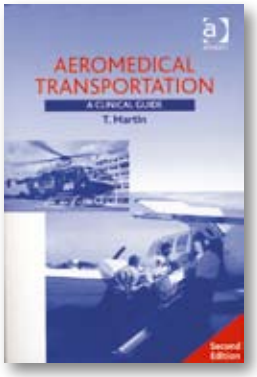
Critical Care

A primer for aeromedical crewmembers.



BOOKS

Aeromedical Transportation: A Clinical Guide

Martin, T. Aldershot, England, and Burlington, Vermont, U.S.: Ashgate, 2006. Second edition. 312 pp. Figures, tables, glossary, references, index.

The preface to the first edition, published in 1996, dispelled the popular notion of aeromedical transportation as "the world of airborne cavalry coming to the rescue … to snatch life from the jaws of death." On the contrary, it said, "aeromedical practice usually comprises hours of tedium waiting for an assignment, interspersed with periods of sheer exhilaration and, just occasionally, moments of absolute terror."

Although on-demand pilots can relate to that definition, the intended readership is not pilots, but "medical, paramedical and nursing personnel, and those working in organizations whose duties include the transportation of the sick and injured by air," the publisher said.

In his preface to the second edition, the author says that much has changed in the decade since the first edition was published: "I could not have predicted the acceleration in interest and enthusiasm that was to take place. These years saw continued growth in aeromedical activities and an upsurge in publications which are starting to bring our specialty in from the cold."

Noting that the first edition has become the text for several aeromedical courses, the author said that the second edition has "more meat to each chapter," as well as two new chapters — one devoted to organizational and clinical issues in the transfer of intensive care patients between hospitals, the other addressing in-flight nursing of patients "within the harsh environment of an aircraft cabin." The author said, "One of my profoundest discoveries in the last decade of teaching was that flight physicians often escort patients alone and yet have little concept of nursing care."

The book is organized in five parts. The first provides a history and an overview of aeromedical transportation. The second discusses flight physics and physiology. The third addresses operational considerations, including equipment and crew composition. The fourth covers clinical considerations, such as the transport of patients with spinal injuries or burns. The fifth part discusses organizational and administrative aspects of aeromedical transportation.

The author said that the book "is intended as a basic primer for those who seek to work in transfer and retrieval medicine." He foresees the next decade as an "exciting time for the academic development of the subject" — one that will see "postgraduates with masters and doctorates in patient transportation."

REPORTS

The Outcome of ATC Message Complexity on Pilot Readback Performance

Prinzo, O. Veronika; Hendrix, Alfred M.; Hendrix, Ruby. U.S. Federal Aviation Administration (FAA) Office of Aerospace Medicine. DOT/FAA/AM-06/25. Final report. November 2006. 36 pp. Figures, tables, references, appendixes. Available via the Internet at <www.faa.gov/library/reports> or from the National Technical Information Service.*

"Field data and laboratory studies conducted in the 1990s reported that the rate of pilot readback errors and communication problems increased as controller transmissions became more complex," the report says. "This resulted in the recommendation that controllers send shorter messages to reduce the memory load imposed on pilots by complex messages."

To find out if the situation has changed, FAA researchers studied 50 hours of pilot/controller communications recorded between October 2003 and February 2004 at five of the busiest approach control facilities in the United States. "This report contains detailed and comprehensive descriptions of routine air traffic control (ATC) communication, pilot readback performance, call sign usage, miscommunications, and the effects of ATC message complexity and message length on pilot readback performance," the FAA said.

Among improvements found by the researchers was an increase from 37 percent to 61 percent in full readbacks that included complete call signs. "Likewise, pilot/controller call sign mismatch has decreased from 0.8 percent to 0.3 percent," the report said.

As in the 1990s research, the study found that pilot readback errors increased as ATC message complexity increased, especially when pilots were conducting approaches as compared with departures.

Nonstandard phraseology continues to play a role in readback errors. For example, the study found a new trend in the use of the word "point" in readbacks of assigned airspeeds and altitudes, as in "two point seven on the speed" instead of "two seven zero knots" and "three point five" instead of "three thousand five hundred."

"To limit the occurrence of communication problems and misunderstandings, controllers should be encouraged to transmit shorter and less complex messages," the report said. "With increases in international travel, areas of concern related to English language proficiency and language production need to be addressed."

Index of International Publications in Aerospace Medicine

Antuñano, Melchor J.; Wade, Katherine. U.S. Federal Aviation Administration (FAA) Office of Aerospace Medicine. DOT/FAA/AM-07/2. Final report, third edition. January 2007. 65 pp. Bibliography. Available via the Internet at <www.faa.gov/library/reports> or from the National Technical Information Service.*

"This manuscript contains a comprehensive listing of international publications in clinical aerospace medicine, operational aerospace medicine, aerospace physiology, environmental medicine/physiology, diving medicine/physiology, [and] aerospace human factors, as well as other important topics directly or indirectly related to aerospace medicine," the FAA says.

