



State of California

LITTLE HOOVER COMMISSION

April 10, 2003

The Honorable Gray Davis
Governor of California

The Honorable John L. Burton
President pro Tempore of the Senate
and members of the Senate

The Honorable Herb J. Wesson, Jr.
Speaker of the Assembly
and members of the Assembly

The Honorable James L. Brulte
Senate Minority Leader

The Honorable Dave Cox
Assembly Minority Leader

Dear Governor and Members of the Legislature:

An essential function of government is to protect the public's safety, particularly from those threats that individuals cannot effectively deter themselves. All Americans have a new appreciation of the threats posed by terrorism. The nature of those new threats have created new requirements on state governments in regards to security and require changes to the existing system that has been focused on serving the health needs of low income and uninsured Californians.

Critical parts of this security function rest in the public health system, where skilled professionals are needed to prepare for, detect and respond to an array of hazards. While the states look to the federal government to provide national defense, the State of California and its local partners are primarily responsible for illness and injury at home.

In this report the Commission recommends specific ways the State can fulfill this obligation, by focusing its public health functions into a single department with physician leadership and a public and expert advisory board. The State also will need to build a strong and responsive partnership with county health offices and private providers. And it will need to fortify its professional workforce and arm it with effective technologies.

In assessing the State's preparedness shortly after the terrorist attacks of September 2001, the Commission identified the public health system as the weakest link in California's homeland defense. While natural disasters had forged effective alliances among traditional first responders, public health agencies are not given the same priority as police and fire protection. Public health agencies lack equipment, training, procedures and standards necessary to perform in concert with traditional first responders.

In this more detailed review, the Commission found broad agreement among local officials, the medical community and other first responders that the public health system was not as robust as it must be. Poor communications and obsolete procedures hobble the ability of laboratories, medical providers and public health authorities to protect the public. Experts and technologies are not tapped. Key positions are unfilled and authorities and responsibilities are unclear.

At the state level, the leadership within the Department of Health Services has been struggling to re-focus from the enormous task of operating health care programs for low income and uninsured Californians, to also improving the core public health responsibilities that threaten the health of all Californians. At the local level, competition for funds has made it hard for counties to maintain adequate public health offices.

State officials acknowledge some of these problems, but express confidence and urge patience.

To be sure, the problems described to the Commission have been developing for years, and this critique reflects more the gradual degradation of the public health system than the performance of incumbents. In fact, the public should find some comfort in the caliber and dedication of many public health officials who assisted the Commission.

The concerns might be reasonably dismissed as a lower priority given the pressing fiscal problems or even the desire to help, for example, the working mother with a sick child who must chose between food and pharmaceuticals. But the threats and the risks are extreme. And the opportunity to make substantial improvements by refocusing and reorganizing existing resources makes these reforms both essential and financially feasible.

County officials and their private partners in emergency rooms and other facilities in formal testimony disagree with the state officials about the adequacy of efforts to improve this essential function of government.

The concern is heightened by the threats themselves, which go beyond terrorism to include emerging diseases that are resistant to antibiotics. And California's vulnerability is increased by its trade-based economy, its international ports and border, and its position at the crossroads of hope and innovation.

Just as a public health response conquered naturally occurring smallpox, a public health response is necessary to protect us from an intentional epidemic. And while advances in medical care may heal our cancers, a public health response will be necessary to counter the rising deaths from hospital-acquired infections and other emerging threats.

Foremost, the State should consolidate into a new Department of Public Health those core functions necessary to support the locally based public health system. That new department should be lead by a well-respected state Surgeon General as an independent voice for public health reporting to the Governor, with oversight and advice of an expert and volunteer board.

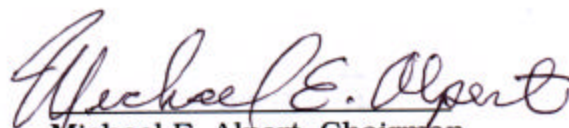
The State must become the center of a network for technical information, border-related initiatives, and new partnerships that can more effectively perform laboratory, epidemiology and other core public health functions. The State needs to systematically help local health agencies rebuild and test their capacities. And it needs to recruit, train and retain - in its ranks and at the local level - the best available talent. The greatest lure will be the opportunity to be part of a high performing effort that will save lives.

These challenges would be formidable in good economic times, but with discipline they are possible even now. These organizational changes can be made by better using existing personnel and other resources. Many of the specific initiatives can be paid for with federal funds coming to California to improve homeland defense.

But there also is need for substantial legislative and executive leadership: to rigorously assess the system; to create a structure that can be highly skilled and highly responsive; and, to create the intergovernmental and public-private partnerships that will be necessary to protect public health.

We believe that adopting these recommendations are the first, right and best steps to enable California to address the immediate health security issues that threaten millions of California lives. They also would establish a structure and intellectual framework for grappling with other significant health policy issues challenging our state.

Sincerely,


Michael E. Alpert, Chairman

To Protect & Prevent:
Rebuilding California's Public Health System

April 2003

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Executive Summary

The new century has foisted on California and the nation tremendous security-related and economic uncertainties. For those in leadership positions, these uncertainties require difficult and unavoidable decisions. California, along with other states, is struggling to pursue longstanding priorities with diminished resources, while at the same time grappling with new demands to protect and serve its residents.

The public health system is central to this struggle.

In the unlikely event of a biological weapons attack, a computer-based monitoring system staffed by capable public health scientists could save a million lives in a city the size of Los Angeles, according to federal defense researchers.¹

On a regular basis, hospital-acquired infections are killing an estimated 8,400 Californians a year, according to federal and state authorities. A robust public health system could prevent the majority of those deaths.²

In these and less dramatic ways, a strong public health system can reduce injury, illness and death. But the public health infrastructure is in poor repair, providing less protection than it should against everyday hazards, and unprepared to adequately protect us against the remote but substantial threats that we now face.

In California, only 20 percent of “reportable” diseases and conditions are actually reported to public health officials.³ If collected, such information can alert scientists about an emerging influenza epidemic or a smallpox attack in time to prevent illness and death. When a California food processor was shipping contaminated juice that sickened scores of people, it took Washington State to detect the source and notify California authorities.⁴

In some cases, California has the physical capacity to do the job, such as the new laboratory at Richmond. But at one key facility, only 60 of the 100 positions are filled, delaying the timely evaluation of cultures taken from ill patients.⁵

In this report, the Commission examined California’s public health system. “Public health” means different things to different people. The term is sometimes used to refer to government-subsidized medical care for the poor. It is sometimes used to describe efforts to influence

behavior – such as smoking, eating or drinking – that can determine our health.⁶

But the most essential definition – and the focus of the Commission's report – is public health as the government's efforts to protect all of its citizens from environmental contamination, disease and infection. While there are many actions that individuals and organizations can take to reduce injury, illness and death, some of those actions only government can take. In this report the Commission identifies what the State must do so that it can act with the greatest skill possible.

At the state level, for decades the core public health functions have not been within a single department, or even a single agency. They are scattered throughout the executive branch. There is no focused leadership, no coordination of efforts, no informed public process.

Recent threats of terrorism require California to reorganize existing functions so that leadership can be solely dedicated to these problems. We need to reclaim the transparency provided by a public process and the discipline provided by a scientific process. These reforms can be accomplished by creating a department of public health with expert and independent leadership, and a public advisory board to promote excellence.

Public health is not a state function alone. Local public health and other agencies, hospitals and clinics, doctors and nurses are strategic partners. But the system does not operate like a system – with clearly defined responsibilities, quality assurance and communication. While the State cannot do this job alone, only the State can network the individual components into a responsive and competent system.

While organization matters, people and the technologies in their hands matter more. Neither the public nor private sector can point to successful endeavors that did not result from the hard work of qualified individuals with the right tools. We rely on that formula to protect the national security and to make our neighbors safe. And in this case, we must rely on it to protect the overall health of Californians. Identifying diseases and contaminants, determining how to protect and serve the public, communicating information and administering programs demand exceptional skills. It is folly not to give deliberate attention to these prerequisites to protecting the public's health.

Finally, the core of most problems is funding – not just the level of resources, but how those funds are allocated and accounted for. No one in California knows what the State and counties spend collectively on public health or how they spend it.⁷ The Commission was presented

with many examples of how additional resources could improve the system, and the federal government is providing millions of dollars to plug the most serious gaps. The public health system is certainly worth investing in, and maybe even investing in more. But serious efforts need to be made to document existing resources, and analyze how future resources can be better spent.

There is a nexus between traditional public health and the crisis over health care. Effective public health programs can efficiently help to maintain the health of all Californians and reduce the demand on the clinics and emergency rooms.⁸ In addition, the kind of organizational changes advocated in this report – especially a volunteer board of experts and a state Surgeon General – would provide a key venue for helping state and local policy-makers understand our greatest health-related challenges and our options for resolving them.

The Commission would like to thank the large number of professionals in local, state and federal health agencies, in universities and the private sector, who shared with us their knowledge, wisdom and passion. After careful review of the information presented, the Commission offers the following conclusions:

Finding 1: The State's public health leadership and organizational structure is ill-prepared to fulfill the primary obligation of reducing injury and death from threats that individuals cannot control, such as environmental hazards, bioterrorism and emerging infectious diseases.

While health science has improved the quality and length of life, new challenges jeopardize that progress. Evolving pathogens are challenging the scientific community in ways not encountered since the development of antibiotics and vaccines. For example, tuberculosis strains that are resistant to antibiotics – and cost on average \$250,000 per person to treat – are spreading.⁹ Preventable hospital-acquired infections are re-emerging in America as a leading cause of death.

Recommendation 1: The Governor and Legislature should create a public health department – separate from Medi-Cal and other insurance programs to serve the poor – that is focused on emerging threats, with physician and science-based leadership and an advisory board linking California's health assets and experts. The new structure should contain three essential components:

- ❑ ***The department should be led by a California Surgeon General.***
 - ✓ The Surgeon General should be a physician selected by the Governor from a pool of nominees recommended by the new public health board and the California Conference of Local Health

Officers based on strict scientific, medical, public health, leadership and management criteria.

- ✓ The California Surgeon General should report directly to the Governor, as is the case with the director of emergency services.
- ✓ Adapting The Center for Disease Control and Prevention's (CDC) parallel management model, the California Surgeon General should develop a team of physician/scientist leaders and accomplished administrators with public health expertise.

- ***A part-time, volunteer and scientific public health board should be established to provide public and expert involvement in the development of policies, regulations and programs administered by the department or directly affecting the health of Californians.***

Critical Sectors Linked Through Board

Members should be appointed by the Governor and Legislature and include:

1. A dean of a California school of public health.
2. A dean of a California school of nursing.
3. A dean of a California school of medicine.
4. The president of the California Conference of Local Health Officers.
5. The health officer of a large metropolis.
6. A rural health officer.
7. A public laboratory director.
8. The physician leader of the state's medical emergency response system.
9. & 10. Two public members of national stature (possibly selected by the board) based on their broad experience and professional expertise.
11. The Board should be chaired by the Surgeon General-Director of the Department of Public Health.

✓ Members should be appointed to fixed terms and imbued with a fiduciary responsibility to represent the public interest and protect the public's health.

✓ The board should be provided independent professional staff through reassigning existing resources.

✓ Through public meetings, the board should provide authoritative oversight of public health programs and regulations to improve effectiveness, examine ways to better use existing resources, analyze cost-effective alternatives for improving the health and safety of Californians and comment on regulations that will affect the public health.

✓ The board should encourage the participation of related government

agencies, such as the health professions boards and the National Guard, as well as foundations and the professional associations, including the County Health Executives Association, the Public Hospital Association, the California Medical Association, the California Health Care Association, the Western Occupational and Environmental Medical Association, the California Conference of Local Health Department Nursing Directors, and the public health associations.

- ✓ The board should report at least annually to the Governor and Legislature on the priorities for government actions to improve the public health and on ways resources could be used more effectively.

- ✓ The board should systematically assess the opportunities to consolidate or coordinate the work of other state health-related advisory boards, such as the Health Policy and Data Advisory Commission of the Office of Statewide Health Planning and Development (OSHPD).
- ✓ The board should ensure that the State develops effective partnerships to tap the expertise of California's universities, academic medical centers, community clinics, foundations, private medicine, and the National Guard. The board should explore strategic relationships with biotechnology and other high technology sectors.

□ ***Core public health functions should be focused under the new Department of Public Health.***

- ✓ The department should contain laboratory, surveillance and prevention services now within the Department of Health Services (DHS), including epidemiology, communicable disease control, chronic disease and injury control, and clinical preventive medicine.
- ✓ The department should include the DHS Division of Emergency Services and the independent Emergency Medical Services Authority.
- ✓ To develop stronger relationships with the 61 local health offices, the department should assume and enhance the unit within DHS responsible for the California Conference of Local Health Officers. The department should include the divisions within DHS that ensure the safety of food, drugs and drinking water, as well as the Office of Border Health.
- ✓ It should include the Division of Health Information and Strategic Planning from DHS and the similar functions within the Office of Statewide Health Planning and Development. This would allow the State to dissolve OSHPD by transferring remaining functions, such as seismic safety, to the licensing and certification unit at DHS.

More Opportunities for Reorganization

With a department focused on public health, the State would have new opportunities to reduce duplication or improve effectiveness by consolidating or coordinating functions. Among those programs that should be considered for realignment or consolidation:

1. EPA's Office of Health Hazard Assessment and the health components of EPA's Department of Toxic Substance Control could be linked with the new department's units dealing with radiation safety and Environmental and Occupational Disease Control.
2. Food, drug and drinking water safety oversight in other departments.
3. Oversight of health facilities now conducted by DHS.
4. Oversight of health professions boards within the Department of Consumer Affairs.

- ✓ The department should be created by reassigning existing resources. The department should be created with no net gain in administrative personnel, by transferring existing administrative staff to the new department or contracting with the other departments for those services.
- ✓ Once the core public health department is operational, the California Surgeon General, working with the public health board, should assess the opportunities for either incorporating or developing formal and strategic relationships with health-related programs in other departments, as listed in the box.

Finding 2: The coordination and communication among state, local and federal public health agencies and their strategic partners is inadequate to protect Californians.

California needs a well-functioning and cooperative public health network that leverages both public and private sector assets to avoid preventable deaths and disabilities. A strong network would reduce illness and death experienced by Californians both in emergencies and under normal conditions.

Recommendation 2: The State needs to take the lead on coordinating federal, state and local efforts, as well as those of strategic partners, to improve communications, capacities and preparedness. Specifically, the State should:

- ***Set minimum standards for local health agencies.*** The standards should be evidence-based and build on efforts already underway by the federal government and the California Conference of Local Health Officers. The standards should establish minimum capacities that local health agencies would be expected to achieve, as well as a means for locally elected policy-makers and the public to assess and make decisions regarding public health assets. They should include regular emergency exercises with all strategic partners, including large private employers, the National Guard, local health providers, fire and police. Compliance with the standards should be linked to funding.
- ***Ensure agencies and providers have high quality technical assistance.*** DHS, by networking its own expertise with universities and other sources, should ensure that local health agencies have the assistance necessary to meet minimum standards, make the best use of technology, and build an expert public health workforce.
- ***Help local agencies regionalize laboratories and other assets.*** The State should develop regulatory and fiscal incentives for counties to efficiently satisfy minimum standards, and ensure they have the

technical assistance necessary to do so. Rather than replicating all assets across all jurisdictions, economies of scale must be considered to maximize available expertise.

- ❑ **Refine and rehearse command and control procedures.** The State should clarify to all parties the authorities, responsibilities and procedures to be followed among state and local government and strategic partners in the event of an emergency. The State should require regular exercises and drills among all parties and link funding to participation.
- ❑ **Network must be extended to the private sector and other partners.** The public health subcommittee of the State Strategic Committee on Terrorism should be formalized and involve all of the private, public, and non-profit organizations that need to prepare for and respond to public health emergencies. The subcommittee needs a clear mission and directed leadership that can be held accountable for building this network in a timely manner. The new public health board would be essential to building this network for hazards beyond terrorism.
- ❑ **Fortify border health protections.** The State should work with the federal government, local agencies and neighboring states to comprehensively assess the threats and practical ways to reduce them. The State should seek to clarify responsibilities and ensure that the collective effort guards California from the transmission of contaminants and germs. It should consider creating a bi-state commission, similar to the Arizona-Sonora Commission, to address issues of health security with Mexico.
- ❑ **Educate the public to reduce consequences and the demand on the system.** The State should provide citizens with educational materials about how they can protect themselves in the event of a public health emergency as described in the box.

Citizen Training Needed

To reduce the impact of bioterrorist attacks or outbreaks of infectious diseases, citizens should be trained to know:

- When to seek care in clinical settings, stay in place, or evacuate.
- Who and when to call for assistance and information, such as 911 and 311.
- Other potential sources of information like radio, the Internet or community sites such as fire stations and schools.
- What to expect from public health authorities such as physician health officers and public health nurses.
- How simple efforts such as careful hand washing and use of supplies such as certain types of gloves and masks may help guard against the spread of some infectious disease.
- How and when to obtain and use specialized radiation pills and other supplies.
- What should be kept in home and office kits for use in an emergency, and how to use the supplies effectively.

Finding 3: Expert, technical and physical capacities and assets must be rebuilt and re-tooled to counter current and emerging threats.

To address the challenges and threats of the 21st Century, California must organize and deploy the best minds and capacities available. Californians have developed some of the most sophisticated technology and the State is home to world-renowned medical centers, scientific expertise, and health professionals. These resources must be brought to bear on the complex public health challenges to protect the public.

Recommendation 3: The State must significantly bolster technical, scientific and physical capacity to make sure the best available tools and talents are protecting Californians. Specifically:

❑ **Commit to long-term investment in intellectual capital through training and retaining excellent public health professionals.** Professionals are needed to provide scientifically-based, authoritative protocols, information, technical guidance and consultation to local public health authorities and medical professionals. To accomplish this:

✓ **Deputize at the State level.** Create a state pool of deputized local health officers, public health nurses and laboratory directors who are certified as meeting standards for training, knowledge and skills. Encourage service with the continuity of state-based benefits and ongoing training, and reward improved professional skills. Consider making public health a uniformed service, like the U.S. Public Health Service, police and fire, recognizable to the public.

California must quickly develop enhanced capacity to respond nimbly to this century's highly complex health threats by employing the best of public health's scientific methods and tools available.

✓ **Adopt CDC's policy of hiring senior staff with scientific qualifications.** Adopt CDC's parallel management model that pairs senior scientists and doctors with public health trained managers to enable each to do what they have the training and experience to do best.

✓ **Pay for expertise.** Elevate and reward scientific expertise with compensation that is competitive to retain employees and attract potential entrants into the field. Pay ranges should consider the high level of education and continuous training needed to achieve the required level of expertise. Compensation packages could include forgiveness of student loans.

✓ **Establish numerical guidelines for specific types of scientists.** California should consider guidelines for key public health scientists such as epidemiologists based on specific performance criteria and expected outcomes such as turnaround time for responding to doctors' inquiries, completing lab tests and investigating hospital-

acquired infections. These guidelines should be periodically reassessed as technology and threats evolve that affect workload and productivity.

- ✓ **Directly link the education pipeline.** UC, together with state and local health departments, should devise specific strategies to ensure available scientific expertise. The strategy should include incentives to schools, students and work sites to create a practical school-to-jobs pipeline for public health workers. Developing needed professionals should be a priority for public education, and funding should be tied to that goal. Specific programs should be designed to attract and retain workers by providing a career ladder.
- **Establish security clearances and security protocols.** Employees and contractors should maintain security clearances and follow security protocols if working with highly sensitive information and harmful substances. Standard procedures must be established for the handling of secure information and for public access to sensitive information. Harmful substances must be cataloged and tracked, and access to such material must be controlled.
- **Highlight achievements.** To reward excellence in the public health workforce, create a "health care heroes" program with awards for excellence in public service. This will help the public to understand this core element of the public safety service while simultaneously providing a recruitment tool for potential entrants into the field.
- **Adopt the best available technologies to conduct core duties.** For instance, real-time web-based transmission of critical information and computer-assisted analysis and mapping should be employed in California's disease surveillance systems. New technologies should be reviewed by the new Public Health Board where community and strategic partners would have the opportunity to consider a variety of options, as well as system-wide impacts and potential for adoption in the private sector.
- **Ensure critical laboratory capacity.** Laboratory capacity must be bolstered to guarantee that Californians have access to timely review of even the most serious of pathogens, including for bio-safety level 4. Critical staff shortages should be addressed to ensure that laboratories can conduct timely surveillance and intervention programs.
- **Improve essential communications infrastructure.** The State, the 61 local public health jurisdictions, health care providers and other strategic partners must have real-time and secure communications.

- ❑ **Ensure surge capacity.** When the new public health department is established, it should be given explicit responsibility to ensure that specific and dependable surge capacity is available. Meanwhile, the State should consider working with the California National Guard's State Military Reserve to ramp up this capacity. In addition, the State should consider petitioning the federal government to increase the number of California National Guard medical units. Surge capacity must include trained personnel, bed, surgery, laboratory, pharmaceutical, and specialized equipment capacity.
- ❑ **Convene a scientific panel to counter preventable health-care-setting-acquired infections.** Until a public health board is established, a panel of scientific experts should be convened to review California's adoption of CDC's guidelines for preventing the spread of these infections. The panel should consider mandatory reporting of health-care-setting-acquired infections and a structure of regulations and fines to ensure CDC guidelines are followed.

Finding 4: Public safety functions of public health have not been given priority, and public health resources are not adequately managed and tracked.

The erosion of central public health capacities became a heightened concern in the aftermath of September 2001. To rectify deficiencies, the federal government provided funds to states – approximately \$100 million to California in 2002. Federal officials have indicated an intention to provide additional grants over the coming years to bolster public health, but the amounts are not determined.

Recommendation 4: The State should prioritize public health spending as one of the core components of public safety equal to fire and police. Specifically the State should:

- ❑ **Ensure adequate resources to provide core protection.** The resource allocations should be linked to meeting standards based on such efforts as the Public Health Ready competency certification developed collaboratively with CDC, the local health officers' Core Area Capacity Instrument, as well as work underway by RAND's Center for Health Security to provide specific quantitative gap analysis on California's public health system. If necessary, policy-makers should consider dedicated funding streams to ensure these competencies are not eroded. Over time, funding should be adjusted according to the changing population needs, technological advancements, and the array of public health threats, from natural to terrorism-related.
- ❑ **Prioritize funding for critical public safety components.** The first call on public health funds should be on core public health

duties to protect the public from threats over which they have no control. These core duties include high-quality, timely public health infection control services, laboratory analysis, and illness surveillance. Universities should also give funding priority to programs to develop critically needed scientific expertise.

