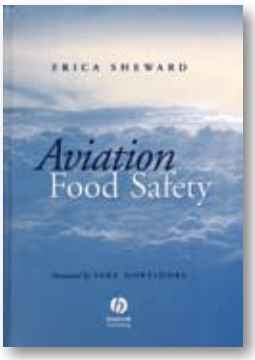
# Hazard Alert! Lunch Ahead

**The pilots eat different meals, of course. But what if both meals come from the same catering unit — and it's contaminated?**




## BOOKS

### Aviation Food Safety

Sheward, Erica. Oxford, England: Blackwell, 2006. 405 pp. Figures, tables, references, index.

The words "pilot incapacitation" are likely to be associated with a cardiac crisis in the cockpit. Sheward notes, however, that according to U.K. Civil Aviation Authority data, cardiac-related incapacitation between 1990 and 1999 accounted for fewer than 3 percent of pilot incapacitations, while 54 percent of incapacitations were linked to gastrointestinal problems resulting from contaminated food or water, sometimes served aboard the aircraft.

"There has been much industry and media speculation in recent years as to the reality of both the long- and short-term health effects on crewmembers," Sheward says. "Everything from pilot deep vein thrombosis (DVT) and cabin air quality to blood-borne pathogens and cosmic radiation have found their way onto the platform for debate when discussions concerning cabin crew and cockpit crew health issues have risen to the fore. Interestingly enough, I can find no industry research that draws the same kind of personal health effects comparisons between pilots' incidence of gastrointestinal illness and incidence of gastrointestinal illness in workers on the ground."

Long-haul pilots are more likely to run risks from eating and drinking than stay-at-home workers, she says. Although flight crewmembers are officially on duty between flights, many airlines have no rules or guidance about where and what they eat, even in high-risk areas. Therefore, even though procedures require a captain and first officer to eat meals that differ from the other's during a flight, the risk from food-borne pathogens is not reduced as much as it could be.

"This is a wonderful example of the industry offering a less than ideal solution to what is a big problem," Sheward says. "It is obvious to anyone who knows anything about the likely causes of food poisoning (including the airlines themselves!) that it will matter not a jot that the pilots have consumed different meals if there is found to be an inherent hygiene problem at the catering unit from whence both meals were ultimately sourced. The nature of airline catering logistics provides for a situation where the same personnel can pack different meals in the same unit."

Cabin crewmembers can add to the risk of contaminated food for the pilots and passengers through ignorance, the author says. She once saw a flight attendant on a corporate aircraft become perplexed when all the refrigerated space became filled up and no room was available for two servings of sushi. "Eventually, accepting that all appropriate food storage areas were, by this time, fully laden, she threw open the front lavatory door and placed the two sushi trays on the toilet seat!" says Sheward. She also has seen meals being removed from behind blankets in overhead bins where they had been stored during a flight and placed in the oven racks for the return flight.

She says that the aviation industry, both in its commercial and corporate sectors, fails to train flight attendants in food service hygiene as it does for emergency evacuations, medical emergencies and crew resource management.

In a chapter on airline food, tables list 41 outbreaks of food poisoning between 1947 and 1997 — some of which affected multiple flights — caused most often by the organisms *Salmonella* and *Staphylococcus*. "Thousands of flights have been affected and over 9,000 passengers and crew have been reported to have suffered food poisoning; the number of reported deaths involved in these tables stands at 11," the author says. She believes the number of people affected is under-reported: "The perceivably isolated incidents involving less than a critical mass of five passengers and crew will, historically, be dealt with by the airlines' internal mechanisms and will remain under the detection threshold for statistical analysis."

Passenger concerns and complaints about the quality of food served in flight have distracted the aviation industry from food safety issues, the author says. "Unless the broadest possible view is taken of the potential application that food and drink provision may have in the aviation safety arena, then the logical chain of events and protocols that need to be established in order to secure supply chain integrity will also not be effectively established," she says.

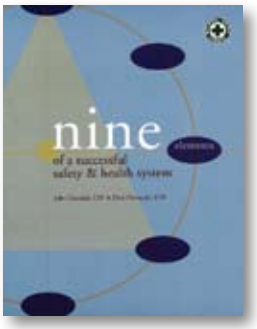
### Nine Elements of a Successful Safety & Health System

Czerniak, John; Ostrander, Don. Itasca, Illinois, U.S.: National Safety Council, 2005. 178 pp. Tables, index.

