

Task Force Report
on
The Public Health Laboratory ---
A Critical National Resource
29 January 1993

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Introduction

At the 1992 Annual Meeting of the Association of State and Territorial Public Health Laboratory Directors (ASTPHLD), a task force was created and charged with the following responsibilities:

- "... gather information, study and develop a report concerning public health laboratories and the issues surrounding the provision of cost-effective services ...
- ... outline the value of public health laboratories as an essential component of public health in areas such as ... national surveillance, disease control priorities and other diagnostic, analytical and environmental assessments.
- The document shall serve as a resource of information ...
- ... will present a history of public health laboratories, the needs for such laboratories ... economic considerations, impact statements, legislative (regulatory) statements ..."

The Task Force has used a generic format for this report rather than provide an extended evaluation and commentary on each word or phrase in the charge. Because of the variation in state environmental and public health laboratories, no single document could address the problems confronting each laboratory. Therefore, this document broadly discusses reasons for establishing state environmental and public health laboratories, misperceptions about the public health system, the need for continuous assessments of the public's health, and governmental practices that impede the effective operation of public health programs. We hope that this discussion will provide a stimulus for effectively responding to specific issues, problems, charges, and challenges that individual laboratories face. The generalized approach will help those laboratory directors who must respond to antigovernment or outside challenges and who must provide an effective plan for public health laboratory successes in the 21st century.

Background

The Institute of Medicine (IOM) report, *The Future of Public Health* (1988), has refocused concerns about public health. The report sent shock waves through government, particularly agencies responsible for public health because its authors asserted in the very first sentence that "this nation has lost sight of its public health goals and has allowed the system of public health activities to fall into disarray."

The IOM committee and staff randomly interviewed individuals in an effort to determine citizens' perceptions of public health. The following responses were highlighted in the report:

"When I think of public health, I think of early intervention, prevention."

"Public health is immunization, school health, control of contagious disease."

"It's anything that affects the health of the community on a mass basis."

"Public health is the area of health outside the capability of the individual private practitioner."

"The core of public health is the capacity to identify problems, and having found them, measure them and attempt to intervene."

From another point of view Gordon (1992), a past-president of the American Public Health Association, has written

"Health care is not public health!

Public health is not health care!

Public health and health care are in eternal competition for the health dollar, just as certainly as they are in competition with other basic governmental functions such as welfare, education and defense. If public health leaders cannot, or do not, choose to forcefully and

effectively promote the primacy of prevention, promotion, and environmental health, who will?"

We, as members of the community of citizens at every government level, must assure that appropriate conditions exist for people to be healthy.

The IOM report did not address, however, the vital role that public health laboratories play in all activities conducted by the public health system. Without public health laboratories providing an assessment of diseases beyond the capabilities of the individual practitioner or the managed care provider, there would be very limited knowledge of the health of the community --- of whatever size.

A second IOM report, *Emerging Infections. Microbial Threats to Health in the United States* (1992) was specific when it stated, "Diminishing resources have particularly threatened the state laboratories, which early this century were major contributors to public health microbiology. The holes in the fabric of diagnostic, investigative, and research capabilities created by the dwindling activities of state laboratories are seldom repaired." This IOM Committee was of the belief that the United States lacks the organization and resources necessary to capably respond to microbial threats.

The committee did provide some insight into what factors they consider essential for meeting the threats posed by emerging infectious diseases: raise the awareness of and concern for emerging disease agents; preserve and strengthen domestic and international efforts in disease surveillance; address the scientific knowledge gaps about many infectious agents by both basic and applied research. The state public health laboratories provide the essential microbial assessments which this report specifies as essential to the recognition and intervention of these global threats.

To draw attention to the pivotal role of public health laboratories, two thought-provoking articles have been recently published. Dowdle (1992), in

describing the future of public health laboratories, argues that this pivotal role depends heavily on the creative abilities of current and future public health departments as well as those appointed and elected officials and the general public to understand and appreciate the meaning of public health and the functions of public health laboratories. The speed, sensitivity, and specificity of microbiological and environmental techniques currently used or in development provide public health laboratories, epidemiology and other program partners a degree of sophistication undreamed of only a few years ago. New techniques will revolutionize the methodologies used in communicable disease and environmental laboratories and will expand the capabilities of even the smallest public health laboratory.

