

R. G. Sanger,<sup>1</sup> D.D.S, M.S.Ed. and G. A. Wilson,<sup>2</sup> D.D.S.

## Survey of North American Air Carriers Regarding Protocol for Dental Identification of In-Flight Personnel

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**ABSTRACT:** A survey of North American air carriers regarding the protocol for dental identification of their in-flight personnel in the event of a disaster was accomplished in July 1980. Initial evaluation of this survey indicates that few air carriers have such a protocol or forensic odontology consultants. Many of the air carriers indicated the need for the development and implementation of such a protocol individualized for their company. Statistical evaluation of the survey is presented with discussion centered on the role of the forensic odontologist consulting with respective air carriers in establishing such protocols. The survey documents areas of need in such protocols.

**KEYWORDS:** odontology, human identification

Forensic odontology continues to expand its parameters in the area of the identification of bodies [1,2]. This fact is evidenced by the high statistical rates of identifications of bodies solely by dental records in mass disasters within the past two decades [3,4]. Use of computer technology will probably increase this statistical rate and decrease labor output [5-8]. Since a large segment of the population, however, still does not seek dental care, identification of bodies in mass disasters even with sophisticated computer technology in forensic odontology will remain less than comprehensive.

Since most mass disasters involve aircraft crashes, those individuals having in-flight occupations are at higher risk than the general population for an aircraft-related fatality. In 1980, a survey was completed by the University of Colorado Health Sciences Center School of Dentistry of North American air carriers regarding their protocol for dental identification of all in-flight personnel.

### Method

In July 1980 a survey questionnaire was mailed to the 132 certified air carriers listed in the 1 July 1980 *Official Airline Guide, North American Edition* [9]. A cover letter was enclosed with the questionnaire instructing the official of the air carrier as to the purpose of the

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<sup>1</sup>Associate professor of pediatric dentistry and medicine and forensic odontologist, University of Colorado Health Sciences Center School of Dentistry, Denver, CO.

<sup>2</sup>Director of dental education and forensic odontologist, St. Joseph Hospital, Denver, CO.

survey, completion of questionnaire, return of data requested, and availability of data collection and analysis. The survey contained eight major questions designed to elicit a "yes" or "no" response. Further explanation was encouraged where appropriate with comments being elicited in an open-ended format. The questionnaires were analyzed after they were returned. Follow-up verbal or written communication with air carrier officials was accomplished where necessary for clarification. The survey questionnaire is not duplicated in this article but is available from the senior author upon request.

## Results

Of the 132 survey questionnaires mailed, 43 (32%) were returned completed. The answers to the eight questions are as follows:

### I. Required physical examination of in-flight personnel as a condition of employment

All 43 (100%) answered in the affirmative because physical examinations are a requirement of the Federal Aviation Administration (FAA). Many variables were identified for repeating this physical examination according to in-flight crew status. Flight attendants often are required to have a physical examination only before employment and on return from leave of absence.

### II. Required dental examination with radiographs and records of in-flight personnel as a condition of employment

Only four (10%) answered in the affirmative, with one having dental examination on a voluntary basis. Of the four, only one retains the original radiographs or duplicates of them in its files. The one that has this examination on a voluntary basis also retains an original or duplicate of the radiographs in its files. This information is updated by only two of the four, with a range of every two years for one air carrier to every ten years for the other.

### III. Maintained on file the dentist of record and location of dental records for in-flight personnel

Only nine (20%) answered in the affirmative. Updating was again variable with some requiring these data only at the time of initial employment and others requiring updating on a discretionary or specific basis. Only one required annual updating of this information.

### IV. Existence of a protocol for identification of the bodies of in-flight personnel in the event of disaster

Only 13 (30%) answered in the affirmative and one did not respond.

### V. Maintained on file personal information of in-flight personnel helpful for identification of the body

Twenty-four (55%) answered in the affirmative and one did not respond.

