In many states the epidemiology capacity of specific chronic disease programs, for example, cardiovascular disease or diabetes, is limited by the skill set of a single epidemiologist who has been assigned to that program. To improve epidemiology support across categorical programs, the Division of Prevention at the Ohio Department of Health initiated a new policy early in 2003 whereby each program epidemiologist is responsible for learning to analyze data from at least two datasets as well as continuing to be the lead data person for his or her program. Now, for each critical dataset at least one epidemiologist is capable of conducting data analysis and providing support to other programs. Without the addition of new epidemiology staff, this policy has enabled the Ohio Department of Health to produce reports that better describe the burden of chronic diseases, make more informed decisions on what populations to target, and plan well-thought-out interventions.

KEY WORDS: chronic disease, epidemiology, increasing capacity

Despite the huge burden of chronic disease in the United States—four of every five deaths and $325 billion in healthcare costs and lost worker productivity per year—the number of epidemiologists who work on chronic disease at state health departments remains less than one-third the combined number who work on infectious disease and bioterrorism. As of 2003, only about half of states had the minimum chronic disease epidemiologic workforce recommended by the Council of State and Territorial Epidemiologists (CSTE). Faced with resource constraints, state health departments need to consider strategies for building chronic disease epidemiology capacity that do not involve hiring new staff. The following components of capacity (in addition to workforce) have been suggested: (1) access to data and consultants, (2) data analysis, (3) data interpretation, (4) information dissemination, and (5) outreach and partnership.

The Ohio Department of Health (ODH), like many state health departments, receives much of its chronic disease budget through federal grants for categorical programs (eg, diabetes or cancer). Because of categorical funding, epidemiologists are often hired by a single categorical program; the epidemiologist is limited to supporting that one program, and the programs are limited to the support that a single epidemiologist is able to provide. We describe here an effort at the ODH Division of Prevention (DOP) to increase chronic disease epidemiology capacity without increasing workforce. Epidemiologists in the three DOP bureaus that work on chronic disease issues now collaborate across categorical programs and receive training to ensure that they collectively are able to analyze data from all datasets that are critical to the mission of DOP. Ohio’s experience may be helpful to other states that are interested in integrating activities across categorical chronic disease programs.

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Methods

Chronic disease epidemiology positions in the ODH are attached to one of three bureaus in DOP. Five epidemiologists are supervised out of the Bureau of Health Surveillance, Information, and Operational Support (BHSIOS); one in the Bureau of Environmental Health; and one in the Bureau of Health Promotion Risk Reduction (BHPRR).

In 1999, a chronic disease epidemiologist from the Centers for Disease Control and Prevention (CDC) was assigned to the ODH, DOP. One of the epidemiologist’s many responsibilities was to help strengthen the state’s chronic disease epidemiology capacity and assist Ohio in the use of health data, especially population-based data. For the most part, at that time, epidemiologists analyzed only Behavioral Risk Factor Surveillance System data and vital statistics relevant to their program area (diabetes, heart disease, asthma, etc). Other databases (eg, Medicare, Medicaid, hospital discharge) were either not available or the epidemiologists felt that it would take too long to learn to utilize them.

The DOP wanted to increase Ohio’s chronic disease epidemiological capacity but did not have additional resources to hire new epidemiologists. To gain insight into the programs’ data needs and discuss specific categorical issues such as grant requirements, DOP leadership held a series of meetings during 2002 that included bureau chiefs, categorical program directors, the CDC epidemiologist, and program epidemiologists. Early in 2003, a plan was implemented whereby epidemiologists throughout DOP would work across program lines. Each epidemiologist became responsible for learning how to analyze data from at least two datasets as well as continuing to be the lead data person for his or her program. To help epidemiologists develop the skills to learn new databases, the ODH agreed to pay for epidemiology and statistics classes for those who wanted to obtain additional training or take refresher classes for their new responsibilities. Statistical consultants were identified to assist with more challenging analytic methods.

Results

Figure 1 denotes the organizational structure of the DOP from 1996 through 2007. The BHPRR housed several chronic disease programs and one epidemiologist (injury). The Bureau of Environmental Health contained environmental programs and one epidemiologist (asthma). The BHSIOS had three epidemiologists who are categorically supported by a program in BHPRR, one epidemiologist is assigned to the Ohio Cancer Incidence Surveillance System, and a seventh one is a SAS (Carey, North Carolina) expert who works across all programs. Although the epidemiologists are in separate bureaus, they work closely with each other on analysis of chronic disease data (Table 1). Each of the seven chronic disease epidemiologists in the DOP has developed in-depth expertise in at least
TABLE 1  ● Databases analyzed by the Ohio Department of Health Chronic Disease Program epidemiologists, 2005 to present

<table>
<thead>
<tr>
<th>Programs</th>
<th>Ohio Cancer Incidence Surveillance System</th>
<th>Cardiovascular diseases</th>
<th>Diabetes</th>
<th>Injury</th>
<th>Tobacco</th>
<th>Floater/SAS expert&lt;sup&gt;a&lt;/sup&gt;</th>
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<td>Family Health Survey&lt;sup&gt;g&lt;/sup&gt;</td>
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Abbreviations: BRFSS, Behavioral Risk Factor Surveillance System; EMS, emergency medical services.

