



Council of State and
Territorial Epidemiologists

Epidemiologic Capacity of State Health Agencies: A Guide for Assessment

Final report prepared for CSTE
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SUMMARY

From January 1995 through August 1997, a guide to assessing the epidemiologic capacity of state public health agencies was developed. Its purpose is to enable individual states to systematically self-assess their capacity in the three functional areas of epidemiology established by the CSTE as the responsibility of state health agencies. These are surveillance and monitoring, crisis response, and providing epidemiologic input to policy assessment and development.

The guide was developed with the aid and participation of ten self-selected state health agencies. Each also selected the programs to be included in their assessment. Among these states, a wide variety of programs were involved, including those for general epidemiology, HIV, STD, TB and vaccine preventable diseases; chronic diseases of many types; injuries; maternal, child and family health; environmental health; and substance abuse.

The initial development of the guide, its first field test and revisions following each test were the responsibility of the contractor. Professional staff of the CSTE and the CDC participated in all other field tests and in providing critical review and comments from each of those tests. Many staff in each state health agency participated in the test involving their agency. They provided thoughtful and helpful information at all stages, both for the assessment itself and for the further development of the process. As a result, a practical assessment guide is available for use by state health agencies.

As a further result, preliminary information about common strengths and weaknesses of epidemiologic capacity among the participating states is also available. In summary, of the three core functions, capacity is greatest for crisis management; and to a somewhat lesser degree, surveillance and monitoring. The least well developed capacity is for providing epidemiologic inputs to policy development. An important observation is the high degree to which epidemiologic capacity in a particular organizational unit of an agency - other than in general epidemiology units - typically is of little programmatic benefit to other units.

Recommendations are made for how and the circumstances under which capacity should be assessed, how to establish state and national priorities for strengthening epidemiologic capacity, and how a state health agency's current epidemiologic capacity may provide even greater benefits to the organization as a whole.

BACKGROUND AND INTRODUCTION

In September 1994 the Council of State and Territorial Epidemiologists, in collaboration with the Centers for Disease Control and Prevention, issued a Request For Contract titled "Development and Field Test of a Guide for Assessment and Evaluation of State Health Agency Epidemiologic Capacity". The purpose of the contract was to develop a guide that state health agencies could use independently to systematically evaluate and strengthen their capacity to provide essential epidemiologic services in support of their public health goals. It was to be usable in all fifty states, for non-infectious as well as infectious diseases and other health-related events and conditions, and not require more than one week to conduct.

The need for such a guide was stimulated by many observations of important on-going changes in society and nature which affected the health status or risk of significant proportions of the public. Some of these changes were also handicapping public health agencies' ability to effectively and efficiently address the resulting health problems.

One change was in the nature of public health threats: the continuing emergence of new diseases and of resistant or more pathogenic forms of previously known pathogens; and many infectious diseases became more important as the numbers of persons with reduced immunologic capacity increased. Important changes were also occurring in agricultural and commercial practices having an impact on public health, for example, in food production, processing and distribution.

Changes were also occurring in health agencies' goals and strategies. In general, their scope was broadened, and carried with them new opportunities and needs for epidemiologic inputs. These included employing epidemiologic methods to define public health problems; to establish priorities among and policies regarding these problems; and to plan, implement and evaluate intervention programs. Public health agencies recognized early that existing epidemiologic capacity was not sufficient.

Concomitantly, there was a downwards trend in public resources allocated to disease surveillance, investigation and control; and an increase in the public's expectations concerning the early detection and effective prevention of diseases. Further, the public wanted more involvement in identifying and prioritizing health needs and in developing interventions for them. The important role of epidemiologic data to guide such involvement was recognized.

Achieving a high level of public understanding, trust and involvement, as well as effectiveness, in disease control and prevention, increasingly depended upon *capable organizations and systems* as well as upon highly-trained epidemiologists.

