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# Agreement of Occupation and Industry Data on Rhode Island Death Certificates with Two Alternative Sources of Information


DAVID M. GUTE, PhD, MPH
JOHN P. FULTON, PhD

Tearsheet requests to David M. Gute, PhD, MPH, Director, Center for Health Promotion and Environmental Disease Prevention, Massachusetts Department of Public Health, 150 Tremont St., Boston, Mass. 02111.

Dr. Fulton is Assistant Professor, Research, Section of Community Health, Brown University, Providence, R.I.



## Synopsis

*There is increasing interest in documenting the putative health effects of occupational hazards, prompting Federal and State efforts that rely primarily on occupational information obtained from the death certificate. Previous studies have assessed the agreement of occupational data on death certificates with actual lifetime employment by using current employment data from census records for comparisons. Such analyses have largely been confined to males.*

*We compared lifetime occupational information obtained from a panel survey for both sexes with death certificate data for 446 deceased panel members. After adjusting for inadequate information, the occupation recorded on the death certificates of the men agreed with the occupation recorded in the survey 66 percent of the time. The comparable percentage for the industry where the deceased had been employed was 78 percent. Among the women's records, agreement on occupation was 65 percent, and on industry, 69 percent.*

*Using another sample of death certificates, comparisons of the information for 322 decedents with city directory data produced similar results. The higher level of agreement for women was due in part to the large number who were reported as "housewives." In a separate analysis, the agreement rate for nonhousewives declined. Suggestions for improvements in the recording of occupational data and the constraints imposed by the use of death certificate data in occupational epidemiology are presented.*


THERE IS INCREASING INTEREST in documenting the putative effects of occupational and environmental hazards on the development of morbidity and mortality. One persistent problem is the lack of reliable and meaningful occupational health data.

Recent efforts have attempted to address the pressing need for information in this critical area. Both the U.S. National Committee on Vital and Health Statistics (*1*) and the National Center for Health Statistics (*2*) have expressed interest in modifying morbidity- and mor-

*'Our data highlight the inadequacy of information reported for women who pursue a career as both a homemaker and a wage earner. It is evident that a sizable portion of female decedents in Rhode Island are listed as housewives on the death certificate even though they are listed in other sources as employed in other occupations . . . '*

tality-based data systems so that they can be used for information on occupational hazards. Such national systems, which permit the monitoring of health data, have been more fully developed in other countries, such as Canada (*3*).

The dearth of information on occupational health results from a series of complex problems. They center around the insidious nature of occupational illness and disease, making them difficult to recognize and record. An allied shortcoming is the lack of risk exposure data and the subsequent failure to link this information with population at-risk counts.

In keeping with its recent interest in occupational health, the National Center for Health Statistics is encouraging States to code the usual occupation and industry of the decedent as obtained on death records. This interest—as well as the availability of limited funding to enable States to participate in occupational health surveillance activities through cooperative agreements with the National Institute for Occupational Safety and Health—has led recently to an increase in the number of States that routinely code occupation and industry information from death certificates (*3*). These data will enable investigators to begin to estimate the relative magnitude of occupational health problems by State as well as to study differential mortality by occupation and industry as pioneered by Guralnick (*4*) and Milham (*5*) in the United States. Studies of this type are particularly useful in the generation of epidemiologic hypotheses on the connection between work and health.

A problem in the use of death certificates for research concerns the degree to which the occupational and industrial statements on death certificates are complete (that is, contain codable information) and represent a valid summary of the actual work experience of the decedent. The level of completeness of reporting on death certificates has been previously reviewed (*6*) and will not be touched on in this paper. Rather, we will focus on the degree to which the occupation and industry information on death certificates reflects the actual work experience of the decedent. We compared information on occupation and industry given on death certificates with that derived from a panel survey and from city directory data.

## Previous Research

Previous investigators have reviewed the accuracy of the occupation and industry statements on death certificates. Such comparisons have been made in both England and the United States. The United Kingdom reports (*7–9*) assessed the agreement between the occupational information contained on the death certificate and that obtained from the census.

In the 1951 study (*7*), a sample of 10,000 death certificates were matched to census reports with variable levels of agreement. A social class difference was evident in that in classes I and II (high social classes) the occupations were reported more frequently on death certificates than in the census; there was an accompanying underreporting of occupation for lower social classes IV and V. The study's authors concluded, however, that for most of the occupational orders there was "reasonably good comparability between the numbers assigned on the basis of the census and on the death registration."

