Community Indicators of Health-Related Quality of Life—United States, 1993-1997

MMWR. 2000;49:281-285.

1 table omitted.

It is known that persons' longevity is affected by the environmental and population characteristics of their community. Studies that identify community-level characteristics associated with the health-related quality of life (HRQOL) of residents could help guide local health planning. Data from the Behavioral Risk Factor Surveillance System (BRFSS) for 1993-1997 indicate that HRQOL differs among U.S. counties according to county population size. In addition, socioeconomic and health status indicators, such as poverty, noncompletion of high school, unemployment, number of persons with severe work disabilities, mortality, and births to adolescents, also might affect county-level HRQOL differences. This report examines initial findings on the relation between selected community health status indicators (CHSIs) and the mean number of days that persons aged greater than or equal to 18 years reported ill health (i.e., unhealthy days), a surveillance measure of population HRQOL. The findings suggest that CHSIs may be useful in the public health planning process.

Since 1993, CDC and participating state health departments have tracked the number of days persons aged ≥18 years have reported feeling unhealthy through BRFSS, an ongoing, state-based, random-digit-dialed telephone survey of the civilian, noninstitutionalized U.S. population aged ≥18 years. Unhealthy days were measured using the sum of the responses to two questions about the estimated number of days during the 30 days preceding the survey when the respondent’s physical health (i.e., “physical illness and injury”) or mental health (i.e., “stress, depression, and problems with emotions”) was not good, with the restriction that unhealthy days for an individual could not exceed 30 days. The mean number of unhealthy days was estimated for each U.S. county after each response was weighted to the age, race, and sex distribution of the state in which the county was located. Data from 1993 through 1997 were combined to increase the precision of the estimates of the mean number of unhealthy days per county. Data from 2450 (80%) of 3081 U.S. counties were analyzed; Alaska and 631 counties with fewer than 20 BRFSS respondents were excluded from the analysis.

Potential county indicators of HRQOL were selected from preliminary CHSI data provided for this analysis by the Public Health Foundation (PHF) based on recognized associations with HRQOL or on their possible relation to population HRQOL (i.e., mortality rate and births to adolescents). Socioeconomic and health status indicators (specifically, rates of poverty, high school education, unemployment, severe work disability, mortality, and proportion of births to adolescents) were analyzed for mean population HRQOL differences among counties categorized by population size and the prevalence level of each indicator. Multiple linear regression was used to estimate the percentage of variability in the mean number of unhealthy days per county explained by these indicators after weighting county records by the square root of the BRFSS sample size to allow use of county data with smaller BRFSS sample sizes and to reflect the increased precision of HRQOL estimates in counties with larger sample sizes. A maximum relative weight of 6.32 (i.e., the square root of 800 divided by the square root of 20) was assigned to counties with ≥800 respondents.

Overall, persons aged ≥18 years reported an average of 5.3 unhealthy days (range: 0.7-12.7 days) during the 30 days preceding the survey. The most unhealthy days were reported by persons in the most populous counties (i.e., ≥5.6 unhealthy days for counties of ≥1,000,000); the least unhealthy days were reported by persons in counties with populations of 500,000-999,999 (5.1 days). Compared with the latter group, persons in smaller and larger counties were estimated to have 1.3 million excess unhealthy years of life. For each CHSI indicator, counties in the lowest third (i.e., the one third that had the lowest rates for poverty, noncompletion of high school education, unemployment, severe work disability, mortality, and proportion of births to adolescents) had the lowest mean number of unhealthy days overall and for almost all county sizes. Taking all tested indicators together, the variability in county unhealthy days predicted was approximately 11%. Socioeconomic and health-related factors accounted for almost all of the predicted variability; age and population size and density accounted for only 0.4%.

