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Winning Formula

Challenging questions demanded candid answers from presenters and workshop leaders in February 2008 when the Southern California Safety Institute (SCSI) brought flight attendants and other airline safety, health and security specialists together for the International Aircraft Cabin Safety Symposium (CSS) in Montreal.

People who manage, train and/or compose today's cabin crews increasingly see themselves as agents of change in the aviation safety community, according to Sharon Morphew, SCSI's manager of the CSS, and other symposium organizers (see "Beyond Expectations," p. 46).

Among the most safety-oriented highlights of the symposium (see "Keeping Cool," p. 48, and "Full-Scale Insights," p. 47) were the following messages.

Merlin Preuss, director general of civil aviation in Canada, said that the introduction of safety management systems urgently requires research, open dialogue and global harmonization of solutions for various cabin safety problems. "There will be a rapid increase in the number of seniors in the next five years. ... The baby-boomer generation will be traveling more than any other generation," Preuss said. "Cabin crews then can

Left, foreground, Ragna Emilsdottir and Heidi Faith of Air Atlanta Icelandic, and Lisa Crocket of United Airlines. Below, Hilliary.

expect to encounter 10 percent of seniors with health issues affecting their mobility or agility or causing pain; 4 percent with hearing impairments; and 3 percent with vision impairments.”

Robert Matthews, Ph.D., senior safety analyst in the U.S. Federal Aviation Administration (FAA) Office of Accident Investigation, discussed why the federal transportation policy says lap infants would be significantly safer

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events — heart attacks, for example — is the extremely short time available to make a difference in the outcome. “The chance of surviving decreases 10 percent every minute; after 10 minutes [without any first aid], you can forget it. ... Even if you are over an airport, you will have to wait about 20 minutes before landing — so the responsibility to respond is on flight attendants, nobody else. ... [Physician-passengers typically] are not trained to handle out-of-hospital emergencies.”

Colette Hilliary, program manager of cabin safety training, FlightSafety International, said that the industry has been reassessing cabin crew training since the investigation of the Helios Airways Boeing 737 decompression accident in Greece in August 2005. One improvement for some airlines has been to ensure that every portable oxygen bottle is preassembled for instant use. Others have introduced flight attendant mixed-gas hypoxia-awareness training, which does not involve a conventional hyperbaric chamber. The training prepares crewmembers to recognize early-onset symptoms and their first/predominant individual symptom, such as tunnel vision or numbness; to observe/hear subtle indications in the cabin; and to take immediate corrective action before losing mental acuity because of hypoxic degradation. “The sensations are different from anything you have ever felt unless you have had hypoxia-awareness training,” Hilliary said. “Rapid decompression occurs in one to three seconds, and slow/insidious decompression occurs over more than three seconds. ... In a slow/insidious decompression, [flight attendants] may or may not hear whistling near the doors or window seals, the cabin may become cool or appear hazy [but these signs] may be slight. What is the first indication of a slow decompression that we have typically? It is the masks dropping out of the passenger service unit.” ●

occupying a secured child restraint system in an airliner cabin, yet the government stops short of requiring parents or guardians to buy extra airline tickets for them. The FAA’s position is that the average U.S. family — asked to spend 45 percent more to fly instead of driving a typical highway trip of 480 mi (772 km) — would choose highway travel rather than far-safer airline travel. The FAA argues that a net increase in fatalities would occur — at least 60 more infants killed in motor vehicles compared with one infant traveler’s life saved by a child restraint system over 10 years.

Paulo Alves, M.D., medical director of MedAire, said that the aging population will affect the quality and quantity of in-flight medical events. “[The percentage of] people living beyond age 100 is increasing, and not because we are more healthy but because we are surviving our diseases,” Alves said. The reason flight attendants must train for rare

BY WAYNE ROSENKRANS

Symposium’s unflinching focus on concerns raised by flight attendants influences airlines worldwide.

For an enhanced version of this story, go to <www.flightsafety.org/asw/apr08/css-montreal.html>

Beyond Expectations

The International Aircraft Cabin Safety Symposium (CSS) this year celebrates a quarter century of facilitating the exchange of increasingly specialized knowledge among flight attendants, pilots, airline managers, regulators, aircraft/equipment manufacturers, accident investigators and academic researchers. The airline industry and regulators today count on the expertise, perspective and commitment of flight attendants far more than when the first CSS was held in February 1984, co-founder Barbara Dunn says.

Around that time, the cabin crew's role in survivability of major accidents was coming into sharp focus. The in-flight lavatory fire and emergency landing of Air Canada Flight 797 at Cincinnati in June 1983 — in which 23 passengers were killed by smoke, toxic gases and flash fire about 60 to 90 seconds after evacuation began — was one of many reasons to challenge the status quo, Dunn said. Changes such as floor-level emergency lighting, fire-blocking standards for seat cushions, and higher standards for cabin interior panel flammability and smoke toxicity gradually followed. "Flight attendant training also was improved at that time, with specific attention on firefighting issues," she said.