Comparability was also assessed in conjunction with the 1961 study (*8*). Data on 2,196 men were matched, and of these 1,390 (63 percent) were assigned to the same occupation unit in the death certificate and the census information. The most common discrepancy occurred for persons who had changed their occupation during their working life—in particular those who had moved to a less physically demanding job either as they became older or after an accident or an illness.

Comparability was measured differently in the 1971 U.K. study than in the 1951 and 1961 analyses. Instead of drawing a sample of death certificates and matching these to the census schedules, the comparison was based on a 1 percent sample of the census population who had died within 8 months of the census enumeration. In this manner the occupational orders of 607 men aged 15–64 were compared, using death certificate and census data.

In this comparison 374 men (51 percent) were assigned to the same occupation unit, and 62 of these, or 10 percent, were assigned to a different occupation unit within the order; 233, or 38 percent, were assigned to different orders. The lower rate of agreement as compared with the 1961 results is probably attributable to the increase in occupation units from 200 in 1961 to 233 in 1978 and by differences in the sample selection.

## American Studies

Guralnick, using 1950 data, conducted a study similar to the English studies (*4*). Her analysis was based on the deaths of all men between the ages of 20 and 64 years in the United States in 1950. The occupational data reported in the census and on the death records were classified according to a system of 269 occupation categories and 146 industry categories and then grouped into major categories. The occupational data were analyzed for the comparability of the two sources of data (*10*). Results obtained were similar to the English researchers' findings; 71 percent of the decedents had been classified in the same major occupation group in the census and on the death records. The comparability or identity rate ranged from a high of 84 percent of farm workers to a low of 52 percent for laborers.

Wegman and Peters, in a study of the correlation between oat cell carcinoma and selected occupations, assessed the agreement of occupations reported on the death certificates and in interviews with patients while they were alive or with family members (*11*). In 91 instances, or 75 percent, where occupation was available from both interviews and death certificates, occupational statements required no change in classification.

Previous investigators have substantiated agreement between death certificate occupation statements and two additional data sources: namely, census records and a small-scale study using family interviews. Our work extends these studies by using two other sources—city directory data and panel survey data—for comparison.

Our study represents an advance over prior research in other respects. The results presented are for death records for the period 1962–80, and thus we provide more recent information. We compare lifetime occupation from two information sources, whereas other studies employed current occupation obtained only from census records. Finally, our study includes data on women.

## Methods

In 1962 the "Brown University Panel Study of Older Couples" (the comparison survey) queried 603 married persons chosen at random from the universe of all couples with the following characteristics: married, white, husband aged 60 to 64, and residents of Providence, R.I. (*12*). In 1981 a search was made of Rhode Island death certificates to determine which of the people surveyed had died in Rhode Island since 1962. The certificates of 282 men (46.8 percent) and 164 women (27.2 percent) and their original manuscript survey forms were identified and abstracted.

We copied usual occupation and kind of business or industry from the death certificate on our coding forms.

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In the 1962 survey, the usual occupation of respondents was determined by the response to the question, "During your (married) life what has been your main occupation?" The industry variable (last employment of the respondent) was the response to "What do they (last employer) make or do?" Responses to these questions thus yielded a main occupation and a last industry of employment for each respondent. It should be noted that the majority of the study subjects had been married sufficiently early in life so that their adult life and married life were reasonably similar. Although it would have been preferable for the survey question to have used the word "usual" instead of "main," the words are sufficiently close in meaning to warrant comparison of the occupation data from the survey and the death certificates. The correspondence between "usual industry" from the death certificate and "last industry" from the survey is less close, and is so noted in our interpretations.

Both types of data were coded for occupation and industry using the standard 1970 U.S. Census coding system (*13*). Coders had been trained and tested for proficiency by the Rhode Island Department of Health. The interobserver reliability for occupational coding was good. Verification by a second coder indicated an error rate of between 5 and 6 percent. Coded data from the two sources were compared to ascertain the accuracy of death certificate information. Occupation and industry were compared separately for each person. On 6.8 percent of the death certificates, occupation and industry were not filled in, or the information was insufficient to code and was so categorized. Data concerning the remaining persons could be divided into three categories:

- no agreement, if codes from both sources were neither identical nor listed in the same broad occupation or industry grouping as defined by the U.S. Census codes;
- broad agreement, if codes from both sources were listed in the same broad occupation or industry grouping but were not identical; and
- perfect agreement, if codes from both sources were identical to 3 digits of the U.S. Census coding system