Reported by: N Kanarek, PhD, D Dockwell, MSPH, Public Health Foundation, Washington, DC; H Ja, PhD, Univ of Tennessee, Knoxville. The following BRFSS coordinators: J Reese, MPH, Alabama; P Owen, Alaska; B Bender, MBA, Arizona; G Potts, MBA, Arkansas; B Davis, PhD, California; M Leff, MSPH, Colorado; M Adams, MPH, Connecticut; F Breukelman, Delaware; J Bullo, District of Columbia’s Hoechler, Florida; L Martin, MS, Georgia; F Reyes-Salval, MS, Hawaii; J Aydelotte, MA, Idaho; B Steiner, MS, Illinois; L Stemnook, Indiana; J Igbokwe, PhD, Iowa; C Hunt, MPH, Kansas; T Sparks, Kentucky; B Bates, MSPH, Louisiana; D Maines, Maine; A Weinstein, MA, Maryland; D Brooks, MPH, Massachusetts; H McGee, MPH, Michigan; N Salem, PhD, Minnesota; D Johnson, MS, Mississippi; T Murayai, PhD, Missouri; P Feigley, PhD, Montana; L Andelt, PhD, Nebraska; E Delan, MPH, Nevada; Larry Powers, MA, New Hampshire; G Besslagel, MS, New Jersey; W Honey, MPH, New Mexico; C Baker, New York; Z Glocle, PhD, North Carolina; L Shireley, MPH, North Dakota; P Pullen, Ohio; K Baker, MPH, Oklahoma; K Pickle, MS, Oregon.
egon; L. Mann, Pennsylvania; Y Cintron, MPH; Puerta Rico; J. Heisser, PhD, Rhode Island; M. Wu, MD, South Carolina; M. Gildemaster, South Dakota; D. Ridings, Tennessee; K. Condon, Texas; K. Marti, Utah; C. Roe, MS, Vermont; K. Carswell, MPH, Virginia; K. Wynkoop-Simmons, PhD, Washington; F. King, West Virginia; K. Pearson, Wisconsin; M. Futa, MA, Wyoming. Health Care and Aging Studies Br, Div of Adult and Community Health, National Center for Chronic Disease Prevention and Health Promotion, CDC.

CDC Editorial Note: Local health agencies play a major role in promoting health and quality of life, and community indicators of HRQOL can help to guide planning programs to improve community health. This initial study of community indicators of HRQOL predicted approximately 11% of the variability in unhealthy days among counties. Although no similar county-based HRQOL studies are known, the amount of variability explained was similar to that found in efforts to predict health-care costs of various populations using socioeconomic and health-related indicators. While counties with populations of 500,000-999,999 residents reported better HRQOL than the other counties, this study indicates that counties of all sizes might be able to address factors to reduce adult unhealthy days.

The findings in this report are subject to at least five limitations. First, BRFSS reaches only persons who have a telephone and are able and willing to participate in the survey; therefore, results may underestimate the number of unhealthy days experienced by persons living at home and do not reflect persons living in long-term-care facilities or other institutions. Second, unhealthy days may be overestimated for some persons who report both physical and mental unhealthy days. Third, the county indicators explored in this study were few, cross-sectional, and not necessarily the most valid and sensitive indicators of population HRQOL. Fourth, the analysis was limited by the small BRFSS sample size available at the county level, and BRFSS data are weighted to reflect their state’s population characteristics, which may differ from population characteristics of the county. Finally, although one scheme for weighting counties in the regression analysis was used, others should be explored.

Using a validated HRQOL measure, this study represents an initial effort to quantify certain factors that contribute to the well-being of populations in U.S. counties. However, to improve county health planning, additional factors that contribute directly to HRQOL, such as access to health care and preventive services, environmental factors, workplace safety, public safety, and health behaviors, should be assessed. Also, county health departments should use local HRQOL data and associated community indicators to identify health issues and guide their community health improvement process.9,10

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Among the confirmed cases of UR, 442 (92.1%) occurred among women with at least one previous CS, 33 (6.9%) among women with an unscarred uterus, and five (1.0%) among women who had another type of uterine scar (e.g., myomectomy). The average PPV during the 8-year period was 50.7% for ICD-9-CM codes 665.0 and 665.1 and 28.0% for code 674.1. The overall PPV of the three codes was 39.8%. The number of suspected UR cases coded with 665.0 or 665.1 increased steadily from 1990 through 1997. However, the number of confirmed cases and PPV increased during 1990-1994, but from 1994 through 1997 the number fluctuated while PPV declined. The number of suspected and confirmed cases and the PPV of ICD-9-CM code 674.1 remained relatively stable during the same time period.

Of the 726 suspected cases confirmed as nonruptures, 694 (95.6%) of the charts contained enough information to identify a reason for the use of one of the three diagnostic codes for UR. Codes were used correctly in 81.3% of the nonrupture charts to record a condition that falls within the ICD-9-CM definitions. Among the 19.7% of records where the codes were not used correctly, 14.0% were miscoded (i.e., a condition was recorded that should have been coded with a different ICD code), 4.0% were data entry errors, and 0.6% could not be categorized because no condition mentioned in the chart appeared to be related to one of the three ICD-9-CM codes.