<sup>a</sup>Epidemiologist/SAS expert provides technical assistance across programs.

<sup>b</sup>++ indicates that epidemiologists analyze data for their programs as well as for others who request data.

<sup>c</sup>Cancer registry datasets include Ohio Cancer Incidence Surveillance System and Surveillance Epidemiology and End Results.

<sup>d</sup>++ indicates an epidemiologist analyzes the database for his or her program.

<sup>g</sup>Family Health Survey—a telephone survey of more than 40,000 Ohio residents. Many of the questions asked are seeking information on access to care.

<sup>f</sup>Medicare—for analysis of Medicare data, Ohio Department of Health epidemiologists work in collaboration with staff at KEPRO, Ohio’s Medicare Quality Improvement Organization.

one major data system and now shares that expertise across multiple categorical chronic disease programs (Table 1). For example, the cardiovascular disease epidemiologist analyzes hospital discharge data for other programs. The arthritis program does not have an assigned epidemiologist and requests data analysis from all the other programs as needed (Figure 1).

The new policy increases the potential for collaboration among categorical chronic disease programs within the ODH. For example, three categorical chronic disease program epidemiologists worked together to develop a report on *The Health Consequences of Cigarette Smoking Among Ohioans*. The cardiovascular disease epidemiologist examined smoking among Ohioans with cardiovascular disease and analyzed data in the US and Ohio Behavioral Risk Factor Surveillance System and the US and Ohio Mortality Statistics. The tobacco epidemiologist examined data from the Adult and Youth Tobacco Survey and the Ohio Family Health Survey. The Ohio Cancer Incidence Surveillance System epidemiologist analyzed cancer morbidity and mortality data related to smoking. A fourth epidemiologist from another division provided tables from the pregnancy risk assessment monitoring system and analyzed data from vital statistics (birth certificates). Some statistical assistance was provided by The Ohio State University. All four epidemiologists, along with program staff, helped write the report.

The tobacco epidemiologist would not have been able to include all these data sources in *The Health Consequences of Cigarette Smoking Among Ohioans* without assistance from the other program epidemiologists. Epidemiologists working across programs, using numerous datasets to develop a final product, resulted in a much better report for the public and for program planning and implementation.

Programs and epidemiologists are also working across agencies. The ODH and Ohio Jobs and Family Services, where Medicaid is housed, are working together to increase colorectal cancer screening among Ohio Medicaid recipients. Medicaid provides the ODH with data, and epidemiologists from both agencies work together to interpret results. Both agency programs work to reach consensus on data interpretation and what messages and information to relay to the public and healthcare workers. This collaboration helps ensure that a unified consensus message is voiced.

Although this policy change did not require additional staff, the ODH incurred initial costs to provide additional training to the epidemiologists. Increased time and effort were required on the part of the epidemiologists. This workload decreased as the epidemiologists mastered their specific databases. Program managers have had to recognize that data requests from their assigned epidemiologist may be delayed if that person is working on a project for another program.
**Discussion**

Epidemiologists have noted that working together in a team approach has enabled them to learn from each other and feel less isolated. Collectively, the DOP has developed increased capacity to better describe the burden of chronic diseases, make more informed decisions on what populations to target, and to plan well-thought-out interventions.

At its annual meeting in 2007, the CSTE adopted a position statement entitled “State-level Chronic Disease Epidemiology Capacity,” which recommends that states measure and monitor their chronic disease epidemiology capacity in the following domains: workforce, access to data and consultants, data analysis/interpretation, dissemination, and outreach/partnership. The Ohio experience provides an example of how a state can increase its capacity in the last four of these domains without increasing its workforce.

The Ohio experience also helps confirm the CSTE’s recommendation that states have a senior epidemiologist early in the capacity building process to help integrate chronic disease epidemiology activities across categorical programs. In the case of Ohio, this role has been played by an assignee from the CDC. Other states have chosen this approach, whereas some have created senior chronic disease epidemiology positions within their own personnel systems.

In 2008, because of an internal organization shift, the BHPRR was placed in a new office—Healthy Ohio. While the BHPRR is no longer under the auspices of DOP, the epidemiologists continue to work collaboratively. The organizational shift has been seamless and chronic disease epidemiology capacity has not suffered.

**Conclusion**

The Division of Prevention at the Ohio Department of Health has been able to increase its capacity for chronic disease epidemiology without increasing workforce by implementing a policy with three key elements: (1) epidemiologists remain responsible for supporting the categorical program to which they are assigned, (2) each epidemiologist develops expertise to analyze data from at least two datasets that are critical to the mission of the Division, and (3) epidemiologists share their dataset-specific expertise across chronic disease programs.

**REFERENCES**