Table 1. Agreement between death certificates and survey instrument in the reporting of occupation and industry, by sex of subject (percentages)

| Type of agreement | Occupation | | Industry | |
|---|---|---|---|---|
| | Men (N=282) | Women (N=164) | Men (N=257) | Women (N=160) |
| *All certificates* | | | | |
| Death certificate information absent or inadequate to code | 7 | [1]2 | 14 | [2]2 |
| No agreement | 32 | 34 | 19 | [1]30 |
| Broad agreement | 8 | 6 | 14 | [2]4 |
| Perfect agreement | 53 | 58 | 53 | [1]64 |
| Total | 100 | 100 | 100 | 100 |
| *Adjusted for inadequate information* | | | | |
| No agreement | 34 | 35 | 22 | [1]31 |
| Broad agreement | 9 | 6 | 16 | [2]4 |
| Perfect agreement | 57 | 59 | 62 | 65 |
| Total | 100 | 100 | 100 | 100 |

[1] $P < 0.05$. [2] $P < 0.01$.

Table 2. Agreement between death certificates and survey instrument in the reporting of occupation and industry for women, by usual occupation as reported on the survey instrument (percentages)

| Type of agreement | Occupation | | Industry | |
|---|---|---|---|---|
| | Housewives (N=97) | Others (N=65) | Housewives (N=97) | Others (N=60) |
| Death certificate information absent or inadequate to code | 2 | 2 | 1 | 2 |
| No agreement | 12 | [1]65 | 13 | [1]53 |
| Broad agreement | 0 | [1]15 | 0 | [1]12 |
| Perfect agreement | 86 | [1]18 | 86 | [1]33 |
| Total | 100 | 100 | 100 | 100 |

[1] $P < 0.01$.

The difference of proportions test was performed for male-female comparisons within each category of agreement and, using data on women alone, for housewife-nonhousewife comparisons within each category of agreement.

For comparisons involving city directory data, a systematic sample of 498 death certificates for Rhode Island residents 65 years or younger at death was selected from the data years 1968–72. Decedents 65 or younger were selected because the city directories reported current job. Many elderly residents are therefore listed as "retired." The death certificates had been previously coded for occupation and industry by coding personnel of the Rhode Island Department of Health.

The last address of the decedent and other pertinent information was abstracted from the certificates. The information was then used to locate the decedent in the appropriate city directories (*14*). The occupation and industry of the decedent was coded based upon information from the city directory. City directory data for municipalities in Rhode Island have been regarded as sufficiently reliable for use in past demographic studies (*15*). We tried to obtain more than one industry and occupation designation for each decedent by progressing backward in 5-year intervals for a 20-year period before death. A "usual" industry and occupation for each subject was assigned, based on the greatest number of directory entries found for each subject.

Of the sample of 498 persons, 76, or 15.3 percent, died in towns that did not have city directories, and 71 (14.3 percent) could not be located in directories. In 29 additional cases, an occupation code could not be assigned, and in 33, an industry was not codable. Thus, out of an initial sample of 498, 322, or 64.6 percent of the decedents, were available for ascertainment of usual occupation, and 318, or 63.9 percent, for usual industry as identified in the city directory.

The information on occupation and industry from city directories was then compared to the death certificate data already similarly coded. Separate categories were created for decedents who could not be located in the city directories and for those who lived in towns which had none.

## Results

The table 1 data demonstrate the extent of agreement between the death certificate and survey data for occupation and industry by sex. Percentages of subjects who fall into different categories of agreement have been computed in two ways: (*a*) by including and (*b*) by excluding subjects in the category "death certificate information absent or inadequate to code." Obviously, the second set of data is much more useful in studying agreements between the two sources of data because it excludes cases that lack the information needed to make the comparisons.

The death certificate information on men is significantly more likely to be inadequate for coding than that for women—7 percent of the men's certificates and 2 percent of the women's were inadequate for occupation and 14 percent of the men's and 2 percent of the women's certificates were inadequate for industry.

As table 2 demonstrates, this difference is explained only in part by the large number of women who were listed as housewife on the death certificate. When the percentages were recomputed after deleting the certificates with information absent or inadequate, data for men

and women achieve similar levels of agreement or disagreement—57 and 59 percent for occupation and 62 and 65 percent for industry (table 1). Compared to women, a significantly smaller percentage of men are listed in the no agreement for industry category, while a larger percentage of men are listed in the broad agreement category. For the adjusted data in table 1, agreement is broadly similar within sex groups for occupation and industry. This finding suggests that "last industry" may be usable as a crude proxy for "usual industry." Nevertheless, we must remain cautious about comparisons based on "last industry."