Dunn was then an Air Canada flight attendant and, from 1974 to 1989, national health and safety chairperson of the Canadian Airlines Flight Attendants Association, now the Airline Division of the Canadian Union of Public Employees. In the late 1970s and early 1980s, she found herself increasingly frustrated with the lack of action on cabin safety issues that most concerned flight attendants.

"In those days, even our safety role on the aircraft was still pretty ill-defined," she said. "We were not given a lot of credit for any of the expertise or knowledge we had. I basically talked to anybody I could about cabin issues. There just wasn't a lot of interest in what was happening on the aft side of



Dunn, with her award, and Sharon Morphew of the Southern California Safety Institute.

the flight deck door. When I was hired as a flight attendant in 1971, all I had to do was be able to write down how to open a door. If I could memorize that portion of my manual and reproduce it on a piece of paper I passed."

As a result, Dunn and a few colleagues in 1982 began pitching the idea of a new industry forum dedicated primarily to cabin safety. After first approaching Flight Safety Foundation — which began its International Air Safety Seminar in 1947 and Corporate Aviation Safety Seminar in 1955, and which began publishing *Cabin Crew Safety* in 1956 — she and Toni Ketchell, a flight attendant who in November 1965 survived the American Airlines Flight 383 controlled flight into terrain accident near Cincinnati, turned to Richard Brown, Ph.D., director of aviation safety programs at the University of Southern California Institute of Safety and Systems Management, who joined them in founding the CSS at the university.

Cabin safety specialists from flight attendant unions comprised the majority of CSS attendees in the early years, and their "agitating for improvements" in existing practices gradually gave some people in the industry an erroneous impression of the purpose, Dunn said. "We have fought very hard over the

years to dispel that label of being strictly a union group," she said. In later years, the symposium drew more diverse audiences. Flight attendants demanded more sophisticated content and showed willingness to listen to subject specialists holding viewpoints contrary to theirs; and growing emphasis on crew resource management (CRM) helped to bridge differences in professional cultures, she said.

"I have seen a massive improvement in CRM and joint pilot-flight attendant training in CRM," Dunn said. "Most of the people who come to this symposium are in-flight trainers, supervisors and safety managers. Our unions are more knowledgeable now as far as safety is concerned. The industry as a whole looks at us very differently than 25 years ago — we are treated more as safety professionals by the airlines. We are in a position to accept that responsibility in a better fashion."

Brown, Dunn and Ketchell were recognized in Montreal for their roles as the CSS co-founders; Dunn also accepted the Excellence in Cabin Safety Award from the Southern California Safety Institute, which currently conducts the symposium.

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Full-Scale Insights

Airbus shared lessons from its full-scale emergency evacuation demonstration on the A380-800 — many applicable to cabin crews of any airliner — during the International Aircraft Cabin Safety Symposium. Videos of the evacuation, as recorded by overhead interior cameras, revealed more clues to how the two pursers and 16 flight attendants in March 2006 evacuated 873 people in 78 seconds via three upper-deck slides and five lower-deck slides in Hamburg, Germany (*ASW*, 1/07, p. 46).

“The behavior and assertiveness of the cabin crew had a great impact on the speed with which they managed and directed the passengers and the exits,” said Carmen Jacobs, cabin crew training policy manager, Airbus Training and Flight Operations Support and Services. “The successful evacuation in less than 90 seconds came about with the crowd-control techniques, our attitude and our different approach as instructors towards the cabin crew we were training. The crowd-control techniques can be used for any type aircraft.”

Training on a subset of the type-specific curriculum comprised 14

hours, half theory/half practice, over three days, plus a half-day visit to the demonstration aircraft. “During the aircraft visit, trainees were all told to look around, try out every cabin crew station and stand in every assist space,” Jacobs said. “They had to check what they could see and with whom they could communicate.”

Jacobs and her colleagues decided at the outset that psychological preparations would be essential — specifically for each flight attendant to be able to continuously manage the situation, be assertive and be direct. Training would prepare them to mentally focus on their crowd-control techniques, not on the crowd. “We had to work with attitude — we had to give the crew confidence in being able to handle a crowd,” she said. “We had to teach them [not] that they *can be* in control — that they *are* in control.”

Asserting control then called for specific attention on how to combine conventional commands with delivery techniques that likely would work even for passengers who do not know the language being spoken by the cabin crew. “We started off with teaching them how to shout,” Jacobs

said. “Assertive, short, loud and clear commands have no meaning without the correct body language, gestures and facial expressions. There is no point in shouting a command with a big smile on your face — no one will take you seriously. Gestures are as important as commands and should be used in tandem.” The videos show all the flight attendants shouting and gesturing at a high level of intensity, as if expressing extreme anger to all the passengers.