- **Use cost-benefit analysis in resource decisions.** This analytical tool, when combined with public input, can result in better resource allocation and a more rigorous way to set priorities to ensure the greatest health outcomes using long-term analysis. Cost-benefit analysis should be used to modify base funding, as well as public health program funding to ensure that additional funds improve preparedness and health outcomes. This quantitative analysis should be made public and incorporate actuarial information.
- **Establish accounting standards and reporting mechanisms.** The standards and reporting mechanisms should allow for accurate and ongoing tracking of public health dollars and positions. The State should require counties to maintain clear, separate and standardized budget line items that are readily traceable over time. Budget information should be reported to the State according to these categories.
- **Make the information public.** The trend of core public health funding should be readily evident to the public and should be included in the annual report of the Public Health Board. Given the relationship between police, fire and public health in protecting public safety, a useful metric would be to compare the numbers of personnel and budgets on a per capita basis, of each of these three public safety services.

Introduction

In reviewing California's ability to respond to emergencies after the events of September 11, 2001, the Commission concluded that "the largest single weakness revealed by the terrorist attacks is the public health system." The Commission recommended that "the State needs to fashion immediate and long-term improvements to public health assets," and toward that end the Commission conducted this detailed review.

While terrorism is an emerging threat to health security, the Commission also recognized the risks posed by other contemporary threats, including infectious diseases that are resistant to antibiotics and mutating diseases that can spread from animals to humans. The increasingly global economy and changing international politics conspire to increase traditional demands and create new challenges for the public health system.

Public Health as Public Safety

For this review, the Commission relied upon the accepted definition of public health that has been negotiated by the medical and public health communities. The National Library of Medicine defines public health as "the branch of medicine concerned with the prevention, detection, and control of disease, and the promotion of health in a defined population."¹⁰ The Institute of Medicine describes public health's mission as "fulfilling society's interest in assuring conditions in which people can be healthy."¹¹

The core functions include the prevention of epidemics, disease and injuries and protection from environmental hazards. Public health officials evaluate population data to detect health threats and craft interventions. They promote healthy behaviors. They investigate food-borne diseases and conduct vaccination campaigns. They respond to isolated outbreaks and widespread disasters. They declare quarantines.

Classic public health functions have focused on the underlying determinants of health – such as pure air, water and food. The system has worked to improve personal hygiene and the quality of medical care. The system controls the "vectors" or carriers of diseases such as mosquitoes and rats. In these ways, a

Foundation Support

Foundations in California have shown their support for improvement of the public health system.

The California Wellness Foundation provided a \$5,000 grant to the Commission to enhance public and expert participation in this project.

The California Endowment also has generously offered to support an effort by RAND's Center for Domestic and International Health Security to quantify gaps in the California public health system, an analysis that can guide specific reforms.

successful public health system supports a healthy and productive population.

Within that classic definition, the Commission focused on what must be accomplished through government action, with priority given to the public safety aspects of public health. In this way, public health is a critical part of the State's obligation to protect an entire community, in line with police and fire protection. While intertwined with the rest of medicine, by this definition public health does not refer to individual medical care, nor universal health insurance, nor care for the poor, except with regard to containing infectious disease.

Drawing upon the expertise of the health professions, government, business, non-profit organizations, academia, and others, the Commission's public health study has worked to identify:

"California's public health system has suffered severely enough to seriously endanger the health of the people, even to the point that a measles or flu epidemic could kill many children or perhaps thousands of elderly people because of limited immunization programs and response capacities."

Lester Breslow and Philip R. Lee.
Testimony to the Little Hoover
Commission. October 24, 2002.

- The most serious threats posed by the failing public health system.
- Strategies for improving, leveraging and potentially reorganizing public health functions to better safeguard the public.

The Commission held two public hearings and four advisory committee meetings. Testimony was received from community members, experts, strategic partners and professionals within and outside of government. Presenters included experts from the Sandia National Labs in New Mexico, the U.S. Centers for Disease Control and Prevention in Atlanta and the Board of Health in Washington State. Witnesses, presenters and advisory committee members are listed in the appendix and written testimony is posted on the Commission's Web site at www.lhc.ca.gov.

Quantifying Shortcomings

Early in this study, the Commission was confronted by conflicting testimony: State leaders expressed confidence in a system that local leaders and private partners described as severely broken and not improving quickly enough. Detailed, quantitative assessments of the system have not been done and are difficult to accomplish because of a lack of consistent data across counties.¹² The Commission turned to the research and foundation communities in an attempt to quantify the gaps in the public health system. Specifically:

- To measure the missing components of the system and the existing capacity of personnel, equipment and facilities.

- To estimate the specific costs of funding the improvements needed to provide adequate public safety.
- To estimate the consequences in terms of preventable illness and death that could result because of these inadequacies.

The Commission encouraged researchers at RAND's Center for Health Security to develop a plan for completing this quantitative gap analysis. With funding from the California Endowment, RAND has launched a project to test the system through table-top exercises that simulate public health events in California communities, looking at the system's ability to respond to such incidents as a serious food contamination, either naturally occurring or because of bioterrorism. The goals of the RAND project are:

1. Examine California's core public health functions from a public safety perspective, including those of assuring effective coordination with and among all strategic partners both in the community and within state and local governments, and the degree to which they are not being fulfilled.
2. Estimate the magnitude and potential impact of gaps between what is currently in place and what experts and existing standards suggest should form the core of the infrastructure.
3. Estimate costs of filling the gaps identified as highest priority.¹³

The first table-top exercises are expected to be conducted in the spring of 2003.

Background

The public health functions of government play an essential role in protecting residents from a wide variety of threats to health, productivity and quality of life. These functions have evolved over time as medical and scientific knowledge have provided a greater understanding of these threats and yielded more effective ways to reduce the harm to people and the environment. In many cases, these protections take the form of regulations that are established and enforced by federal, state, regional and local agencies. Some activities, such as vector control, are conducted by single-purpose agencies. But the core analytical, decision-making and communication functions remain within state and county health departments.

This Background provides information on the core “intelligence” functions of the public health system, how those functions are organized and managed in California, and how those functions are integrated into other health-related programs. It also describes the threats to the health security of Californians, and how the federal government is assessing the ability of these functions to provide the necessary protections.

The Core Intelligence Functions

One way to think about public health is as the intelligence or brain function of the overall health system. Epidemiologists and other scientists collect and analyze information to trace the origins of disease, injury and death, so they can determine interventions and issue guidelines that if implemented, will prevent and reduce injury, illness and death. At the policy level, this information can be used to set priorities and target resources. The elements of this intelligence function include:

- ***Disease and symptom surveillance.*** Tracking illnesses, injuries and deaths allows public health officials to identify trends, determine causes and detect epidemics as early as possible. This function can help to detect the spread of diseases such as West Nile Virus and hospital-acquired infections, food-borne contamination such as botulism, or a bioterrorist event such as weaponized anthrax.
- ***Computer-assisted analysis and mapping.*** The surveillance function is enhanced by computer applications that can analyze data and map trends in both real time and over the long term. Computers, for example, allow epidemiologists to analyze the effects of environmental and other factors and identify commonalties among cancer cases. This analysis can be used to investigate the

relationship between air pollution and respiratory disorders, or the exposure area from aerosolized biological weapons.

- **Real-time communication.** The information that is developed by state or federal public health officials must be shared with local officials, health providers, large employers and others. Communication technologies allow for this information to be distributed in secure and instantaneous ways. In addition to technical considerations, the information has to be provided with an appropriate level of uniformity, detail and accuracy so that medical and other partners understand the actions they must take to prevent the spread of a disease, reduce injury and illness, and save lives.
- **Allocation of resources based on cost-benefit analysis.** Financial, human and other resources are typically allocated through a political or public interest process that often does not accurately reflect needs and threats related to the public's health. For example,

Invisible & Misunderstood

While largely invisible, the public health system is a critical part of government's obligation to protect the public. The U.S. Centers for Disease Control credits public health interventions with increasing life expectancy by 30 years since 1900. Many of the accomplishments fall under the category of "unsung heroes."

The public does not generally know about disasters or epidemics that are prevented. However, the capacity of the public health system determines in part how many lives will be saved or lost in an emergency, how long a person can expect to live, and the quality and productivity of one's life.

In this context, "public health" does not refer to health care for the poor, or to universal health insurance. The distinct element of the health care world known as "public health" is largely governmental and works at the level of protecting an entire population within a defined community.

The broad public health definition includes many cross-over issues with direct medical care, such as the effect of behavior modification on extending and improving quality of life.

in recent years, state and local agencies are believed to have under-invested in technologies, laboratory capacity and personnel necessary to adequately respond to widespread health emergencies.¹⁴ Analysis can provide a more informed basis for allocating resources and assessing the financial and health benefits of competing opportunities.

- **Planning and oversight of the health care industry.** While the health care system is largely market-based, the government protects consumers by ensuring a minimum quality of care by professionals and facilities. The government also works to make sure that all communities in the state have access to health care, and ensures that adequate facilities are available in the event of an emergency.
- **Other health-based policies.** The information gathered and assessed by public health departments can be used to fashion a wide range of policies that reduce injury, illness and premature death. These policies can include tax incentives, compensation requirements and benefit packages that reward high quality care; healthy lifestyles, work and living environments; healthful ingredients in food production; and, reductions in pollution and increases in equipment safety.

Public Health as Public Safety

For a variety of reasons, public health policies have lost their focus: The persistent success of efforts to keep water and food safe, for instance, has allowed the emphasis to shift to smoking and other unhealthy behaviors, as well as cancer, diabetes and other chronic illnesses. From a government perspective, as is described later, the focus on providing health care to uninsured residents has overshadowed traditional public health functions.¹⁵

However, the terrorist attacks – and the economic and geopolitical trends behind them – have refocused attention on those functions that only government public health agents can perform, functions that are essential to public safety.

Technologies can improve the capacity to perform these traditional functions, and emerging threats require the government to perform these functions with accuracy, swiftness and skill. But these functions also provide benefits on a routine basis as governmental public health efforts intersect with the responsibilities of individuals and the private health care industry. The graphic below displays the contrast and relationship between the public health responsibilities and individual responsibilities for a number of health-related activities.

Spectrum of Government Public Health Responsibilities vs. Individual Responsibilities

Examples of Government Action	Examples of Individual Action
Public Security <ul style="list-style-type: none"> ▪ Air, food, water - safety from contamination ▪ Regulation of food safety & ingredients/ labeling ▪ Safe medical facilities & practices ▪ Requiring up-to-date knowledge among medical professionals ▪ Disseminating best-practice information 	<ul style="list-style-type: none"> ▪ Proper food storage ▪ Good nutrition, exercise to fight obesity, cancer, heart disease ▪ Getting check-ups ▪ Hand washing
Disease Outbreak Investigation/Intervention	Reporting bad food, unusual symptoms, infections, etc.
Regulation Enforcement (Sanitation in Hospitals & Restaurants)	Reporting problem medical facilities & professionals, etc.
Quarantines/Confinement Contaminant Containment Vector Eradication (Mosquitoes, Rats, Fleas, etc.)	Following orders from health professionals
Law Changes/Setting Standards <ul style="list-style-type: none"> ▪ School fitness and nutrition recommendations ▪ Playground equipment/safety standards 	<ul style="list-style-type: none"> ▪ Suggesting needed changes in laws and standards. ▪ Parental supervision/vigilance

By considering a single disease, the relationship among government, health providers and individuals can be viewed in greater detail. For example, sexually transmitted diseases have long been a concern of public health officials because of their communicable nature and the consequences. The role of public health is to track the disease, educate individuals and health providers to limit the spread of the disease, and encourage proper care. In some cases, public agencies also have decided to fund the delivery of treatment, but that is an extension of government beyond the traditional public health functions.

Sexually Transmitted Disease

Public Health Role	Community & Medical Care Delivery Role	Individual's Role
Surveillance & Epidemiology Developing Scientific Knowledge-Base Communicating and Problem-Solving with Medical Professionals	Outreach & Communication with Public Health Professionals & Individuals	Report Symptoms to Health Professionals & Seek Treatment
Determining Best Medical Practices Based on Evidence and Developing Education Materials For Medical Professionals	Patient Education & Dissemination of Best Practice Information to Individuals	Follow Orders of Health Professionals Read and Learn
Prevention of Spread via <ul style="list-style-type: none"> ▪ Partner Tracing & Warnings ▪ Drug protocols for preventing Mother-Child Transmission 	Organization and Delivery of Treatment & Care	Practice Safe Sex or Abstinence & Actively Seek Healthy Life Choices

Historical Success and Benefits

California established a department and board of public health in 1870, only the second state in the nation to do so.¹⁶ But the public health system matured through crisis. In 1900, the bubonic plague rolled through San Francisco like a midnight fog. The outbreak had actually began in China several years earlier. Its arrival here prompted federal officials to supercede state and local authorities and establish a quarantine area on Angel Island in the middle of San Francisco Bay.¹⁷

When the first case of plague was detected in Chinatown by a federal inspector, it was initially labeled a ploy to secure more resources for the San Francisco Board of Health. It was then the subject of a news blackout and denials by the Governor. Scientific uncertainty over how the bacteria were spread opened the door for political manipulation.¹⁸

The outbreak was brought under control in 1904, after a physician – Dr. George Pardee – was elected governor and worked with the federal

government to eradicate rats and other vectors of the bacteria. The 1906 earthquake resulted in a second outbreak, but the city also was rebuilt in ways that deliberately improved sanitation and made it easier to control rats and other vectors.

This experience is credited with fortifying both the mission of public health officials and the structure necessary to provide for professional and science-based decision-making that is not ignored for the sake of short-term political and economic concerns.

By the mid-1900s, California had built a world-class scientific public health system, which included a physician director with considerable independence from the Governor and a board of health with regulatory powers.¹⁹ The State provided funds to local health agencies, which in turn agreed to meet minimum standards of service.

The health department initiated some of the first attempts to regulate air pollution. And working with local health officers, recorded impressive victories by aggressively upgrading sanitation, improving the quality of water supplies and controlling vectors of disease. After combating infectious diseases, the system took on chronic ailments such as heart attack and stroke. California's aggressive multi-year anti-smoking campaign is considered an international model.²⁰

More recently, however, the capacity of the State and its local partners has eroded.²¹ In California, as across the nation, more resources have been allocated to categorical disease programs (such as HIV/AIDS). Governments have shifted resources to providing acute health care for the indigent.²² The state Board of Health was abolished, along with the fixed term of the director of health and the requirement that the director be a physician. And in California the crucial partnership between the state and local agencies has devolved.²³ A more detailed assessment of these trends is contained in the findings of this report.

Aboard the Ship California

The link between disease and migration have always been part of California's modern history, for natives and newcomers. This single account, by Dr. Irma West, writing for the Sacramento Valley Medical Society, captures the early challenges:

One account of how cholera reached Sacramento tells of the ship California arriving in San Francisco from Panama on October 7, 1850. It brought the news that California was now a state and, with that, 22 cases of cholera on board. Fourteen proved fatal.

Passengers from that ship boarded the New World bound for Sacramento, arriving October 15, 1850. One passenger collapsed on the levee and died of cholera. Within four weeks about 1,000 were dead and an equal number became sick but recovered.

When people learned of the growing calamity, about 80 percent of the population of almost 7,000 fled, spreading the disease. In Hangtown (Placerville) about 700 died; even more died in Marysville. San Francisco lost 5 percent of its population; San Jose, 10 percent. As many as 5,000 cholera deaths may have occurred in Northern California.

Dr. John Frederick Morse in his First History of Sacramento City said of the epidemic: "The rapid spreading of the epidemic gave to the physicians no rest day or night. They were falling like the foremost soldiers of a desperate charge and ere this cholera season had subsided seventeen of their number were deposited in Sandhill Cemetery of our city, an inroad of death from which a fraction more than two in three escaped with life and not one in three from the disease. And yet not one educated physician turned his back upon the city in its distress and threatened destruction."

Source: Irma West, Sacramento Valley Medical Society.

Still, the rationale for a public health system remains strong and goes beyond the benefits to individuals. Economists have long recognized that protecting the underlying determinants of health – such as the quality of air, water, food and medical care – create healthy living conditions and support a robust business climate. The latest threats to these determinants – some of them well-known and others important but obscure – are driving debates nationwide over improving health security.

Evolving and Emerging Threats

While the past success of public health efforts are largely taken for granted, a variety of new threats require policy-makers and professionals to reassess the structure, authorities and capacities of the public health systems. Among the defining trends:

Infectious diseases are becoming resistant to antibiotics.

One of the greatest achievements in controlling diseases was the development and widespread use of antibiotics. Partly due to inappropriate use of antibiotics, germs have evolved to resist antibiotics and cannot be controlled with normal medical treatment. These pathogens are more likely to evolve in parts of the world that do not control the use of antibiotics, but the germs can easily move around the world through international travel and trade.²⁴ A recent Harvard School of Public Health study indicates a significant increase in antibiotic resistance among some strains of *Streptococcus pneumoniae* – the underlying cause of many cases of meningitis, sinusitis and pneumonia. The study projects that 41 percent of certain pneumonia strains will be resistant to popular antibiotics by mid-2004, an increase from just 8 percent resistance in 1996.²⁵

Growing global trade and travel increase opportunities for transmission.

The increasing volume of trade and travel increase the opportunities for communicable diseases to be accidentally and intentionally brought into the country.²⁶ Travel times are so shortened that hosts may not display symptoms until well after their arrival. In addition, imported food, beverages and other products are often not produced in strict regulatory environments. Inspections at the borders and ports are not thorough or frequent enough to prevent the entry of products with unhealthy levels of pesticides or other contaminants.²⁷

Mutating animal and insect diseases can infect humans.

The scientific community is concerned about diseases that mutate and spread from animals and insects into humans, as is the case with "mad cow disease" and influenza.²⁸ These cases highlight the importance of having veterinarians, agriculturists and other disciplines working

together with public health officials. When food becomes the source of disease – and symptoms take years to develop, as with mad cow disease – surveillance, analysis and other core functions must be working well to protect the public.²⁹

Hospital acquired infections have re-emerged as a threat to patients.

Hospitals have again become a significant source of deadly infections.³⁰ Powerful germs can grow in hospitals when strict infection control and disease surveillance policies are not followed.³¹ The Institute of Medicine reports that simple measures such as careful hand washing by medical professionals, and the disinfection of rooms and equipment between patients are not adequately followed. While CDC has no regulatory authority over California hospitals and medical professionals, it has initiated an educational campaign to reverse this trend. CDC also works with health jurisdictions when requested on outbreaks. CDC estimates that hospital-acquired infections are now the number one infectious disease killer in the United States, sickening 2 million and killing 60,000 to 80,000 annually.³² It is estimated that hospital acquired infections have climbed to be the fourth leading cause of preventable death in America.³³

Bioterrorism

For years the world has known that scientists have manipulated naturally occurring pathogens to create weapons of mass destruction. The unsolved cases of intentional anthrax letters, timed with the highly coordinated terrorist attacks by Al Qaeda, elevated concerns about bioterrorism in America to a high priority. The federal government is requiring states to demonstrate that they are capable of responding to a large-scale terrorist attack that could have many victims. The federal government also is requiring the states to prepare to respond to a variety of unconventional weapons, ranging from intentionally released small pox to chemical and nuclear contaminants.

Public health officials assert that for the most part, the equipment, skills and procedures needed to perform classic public health functions are the same for bioterrorism. But such an attack could require the public health system to operate faster and with greater accuracy at a time when there would be confusion and fear. Among the considerations:

Bioterrorism or the Flu?

Several of the diseases that can be used for bioterrorist attacks have similar early symptoms -- complicating the task of detecting an attack by unprepared public health agencies.

Smallpox: headache, backache, fever, malaise, rigors

Inhalational Anthrax: malaise, fever, headache, cough, weakness, chills, chest pain, shortness of breath

Pneumonic Plague: fever, cough, chest pain, shortness of breath

Tularemia (Typhoidal): fever, nonproductive cough, substernal discomfort

Brucellosis fever, chills, malaise, cough, pleuritic chest pain

Q Fever: fever, chills, headache, myalgias

Viral Hemorrhagic Fevers: fever, headache, dry cough, arthralgias, sore throat, weakness, malaise

Source: Arthur L. Reingold, M.D. Professor and Head of Epidemiology, School of Public Health, University of California, Berkeley, December 2002 presentation.

- **Hours matter.** With bioterrorism, reducing the time from infection to diagnoses can reduce the potential for mass casualties.³⁴ But early detection will require careful surveillance of symptoms and analysis. As displayed in the box on the previous page, the first symptoms for many potential agents bioterrorism are similar to each other, and to common ailments that do not always prompt a visit to a doctor.
- **Food and water supply vulnerabilities.** Monitoring food and water supplies to ensure they are not contaminated is difficult.

"Nuclear material absconded from the former Soviet Union... could annihilate a large portion of a major US city...It's easy to get the stuff out of Russia because the border is so porous and everyone is so corrupt. You can put it in your pocket and walk right down the street with it. A weapons amount of it is maybe the size of a grapefruit."

Steven Miller, director of the International Security Program, Belfer Center for Science and International Affairs, Kennedy School of Government, Harvard University. KSG Bulletin. Autumn 2002.

Department of Health Services (DHS) officials note that California agriculture accounts for \$25 billion annually in food production, and that the food industry accounts for 22 percent of state jobs. DHS is working with strategic partners to protect 89,000 farms, 10,000 food processors and 200,000 retail facilities from becoming targets of bioterrorism.³⁵

- **Inadequate controls on harmful chemical and biological materials.** The State has been criticized for inadequately controlling the transportation, storage and use of biological agents.³⁶ The State also does not require security checks for personnel dealing with these materials, as the federal government does. RAND reports that the government does not have a "comprehensive and complete accounting of the laboratories and personnel in California that handle select agents." ³⁷

Assessing Core Functions

The U.S. Centers for Disease Control and Prevention (CDC) and the Health Resources Services Administration (HRSA) have created a Public Health Inventory Project intended to measure the eight core competencies required of public health agencies. California's 61 local health jurisdictions have recently submitted a self-assessment of these capacities to DHS. Hospitals in the state have conducted similar self-assessments and filed them with the Emergency Medical Services Authority (EMSA). The assessments were a prerequisite to receive federal funds distributed in 2002 for the purpose of bolstering public health functions to respond to bioterrorism or another large emergency.

While the CDC/HRSA core competency categories are designed with a terrorism attack in mind, they parallel those functions that protect the public from a wide variety of hazards. The table on the following page lists the CDC's capacities, along with a brief assessment of those functions based on testimony to the Commission, a review of existing research and interviews with national and state leaders.

