

STATEMENT OF THE
ASSOCIATION OF FLIGHT ATTENDANTS

BEFORE THE
NATIONAL ACADEMY OF SCIENCES
CONCERNING

CABIN AIR QUALITY,
FLIGHT ATTENDANT HEALTH,
AND CABIN FIRE SAFETY

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Thank you for the opportunity to make this presentation. My name is Matthew Finucane. I am an attorney and the Director of Air Safety and Health for the Association of Flight Attendants. The Association of Flight Attendants is a single union representing 21,000 flight attendants at 14 U.S. airlines. We are the largest flight attendant union in the world.

With me is Pamela Casey, an elected officer of our association and an Alaska Airlines flight attendant. Also with me today is our health researcher, Zabel Zakarian, whose background includes graduate training at two schools of Public Health.

The Association of Flight Attendants was described in the trade press as a "prime mover" behind the Act that led to the formation of this committee, and I think that the legislative history of the Act shows that Congress wanted this committee to look into flight attendant health, insofar as it is affected by cabin air quality, as well as passenger health.

As this distinguished group of scientists looks at the flight attendant health issue, I think you will find that this is perhaps the first time that a group of this caliber has ever really studied the health of this working group. For whatever political or social reasons, flight attendant health has been neglected by the Federal Aviation Administration, OSHA, EPA, NIOSH, and health scientists.

We are a group with virtually no federal protection, and it is in light of this lack of protection that your interest means so much to us. Under 4(b)(1) of the OSH Act, OSHA has jurisdiction over occupations where no other agency exercises jurisdiction. In the mid-1970's, the Federal Aviation Administration claimed to have jurisdiction over flight attendant health, but has taken no steps to exercise it. While OSHA theoretically could therefore fill the void, OSHA has let us know that it has no intention of helping us. We therefore stand unprotected. In the area of cabin air quality, it was only because Congress intervened that the FAA has been forced to sponsor this study.

I think it is important that this committee have some idea of the special characteristics of the flight attendant population.

The careers of today's flight attendants are no longer typified by restrictions on age or marital status. Preliminary results from a survey of AFA's membership in April 1985 by an independent research firm offers some descriptive characteristics of this occupational cohort:

- 86% are women;
- 14% are men;
- 61% are married; and
- 43% have at least one child.

The age range of flight attendants reflects their career tenure as well as hiring practices, which vary between airlines.

23% of our membership have 15 to 20 years experience.

Another 10% have more than 20 years experience.

59% of our members are between 30 and 39 years old.

Of particular interest with regard to long-term occupational health problems of flight attendants is that 74% report that they expect to keep their job as a flight attendant until they retire or stop working. Another 18% intend to continue working in another position. It is my impression that selection factors are operating in this cohort and that health consideration can influence selection. I am aware of one flight attendant who was diagnosed as having a mild hearing loss after seven years of experience. At thirty years of age, she would like to continue working but in another position.

We are all aware that the cabin of an aircraft at 30,000 feet is one of the few "workplaces" where the public is welcome and present in greater numbers than the workers. As this committee examines the problems of cabin air quality, we ask that you consider some of the factors that affect flight attendants as an occupational cohort. First, the cabin of an airborne aircraft is a simulated environment. Aircraft cabins are pressurized with ambient air, and this results in a cabin air pressure less than 760 millimeters of mercury at sea level or 14.70 psi. For example, at a cruising altitude of 35,000 feet, where the ambient air pressure is only 3.40 psi, the cabin air pressure is unlikely to be more than 12.00 psi. This is close to the atmospheric pressure at 5,500 feet above sea level. At this level, the atmospheric partial pressure of oxygen is reduced (from 159 mm Hg at sea level) to

130 mm Hg. In a "normal" individual, the alveolar partial pressure of oxygen is reduced (from 107 mm Hg at sea level) to 76 mm Hg. This reduction in oxygen pressure requires physiologic adjustments of the cardiovascular and respiratory systems. The relative moisture content of the air in an aircraft is also reduced to 15% and lower. When ozone is present in ambient air at high altitudes, it can be introduced in the cabin atmosphere along with carbon monoxide (from engine exhausts), nitrogen dioxide (a by-product of engine exhausts), and hydrocarbons (from jet fuel). These are just a few of the potential contaminants that may be present in a pressurized cabin in addition to cigarette smoke and carbon dioxide.