This has important implications to a public health agency considering its needed and its actual epidemiologic capacity. One is that its actual capacity depends on the resources available and on how it chooses to organize and use them. Second, whether its current capacity is sufficient depends upon the public health outcomes it has targeted, its strategies for achieving them, its staffing and the support provided them, and its policies and procedures. These considerations strongly drove the development of this guide. A major result is that the guide assesses an organization's demonstrated capacity rather than any individual's performance or capability.

METHODS

In an early developmental step epidemiologic capacity was defined as "the ability of an organization to use epidemiologic concepts, methods, and practices to achieve its public health objectives".

Mainly, the value to an organization of assessing its epidemiologic capacity is in determining whether its current capacity is adequate to its projected needs for achieving its explicit mission and objectives. If its capacity is found not to be sufficient in all important ways, the organization can decide upon its priorities for strengthening; and then undertake the planning and actions needed to bring their actual and needed capacity into a better balance.

This then lead to the question of what should be measured, and how, to arrive at useful conclusions about the nature and extent of an organization's current epidemiologic capacity. The starting point for answering this was a position taken by the Council of State and Territorial Epidemiologists: three core epidemiologic practices are especially important, and should be carried out by each state public health agency:

1. Monitoring and assessing the constituency's health status and its determinants.
2. Managing health crises by responding to emergencies and outbreaks.
3. Providing the science for policy decisions related to public health.

With these as guides to the intended content and scope of the use of epidemiology by state public health agencies, the literature was reviewed to identify articles relevant to public health needs and programs. The review included the range of infectious and communicable disease concerns that traditionally have been the focus of epidemiologic activities; chronic disease, injury, environmental health and other intervention programs found in public health agencies around the United States; and program management practices (Attachment 4).

From these articles, the authors' concerns and recommendations for the programs and capacity needed were identified. These concerns and recommendations were subsequently grouped into twelve major epidemiologic capacities. Each of these was then placed with the core function which it supported.

As currently organized, three of these major capacities further detail the core function of *monitoring and assessing*:

1. Conduct surveillance of diseases and conditions related to the agency's mission and objectives (whether or not they are officially reportable).
2. Conduct assessments of the status and determinants of the public's health.
3. Evaluate surveillance and assessment activities.

Five more define the *management of emergencies and outbreaks*:

4. Detect outbreaks, high endemic levels or increasing incidence of disease and other health needs.
5. Initiate crisis or needs response and situation analysis.
6. Conduct crisis or needs intervention.
7. Conduct internal and public communications and relations.
8. Conduct post-intervention review of procedures.

Four address *providing the science for policy decisions*:

9. Recognize issues for which new or revised policy may be needed.
10. Assemble and interpret information to assess policy issues.
11. Formulate the intent, goal and strategy of new policy.
12. Communicate this information to decision-makers.

Clearly, the content of these twelve capacities is not science alone, but includes putting science to work in the organization and helping the whole organization develop its expertise and effectiveness over time.

To determine the degree to which a particular health agency has each of these twelve capacities, a series of questions was

developed and organized into a questionnaire. These questions originate from the literature and experiences in the participating states. Collectively, the responses characterize and quantify the actual use of epidemiologic capacities by the organization in the previous two years. A separate questionnaire is completed by each organizational unit included in the assessment. It is to be completed jointly by the manager of the unit, the epidemiologist if there is one, and whoever else the manager determines would have useful input. Supplemental interviews of these same individuals are conducted to verify and make more complete the responses on the questionnaires.

The other major development was of methods for determining more specifically the epidemiologic capacities needed by a particular organization. The need for this became apparent early, when participating states asked for recommendations for organizing and strengthening their capacities. The difficulty in responding objectively to this request was that there were, and are, no explicit and widely accepted standards for epidemiologic practice.

The approach taken was to determine the kind and amount of epidemiologic capacity the agency and its constituent units plausibly would need to be highly effective in achieving their explicit objectives for protecting and improving the public's health. Arriving at such judgements in each state, for each of the organizational units included in the assessment, was done by reviewing the intervention or promotion program objectives and their strategy for accomplishing them. Recommendations for strengthening their epidemiologic capacity were then derived from observed "gaps" between the capacity judged to be necessary to an organizational unit and that which had been demonstrated by its performance during the previous two years.