"Safety management systems differ from traditional safety programs in many ways," the authors say. "In a traditional safety program, management decides the injury rate is too high, and then the safety director tries different tactics, such as incentive programs or safety committees, to reduce the injury rate. The tactics may or may not be effective.

"In a safety management system, the nine elements necessary for a system to succeed are clearly defined and understood by the management group. A gap analysis is performed, which reveals any deficiencies within the system. Priorities are chosen to close the gaps and responsibilities and accountabilities are spread throughout the management structure. The organization evaluates the effectiveness of the new efforts, building on successes and learning from failures."

A safety management system thus differs from typical *ad hoc* safety measures. According to Czerniak and Ostrander, it is organized, structured and involves management in a visible way. The basic components are administrative and management elements, operational and technical elements, and cultural and behavioral elements.




Each of the nine elements is discussed in its own chapter, and sub-elements are called out in the margins (e.g., "Element 6.3: Management must determine the scope and nature of the organization's occupational safety program and allocate resources to provide appropriate services").

In the aviation industry, the book will be most useful for developing safety management systems to counteract workplace hazards in shop floor settings such as maintenance hangars. Some of its principles, however, may be applicable to operations as well.

## REPORTS

### A Milestone of Aeromedical Research Contributions to Civil Aviation Safety: The 1000th Report in the CARI/OAM Series

Collins, William E.; Wade, Katherine. U.S. Federal Aviation Administration (FAA) Office of Aerospace Medicine (OAM). DOT/FAA/AM-05/3. Final report. March 2005. 109 pp. Figures, photographs, appendixes. Available via the Internet at <www.faa.gov/library/reports> or through the National Technical Information Service.*

This 1,000th published report from the FAA aeromedical research center, established as the Civil Aeromedical Research Institute (CARI) in 1960 and now the Civil Aerospace Medical Institute (CAMI), offers a retrospective view of the organization's history and accomplishments in fields such as protection and survival; emergency evacuation; accident toxicology; radiation; spatial disorientation; and stress.

Theme-related sections describe the research areas and cite some of the people who contributed to CARI/CAMI's accomplishments. The report concludes with a number of "historical vignettes," reprints of articles published earlier

in cumulative indexes of CARI/OAM publications, looking back at the organization's development. The author or co-author of several of these is Stanley R. Mohler, M.D., director of CARI from 1961 to 1965 and a longtime contributor to the FSF publication *Human Factors & Aviation Medicine*.

Photographs — including a two-page center spread in color — illustrate CARI/CAMI's activities and experiments designed to enhance knowledge. The cast of characters in the photographs includes many anthropomorphic test dummies, including Oscar and Elmer, the first — in 1949 and 1950, respectively — and Sierra Suzie, a female dummy shown having her hair made up.


## Reexamination of Color Vision Standards, Part II. A Computational Method to Assess the Effect of Color Deficiencies in Using ATC Displays

Xing, Jing; Schroeder, David J. U.S. Federal Aviation Administration (FAA) Office of Aerospace Medicine. DOT/FAA/AM-06/6. Final report. March 2006. 18 pp. Figure, tables, annex, references. Available via the Internet at <www.faa.gov/library/reports> or through the National Technical Information Service.*

Part I of the report (*Aviation Safety World*, July 2006, page 63) described study findings that showed that colors are used more widely than ever in air traffic control displays. Part II examines how people with color vision deficiencies — 8 to 10 percent of males but few females — perceive colors, and how that affects their interaction with color displays.

Using a computational algorithm that simulates how color deficient individuals perceive color, the researchers were able to calculate the effects of color deficiency on three kinds of tasks involved in a controller's work: attention — noticing a target; identification — distinguishing one target from another; and segmentation — visually and mentally organizing a complex scene into meaningful patterns. They performed the same type of analysis on the readability of text. Finally, they tested the ability of redundant cues such as flashing, brightness and size to compensate for color deficiency.


The result was a series of tables that show at a glance the effects of varied color coding on color deficient controllers. The researchers caution that, while the tables may be useful in a general way, they are not precise. For one thing, they do not recognize degrees of color vision deficiency; for another, controllers might use color-coded information more efficiently in the laboratory than in an operational setting (fewer tasks, less fatigue) or more efficiently in an actual work situation (because of experience and familiarity).

