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<p>The medical literature is reviewed and descriptions given for various forms of filing systems useful in cataloging and filing medical reprints. The discussion mentions the use of direct and indirect access systems, the marginal punch-sort index, the card catalog index, and the computer-generated index. Coordinated and uncoordinated systems are described. The author gives the characteristics of a "good" filing system and recommends one for use, using a modified form of the American Board of Preventive Medicine topic list used in board certifying examinations.</p>					
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A FILING SYSTEM FOR AEROSPACE MEDICINE REPRINTS

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## A FILING SYSTEM FOR AEROSPACE MEDICINE REPRINTS

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Did you know that Index Medicus lists more than 4,000 journals and catalogs 250,000 new articles each year? A community hospital library usually has over 300 medical journals in its files, and medical centers average over 1,500 separate journals for reading, filing, and forgetting (1). Most practitioners certainly don't know this, but know that there is too much regularly published information for any single group or business to monitor. How much is related to aerospace medicine is anybody's guess.

In the author's opinion, a good organization of medical information is the single most important requirement for remembering it. Likewise, a systematic organization for saving reprints is most important in retrieving the information when one can't remember it. This author shudders to think about all the information that he has read and used but did not systematically save.

The emergency medicine discipline is characterized by wide disparity of diseases, patients, procedures, and concepts. Thus, a letter by Dailey (2) to the editor of the Journal of the American College of Emergency Physicians was a brilliant light in the dark abyss of this author's organization of emergency medicine literature. Dailey merely elaborated and revised his reprint filing system which he had published in the same journal earlier (3).

What are the characteristics of a good reprint filing system? Tyznik (1) lists four: terminology should be consistent and unambiguous; potential for

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This paper represents the views of the author and does not necessarily reflect the official opinion of the United States Department of the Air Force.

expansion and subcategorization should be unlimited; retrieval and refiling should be rapid; and the system should be simple and inexpensive. St. Clair (4) adds that a system should be adaptable to include new interests; should require little paperwork to maintain; and should be easy to weed. (Note: This author's emergency medicine filing system has not been adaptable to aerospace medicine.)

## THE SYSTEM

There are as many systems designed to fulfill the above requirements as there are individuals to use them. However, DeBell and Costello (5), a medical librarian and a nurse, categorize all systems into three basics: random, indirect, and direct access. Random access systems include alphabetically filed or subject-filed reprints. Retrieval is based on memory. It is easy to start, but inefficient to retrieve. An indirect index is one in which one topic could be filed alphabetically by author, title, or chronologically, necessitating multiple locations. The indirect access system includes three major forms: marginal punch-sort index, the card catalog index, and a computer-generated index. The direct access index uses one term and only one term for one concept; thus, all reprints on one topic will be at one location. DeBell and Costello recommend the use of a direct access system because of its simplicity, expandability, and ease of starting and use. Alarcon (6), on the other hand, feels that any system that files a subject under only one heading is limited. In order to decide under just which heading one files an article, one is forced to make an arbitrary decision. He classifies filing systems using only one heading (whether alphabetic, chronologic, or topical) as "uncoordinated." Conversely, those systems in which each reference is entered under two or more headings are "coordinated." McMicken (7) outlines a classic example of an uncoordinated system, while Pearson (8) describes a coordinated one.



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## THE INDEX

The whole system depends on the index. The index creation is critical. In an extensive review of the literature on the subject of creating a filing system, only three forms of index were revealed. Those using 'subject' were most prevalent; those using 'authors' were mentioned; and Alarcon described in detail a system using 'key words.' The creator of his/her own system must choose. This author's recommendation follows later.

## THE ORGANIZATION

The organization of the index is the most important part of any system. Creager (9) and others have described indexes based on numeric or alphabetic organization. These seem to be simple and totally expandable. Fuller (10) describes one of the earliest systems used. It belonged to Dr. Maxwell Wintrobe and included over 1,500 topics (11). A reference card form of index has been mentioned as well by Pearson and others. Creager queried directors of family practice residencies and got a measure of popularity of the three organizations mentioned in the preceding paragraph. Of the 304 respondents, 47% used alphabetical organization in their medical filing systems, while 51% used numeric organization. The remaining 2% used reference cards. A chronological organization could also be used, but would be limited by the user's memory.

