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Acute Conditions and Restricted Activity During the 1985–86 Influenza Season

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The incidence rate of influenza increased 32.7 percent, from 19.9 per 100 persons to 26.4 from the first quarter (January through March) of 1985 to the first quarter of 1986 (table 1). According to the Center for Disease Control, the influenza B epidemic that peaked in February of 1986 was the largest influenza B epidemic in the United States since the 1968–69 influenza season.[1] This report describes acute illness and its impact on work and other activities during that period.

In tables 1 and 2 national estimates are presented on the incidence and incidence rate of acute conditions and activity restriction due to acute conditions for the first quarter of 1986 and the four quarters of 1985. The data are derived from the results of the National Health Interview Survey (NHIS), an interview survey conducted annually by the National Center for Health Statistics whose respondents embody a representative sample of the household population (see technical notes). A description of the survey design, methods used in estimation, and general qualifications of the data obtained from NHIS are available in *Vital and Health Statistics*, Series 10, No. 160.[2]

Incidence and incidence rate of acute conditions by quarter

According to NHIS, an acute condition is defined as an illness or injury that ordinarily lasts less than 3 months, was first noticed less than 3 months before the reference date of the interview, and was serious enough to have impact on behavior. Two types of impact are considered: whether the illness or injury caused the person to cut down for at least half a day on the activities he or she usually performed, and whether the person contacted a physician regarding his or her illness or injury. Because some illnesses are forgotten after a period of time, the incidence of acute conditions is calculated by including only those conditions whose onset occurred within the 2 weeks prior to interview.

The incidence rate of acute conditions in the first quarter of 1986 (table 1) was 64.6 per 100 persons compared with 58.0 for 1985. The rate for most categories was higher in 1986 than in 1985, including infective and parasitic (6.7 compared with 5.1) and respiratory (39.9 compared with 36.0); however, not all differences were statistically significant. The only decrease that occurred between the 2 years was the rate for digestive system conditions (1.7 in 1986 compared with 2.1 in 1985), but this difference was not statistically significant.

Respiratory conditions accounted for over 60 percent of all acute conditions in the first quarters of 1986 and 1985. Influenza is the largest contributor to the respiratory category and accounted for 66 percent of all respiratory conditions in the first quarter of 1986 and 55 percent in the first quarter of 1985. As mentioned earlier, the incidence rate of influenza was 32.7 percent higher in the first quarter of 1986 (26.4) than in the first quarter of 1985 (19.9). Although not shown separately, other subcategories that are included in the respiratory conditions category are the common cold, acute bronchitis, and pneumonia.

Overall the incidence of acute conditions decreases in the spring and summer months and rises in the fall and winter months. In 1985 the most noticeable seasonal variation was observed in respiratory conditions, which decreased from 36.0 per 100 persons in the first quarter of 1985 (January through March) to 13.5 in the second quarter (April through June) and rose again to 25.2 in the fourth quarter (October through

[1]Center for Disease Control: *Morbidity and Mortality Weekly Report*, Vol. 35, No. 29. U.S. Department of Health and Human Services. Public Health Service. U.S. Government Printing Office, July 25, 1986.

[2]National Center for Health Statistics, A. J. Moss and V. L. Parsons: Current estimates from the National Health Interview Survey, United States, 1985. *Vital and Health Statistics*. Series 10, No. 160. DHHS Pub. No. (PHS) 86–1588. Public Health Service. Washington. U.S. Government Printing Office, Sept. 1986.

Table 1. Number of acute conditions per 100 persons per year and number of acute conditions, by type of condition and quarter: United States, 1985, 1986

[Data are based on household interviews of the civilian noninstitutionalized population]

Condition	Quarter				
	1985				1986
	Jan.–Mar.	Apr.–June	July–Sept.	Oct.–Dec.	Jan.–Mar.
	Number per 100 persons				
All acute conditions	58.0	35.9	34.3	47.1	64.6
Infective and parasitic diseases	5.1	5.5	4.1	5.8	6.7
Respiratory conditions	36.0	13.5	12.4	25.2	39.9
Influenza	19.9	5.9	5.2	9.4	26.4
Digestive system conditions	2.1	1.7	1.8	1.3	1.7
Injuries	5.8	7.3	8.0	6.3	6.2
All other acute conditions	9.0	8.0	7.9	8.5	10.2
	Number in thousands				
All acute conditions	135,031	83,873	80,270	110,423	152,214
Infective and parasitic diseases	11,867	12,772	9,662	13,528	15,720
Respiratory conditions	83,905	31,429	29,067	59,089	93,925
Influenza	46,442	13,846	12,072	22,049	62,218
Digestive system conditions	4,827	4,071	4,267	3,133	3,974
Injuries	13,538	16,979	18,749	14,754	14,601
All other acute conditions	20,893	18,621	18,525	19,920	23,994

NOTE: Conditions involving neither medical attention nor activity restriction are excluded from these estimates.

Table 2. Number of days per 100 persons per year and number of days of activity restriction due to acute conditions, by type of restriction and quarter: United States, 1985, 1986

[Data are based on household interviews of the civilian noninstitutionalized population]

Restriction	Quarter				
	1985				1986
	Jan.–Mar.	Apr.–June	July–Sept.	Oct.–Dec.	Jan.–Mar.
	Number of days per 100 persons				
All types (restricted-activity days)	238.1	138.2	139.2	172.1	275.2
Bed days	108.5	60.6	57.6	75.9	138.2
Work-loss days[1]	102.2	69.0	65.8	72.8	113.6
	Number of days in thousands				
All types (restricted-activity days)	554,734	322,600	325,691	403,580	648,263
Bed days	252,752	141,425	134,852	178,059	325,651
Work-loss days[1]	109,122	74,950	70,912	78,213	124,482

[1]Work loss days are shown for currently employed persons 18 years of age and over.

