

## Occupational Health Reporting Systems—USA

Todd M. Frazier, ScM, FAPHA

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The three-fold purpose of this paper is to (1) describe the occupational hazard and health effect information systems used by the National Institute for Occupational Safety and Health (NIOSH), (2) highlight the parts of these data systems that are relevant to the topic of this dermatologic disease and chronic trauma workshop, and (3) to note the inadequacies of existing data systems in the United States.

**Key words:** occupation, hazards, health effects, surveillance systems

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### INTRODUCTION

Four types of occupational health data for the U.S. can be generated using available systems. Information on potential chemical, physical, and biological hazards in the workplace is provided by the National Occupational Hazards Survey (NOHS) of the National Institute for Occupational Safety and Health (NIOSH). Occupational health data can be derived from information available from the National Health Interview Survey (HIS) of the National Center for Health Statistics (NCHS), from the disability award files of the Social Security Administration, and from state-maintained death certificates. Each of these approaches provides potentially useful information for surveillance, defined by Alexander Langmuir as the collection of relevant facts, the assembly or analysis of these facts, and the dissemination of findings to people who can use them to make change [Langmuir, 1976]. NIOSH has developed surveillance systems that use Institute data and data from other systems to examine health effects that may be attributable to workplace hazards. However, limitations of these data sources preclude the possibility of answering many of the questions that relate to occupational skin disease.

### INFORMATION SOURCES

Before 1974, there was no existing data system in the United States that provided nationwide information on the types of chemicals to which workers were potentially exposed in the workplace. In the period 1972 to 1974, NIOSH sought to correct this deficiency by conducting NOHS. A probability sample was selected of five thousand

National Institute for Occupational Safety and Health, Robert A. Taft Laboratories, Cincinnati.  
Address reprint requests to Todd M. Frazier, National Institute for Occupational Safety and Health, Robert A. Taft Laboratories, 4676 Columbia Parkway, R-17, Cincinnati, OH 45226.  
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(out of roughly five million) work sites in the U.S. Surveyors were sent to these work sites to do walk-through surveys of workplaces and to record the types of chemicals that were being used and constituted potential workplace hazards. Potential for exposure to physical and biological exposures was also recorded.

With the introduction of new products to manufacturing processes over the past decade, there was justification for repeating this survey. This was done during the period 1981 to 1983. Both the 1972-1974 and 1981-1983 surveys attempted to answer four questions: (1) How many workers are potentially exposed to workplace hazards? (2) What kinds of industries are there in the U.S., and where are they located? (3) What kind of occupations, how many workers, and (in the 1981-1983 survey) how many men and how many women are seen? (4) What are the chemical ingredients of trade name products to which workers are potentially exposed?

One major finding has been that workers are not exposed to labeled chemicals. Ingredients in trade name products are rarely specified on the label. Based on the first survey, the chemical ingredients in roughly 90,000 of these trade name products have been identified. The second survey has provided a list of about 100,000 trade name products whose ingredients have not yet been resolved.

Another source of information about work and health status is found in the Health Interview Survey (HIS) conducted by NCHS. This is an interview survey of household members. HIS is an ongoing, continuous probability sampling of some 40,000 households each year in the United States. One of the problems in using the morbidity data from the HIS survey is that the information on industry and occupation of the interviewee is not as detailed as we would like. NCHS obtains the respondent's "current" occupation or industry, but in occupational health we are often interested in diseases with long latency. Consequently, we are interested in the "usual" occupation rather than current occupation.

A particular problem occurs with older respondents who, in answer to industry and occupation questions, report that they are retired. It is very important for us to be able to assess whether people who have retired from certain types of occupations generate different patterns and amounts of medical care utilization. Another problem with this type of morbidity survey is the high probability for underreporting certain types of dermatologic problems.

Another data source is the Social Security Administration disability award file, which pertains to disabling conditions among the one hundred million workers in this country. This is not a very useful tool for dermatologic problems, but it is useful for looking at the extent to which patterns of disability exhibited by workers from certain types of industries and occupations differ from those of all workers. This gives us some insight into the type of problems that are occurring at different work sites. Sometimes these differences are subtle enough that they are not apparent until they emerge from the analyses of large masses of data.

