DEPARTMENT OF HEALTH AND HUMAN SERVICES

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16. Abstract (Limit: 200 words) This testimony concerned the occupational health and safety problems of flight attendants and airport ground crew workers. Flight attendants have frequently report respiratory problems including cough, chest pain or tightness and palpitations. They have noticed increased prevalence of reproductive problems including menstrual difficulties, miscarriages, and birth defects. They also complain of frequent headaches, swollen ankles, back pain, and other musculoskeletal problems. Many hours at high altitudes may subject these workers to increased radiation and ozone (10028156) exposures. They may also be exposed to carbon-monoxide (630080) and hazardous components of jet exhaust and cigarette smoke. They were subject to frequent changes in cabin pressure, to an atmosphere of low humidity, and to continual vibration and noise. They experienced frequent time zone and schedule changes and must lift and move heavy objects in confined quarters. Studies of the ground crew workers have concentrated on baggage handlers, fuelmen, warehouse and air freight personnel, ramp workers, and airport and aircraft maintenance personnel including welders, electricians, mechanics and other skilled craft workers. Studies concerned with safety, noise, jet fuel and jet exhaust, radiation, weather conditions, and other problems of these occupations were discussed.

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I am Dr. James Melius, Chief, Hazard Evaluations and Technical Assistance Branch, National Institute for Occupational Safety and Health (NIOSH). Thank you for inviting me to testify before your Subcommittee about the occupational health and safety problems of flight attendants and airport ground crew workers.

NIOSH has a unique combination of legislative mandates under the Occupational Safety and Health Act of 1970 and the Federal Mine Safety and Health Act of 1977. We conduct laboratory and field research to identify workplace hazards that may contribute to excess worker illness, disability, and death. We recommend workplace standards to the Department of Labor to help reduce risk of serious illness or injury in the workplace. We also conduct programs to increase the supply of professional occupational safety and health manpower--physicians, nurses, industrial hygienists, and safety professionals. Finally, we respond directly to requests for technical assistance from employers and employees and from Federal, State, and local governments. This technical assistance includes on-site medical and industrial hygiene investigacious which result in specific recommendations for controlling health hazards in the workplace.

It is this last NIOSH responsibility--providing technical assistance directly to workers--that often alerts us to new safety and health problems and can result in more complex research investigations and in recommendations for new standards to the Occupational Safety and Health Administration (OSHA).

Early this year NIOSH became involved in investigating occupational exposures to flight attendants when we were asked by Eastern Airlines and their flight attendants' union to evaluate the "red sweat" problem occurring on flights between New York City and Miami. The cause of "mystery illness" was solved when NIOSH and CDC investigators determined that the red spots were caused by paint flaking off life vests marked "Demo Only." Although this problem was quickly resolved, during the investigation NIOSH became more aware

of both the potential hazards faced by flight attendants and of their concern that no one was conducting research in this area.

Many flight attendants believe that what has been traditionally considered a short-term glamorous occupation carries with it hidden health and safety hazards. Problems that may produce minor discomfort to occasional airline passengers can have more serious consequences to flight attendants for whom they represent daily working conditions for many years.

Flight attendants report frequent respiratory problems, including cough, chest pain or tightness and palpitations. They have noticed what seems to be an increased prevalence of reproductive problems, including menstrual difficulties, miscarriages, and birth defects. They also complain of frequent headaches, swollen ankles, back pain, and other musculo-skeletal problems.

There are a number of substances and working conditions that could produce these and other reported symptoms. Flight attendants spend many hours at high altitudes, which could subject them to increased radiation and ozone exposures. They may be exposed to carbon monoxide and hazardous components of jet exhaust and cigarette smoke. They are subject to frequent changes in cabin pressure, to an atmosphere of low humidity, to continual vibration and to noise. They experience frequent time zone and schedule changes. They must lift and move heavy objects in confined quarters.

Research has been conducted by NIOSH and other investigators on many of these hazards as they affect other workers. But few studies are available which evaluate the specific exposures that flight attendants receive and which attempt to correlate these exposures with the symptoms and problems reported by flight attendants.

The Independent Federation of Flight Attendants, supported by other flight attendants' unions, wrote to OSHA in February requesting that the occupational hazards their members face be thoroughly investigated. OSHA asked NIOSH to

assist in responding to their request, In conjunction with OSHA, and with the cooperation of the Federal Aviation Administration, NIOSH has begun a research investigation. After meeting with representatives of the Independent Federation of Flight Attendants and the Independent Union of Flight Attendants, NIOSH has identified three major areas for initial study: respiratory problems, reproductive problems, and ergonomic problems (musculoskeletal problems and other symptoms related to work requirements).

We are beginning by evaluating the respiratory problems of flight attendants. Although the study design is not yet complete, we expect that it will include a thorough evaluation of the available scientific literature, measurements and analysis of the substances to which flight attendants are exposed, interviewing a representative sample of employees about their symptoms amd medical histories, and pulmonary function testing. Such a study would take approximately one year to complete. The FAA has agreed to assist us in obtaining the cooperation of airline companies in conducting this study. We will keep the FAA, the companies, the flight attendants' unions, and OSHA informed as the study progresses. Similar study protocols will also be developed to evaluate reproductive and ergonomic problems.