The primary objective was to provide information about books that comprehensively cover a general area of interest and serve as tools for structured learning and consultation. "On the other hand, article citations from periodical publications (journals, bulletins and newsletters) were kept to a minimum because their coverage is usually limited to specific issues," the FAA said. "For those colleagues interested in periodical publications, our guide includes a section containing general information on journals, bulletins and newsletters in aerospace medicine and aerospace human factors."

The guide also contains sections on the following:

- Publications in general aerospace medicine;
- Publications in other topics related to aerospace medicine and aerospace human factors;
- Proceedings from scientific meetings, conferences and symposiums in aerospace medicine and psychology; and,

- Online computerized databases containing bibliographic information in aerospace medicine and related disciplines.

"We believe this guide will be useful as a primary source of consultation for bibliographic information, especially to those colleagues who are in their formative years and to those who do not have easy access to computer-aided literature search systems," the FAA said.

REGULATORY MATERIALS

Guidance on the Design, Presentation and Use of Emergency and Abnormal Checklists

U.K. Civil Aviation Authority (CAA) Safety Regulation Group. Civil Aviation Publication (CAP) 676. Issue 3. Aug. 30, 2006. 76 pp. Figures, tables, glossary, references, appendixes. Available via the Internet at <www.caa.co.uk> or from The Stationery Office.**

This is the second revision of CAP 676, which initially was published in 1997 to "improve emergency and abnormal checklist usability in assisting the flight crew to manage and contain system faults and other situations that adversely affect flight safety." The U.K. CAA said that the guidance also is intended to "assist all stakeholders involved in the design, presentation and use of emergency and abnormal checklists to take account of best human factors principles within their processes."

Issue 3 contains improvements to the Checklist Assessment Tool (CHAT), which was developed "to allow regulators, manufacturers and operators to review checklists against these design principles and thus be able to recognize a potentially error-prone checklist," the CAA said, noting that the improvements were suggested by operational experience.

CHAT comprises several questions and comments about the physical characteristics, content, layout and format of the checklist being assessed. For example: "Do all captions and labels used in the drill correspond exactly to the labels used on the flight deck? It is essential that exact correspondence is achieved, and any differences must be corrected." Another example is memory items; the publication advises users to place no more than six memory items at the beginning of the checklist, clearly distinguished from other action items.

The publication also contains information on human performance issues associated with detecting and resolving problems, errors typically made when using checklists, processes for reviewing and revising checklists, and methods of training pilots in their use.

Separate chapters provide guidance for manufacturers, operators, pilots and instructors, as well as recommended checklist design attributes, including physical characteristics, content, layout and format. A list of recommended checklist contents is provided in an appendix. Other appendixes provide examples of incidents involving deficiencies in the design or use of checklists, and examples from actual checklists with comments on their specific strengths and weaknesses.

WEB SITES

La Direction Générale de l'Aviation Civile (DGAC), <www.aviation-civile.gouv.fr/publications.htm>

DGAC, the civil aviation authority of France, offers a number of publications online. In the publications section, readers will find the organization's *Aviation Civile Magazine*, DGAC seminar proceedings, organizational reports, air traffic statistics and reports and studies on aviation and safety issues.

The Web site contents are almost exclusively in French, the exceptions being reports of cabin safety and human factors studies in English. Documents are full-text and can be read, printed and downloaded at no charge.

Airport Fire — ARFF — Around the World, <www.airportfire.com/>

There are many sites on the Internet that offer resources, information, photographs and discussion about different aspects of aircraft rescue and fire fighting (ARFF). This Web site contains information about fire service organizations worldwide and their respective Internet sites. Information links are categorized by global regions, and within regions by countries and airports. Individual airport sites contain various amounts of information describing local ARFF services and equipment.

Fire and emergency services training programs, primarily U.S.-based, and course descriptions are listed. In the manufacturers category, there are lists (and links to) commercial sites. Most linking Web sites have colorful photographs of equipment, training and fire-related activities.

The Amsterdam (Netherlands) Airport Schiphol site offers six of its ARFF training films free online. Also free online are several aviation disaster movies from the National Geographic Channel.

Investigation Process Research Resources (IPRR), <www.iprr.org>

The IPRR Web site describes itself as "a pro bono site with hundreds of resources for … investigators." The site originated with several members of the International Society of Air Safety Investigators in 1996. While resources are not exclusively aviation, aviation is well represented.

Recognizing that the site is designed for investigators, there is information for safety professionals and others with an interest in safety and investigation. Among the resources are:

- A collection of accident and incident investigation manuals (e.g., International Civil Aviation Organization Annex 13) and guides, such as "Air Traffic Services: Guidance Notes for Investigators";
- A section on codes, standards and regulations relevant to accident investigation and investigators;
- Reports and monographs about quality control of investigation processes; and,
- A library of professional papers with downloadable full-text and audiovisual presentations.

IPRR also provides forums and discussion groups about accident investigation research processes and analysis. ●

Sources

* National Technical Information Service
5385 Port Royal Road
Springfield, VA 22161 U.S.A.
Internet: <www.ntis.gov>.

** The Stationery Office
PO Box 29, Norwich NR3 1GN United Kingdom
Internet: <www.tso.co.uk/bookshop>.
E-mail: <book.orders@tso.co.uk>.

— Patricia Setze and Mark Lacagnina