In table 2, the results for woman are recomputed to see if the occupation "housewife" affected agreement between the death certificate and survey findings. Obviously, housewife status has an important effect. For 86 percent of the women whose occupation was listed in the survey as housewife, death certificate information was in agreement, but there was only 18 percent agreement for women whose occupation was listed in the survey as other than housewife. Another difference between the two groups is the percentage of each listed in the category broad agreement—none for the housewives and 15 percent for the others. This difference occurs because housewife is listed in an occupational grouping of its own, precluding broad group agreement.

For those women whose survey occupation was listed as other than housewife and whose death certificate occupation was not in agreement, 32 of 42 woman, or 76 percent, had housewife listed as the usual occupation on the certificate. Our knowledge of the survey questionnaire indicated the possibility that the question on occupation for women may have been slightly biased toward responses other than housewife. With this possibility in mind, we searched a third source of occupational data, the city directory, for the 42 female decedents in question. We were able to locate 37 in city directories with sufficiently detailed data to make a valid comparison. According to city directory data, 22 of the 37, or 59 percent, were "housewives," suggesting that while the survey, as expected, tended to elicit nonhousewife employment, death certificates and city directory information may very possibly have been biased in the other direction.

The data in table 3 demonstrate the degree of agreement between death certificates and city directories in reporting occupation and industry by the sex of the subject. The results of this analysis are similar to the results obtained in the comparison between the death certificate and the survey instrument.

Death certificate information for men is more likely to be insufficient to code than the death certificate information for women: data were inadequate for 6 percent of the men and 3 percent of the women for occupation and 7 percent of the men versus 5 percent of the women for industry. This sex differential, although smaller than the similar differential found in the first comparison, may be explained in part by the substantial percentage of women who were listed on the death certificates as housewives.

Table 3. Agreement between death certificates and city directory in the reporting of occupation and industry, by sex of subject (percentages)

| Type of agreement | Occupation | | Industry | |
|---|---|---|---|---|
| | Men (N = 185) | Women (N = 137) | Men (N = 182) | Women (N = 136) |
| *All certificates* | | | | |
| Death certificate information absent or inadequate to code | 6 | 3 | 7 | 5 |
| No agreement | 38 | 34 | 21 | 24 |
| Broad agreement | 8 | 7 | 14 | [1]6 |
| Perfect agreement | 48 | 56 | 58 | 65 |
| Total | 100 | 100 | 100 | 100 |
| *Adjusted for inadequate information* | | | | |
| No agreement | 40 | 35 | 23 | 25 |
| Broad agreement | 9 | 7 | 15 | [2]6 |
| Perfect agreement | 51 | 58 | 62 | 69 |
| Total | 100 | 100 | 100 | 100 |

[1] $P < 0.05$. [2] $P < 0.01$.

In the adjusted data at the bottom of table 3, data for men and women reflect similar levels of agreement—51 and 58 percent for occupation and 62 and 69 percent for industry. Like the data presented in the comparison of the survey results with death certificate information, most of the data in the city directory-death certificate comparisons either agree perfectly or not at all. There are few items of "broad agreement." Also, like the survey comparison, the city directory findings are generally similar within sex groups for occupation and industry, and agreement is greatest in the industry category.

As in the survey comparison, the results for women were recomputed to determine if the occupation "housewife" affected agreement between the death certificate and the city directory data. Table 4 shows that housewife status has an important effect for the reporting of occupation, but not for industry. Of those women whose occupation appeared in the city directory as housewife, 67 percent were so listed on the death certificate. In comparison, only 41 percent agreement exists for women whose occupation was listed in the city directory as other than housewife.

Of the 21 women whose city directory occupation was listed as other than housewife and whose death certificate occupation was not in agreement, 5, or 24 percent, had housewife listed as the usual occupation on the death certificate.

## Inadequate Data on the Death Certificate

Forty death certificates which contained inadequate information on occupation or industry were pooled and inspected. (These 40 represent about 5 percent of all certificates used in both of the comparisons.) Inadequate information was categorized, and frequency of different inadequacies tabulated (table 5). Four categories were used: negligible information, vague information, wrong information, and uncodable information.

Of the 40 inadequate certificates, 14 percent had negligible information on industry and 11 percent, on occupation. Although these certificates had a response listed for these items, the information was so minimal as to be useless. For example, "retired employee" was listed as an occupation on one certificate and "business" as the industry on another. Such inadequacies probably would have been obvious even to an untrained observer.