The final component of our health effects armamentarium is state death certificates files, ie, the U.S. vital record system. Information available from death certificates on industry and occupation varies from one state to another; this interferes with using the mortality file in an aggregate sense. In terms of dermatologic conditions, however, the major limitation of this system is that death is rarely attributable to dermatologic problems.

## **USES OF SURVEILLANCE DATA**

Information from both the hazard and the health effects components of the surveillance system contributed to development of a list of the leading occupational

or work-related diseases and injuries. This list was recently published in the Centers for Disease Control (CDC) Mortality and Morbidity Weekly Report [CDC, 1983]. Information from the hazards and the health effects surveillance systems was used to specify disease rubrics within this list of ten broad diseases. Many of these specific rubrics may become topics for further research.

The recently completed 1981–1983 National Occupational Exposure Survey (NOES) provides a direct link to the topic of this workshop. Recorded in this survey was a description of certain types of processes or activities that might result in chronic trauma. In addition, one of the questions used in the survey asked about hand and wrist movement. This is the type of activity that we might expect to find in micro-soldering and other precise work.

Other parts of the surveillance system can be used for general dermatologic diseases, but they may not contribute to study of conditions caused by chronic trauma. The NOHS has a capability of being linked through computers to the Registry of Toxic Effects of Chemical Substances (RTECS). This registry is a compilation of literature citations. By linking chemicals seen in the workplace during the collection of the NOHS to RTECS data, we can begin to get some idea of the types of health effects that may be expected among workers. If we are looking at a particular subset of toxic effects, we can focus on chemical substances that are, for example, carcinogens, teratogens, or primary irritants. For each subset, we can provide estimates of how many workers are potentially exposed to primary irritants on the job. Thus, if a person works in a certain setting or has a certain occupation, for example, an orderly in a hospital, one can then generate a profile of the types of primary irritants to which this worker is potentially exposed. These lists are used by our colleagues in the Industry-wide Studies Branch and other parts of NIOSH to generate hypotheses. When investigators are preparing for a field trip, such as a hazard evaluation at a work site, they might take a look at this file to see what hazards they might encounter.

Although the surveillance data systems that we have in NIOSH provide much useful information, they are not very useful for study of mechanical causes of skin disorders. This is certainly true for the health interview surveys, disability award files, social security, and mortality statistics. It is not practical to go after these data from these large surveys. The alternative is to use the special studies.

This unrewarding finding brings to mind the symmetry between the inadequacies I have described and an article that appeared in the *New England Journal of Medicine* that included a description of Finagle's law on information [Murnaghan, 1974]: (1) The information you have is not what you want. (2) The information you want is not what you need. (3) The information you need is not what you can obtain.

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## QUESTIONS AND ANSWERS

**Dr. Susten:** A review of your social security disability base estimated that there were ten or so cases of disability due to corns and callouses. I would be interested in whether or not information about their occupations can be obtained.

**Mr. Frazier:** I doubt it. We have not been very successful in getting detailed information from the Social Security Administration [SSA]. When we get down to ten cases, SSA is very wary of disclosure.

**Dr. Susten:** Can you tell those individuals in the room how to obtain the trade name information that you described?

**Mr. Frazier:** There are two ways I'm familiar with, and you may know of others. Number one, some companies are very cooperative. Call the company that manufactures the product, identify yourself as a practicing clinician calling in behalf of a patient, and they will usually give you this information. The other way is to call us. We may run into a trade name or a trade secret problem. But if we do, and if it's a very serious situation, we would try to work it out with you and with the company to get that information.

**Dr. Emmett:** It seems to me that much of the information we seek is not available in time. Much more than 10 or 20 years ago, people in this workshop said that we really need some epidemiologic studies. We dermatologists have an interest in doing the studies, but we do not have access to the patients or to the figures as a rule, except on an individual basis. On the other hand, you have access to the groups, but you do not have any dermatologists, and you really do not have the wherewithal to carry out the types of studies that we would like to do. Do we really have a long-term strategy for addressing this problem?

**Mr. Frazier:** Well, I was taking a very parochial view of the impasse. My concern in NIOSH is with the use of large data systems, and I think, from that viewpoint, we cannot go very far into the particular field, at least with these large surveys. On the other hand, when I say special studies, what I'm talking about is more in line with what you're talking about, wherein the epidemiologists who are doing industry-wide studies might very well be the ones that you would connect with to do a study on a particular segment of industry.