The earliest version of the guide was tested in and with the participation and support of the Iowa Department of Public Health, in April 1995. During the period from September 1995 through August 1997, the guide was further tested and revised with the help of nine additional states (Attachment 2).

THE ASSESSMENT PROCESS

All participating states requested that the *pilot-test/capacity assessment* be conducted by external rather than internal staff. Therefore, although the guide (Attachment 1) is for self-use by states, the process described below includes several activities actually carried out by an external team. All such activities

would normally be carried out by the state conducting its own assessment; and the timetable would remain appropriate.

From the standpoint of an external team, it is convenient to think of the assessment as having three phases: pre-site visit; the site-visit; and post-site visit.

During the pre-site visit interval, four types of activities take place. First, the purpose of the assessment and the specific programs to be involved are made explicit. Affected staff are provided a copy of the guide and asked to review it. Second, usually via a conference call, questions and suggestions of the staff to be involved are discussed. Third, arrangements are made for the agency to provide to the external team copies of relevant mission statements, program descriptions, organizational charts, and specified related information. This is used to gain familiarity with the organization and to identify their objectives and the epidemiologic capacity needed. Fourth, each participating program and organizational unit is asked to complete and send to the team a completed capacity assessment questionnaire, filled out for their unit only.

On-site, several important activities occur. First, all staff to be involved meet to review the purpose and process of the assessment, address any unresolved issues, answer questions, and discuss and confirm the schedule for the week. Second, the staff of each organizational unit are interviewed to verify and round-out the information provided on the questionnaires. This usually involves obtaining additional available information the team or staff consider important, and usually requires about three and one-half of the four and a half days available.

Third, all of the information is sifted through, organized, and interpreted, and tentative conclusions reached about any apparent gaps between the capacity the organization is understood to need and that which it has manifested in its performance. Fourth, the summarized information and conclusions are provided to the participating staff, meeting in a group session. In this meeting, the focus is on verifying the available information, getting feedback on the appropriateness and usefulness of the conclusions, and supporting the process of the organization appropriately responding to this information. In two states it was possible, before providing any feedback, to have the participants provide a written assessment of their epidemiologic capacity, using the twelve capacities previously described. Their responses are discussed in the next section.

After the site visit, a draft report, containing conclusions and recommendations, is prepared and sent to the organization for comment. This review has always improved the accuracy of the information and resulted in useful modifications. The revised final report, intended as a document to facilitate further strengthening of their capacity, is then prepared and provided.

DISCUSSION AND CONCLUSIONS

The Capacity Assessment Guide

The main conclusions reached from the initial pilot test were that the guide could be used to characterize a state public health agency's epidemiologic capacity; the same or analogous indicators used for infectious disease epidemiology can be used for a variety of other types of programs; and that the staff interviews and final data analysis of an assessment can be carried out in one week's time on-site.

For two states it was possible to compare the external team's assessment to an assessment made by the staff of the programs involved. Capacity-by-capacity, the results were very similar (attachment 3). The two assessments were almost identical for surveillance-related capacity, differed somewhat more for investigation and intervention-related capacities. The differences were greatest for policy-assessment and development-related capacities. In almost every instance, though, program staff assessed their capacity as being lower than did the external team.

Improvements to the process occurred from its use in each state. These improvements were mainly of the following kinds:

1. Greater specificity of pre-site visit assessment activities and of how to orient the participating staff.
2. Improvements in the questionnaire and in the staff interviews, to (i) discern and describe actual epidemiologic resources and performance across all twelve capacities in each program or organizational unit; and (ii) make the process equally relevant to non-infectious disease programs — and convince staff that this was so. A particular difficulty was that many program managers had little or no training or experience in epidemiology and were unfamiliar with epidemiologic concepts and terms. This necessitated the minimal use of epidemiologic terms, and generally using equivalent meanings.