## THE SUBJECT

When dealing with a subject form of index, the author ran into a wall of ignorance. There seemed to be as many ways to classify subjects as there are people. A table of contents of a textbook has been recommended by Gaeke, Debell, and Singer (12). It is relatively comprehensive and inclusive; it is expandable; and, importantly, it is available. If one needs to decide where to

file an article that doesn't apparently fit, all one needs to do is look in the index of the book for the subject and find in which chapter it is included (thus identifying the subject in one's file in which to include it).

Slocum (13) and Rakel (14) had a unique approach. They recommended using a billing code approach for family practice subjects, The International Classification of Health Problems in Primary Care.

Not previously mentioned, but certainly authoritative, would be the use of a subject list published by an American board certifying agency. In fact, the American Board of Preventive Medicine (ABPM) publishes a list of topics (shown at the end of this article) that may be covered for aerospace medicine on their certifying exam. This list, published in March 1986, is inclusive, expandable and well organized.

One glaring deficiency in most systems, particularly those using textbooks, is the absence of administrative subjects, attested to by this author's use of Dailey's filing system. Most day-to-day retrieval dealt with Dailey's section covering administration. This section included continuing medical education, community facilities and resources, regulations from all sources, and concepts. These subject areas did not integrate into textbook subjects very well, yet all were essential to practice. Many administrative subjects are included in the ABPM list.

#### THE PROPOSAL

One must decide first which of the many ways he/she wants to combine all of the data. One may choose a system using a computer, using index cards, or even using a scrapbook, as proposed by Longmore (15). A paper filing system, whose index could easily be computerized, is best, in this author's opinion. It is "uncoordinated" in Alarcon's sense, and "direct" in DeBell and Costello's sense.

Fawcett (16) advises the following: "First, recognize the fact that your personal filing system will never be current. Second, define your criteria for including items in the file." This is pretty open-ended, for this author tends to collect all the articles out of Aviation, Space, and Environmental Medicine even if they hold no current interest. In order to file the articles, the abstract must be read or the article must be skimmed for content. The article is then available for some colleague when needed for information or bibliographical data.

Fawcett's advice continues, "Third, define your criteria for removing papers from the file." This was required in order to separate the aerospace and environmental subjects from the emergency medicine file. "Fourth, attempt to establish the physical system that will be fastest to maintain." In other words, computers versus papers, versus cards, etc. Finally, "...employ a standardized set of headings and apply basic indexing principles."

Keeping these principles and steps in mind, the Aerospace Medicine Reprint Index provided at the end of this article was developed. The ABPM content areas were used primarily, with an expanded administrative section patterned after Dailey's emergency medicine administration. Next, Congdon's (17) steps were taken to heart using labels on folders, which allowed for easy reference. Hanging file folders of the 1/3-cut type (which are made by several companies, including Sparco and Pendaflex) were used for the section dividers because they are strong and hold reprints without sliding under dividers or flopping large piles of files back and forth in the file drawer.

A numeric organization was used because that is the way this author thinks and organizes. This system meets all the characteristics required. Terminology is consistent; expansion and subcategorization are unlimited; retrieval and

refiling are rapid; it obeys the "KISS" principle (Keep It Simple, Stupid); it is adaptable to new interests in aerospace medicine; it requires little paper-work to maintain; and it will be easy to weed.

A final word about this reprint system. This author reads through the journals and rips out all aerospace medicine-related articles. (This is not encouraged if it isn't your own journal.) If the start of one article is on the back of another, one of the pages can be photocopied. Then the whole article can be stapled together. After completely going through the journal(s) at one sitting, the index is used to label the upper right corner of the first page of each article with the section, subject, and subcategory, if needed. Then the articles may be set aside for reading at a later time. If the reader is in the teaching business, he/she may want to stamp the article's front page with their name also at this point. After the article has been read, or the abstract has been read and it has been determined that the article is not of interest to the reader, it can either be tossed into the 'file' box for a secretary to easily file, or the reader may file it himself. (This author doesn't permit anyone else into his files!) Though misfiling or catastrophic dumping of the files could be corrected by anyone with a copy of the index, the risk of having to go through the tedium of refiling is too great. The reader also might note that computerizing the index and using an alphanumeric search for the specific article would be easily achievable. The author may try this in the future if the file becomes so extensive that manual searching becomes laborious.

This system may not work for everyone. Please try it, improve on it, and let the author know your results. Good luck and happy filing!



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**AEROSPACE MEDICINE - 1986**  
**ABPM CONTENT AREAS**

These topics are those that may be covered by a given examination.  
The topics will be updated from time to time.