Valdiserri (1992) examined the historical aspects of public health laboratories and their role in public health practice, examined the antecedents of the public health laboratory, and then focused on the rapid and productive changes in public health that followed the laboratories' introduction of the scientific method. He traced the development of public health laboratories from primarily community-based entities to the current system of state or territorial government-operated laboratories working with federal laboratories at the U.S. Centers for Disease Control and Prevention (CDC). In tracking the development of a national laboratory system to the present day, Valdiserri noted that laboratories continue to be influenced by two major variables: science and public policy. Without the contributions that environmental and public health laboratories have made in the formulation of broad ranging assessments, no effective public policy initiatives or requirements would have been developed. Public health laboratories have also played a central role in community health assessment. It is imperative that society recognize the additional importance of this laboratory surveillance.

The nation does not need a new course or initiative in health economic theory, but it does need to become reacquainted with the economies of public health assessments. Health screening clinics, cholesterol and diabetes screening clinics, blood lead testing sites, immunization clinics and program validations, and nutrition or weight control clinics constitute some of the activities that can be conducted on a mass basis for both individual and group benefit. These are a few examples of those functions for which public health agencies and their laboratories can perform assessments at costs greatly below those of private laboratories working with independent health practitioners. With health costs increasing at an extraordinary rate and with political leaders and their supporters calling for health care reform, public health activities must be returned to those who practice public health rather than the extremely costly rush to privatize these services. Public health is not a program just for the indigent, it is for everyone who wants their hard-earned dollars spent on a well-managed total health care system.

Because of the success of many public health activities, many people believe that we now live in a relatively disease free environment. Although outbreaks of disease transmitted through food, water and milk have been greatly reduced, people need to be reminded that their continued protection from such diseases depends on the monitoring activities of public health laboratories. When these functions are ignored, terminated, or reduced by unwise funding or fiscal policies, we then witness unexpected outbreaks of disease. An excellent example is the current problem with measles and the obvious sporadic failure of the measles vaccine. About 20 years ago funds were allocated to immunize the population, but funds were not set aside to monitor vaccine effectiveness. Continuous assessment of vaccine effectiveness most likely would have alerted public health officials earlier to problems with the vaccine.

No one can say without reservation that any single component of the public health system is the most important and all others are of markedly less significance. The essential activities of public health systems are detection, prevention, treatment, control, intervention, surveillance, and assessment. They are not listed in any order but simply to draw attention to the complexity role of public health. What is important, however, is to note that the public health laboratory is essential to each one of these activities.

In this report, we are not attempting to minimize the role to be played by those laboratories that support the individual practitioners or managed care providers. These "clinical" laboratories are an important and vital part of the health care system, but they are not part of the public health laboratory system. Nongovernment laboratories do not and cannot, even when thought to do so by a carefully managed and stipulated contract, provide the public health perspective so necessary in our complex health care system. And neither should it be the obligation of public health laboratories to provide clinical laboratory services to individual practitioners or managed care providers.

A very good case in point is the inappropriate application of specific clinical laboratory requirements to public health laboratories as they struggle to comply with the Clinical Laboratory Improvement Amendments of 1988. There are specific provisions in the current regulations implementing this act that will, if enforced, prevent public health laboratories from assessing the existence or spread of a new disease. If enforced as planned, this act will deny our nation those innovative and investigative efforts that, within a brief span of time, identified the etiology of Legionnaires Disease and AIDS and developed the appropriate criteria and methods for detection. In addition, the extended cost associated with this act will curtail or eliminate the ability of public health laboratories to make fundamental public health disease assessments. In a time of unrestrained personal health costs,

we must carefully consider the impact on public health laboratories of this impending federal regulatory program.

The following comments will provide a useful perspective on the environmental and public health laboratory in an evolving public health system and will draw attention to the sensitivity, concern, scientific quality and responsiveness of these laboratories. Through dialogue, debate, and commentary, we hope to align environmental and public health laboratories with Pasteur's premise that laboratories are "Temples of the future."

Misperceptions About Public Health

Although some people are quite knowledgeable about public health, misperceptions about the nature of public health are still common among the general population. Perhaps the most common misperception is that public health is a government-subsidized system for providing free health care to the poor and indigent. Nothing could be further from the truth. Public health, a fundamental component of 20th century government, is based on the premise that the economic, social, and cultural development of any community is ultimately dependent on the health and vitality of its citizens. It is a commitment by government at every level to assure a healthful community, so that instead of fighting for survival, members of the community can devote their energies to fulfilling their dreams. However, as societies evolve and become more complex, so does the task of providing a healthful environment for its citizens. This is a responsibility of government that cannot be delegated, even in part.