December). On the other hand, injuries rose in the spring and summer months. The injury incidence rates per 100 persons for the first and fourth quarters of 1985 were 5.8 and 6.3, respectively, compared with 7.3 and 8.0 for the second and third quarters, respectively. This increase may be associated with more outdoor activity and sports participation in the warmer months.

Activity restriction by quarter

Four types of health-related activity restriction are measured by means of NHIS: bed days, work-loss days, school-loss days, and cut-down days. A work-loss day is one on which a currently employed person 18 years of age or over was absent from a job or business for more than half the day. A bed day is one during which a person stayed in bed for more than half the day because of illness or injury. A hospital day for an inpatient is considered a bed day even if the patient was not in bed for more than half the day. A school-loss day is one on which a student 5–17 years of age missed more than half the day from the school in which he or she was currently enrolled. A cut-down day is one on which a person cuts down for more than half the day on the activities he or she usually performs.

The number of restricted-activity days is the number of days a person experienced at least one of the four types of activity restriction just described. A single restricted-activity day may involve both a bed day and a work-loss or school-loss day. However, a cut-down day cannot overlap with any of these three types of disability days. Thus, each restricted-activity day is counted as only one restricted-activity day even if more than one type of activity restriction was involved. Table 2 shows the number and rate per 100 persons of days of all types of activity restriction, bed days, and work-loss days. School-loss days, although not shown separately, are included in the total.

The number of days per 100 persons per year for all types of activity restriction, bed days, and work-loss days follows the same pattern as the incidence of acute conditions. The rates were higher in the fall and winter months and lower in the spring and summer. The rate per 100 persons for restricted-activity days was 275.2 in the first quarter of 1986 compared with 238.1 in 1985, an increase of 15.6 percent. Bed days showed the largest increase, 27.4 percent, from the first quarter of 1985 to the first quarter of 1986 (108.5 compared with 138.2).

From the first quarter of 1985 to the first quarter of 1986 the number of restricted-activity days increased from approximately 550 million to 650 million days and a higher proportion of these were bed days. The proportion of all restricted-activity days which were bed days was 45.6 percent for the first quarter of 1985 and 50.2 percent for the first quarter of 1986. The higher rates of restricted-activity and bed days may be attributed to the higher incidence of influenza. In 1985 the annual rates of restricted-activity and bed days for all acute conditions were highest for respiratory conditions in general and highest for influenza among the subcategories.[3]

Technical notes

The National Health Interview Survey (NHIS) is a continuous, cross-sectional, nationwide survey conducted by household interview. Each week a probability sample of households in the civilian, noninstitutionalized population is interviewed by personnel of the U.S. Bureau of the Census to obtain information on the health and other characteristics of each member of the household.

During 1985, the sample consisted of 36,399 eligible households. The total noninterview rate for the basic health and demographic household questionnaire was about 4 percent, about 2 or 3 percent of which was due to respondent refusal and the remainder due primarily to an inability to locate an eligible respondent at home after repeated calls. Information was obtained for all household members for the basic questionnaire, a sample of 91,531 persons. The sample for the first quarter of 1986 consisted of 6,281 households containing 15,496 persons. A description of the survey design, methods used in estimation, and general qualifications of NHIS data was published previously.[4]

The estimates shown in this report are based on a sample of the civilian noninstitutionalized population rather than on the entire population and therefore are subject to sampling error. When an estimate or the numerator or denominator of a rate is small, the sampling error may be relatively high. Approximate standard errors for the estimates in this report may be calculated using the formula

$$SE(x) = \sqrt{ax^2 + bx},$$

for numbers of events where x is the estimated number, and a and b are given in table A, and the formula

$$SE(p) = p\sqrt{a + \frac{b}{x}},$$

for rates where p is the estimated rate, and a and b are given in table I.

In this report, terms such as "similar" and the "same" mean that no statistically significant difference exists between the statistics being compared. Terms relating to difference (for example, "greater" or "less") indicate that differences are statistically significant (unless otherwise stated). The t-test with a critical value of 1.96 (0.05 level of significance) was used to test all comparisons that are discussed. Lack of comment regarding the difference between any two statistics does not mean the difference was tested and found to be not significant.

Table I. Estimated standard error parameters for selected characteristics

Characteristic	Estimated parameters	
	a	b
Number of acute conditions	0.00019636	85,166.5
Days of restricted activity or bed days	0.00064540	622,840.3
Days lost from work	−0.00008666	529,550.2

Symbols

- - -	Data not available
. . .	Category not applicable
-	Quantity zero
0.0	Quantity more than zero but less than 0.05
Z	Quantity more than zero but less than 500 where numbers are rounded to thousands
*	Figure does not meet standards of reliability or precision
#	Figure suppressed to comply with confidentiality requirements

[3]National Center for Health Statistics, A. J. Moss and V. L. Parsons: Current estimates from the National Health Interview Survey, United States, 1985. *Vital and Health Statistics*. Series 10, No. 160. DHHS Pub. No. (PHS) 86–1588. Public Health Service. Washington. U.S. Government Printing Office, Sept. 1986, pp. 31 and 43.

[4]National Center for Health Statistics, M. G. Kovar and G. S. Poe: The National Health Interview Survey design, 1973–84, and procedures, 1975–83. *Vital and Health Statistics*. Series 1, No. 18. DHHS Pub. No. (PHS) 85–1320. Public Health Service. Washington. U.S. Government Printing Office, Aug. 1985.

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