**History of Aerospace Medicine**

**Basic Science**

Anatomy  
Pathology  
Pharmacology  
Biophysical Chemistry  
Physiology  
Physics

**Applied Preventive Medicine**

Environmental Health  
Crew Health Maintenance  
Air Carrier Public Health  
    Sanitation and Hygiene  
    International Travel  
Occupational Medicine  
Toxicology

**Biomedical Engineering**

Human Factors in Design  
Instrumentation  
Acceleration  
Vibration  
Impact  
Escape from Aircraft  
Survival in Extreme Environments  
Bioacoustics  
Radiation

**Applied Physiology**

**Cardiopulmonary Physiology**

    Respiration  
    Circulation  
    Hypoxia  
Pressure Changes  
    Decompression  
    Barotrauma  
Protection  
    Cabin Pressurization  
    Pressure Suits  
    Oxygen Equipment  
Spatial Orientation  
Visual Aspects of Flight  
Null Gravity Fields

**Operational Aerospace Medicine**

**Standards and Evaluation**

    Military  
    Civil  
Patient Transportation  
Aircraft Accident Control  
    Investigation  
    Identification  
Forensic Pathology  
Airport Disaster Management

**Clinical Aerospace Medicine**

Otorhinolaryngology  
Ophthalmology  
Neurology  
Psychiatry  
Internal Medicine  
    Cardiovascular  
    Respiratory  
    Gastro-intestinal  
    Musculo-skeletal  
    Metabolic and Degenerative  
Hyperbaric Medicine  
Space Medicine  
Miscellaneous

**Administrative**

Legislation and Regulation  
Organization

## AEROSPACE MEDICINE REPRINT INDEX

- I. HISTORY OF AEROSPACE MEDICINE
- II. BASIC SCIENCE
  - A. Anatomy
  - B. Pathology
  - C. Pharmacology
  - D. Biophysical Chemistry
  - E. Physiology
  - F. Physics
- III. APPLIED PREVENTIVE MEDICINE
  - A. Environmental Health
  - B. Crew Health Maintenance
  - C. Air Carrier Public Health
    - 1. Sanitation and Hygiene
    - 2. International Travel
    - 3. Immunization
  - D. Occupational Medicine
  - E. Toxicology
- IV. BIOMEDICAL ENGINEERING
  - A. Human Factors in Design
  - B. Instrumentation
  - C. Acceleration
  - D. Vibration
  - E. Impact
  - F. Escape from Aircraft
  - G. Survival in Extreme Environments
    - 1. Hypothermia
    - 2. Hyperthermia
    - 3. Jungle
    - 4. Sea
    - 5. Arctic
  - H. Bioacoustics
  - I. Radiation
- V. APPLIED PHYSIOLOGY
  - A. Cardiopulmonary Physiology
    - 1. Respiration
    - 2. Circulation
    - 3. Hypoxia
  - B. Pressure Changes
    - 1. Decompression
    - 2. Barotrauma
  - C. Protection
    - 1. Cabin Pressurization
    - 2. Pressure suits
    - 3. Oxygen Equipment
  - D. Spatial Orientation
  - E. Visual Aspects of Flight
  - F. Null Gravity Fields
- VI. OPERATIONAL AEROSPACE MEDICINE
  - A. Standards and Evaluation
    - 1. Military
      - a. Army
      - b. Air Force
      - c. Navy
    - 2. Civilian
  - B. Patient Transportation
  - C. Aircraft Accident Control
    - 1. Investigation
    - 2. Identification
    - 3. Forensic Pathology
    - 4. Airport Disaster Management
- VII. CLINICAL AEROSPACE MEDICINE
  - A. Otorhinolaryngology
  - B. Ophthalmology
  - C. Neurology
  - D. Psychiatry
  - E. Internal Medicine
    - 1. Cardiovascular
    - 2. Respiratory
    - 3. Gastrointestinal
    - 4. Musculoskeletal
    - 5. Metabolic and Degenerative
- VIII. ADMINISTRATIVE
  - A. Legislation and Regulation
  - B. Organization
    - 1. Staffing
    - 2. Funding and Grants
    - 3. Budgeting
    - 4. Facility Design
    - 5. Equipment Design
  - C. Education and Training
    - 1. Continuing Education
    - 2. Residency
    - 3. Other Health Professions
  - D. Concepts and Systems
  - E. Community
    - 1. Committees
    - 2. Aerospace Professional Organizations