3. Very importantly, while still on-site, to (i) organize, digest, interpret and draw conclusions from the data; and organize feedback to the participants; (ii) engage the staff in discussion aimed at verifying the accuracy of the assessment team's observations, and re-considering conclusions and recommendations if new information or insights on its interpretation are surfaced; and (iii) initiate or otherwise support their longer-term process of addressing any capacity "gaps" they consider important.

A practical guide for assessing the epidemiologic capacity of state public health agencies is now available. Using this guide, it is possible to systematically assess the demonstrated epidemiologic capacity of a state health agency. In particular, this assessment provides information that (i) identifies major capacity gaps, by program and for the entire part of the organization included in the assessment; (ii) helps identify major alternatives for remedying the gaps; and (iii) helps establish recommended methods for assuring good use of currently available resources for epidemiologic capacity.

The assessment does not, though, answer some important questions: (i) Are the agency's current programs, objectives and strategies sufficient for the needs of the population being served? (ii) What are the important contributing causes of the gaps between observed and needed capacity? (iii) What should be the priorities for addressing the gaps? And (iv) what specifically should the organization do to strengthen its capacity?

Observed Epidemiologic Capacity.

Although the assessment process and the information collected continued to evolve throughout the project, several patterns of capacity can be discerned.

Regarding the three core epidemiologic functions previously described, the greatest demonstrated capacity usually was for outbreak and crisis response and management; the next most extensively demonstrated capacity was for surveillance and monitoring, mainly for reportable diseases. The least capacity was shown for using science for policy review and development.

The acute disease control programs, in general, had the greatest epidemiologic capacity (Attachment #3, tables 1 and 2). Among these, and distinguishing between the general epidemiology program and the categorical infectious disease programs, the latter consistently demonstrated the highest levels of epidemiologic capacity. The injury prevention programs, too, had

relatively high levels of capacity. The chronic disease control programs varied greatly, by state and specific program, in demonstrated capacity. Of particular interest was the frequency of missed opportunities for breast and cervical cancer programs to use relevant data from the cancer registry.

Environmental programs, although not extensively involved in epidemiologic activities, generally provided good support to epidemiologic investigations of food- and water-borne diseases and toxic agents. Maternal and child health and substance abuse programs had almost no epidemiologic capacity, yet represent areas of immense potential for the application of epidemiologic methods to the public health issues they address.

The extent of epidemiologic capacity not only varied by type of public health program, but by state (Attachment #3, tables 3, 4, 5). The degree of variation of capacity by state is greatest for general epidemiology programs and chronic disease control programs; and varies least for the categorical disease control programs.

In general the presence of a high level of epidemiologic capacity in one program or organizational unit of an agency had few implications for the use of epidemiologic methods by other units not having an epidemiologist. Existing capacity was highly contained within the unit having it. It was not uncommon to find, even among infectious disease programs in the same agency, programs having a substantial need for epidemiologic inputs, and unable to get it, even while another program had the expertise to be of service.

A primary determinant of the degree of epidemiologic capacity of a specific program was whether or not it received external categorical funding (mainly CDC grants). Programs without such funding support tended to be inadequately staffed and equipped given their mission and the volume and nature of the work to be done, and consequently to manifest less capacity. This has been observed by many, for years, and there was little evidence of the situation improving.

Among most non-infectious disease programs the application of epidemiologic concepts and methods, with few exceptions (notably injury control programs), was infrequently encountered. The explanations were largely:

- (i) These programs may not include an epidemiologist position (or the position was vacant) and the program managers themselves often were not trained or experienced in epidemiology. The result is they often

don't know the potential benefits to the program of using epidemiologic methods, and often don't know where to begin to ask for assistance. In some states there was a high level of awareness among programs not having epidemiologic capacity that they should have, and of concern over how to acquire it.