### VI. Consider the inclusion of appropriate and adequate dental information in the files of in-flight personnel for identification of a body

Twenty-five (56%) answered in the affirmative and two did not respond. Of the 25, 16 (37%) would consider updating the information in conjunction with their requirements for physical examinations. However, 7 did not respond on updating this information. The 17 (40%) who replied in the negative were asked to explain their answer. Their responses, in descending order of frequency, were these: (1) perceived no need for it, (2) did not offer dental services in employee health clinics, (3) did not want to concern employees, (4) never thought about it, (5) did not cover dental services as part of employee health benefits, (6) did not want to impose this expense on employee, and (7) encountered resistance from employee groups.

### VII. Wish to receive information concerning the use of dental records in the identification of human remains

Twenty-eight (65%) answered in the affirmative and only two did not respond.

VIII. Dentist as a consultant to the personnel or employee health department  
Only 6 (14%) answered in the affirmative.

### Discussion

Although the overall return of completed questionnaires was poor (32%), most of the large air carriers operating in North America participated in this study. Therefore, the results may indicate industry-wide policy and opinions.

All air carriers surveyed conform with FAA requirements for physical examination as a condition for employment of in-flight personnel. Repetition of this physical examination was again based on FAA requirements for licensed captains and flight officers. Flight attendants, however, who compose the majority of in-flight personnel, are often not required to repeat the physical examination unless returning from leave of absence.

Although only four (10%) of the air carriers surveyed require dental examination with radiographs and records of in-flight personnel as a condition for employment and one other suggests such examination on a voluntary basis, four of the five are major air carriers. Only one of the four having this requirement, however, retains the original or duplicate in its files; the air carrier having the examination on a voluntary basis also retains this information. Only two of the four update this information. If the intent of the air carriers requiring dental examinations with radiographs and records of their in-flight personnel is to either assess dental health or possess information capable of assisting in identification of bodies, more frequent updating seems indicated. However, only one air carrier has an acceptable updating of this information, requiring such every two years for all in-flight personnel.

More air carriers surveyed (20%) do maintain on file the dentist of record and the location of dental records for in-flight personnel. If the intention of this program is to assist in identification of a body, mandatory updating of this information would seem logical for in-flight personnel who are frequently transferred. Only one air carrier, however, requires periodic updating of this information; updating is done annually, which appears acceptable.

Less than one third (30%) of air carriers surveyed have a protocol for identification of the bodies of in-flight personnel in the event of disaster and fatality. Over one half (55%) of air carriers surveyed, however, maintain on file personal information of in-flight personnel helpful for identification of a body, including measurements of the body, identifying features, and unusual body markings. However, since most aircraft disasters involve fires resulting in burned human remains, this information appears to be of doubtful relevance. Over half (56%), however, would consider the inclusion of appropriate and adequate dental information in the files of in-flight personnel. This result may indicate a concern for comprehensive identification in the event of mass disaster involving in-flight personnel. Only 37% of these air carriers, however, would consider an updating system. The reasons given by the 40% of the air carriers surveyed that would not consider including such information were varied and appear to indicate a lack of understanding of the ability of this information to assist in comprehensive identification of bodies in the event of mass disaster. Almost two thirds (65%) of air carriers surveyed, however, would like to receive information concerning the use of dental records in the identification of human remains.

Very few air carriers surveyed (14%) have a dentist as a consultant to their personnel or employee health departments. Comparing this response to the number of air carriers who wish to receive more information on forensic odontology (65%) indicates a need for more dental consultants.

### Comments

What appears to be obvious to many forensic odontologists may not be so to the majority of air carriers. The use of dental records in comprehensive identification of bodies in mass disasters is well accepted and documented in the dental and forensic science literature. The

results of this study indicate such use needs to be advanced in the aviation industry and may be accomplished by individual consultants and educational programs or as an educational function of organized forensic odontology societies.

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Address requests for reprints or additional information to  
Roger G. Sanger, D.D.S., M.S.Ed.  
University of Colorado Health Sciences Center School of Dentistry  
4200 E. Ninth Ave. Box C 284  
Denver, CO 80262