Vague information was given on 39 percent of the certificates about occupation and on 50 percent concerning industry. Compared to the negligible category, vague listings included more information about either industry or occupation, but less than was needed to code. For example, "industrialist" and "men's clothing" convey some information about a person's former occupation. These inadequacies, although reasonably obvious to the trained eye, may not have been obvious to someone unfamiliar with the process of classifying and coding occupational status.

The wrong information under occupation appeared on 28 percent of the certificates and on 32 percent under industry. For example, "radiator works" was listed as the occupation of one person and "Murphy furniture" as the industry of another. In the latter instance, supplemental information describing the nature of the business conducted by the furniture company was unavailable. Some errors are obvious. Others become obvious after applying a simple prohibition against using the name of a company as an industry listing.

Some death certificate information was uncodable because it did not conform to the rules of the coding system. For example, "mechanic" is a perfectly acceptable occupational listing, but it must have an industry listing to be coded. If the industry listing has been omitted from the death certificate, neither listing can be coded. Similarly, the industry "self" to designate self-employment is acceptable, but it cannot be used in combination with certain occupations. If an unacceptable occupation-industry combination is recorded on the death certificate, "self" cannot be coded as an industry.

Table 4. Agreement between death certificates and city directory in the reporting of occupation and industry for women, by usual occupation as reported in the city directory (percentages)

| Type of agreement | Occupation | | Industry | |
|---|---|---|---|---|
| | Housewife (N=81) | Other (N=56) | Housewife (N=81) | Other (N=55) |
| Death certificate information absent or inadequate to code | 2 | 4 | 4 | 7 |
| No agreement | 31 | 37 | 29 | [1]15 |
| Broad agreement | 0 | [2]18 | 0 | [2]14 |
| Perfect agreement | 67 | [2]41 | 67 | 64 |
| Total | 100 | 100 | 100 | 100 |

[1] $P < 0.05$. [2] $P < 0.01$.

## Discussion

From the data presented, it is apparent in the Rhode Island population studied that a substantial part of the occupation and industry information recorded on death certificates is not usable. The cause of this inadequacy is probably the result of trying to compress an employment history that spans a lifetime into a single item entry on the death certificate.

It is difficult to make generalizations from the findings of the survey comparison because of two factors: the composition of the survey cohort and the lack of usual industry data for this population. The survey cohort was composed of 603 white married persons with husbands

Table 5. Percentages of persons whose death certificate contained information on occupation and industry which was inadequate for coding, by type of inadequacy and with example of inadequate information

| Type of inadequacy | Occupation (18 certificates) | | Industry (22 certificates) | |
|---|---|---|---|---|
| | Percent | Example | Percent | Example |
| Negligible information | 11 | Retired employee | 14 | Business |
| Vague information | 39 | Industrialist | 50 | Men's clothing |
| Wrong information | 28 | Radiator works (industry in place of occupation) | 32 | Murphy furniture (name, supplemental information unavailable) |
| Uncodable information | 22 | Mechanics (with no industry specified) | 4 | Self (with an occupation not compatible with self-employment, according to the U.S. Census coding system) |

who were 60 to 64 years old in 1962, the time of the survey, and residents of Providence, R.I. Such a cohort would tend to exhibit certain positive and negative biases. Its lack of nonwhite members would limit its generalizability. The fact that the cohort was formed in 1962 and followed through time limits this assessment to the rates of labor force participation of that particular generation (lower for women in 1962, when fewer were working, than at present), and its urban setting skews the types of industries and occupations represented toward the manufacturing and service sectors. However, the selection of such a cohort would not tend to alter radically the representativeness of the reported findings with reference to current decedents in that, during 1980, more than 80 percent of the deaths in Rhode Island occurred to persons over the age of 60—the minimal age for males to enter the cohort. In addition, the survey assessment of lifetime occupation at a relatively advanced age benefited from the fact that a meaningful history of work had been compiled by each subject at that stage of life.

Because the survey data are based on structured interviews, they lack a "usual industry" variable, and this is troublesome. However, this difficulty is overcome to some extent by obtaining the "usual industry" data from city directory listings.

Nevertheless, the absence of the "usual industry" from the survey data complicates comparisons with previous similar studies. For example, since some occupation codes depend on industry codes, it is possible that "last industry" may have affected "usual occupation," lowering somewhat the agreement for occupation between survey and death certificate. Nonetheless, that the survey comparison yielded higher industry agreement than occupation agreement for both men and women should not necessarily be attributed to the effect of "usual occupation" versus "last industry"; a higher agreement is generally found for industry versus occupation comparisons.