Core Public Health Capacities

Preparedness planning and readiness. This role involves leadership, management, planning and operational control. This component includes chain of command between state and local public health and the ability to coordinate with strategic partners in the private sector. DHS and EMSA perform these functions. Within DHS, the Office of Emergency Preparedness is responsible for these tasks. Its leadership has experienced significant turnover, with three chiefs in a 12-month period. In addition, the director created a new position for bioterrorism preparedness. While it was filled from February to November of 2002, the physician who held the position was given the additional title of state epidemiologist and was assigned the role of chief spokesperson for bioterrorism preparedness. He was also designated as the physician-spokesperson to communicate with the public in the event of an emergency. The position was vacant from November 2002 to April 2003 when a public health physician became the bioterrorism medical consultant and associate director.

Surveillance and epidemiological capacity. California's current disease surveillance system is paper-based and cumbersome for both physicians to report and epidemiologists to analyze, and does not achieve the goal of competent, comprehensive surveillance.

Laboratory capacity – biologic agents. A key concern is that California's state-of-the-art laboratory in Richmond is not staffed to perform necessary analysis. While plans are underway to bolster laboratory capacity, those plans are challenged by state budget problems. All of the capacity to analyze the most dangerous biological agents is in the eastern United States, slowing response times.

Laboratory capacity – chemical agents. The concerns regarding chemical agents are similar to those for biological agents. Surge capacity for this comes from the California National Guard's Bay Area and Los Angeles Civil Defense Teams.

Electronic alert / Communications and information technology. Some of the most basic information-sharing tools – such as those needed for real-time electronic reporting of diseases, deaths, and mysterious symptoms -- have not been employed between the State, the local health departments and the provider community. While plans have been underway for years, the State does not have real-time secure communications between these critical entities.

Risk communication and health information dissemination. Local health officials and health care providers publicly doubt the State's capacity to be the authoritative, accurate and reliable source of information in the event of a significant health emergency.

Education and training. One of the traditional responsibilities of public health is assuring a competent workforce of health care professionals. The professional boards within the Department of Consumer Affairs have long held this responsibility, and the aggressiveness of this regulation is a periodic concern among policy-makers and the public. Since the terrorist attacks, the system of training health professions has not been substantially changed to respond to the need for new types of knowledge. Continuing education requirements largely rely on professionals to determine additional training they need and seek it out. For specialists, private professional bodies maintain private and varying standards for ongoing training.

Hospital preparedness. The federal Health Resources and Services Administration is assessing this capacity through its "Bioterrorism Hospital Preparedness" program, which is being managed at the state level by EMSA. The State has not actively planned for hospital capacity in recent years, and little quantitative analysis is available. The Office of Statewide Health Planning and Development reports few concerns about capacity, but medical professionals testified to critical shortages, and particularly a lack of surge capacities in emergencies.

Sources: Center for Disease Control, "RFP for Biolevel Four Lab." Summer 2002. Lawrence Livermore Labs. "Web-based Public Health Reporting In California: A Feasibility Study." December 2001. Dr. Alan Zelicoff, Senior Scientist, Sandia National Labs. Raymond J. Baxter, Ph. D., Senior Vice President, Community Benefit, Kaiser Permanente. Written testimony for the Commission. October 24, 2002. Little Hoover Commission Public Health Advisory Committee members testimony. Testimony is available at www.lhc.ca.gov/lhcdir/pubhealth/pubhealth.html

Public Health Preparedness: Barriers and Recommendations

In testimony to the Commission, Kaiser Permanente, which provides health care to nearly one in five Californians, provided the following assessments of state, federal and local preparedness.

Barriers	Recommendations
Lack of coordinated advance planning before an event occurs.	<p>Appropriate governmental and public health agencies should establish processes with hospitals and health care providers for planning, consultation, and coordination on appropriate stockpiles and sources of supplies, vaccines, and antibiotics.</p> <p>Hospitals and health care providers should share best practices in emergency preparedness.</p> <p>Integrate terrorism preparedness, including bioterrorism preparedness, into ongoing community emergency/disaster planning.</p> <p>Government and the health care industry should determine the level of resources necessary to conduct reliable threat assessment evaluations.</p>
Lack of mechanisms for incident reporting and communication.	<p>Designate and widely communicate one governmental single point of contact for incident reporting.</p> <p>Provide resources for public health agencies to develop effective community-wide syndromic surveillance systems.</p>
No clear process for information dissemination.	<p>Federal, state, and local agencies should develop a streamlined process to convey information about potential/current threats and emergency events, both within layers of government, and to the health care industry and other first responders.</p> <p>Intelligence agencies, public health agencies, and the health care industry should develop linkages, so that health care first responders can successfully prepare for potential threats, and respond effectively if they do occur.</p>
Confusion over jurisdictional, regulatory, and governmental responsibilities.	<p>Starting with the Office of Homeland Security, governmental and regulatory agencies should establish and communicate clear lines of authority for all events, from criminal activities to public health incidents.</p> <p>Governmental and public health agencies should establish a single point of contact for hospital/health care responders, both for policy and preparedness issues, and for emergency events.</p> <p>Public and private entities should work together to improve policy and emergency coordination among federal/state, state/local, local/health care providers and hospitals. Examples include defining lead agencies for each potential disaster, establishing a chain of custody for evidence collection, and providing guidelines for federal assistance.</p>
Obstacles to filling human resources needs.	<p>States should adopt an emergency procedure for licensing out-of-state health care workers during disaster/terrorist situations requiring a significant medical response.</p>
Lack of clinical protocols and medical information.	<p>The U.S. Centers for Disease Control and Prevention (CDC), working collaboratively with health care organizations and experts, should develop clinical protocols for multiple potential disaster scenarios, including bioterrorism, chemical, nuclear, and radiologic incidents. These recommendations must be widely disseminated and widely accepted by medical experts.</p> <p>The federal government and the pharmaceutical industry should make it a high priority to encourage the development of effective vaccines and pharmaceuticals to protect the public against bioterrorism and other terrorist incidents.</p>
Lack of coordinated training programs.	<p>Government agencies and the health care industry should jointly develop core elements of training for various responders and the general population.</p>
<p>Source: Raymond J. Baxter, Ph. D., Senior Vice President, Community Benefit, Kaiser Permanente. Written testimony for the Commission. October 24, 2002. Additional testimony from Dr. Baxter is available at www.lhc.ca.gov/lhcdir/pubhealth/pubhealth.html</p>	

California's Public Health Infrastructure

California's public health infrastructure is highly decentralized. At the state level, core and traditional functions are distributed among many departments within three different agencies. In addition, while the State maintains most of the policy-making and regulatory functions, the day-to-day job of protecting the public is conducted by local health agencies with significant independent authority.

The cornerstone of California state government public health is the Department of Health Services (DHS) within the Health & Human Services Agency (HHS). DHS is the public health agency of record with the Centers For Disease Control and Prevention (CDC). Within the department the divisions of Prevention Services and Health Information and Strategic Planning include the functions of epidemiology, laboratory services, emergency preparedness, county and local public health services and the Office of Border Health.

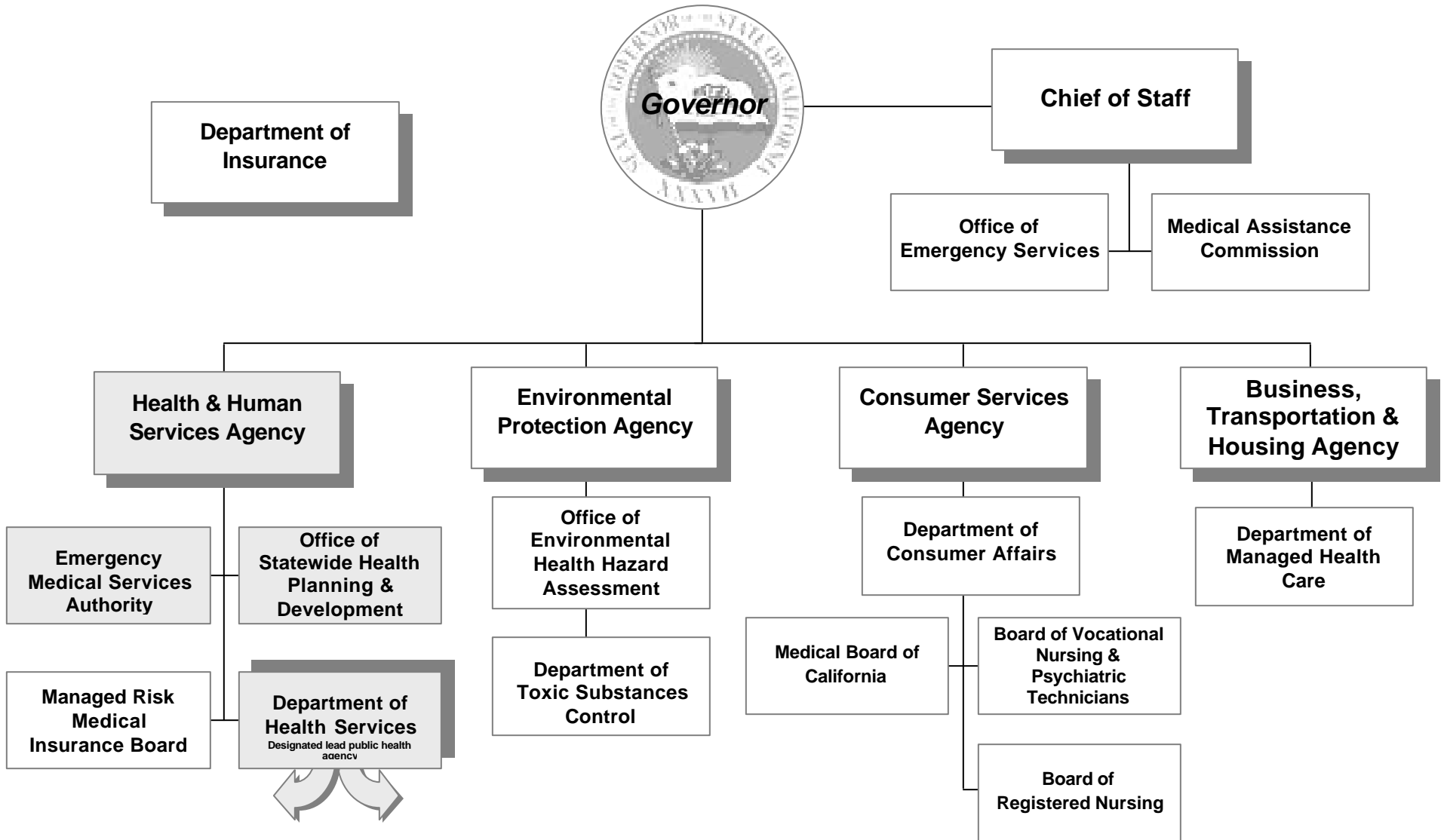
Outside of DHS, two small HHS departments perform functions that are closely aligned with public health. The Emergency Medical Services Authority (EMSA) was created in 1980 to provide focused planning and coordination between first responders such as fire and police agencies and hospitals. The administration has proposed moving the authority back into DHS to save administrative costs. EMSA has been playing an active role in helping prepare the state for a large public health emergency. It developed disaster standards for local emergency medical service agencies and is working with hospitals to assess surge capacities. The Office of Statewide Health Planning and Development (OSHPD) is charged with coordinating state efforts to maintain an adequate workforce and health care facilities. Still, OSHPD's director testified that the department has not been given the task to plan for surge capacity.

The state Office of Health Hazard Assessment was within DHS until it was moved in 1991 into the new Environmental Protection Agency. EPA also has other functions with the Department of Toxic Substances that were once under the purview of the public health officials. And the professional licensing boards within the Department of Consumer Affairs help to ensure the quality of basic medical care by licensing and investigating complaints against doctors, nurses and other professionals.

As displayed on the chart, most public health functions are within HHS. But the Environmental Protection Agency, the State and Consumer Services Agency, and the Business, Transportation and Housing Agency all contain departments with some public health role. A detailed description of agencies involved in public health, along with additional organization charts, are in the Appendix.

State Public Health Entities

(A Few Primary, Many Secondary Players)



61 Separate City and County Health Jurisdictions

Local Public Health Agencies

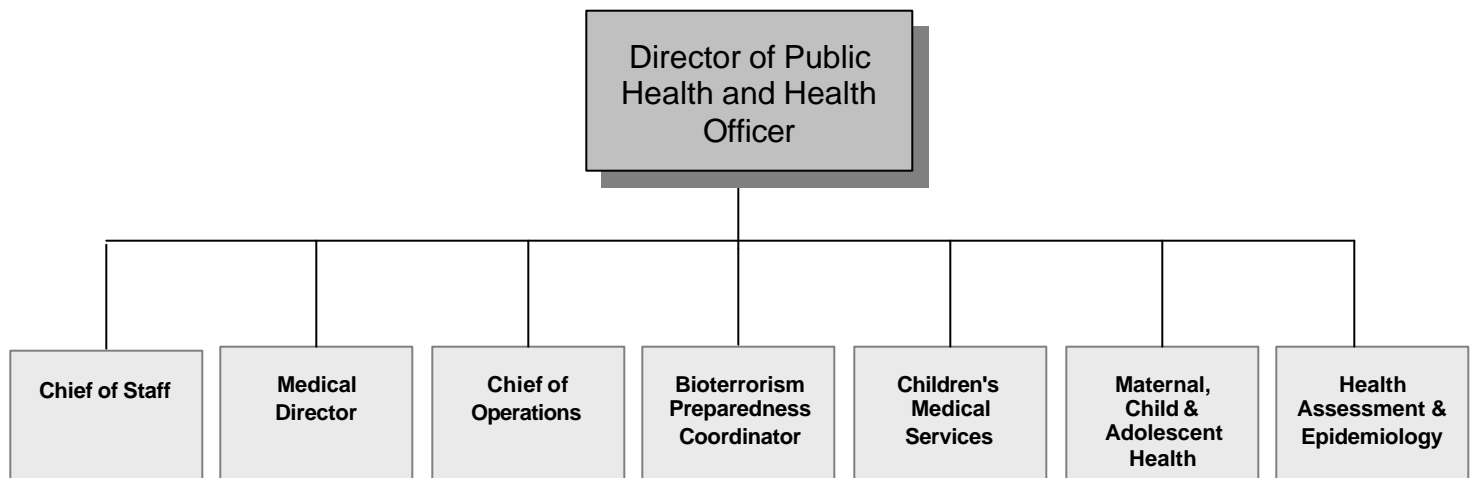
Most public health services are delivered at the local level. California has 61 local health jurisdictions, the 58 counties and the cities of Berkeley, Long Beach and Pasadena.

Regardless of the public health concern – a single case of meningitis or deliberately spread anthrax – the local health officers will be the first to respond. All local health jurisdictions are required by law to have a physician health officer in charge of public health, but some do not fulfill this requirement.³⁸ The larger counties often have a health administrator to manage and oversee public health and other health-related programs.

These health officers do not have a direct reporting relationship to DHS. They are employed by either a county or city jurisdiction, and work at the will of locally elected officials. The local health officials, however, are formally represented by the California Conference of Local Health Officers, which has a one-person office within the Prevention Services Division of DHS to coordinate local and state efforts. The department also recently created a new position, “intergovernmental liaison,” to coordinate the activities of DHS with the local health administrators and their County Health Executives Association of California.

The chart displays Los Angeles County’s public health department. Similar charts for Sacramento and San Francisco counties appear in the appendix. The following two pages provide a case study of how a local health officer dealt with an outbreak of an infectious disease.

Los Angeles County Department of Health Services



2002-03 Budget: \$569 Million

Staff: 2,657 Positions

A Day in the Life of a Public Health Officer

Poki Stewart Namkung, M.D., M.P.H. described a day in her life as the Berkeley public health officer in testimony for the Commission.

"I'm going to speak about the Berkeley Health Department's response to cases of meningococcal meningitis in our community. I think that this is a good case history to relate because meningococcal meningitis is a disease that strikes fear in a parent's heart and arouses panic in a community in the same way that a deliberate bioterrorism-threat would.

I choose these cases to illustrate the enormous amount of work that constitutes communicable disease control, work that literally no one else does or has a responsibility to do in a comprehensive organized manner but public health, particularly local public health in California.

These cases occurred in May 2001 and that school year was notable. It was extraordinary because of the media attention and public anxiety about the possible transmission of infection from meningococcal disease in many areas of the state and the number of school clusters that occurred that year.

On Tuesday May 1st a nine-year old, fourth-grade student in one of Berkeley's elementary schools died of meningococcal meningitis at approximately 7 a.m. at Children's Hospital at Oakland. The Berkeley Health Department was notified at 8:30 a.m. by the Berkeley YMCA because the child's grandmother was an employee there. This notification illustrates a very important principle that comes up over and over again. It's not only what you know, it's who you know and the relationships that you developed in your community that actually help you be effective in fulfilling your responsibilities.

The health officer and the communicable disease nurse were then notified and began case and contact investigation, active surveillance of all area hospitals and clinics, and established consultation with the school district, the Alameda County Health Department, and the state Department of Health Services, Division of Communicable Disease Control.

By 1 p.m., the preliminary contact investigation had been done, determining close family contacts, school contacts and social contacts. All area hospitals and large clinics were notified. By 2 p.m. we had consulted with the family's physician and determined that the family had all been cultured and prophylaxed. We then distributed screen questionnaires to all area emergency departments.

In order to inform the public, the city held press conferences, the first being at 5 p.m. on the day of the death of the child. The city also posted information on its web site by 4 p.m. and continuously updated it. Intense public interest kept this story in the media: on t.v., on radio and in print for several weeks. The city opened a hotline staffed by public health nurses to answer questions and provide screening from 8 a.m. until 10 p.m. for the next five days.

A community meeting was held on the 2nd day at the child's school. Over 200 very concerned parents attended and were provided information by the health officer, a state epidemiologist and a local pediatrician. In order to respond to those concerns about exposure, the city held a clinic right at the school for the next two days. In addition, we monitored the treatment of all immediate household members, social contacts and other community members assuring that they did get prophylaxis, if appropriate, through other city clinics, private providers and the emergency department. A total of 114 people were treated from this case.

Two weeks later, a secondary case of presumed meningococcal meningitis occurred. It was later confirmed by subtyping and DNA fingerprinting as being related to the first case. Contact investigation there revealed a large group of adults and teenagers who had engaged in high-risk behaviors that allowed the spread of bacteria. The health department began extensive street outreach, posted flyers, held high school assemblies and several community meetings and held three clinics. A total of 457 people were treated in these clinics and by local hospitals and private providers.

The city's hotline fielded over 1,000 calls the first week, 391 calls after the second case, and the city's web page had 5,000 hits during the week of the first case and similar use during the second week. All our efforts led to a heightened level of awareness, of civil discourse which is really exemplary in Berkeley, and proved that providing information was as important as providing medication. These cases really illustrate the important role of the public. If the public is not actively engaged, actively informed, especially in response to an unprecedented event such as bioterrorism, mass panic and social disruption are far more likely to ensue.

I also want to emphasize that during this whole period, which took approximately a month of active surveillance and investigation, we had to continue all those essential services and functions which comprise our regular work. During that time, we also investigated 11 cases of suspect viral meningitis and 2 cases of bacterial meningitis. There was one active measles case that involved six different health jurisdictions, and prophylaxing and vaccinating all the teachers, staff and students of a foreign language school. We also had a multi-drug resistant tuberculosis case that required legal orders. These last two cases involved both quarantine and isolation as we cannot compel compulsory vaccination. We recommended vaccination, provided vaccination and for those who refused we compelled isolation.

Poki Stewart Namkung, M.D., M.P.H., health officer, City of Berkeley, and president of the California Conference of Local Health Officers, testified at a Little Hoover Commission hearing on June 27, 2002.

Structure Out of Sync With Threats

Finding 1: The State's public health leadership and organizational structure is ill-prepared to fulfill the primary obligation of reducing injury and death from threats that individuals cannot control, such as environmental hazards, bioterrorism and emerging infectious diseases.

While health science has improved the quality and length of life, new challenges jeopardize that progress. Evolving pathogens are challenging the scientific community in ways not encountered since the development of antibiotics and vaccines. Tuberculosis strains that are resistant to antibiotics – and cost on average of \$250,000 per person to treat – are spreading.³⁹ Preventable hospital-acquired infections are re-emerging in America as a leading cause of death.

These challenges are compounded by the threat now posed by weapons of mass destruction. These threats place huge potential demands on emergency health systems. They also elevate the routine demands on the public health system as sentinel. Now, without error, public health must detect and assess the intentional use of germs, chemicals and other hazards surreptitiously deployed against civilians going about their everyday lives.

The consequences of not adequately responding to these challenges will be unnecessary illness and death, large public costs and private losses, as well as fear, pain, anxiety and diminished public trust.

Health professionals and strategic partners testified that they have lost confidence in California's public health system, and that the core capacities of the system have deteriorated to the point that lives are at risk.⁴⁰ In addition, these new threats – along with new tools that are available to the State – redefine what is required of public agencies and how they can accomplish their mission. Strengthening the public health system will require changes in organizational structure, in the roles and capacities of key leaders, and in the process used for making decisions.

New Threats Place New Demands

Over the last two decades the core functions of the public health system have seemed less important – as the medical care system evolved, science advanced, and government became more directly involved in providing medical care for poor residents. Some of the contemporary shortcomings identified by professionals have resulted from the neglect of traditional public health functions.⁴¹ But some of the needed improvements would go beyond what was in place when Californians

were concerned about naturally occurring smallpox, to devise a system that would effectively respond to a smallpox attack now. Among them:

Global trends require new partnerships and scientific excellence.

California, as a major population center with international borders and ports, is at higher risk for both terrorist attacks and emerging pathogens.⁴² This requires California leaders to develop functional relationships with Mexico, with other border states and with federal agencies. These current threats have catapulted public health into a position of extreme importance, requiring unprecedented levels of diplomatic and scientific sophistication, international cooperation, mutual aid and vigilance.

Mission must focus on threats that individuals cannot control.

While government has many health-related responsibilities, a priority for the public health system must be those deadly pathogens and hazards that are beyond the control of individuals.⁴³ This challenge – while within the traditional mission of assuring healthy conditions for the

Public Health's new focus must be on threats over which individuals have no control, such as environmental factors, bioterrorism and the recently re-emerging infectious diseases that have become resistant to antibiotics.

public – requires a different management focus than fighting sexually transmitted disease, obesity and other behavior-related health issues. This mission requires a thorough command of scientific and medical issues. It also requires refocusing the public health system and coordinating efforts with first-responders and other strategic partners. And it requires integrating efforts to be prepared for a bioterrorist or natural emergency with routine but essential public health functions such as disease surveillance.

Authorities and responsibilities must be refined and rehearsed.

The increased chances that the public health system will be a central part of a large emergency response will require fortifying the chain of command between state and local public health agencies. It also will require improving the coordination among public health officials, emergency room physicians and others.⁴⁴ These communication links are not in place.⁴⁵ There is no registry of volunteer medical professionals.⁴⁶ There is a lack of specific training and drills to develop teamwork, hone skills and identify weaknesses, as has been done by the National Guard.⁴⁷

Medical, scientific and technical capacity must be strengthened.