Second, to examine cabin air quality as it relates to flight attendants as an occupational cohort requires consideration of oxygen demand. Flight attendants are ambulatory over the greater duration of most flights. To give you an idea of the workload, consider the energy involved in maneuvering food and beverage carts that can weigh 185 to 250 pounds or more when they are loaded. A flight attendant on a 737 aircraft will put a beverage cart in motion at least 14 times during a single flight. The cart must be put in motion against an uphill gradient of about 5 to 10 degrees at least 6 times. A flight attendant who works 5 to 8 flights per day will stop and start a cart roughly 70 to 112 times a day.

Third, consider the variable work schedules of flight attendants. Occupational exposures to the cabin atmosphere involves prolonged exposures -- sometimes over 14 consecutive hours, such as on a flight from New York to Tokyo, -- and shortened recovery periods. Flight attendants bid for their schedules, and it is preferable to bid-away from 3 and 4 day trips which re-expose the flight attendant after a minimal rest period. Labor contracts establish minimum rest periods of about 3½ hours, but we should point out that the basis for this is established legally not physiologically.

And fourth, we would like to point out that while passengers are given an option of seating in smoking or non-smoking sections, flight attendants who are non-smokers cannot voluntarily elect to work in the non-smoking section.

The predominant symptoms that both flight attendants and passengers report to us are headache, dizziness, nausea, chest pain, shortness of breath, fatigue, feeling of suffocation, light-headedness and eye irritation. Consider the kinds of reports we receive from flight attendants regarding incidents involving poor air quality on aircraft. One flight attendant reported that the air on a plane became quite smokey shortly after take-off. A passenger tried to go to the restroom but he never made it. He passed out at the door. Luckily the flight attendant caught him and administered oxygen. The passenger was pale and disoriented. He improved with oxygen, and said that he had not had this problem before. Next, a young teenager began to have a nose-bleed, and passengers began complaining of headaches. The other flight attendants were complaining of headaches and burning eyes, noses and throats. During the remainder of the trip, the air took on a stale, dusty atmosphere.

Last July, we received a report concerning a flight to Honolulu. The flight attendant reported the following: "(After) take-off, I started feeling light-headed and found myself moving a lot slower than I would have like to have been. Also very forgetful. I started asking some of my flying partners if they felt fine . . . five said they didn't feel well. We ran out of aspirin during the service. Everything I did after the trip was very difficult. I had trouble entering the pay records into the computer. My walk to the parking lot was exhausting."

It is doubtful that this flight attendant could have performed optimally in the case of decompression, fire, a sabotage threat, hijacking, turbulence, an in-flight medical emergency, or some other survival situation following a crash. All the years of training and experience are for naught if crucial activities cannot be performed due to oxygen deficit or respiratory distress.

These are just two of the roughly 100 complaints that we receive each year about cabin air quality from our members. These complaints usually come in the form of reports made to the airline after a flight and do not reflect the total number of problems in the field.

We are also aware of an increasing number of flight attendants who have persistent respiratory problems. The long-term effects are just beginning to become apparent in flight attendants who began working in the 1960's and who remained in the industry once discriminatory restrictions were removed.

In April of this year, we received a letter from a flight attendant with 20 years of experience who has been diagnosed as having chronic bronchitis. She quit smoking after her first year as a flight attendant. Up until five years ago, she had no history of asthma or bronchitis, but she would develop a mild bronchopneumonia whenever she worked extended duty periods. Usually, she would develop signs during the second or third day of the trip.

We also received a letter from a passenger with sarcoidosis whose work requires her to travel occasionally. She notes that she "invariably" develops a respiratory infection about two days after she has flown. She writes, "I was beginning to think that I was allergic to something that was only used on planes. It has reached the point now that my doctor has advised me not to fly until we can find some solution to the problem."

As the committee considers the health effects of cabin air quality, we ask that you focus on both long-term health effects (including disabling respiratory and cardiovascular diseases), and neuro-behavioral effects and cognitive functions. While the latter may not appear to be life threatening under other circumstances, the effects on decision-making and attention span in an aircraft could make the difference between prevention of injury to passengers and loss of life. Also, due to the large proportion of women of child-bearing age represented in this occupational category and the changing expectations of working women with respect to family and career, questions regarding effects on reproductive health of flight attendants are likely to be raised with greater frequency. The effects of hypoxia, air contaminants and cigarette smoke aboard aircraft on the fetus have not been systematically studied in this cohort.