Those who undervalue the importance of public health often fail to recognize the relatedness of adverse health events. Specifically, the average person incorrectly concludes that another person's illness is of no consequence to him or her, particularly when that other person lives in a different community or distant

geographic location. Yet communicable diseases continue to circulate with variable frequency in all communities. In some instances even casual contact with other persons at work, in an airplane, or at a supermarket, school, or shopping mall can result in infection. In addition, economic and social changes are bringing more people together in crowded cities, thus increasing the frequency of personal contact. Interstate and international travel is becoming ever more commonplace, thus allowing for rapid dissemination of communicable diseases over large distances. Young children now spend many hours each day outside the home in day care facilities; all too frequently these children contract infectious diseases that they introduce back into the home. Pesticides used in a nearby state may find their way into rivers and lakes that provide the water supply to a local community in another state or into the food on our tables. Rapid transportation is also turning the world into a global village and economy. Food harvested and processed in one state or country is then shipped and consumed in another. Each day, meat, fish, fruit, and vegetables are imported into the United States from countries throughout the world. Imported clothing, toys, carpets, pottery and other household items can contain unknown but harmful levels of lead, volatile organic compounds, toxic materials, microbial agents, or their toxins.

Despite these increasing threats to our nation's health, a false sense of security prevails among the public. Undoubtedly, the widespread availability of vaccines contributes to this sense. But although vaccines are available to protect against many infectious diseases, effective vaccines are still unavailable for other diseases (e.g. AIDS, tuberculosis, and Lyme disease). New measures are needed to prevent infection. Prompt identification and treatment of infected persons is one method to prevent the spread of such diseases, but these prevention efforts require a well-developed and coordinated disease surveillance system. Moreover, even vaccine-preventable diseases can persist in communities when immunization rates

fall below acceptable levels. Continuous assessment is also necessary to monitor the trends associated with disease and infectious agents. Laboratory testing is an important component of these assessment systems.

Undoubtedly the ready availability of antibiotics also contributes to a false sense of security. What is not widely appreciated, however, is that microorganisms grow and mutate rapidly, and microorganisms resistant to antibiotics are now commonplace, especially in hospital environments where antibiotic usage is heaviest. The recent emergence of multidrug-resistant tuberculosis is a good example. Prompt identification of resistant microorganisms is essential to the health of the community: physicians can then be instructed to use alternative antibiotics, and the pharmaceutical industry can begin a search for new therapeutic agents. A surveillance system that provides laboratory data on antibiotic resistance patterns is essential to combating these problems. For example, the continuous monitoring of gonorrhea (GC) cultures for antibiotic susceptibility by public health laboratories led to the early discovery that these organisms were resistant to penicillin. As a result, the treatment protocol, which had been acceptable for more than 40 years, was changed. Primarily because of this laboratory surveillance system, gonorrhea can still be effectively treated today.

Economic, technologic, and demographic changes continue to affect our environment and introduce new disease threats. During the last half century, for example, areas of New England have become reforested as use of land for agricultural purposes has declined. This changing pattern of land use has provided additional protective cover for the deer and rodent populations, which are now commonly found near suburban homes. Unfortunately, this trend has also allowed the introduction of the deer tick that causes Lyme disease. Another threat -- toxic shock syndrome -- occurred among women who used certain brands of tampons that preferentially allowed the proliferation of toxin-producing staphylococci. Legionella

pneumophila is normally a harmless water-borne bacterium, but it is infectious when introduced into the lungs. Outbreaks of Legionnaire's disease caused by inhalation of aerosols generated by cooling towers or grocery store produce misters are well documented. A vast array of new pesticides have been introduced in the last decade with only limited evaluation of their effect on human health. New manufacturing products or processes provide endless opportunities for the introduction of potential toxicants or carcinogens into our homes. A well-coordinated surveillance and assessment system is essential in monitoring trends and in identifying new or reemerging diseases or syndromes; and such assessment would not be possible without laboratory testing.

