Increasing Usefulness of BRFSS Within Public Health Communities

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The Behavioral Risk Factor Surveillance System (BRFSS), implemented in 1984, is a collaborative effort involving the U. S. Centers for Disease Control and Prevention (CDC) and state health departments. The purpose of the BRFSS is to collect information about preventive health practices and risk behaviors linked to chronic diseases, injuries, and preventable infectious diseases. One very important feature of the BRFSS is that state-based data are collected through telephone surveys using a scientifically designed sample of the adult population in Illinois. Each state conducts monthly surveys using standardized questionnaires that follow specified procedures. Once each annual survey is completed for the calendar year, the data are aggregated, edited, and weighted.

Adherence to the procedures and standardized questionnaires makes the data uniform and useful at the national, state, and substate areas. Three uses of BRFSS data are used to assess public health needs, to target intervention strategies to population groups at greatest risk, and to evaluate past efforts. The value of this population-based data source is realized by the public health community. Those wishing to learn more about using the data are referred to the BRFSS Web site which can be found at <www.cdc.gov/nccdphp/brfss>.

During the evolution of the Illinois BRFSS, program staff at the Illinois Department of Public Health (IDPH) attempted to meet the data needs of as many programs as possible and explored ways to increase the system's utility. The purpose of this presentation is to share strategies that have proved valuable in increasing the benefits of the BRFSS to more of the public health community. The discussion will include two innovations implemented in the state and the philosophies adopted to encourage increased use of this important data source.

One significant undertaking was to process the existing data for appropriate substate areas. Beginning in 1994, local health departments found it necessary to prioritize community health needs as part of Illinois' recertification process. BRFSS data from 1990 and later were developed into five strata based on county population densities. The five strata are Chicago, suburban Cook County, the five collar counties bordering on Cook, the 13 urban counties containing a large metropolitan area, and the remaining 83 rural counties. Data were weighted to reflect sample and population differences for each of the strata. Stratified BRFSS data was an improvement, but as counties began using the data, there were growing perceptions that additional data were needed for local areas.

Minor modifications to the BRFSS questionnaire are made on a yearly basis. In 1994, CDC started an annual rotation of questionnaires containing a stable core of questions that appeared each year. The stable core is merged with one of two rotating cores containing questions that appear during alternating years. States participating in the BRFSS are permitted to select additional questions to combine with the stable and rotating cores. Since having data to do trend analysis is important, the concern in Illinois with the rotating cores was the inability to maintain a continuous data stream for topics appearing only biennially. To diminish this problem, Illinois implemented a dual questionnaire beginning in 1995 by slightly increasing the size of the sample and splitting it in half. One half of the sample was interviewed using the same rotating core questionnaire as the other states were using that calendar year, while the other half was interviewed using the rotating core used during the preceding year.

Besides creating the means for maintaining a continuous data stream for elements on both rotating cores, the dual-questionnaire method created room for more state-added questions. One tenet guiding the Illinois BRFSS is that the optimal interview length should not exceed 95 questions. Instead of having room for less than 20 more questions, the dual questionnaire allowed for up to 36 questions to be added. The survey questions added each year by consensus of program representatives from the Department give Illinois the ability to increase data collection for more programs.

Two disadvantages to the dual questionnaire are that the split sample requires an additional set of weighting factors for data analysis, and that a smaller sample for some questions increases the confidence interval. A modest sacrifice of decreased precision in estimates from the data is offset by the ability of the Illinois BRFSS to supply more information to programs.

During 1997, Illinois pioneered a groundbreaking project to conduct behavioral risk factor surveys in each of its counties. The cost and work load was distributed over a four-year period ending in 2000. Since Cook County and Chicago account for

approximately 40 percent of the statewide surveillance sample, those areas were excluded from the individual county surveys. Up to 400 completed interviews were collected in each of the remaining 101 counties at a rate of about 25 counties per year. The county survey was a composite of the statewide dual questionnaires administered with the same interviewing procedures as the BRFSS. This resulted in data comparable to the statewide BRFSS data for Illinois. With the completion of the project in 2000, Illinois now has high quality behavioral risk factor survey data at three primary levels: statewide, the five strata, and each county.