Limited resources need to be redirected to ensure that the core public health functions are adequate to protect public safety. Generally speaking, the State and counties have not invested adequately in the intelligence or "brain" function of public health – epidemiologists and other scientists who collect and analyze information to trace the origins of disease and injury to determine interventions and to prevent and reduce injury, illness and death.⁴⁸ After a long period of retrenchment, there is a shortage of capable personnel in public health positions. Significant turnover of personnel within the functions related to bioterrorism and emergency preparedness has handicapped state operations. Further, the State has not tapped available technologies that can assist scientists in disease detection and real-time communication – the tools that augment the talents of public health professionals.⁴⁹ Computer-assisted analysis and mapping can detect patterns of environmental exposures that may indicate the origins of emerging disease, for instance, cancers, lung diseases such as asthma, as well as bioterrorism events.⁵⁰

Health system must meet the challenge, including surge capacity.

Hospitals, emergency rooms, clinics, laboratories and health professionals are already stressed by a rapidly growing population. High numbers of immigrants who do not speak English, high numbers of uninsured, inadequate reimbursement rates and seismic instability compound the challenges.⁵¹ The leaders of the hospital association and the emergency physicians testified that there are critical shortages, including emergency, trauma and surge capacity. And they expressed concern about the capacity of government to deal with these challenges, especially the need for surge capacity.⁵²

To address each of these demands – and simultaneously restore the overall public health system – the State will need to assess and reinforce the organizational structure, the characteristics of leadership and management, and the ability for the public and outside experts to understand and inform policy and operational decisions.

Key Deficiencies in Public Health Structure

As described in the background, California's public health system is decentralized. At the state level, many functions have been assigned – as priorities changed – to specialized agencies that focus on air quality, water quality, or toxic substances. And many day-to-day public health responsibilities are performed by local health agencies. But these

changes now confound efforts to refocus public health on essential challenges. The new and increasing demands described above will be difficult for the State to satisfy given a number of key deficiencies in its organizational structure. Among them:

- **Medi-Cal administration dominates DHS.** Medi-Cal provides benefits to one in five Californians and accounts for 90 percent of the department's budget.⁵³ Those programs require administrators and personnel skilled in eligibility and reimbursement issues, and units dedicated to enrollments and fraud. The maturing of the Medi-Cal program has overwhelmed the core public health aspects of the department's mission, and supplanted the scientific-based culture that once existed.⁵⁴ The public health aspects of the department must compete for attention from the department's leadership, making it even harder for DHS to coordinate with other departments and the counties that perform public health functions. California's public health system – once world-renowned for its scientific excellence and performance – is faltering according to professionals at all levels of government and the private sector.⁵⁵ With the focus on serving the uninsured, DHS is not fulfilling its traditional and vital role as the central and trusted resource for expert support to the medical and public health communities.⁵⁶

- **Public health functions are distributed in several departments.** In addition to DHS, seven other departments in three different agencies perform duties that are classically considered to be public health responsibilities.⁵⁷ Changes in the organizational design often made sense when they were made. Professionals, including those in the health field, have long been licensed by semi-autonomous boards that now are part of the Department of Consumer Affairs. As environmental policies evolved, regulatory agencies were created to protect air and water quality, to control pesticides and other potentially toxic materials. The creation of an Environmental Protection Agency in 1991 drew in still more functions designed to protect people as well as the ecosystem. But this organizational design can result in duplicated efforts and missed opportunities.⁵⁸ Responding to the new challenges will require a more concerted effort by officials that are now distributed among different entities with different priorities.

- **Structure undermines benefits of population-based policies.** California's fragmented public health structure has lost its muscle. Without a dedicated authority, coordination, planning and oversight have been weakened and the scientific basis for decision-making has been diminished.⁵⁹ The structure makes it difficult for the State to leverage all of its tools – including oversight of health professionals

and facilities – to improve public health and safety. The fractured structure undermines the ability of health officials to employ public health methodologies, such as ongoing monitoring of health trends and threats, and scientific techniques to diagnose problems and craft cost-effective solutions. Ironically, while these failings can partly be attributed to the growing demands on government-sponsored medical care, these failings also can increase the demand for that assistance.⁶⁰ Without a capable effort at safeguarding the health of the population, providing health care to uninsured individuals becomes more difficult and expensive.⁶¹

- **Structure complicates state-local partnership.** The most important relationship in public health is between state officials and those in the counties, which have most of the actual responsibility for preventing, detecting and responding to the threats. County officials and their private partners are concerned that without a focused organizational structure at the State level and a clear chain of command, they cannot be fully prepared and will not be able to effectively respond to problems.⁶²
- **Structure does not adequately link state agencies with universities, biotechnology, labs and private sector expertise.** The resources within California's public and private universities – including schools of medicine, public health and nursing, and the academic medical centers – are underutilized.⁶³ Further, there is significant untapped capacity and expertise within the private medical system and the scientific business community that could bolster public health, especially within the biotechnology sector, Silicon Valley and other scientific hubs around the state.⁶⁴

Structural Changes to Improve Effectiveness and Efficiency

The State can address these weaknesses by reorganizing existing programs and resources into a new department focused on public health security. In fashioning any reorganization, policy-makers should consider the core functions that would be necessary to make the new program successful, related functions that could be consolidated in the new department over time, and related programs that should be strategically aligned with the new department. In all cases, reorganizations should yield efficiencies by reducing duplicative efforts or improving effectiveness through the better use of existing resources. In tight budget times even greater discipline is required to ensure that reorganizations accomplish those goals.

Many of the core public health functions are now within DHS, and they would be the foundation for any new organization focused on working

with the counties to protect public health and safety. Those functions include laboratories, epidemiology, prevention and disease control services. The Emergency Medical Services Authority, which coordinates the numerous entities involved in medical responses, also should be incorporated into the new department.

This focused department – led by a state California Surgeon General and guided by a board, as described below – could be focused on developing with the county health offices an effective, highly professional and publicly accountable system for reducing and responding to health threats to the population.

The department also could be a policy hub for working more strategically over time with health-related functions in other departments. And over time, with the board serving as an aggressive catalyst, the department should reduce duplicative efforts or improve effectiveness by potentially assuming some of those health-related responsibilities that are now outside of the Health and Human Services Agency.

If the public health functions were consolidated into a new organization, the Department of Health Services could be reorganized to focus solely on Medi-Cal and other insurance and medical care programs.

A number of steps could be taken to hold down the costs of a new department. Because of advancements in technology, and the ability to network through telecommunications and computers, physical relocation can be accomplished over time. Administrative overhead for these functions is already in the budget and could be managed to ensure no net increase in costs. Within the new department, the focus should be on more efficiently and effectively using existing resources to meet the top priorities.

While the reorganization could be initially structured to be cost neutral or save the State money, the benefits over time will be improved public safety, more efficient regulation and reduced health care costs.

Key Leadership Issues

Just as no department is wholly focused on public health, the State does not have high ranking, clearly defined leadership solely focused on public health. Strong leadership might be able to overcome some of the structural problems described above, but the State does not have a position with the necessary qualifications, responsibilities and authorities. This shortcoming complicates the relationship between the State and the counties, which are required to have a physician in charge

of public health.⁶⁵ It also raises concerns about how well the public health system would perform in the event of an attack or other health threat that requires medical expertise and coordinated response.⁶⁶

Most states have – as California once had – a state health officer whose sole job was administering public health programs and serving as a chief medical officer in times of emergency.⁶⁷ Until the early 1970s, the state health officer in California was required to be a medical doctor and was appointed to a fixed term that overlapped gubernatorial administrations.⁶⁸ In some recent administrations a medical doctor within DHS was designated as the State Health Officer.

Technically, the director of the Department of Health Services now fills that role,⁶⁹ supported by deputy directors and others who serve as state epidemiologist, or supervise prevention services, communicable disease and bioterrorism-related programs.⁷⁰ This practice has evolved over time, along with the structural changes. The new demands on public health, however, crystallize the shortcomings of the current practice.

- **Leadership is politically, not professionally based.** The political appointment process provides direct accountability of high-ranking administrators to elected officials. In some areas of government, that process is modified by pre-selection panels, minimum requirements, or other measures to ensure that positions are filled with people who are both highly competent and politically responsive.⁷¹ This is particularly important in public health, where emergencies require a qualified, independent and respected voice to direct health-related responses.
- **State health officer does not report directly to the Governor.** As described earlier, the authorities of the state health officer technically reside in the director of DHS, who reports to the Secretary of the Health and Human Services Agency, who reports to the Governor. But the day-to-day responsibilities are assigned to other staffers who report to the director of the department. Unlike many other states, California does not have a scientific public health or medical voice in the Governor's Cabinet.⁷²
- **Medically-based authority is not clearly defined.** State law vests significant authority with the Governor in times of emergency, and some health-related authorities in DHS. Some of the powers – such as establishing quarantines or destroying property to reduce the spread of disease – necessarily require the knowledge and skills of a physician and other states have rested those authorities with the state health officer. In California the county health officers also have those authorities, but at the state level those powers are not vested in

Physician Health Officers

State law specifies credentials for local health officers.

Section 1300:

The health officer shall be a graduate of a medical school of good standing and repute and shall be eligible for a license to practice medicine and surgery in the State of California...

Section 1250:

The health department shall be under the direction of the health officer devoting full time to official duties and these duties shall constitute his primary responsibility and no other activities shall interfere with performance of his official duties.

The law does not define the qualifications for a state health officer. The statutory requirement for the State to have a physician health officer was eliminated in 1970. However, the power to quarantine, the need to authoritatively respond in public health emergencies, and some grant requirements prompted previous administrations to have a physician on the executive staff of DHS to act as the State Health Officer. Currently, there is one veterinarian and no physicians in senior management positions at DHS.

Sources: Title 17 of the California Code of Regulations; Health and Safety Code. Reorganization Plan Number 1 of 1970.

a position that is required to have the necessary professional background.⁷³

Within the federal government, the U.S. Surgeon General oversees the uniformed officers of the U.S. Public Health Service and has historically served as a principal advisor and natural spokesperson on public health issues. The Surgeon General must be a physician.

At the federal Centers for Disease Control and Prevention, the director has by tradition been a highly-accomplished public health physician. At CDC, a well-regarded model has evolved where physician/scientist leaders are paired with trained administrators to carry out many non-scientific duties. This parallel model of governance allows individuals to do what they do best according to their training and expertise. The agency also has a “public health advisor” program, which provides training in administration for the non-scientists at CDC. At CDC, only the director is a political appointee.⁷⁴ (An organizational chart of CDC appears in Appendix D.)

Another critical government partner, the local health jurisdictions, appoints public health officers through a political process. Public health leadership is typically selected by county boards of supervisors, who may or may not be supportive of enforcement actions against large employers or other influential entities. State law requires that physicians lead California’s 61 local health jurisdictions (as described in the box), but the law is not enforced. In several jurisdictions, physicians only have part-time or contractual roles with local health departments.

Key Public Oversight Issues

California has made a commitment to public involvement in the development and oversight of many state programs, yet it has ironically forsaken the benefits that citizen and expert involvement can bring to protecting the public’s health.

From 1870 to 1970, oversight and this public process was provided through the State Board of Health. The board had regulatory authority, met in public and was comprised of licensed and practicing physicians, including the director of the Department of Public Health. In a 1970 reorganization, the board was abolished along with the requirement that the director be a licensed California physician.⁷⁵ Many health professionals and advocates believe that the quality of public health programs began its steady and quiet devolution when the public process and profession-based management and oversight were discontinued.⁷⁶

The board's monthly meetings provided a formal public forum for open and substantive discussions about solving complex problems. The current structure does not require substantive public meetings and so that venue – for identifying needs, exposing problems and setting priorities – does not exist. This gap creates at least four problems:

- **No public process for public at risk.** In the face of increasingly complex threats, the deterioration of California's public health and medical care systems endanger the lives of Californians.⁷⁷ While these threats require a higher level of cooperation among government and private entities, the State has no regular public process for expert, stakeholder and community input.⁷⁸
- **No expert involvement in a public venue.** Protecting the public health requires highly skilled professionals with expertise in a variety of medical and related disciplines. The government cannot employ all of this expertise, and its experts can always benefit from peer review. Moreover, an open and visible venue could provide a valuable check on other regulatory agencies whose narrow actions to protect the public and the environment may have unintended health-related consequences.
- **No venue for linking public efforts.** In a state as large as California, and in a field as complex as health policy, no rational organizational structure will incorporate all of the State's related functions and assets. While government agencies can cooperate on their own, most are inclined to pursue their mission in isolation and at times defend their programs regardless of their effectiveness or relationship to programs in other departments, or the impact on the public. A public board that involves other agencies and independent consumer and professional voices, can focus the collective effort, provide oversight and identify opportunities that individual departments, working on their own and behind closed doors will not.
- **No venue for systematically thinking through health-related issues.** While the central focus of the board should be the public

health system, those functions do not exist in isolation. An effective public health system will reduce the demands on the personal health care industry and a board is needed to support those efforts. But the board also could be a venue in time for directly assessing the State's options for improving the overall health system, and holding down the spiraling medical care costs to all Californians.

A number of other states rely on public health boards to deal with these issues.⁷⁹ Washington state is widely regarded as one of the most effective in the country, and is described in appendix E⁸⁰ That board provides policy guidance and has regulatory authority over Washington's Department of Health, which implements the board's policies and operates the public health programs.⁸¹

Recommendation 1: The Governor and Legislature should create a public health department – separate from Medi-Cal and other insurance programs to serve the poor – that is focused on emerging threats, with physician and science-based leadership and an advisory board linking California's health assets and experts. The new structure should contain three essential components:

- ❑ ***The department should be led by a California Surgeon General.***
 - ✓ The Surgeon General should be a physician selected by the Governor from a pool of nominees recommended by the new public health board and the California Conference of Local Health Officers based on strict scientific, medical, public health, leadership and management criteria.
 - ✓ The California Surgeon General should report directly to the Governor, as is the case with the director of emergency services.
 - ✓ Adapting The Center for Disease Control and Prevention's (CDC) parallel management model, the California Surgeon General should develop a team of physician/scientist leaders and accomplished administrators with public health expertise.
- ❑ ***A part-time, volunteer and scientific public health board should be established to provide public and expert involvement in the development of policies, regulations and programs administered by the department or directly affecting the health of Californians.***
 - ✓ Members should be appointed to fixed terms and imbued with a fiduciary responsibility to represent the public interest and protect the public's health.

- ✓ The board should be provided independent professional staff through reassigning existing resources.
- ✓ Through public meetings, the board should provide authoritative oversight of public health programs and regulations to improve effectiveness, examine ways to better use existing resources, analyze cost-effective alternatives for improving the health and safety of Californians and comment on regulations that will affect the public health.
- ✓ The board should encourage the participation of related government agencies, such as the health professions boards and the National Guard, as well as foundations and the professional associations, including the County Health Executives Association, the Public Hospital Association, the California Medical Association, the California Health Care Association, the Western Occupational and Environmental Medical Association, the California Conference of Local Health Department Nursing Directors, and the public health associations.
- ✓ The board should report at least annually to the Governor and Legislature on the priorities for government actions to improve the public health and on ways resources could be used more effectively.
- ✓ The board should systematically assess the opportunities to consolidate or coordinate the work of other state health-related advisory boards, such as the Health Policy and Data Advisory Commission of the Office of Statewide Health Planning and Development (OSHPD).
- ✓ The board should ensure that the State develops effective partnerships to tap the expertise of California's universities, academic medical centers, community clinics, foundations, private medicine, and the National Guard. The board should explore strategic relationships with biotechnology and other high technology sectors.

Critical Sectors Linked Through Board

Members should be appointed by the Governor and Legislature and include:

1. A dean of a California school of public health.
2. A dean of a California school of nursing.
3. A dean of a California school of medicine.
4. The president of the California Conference of Local Health Officers.
5. The health officer of a large metropolis.
6. A rural health officer.
7. A public laboratory director.
8. The physician leader of the state's medical emergency response system.
9. & 10. Two public members of national stature (possibly selected by the board) based on their broad experience and professional expertise.
11. The Board should be chaired by the Surgeon General-Director of the Department of Public Health.

❑ **Core public health functions should be focused under the new Department of Public Health.**

- ✓ The department should contain laboratory, surveillance and prevention services now within the Department of Health Services (DHS), including epidemiology, communicable disease control, chronic disease and injury control, and clinical preventive medicine.
- ✓ The department should include the DHS Division of Emergency Services and the independent Emergency Medical Services Authority.
- ✓ To develop stronger relationships with the 61 local health offices, the department should assume and enhance the unit within DHS responsible for the California Conference of Local Health Officers. The department should include the divisions within DHS that ensure the safety of food, drugs and drinking water, as well as the Office of Border Health.

More Opportunities for Reorganization

With a department focused on public health, the State would have new opportunities to reduce duplication or improve effectiveness by consolidating or coordinating functions. Among those programs that should be considered for realignment or consolidation:

1. EPA's Office of Health Hazard Assessment and the health components of EPA's Department of Toxic Substance Control could be linked with the new department's units dealing with radiation safety and Environmental and Occupational Disease Control.
2. Food, drug and drinking water safety oversight in other departments.
3. Oversight of health facilities now conducted by DHS.
4. Oversight of health professions boards within the Department of Consumer Affairs.

✓ It should include the Division of Health Information and Strategic Planning from DHS and the similar functions within the Office of Statewide Health Planning and Development. This would allow the State to dissolve OSHPD by transferring remaining functions, such as seismic safety, to the licensing and certification unit at DHS.

✓ The department should be created by reassigning existing resources. The department should be created with no net gain in administrative personnel, by transferring existing administrative staff to the new department or contracting with the other departments for those services.

✓ Once the core public health department is operational, the California Surgeon General, working with the public health board, should assess the opportunities for either incorporating or developing formal and strategic relationships with health-related programs in other departments, as listed in the box.

Federal-State-Local Partnerships

Finding 2: The coordination and communication among state, local and federal public health agencies and their strategic partners is inadequate to protect Californians.

California needs a well-functioning and cooperative public health network that leverages both public and private sector assets to avoid preventable deaths and disabilities.⁸² A strong network would reduce illness and death experienced by Californians both in emergencies and under normal conditions.

In Finding 1, the Commission recommended ways to bolster the structure, leadership, decision-making and public involvement at the state level. But the public health system is actually an extensive network of federal, state and local agencies, as well as hospitals, clinics, laboratories and other enterprises. A robust public health system must begin with a focused state effort, which then reaches out to these other partners.

A strong partnership will require minimum standards that ensure local agencies are prepared to serve their communities and contribute their assets in the event of larger emergencies. The partnership must rest on clear roles and responsibilities and complete, accurate and instantaneous communications.

Building these connections is complicated because of the diversity among the counties, as well as the private partners. But some of the elements – such as minimum standards – have already been pioneered by other states, and CDC and California's local health officers have made progress in developing them for use in California.⁸³ In other aspects involving public safety, the State has demonstrated that it can competently link the efforts of local agencies to serve regional and statewide needs.

Benefits of a Public Health Partnership

A well-functioning network of public health agencies would yield substantial benefits. A strong network leverages expertise and assets to efficiently meet essential needs and capture economies of scale. And it brings together a variety of scientific disciplines – from chemistry to computer science -- for peer review and problem solving. Among the essential elements:

1. A strong network requires confidence that all of the partners are competent to perform what is demanded of them individually and in concert. This is done through:
 - Benchmarking, certification and other efforts to ensure minimum competency.
 - Technical assistance to help partners improve their capacity.
2. A strong network relies on a clear understanding of roles and responsibilities, including the chain-of-command in emergencies. These roles are defined through:
 - Contingency planning, the development of protocols and communications strategies.
 - Practical and personal experiences that are developed through drills and other exercises.
 - Trust and confidence built by working together on a regular basis.
3. A strong network requires complete, accurate and instantaneous communications. This is accomplished by:
 - Ongoing, regular interactions and connected sources of information.
 - Common and understood definitions and standard data elements.
 - Compatible information architecture with built-in redundancies in case of system failure in emergencies.

Varying Competence & Quality Across State

California has a strong and valuable tradition of 61 local health jurisdictions serving their communities. But the ability of local agencies to protect the public varies from county to county and from function to function. Some of this variation results from the lack of explicit standards that local health departments must meet or could at least use to measure their performance.⁸⁴ In addition, some communities have a shortage of scientific and medical personnel that limits capacity.⁸⁵ In still other instances, local officials do not have easy and affordable access to technical assistance, or do not receive timely, reliable or consistent direction from the plethora of state agencies involved.

The benefits of a locally based system are diminished if Californians in some communities are receiving inadequate protection and the jurisdictions cannot be relied upon in a large-scale emergency. Among the problems:

Local health departments are not required to meet established standards.

Local jurisdictions vary in leadership capacity and management expertise, staffing levels, scientific and medical expertise, as well as laboratory and communication technologies.

Some variation, as described below, is inevitable because of California's economic, geographic and demographic diversity. But the State does not require that all Californians are protected by a locally-based public health system that satisfies minimum standards for capacities or levels of service. As described in the box on the opposite page, there have been national efforts to resolve this issue, and some states are making substantial progress. Nationally, as in California, a critical hurdle is the commitment to pay for and manage any improvements that are revealed by either rigorous assessments or the imposition of standards.⁸⁶

In California, local health offices historically received state funding in explicit exchange for performing certain functions.⁸⁷ As described in Finding 4, the often-dysfunctional relationship between the State and counties in the field of health and human services has muddied the expectations for local public health programs. And the link between funding and compliance with state expectations has been weakened.

According to DHS officials, previous attempts by the State to inventory the capacity of local health programs was met with resistance, making it impossible to develop a comprehensive understanding of statewide

assets.⁸⁸ More recent federal efforts have required local agencies to describe their capacity before being eligible for grants. These federal inventory reports have provided some baseline information.⁸⁹ The increased threats to health security also have melted some of the resistance to documenting capacities, sharing information and working together.

Toward Standards & Accreditation

For several years, The CDC's Public Health Practice Program has been working to establish a credentialing system for the public health workforce, as well as standards and accreditation for public health agencies. The goal is to ensure a functional system by benchmarking performance and quality of services. In 1998, CDC and the major national public health organizations created the National Public Health Performance Standards Program. Designed for the state and local levels, the program has been piloted in Florida, Hawaii, Minnesota, Mississippi, New York, Ohio and Texas, and deemed valid.

But without a commitment to fund needed improvements, there has been no agreement to implement the standards. The National Association of County and City Health Officials also is concerned that the new standards would increase stress on a workforce "already stretched to the limit providing essential public health services and responding to the threat of weapons of mass destruction, particularly biological weapons."