(ii) Epidemiologists working in acute infectious disease programs, who might be thought to be able to provide substantial assistance, often did not, usually for the reason that the demands of their primary responsibilities did not allow the time. In a few states, though, the pattern was different. It was evident that the state epidemiologist had been consistently available and helpful to many other programs. Consequently, the staff of those programs were very aware of the benefits of applying epidemiologic methods to their programs and highly supportive of a substantially larger role for epidemiology in their (mainly non-infectious disease) programs.

In two states, at the conclusion of the external assessment but before the results were provided back, the participating staff were asked to evaluate their program's epidemiologic capacity. They used the same twelve defined capacities and rating scale as the external team. The staffs' assessments were then compared to the external teams'. For each of the three major groups of capacities (surveillance and monitoring, crises management, and policy development) the agencies' staff consistently judge their capacity to be similar to but less than that judged by the external team.

The judgements by the staff and the external team were in closest agreement for capacities related to surveillance and monitoring (-0.26 to +0.16, with a mean difference of -0.09 points); somewhat less so for capacities related to crisis management (-0.71 to +0.03, with a mean difference of -0.34 points); and least for policy development (-1.17 to -0.29, with a mean of -0.79 points).

Following is a more detailed discussion of the observed epidemiologic capacity, organized around the twelve capacities of the guide.

I. Monitoring and assessing the constituency's health status and its determinants.

1) Operate a surveillance system.

Programs for reportable diseases: Particularly strong capacity, but in some states there are elements to consider for further strengthening. High among these are increased testing of specimens to more completely (and more rapidly, if possible) characterize biological agents; and increased analysis and use of data beyond identifying cases and possible outbreaks for follow-up. Extensive pattern and trend analysis, and ecological or risk-factor studies were infrequently encountered.

All other programs: No consistent pattern other than newborn screening by the maternal and child health programs, and blood lead screening.

2) Conduct supplemental surveillance and assessments of health determinants.

Programs for reportable diseases: No consistent pattern of capacity.

Injury programs: Typically there was good use of secondary data within the state.

All other programs: The most widely available state-derived data was that from the BRFSS. The extent to which different programs made use of these data varied from extensively to little. In many instances where programs had data sets relevant to their program, these were synthetic estimates using nation-wide or other rates of conditions applied to the particular state's population. One complication to the more extensive use of a state's vital and other statistics is its relative inaccessibility to potential users within the agency. Another is the widespread lack of training and equipment to readily access, analyze and use data. A third difficulty is that in some states or programs data has a limited role in decision-making regarding priorities, targets, strategies or resource allocation.

3) Evaluate surveillance and assessment activities.

This capacity was rarely reported or observed in the absence of an external supporter or collaborator, usually CDC.

II. Managing health crises by responding to emergencies and outbreaks:

4) Detect outbreaks, high endemic levels or increasing incidence of disease and other health needs.

Programs for reportable diseases: These demonstrated particularly strong epidemiologic capacity. Staff clearly understood the purpose of this and of their role.

All other programs: No consistent pattern. Many programs did not appear to recognize the value of using explicit criteria to decide when the occurrence of a health problem in the community may be unacceptably high (in terms of incidence or prevalence) and warrant a more detailed study or investigation.

5) Initiate crisis or needs response and situation analysis.

Programs for reportable diseases: Particularly strong. Staff clearly understood the purpose of this and of their specific role. Preparation of detailed written reports of investigations was not a consistent practice. Nor, except in the categorical programs, was post-investigation review of the investigation by all the staff involved.

All other programs: No consistent pattern. There was only sporadic evidence of the capacity of these programs to design and implement an epidemiologic study of the health conditions for which they were responsible.

6) Conduct crisis or needs intervention.

Almost all programs had demonstrated a high capacity to implement intervention programs. For some programs, mainly those for chronic diseases, the selection and implementation of interventions was done without the benefit of having specific population-based data. Also, demonstrated capacity to evaluate the effectiveness of the interventions was not common.

7) Conduct internal and public communications and relations.