The vital nature of the cabin air quality issue calls for well-designed and scientifically executed studies. It is AFA's preference that researchers who are independent of this industry

design, analyze and interpret the results of any studies recommended by this committee. AFA would be willing to pledge our cooperation with epidemiologic studies on this basis. The fact that we now have a maturing cohort points to the need for longitudinal studies. At the same time, deregulation has led to the entry of a younger and more demographically diverse subgroup. This subgroup presents opportunities for prevention. Our union stands ready to assist in epidemiologic studies with its easy access to our 21,000 members and a wide sampling of 14 U.S. carriers across the country. AFA has the advantage of a centralized data base of our total membership, and this is computerized.

AFA would also support the establishment of occupational disease registries for this cohort. Current ambiguities over FAA and OSHA jurisdiction for occupational safety and health of flight attendants, the difficulties posed for NIOSH in conducting studies aboard commercial aircraft, and the factors that stand in the way of periodic medical monitoring of flight attendants' health by the airlines point to the unique role that labor unions can and need to play in overcoming some of the gaps in information. With appropriate financial support and cooperation, we could establish disease registries and safety and health data bases that would include eligible flight attendants regardless of airline or union status.

Finally, I would like to briefly address several other issues which this committee has been directed to study. I have numbered these issues in accordance with the numbers used in the "Statement of Task" distributed by this committee.

"(1)" With regard to quantity of fresh air, we note that at least one of our carriers instructs pilots to cut back ventilation to 66% of capacity to conserve fuel despite repeated complaints from passengers and flight attendants.

"(4)" Concerning emergency breathing equipment, the FAA has announced that it will issue a proposed rule concerning crewmember protective breathing devices. Therefore, we feel that this committee should concentrate on passenger protective breathing devices for in-flight fires and escape from burning aircraft. The FAA's Civil Aeromedical Institute has done some important research in

this area using a rebreather bag attached to the passenger oxygen mask at each seat. Mr. Werjefelt, who you will hear later, has done some innovative work using the on-board ventilation system. We would encourage you to contact vendors of protective breathing equipment used in other occupations to determine the viability of masks using chemical oxygen generators or filters. Our guess is that the airlines would only go along with a proposal for passengers protective breathing devices that involve a small weight penalty (carrying weight increases fuel consumption) and a small equipment purchase and maintenance cost. Such equipment may be within the state-of-the-art depending on what you want to filter out.

"(5)" Concerning in-flight fires, we would urge the committee to direct its attention to what changes, if any, have been made in emergency procedures since the Air Canada fire. Our belief is that the only changes that have been made have been "hardware" changes, for example, changes to the flammability characteristics of the seats and the number and type of fire extinguishers. There have been no changes in the "software", that is, how the crew procedurally responds to the fire other than the issuance of a general Air Carrier Operations Bulletin. The basic issue of how a crew identifies the source of a fire, deals with it, and communicates and coordinates with each other have been left unaddressed by the FAA.

"(7)" Concerning medical statistics, we wish to direct the committee's attention to the issuance of a recent FAA proposal concerning emergency medical kits which addresses this issue to some degree. The committee should be made aware that the FAA's data acquisition concerning aviation hazards has long been criticized and that the FAA is not even in a position to state how many serious in-flight fires there were last year or how many deaths there were aboard aircraft due to medical emergencies. If the committee believes that the FAA should collect certain data, great emphasis should be put on defining precisely what information is needed. Vagueness in any requirement encourages carrier provision of the least information possible.

In addition, we would urge this committee to recommend that the FAA develop a system for obtaining data from the airlines

concerning occupational injuries and diseases among crewmembers since the agency has claimed jurisdiction in this area.

"(8)" With regard to passenger instructions and briefings, we wish to bring to your attention the fact that the National Transportation Safety Board is developing a study on passenger briefings that may bear upon this topic and which you might wish to obtain. We would also urge this committee to examine whether the use of wet cloths during an in-flight fire should be made a standard part of flight attendant training until such time as passenger breathing equipment is available.

In conclusion, we wish to again thank the committee for its efforts and we look forward to providing any assistance that we can to you in the coming months.