The specter of domestic terrorism has prompted the creation of "Project Public Health Ready," a collaborative effort by the Federal Emergency Management Agency, CDC, the health officers association and the Columbia University Center for Public Health Preparedness. The project is designed to prepare staff of local agencies to protect the public's health through a competency-based training and certification program. Based on competency standards and exercises that include the public health role in the Incident Command System (ICS), the project will certify public health agencies as prepared to respond to emergencies. Pilot testing is scheduled for spring 2003, and implementation by autumn 2003. CDC's target is to have "100 percent of local health jurisdictions certified under Project Public Health Ready" by fiscal year 2006.

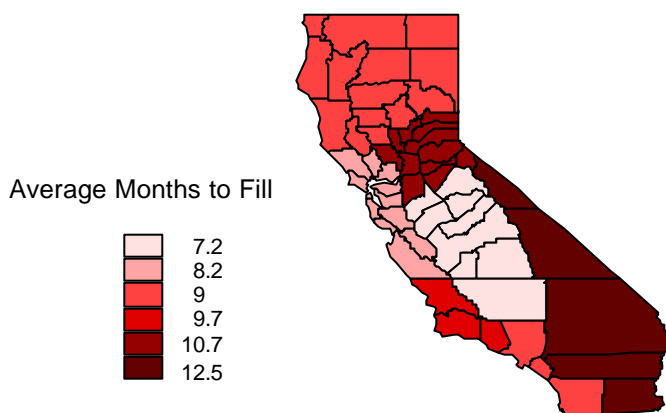
Some states already use standards and credentialing processes. New Jersey and Michigan credential their health officers. Further, Florida, Illinois, Michigan, Missouri, Ohio, and Washington already have accreditation programs and performance standards for local agencies. Still it is estimated that 80 percent of the national public health workforce lack credentials. While some public health workers have advanced degrees, such as master's in public health, this is not the same as a proven set of competencies for public health practice. Among its January 2003 recommendations, the national health officers association recommends that public health faculty be credentialed and "supports the IOM Report recommendation for credentialing of new MPH graduates for public health practice."

Sources: Institute of Medicine, 2003 "The Future of the Public's Health in the 21st Century," National Academies Press: Washington, D.C. George Flores, MD, MPH, Personal Communication, January 2003. CDC Fiscal Year 2004 Performance Plan p. ix (www.cdc.gov/od/perfplan/2003perf.pdf updated 2-21-03). Public Health Institute, "State Public Health Governance in the United States," Presentation to the Commission, November 18, 2002. National Association of County and City Health Officials, January 23, 2003 Recommendations. CDC FY 2004 Performance Plan. Web site accessed March 2003. <http://www.cdc.gov/od/perfplan/>

Some variations result from local geographic or economic conditions.

There are now large variations in California from community to community in the availability of competent public health doctors, nurses, scientists and laboratories as well as core components of the medical care delivery system, such as hospitals, trauma facilities and clinics.⁹⁰ One measure of the variation in public health infrastructure capacity, is the time it takes in different parts of the state to hire epidemiologists. The map below reveals that it is a difficult task for all counties, but a harder one still for rural communities.

Public Health Epidemiologists Hard to Hire



Source: *Results of the CHEAC/CCLHO Survey on the Public Health Workforce*. September 2000.

The State has not adequately planned for facilities and workforce.

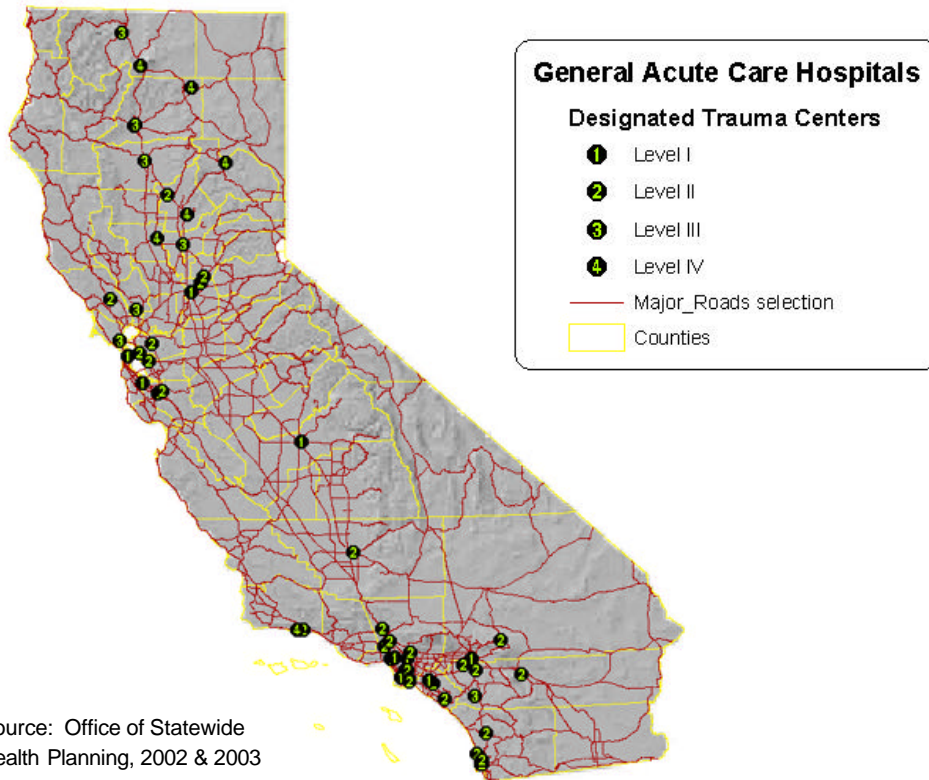
The State has many opportunities to encourage the private sector and academia to provide an adequate supply of facilities and the skilled staff to operate them, for both day-to-day care and emergencies. While there are numerous constructive public and private sector efforts to address the supply issue, without coordination, these efforts have not ensured an adequate distribution of resources. The State, however, is in the best position to work with universities, professional licensing agencies, and scholarship-granting entities to encourage students to pursue certain professions and even work in certain communities.

The diminished planning role for the State is based in part on the philosophy that in a free-market, health care should not be thought of as a public utility. Inconsistently, California's counties are by state law the "health providers of last resort."⁹¹ Just as this dichotomy complicates routine health care, it also frustrates government efforts to organize facilities and personnel to respond to health emergencies. And it has

contributed to the inability of the 61 public health jurisdictions to regulate hazards over which an individual has no control – such as bacteria, molds and chemical contaminants in health care facilities, workplaces and restaurants.

Since the terrorist attacks of 2001, EMSA has worked with local emergency authorities to improve readiness through training, drills and coordination. Further, since the 1998 influenza season overcrowded emergency rooms, EMSA has been involved in efforts to understand and improve the capacity of emergency rooms, even in the absence of direct authority and resources.⁹² The following map portrays just one public health concern related to facilities – the inadequate distribution of trauma care.

California Health Care Infrastructure



Source: Office of Statewide Health Planning, 2002 & 2003

Technology can be employed to augment availability of minimum levels of care that can be of importance in times of emergency. For example, the use of helicopter medical transportation and tele-medicine (which connect patients and doctors using computers and video conferencing) can help to redistribute services. However, there is no official or entity in California responsible for coordinating among the various providers and

agencies – nor for planning, contracting or managing to ensure a public health system with reasonable response times and capacities.

Local agencies need technical assistance.

From the local perspective, a chief concern is the ability of state authorities to provide reliable, scientifically sound information and technical guidance. There is a broad consensus that the quality of information and assistance offered by the State has eroded as health-related resources have been redirected away from this core function.⁹³

(This trend is described in detail in Finding 3.)

***Smallpox Practice Drill:
Authoritative Scientific Voice Needed***

A 2002 smallpox exercise among the State, the local health departments and the FBI provided a clear example of the need for scientific information from an authoritative voice in the event of an emergency. During the exercise, state and local authorities were reportedly at odds as to whether to quarantine people who had likely been exposed and would be infectious.

Part of the conflict resulted from confusion about who had the authority to make the final decision. The exercise took place at the San Francisco International Airport and involved officials from federal, state and local officials with a variety of independent authorities.

Similarly, after the federal government released plans for preventative smallpox vaccinations, the 61 local health districts were left to develop their own materials for local medical providers. The materials were not systematically reviewed for accuracy, so varying levels of information were distributed in each jurisdiction.

While the State learned and made improvements in response to these situations, these examples demonstrate the ongoing need for:

- Solid expertise and a respected, authoritative voice from the State.
- Clear, scientifically-based protocols and communications plans that are established, practiced and understood prior to an event.

Economies of scale argue for the State to have experts that local health jurisdictions can rely upon, rather than having local jurisdictions duplicating that expertise. In keeping with this concept, the State has recently catalogued University of California experts who can be called on in specific emergencies. Similarly, CDC provides specialized expertise to augment state capacity. The federal agency, for example, operates the Epidemic Intelligence Service to assist states and other nations trying to understand specific health threats.

Variation undermines mutual aid.

Variation among jurisdictions raises more than the issue of equitable treatment of Californians. Varying levels of capacity also undermines the reliability of a system dependent on neighbors helping neighbors in the event of large-scale emergencies. Partners in other government agencies and the private sector must be able to count on the capacity of entities called on to provide mutual aid. In recognition of this, the national standards under development specifically require training and exercises to ensure skills are current to emerging threats.⁹⁴

Counties not encouraged to regionalize efforts.

Without compromising the benefits of a local health service, some functions could be performed at a regional or state level to achieve economies of scale.⁹⁵ One example is laboratory services. For example, by contracting for highly specific genetic tests, the State has built a well-respected prenatal and newborn screening program that can be used by the counties.⁹⁶ And some counties now rely on each other to perform some lab functions.⁹⁷ But without minimum standards requiring each jurisdiction to accomplish certain tasks, and without the technical assistance to create formal partnerships, the local health jurisdictions do not have significant incentives or the means to develop those partnerships.⁹⁸ The federal government – which has imposed a minimum standard for local lab directors that is difficult for rural counties to satisfy – could provide an impetus for reorganizing lab capacity.⁹⁹ But the State also could provide more effective incentives, coordination and organizational assistance.

Roles and Responsibilities

Because of the decentralized nature of a public health system, it is essential that the roles and the responsibilities of public agencies are well defined. While clarity of roles can improve the response to persistent threats – such as vulnerabilities posed by busy international ports and borders – the largest consequences can result in emergencies – where there is not time to sort out responsibilities.¹⁰¹ For those events, roles need to be clearly defined, and rehearsed by the partners.¹⁰² Among the problems:

The State’s decentralized structure muddies roles.

As described in Finding 1, the State’s public health scientists are distributed across departments that sometimes are in conflict, and are buried in the bureaucracy with little opportunity to provide key decision-makers with scientific findings.¹⁰³ Even with a shortage of scientists, few efforts have been made to integrate their work. This has resulted in silos of untapped knowledge, limited professional interaction, a loss of potential synergistic functionality, and low morale.¹⁰⁴

Formalizing SSCOT

In its January 2002 report, the Commission recommended that the State’s Strategic Committee on Terrorism be formalized in statute so that the public and policy-makers would be able to understand and direct the committee’s activities and hold it accountable. Legislation also could fortify the efforts of SSCOT’s public health subcommittee.

Legislation also would allow for policy-makers to resolve the issue of who may attend these meetings and establish security rules that have some public accountability. In preparing this report, the Commission’s staff was sometimes allowed to attend the public health subcommittee, and sometimes denied access. The director of the Office of Emergency Services told the Commission there are informal security procedures, and he would only consider suggestions that did not require changing the law.

Terrorism committee is helpful, but limited.

Even before the terrorist attacks, California had developed a mechanism for government agencies to coordinate their efforts to respond to this threat. The State Strategic Committee on Terrorism has a subcommittee focused on public health issues. The subcommittee has met periodically to share information, coordinate and plan. While many participants consider it a constructive forum, it has met too infrequently to accomplish the substantive work that is needed, and often does not have the high-level decision-makers present. The process has not involved all of the organizations that need to prepare for or respond to a health emergency. And participants have noted that the State has taken a surprisingly passive role, frequently deferring to the counties in critical areas of preparing for potential attacks.¹⁰⁵

California law needs strengthening.

The need for better planning spawned legislation in 2002 and 2003 (see Appendix H). The most recent measure, AB 206 (Richman), seeks to clarify some of the generalized authorities existing in current law. The bill would establish a Public Health Emergency Planning Commission that would devise detailed plans for: central coordination of resources, evacuation routes and procedures, public communication, training and protection of first-responder and other medical and public health personnel, infection control and specific quarantine procedures.¹⁰⁶ Components of AB 206 are based on the Emergency Health Powers Act, a model law that states have been using to strengthen their emergency systems.

While the bill has been controversial, the California Conference of Local Health Officers said the issues are important. According to its president: *The Health Powers Act, first and foremost, recognized the new world we now live in where the threat of the unthinkable has become a reality. It defined a public health emergency and its provisions applied only to that extraordinary, defined circumstance. Those who persist in thinking that we can rely on present law to guide our response do not recognize that the spectrum of risk is so broad, ranging from very few casualties such as in the October 2001 Anthrax attacks to potentially hundreds of thousands to millions.[...] California law must be strengthened to mandate preparedness: planning resource and allocation, clarifying authority, and establishing clear delineation of roles and responsibilities.*¹⁰⁷

Chain-of-command is confused.

The lack of coordination with private sector and strategic partners has led to confusion over the chain-of-command in the event of

emergencies.¹⁰⁸ For the public health system to safeguard the public, there must be strong coordination among government and private sector entities. Among the concerns: strategic partners lack information about the capacities of all of the partners, limiting their ability to coordinate responses. Even those who will be centrally involved in public health emergencies express frustration and confusion about what the chain-of-command and protocols will be in a public health emergency.¹⁰⁹

Public Health Not Fully Integrated into Incident Command System.

The federal inventory of California's public health system highlighted a need to integrate the state's long-standing emergency planning efforts with the other components of public health. While there exist significant cultural divides among some first responders, public health must be integrated into the incident command system.¹¹⁰ While the incident command structure is a highly touted strength of California's disaster-tested first response system, those attributes have not adequately incorporated public health, largely because prior to the threat of bio-terrorism the need was not anticipated.¹¹¹

Public health needs to be integrated into drills.

Joint exercises involving state and local public health and emergency services, the California National Guard, and private sector providers are considered essential, but are not routine.¹¹² Many of these entities drill independently, but their plans are not coordinated or jointly practiced. Further, even when efforts are made, public health authorities do not consistently receive cooperation from hospitals and other strategic partners in conducting emergency planning drills.¹¹³

Borders and ports require cooperative efforts.

The border presents serious public health threats that require high level action involving numerous local, state and federal agencies – including agricultural, law enforcement, transportation and health agencies. The federal government ultimately has most of the authority over immigration, international trade and border control. But the state and many local communities are vulnerable to the health threats that unregulated borders present. The State established a Border Health Office in 1999, but its staff testified that its capacity does not come close to guarding against the known health threats.¹¹⁴ The border requires an orchestration of local, state and federal authorities that must begin with a shared understanding of the risks, as well as the capacities and obligations of different government agencies.

Effective Communication

An essential element of the public health system is the ability of various public agencies and their private partners to communicate. This capacity is defined by technical, procedural and even cultural issues. As described in Finding 1, effective communication begins with an authoritative and trusted voice that can develop the high quality information that is needed by the public, private businesses and health providers. But the ability to share this information in complete, understandable, and at times secured ways, also is essential. In that regard, the State faces several challenges:

Computer systems do not provide a network of information.

Public health scientists are not equipped with modern and connected information systems.¹¹⁵ They also do not share uniform data elements that would enable the analysis that can protect the public from hazards.

Public health agencies have recognized the need to improve communications, but have not been able to solve the problem. The State and county health departments have been planning a secure and rapid way of communicating with each other for years, but the project has not been implemented statewide and with providers.

Similarly, to better coordinate surge capacity, EMSA has been working with hospitals and emergency medical providers to connect public agencies with emergency facilities and health care providers.¹¹⁶ In an attempt to fill this gap, as described in the box, a collaborative effort has been developed by scientists both in and outside of government to create the linkage for sharing expertise.

Electronic data collection could provide for just-in-time response.

Gathering health-related data from a broad area allows analysts to discover a variety of patterns. These data – if accurate, timely and complete – can reveal contaminated food products, the geographic migration of disease and other health threats. In recent years, the system for reporting communicable diseases, environmental hazards and pesticide exposures has deteriorated due to several factors. In the era of cost containment, sometimes it is easier and cheaper to prescribe

Connecting Health Agencies

A new partnership is being contemplated that could help to provide essential information in the event of public health emergencies.

The California Center For Preparedness is a collaborative effort by the University of California, Lawrence Livermore National Laboratories, and SRI, as well as OES, EMSA and DHS. The center hopes to provide "comprehensive expertise" through "a statewide network connecting emergency response agencies, county public health facilities, first responders and health care entities."

Its mission would be "to anticipate, prepare for and reduce the impact of terrorist threats and other catastrophic events by coordinating the development of effective response systems using appropriate science, technology, and education."

Source: R. Steven Tharratt, MD, MPVM and Thomas Nesbitt, MD, MPH, "California Center for Preparedness Concept Paper," February 2003.

antibiotics or treat the exposure than it is to run the confirming tests needed to report diseases to the health department.¹¹⁷ Treating without testing also avoids the cumbersome requirement for paper-based reporting of results to health authorities.¹¹⁸ But when diseases and mysterious symptoms go unreported, it undermines the capacity of public health agencies to see community-wide patterns and activate exposure prevention and treatment guideline activities.

For example, in the late 1990s the products of a California juice producer contained a life-threatening pathogen.¹¹⁹ Residents in California and other states became ill, but the pattern of illness and its cause was not detected by California.¹²⁰ It was detected and analyzed by Washington, which had the technology and the procedures in place to identify and respond to the problem before more people became ill.

Recommendation 2: The State needs to take the lead on coordinating federal, state and local efforts, as well as those of strategic partners, to improve communications, capacities and preparedness. Specifically, the State should:

- ❑ ***Set minimum standards for local health agencies.*** The standards should be evidence-based and build on efforts already underway by the federal government and the California Conference of Local Health Officers. The standards should establish minimum capacities that local health agencies would be expected to achieve, as well as a means for locally elected policy-makers and the public to assess and make decisions regarding public health assets. They should include regular emergency exercises with all strategic partners, including large private employers, the National Guard, local health providers, fire and police. Compliance with the standards should be linked to funding.
- ❑ ***Ensure agencies and providers have high quality technical assistance.*** DHS, by networking its own expertise with universities and other sources, should ensure that local health agencies have the assistance necessary to meet minimum standards, make the best use of technology, and build an expert public health workforce.
- ❑ ***Help local agencies regionalize laboratories and other assets.*** The State should develop regulatory and fiscal incentives for counties to efficiently satisfy minimum standards, and ensure they have the technical assistance necessary to do so. Rather than replicating all assets across all jurisdictions, economies of scale must be considered to maximize available expertise.

- ❑ **Refine and rehearse command and control procedures.** The State should clarify to all parties the authorities, responsibilities and procedures to be followed among state and local government and strategic partners in the event of an emergency. The State should require regular exercises and drills among all parties and link funding to participation.
- ❑ **Network must be extended to the private sector and other partners.** The public health subcommittee of the State Strategic Committee on Terrorism should be formalized and involve all of the private, public, and non-profit organizations that need to prepare for and respond to public health emergencies. The subcommittee needs a clear mission and directed leadership that can be held accountable for building this network in a timely manner. The new public health board would be essential to building this network for hazards beyond terrorism.
- ❑ **Fortify border health protections.** The State should work with the federal government, local agencies and neighboring states to comprehensively assess the threats and practical ways to reduce them. The State should seek to clarify responsibilities and ensure that the collective effort guards California from the transmission of contaminants and germs. It should consider creating a bi-state commission, similar to the Arizona-Sonora Commission, to address issues of health security with Mexico.
- ❑ **Educate the public to reduce consequences and the demand on the system.** The State should provide citizens with educational materials about how they can protect themselves in the event of a public health emergency as described in the box.

Citizen Training Needed

To reduce the impact of bioterrorist attacks or outbreaks of infectious diseases, citizens should be trained to know:

- When to seek care in clinical settings, stay in place, or evacuate.
- Who and when to call for assistance and information, such as 911 and 311.
- Other potential sources of information like radio, the Internet or community sites such as fire stations and schools.
- What to expect from public health authorities such as physician health officers and public health nurses.
- How simple efforts such as careful hand washing and use of supplies such as certain types of gloves and masks may help guard against the spread of some infectious disease.
- How and when to obtain and use specialized radiation pills and other supplies.
- What should be kept in home and office kits for use in an emergency, and how to use the supplies effectively.

Sources: T. Warner Hudson, M.D., FACOEM, FAAFP, Director, Health, Safety and Environment, DTS Output. Federal Emergency Management Agency. "Are You Ready? A Guide To Citizen Preparedness." www.fema.gov/areyouready/. www.ready.gov. www.redcross.org. www.cdc.org

Scientific Capacity Does Not Match Threats

Finding 3: Expert, technical and physical capacities and assets must be rebuilt and re-tooled to counter current and emerging threats.

To address the challenges and threats of the 21st Century, California must organize and deploy the best minds and capacities available. Californians have developed some of the most sophisticated technology and the State is home to world-renowned medical centers, scientific expertise, and health professionals. These resources must be brought to bear on the complex public health challenges to protect the public.

To do this, a multi-disciplinary, collaborative approach is critical. Scientific experts in human, plant and animal disease must work together, in part because of the threat of cross-species infections.¹²⁰ Recognizing the need for microbiologists, epidemiologists, physicians, veterinarians, infection control specialists, and other experts to collaborate, the U.S. Department of Health and Human Services, National Institute of Health and the National Institute of Allergy and Infectious Disease require this multi-disciplinary approach of applicants seeking grant funds for advanced public health laboratories.¹²¹

To qualify for these funds, public health agencies have attempted to integrate their scientific tools and talent.¹²² While most of the projects are on the drawing board, they have the potential to geometrically enhance California's ability to tackle threats to the public's health. California's scientific expertise includes the University of California, Lawrence Livermore National Laboratories, private universities including Stanford and the University of Southern California, as well as biotechnology, biomedical engineering, medical and computing industries.

Even absent an emergency, bolstering California's analytical capacity by using information technology, artificial intelligence, and evidence-based public health and medical practices will lead to higher quality, more productive and longer lives for its residents.

There is consensus that California needs to substantially improve and modernize its capacity in disease reporting, laboratory diagnostics, and real-time secure communications among medical and public health professionals, strategic and community partners.¹²³ In local jurisdictions, physician health officers have police powers, including the authority to declare quarantines – something no other health practitioner can do. The ability to carry out these powers requires a high level of scientific expertise. Despite this, not all jurisdictions are complying with the law to have a full-time physician health officer.