In general, capacity for communications with the public was good, but tended to focus on topics currently of public concern, and less often on systematically using available public health information to educate the public on its health status, risks, needs and appropriate individual and community prevention measures.

Programs for reportable diseases: Noticeable gaps. A common pattern was of the organizational unit leading an investigation to obtain assistance from staff in other parts of the organization for data collection, but not to give them subsequent feedback on their inputs or on the overall investigation.

other programs: No consistent pattern.

8) Conduct post-intervention review of procedures.

Programs for reportable diseases: Noticeable gaps. This was most consistently well done by the categorical disease control programs.

other programs: Noticeable gaps.

III. Providing the science for policy decisions related to public health:

Of the three core functions of epidemiology, this was the least well developed in the states. Few staff other than those immediately involved in the office of the director of health in preparing legislative proposals had a clear view of their role, and the role of epidemiologic data, in policy review and development. Many of those interviewed at the program level expressed their understanding that this is not an area in which they were being asked to work.

9) Recognize issues for which new or revised policy may be needed.

The staff of virtually all programs could name several contemporary topics about which recent developments in science, resources or data affecting their program at least suggested it would be useful to reconsider one or more current policies or procedures. But it was relatively uncommon to go to the next step of organizing additional information to further assess the policy implications.

10) Assemble and interpret information.

Demonstrated capacity in this area varied widely among states and programs. In some, excellent capacity existed, and in others it was only sporadically demonstrated. Where high capacity was demonstrated it appeared to result from a particular individual making a special effort. Where it was not found, or not found to be high, the reasons may be more diverse, including not knowing it is expected; lack of training, experience or equipment for data collection and

analysis; or inadequate data sets or access to them

11) Formulate the intent, goal and strategy of new policy.

In this area, too, demonstrated capacity varied widely among states and programs. Excellent capacity existed in some, and in others it was only sporadically demonstrated. Most programs that demonstrated capacity in assembling and interpreting information also demonstrated capacity in this area.

12) Communicate this information to decision-makers.

There was no consistent pattern in this area. Typically, if a program demonstrated capacity in the three previously discussed areas it also had capacity in this area. Not all such policy proposals were eventually successful, but many were.

It appears that epidemiology makes its best contribution to health program outcomes when it is integrated into programs rather than being an "external" resource occasionally accessed as some need becomes apparent. There are several reasons for this. One is that an epidemiologist located in a program is much more accessible to the staff. This results in identifying and pursuing many opportunities to use epidemiologic methods in the normal course of conducting business.

Another is that not only does the epidemiologist help in identifying, collecting, organizing and interpreting data, they tend to support program planning and decision-making modes that over time become increasingly data-based. This has an additional benefit of enabling the identification and addressing of staff development needs.

For some programs, especially those that historically have focused on providing clinical or field services to a target population, there may be a particular barrier to the development of epidemiologic capacity. Such programs, in their on-going program development activities commonly focus on how to provide more services, to more people, of a higher quality — rather than on assessing the health status of the community, identifying high priority needs, establishing outcome objectives for improving health status, and focusing their resources on addressing these. Such programs might not perceive a significant role or need for epidemiologic capacity.

RECOMMENDATIONS

The capacity concerns previously discussed have many roots. Some of the more pervasive or important of these are addressed in the following recommendations.

FOR STATE HEALTH AGENCIES:

1. A health agency should undertake an assessment of its epidemiologic capacity only if among its reasons is that of planning to strengthen that capacity as appropriate.

Conducting an assessment of capacity has a significant effect on the staff. Initially, many begin to understand epidemiology in a different way – a way that makes it more relevant to their program – and raise questions about their resources, practices and program outcomes. Ideas abound about how things might be improved or strengthened. And some expectation develops that in fact the organization wants such changes to occur.

2. Identifying, planning and implementing specific measures to strengthen capacity must involve the staff – as the most knowledgeable of problems, their causes and potential solutions – on an on-going basis. But strengthening capacity also requires the continuous and timely support, perspectives and direction of all higher management levels.