Reported by: J Weiss, ScD, A Nannini, PhD, S Fiorery, MEd, Bur of Family and Community Health, Massachusetts Dept of Public Health; B Sachs, MD, Beth Israel Deaconess Medical Center; F Frigoletto, MD, D Roberts, MD, Massachusetts General Hospital; S Ringer, MD, Brigham and Women’s Hospital, Boston; S Deloy, CNM, JP O’Grady, MD, Baystate Medical Center, Springfield; G Kraus, MD, Anna Jaques Hospital, Newburyport; J Weber, CNM, Midwives of the Merrimack Valley, North Andover, Massachusetts. Div of Reproductive Health, National Center for Chronic Disease Prevention and Health Promotion; Div of Applied Public Health Training, Epidemiology Program Office; and an EIS Officer, CDC.

CDC Editorial Note: Administrative information, such as hospital discharge data, is often used for surveillance purposes. This study indicates that hospital discharge data alone cannot be used to monitor trends in UR because ICD-9-CM codes lack the required specificity and consistency in application. However, even though the PPV of codes 665.0 and 665.1 was higher than the PPV of code 674.1, the number of URs would have been undercounted by one third without including records with diagnostic code 674.1.

The purpose of the ICD-9 and the ICD-9-CM classification systems is to place conditions into relevant categories for statistical purposes. ICD-9-CM is adapted from ICD-9, which was published in 1977 before concern about rising CS rates. It was not designed to monitor UR as a complication of labor; therefore, the low overall PPVs can be explained by including other conditions in ICD-9-CM codes 665.0, 665.1, and 674.1. Reasons for the decline in the PPV of ICD-9-CM codes 665.0 and 665.1 during 1994-1997 are unclear but may represent changes in coding practices, an actual shift in clinical outcomes, or a combination of both. Coding practices may have been affected by obstetric coding guidelines issued in 1995 by CDC’s National Center for Health Statistics to standardize the application of ICD-9-CM codes across facilities, and by changes in obstetric reimbursement policies that may have encouraged more extensive reporting. Clinical outcomes may have been affected by a decline in the proportion of births delivered by Cs and an increase in VBACs.

International Classification of Diseases and Related Health Problems, 10th Revision (ICD-10) was published in 1992, also before increased concern about URs, and is scheduled to replace ICD-9-CM for coding of morbidity in 2005. However, ICD-10 does not address the lack of specificity of codes to identify UR cases accurately. Future revisions to ICD-10 and ICD-10-CM should include a code specifically for “uterine rupture associated with previous CS scar.”

An alternate data source for monitoring URs will be the revised national standard certificate of live birth, scheduled

(“rupture of uterus before onset of labor”), 665.1 (“rupture of uterus during labor,” including “rupture of uterus not otherwise specified”), or 674.1 (“disruption of cesarean wound,” including “dehiscence or disruption of uterine wound”). Women with and without a history of CS were included. The four-digit ICD-9 codes 665.0 and 665.1 are contained within the larger three-digit category of code 665, “other obstetrical trauma,” that also includes “damage from instruments.” In addition, the ICD-9-CM index directs coders to use 665.1 for “laceration of the uterus, obstetrical trauma not elsewhere classifiable (NEC),” a frequent incidental complication that occurs during delivery of the fetus through the uterine incision.

To identify cases of UR, hospital medical records of suspected cases, including registration sheets, discharge summaries, and surgical reports, were obtained and reviewed by two clinicians to confirm a UR. UR was defined as any unintentional disruption of the uterine wall in a pregnant woman regardless of cause, size, degree of severity, or location and was described in the hospital chart as a rupture, dehiscence, separation, window, or rent. URs occurring in women with and without prior CS scars were included. Incidental extensions or lacerations of a uterine incision during a CS, postpartum separation of the uterine scar resulting from infection, or extremely thin lower uterine segments without disruption of the uterine wall were not considered URs. Positive predictive values (PPVs) were calculated as the number of confirmed cases divided by the number of reviewed suspected cases multiplied by 100. PPVs were calculated for codes 665.0 and 665.1 combined, for code 674.1, and for all three codes combined, by year and overall.