The report also notes that certain combinations of colors are not effective even for those with normal color vision. Red text, often used for emergency alerts, actually appears dimmer than many other colors and does not draw the attention that was intended.

### WEB SITES

## The Civil Aviation Authority of Singapore (CAAS), <www.caas.gov.sg>

The mission of the Civil Aviation Authority of Singapore (CAAS) is "to provide the highest standard in safety, quality and service in civil aviation and airport operations," the CAAS Web site home page says. This is accomplished, in part, through its rules and regulations, guidelines and manuals. These are available in full text on line.

Of particular note is the handbook "Rules and Regulations for Airside Drivers," 13th edition, 2006. The handbook addresses safety rules for the airside, airside markings and safety signage, radio telephony procedures, vehicle requirements, and passenger loading bridge operations. Text is based on CAAS rules and regulations, specific International Civil Aviation Organization (ICAO) documents and annexes, and Airports Council International materials.

This 71-page guidance document contains color illustrations, diagrams, photographs, definitions, tables and figures. The handbook is located in the "Regulations and Guidelines" section of the Web site. While the information presented in the handbook is specific to Singapore airports and CAAS operations, much could be applied in other settings.

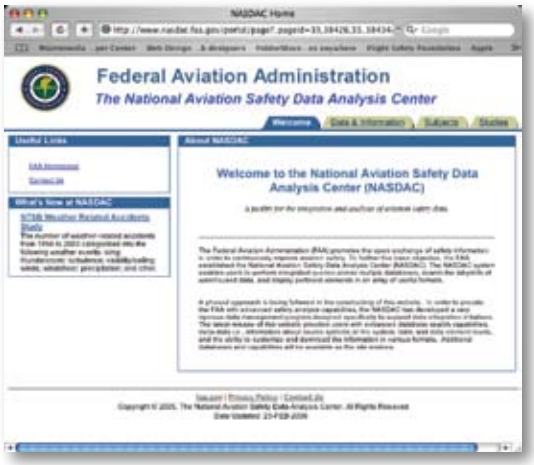
### U.S. Federal Aviation Administration (FAA) NASDAC, <www.faa.gov/safety/data_statistics/nasdac>

The U.S. National Aviation Safety Data Analysis Center (NASDAC) Web site is a collection of databases provided by FAA, which says that its NASDAC system allows for an open exchange of safety information.

The NASDAC collection is data rich. The site is organized into eight databases:

- The Air Registry contains records for civil aircraft registered in the United States;
- The Aviation Safety Reporting System (ASRS) contains anonymous reports of unsafe occurrences and hazardous situations;
- The Bureau of Transportation Statistics database provides reports of activity statistics on individual airlines for a six-year period, 1995–2000;
- The Near Midair Collision System records are subjective, based on reporters' perspectives, and have been investigated by FAA inspectors;
- The U.S. National Transportation Safety Board (NTSB) Aviation Accident and Incident Data System includes reports of events from 1983 to the present. Data are presented in report format with electronic links to full reports at the NTSB Web site;
- The FAA Accident/Incident Data System contains records of incidents for all categories of civil aviation. Accident data are derived from the NTSB Aviation Accident and Incident Data System;
- The NTSB Safety Recommendations to the FAA with FAA Responses database includes records from 1963 to the present; and,
- The World Aircraft Accident Summary (WAAS) is described as "[providing] brief details of all known major operational accidents involving air carriers operating jet and turboprop aircraft and helicopters and the larger piston-engined types worldwide."

Several special reports are also available at this Web site.




## REGULATORY MATERIALS

### Construction or Establishment of Landfills Near Public Airports

U.S. Federal Aviation Administration (FAA) Advisory Circular (AC) 150/5200-34A. Jan. 26, 2006. 7 pp. Appendix. Available from FAA via the Internet at <www.airweb.faa.gov>.

### Visual Guidance Lighting Equipment Approval Program

U.S. Federal Aviation Administration (FAA) Advisory Circular (AC) 150/5345-57, March 7, 2006. 15 pp. Figure, appendixes. Available from FAA via the Internet at <www.airweb.faa.gov>. ●

#### Source

* National Technical Information Service
5285 Port Royal Road
Springfield, VA 22161 USA
Internet: <www.ntis.gov>

Books, reports and regulatory materials in InfoScan are available to FSF members on site in the Jerry Lederer Aviation Safety Library <www.flightsafety.org/library.html>.

*— Rick Darby and Patricia Setze*