Unfortunately, a sense of invulnerability to illness is common among government officials. Many representatives at all levels of government have incorrectly concluded that the battle against most diseases has been won and that there remains only the matter of how best to finance individual health care. However, new threats of disease are being introduced at a rate that severely tests the capabilities of our nation's public health system. The Institute of Medicine's recent report on *Emerging Infections: Microbial Threats to Health in the United States* (1992) restated that the public health system is still a ". . . hodgepodge of fractionated interests and programs, organizational turmoil among new agencies, and well-intended but unbalanced appropriations." Such private, decentralized activities cannot effectively address emerging and re-emerging disease problems. Centralization and coordination of laboratory activity and dedication to public health are the sine qua non of an effective disease prevention program. Ironically, at a time when programs are highly interdependent and thus require more coordination and oversight, many in government would fractionate the public health system among competing vendors in order to provide a temporary fix to budgetary problems.

Program Systems vs. Fragmentation

State public health laboratories are an integral part of two functions: state public health systems and the national public health laboratory network. These functions demand uniformity of data, prompt integrated reporting and the ability to change directions quickly with each emerging threat to the community. State public health laboratories provide data to public health programs at the national, state, and local level and to other agencies, physicians, community health projects, and directly to consumers.

Public health laboratories do not operate as isolated institutions. They are an integral part of a public health system and must work closely with many health related programs (e.g. tuberculosis control, lead abatement, water quality monitoring, AIDS research). Laboratory services for these programs must be accurate, precise, reliable, comparable, timely, cost-effective, and effectively interpreted. The data must be available to public health officials and in a form that they can use in devising control measures to protect the public.

In order to be assembled and interpreted in a meaningful manner, surveillance data from the state and national level must be of equal quality and derived by standard analytical processes and performed on similar samples. A public health laboratory must be involved in the initial planning and implementation of public health programs and studies to ensure that appropriate technology and quality assurance measures will be used, that relevant specimens are collected and measurements completed in a timely manner, and that results are interpreted with suitable corrective actions. If several contractors conduct public health laboratory services, these services can become inefficient, costly, and overwhelming. Without a uniform testing process, data may be incomplete or incorrect and may lead to erroneous conclusions, inadequate health care, ineffective responses, or a waste of public funds for unnecessary testing.

Public health laboratories must have the capacity to react to community health threats and to respond to specific testing requests from public health officials during emergencies, epidemics or other public health and environmental crises. A public health laboratory is an highly integrated, broad complex of components that effectively functions as a single entity. For example, an industrial hygiene laboratory may analyze an organic chemical compound in a personal breathing zone monitor that would be of concern to those monitoring the waste discharge from the same industrial site. Or perhaps a microbe isolated from cutting oils may be identified as the etiologic agent for a number of skin infections observed in employees of diverse machine shops. Such sorts of unintended discoveries would be unlikely without the broad perspective of the public health laboratory. For the uninformed these events appear as independent activities but to the trained public health laboratory professional, they are everyday occurrences that would not be observed in a fragmented organization or in a system that functions through a series of contracts with private laboratories. Such studies, which have no bearing on specific individual medical care, are essential if we are to move quickly from identifying the source of a public health hazard to providing protection for the community.

Public health and environmental laboratories have two other advantages: they are a source of low cost testing for other state agencies, and they provide the economies of scale that allow governments to reduce the costs of public health and health care. They also are flexible enough to modify priorities, change direction, and act or react when community hazards are suspected or identified.

Because many public health tests are not required in large numbers, contract laboratories often cannot afford to maintain the instruments, supplies, or technical competency necessary and still perform the tests economically and at a profit. As the central repository, reference laboratory or assessment laboratory, a public

health laboratory can justify dedicating personnel, space, and equipment to single- or low-volume tasks.

Within public health laboratories another current issue is of critical importance -- the close working relationship among laboratory sections. An example of such a relationship is that among environmental chemistry, molecular biology, and other diagnostic sections when involved in investigating fetal anomalies, unexpected reproductive outcomes, cancer case clusters, and emergencies. If laboratory services are divided among a number of contract laboratories, independent observations may not be linked, and the public health significance of the epidemiological observations can be lost.

State public health laboratories serve a wider constituency than their respective states. Each public health laboratory is an integral part of a national (and many times global) public health network that provides surveillance and data necessary for appropriate disease intervention or control. Effective participation in this system is imperative.

State public health laboratories are constantly increasing electronic ties within their complex organizations and are making great strides in communicating their activities with other laboratories and programs. This improved communication contributes to more rapid disease assessment and, when necessary, to intervention or remediation. No other group of laboratories has the communication network necessary for protecting the health of the public. The consequences of destroying this valuable resource in favor of more decentralized laboratories, would be devastating to the public health.