In preparation for the county surveys, each local health department administrator or county representative was asked to choose three questions to be included on each corresponding county questionnaire. All surveys were conducted by the same contractor responsible for the statewide BRFSS. At the conclusion of the surveys, data were weighted and analyzed.

Databases resulting from the county surveys are routinely provided to local health departments. Results of the analysis including frequencies and cross-tabulations for the county, strata, and state were placed in a binder with copies of the questionnaire and data dictionary. Local health department staff members were invited to workshops where the binders were distributed.

The comprehensive output distributed at the workshops addresses most of the local health department data needs, but for more localized data analysis, training is provided to local staff on how to analyze data using Epi Info, a public domain software.

Workshop objectives were as follows:

- to identify the characteristics that make Illinois County Behavioral Risk Factor Survey (ICBRFS) results a valuable public health tool,
- to be familiar with the three levels of data topics contained in the ICBRFS data set, how to determine and locate specific content, and how information is derived from telephone interviews, and
- to perform additional analyses of ICBRFS data that add to the usefulness of the data set to each county.

The county survey project has proven to be very beneficial to the state as well. Illinois has several useful levels of behavioral risk factor data: by all of Illinois, by five strata including Chicago and Cook County, and by county. Because each county's data are weighted to its own population, multi-county aggregations are possible. To date, six groupings of contiguous multi-county data have been aggregated for planning purposes.

A follow-up self-assessment tool was mailed to local health departments six to 12 months after data were distributed. The assessment, which had a 97 percent response rate, was designed to measure how county survey data were being used. Results showed 57 percent had reassessed the health department priorities identified in 1994 and 42 percent had already used the data to support grant applications. The topics most widely used were tobacco, alcohol consumption, health care coverage, and hypertension. Due to the favorable response and wide ranges of use by county health departments, the county surveys are being repeated over the next two years with an added feature that allows local health departments to select 15 additional questions to be included on the survey instrument, 12 more than the first time.

The dual questionnaire and county surveys have not only increased Illinois' ability to collect more data on more topics, but have increased data application at several levels and created a sense of ownership among the data users by involving more stake holders in topic selection. Program people from the Department and local health department administrators assist in selecting portions of the respective questionnaires.

Considerable effort goes into making local partners into smarter data users. Before discussing issues of data access and distribution, information is offered that explains proper use of the data. Partners involved in question selection must be given criteria to gauge suitability of questions, such as question validity, suitability for telephone interviewing, and ability of the questions to obtain adequate measures for planned analysis. They should be aware of characteristics that make the data useful:

- the information is obtained from a representative sample,
- standardized procedures and valid questions are used to collect the data,
- data are weighted to increase the precision of estimates,
- information from data is related to accepted perspectives such as the 2010 Healthy People objectives, and
- limitations or caveats to the data are identified.

It is not the goal of survey researchers to build quality into a data set only to have the data sit on a shelf somewhere! Data users, are encouraged to ask questions about the BRFSS and its operation. Informed individuals who are comfortable with and understand the

caveats of the data are more likely to use the data correctly.

The Illinois BRFSS data analysis results are normally produced and distributed for specific users, including both Department program staff and people from local health departments, but data are also disseminated upon request to outside users such as universities and other organizations or other interested researchers. With the increased demand of the Internet as a resource for information, expanded distribution of BRFSS data now includes the Department Web site at <http://app.idph.state.il.us/brfss/>.

Since the small IDPH staff cannot produce all the desirable analyses associated with these data, granting access to the BRFSS database is important to the Illinois program. Several noted researchers from such institutions as the University of Illinois at Chicago's School of Public Health have shared in working with these databases.

The BRFSS program has not yet reached its zenith, but has joined with CDC to build its potential, striving to maintain program integrity while continuing to explore new methods to further the impact of BRFSS data on health policy in Illinois. The Illinois Department of Public Health endeavors to continue using strategies that have been successful in making the BRFSS an integral component of public health in Illinois. It is the Department's intention to continue supporting others in making good use of their own data sets. With IDPH's promotion of data use, more people are benefitting from this rich data source than ever before. Interested parties are encouraged to take these ideas, to share and build on them, and use them to increase the awareness and use of this important program and rich data source.