Instructors deliberately spent time building trust and friendship during breaks/lunches, mixing humor and frequent reminders that each flight attendant is in control with personal challenges to perform at their best. “We worked with their individuality ... their personalities and skills,” Jacobs said. “They all encouraged one another to practice being able to do things simultaneously and to increase the speed of their actions.”

For an enhanced version of this story, go to www.flightsafety.org/asw/apr08/a380-insights.html.

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Airbus A380-800; Jacobs.



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Keeping Cool

Differences between what airline management rates as a comfort/convenience issue and what flight attendants consider unsafe/unhealthy can be difficult — but not impossible — to resolve and objective data help, several presenters told the International Aircraft Cabin Safety Symposium.

Christopher Witkowski, director of air safety, health and security for the Association of Flight Attendants–Communications Workers of America (AFA–CWA), recapped controversy surrounding cases of exposure to particles of engine oil, hydraulic fluid or byproducts contaminating the air provided by the environmental control system of a passenger airliner. Past studies have yet to put these concerns to rest, Witkowski said.

By early 2008, several initiatives were in place to help find answers. Voluntary U.S. health care protocols — *Management of Exposure to Aircraft Bleed Air Contaminants Among Air Line Workers: A Guide for Health Care Providers* at <www.ohrca.org> — have been drafted under a joint initiative of the Occupational Health Research Consortium in Aviation (OHRCA) and the U.S. Federal Aviation Administration Airliner Cabin Environment Research (ACER) Center of Excellence, both funded under a 2003 federal law.

Flight attendants from two airlines participated in the feasibility phase of a new cabin air quality study June–December 2007 and returned 4,012 completed surveys; a report will be published later in 2008. In first-phase feasibility testing, researchers had activated air samplers on 47 of 67 paid flight segments as of February 2008.

AFA-CWA also described a problem-solving partnership with an unspecified airline to look at how heat stress in a tropical climate might affect occupants of some ATR 72 aircraft flying in south Florida, U.S., and Caribbean airports (see figure). “These aircraft are not configured to have an auxiliary power unit on board, so they are extremely reliant on ground cooling,” said John Grace, national health committee representative. “We had to come up with a testing protocol that would create accurate data that would show or disprove that there actually was a heat problem ... we needed to know what the heat index was.” During August 2006, specially trained flight attendants collected simultaneous temperature-humidity measurements at the forward flight attendant jump seat just prior to closing the boarding door at 12 airports. Measurements also were collected at the top of descent for a total of 585 flights.

The flight attendants also recorded physiological signs observed



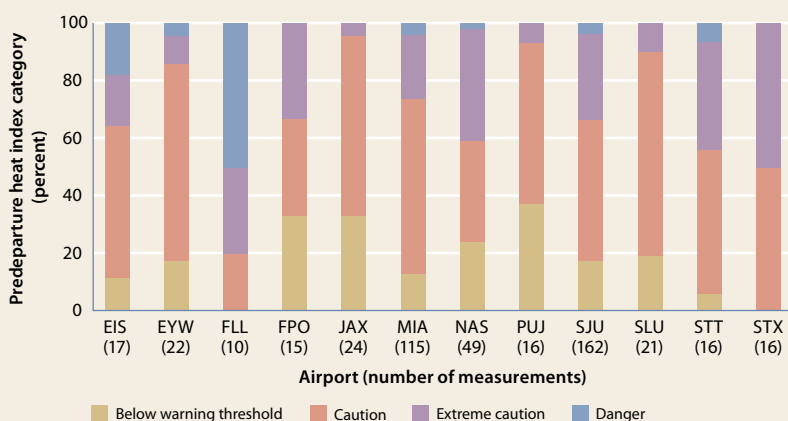
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Grace

in passengers or crew, illness symptoms reported by passengers or crew, and aircraft-related causal factors. The research relied on the *U.S. National Oceanic and Atmospheric Administration [NOAA] Heat Index* <www.crh.noaa.gov/pub/heat.php> and its categories of heat disorders for people in high risk groups. In presenting results to management, the union recommended that the company conduct a periodic analysis of problem stations and aircraft; continue a new policy for replacing ground air conditioning carts; educate flight crews about heat stress; teach and enforce policies/procedures to be used when hot aircraft are encountered; and maintain strategic awareness of heat stress and its safety implications.

Follow-up by management revealed that some ground staff did not recognize that a comfortable ambient temperature of 70 degrees F (21 C) usually had no bearing on the morning aircraft heat soak, and that many airplanes in the fleet had a ducting system in their environmental control system configured for maximum heating effect during winter operations, Grace said. The airline assigned a full-time ground monitor responsible solely for preventing excessive heat conditions.

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Source: Association of Flight Attendants — Communications Workers of America