Fragmenting public health laboratories will not serve the public in the manner for which they were created. The governments responsible for disabling this infrastructure are abrogating their responsibilities to the public. To some elected officials, reducing the number of government employees is paramount and

seemingly demonstrates political support for private enterprise. There is no evidence, however, that contracting for public health laboratory services is economically or governmentally efficient. The transfer of these services to nongovernment entities would constitute an abrogation of the government's public health responsibilities to its citizens and should never be permitted. . . . Who will provide the services of a public health laboratory when the fragmented service is no longer a glamorous or profitable function or when such services must be provided without cost during a medical or environmental emergency or disease outbreak?

Laboratories and Public Health Assessment

The role of a public health department is to define and respond to the health needs of the community to which it is obligated. Such an agency's foremost responsibility is to identify, prevent, and control diseases that afflict, or have the potential to afflict, its community. Effective risk assessment, intervention and disease control require an highly integrated system of surveillance, data collection, and data evaluation; readily available laboratory analyses; and a responsive and comprehensive intervention capacity. This system must be able to operate in an environment where partisan considerations, conflicts about priorities, or a lack of interest or understanding might tend to obscure the purpose and effectiveness of the system or one of its components.

The health needs of communities are more likely to be met when highly integrated, comprehensive state public health systems are in place. To assure the effectiveness of disease-assessment and intervention programs, a properly functioning department of public health must have a number of key assets that optimize integration and coordination. These assets include:

- A well-developed disease-monitoring and disease-tracking capacity.

- A statewide disease-reporting network with centralized facilities for data receipt, storage, retrieval, and analysis.
- An intervention capability that will allow health officials to react to anticipated disease threats, to maintain accepted disease-prevention practices, and to implement appropriate control measures as indicated.
- A competent laboratory and a laboratory system that provides the quality and scope of services required for surveillance and intervention activities.
- The capability of handling a large volume of tests quickly and accurately, and of reacting to emerging disease problems.

In successful public health disease assessment and control programs, the laboratory cannot be viewed as an isolated component that only provides analytical results. The work of the laboratory must be closely integrated with the needs and requirements of the health department's disease prevention, risk assessment, and intervention programs.

The following are some of the specific activities requiring such close integration and coordination:

- Determining the potential relation between disease events in terms of time, geography, and the characteristics of affected individuals.
- Measuring susceptibility or resistance of particular etiologic agents.
- Measuring the development of protective antibody response after vaccination campaigns.
- Determining the relationship, or lack thereof, between infecting organisms, particularly in disease outbreaks related to food.
- Detecting and identifying newly emerging microbial organisms and or toxins (e.g., new influenza virus variants, retroviruses with the capacity to infect humans, multidrug resistant mycobacteria).

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programs. This trend toward increased privatization should be viewed with caution where functions of public health and public health laboratories are concerned. Some functions of government could be performed by the private sector, but the complex systems and programs of public health (in contrast to personal health) are not in this category. Effective public health programs depend on unbiased information and laboratory data; the quality of such data could be compromised if public health laboratories are replaced by private contract laboratories.

In preparing for the 21st century, we must renew and strongly support those activities and policies enacted at the beginning of the 20th century that have provided us with an expectation for a current standard of healthful living, an improved environment, and extended longevity. Recognizing the significant achievements of the past and the accelerated needs for the future, public health laboratories and their health and environmental departments must be permitted to continue their high-quality work, for the public good, without the threat of their organizations being fragmented by misplaced efforts to promote privatization. Furthermore, we emphasize that personal health is a subset of public health, not vice versa. Our society will be handcuffed in its efforts to fight disease and pollution without effective public health programs and analytical laboratories. The gatekeepers of healthy communities are the dedicated professionals of a well-supported public health system. It is "penny-wise and pound foolish" to spend tens of thousands of dollars to save the life of one heart disease, cancer or AIDS patient if we as a society refuse to spend the dollars necessary to detect and rid our environment of the causative agents of these disease conditions. Misperceptions on the part of the public and fragmentation of governmental programs are counterproductive to effective and economical government.

- Assure that appropriations to government agencies will not be reduced by the amount that agency received in earned income.
- Maintain increased appropriations consistent with fiscal growth, population increases, and inflation as applied to other organizations within the jurisdiction.

We also recommend that laboratory managers be given the following freedoms in managing their budgets:

- Allow public health laboratories to carry over funds from one fiscal year to the next.
- Allow managers to expend funds without categorical limitations.
- Allow managers to use sole source purchasing when they have appropriate justification.

