japan

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**Introduction**: There are more than 50 nuclear power reactors operating in Japan that generate more than 30% of the country's total electrical energy. At the Clinical Research Institute, a nuclear disaster-handling manual was developed two years ago, which was presented in the previous 10th World Association of Disaster and Emergency Medicine (WADEM) World Congress in Mainz, Germany in 1997. At that time, Disaster and Emergency Medical Systems adopted by nuclear plants in Japan were reported.

**Materials and Methods**: This study consists of two methods: First, a questionnaire was distributed to each nuclear plant; and second, a direct inspection of each nuclear plant. Themes studied were: 1) Primary medical systems; 2) Emergency transporting systems for serious patients; 3) Drills that deal with nuclear disaster; and 4) Communication or cooperation systems established between the plant and the medical facilities outside of the plant.

**Results and Discussion**: Data were obtained from eight nuclear plants among the 14 commercial plants (57%). Six plants were evaluated by questionnaire, and two plants were investigated by direct inspection. The details were:

1) The systems for detecting contamination and for decontamination of patients were excellent (8 among 8 plants);
2) The primary Emergency Medical System in the plants was considered to be good when patients were not seriously injured during the daytime;
3) There are problems with the Emergency Medical System when accidents occur during the night, on holidays, when the degree of injury is severe, and when the number of casualties is high;
4) An excellent emergency transporting car was equipped, although a more strict system should be prepared to avoid the spread of contamination in cases of decontaminated patients;
5) Disaster drills have been performed regularly; however, the frequency and the scale of the simulations were rather small; and
6) Communication systems established between the plants and the medical facilities outside of the plant varied with each plant, and so their evaluation was difficult.

**Conclusions**: Essentially, a medical system and a decontamination system for treating a few not seriously injured patients, either contaminated or not contaminated, were well-planned, especially inside the plant. However, it seems necessary to establish a medical system for accidents involving many casualties and to perform drills that involve many people on site, because the risk of larger scale nuclear plant disasters cannot be excluded. The significance of the nuclear disaster-handling manual made by the Clinical Research Institute also will be discussed.

**Keywords**: accidents; contamination; decontamination; disasters; drills; emergency medical systems; exercises; Japan; manual, disaster handling; nuclear reactors; transportation