As shown in table 5, another deficiency of the death certificate as a source of occupational information is its lack of precision for a small proportion of decedents. It should be possible to correct all types of imprecision (see examples in table 5) by giving additional instructions to funeral directors. Similarly, efforts to get the 2 to 3 percent of certificates which are left blank filled in for occupation and industry would reduce further the information loss.

Our data highlight the inadequacy of information reported for women who pursue a career as both a homemaker and a wage earner. It is evident that a sizable portion of female decedents in Rhode Island are listed as housewives on the death certificate even though they are listed in other sources as employed in other occupations (12 percent in the survey instrument and 31 percent in city directory comparisons—see tables 2 and 4). Such underestimation distorts the actual number of women who have worked at some time outside the home, and it interferes with the correct estimation of occupational risks suffered by this population.

It appears likely, however, that small adaptations in the data collection procedures for occupational information involving decedents could generate meaningful gains in improving the quality of these data. The key to the collection of occupational information is the person, commonly the funeral director, who queries the decedent's survivors for personal information. The importance of the collection of occupational information must be conveyed to the funeral director, and it must also be stressed in instructional materials and in training and supervision. This step will contribute further to accurate and appropriate reporting of occupational and industry information.

As the data in this paper suggest, the occupational information obtained concerning female decedents should be subject to special scrutiny. It must be emphasized that the occupational discrepancies that we observed for women probably constitute conservative estimates because the labor force participation rates of women have continued to increase markedly. Comparison with other data sources suggests that use of the death certificate data may be more prone to elicit responses of "housewife" for female decedents. As women workers are analyzed through studies using the proportionate ratio and standardized mortality ratio techniques, the effects of misclassifying the women who work both within and outside the home must be addressed. It would also be prudent for future investigators to review the purpose of collecting occupation and industry information on death certificates.

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## NHIS Hispanic Health Report Published

Mexican Americans use health services less frequently than do the other two major groups of the U.S. Hispanic population—Puerto Ricans and Cubans—according to "Health Indicators for Hispanic, Black, and White Americans."

The new report gives the first national estimates on a variety of health indicators for Hispanic and non-Hispanic Americans, using data from the National Health Interview Survey (NHIS). Past national surveys have produced few data on use of health services and the health of the U.S. Hispanic population.

Mexican Americans had the lowest rate of physician visits of any Hispanic group, 3.7 visits per person each year; both Puerto Rican and Cuban Americans saw a doctor about 6 times a year. One-third of all Mexican Americans, including children, had no contact with a medical doctor during the year.

Almost one-fifth of Mexican Americans had never been to a dentist, and one-third of their children had never received dental care, almost twice the number of other Hispanic children.

Mexican Americans were least likely of any group to be hospitalized—8.5 percent had at least one hospital episode in the past year. When Mexican Americans did enter the hospital, they had the shortest length of stay, about 8 days per person.

Puerto Ricans had by far the highest incidence of acute conditions, an average of more than three per person each year, compared with about two acute conditions for other groups. Puerto Ricans had by far the greatest amount of restricted activity and spent more time in bed for health reasons than any other group of Hispanic or non-Hispanic persons. On the average, Puerto Ricans spent almost 2 weeks in bed because of health problems compared with about 9 days for black persons, the group reporting the next greatest number of days. Among Puerto Ricans, the rate of workdays lost by women because of acute or chronic injury or illness was 1.5 times that by men (9.8 days compared with 6.7).

Although Cuban Americans and black Americans had the greatest proportion of persons limited in their major activity and other activities due to chronic conditions, this was due to the large number of older persons in the Cuban American group. When the statistics were adjusted for age, Puerto Rican and black Americans had proportionately more persons limited in their activities.

NHIS is a continuing nationwide survey conducted by household interview. Each week a probability sample of households representative of the U.S. civilian noninstitutionalized population is selected. Data in this report by the National Center for Health Statistics are based on information obtained from the 1978, 1979, and 1980 NHIS; the results reflect averages for the 3 years. The sample comprised about 323,000 persons in about 118,000 eligible occupied households.

To obtain a copy of "Health Indicators for Hispanic, Black, and White Americans," Vital and Health Statistics Series 10, No. 148, 88 pages, $3.25, request GPO stock No. 017-022-00853-0 from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.