It is also important to encourage innovation in government fiscal management. We believe that the following fiscal freedoms, accompanied by appropriate audits and budget reviews, would be an incentive for managers to be more fiscally effective and innovative:

- The ability to borrow funds for the purchase of high-cost contemporary analytical instrumentation.
- The freedom to recover costs for services at competitive prices rather than at the "cost for providing the services" (as is now generally done).
- The ability to establish reserve funds, as a form of depreciation, for the future replacement of facilities and equipment or the purchase of new equipment.

Conclusions

Antigovernment ideology has had significant influence in recent years leading some politicians to promote the privatization of certain state government

Two major obstacles to the cost-effective operation of public laboratories are firmly established in all levels of government: rigid personnel systems and inflexible financial restrictions. The freedom of management to select and compensate valuable employees and dismiss inefficient employees is limited by an extensive set of regulations. The selection of personnel is frequently dictated by how applicants score on often arbitrary scales of evaluation and whether they meet specific selection requirements; this procedure can lead to the hiring of employees with lesser skills or to hiring those who lack specific desirable traits. Similarly, inflexible pay classification systems frequently impede hiring of more knowledgeable or more productive employees who, understandably, want to be better paid. The freedom to select the most competent employees must be accompanied by the authority and commitment to remove incompetent ones.

Because most public personnel systems require that employees use excess leave within a calendar year, many government offices are left short-handed during the month of December. Providing workers with the option of taking cash compensation for unused leave would minimize this year-end rush to use excess leave.

Inflexible fiscal restrictions also require significant modifications. These modifications should contribute to two primary goals: the generation of sufficient funding for necessary and expensive instruments, personnel, and physical plant, and the freedom of public health officials to take advantage of fiscal opportunities. To generate increased revenue, public health laboratories need legislative incentives. We recommend that lawmakers consider the following actions:

- Impose a user fee on certain noncritical, non-public health, personal health services.
- Enact legislation that allows government agencies to return earned revenues to the program that generates the revenues.

cannot be expected to supply all the laboratory services necessary to respond to complex public health needs.

There is no guarantee that low-bid laboratory testing will remain cost attractive in the face of diminishing competition. The distinct possibility also exists that, when selecting a contractor for laboratory services, a state will enhance job growth and business development in another state at the cost of the jobs its current public health effort provides. Thus, a state could lose jobs without reducing the money it spends for public health programs.

Public Health Laboratory Funding

Decision-making in government is frequently driven by crises, fiscal limitations, popular issues, or the concerns of groups with specific objectives. In an attempt at fiscal responsibility, some legislative bodies are considering replacing government-provided services with services provided by nongovernment agencies. We believe that government officials should focus on reducing the defects rather than disrupting efficient, integrated, quality services provided to the public by dedicated, long-term, knowledgeable professional employees with highly specialized skills.

Some inefficiencies in government activities are caused by the same restrictions that were implemented to control spending, limit the power of public employees, reduce patronage, maintain control over employee discretion, and detect dishonest behavior. These rigid controls have led to poor business practices by government agencies. However, because of the improved accounting principles established by the Governmental Accounting Standards Board (GASB) and the availability of instant electronic records of expenditures and computer-generated spreadsheets, sufficient controls exist.

- Detecting hazardous biological and chemical substances in community water supplies.
- Determining the presence of toxic substances in the environment (e.g., the presence of lead in schools, homes, and the workplace).

Intervention measures often require follow-up laboratory testing in order to evaluate and confirm the effectiveness of initiated action. The primary responsibility of the state public health laboratory is to meet the scientific and analytical requirements of disease prevention and to support intervention specialists of the department of public health. A decision on the part of the director of a state health department or its governing body to abandon its laboratory and to contract laboratory services with nongovernment agencies may have adverse consequences to public health and several problems are likely to arise:

- The cost of services may influence decisions about what tests are needed and thus negatively affect the quality of public health assessment.
- Health departments may lose their ability to monitor and directly evaluate laboratory performance.
- The timeliness, quality, and scope of laboratory data may be diminished.
- Innovation may be stifled, and the application of new technologies necessary to solve problems may be slowed.
- The close coordination and integration of a self-contained state public health system may be destroyed.
- An essential component in the infrastructure of public health may be destroyed.

A department without its own laboratory may be quickly relegated to a substandard status by its proponents and protagonists. States should proceed with great caution in contracting public health laboratory services. Private enterprise