Core Assets: People Matter Most

The ghost busters of the germ and contaminant world are the public health scientists, the disease investigators. But no one can be called when an outbreak occurs if positions are vacant or filled with lay people because of misplaced budget, management, or political priorities. These intelligence workers obtain and analyze information to accurately diagnose diseases or exposures. These are the experts who must determine and communicate to doctors and other health professionals appropriate interventions including treatments and safety procedures. These scientists are the experts that physicians turn to when baffled.

As described earlier, international travel and commerce allows for rapid transmission of diseases and contaminants that are not readily recognized by professionals. Public health scientists work with the international health community to investigate emerging diseases, determine how to prevent spread, and to communicate information to medical professionals. While these programs can save lives, they are suffering cutbacks.¹²⁴

Developing intellectual capital is a long-term investment; the State and local public health jurisdictions are under-investing in human capacity.¹²⁵

Connecting the Dots: The Intelligence Function of Public Health Applying Tools and Talent To Counter Disease & Death

Public health intelligence capacity is perhaps best highlighted by California's few surveillance programs. The two main programs are for Encephalitis (brain swelling) and Unexplained Severe Respiratory Illnesses (a new program). The Unexplained Deaths Program was recently discontinued due to funding and personnel constraints. Before being disbanded, it discovered the first three fatal Ebola-like viruses in the United States, which California officials believe were hemorrhagic arenavirus. However, CDC's terrorism-related backlog has prevented completion of confirmatory testing.

These programs work with physicians and infection control specialists, epidemiologists and other lab scientists to collect and analyze patient and outbreak information to trace the origins of disease, injury, and deaths so that interventions can prevent unnecessary morbidity and mortality. The components:

- **Proactive, dynamic disease surveillance.** Laboratory scientists and disease specialists develop interactive relationships with physicians and other clinicians to intervene quickly in mysterious cases. Ideally, they collect real-time information with computer-assisted technology and through direct contact with clinicians to diagnose diseases caused by exposures to contaminants or germs, perhaps never before seen in the community.
- **Computer-assisted analysis and mapping.** This technology is available but has not been incorporated into California surveillance to find regional and statewide patterns for instances of environmental exposures; food or water borne contaminants; emerging diseases, etc.
- **Quick dissemination of scientifically-based responses.** Protocols, information and technical guidance can prevent further infections and exposures.

Sources: Carol Glaser, MD, DVM, Acting Director, Viral and Rickettsial Disease Laboratory, Division of Communicable Disease Control, DHS, State of California, presentation to International Symposium on Emerging Infectious Diseases and Bioterrorism, Regional Threats, Global Impact; UC Davis, December 2002. Alan P. Zelicoff, MD, Senior Scientist, Sandia National Laboratory. Michael D. Kluger and Andre N. Sofair, M.D., et al. "Retrospective Validation of a Surveillance System for Unexplained Illness and Death: New Haven County, Connecticut." August 2001. CDC's Epidemic Intelligence Service Web site: www.cdc.gov/eis/

As detailed in this chart, local health agencies have numerous vacancies that are hard to fill. While California educates and trains some of the most talented epidemiologists and laboratory scientists, the State has trouble attracting and maintaining a competent team of experts.¹²⁶ Noncompetitive salaries, undesirable management structures, as well as obsolete equipment and facilities are cited as barriers for potential employees.

Many California public health experts have gone to work at the federal level, where salaries for comparable positions are sometimes 30 percent higher.¹²⁷ The bright stars lured away from California include the director of CDC, the director of CDC's public health practice program, the director of the National Center For Environmental Health, and the medical advisor to the Office of Science and Technology Policy in the Executive Office of the President. A number of scientists report that they would reconsider working for the State if the bureaucratic and compensation structures were reoriented to value scientists. Advantages of federal service include the professional environment, training and prestige, as well as salary and authority.

The salaries for key positions are reportedly not attractive to physicians. For instance, the salary for the director of the DHS is \$123,255.¹²⁸ The department has had difficulty, especially since September 11, 2001, keeping a physician on the senior staff or in the department's chain of command for managing an infectious disease outbreak.¹²⁹ Those positions have been filled with veterinarians and lay people, as indicated in organization charts included in the appendices.¹³⁰ While they have important skills, someone on the team must be able to diagnose human disease and give medical orders.

Lack of authority is another obstacle to recruitment and retention noted by physicians who considered applying for the associate director position, which had been filled by a physician responsible for bioterrorism preparedness.

According to Catherine Dower, of the Center for the Health Professions at the University of California, San Francisco, workforce shortages have long been anticipated, but not enough was done to stave them off. Among the factors driving California's shortages:

**Local Public Health Departments
Labor Shortages**

A survey of California's public health workforce in 2000 showed high vacancy rates and recruitment times for local public health workers.

	Percent Vacant	Months to Recruit
Epidemiologists	48.2	9.5
Lab Directors	9.4	12.0
Microbiologists	9.2	11.0
Nurses	17.3	9.6
Physicians	8.9	8.6

Source: County Health Executives Association of California and California Conference of Local Health Officers. Workforce Survey, September 2000.

**State Critically Understaffed
by Lab Scientists**

According to California's former virus lab director, who is now medical advisor to the Office of Science and Technology Policy in the Executive Office of the President, California's laboratory scientists have undergone a 30 to 50 percent downsizing over the last decade, resulting in a "death spiral" that has left the State's reference laboratories severely understaffed, while workload has substantially increased. The new state virus lab was built for over 100 staff, but fewer than 60 personnel are present. Contributing factors:

- State efforts to reduce costs and produce "salary savings" through hiring freezes.
- Loss of frozen positions due to inadequate funding of raises and COLAs.
- A shortage of microbiologists and other laboratory scientists.
- A cumbersome personnel system requiring up to a year to hire.
- Salaries 15 percent to 30 percent below private sector and federal government.

The cost to add the 40 staff in the virology lab would be approximately \$3.2 million.

Source: Mike Ascher, MD, Medical Advisor to the Office of Science and Technology Policy in the Executive Office of the President, and former director of the California Virology Laboratory (retired February 2003). Written communication, December 2002 and February 2003.

- Inadequate planning and lack of effective State programs to develop needed specialties, scientific expertise and work programs.
- Inadequate number of university slots for students in fields that are needed.
- Shifting demographics and threats change needed specialties.
- Shortages of people who can communicate with and serve immigrant populations.
- Noncompetitive salaries (even lower in rural areas).
- Fewer opportunities for scientific interchanges and limited work for spouses are additional barriers in rural areas.¹³¹

Shortage eroding local symbiotic relationship.

The California Public Laboratory Directors Association testified that local laboratories are not receiving the expert support needed, citing increased bureaucracy and politicization.¹³² Each of California's 61 local health jurisdictions is required to maintain a laboratory or to contract with the State for services. Recently enacted federal law also requires laboratory directors to have post-doctoral or equivalent training, exacerbating the shortage at the local level. This requirement could provide impetus for some regionalization of laboratory services, but the state – perhaps due to staff shortages – has

not been working with the local jurisdictions to resolve these issues. The laboratory directors association cited this problem as one reason to reconstitute the State's Public Health Board.¹³³

CDC's model yields superior outcomes.

There are a number of tools that could be put in place to rebuild scientific talent in public health. For instance, California could adopt CDC's system of requiring all employees to meet specific qualification requirements.¹³⁴ Except for their director, CDC employs civil servants rather than political appointees. Those civil servants must meet rigorous scientific qualification criteria for scientific positions. And for management positions, CDC's civil servants are sent through public health training programs so that they understand the context they are working in to best support the scientific mission of the agency.

Formalizing the relationship between state and local public health.

One way to create a strong link between state and local health efforts would be to deputize local health officers, public health nurses and laboratory directors who meet State standards for training, knowledge and skills. This approach, advocated by senior public health experts, could encourage service with the continuity of state-based benefits and ongoing training, and reward improved professional skills.¹³⁵ It could also address many of the chain-of-command issues that have been raised as concerns in the event of an emergency. Further, it could enable the State to be involved in selecting critical public health staff at the local level to ensure that they are optimally qualified. The State could provide financial rewards for personnel achieving deputy status, as well as to local health departments that meet State standards for deputized personnel.

Similarly, public health workers could have the option to wear uniforms when out in the community so that they can be recognizable to the public. This was once the case in California and is still practiced by the U.S. Public Health Service in many settings. This was suggested as a worker safety issue and also as a way for the public to gain a better understanding of the presence of public health officials in the community.¹³⁶

Essential Tools and Technology Not Adopted

For scientific experts to be effective, they must have access to computer-aided and other advanced technologies. However, the State is not using available and affordable analytical tools and procedures.¹³⁷ As described in the box on the following page, hours can matter in responding to a disease outbreak. In turn, technology would enable real-time collection of critical disease information, computer mapping of disease patterns, analysis by artificial intelligence, and the distribution of critical warnings.

Communicable disease reporting infrastructure is failing.

While there are 84 diseases and conditions deemed by law to be so dangerous that clinicians are required to report them to authorities, the vast majority go unreported. The State's reporting system is paper-based and cumbersome for both physicians to report and epidemiologists to analyze. Lawrence Livermore National Laboratory estimated in 2001 that there is only a 20 percent compliance rate on reporting these diseases, increasing the risk to everyone. "For some diseases there is a critically short period of time for a local department to take action and it is thus extremely important for the information to be timely and accurate."¹³⁸ The labs concluded that California could feasibly install a confidential, web-based disease reporting system.¹³⁹

Biological Warfare: Hours Matter

Scenario: Line Release of Anthrax (100kg) in NYC, DC, and LA

Case 1: Medical surveillance cues
medical intervention on day 3 - 1,300,000
Fatalities

Medical Intervention:

- prophylaxis program using doxycycline
- assumed 70% effective at preventing symptoms

Case 2: Environmental monitoring cues
medical intervention on day 2 - 850,000
Fatalities

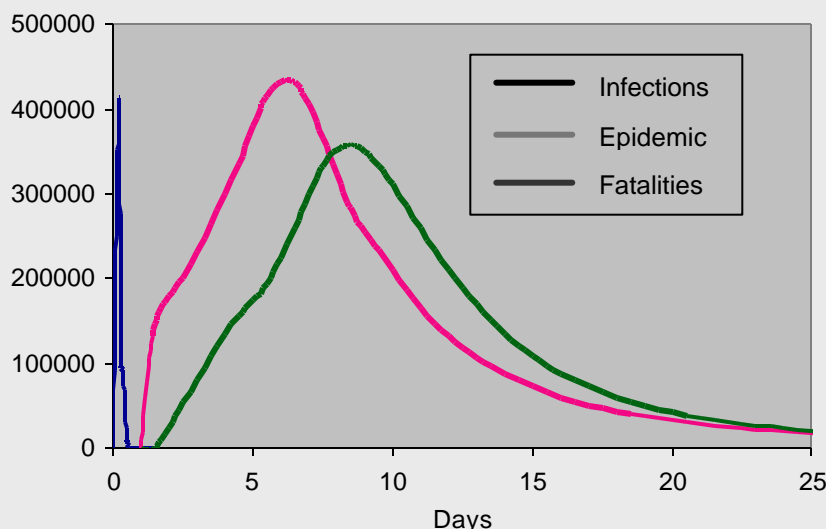
High Efficiency Particulate Air (HEPA) Filtration:

- 25% of population in buildings with filtration
- filtration assumed 100% effective at preventing exposure

Medical Intervention:

- prophylaxis program using doxycycline
- assumed 70% effective at preventing symptoms

3,500,000 Fatalities without Intervention



As indicated above, having the right tools and technology can save millions of lives in the event of biological warfare. Specifically, by using computers to track symptoms, public health experts can diagnose an outbreak. Rapid Syndrome Validation Project (RSVP) developed at Sandia National Laboratories is an example of one promising technology. This relatively inexpensive surveillance technology enables real-time mapping of disease outbreaks using the internet and can automatically alert public health officials to unusual symptoms -- even in a single patient -- that might indicate a bioterrorism event or disease of public health importance. Sandia estimates that state-wide coverage in California would require participation by only 10 percent of physicians in primary care offices and emergency rooms, at a cost of approximately \$5 million for the first year and considerably less each year afterwards. Full physician participation would cost approximately \$45 million in the first year of operation. It is being installed in California by Kaiser emergency departments in San Mateo County. First installed in clinics designated as part of CDC's Border Infectious Disease Surveillance System in Texas and New Mexico, it is used by providers throughout New Mexico, and is supported by their state's health department. New Hampshire, central Massachusetts, Singapore and parts of Australia are currently installing it. It is one of the many surveillance products California is considering as it moves away from its antiquated paper-based system.

Source: Alan P. Zelicoff, M.D. Senior Scientist, Center for Arms Control and National Security, Sandia National Laboratories. Presentation to the Little Hoover Commission. September 9, 2002 and written communication, March 2003.

Some progress is being made.

Glacier-like progress has been made to address the antiquated computer and communications systems. In February 2003, California instituted CDC's broadcast fax system, called the Health Alert Network. Further, DHS is working with local jurisdictions to agree on a real-time communications system. However, CDC's common information architecture – the National Electronic Data Set and the Public Health Information Network – has not been formally adopted by the State, complicating efforts to establish a common information architecture.

Other technologies can help scientists to detect hazards. For example, particle detectors work like smoke detectors to provide an early warning system for air-borne bioterrorism agents. Developed at the Lawrence Laboratory in cooperation with the federal government, New York City was one of the first to deploy this technology.

There also are bright spots among local health jurisdictions, some of which have adopted superior technology to the State. Los Angeles uses electronic disease reporting, and hospitals are linked via the hospital association's Reddinet system to enable real-time monitoring of available emergency room capacities.¹⁴⁰

Rigorous Process for Technology Adoption

No efficient system is in place for the counties and the State to work together for timely adoption of needed technologies. The re-establishment of the Public Health Board would provide one logical forum to bring technological advancements forward for consideration.

Laboratories are Critical

California operates a State Public Health Laboratory that is an expert resource to local public health and commercial laboratories, as well as the FBI. The state laboratory also helps physicians with serious unsolved cases to diagnose maladies. A state-of-the-art, bio-hazard level three laboratory in Richmond was built by DHS in the 1990s, but is severely understaffed. (See sidebar box on page 48).

By law, every local health jurisdiction must have a laboratory. However, they suffer from staff shortages, inability to hire appropriate experts, and

The Case of the FBI's Prayer Dust

Soon after 9-11, a small plane carrying several Middle Eastern men without proper identification landed at a rural U.S. airport asking for directions to a temple that they wanted to fly over to consecrate with "prayer dust." As California's designated reference laboratory, the Richmond laboratory was designated by the FBI to test this material. While it was later found to be harmless, as did all of the other thousands of white powder tests performed at the public health laboratories of California, testing such material is precision work that countless lives depend on for accuracy. California and the Western states, however, do not have the capacity to test for the most dangerous of potential concerns.

Source: Association of Public Health Laboratories, 2002.

do not have regionalized expertise.¹⁴¹ While there are both federal and state lab standards, they provide guidelines that are not definitive enough to support resource requests for implementing necessary improved capacities, according to the president of California's Public Health Laboratories Association.¹⁴² AB 2819 (Aroner 2002) attempted to establish such specifics in law, but the bill failed.

California labs have three main problems:

- They are not connected adequately to allow for specialization and economies of scale, as discussed in Finding 2.
- They are understaffed relative to workload and complexity.
- The State does not have adequate capacity to work with the deadliest of substances that must be tested to protect public health.¹⁴³

Insufficient infrastructure for deadly substances.

Among the problems faced by the labs, the inability to handle the most deadly substances may pose the greatest risk to Californians. Nationally, there are only two comprehensive labs that can safely handle the most dangerous "level four" agents (in the D.C. area and in Atlanta at the Centers of Disease Control).¹⁴⁴ These germs are classified as level four because they are "easily transmissible, have no vaccine, and have a high mortality rate." They include Ebola, Marburg Lassa and Arena viruses, as well as certain infectious particles. Multiple Drug Resistant Tuberculosis, present in California, may soon be reclassified as needing to be processed in level four labs.¹⁴⁵

Samples that California sent out for level four testing in 2000 on a suspected hemorrhagic fever that killed three people have not yet been processed in federal laboratories because of a shortage of capacity and the increase in suspicious substances being tested since 9-11-01.¹⁴⁶

DHS has no formal agreements with the two national level-four laboratories, so these samples are processed on an "as time allows basis." Because of the very high number of terrorist scares requiring laboratory analyses, laboratories across the nation, including many in California, are stressed to the limits of their capacity.¹⁴⁷

In part because it would require seismic and other retrofitting, as well as expanded space requirements, it is not feasible to add capacity to contain and analyze "level-four" substances at the Richmond lab.¹⁴⁸ The need was not anticipated when the facilities were designed in the early 1990s. As of 2003, there is no designated level-four lab in the West. If there is a bioterrorism event in California, the time it will take to fly samples elsewhere for testing, estimated at six to eight hours, could endanger lives.¹⁴⁹

The State is pursuing a collaborative approach to building laboratory capacity in California that can handle level-four agents. One possibility is a collaborative between the University of California, Lawrence Livermore Laboratories, DHS and the California Office of Emergency Services to build a Western National Center For Bio-defense and Emerging Disease.

Building Lab Capacity

Currently, California has no designated biosafety level four lab to diagnose the most difficult bioterrorism pathogens. However, California is competing for federal grants to build this capacity on the west coast.



Existing Level Four Labs In the United States (only two are comprehensive)

- | | |
|---|--|
| 1. Fort Detrick, MD – U.S. Army Medical Research Institute of Infectious Diseases (comprehensive) | 5. Atlanta, GA – Georgia State University |
| 2. Atlanta, GA – National Centers for Disease Control & Prevention (comprehensive) | (6.) Galveston, TX – University of Texas Medical Branch (under construction) |
| 3. Bethesda, MD – National Institutes of Health | (7.) Hamilton, MT – National Institutes of Health (planned) |
| 4. San Antonio, TX – Southwest Foundation for Biomedical Research | |

Sources: Center for Disease Control, Department of Health Services and the University of California.

Emergency Surge Capacity

Surge capacity is needed when there is much greater demand for services and facilities than on an average day. This can be needed when there is an epidemic, a disaster or simply an unusual level of illness or accidents. A lack of surge capacity in California has cut across many areas in public health and medical care delivery – from laboratories overwhelmed with white powders after the weaponized Anthrax deaths, to overcrowded emergency rooms during the 1998 influenza outbreak, to the need for more public health workers to give out small pox vaccinations.¹⁵⁰ The core components are hospital beds, surgery facilities and teams, medical professionals (doctors, nurses), laboratories and testing supplies, specialized pharmaceuticals and hazard equipment, medical transportation, and system management to direct overflow.

State has limited plans for surge capacity.

No single state agency has the responsibility or authority to ensure California has adequate surge capacity.¹⁵¹ OSHPD tracks certain data, like licensed and staffed hospital beds, and EMSA is periodically tasked with specific short-term projects, such as preparing the surge capacity report for the federal public health inventory. According to OSHPD staff, while the agency does track specific hospital data, surge capacity is not in OSHPD's purview.¹⁵² However, section 129450 of the Health and Safety Code states that OSHPD "shall constitute the sole agency of the state for... making an inventory of existing hospitals, surveying the need for construction of hospitals, and developing a program of hospital construction."

Licensed Beds vs. Available Beds

According to the Office of Statewide Health Planning and Development, of the 87,344 licensed hospital beds, 80,854 were available in 2002. 7.5 percent of all licensed hospitals beds in California were unavailable for use.

Source: David M. Carlisle, M.D., Ph.D., Director, Office of Statewide Health Planning and Development. June 27, 2002.

For bioterrorism, California's main hospital association recommends temporary field hospitals rather than creating excess capacity in existing hospitals, partially due to concerns about introducing infectious or hazardous agents to already sick patients.¹⁵³ According to EMSA, the plan is to set up tents outside of hospitals, where people are expected to seek treatment. Among the challenges and opportunities:

- **Lack of hospital surge capacity.** Some surge capacity information is tracked by the federal National Disaster Medical System (NDMS). But NDMS only tracks those hospitals that volunteer for the system. According to NDMS staff, the number of available beds has decreased notably over the last decade due to such factors as shifting care to outpatient settings in the era of managed care.¹⁵⁴

- **No state registry of medical personnel to be called up in emergency.** Despite the Governor's call for a registry of medical volunteers soon after the terrorist attacks, that system has not yet been put in place.¹⁵⁵ A registry has been put together of 52 medical and scientific experts within the University of California that the State can call upon when it has specialized needs. California clinics also have expressed a desire for pre-certified lists of volunteers that can be called up to provide surge capacity. While few efforts to coordinate medical volunteers have occurred within California's official public health infrastructure, there are federal efforts that California can tap, including the Citizen Corps (see box), the six California-based National Disaster Medical Teams and the National Guard.¹⁵⁶
- **National guard could play a role.** In peace times, the National Guard can provide limited medical surge capacity through its health care component, called Joint Task Force Mercy.¹⁵⁷ The California National Guard is funded with 95 percent federal money.¹⁵⁸ When not deployed elsewhere, the task force can provide 300 to 400 staffed beds for 72 hours.¹⁵⁹ However, the guard is under federal control and its primary duty is support of troops overseas.¹⁶⁰ Efforts are underway to develop a medical unit of the guard's State Military Reserve, which would be under California's control, but must be financed with state funds.¹⁶¹ The State Military Reserve is comprised of retired military personnel whose command-and-control training is useful in emergencies.¹⁶²
- **Retired assets.** Active medical personnel are not the main concern for surge capacity planners, since they would likely report to duty or be contacted by their employers during an emergency.¹⁶³ However, they are sometimes double counted in surge capacity, since many guard reservists are employed and would be diverted from normal duties in an emergency.¹⁶⁴ A major untapped resource is the thousands of retired medical professionals who could be organized, trained, given limited medical licenses and malpractice insurance coverage immunity.¹⁶⁵ This may require amending California's Good Samaritan law.¹⁶⁶ California could also adopt South Carolina's model "Volunteers in Medicine" program. Established by a retired physician, it was codified into state law and has "turn-key" materials to help other locations organize retired clinicians.¹⁶⁷

Federal Medical Reserve Corps

In January 2002 the President created Citizen Corps, one of three volunteer initiatives of USA Freedom Corps. (The other two are AmeriCorps and Senior Corps.) Citizen Corps was established to prepare local communities for the threats of terrorism.

Citizen Corps is enlisting retired health care professionals into a Medical Reserve Corps. These volunteers will assist in the event of a large-scale local emergency. The U.S. Department of Health and Human Services (HHS) is providing \$10 million in fiscal year 2003 for the program. Local communities can apply directly to HHS for up to \$50,000 in grants. In November 2002 the first grants, totaling \$2 million, were delivered to 42 community groups. In California, Fresno, Morgan Hill and San Francisco received a combined \$141,376 in grants.