From 1990 through 1997, 1244 suspected cases were identified. Of these, 608 (48.8%) had ICD-9-CM code 665.0 or 665.1, 629 (50.5%) had code 674.1, and seven (1.0%) were coded with both 665.1 and 674.1. Of the 1207 (97.0%) cases were confirmed as URs.
to go into use in 2003. It will contain a checklist for maternal morbidity including UR. This data source will need to be validated for its sensitivity and specificity through medical records review.

VBAC generally is considered safe practice, and 75% of women attempting a VBAC are successful. However, the greatest risk factor for UR is labor among women with a previous CS. The findings in this report indicate that the number of URs increased from 1990 to 1994, with a notable increase from 1993 to 1994. This pattern is similar to the change in the proportion of VBACs among women with a previous CS. Data to estimate the frequency of VBAC attempts are unavailable; therefore, the risk for UR among women attempting VBAC is unknown.

The incidence of UR may have been higher than that reported in this study. The negative predictive value of the three diagnostic codes is unknown because the probability that persons who were not reported to have a UR were free of UR could not be ascertained. In addition, the severity of UR varies from inconsequential to catastrophic; therefore, minor cases may remain clinically undetected and unreported. The need to monitor and assess the competing risks for morbidity associated with different methods of delivery will continue to be important.

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8 available

Injury-Related Mortality Reports Database Available on Internet

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WISQARS™ (WEB-BASED INJURY STATISTICS Query and Reporting System), pronounced “whiskers,” is an interactive system that provides injury-related mortality data useful for research and for making informed public health decisions. Mortality data for 1981-1997 are produced in two report formats: (1) Injury Mortality Reports, which can be used to determine injury deaths and death rates for specific external causes of injuries, and (2) Leading Causes of Death Reports, which can be used to determine the number of injury-related deaths relative to the number of other leading causes of death in the United States or in individual states. The report is available at http://www.cdc.gov/nipce/wisqars.

Both reports are available by year, age, race, sex, Hispanic origin, and state. Reports can be requested by 5-year age ranges (e.g., 0-4 years or 5-9 years) or a custom-defined range (e.g., 13-19 years or all 6-year-olds only). Race categories are white, black, American Indian/Alaskan Native, Asian and Pacific Islander, and other (all nonwhite and nonblack and may include other races not listed). In addition, Injury Mortality Reports can be requested by these specific definitions and other parameters (e.g., a report for a mechanism/cause and manner/intent in a specific state by sex and race).

Alternate Two-Dose Hepatitis B Vaccination Schedule for Adolescents Aged 11-15 Years

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In September 1999, MERCK VACCINE Division (Merck & Co., Inc., West Point, Pennsylvania) received approval from the Food and Drug Administration for an optional two-dose schedule of Recombivax HB® for vaccination of adolescents aged 11-15 years. The Advisory Committee on Immunization Practices approved the optional two-dose schedule in October 1999 and recommended to include this schedule in the Vaccines for Children Program in February 2000. Using the two-dose schedule, the adult dose of Recombivax HB® (1.0 mL dose containing 10 microgram of hepatitis B surface antigen [HBsAg]) is administered to adolescents aged 11-15 years, with the second dose given 4-6 months after the first dose. In immunogenicity studies among adolescents aged 11-15 years, antibody concentrations and end seroprotection rates (greater than or equal to 10 milli-international units per mL of antibody to HBsAg) were similar with the two-dose schedule (1.0 mL dose containing 10 microgram of HBsAg) and the currently licensed three-dose schedule (0.5 mL dose containing 3 microgram of HBsAg). The overall frequency of adverse events was similar for the two-dose schedule and the three-dose schedule. Short-term (2-year) follow-up data indicate that the rate of decline in antibody levels for the two-dose schedule was similar to that for the three-dose schedule. No data are available to assess long-term protection (beyond 2 years) or immune memory following vaccination with the two-dose schedule, and it is not known whether booster doses of vaccine will be required. As with other hepatitis B vaccination schedules, if administration of the two-dose schedule is interrupted it is not necessary to restart the series. Children and adolescents who have begun vaccination with a dose of 5 microgram of Recombivax HB® should complete the three-dose series with this dose. If it is not clear which dose an adolescent was administered at the start of a series, the series should be completed with the three-dose schedule.

*Use of trade names and commercial sources is for identification only and does not constitute endorsement by CDC or the U.S. Department of Health and Human Services.