3. When planning new programs or reviewing existing ones it is important to make an honest estimate of the actual resources and practices needed to implement the program strategy and to accomplish the program objectives.

The scale of a program needs to be at a level which is plausibly achievable with the resources expected to be made available. Significant imbalance between capacity needed and that actually available can have long-term negative effects beyond non-achievement of program objectives.

4. All programs not already doing so need to develop population-based health status outcome objectives, and strategies for achieving these. Programs doing this also need a system of reporting and an electronic database specifically designed to track progress in achieving these objectives, as well as to permit epidemiologic studies of the "problem" in the population.

5. The development of epidemiologic capacity in an organization requires some things outside the control of the particular epidemiologists and the programs in which they work. Higher levels of management in the agency need to foster an environment in which epidemiologic practice can flourish. This means adopting and consistently articulating and supporting certain values of the organization:

(i) That individual contributions are essential and highly valued. Some ways in which that is recognized is that the personnel system includes a career ladder for epidemiologists; and that on-going professional development is tangibly supported (e.g., by creating opportunities for training and varied experiences).

(ii) That data-based decision-making is essential; and to foster this, continuous gathering of information, access to existing information, and ready information exchange is made a reality throughout the organization. And frequent, on-going professional seminars and up-dates are provided.

6. Epidemiology should not be seen as the exclusive domain of epidemiologists.

In particular, non-epidemiologist program managers must be oriented and trained in what epidemiology is and how the use of epidemiologic concepts and methods can strengthen their program. The purpose is to equip them to request appropriate epidemiologic assistance, or, if the opportunity arises, add such a position to their staff. Higher level managers insisting that lower-level managers justify their decisions with valid population-based data quickly creates an interest in epidemiology.

7. Organizations should find ways to utilize existing epidemiologic capacity across a wider range of programs within the agency. One way is to selectively blur the boundaries between organizational units to allow some greater degree of on-going resource sharing. Another is to make sure position descriptions of epidemiologists and program managers encourage a greater consultative role within the agency. A third is for two programs needing epidemiologic inputs to each contribute a portion of an FTE to establish the necessary position.

8. Review programmatic activities to assure the desired balance between those that are mainly short-term (e.g., crisis management) and those that are more longer-term in their benefits (e.g., development of health program outcome versus activity measures, and appropriate data bases; policy development).

FOR THE CSTE:

9. The CSTE should provide the assessment guide to each state health officer, epidemiologist and health program manager, and continue to provide assessment assistance to states requesting it.

While the guide is intended to be used for a self-assessment, the states involved in its pilot testing and development invariably requested the involvement of an external team. This might mean that for the guide to be extensively used in the future, external assistance will have to be provided. The guide also was developed for use by the state epidemiologist, or by the manager of a disease intervention or health promotion program, to examine the epidemiologic capacity of their own unit. Over time, however, the requests for the assessment increasingly came from higher organizational levels; and the requests increasingly included multiple programs - some were even for essentially agency-wide assessments. Such assessments, crossing so many organizational boundaries, may present certain difficulties to the state epidemiologist if she or he is not the director of all the units included, and it may partly explain the states' requests that external staff conduct the assessment.

10. The CSTE should, at an annual meeting, have a plenary session on the subject of all states systematically assessing their capacity. A common instrument should be used, and the results conveyed to decision-makers within their state and elsewhere.

FOR THE CDC:

11. Given that there are wide differences in epidemiologic capacity among and within state health agencies, and that a more uniformly high level of capacity is critical to a high level of disease detection and prevention, adopt a programmatic mechanism to identify nation-wide the most important gaps in epidemiologic capacity at the state level.

FOR THE CDC AND THE CSTE JOINTLY:

12. Identify the most promising remedies to the states' epidemiologic capacity needs and establish a process for addressing these on an on-going basis.

The preliminary data identify several needs which could be addressed even before having the results of a systematic nation-wide assessment.

13. Continue to assist states in conducting assessments of their epidemiologic capacity.