The second part of my testimony will provide a brief review of the occupational health and safety problems of airport ground crew workers. We are currently gathering the information for the more complete report requested by the committee.

Ground crew workers include a variety of occupations: baggage handlers, fuelmen, warehouse and airfreight personnel, ramp workers, and airport and aircraft mainentance workers. The latter category includes welders, electricians, mechanics, and other skilled craft workers. Workers in these jobs have occupational health and safety problems related to the specific tasks these workers perform. They also share health and safety problems resulting from common exposures and work situations at airports.

Several major occupational health and safety problems are apparent from past NIOSH studies on ground crew workers and other workers with similar exposures and from other readily available information on ground crew workers.

1. Safety: In 1979 NIOSH published a profile of safety problems in airport ground crew work. This report reviews the available statistics on this problem and describes potential safety problems. Considerable potential for accidental injuries and deaths exists for ground crew workers. These include injuries due to baggage handling, hazardous material transport, fuel handling, motor vehicle traffic, jet exhaust, and maintenance procedures. It also lists some of the National Fire Protection Association and OSHA standards pertinent to these operations. This report and the other available information points out the many safety hazards for ground crew workers and the need for occupational safety regulations and enforcement to protect these workers.

2. Noise: Most ground crew workers are potentially exposed to noise levels well above current occupational standards. Unless these workers are protected from this noise exposure the potential for long-term hearing loss is great. The effectiveness of current hearing protection programs which emphasize the use of personal protective devices in controlling this problem is not clear. Control approaches other than personal protection should be considered. These include engineering controls and changes in work procedures to reduce noise exposure.

3. Jet fuel and Jet Exhaust: Ground crew workers are potentially exposed to a variety of chemicals contained in the jet fuel and exhaust from aircraft and ground vehicles. These include: (a) hydrocarbons - some of which are known to produce neurological damage, cancer, skin disease, reproductive problems, and eye and nose irritation, (b) polynuclear aromatics - which are known to produce cancer and reproductive effects; (c) particulates - which

may produce lung disease (bronchitis) and eye and nose irritation; (d) oxides of nitrogen - which may cause eye and respiratory irritation; and (e) carbon monoxide - which with chronic exposure may cause neurological damage and may cause or aggravate heart disease.

There have been few medical studies of airport workers exposed to these agents. A Scandanavian study of workers exposed to jet fuel has shown evidence of both neurological damage (decreased sensation in hands and feet) and psychological symptoms.

NIOSH is currently studying a group of 1200 present and former fuel workers at JFK airport in New York. This study was requested by workers who were concerned about an apparently high cancer incidence among union members. The mortality study will determine whether these workers are of excess risk of dying from heart disease or cancer. In measuring chemical exposures at the airport NIOSH found high levels of carbon monoxide in the fuel trucks and significant exposures to polynuclear aromatics from the jet fuel exhaust. We made recommendations for controlling the carbon monoxide exposures which was determined to be caused by fuel truck design (front exhaust) and poor maintenance. Other NIOSH studies on workers exposed to carbon monoxide, diesel exhaust, and solvents may help to assess the potential problems due to these exposures.

4. Radiation - This includes exposure to radiation during maintenance procedures and to microwave radiation from radar and other sources at airports. These agents are known to have potentially serious health effects including cancer, reproductive problems, and eye disease. NIOSH is currently doing research on the health effects of those exposures among workers in other occupations.

5. Weather Conditions - Weather conditions at airports expose ground crew workers to both cold stress and heat stress. The latter has the obvious acute danger due to heat stroke. The former may cause more chronic injury

and impairment due to frost bite and vascular changes. Both protective clothing and specific work practices can control these hazards.

6. Other Maintenance Exposures - A variety of potentially hazardous exposures may occur during maintenance procedures, the particular hazard depending on the procedures and on the job of the worker. Through specific health hazard evaluations, NIOSH has documented hazardous exposures in airplane cleaning and painting operations. For example, an evaluation done in 1977 at the United Airlines Maintenance Base at San Francisco International Airport demonstrated potentially hazardous exposures to a cleaning solvent (methylene chloride) and a component (hexamethylene diisocyanate) of the paint being used there. Many other potentially hazardous exposures may occur in welding, cleaning, painting, and repair operations. A 1974 NIOSH occupational health survey of selected airports documents many of these potential exposures. NIOSH has done extensive studies of these exposures in other situations. For example, a NIOSH study recently found that shipyard welders were at excess risk of lung cancer. Welders are also known to have a high risk of developing bronchitis. NIOSH currently has several studies evaluating the health effects and exposures in painting operations. These effects include neurological damage due to solvent exposure and the cancer risk due to exposure to several known or suspected carcinogens that may be contained in paints.

We realize that this has been a brief review of the hazards faced by ground crew workers. However, even this preliminary review emphasizes the need for the monitoring and regulation of occupational exposures and for further research on these problems to assure that ground crew workers are adequately protected.

I will be pleased to answer any questions you or members of your Subcommittee may have.

NIOSH INVESTIGATIONS OF AIRPORT WORKERS AND FLIGHT ATTENDANTS

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