**Dr. Emmett:** Do you have a good mechanism for doing that? I think we're getting somewhere, because we're agreeing on the need. Is there really history of that happening or a good mechanism for organizing that?

**Mr. Frazier:** Well, you're associated with an Educational Resource Center [ERC], aren't you?

**Dr. Emmett:** Yes, I think that's one way, and the telephone is another. You know if you have a hot idea, and/or we have some need to locate a particular group that you might be encountering, we could get to you. I think the ERC is probably the matrix for doing this.

**Dr. Susten:** I'm involved in trying to put together some of the strategies for research in dermatology, and I would welcome any suggestion you have on that. Any kind of coordination efforts would be appreciated.

**Dr. Taylor:** What percentage of the trade name information that you have is currently proprietary? When I checked on it from the NOHS data in the past, it was, as I recall, 20% or so. Has any of that been "declassified," so to speak?

**Mr. Frazier:** I doubt it. I don't really know the answer to your question, but I would doubt that they have lowered the classification. They may change the product, but leave the old name in there.

**Dr. Taylor:** The other thing is, will you search the computer version of the trade names index that's now published in Gleason, Gosselin, and Hodge<sup>1</sup> that now is available on computer from the University of Rochester<sup>2</sup>. That index meets a definite need. We in the contact dermatitis groups also have requested this information from you [NIOSH]. Your information has been helpful to a limited extent, but, for ingredient information, the information available at Rochester is much greater than what you have here. However, yours was helpful. That's why it would be very helpful if, on your latest survey, the trade names would be available.

**Mr. Frazier:** Yes, we hope to get the results of that new survey unscrambled and identify the ingredients of the trade name products.

**Dr. Susten:** One point should be made. Gleason and Gosselin covers commercial products. Most of what people see in industry when they do surveys are great big barrels that have a trade name that Gleason and Gosselin wouldn't cover. I believe your data base does include the information from Gleason and Gosselin.

**Mr. Frazier:** Let me distinguish between the trade name ingredient file generated from the National Occupational Hazards Survey and other on-line tapes or other tapes that are accessible to us. It's my impression we have a number of these tapes set up such that we can search. We might find this in somebody else's tape, and we could report it back; but I was talking about the extent to which we could report from the NOHS itself.

**Dr. Susten:** The NIOSH Clearing House for Occupational Safety and Health Information at one time would search and provide that information. Whether or not they do that now, I'm not sure.

**Dr. Calnan:** Do you have any kind of poison center organization in the states? In Britain, one of our most useful sources of information in an emergency is the poison center. They have a lot of information that's kept confidential, except for certain emergencies, and there are certain binds and so on, but it can be very useful.

**Mr. Frazier:** Yes, that's a good point. We have an extensive poison control center network in the states. I think there are probably two or three groups.

**Dr. Adams:** Most of the information of the poison control center is for home/household use. There's not too much that's industrial; there's some.

**Dr. Calnan:** They have to get it for you.

**Dr. Adams:** In my experience, they can't get it any more easily than we can.

**Mr. Frazier:** We do have a research grant now. It was to the University of Tennessee, but I think it's being transferred to the University of Cincinnati, where the principal investigator will attempt to link our trade name file with the poison control network so that it would be available through that network.

**Dr. Taylor:** I'll bet there are 50 to 100 organizations that maintain such files now. The most extensive file was that maintained by the Rocky Mountain Poison

<sup>1</sup>Current edition: Gosselin E, Smith RP, Hodge HC (eds): "Clinical Toxicology of Commercial Products," 5th ed. Baltimore, Maryland: Williams & Wilkins, 1984.

<sup>2</sup>"Clinical Toxicology of Commercial Products." Available from Chemical Information Systems, Inc. (subsidiary of Fein-Marquart Associates), 7215 York Road, Baltimore, Maryland 21212; telephone 301-321-8440 or 800-CIS-USER.

Control Center, which is sold under some private label, I don't recall. The Health and Human Services Poison Control Center data base only had something like 10 or 20 thousand chemicals, and this one at Rocky Mountain had something like 200 thousand. It was the largest; so, if you had access to that, that would be of greatest help to us (at least in getting that information).

**Mr. Frazier:** I'm not sure how these tie together, but certainly that name has come up in our grant reviews.