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13. ABSTRACT (Maximum 200 words) <p>The midterm report focuses only upon the research activity of this contract. Analytical support is the primary research activity, which consists of two areas: responding to data analysis requests and publications. Data analysis requests are mostly generated by researchers and scientists within USAARL (U.S. Army Aeromedical Research Laboratory). There have been 60 formal data analysis requests since the beginning of this contract and five publications by the Principal Investigator, Dr. Schrimsher, in conjunction with other USAARL investigators. One of the publications was in open literature, while the remaining were technical reports. The publications mainly were centered on Army aviator visual/refractive error concerns and Aviation Epidemiology Data Register (AEDR) monograms, which provide descriptive statistics of selected variables from an aviator's annual class 2 or 2A Flying Duty Medical Examination (FDME) for the applicable years.</p>

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FOREWORD

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() In conducting research using animals, the investigator(s) adhered to the "Guide for the Care and Use of Laboratory Animals," prepared by the Committee on Care and Use of Laboratory Animals of the Institute of Laboratory Animal Resources, National Research Council (NIH Publication No. 86-23, Revised 1985).

() For the protection of human subjects, the investigator(s) have adhered to policies of applicable Federal Law 32 CFR 219 and 45 CFR 46.

() In conducting research utilizing recombinant DNA technology, the investigator(s) adhered to current guidelines promulgated by the National Institutes of Health.

Robert M. Schimshak
PI Signature

10 March 1994
Date

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INTRODUCTION

The Aviation Epidemiology Data Register (AEDR) Contract No. DAMD17-92-C-2062 began 1 March 1992 and, for a few exceptions within the statement of work, is a continuation of a previous contract. The two fundamental objectives of this contract are: data entry of all Flying Duty Medical Examinations (FDME); and analytical support and research data retrieval for clinical assessment purposes. Since the purpose of the midterm report is to reflect research activities, only the data retrieval and analytical efforts will be addressed.

The focus of the analytical support portion of this contract is basically unspecified. That is, there is no specific research designated within the statement of work except that the data analyst responds to any approved data analysis requested. However, publishable scientific reports and journal articles are expected on data trends of military interest.

Generally, most requests for data analysis are descriptive in nature. Since the whole aviation population is within the data structure, it is normally not necessary for any inferential statistics. Since 1988, FDMEs have been coded via the ICD9 standards (International Classification of Diseases, Clinical Modification, 9th Revision). Most of the data analysis requests are directed at finding selected ICD9 codes stratified by age, gender, FDME status, type of FDME, etc.

ANALYTICAL SUPPORT

For the purposes of this report, analytical support will be addressed in two areas: data analysis requests and publications.

Data Analysis Requests

Data analysis requests are mostly generated by researchers and scientists within USAARL (U.S. Army Aeromedical Research Laboratory). Occasionally requests come from other Army agencies or individuals; however, under the current approval system, all requests must be approved by the COR (Contracting Officer Representative). Since the beginning of the contract, there have been 60 formal data analysis requests. Action on all requests is initiated immediately with completion averaging from 1 to 2 days. If changes were made to the original request or if the request was very complex, 3 to 4 days may be required for completion. Changes to the original request are usually the norm, and most changes are for authentic reasons. Moreover, changes to original requests are not counted as a separate data request.

Data requests are not limited solely to the AEDR. Another data base is often queried which is commonly referred to as the waiver/suspense file. It basically contains medical information related to granting or not granting medical waivers for the aircrew member.

It would be impractical for each request to be discussed. More than half of the requests involve searching for selected ICD9 codes. Examples of code searches are: history of drugs and alcoholism, cholesterol, cardiac conditions, cancer, medications, etc. Vision related problems, wearing of glasses/contact lenses and refractive data are also frequent areas of requests. Civilian pilots and their related medical complications pertaining to waivers is another area that is often queried. Some requests are generated by medical flight surgeon students for class research projects.