California's contact for Citizen Corps is GO SERV, formally known as the Commission on Improving Life Through Service.

Sources: U.S. Department of Health and Human Services. Press Release. November 1, 2002.
<http://www.usafreedomcorps.com>,
<http://www.surgeongeneral.gov/topics/mrc/>,
<http://www.goserv.ca.gov>

Hospital-Acquired Infections: A Case Study In Preventing Unnecessary Deaths

The tide of hospital-acquired infections – which kill 60,000 to 80,000 Americans every year and sicken 2 million – is an important example of the need for life-saving public health interventions. Hospitals are not required to report hospital-acquired infections even though 5 to 10 percent of patients are sickened by them.¹⁶⁸ However, based on voluntary reporting, CDC estimates that hospital-acquired infections have become America's leading cause of death from infectious disease.¹⁶⁹

No. 1 Infectious Disease Killer in U.S.

	<u>Number of Deaths, Year 2000</u>
Heart Disease	710,760
Cancer	553,091
Stroke	167,661
Diabetes Mellitus	69,301
Hospital-Acquired Infections	*60,000 – 80,000
Pneumonia and Influenza	65,313
AIDS	14,478

Sources: CDC National Vital Statistics Reports. Volume 50, Number 15. "Deaths: Final Data for 2000." September 16, 2002. *Estimated from William R. Jarvis, M.D., Director, Office of Extramural Research, National Center for Infectious Diseases, CDC, written communication, February 19, 2003.

According to CDC, one specific hospital-acquired infection – vancomycin-resistant Staphylococcus aureus (VRSA) – has grown into "a public health emergency."¹⁷⁰ All such infections are cause for proactive public health interventions. But in this case, intervention is essential given that the strongest of antibiotics won't kill the bacteria. VRSA, like Vancomycin resistant enterococcus (VRE), is highly contagious, and as seen in the chart below, these bacteria travel freely on objects and hands that are not disinfected.¹⁷¹

Survival of Contagion VRE on Hands and Environmental Surfaces

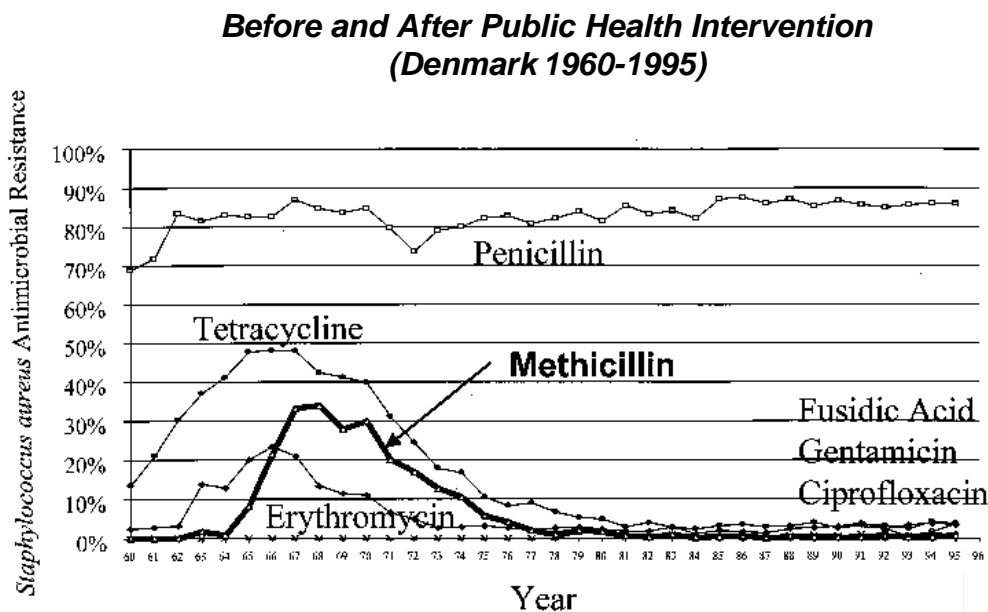
<u>Source</u>	<u>Survival Time</u>
Countertops	5-7 days
Stethoscope	30 minutes
Gloved/ungloved fingers	60 minutes
Hand washing	
5 seconds (water)	No decrease
30 seconds (water & soap)	<i>Eradicated VRE</i>

Sources: William R. Jarvis, M.D., Director, Office of Extramural Research, National Center for Infectious Diseases, CDC. "The Epidemiology of Vancomycin-Resistant Pathogens" -- Enterococci (VRE) - Noskin et al ICHS 1995; 16:577.

Statewide data is not available. However, it is documented that as of 1996, 96 percent of San Francisco's hospitals were found to have this deadly bug, up from 3 percent in 1993.¹⁷² DHS staff estimates that California has 7,200 to 9,600 preventable deaths from hospital-acquired infections annually.¹⁷³

One state physician said many of these infections are preventable: "Clearly, if health care workers washed hands after every patient contact, wore gloves, gowns, and masks when needed, and the environment (including equipment such as stethoscopes) was cleaned between patients, cross infection would be prevented and special precautions for resistant organisms such as VRE would not be needed. It is evident from the spread of resistance in this country that special precautions are needed."¹⁷⁴

Working with international experts, CDC researched and demonstrated that antibiotic-resistant infections caught in health care settings can be stopped through practical interventions like those discussed following this graph. The chart below shows how the resistance of one bacteria strain to a variety of antibiotics declined as controls were put in place.¹⁷⁵



Source: DANMAP Report, 1997.

CDC determined that it is possible to virtually eradicate these infections region-by-region if a public health and medical care community follows the rigorous guidelines.¹⁷⁶ CDC's guidelines indicate that success requires commitment across a region:¹⁷⁷

***CDC Model Guidelines
Public Health Infection Control
Demonstrated in the Siouxland***

According to the director of the CDC, "This public health initiative used active surveillance cultures in all 32 health care facilities in a health district and showed that VRE could be controlled in all facilities in a region. This three-year study is remarkable because rates of VRE infection continued to increase during those three years at most other health care facilities in the United States."

While CDC indicates that this is "a role model for all other health regions, similar efforts on such a large scale have not yet been tried in the United States." CDC further notes that data available from several countries in Northern Europe indicate that by using active public health measures – specifically surveillance cultures to identify patients carrying such bacteria, infection control procedures and communications with public health officials – the spread of infection can be prevented.

Source: CDC. February 2003. Written communication to the Commission.

- To be most effective, all health facilities should participate because patients, doctors and other health practitioners move in and out of a variety of institutions (e.g. prisons, nursing homes, clinics, various hospitals), and germs travel with people and objects.
- A proactive approach must be taken to obtain cultures from patients and workers who may be carrying the germs without symptoms and to share the information with epidemiologists and other scientific public health workers to determine appropriate regional interventions.
- Infection controls must be instituted to prevent spread. These include patient isolation, limits on patient transfers, and dedicated personnel and equipment.

The effectiveness of CDC's guidelines were demonstrated by several local health jurisdictions concerned about infection rates in the Siouxland region, a tri-state area overlapping Iowa, Nebraska, and South Dakota.¹⁷⁸

The intervention model uses computer-enhanced surveillance data and proactive teamwork among epidemiologists, microbiologists, disease investigators and other public health workers; community clinicians of all sorts, including physicians and infection control specialists; and hospital administrators.¹⁷⁹

While CDC has developed the scientific expertise, they do not have direct regulatory authority over hospitals. That power is held by the states.¹⁸⁰

California is Understaffed for Infection Control

In 2000, DHS' web site posted a communicable disease control report that stated "Nosocomial (hospital-acquired) infections and antibiotic resistance: While these problems are increasing, resources are limited at local or state levels to address this important issue."¹⁸¹ As of February 2003, DHS had only two staff members dedicated to infections acquired in health care settings, even though they acknowledge that the rate of these infections is increasing.¹⁸²

According to DHS staff, these two scientists are responsible for working with infection control workers in facilities that include approximately 1,200 skilled nursing facilities, 500 acute care hospitals, 1,000 intermediate care facilities, 300 dialysis clinics, and 400 ambulatory surgery centers or surgical clinics.¹⁸³

DHS staff indicates that it is difficult to precisely estimate the staff needed to implement and enforce enhanced infection control measures and to evaluate their effectiveness on a statewide basis, given the size and complexity of California's health care system.¹⁸⁴ However, they estimate that a minimum of two physicians, four epidemiologists, two infection control practitioners, six laboratory personnel, and four data entry and statistical analytical staff would be necessary to initiate such a program.¹⁸⁵

California-specific cost estimates for treating these infections are unavailable. However, the national estimate ranges from \$4.5 billion to \$5.7 billion.¹⁸⁶

The public health board recommended in Finding 1 would be an appropriate venue for making a broad array of ongoing recommendations to ensure excellence in public health capacity. In the absence of such a board, that capacity has declined sharply. Even before the board is reconstituted, the Commission recommends immediate action on the following to rebuild this critical capacity.

Recommendation 3: The State must significantly bolster technical, scientific and physical capacity to make sure the best available tools and talents are protecting Californians. Specifically:

- ❑ ***Commit to long-term investment in intellectual capital through training and retaining excellent public health professionals.*** Professionals are needed to provide scientifically-based, authoritative protocols, information, technical guidance and consultation to local public health authorities and medical professionals. To accomplish this:

- ✓ **Deputize at the State level.** Create a state pool of deputized local health officers, public health nurses and laboratory directors who are certified as meeting standards for training, knowledge and skills. Encourage service with the continuity of state-based benefits and ongoing training, and reward improved professional skills. Consider making public health a uniformed service, like the U.S. Public Health Service, police and fire, recognizable to the public.
- ✓ **Adopt CDC's policy of hiring senior staff with scientific qualifications.** Adopt CDC's parallel management model that pairs senior scientists and doctors with public health trained managers to enable each to do what they have the training and experience to do best.
- ✓ **Pay for expertise.** Elevate and reward scientific expertise with compensation that is competitive to retain employees and attract potential entrants into the field. Pay ranges should consider the high level of education and continuous training needed to achieve the required level of expertise. Compensation packages could include forgiveness of student loans.
- ✓ **Establish numerical guidelines for specific types of scientists.** California should consider guidelines for key public health scientists such as epidemiologists based on specific performance criteria and expected outcomes such as turnaround time for responding to doctors' inquiries, completing lab tests and investigating hospital-acquired infections. These guidelines should be periodically reassessed as technology and threats evolve that affect workload and productivity.
- ✓ **Directly link the education pipeline.** UC, together with state and local health departments, should devise specific strategies to ensure available scientific expertise. The strategy should include incentives to schools, students and work sites to create a practical school-to-jobs pipeline for public health workers. Developing needed professionals should be a priority for public education, and funding should be tied to that goal. Specific programs should be designed to attract and retain workers by providing a career ladder.
- **Establish security clearances and security protocols.** Employees and contractors should maintain security clearances and follow security protocols if working with highly sensitive information and harmful substances. Standard procedures must be established for the handling of secure information and for public access to sensitive

California must quickly develop enhanced capacity to respond nimbly to this century's highly complex health threats by employing the best of public health's scientific methods and tools available.

information. Harmful substances must be cataloged and tracked, and access to such material must be controlled.

- ❑ **Highlight achievements.** To reward excellence in the public health workforce, create a "health care heroes" program with awards for excellence in public service. This will help the public to understand this core element of the public safety service while simultaneously providing a recruitment tool for potential entrants into the field.
- ❑ **Adopt the best available technologies to conduct core duties.** For instance, real-time web-based transmission of critical information and computer-assisted analysis and mapping should be employed in California's disease surveillance systems. New technologies should be reviewed by the new Public Health Board where community and strategic partners would have the opportunity to consider a variety of options, as well as system-wide impacts and potential for adoption in the private sector.
- ❑ **Ensure critical laboratory capacity.** Laboratory capacity must be bolstered to guarantee that Californians have access to timely review of even the most serious of pathogens, including for bio-safety level 4. Critical staff shortages should be addressed to ensure that laboratories can conduct timely surveillance and intervention programs.
- ❑ **Improve essential communications infrastructure.** The State, the 61 local public health jurisdictions, health care providers and other strategic partners must have real-time and secure communications.
- ❑ **Ensure surge capacity.** When the new public health department is established, it should be given explicit responsibility to ensure that specific and dependable surge capacity is available. Meanwhile, the State should consider working with the California National Guard's State Military Reserve to ramp up this capacity. In addition, the State should consider petitioning the federal government to increase the number of California National Guard medical units. Surge capacity must include trained personnel, bed, surgery, laboratory, pharmaceutical, and specialized equipment capacity.
- ❑ **Convene a scientific panel to counter preventable health-care-setting-acquired infections.** Until a public health board is established, a panel of scientific experts should be convened to review California's adoption of CDC's guidelines for preventing the spread of these infections. The panel should consider mandatory reporting of health-care-setting-acquired infections and a structure of regulations and fines to ensure CDC guidelines are followed.

Adequate Resources

Finding 4: Public safety functions of public health have not been given priority, and public health resources are not adequately managed and tracked.

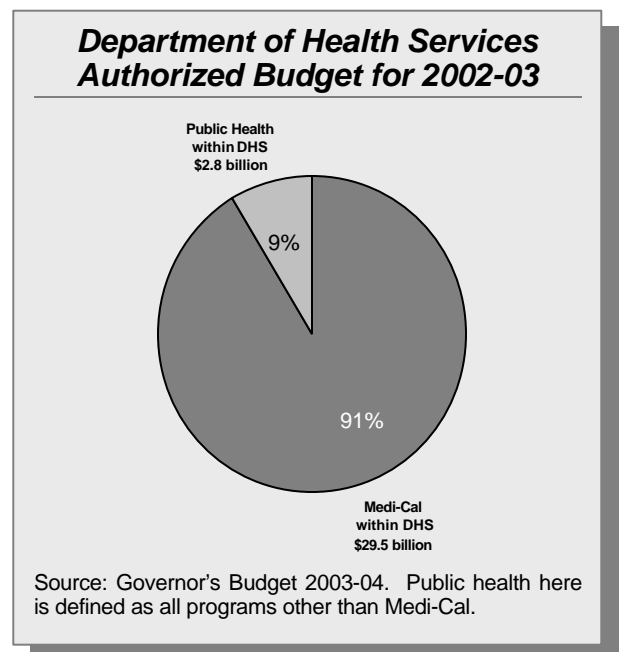
The erosion of central public health capacities became a heightened concern in the aftermath of September 2001. To rectify deficiencies, the federal government provided funds to states – approximately \$100 million to California in 2002 and \$143 million in 2003.¹⁸⁷ Federal officials have indicated an intention to provide additional grants over the coming years to bolster public health, but the long-term amounts are not determined.¹⁸⁸

At this historic juncture, when the light is shining brightly on public health preparedness, federal funds flowing to California must be used wisely to upgrade public health to operational excellence across the array of public health duties. DHS and the local health officers have indicated their preference to devote the federal grants to "dual use" investments that rebuild the public health infrastructure for new and traditional hazards.¹⁸⁹ For example, nurses who are hired to educate the public on disease prevention would also be available to handle mass casualties in the event of bioterrorism.

But budget concerns have frustrated efforts to fill even federally-funded positions. Partially because of financial constraints, DHS has not filled critical positions, such as the physician-chief of Communicable Disease Control.¹⁹⁰ Because budget rules eliminate vacant positions, critical scientific positions are under threat of elimination.¹⁹¹ Further, since the federal grants are not expected to be permanent it is risky for health agencies to use the federal funds to hire even expert staff related to bioterrorism.¹⁹²

Following the Money - Complex Analysis

Tracing public health funds is notoriously complex. Several years ago, a foundation-sponsored project to do so was called off in part due to unavailability of comparable information from the counties.¹⁹³ In recent years, resources that were previously devoted to intelligence functions of public health were shifted to individual medical care services for the indigent, and traditional public health functions took a back seat.¹⁹⁴ In the current budget, only 9 percent of DHS resources are designated for public health as shown in the pie chart.



Further, state and federal policy-makers earmarked funds for "categorical" public health programs without dedicating funds specifically for core public health functions.¹⁹⁵ And in recent years, neither the State nor the federal government have tracked California's public health spending for laboratories and other core functions, in part because of the decentralized state and local structure.¹⁹⁶

At the state level, public health funding analysis must include three state agencies, six state departments and multiple boards overseeing health professionals, each with responsibility for various public health functions. Some of these entities distribute funds to the local level, but no mechanism tracks the expenditures from the various sources.¹⁹⁷ The budgets of state-level entities are indicated in an organization chart in this section. However, only portions of those budgets are devoted to public health and those portions are nowhere delineated in the state budget.

Within DHS, public health funds are scattered among several divisions, primarily Prevention Services and Health Information and Strategic Planning (the division that distributes funds to local health jurisdictions through a primarily per capita formula).¹⁹⁸

Local health programs are funded by a combination of local general fund, state General Fund through realignment, and federal categorical funding that flows through the State.¹⁹⁹ Local funding levels vary from region to region, as well as over time, and each locality defines and categorizes public health expenditures differently.²⁰⁰

The County Health Executives Association testified that there has been a "significant and steady decline in the revenues coming to counties for either indigent care or public health for the last 25 years."²⁰¹ This occurred simultaneous to significantly greater responsibilities for public health and indigent care that first started with a state budget shortfall in 1982, and then accelerated with the State's funding realignment of 1991 that reduced the counties' share of property taxes.²⁰²

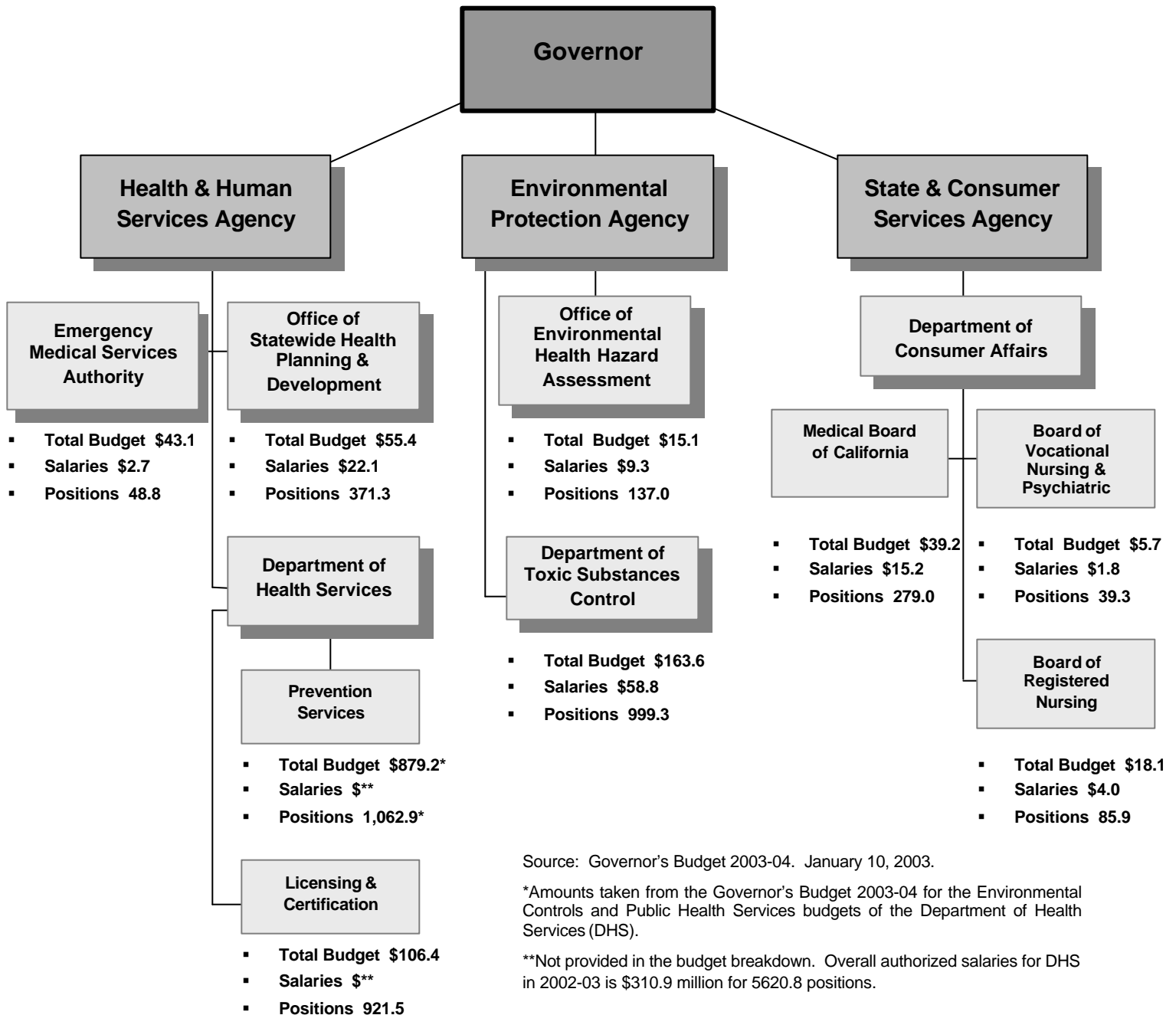
Counties estimate that the current annual loss in property tax funds from the 1991 realignment is \$3.5 billion.²⁰³ They also estimate that they receive approximately \$1.3 billion statewide in realignment dollars, which are used to fund indigent care, public health and mental health. A further funding problem for the counties has been a decline from \$350 million in 1990 to \$69 million in 2002 from proposition 99 indigent care funds. Public health "subvention" funds for communicable disease control from DHS total approximately \$1 million.²⁰⁴

According to the Chief of the DHS Office of County Health Services, "The current portion of local health jurisdiction funding that comes from the State that is tied to compliance - now approximately \$1 million across the 61 jurisdictions - amounts to less than three cents per person per year. In 1977 the State Public Health Subvention (the formula-based allocation from state to local health) was nearly \$7 million and the federal Health Incentive Grant was approximately \$6.5 million. These two funding sources represented a significant source of funding for state and local public health departments, especially for infectious disease control.

Now, some 25 years later, these two funding streams amount to a total of less than \$1.4 million. Of the 61 jurisdictions that are eligible for this funding, 45 receive less than \$10,000. Since compliance with state regulations is tied to subvention funding, it has been suggested that if subvention were re-established at previous levels - adjusted for inflation -- the local health jurisdictions would have greater incentive to follow State standards, as well as enhanced resources to provide essential local services."²⁰⁵

Funding for the major state entities with public health responsibilities are displayed on the following page.

Public Health Budget
Authorized Budgets, Salaries & Positions for 2002-03
(Dollars are in millions)



Source: Governor's Budget 2003-04. January 10, 2003.

*Amounts taken from the Governor's Budget 2003-04 for the Environmental Controls and Public Health Services budgets of the Department of Health Services (DHS).

**Not provided in the budget breakdown. Overall authorized salaries for DHS in 2002-03 is \$310.9 million for 5620.8 positions.