Publications

Since the beginning of this contract, five publications have been completed by the Principal Investigator, Dr. Schrimsher, in conjunction with other USAARL investigators. One of the publications was in open literature, while the remaining were technical reports. Listed below are the cited publications followed by the abstracts.

Lattimore, Morris and Schrimsher, Robert H. "Refractive Error Distribution and Incidence Among U.S. Army Aviators." Military Medicine. Vol 158. No. 8. Aug 93.

Spectacle incompatibility has been a major problem in the fielding of advanced Army avionic and electro-optical systems. As a result, routine contact lens wear may be instituted as an option to spectacles. Refractive error data were extracted from the Aviation Epidemiological Data Registry, a computer-accessible repository of flight physical medical information on the entire Army aviation population. Refractive error distribution patterns in the class 1 and class 2 flight physical populations were analyzed in order to provide a contact lens supply reference database, estimate the annual incidence of refractive error development, and estimate costs of possible spectacle-wearer flight-duty deselection. Contact lens wear appears to be a more cost-effective alternative than deselection.

Mason, Kevin T., Samuel G. Shannon and Robert H. Schrimsher. U.S. Army Aviation Epidemiology Data Register: Prevalence of Refractive Error Among U.S. Aircrew Members. Fort Rucker, AL: U.S. Army Aeromedical Research Laboratory, Report 93-24.

The U.S. Army aviation branch is making final funding and planning decisions on the fielding of a contact lens program for Army aircrew members. This report stratifies the prevalence of refractive error by aviation duty position, service component, and rank. There is an increasing prevalence of refractive error in the higher ranking aircrew members, paralleling increasing age with rank promotion. Comparing service components, the prevalence is higher in the reserve component and civilian forces than active duty forces. Within the aviator service component cohorts, there has been a significant upward trend in the annual period prevalence of refractive error from 1988 through 1992, especially in the Army Reserve and National Guard cohorts. This upward trend may be related to the observed upward trend in the average age of Army aircrew members as a group from 1986 through 1990.

The purpose, format, design, and variables of the following monogram publications are the same. The only differences are the dates of the data, i.e., the monogram for CY 1992 pertains to aviator data for only that particular year. The following abstract is applicable for each report except for the calendar year (CY) that the data pertains.

Schrimsher, Robert H. and Shannon, Sam. Monogram of the Aviation Epidemiology Data Register for CY 1988. Fort Rucker, AL: U.S. Army Aeromedical Research Laboratory, Report 93-33.

Schrimsher, Robert H. and Shannon, Sam. Monogram of the Aviation Epidemiology Data Register for CY 1991. Fort Rucker, AL: U.S. Army Aeromedical Research Laboratory, Report 93-12.

Schrimsher, Robert H. and Shannon, Sam. Monogram of the Aviation Epidemiology Data Register for CY 1992. Fort Rucker, AL: U.S. Army Aeromedical Research Laboratory, Report 93-35.

The purpose of these monograms was to provide descriptive statistics within the Aviation Epidemiology Data Register (AEDR) of selected variables from an aviator's annual class 2 or 2A Flying Duty Medical Examination (FDME) for the applicable years. Only aviators from a major Army component were considered, active duty, reserve, or National Guard. Little discussion is provided for each table so as to encourage comparisons with other monograms.

CONCLUSIONS

The AEDR is a remarkably viable research instrument. Without this data base, some medical information would have likely taken months, if not years, just to get a respectable sample to make an inference about the aviation population. Spectacle wearers and refractive information are good examples. We now know spectacle trends among the major components, even within selected age intervals, which is extremely important to logistical planners and costing estimates.

Even though the AEDR is considered a "well" data base, i.e., most individuals within are very healthy because aviation personnel must remain healthy to stay on flight status, it is the Principal Investigator's opinion that the AEDR is still under utilized by medical researchers and the Army. Promulgating its existence and capabilities would certainly enhance utilization.

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