Four Fundamental Flaws In California Public Health Finance

1. No base line funding for core public health functions.

Rather than funding core elements of public health, funding for much of state and local public health comes in the form of categorical programs that restrict their use. These programs include HIV-AIDS, maternal child health and family planning services. This does not fund the essential elements required for a competent health department, such as epidemiology and labs.²⁰⁶ Further, the categorical programs that exist do not allow local health departments the flexibility to address local community priorities, including shoring up core public safety components.²⁰⁷ Realignment funds also do not establish baseline funding. According to DHS, "Counties use these realignment funds not only for local public health, but also for medical care to low-income, uninsured populations. Each county determines what percentage of its realignment dollars will be used for local public health. Neither statute nor DHS dictate to the counties how to spend these funds."²⁰⁸

2. State and local budgets do not clearly delineate public health funds.

The State does not have a dedicated line item for public health. In the state budget, all programs within DHS that are not Medi-Cal are classified as "public health."²⁰⁹ This does not capture public health expenditures that are outside of DHS, and misleadingly includes non-public health activities, such as specialized insurance programs for disabled children, certain cancers and AIDS.²¹⁰ Advocates assert that public health expenditures relative to the population have declined over time, but that the information is obfuscated in a budget that co-mingles public health with programs not traditionally considered as public health.²¹¹ Their further concern is that those non-public health programs are consuming increasingly significant portions of the funding designated as public health.

The main example cited is Prevention Services within DHS. Within the division's budget, an increasing share of funds have been devoted to a specialized insurance program called the AIDS Drug Assistance Program (an entitlement program for AIDS patients who do not have prescription drug coverage and have incomes of less than \$50,000 annually). An additional \$8.3 million from the General Fund is proposed for this program for 2003-04.²¹² This is just one example of what makes tracing the trends in public health funding more complex than meets the eye.

Both DHS and the Department of Finance report that the information needed to document, track or analyze "public health funding" is not collected and analyzed.²¹³

3. Funds are not tracked with standard accounting categories.

The confusion is further complicated at the local level where different agencies label and group expenditures differently.²¹⁴ In the absence of accounting standards that would enable statewide analysis from all sources of funds, the State has attempted to survey counties to track expenditures.²¹⁵ However, efforts by DHS to collect information from local jurisdictions have been thwarted by lack of cooperation, with only a portion of jurisdictions voluntarily responding to the State's requests for information.²¹⁶ These factors make it impossible to compare the 61 jurisdictions, or to analyze the full array of public health expenditures within the state.²¹⁷ Without that information, it is impossible to perform important analyses, such as the need for incremental increases, the trends and fluctuations of per capita spending over time, and how efficiently the funds are spent. Examples of local health jurisdictions' budgets and organization charts are included in Appendix J.

4. Funding decisions are not based on cost-benefit analysis.

Resources are usually allocated through a political process that is not always guided by scientific information.²¹⁸ Using a public health model of expanded cost-benefit analysis that includes total economic costs calculated into the future, funds can be directed toward those activities that would be expected to most effectively reduce preventable illness, disability and death, and provide the greatest health outcomes. For an example of how cost-benefit analysis can be used to direct funds to where they are most needed, see text box on aneurysms. This cost-benefit process was used in Oregon, in combination with public preferences, to chose priorities for indigent health care.²¹⁹

Cost-Benefit Example Preventing Aneurysms

Estimates are that between 18,000 and 32,000 Americans die from aneurysms each year -- more than AIDS (14,500) or cervical cancer (4,400) and almost equal to prostate cancer (31,500).

Aneurysms (ballooned blood vessels that can burst) have not received a lot of public attention, but they are a leading cause of preventable disability and death. If detected in advance, the survival rate can be higher than 95 percent.

Recently, it has become possible to detect many aneurysms prior to evident problems through ultrasound testing. If necessary, they can be treated preventatively with surgery. However, aneurysms are not well understood by the public, do not have a strong political constituency of activists, are not well covered -- for instance, Medicare does not cover this screening -- and many health care practitioners lack up-to-date training. Yet the cost of ultrasound exams is only a small fraction of the cost of treating a ruptured aneurysm.

Using expanded cost-benefit analysis to determine, for instance, appropriate preventative screenings and necessary training, is a public health approach to allocating resources.

Source: Thomas M. Burton. "Aneurysm Tests Could Save A Lot of Lives, if Performed." *The Wall Street Journal*. January 13, 2003.

Resources Available to Augment the System

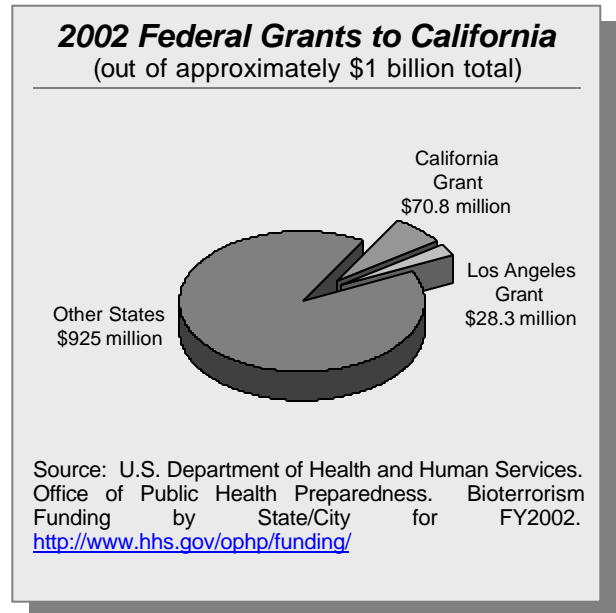
In recognition of the deficiencies in the public health system, many of which are not unique to California, the federal government made approximately \$100 million available to California for public health preparedness from February 2002 to summer of 2003. In March 2003, HHS Secretary Tommy Thompson announced another \$134.5 million for California to improve public health and hospital preparedness.²²¹

California is receiving about 10 percent of the more than \$2.4 billion in bio-terrorism funding that is being distributed by the federal government to the states and three designated cities (Los Angeles, New York and Chicago).

In addition to these funds, the Federal Emergency Management Agency and Health Resources Services Administration will provide additional grants to the states in support of emergency and disaster preparedness.

The State was slow to allocate the CDC money because of disagreements as to whether the funds should be distributed through a formula based on population and other factors (which is the process the State typically uses for distributing public health dollars), or whether a contract was needed between the state and each local health jurisdiction.²²² (Los Angeles receives its distribution directly from the CDC.) Distribution was also delayed because the federal funding was linked to the state budget process, which was not a federal requirement, but which held up the flow of critical funds to the counties.²²³ To get the funds released, counties worked with Senator Ortiz to pass legislation (SB 406) to de-link the funds from the budget standoff.²²⁴ The Governor signed that legislation in September 2002.

The bioterrorism contracts between DHS and the counties – which DHS devised to meet CDC's auditing requirements – included strict state controls, including the requirements that the counties obtain DHS approval for equipment acquisitions in excess of \$5,000 and pre-approval for out-of state travel. Whether these requirements are reasonable or necessary is one question. But DHS may not have the internal capacity to expeditiously review these requests. This raised the ire of many at the local level, and is an example of recent events that have strained the state-local relationship.²²⁵



Due to the State budget crisis, the hiring freeze may require that bioterrorism positions be filled by people already within DHS who may not be the most qualified.²²⁶ This also may contradict federal requirements that grant money augment, not replace existing funding.

Voters Approve New Dedicated Funding Source

One local health jurisdiction decided to address a portion of its funding problems by looking for an additional, reliable funding source to pay for bioterrorism response, trauma centers and emergency medical services. Faced with crippling funding shortfalls, Los Angeles County went directly to voters seeking a special tax for this purpose. Voters surprised many by approving the new parcel tax in November 2002, seen by some as a potential model for wider application. Interest groups such as the California Medical Association, the Emergency Physicians of California and the California Healthcare Association have considered putting a similar measure on the statewide ballot.²²⁷

Los Angeles Dedicated Parcel Tax- Measure B Potential Bellwether for Public Health Financing

The funds raised by the dedicated parcel tax will be used to:

- Pay for program administration, including the salaries and benefits of Department of Health Services personnel and other incidental expenses, and to recover the costs of the special election called and the reasonable costs incurred by the county in spreading, billing and collecting the special tax.
- Maintain all aspects of the countywide system of trauma centers; to expand the system to cover all areas of the county; to provide financial incentives to keep existing trauma centers within the system; and to pay for the costs of trauma centers.
- Coordinate and maintain a countywide system of emergency medical services and to pay for the costs of emergency medical services.
- Enable the stockpiling of safe and appropriate medicines to treat persons affected by a bio-terrorist or chemical attack; to train healthcare workers and other emergency personnel; to provide medical screenings and treatment; and to ensure mental health service availability in the event of terrorist attacks.

County officials expect the measure to raise \$175 million in additional revenue each year. Of that, they expect to spend \$92 million on emergency rooms, \$63 million on 13 public and private trauma centers and \$20 million to fight bio-terrorism. Under Measure B, county property taxes will increase by three cents per square foot, estimated to average \$42 in 2003. The measure also will establish a three-cent per square foot tax on structural improvements; a half-cent per square foot tax on parking improvements; and a tenth-of-a-cent per square foot tax on agricultural, vacant or similar land. The tax rate will adjust according to the Western Urban Consumer Price Index.

An editorial in Ohio's Akron Beacon Journal posited that the passage of Measure B "may be a signal of another shift of national import: the need for dramatic initiatives to rescue a health care system under increasing strain." Noting that "although California had not approved a new property tax since 1978, Los Angeles County voters last November passed a ballot measure that will raise property taxes to fund the county's trauma care centers and emergency rooms, an "impressive reversal" that could serve as a national "bellwether" for health care reform." (California Health Line, 1/7/03).

Sources: Text of Measure B; California Health Line, January 2 & 7, 2003.

Recommendation 4: The State should prioritize public health spending as one of the core components of public safety equal to fire and police. Specifically the State should:

- ❑ **Ensure adequate resources to provide core protection.** The resource allocations should be linked to meeting standards based on such efforts as the Public Health Ready competency certification developed collaboratively with CDC, the local health officers' Core Area Capacity Instrument, as well as work underway by RAND's Center for Health Security to provide specific quantitative gap analysis on California's public health system. If necessary, policy-makers should consider dedicated funding streams to ensure these competencies are not eroded. Over time, funding should be adjusted according to the changing population needs, technological advancements, and the array of public health threats, from natural to terrorism-related.
- ❑ **Prioritize funding for critical public safety components.** The first call on public health funds should be on core public health duties to protect the public from threats over which they have no control. These core duties include high-quality, timely public health infection control services, laboratory analysis, and illness surveillance. Universities should also give funding priority to programs to develop critically needed scientific expertise.
- ❑ **Use cost-benefit analysis in resource decisions.** This analytical tool, when combined with public input, can result in better resource allocation and a more rigorous way to set priorities to ensure the greatest health outcomes using long-term analysis. Cost-benefit analysis should be used to modify base funding, as well as public health program funding to ensure that additional funds improve preparedness and health outcomes. This quantitative analysis should be made public and incorporate actuarial information.
- ❑ **Establish accounting standards and reporting mechanisms.** The standards and reporting mechanisms should allow for accurate and ongoing tracking of public health dollars and positions. The State should require counties to maintain clear, separate and standardized budget line items that are readily traceable over time. Budget information should be reported to the State according to these categories.
- ❑ **Make the information public.** The trend of core public health funding should be readily evident to the public and should be included in the annual report of the Public Health Board. Given the relationship between police, fire and public health in protecting public safety, a useful metric would be to compare the numbers of personnel and budgets on a per capita basis, of each of these three public safety services.

Conclusion

At this extraordinary moment in history, rebuilding the public health system is critical to protecting Californians. The demands being placed on the system are unprecedented and unavoidable.

The potential threats include terrorists, who might silently release infectious diseases to kill innocent people. And they include Severe Acute Respiratory Distress Syndrome, or SARS, the mysterious and deadly disease lurking the globe.

This need to defend against escalating dangers is imposed on a system struggling to protect against age-old hazards, from food-born illness to hospital-acquired infections.

The complexity of today's public health threats requires a new commitment by government to defend the public. Practices and procedures that block the swift ability to hire needed experts and employ life-saving technology are simply unacceptable in the face of risks so severe.

As the Governor indicated on the eve of the Iraqi war, the State needs to do everything humanly possible to defend Californians against newly emerging, serious threats.

In this report, the Commission provided specific, practical and affordable recommendations on how to fortify the public health system: If well-organized, well-equipped and well-staffed, lives will be saved. If nothing is done, we risk millions of preventable illnesses and deaths.

To meet the immense challenges facing public health will require a thoroughly qualified leader focused completely on public health. This surgeon-general must nimbly lead a new department that consolidates and hones the power of public health. Local public health jurisdictions must be fortified with a renewed dedication from the State to provide expert, reliable and authoritative scientific guidance and support. And the new surgeon-general must have direct access to the Governor.

This endeavor must be guided by an independent and scientific board to advance the public interest of all Californians. Re-establishing this proven model of the California public health board will be essential to ensuring scientific rigor and public accountability. The board will enable policy-makers and the public to be confident that the system is robust,

The director of Los Angeles' public laboratory, Sydney Harvey, Ph.D. is concerned about California's lack of capacity: "As an illustration of the lack of resources at both the local and state level, specimens from a suspected Severe Acute Respiratory Syndrome (SARS) case in Los Angeles had to be sent to the CDC for analysis. Situations of this type would not occur if the public health laboratories were not so perennially stretched by fulfilling the demands of routine work that applied research to develop sensitive techniques for detection of potential pathogens (as in SARS) is rarely a possibility." March 2003.

that the right expertise and technologies are employed and that the best protections against the greatest threats are in place.

To fully tap California's intellectual and technical assets, the new department must build strong and abiding partnerships with foundations, medical providers, scientific and community organizations, as well as academia. This effort should embrace new partners to public health, like biological and other high-technology entrepreneurs. Only when these partnerships are strong and broad can California be assured that everything possible is being done to protect the lives of her citizens.

While the State has many health-related challenges, the government's obligation is to guard against threats over which individuals have no control. As President Abraham Lincoln said: "The legitimate object of government, is to do for a community of people, whatever they need to have done, but cannot, so well do, for themselves – in their separate, and individual capacities."²²⁷ According to Mark DiCamillo of the Field Poll, Californians agree: "In survey after survey, we have found that the public looks to government public health to do that which they cannot do for themselves."²²⁸

The Commission recognizes that public dollars are in short supply and believes that substantial improvements can be made through redirecting existing public health resources. Priority must be on performing critical public safety obligations with precision and excellence. Half measures will not do.

Public health must be redefined in the public eye so that it is recognized as the third component of California's critical public safety triad – police, fire, public health. Those functions of public health that ensure public safety must be reclassified and prioritized as such. The State and its leaders must meet the solemn obligation to rebuild this essential element of the public safety system to protect all Californians.

Appendices & Notes

Appendix A: Public Hearing Witnesses

Appendix B: Advisory Committee Meeting Presenters

Appendix C: Advisory Committee Members

Appendix D: Organizational Charts

Appendix E: Public Health Department Descriptions

Appendix F: Washington State Board of Health

Appendix G: How California Compares

Appendix H: Public Health Related Legislation

Appendix I: County Health Agency Examples

Notes

Appendix A

Little Hoover Commission Public Hearing Witnesses

Witnesses Appearing at Little Hoover Commission Public Health Hearing on June 27, 2002

David M. Carlisle, M.D., Ph.D.
Director, Office of Statewide Health
Planning and Development

Jonathan E. Fielding, M.D., M.P.H.
Director of Public Health and Health Officer
Los Angeles County Department of
Health Services

George R. Flores, M.D., M.P.H.
Consultant, California Endowment

Jack C. Lewin, M.D.
Chief Executive Officer and Executive
Vice President
California Medical Association

Poki Stewart Namkung, M.D., M.P.H.
President, California Conference of Local
Health Officers
Director of Public Health and Health
Officer, City of Berkeley

Carmen R. Nevarez, M.D., M.P.H.
Medical Director and Vice President of
External Relations
Public Health Institute

Roger C. On, M.D.
Practicing Cardiologist and Assistant
Clinical Professor of Medicine
UCLA School of Medicine

The Honorable Keith S. Richman, M.D., M.P.H.
Member of the California State Assembly

James B. Simpson, J.D., General Counsel
Public Health Institute

Witnesses Appearing at Little Hoover Commission Public Health Hearing on October 24, 2002

Raymond J. Baxter, Ph.D.
Senior Vice President, Community Benefit
Kaiser Permanente

Lester Breslow, M.D., M.P.H.
Member, Los Angeles County Public Health
Commission
Professor Emeritus and Former Dean,
UCLA School of Public Health
Former Director of Public Health, State of
California
Presenting joint testimony prepared with
Philip R. Lee
Former Assistant Secretary of Health,
U.S. Health & Human Services Agency
Consulting Professor, Stanford University

Richard J. Burton, M.D., M.P.H.
Former Associate Director
California Department of Health Services
Placer County Health Officer

C. Duane Dauner, President
California Healthcare Association

Steve Hon, President
County Health Executives Association
of California

Loren Arthur Johnson, M.D.
Immediate Past President
California Chapter of the American College
of Emergency Physicians (CAL/ACEP)

Robert Ross, M.D., President and CEO
California Endowment

Jeffrey L. Rubin, Chief
Disaster Medical Services Division
Emergency Medical Services Authority

Appendix B

Advisory Committee Meeting Presenters

The following persons gave presentations at one of the Commission's four advisory committee meetings held during the course of the public health study.

Public Health Advisory Committee Meeting - July 31, 2002

Richard Burton, M.D., M.P.H.
Former Associate Director
California Department of Health
Services
Placer County Health Officer

George R. Flores, M.D., M.P.H.
Consultant, California Endowment

Greg Franklin, M.H.A., Deputy Director
Health Information and Strategic
Planning
California Department of Health Services

John Miller, Staff Director,
Senate Committee on Health &
Human Services

Public Health Advisory Committee Meeting - September 9, 2002

Colonel Charles Cross
California National Guard

Arthur L. Reingold, M.D.
Professor and Head of Epidemiology
U.C. Berkeley, School of Public Health

Kenneth I. Shine, M.D., Director
RAND Center for Domestic and
International Health Security
Immediate Past President, Institute of
Medicine

Stephen Waterman, M.D.
Senior Medical Epidemiologist
U.S. - Mexico Border Infectious Disease
Coordinator, CDC
California Office of Binational Border
Health

Major Daniel Weber
California National Guard

Brigadier General Stephen Wyman, M.D.
California National Guard

Alan Zelicoff, M.D., Senior Scientist
Center for Arms Control and National
Security
Sandia National Laboratories

Public Health Advisory Committee Meeting - October 29, 2002

Mike Boyd, Associate Director
U.C. Davis Medical Center

Catherine Dower, J.D.
Center for Health Professions
U.C. San Francisco

Carol Mordhorst, Public Health Director
Department of Public Health
Mendocino County

Kenneth Takata
Public Health Lab Director
Department of Health and Human
Services, Sacramento County

Public Health Advisory Committee Meeting - November 18, 2002

Joseph M. Hafey, M.P.A., President & CEO
Public Health Institute

T. Warner Hudson, M.D., FACOEM, FAAFP
Director, Health, Safety and Environment
DST Output
Member, Disaster Subcommittee of
American College of Occupational &
Environmental Medicine

Richard J. Jackson, M.D., M.P.H., Director
National Center for Environmental Health
U.S. Centers for Disease Control &
Prevention

Kevin Reilly, D.V.M., D.P.V.M.
Deputy Director, Prevention Services
California Department of Health Services

Don Sloma, M.P.H., Executive Director
Washington State Board of Health

Appendix C

Little Hoover Commission

Public Health Advisory Committee

The following people, or their designees, served on the Public Health Advisory Committee or otherwise advised the Commission with their expertise. Under the Little Hoover Commission's process, advisory committee members provide expertise and information but do not vote or comment on the final product. The list below reflects the titles and positions of committee members at the time of the advisory committee meetings in 2002.

Steve Andriese, President
Emergency Medical Services
Administrator Association of California

Vicki Bermudez, R.N.
Regulatory Policy Specialist
California Nurses Association

Lester Breslow, M.D., M.P.H.
Member, Los Angeles County Public Health
Commission
Professor Emeritus and Former Dean,
UCLA School of Public Health
Former Director of Public Health, State of
California

Kelly Brooks
Legislative Analyst, Health &
Human Services
California State Association of Counties

Doug Buchanan
Mountain Valley EMS Agency

Richard J. Burton, M.D., M.P.H.
Former Associate Director
California Department of Health Services
Placer County Health Officer

Sheriff Michael S. Carona
Orange County Sheriff's Office

Colonel Charlie Cross
California National Guard

Mark DiCamillo, Director
The Field Institute

Eileen Eastman, M.A.
Executive Secretary
California Conference of Local Health
Officers
California Department of Health Services

Bob Eisenman, Ph.D.
Director, Strategy and External Relations
National Facility Services
Kaiser Permanente

Jonathan E. Fielding, M.D., M.P.H.
Director of Public Health and Health Officer
Los Angeles County Department of
Health Services

George R. Flores, M.D., M.P.H.
Consultant, California Endowment

Calvin Freeman, President
California Public Health Association, North

Kimberly Gates, M.P.P., Assistant Secretary
California Health & Human Services Agency

Derrick A. Green
Department of Veterans Affairs

Joseph M. Hafey, M.P.A.
President and CEO
Public Health Institute

Peter Hansel, Chief Consultant
Senate Health & Human Services
Former Principal Consultant
Senate Office of Research

LITTLE HOOVER COMMISSION

Sydney Harvey, Ph.D.
President, California Association of Public
Health Laboratory Directors
Director
Los Angeles County Public Health Lab

Steve Hon, President
County Health Executives Association
of California

T. Warner Hudson, M.D., FACOEM, FAAFP
Director, Health, Safety and Environment
DST Output
Member, Disaster Subcommittee of
American College of Occupational &
Environmental Medicine

Loren Arthur Johnson, M.D.
Immediate Past President
California Chapter of the American College
of Emergency Physicians (CAL/ACEP)

Fred Johnson, President
California State Rural Health Association

Dallas Jones, Director
Governor's Office of Emergency Services

Neal D. Kohatsu, M.D., M.P.H.
Medical Director
Medical Board of California

Philip R. Lee, M.D.

Former Assistant Secretary for Health, U.S.
Health and Human Services
Consulting Professor, Stanford University

Jack C. Lewin, M.D.
Chief Executive Officer and Executive
Vice President
California Medical Association

John Miller, Staff Director
Senate Committee on Health &
Human Services

Carol Mordhorst, Public Health Director
Department of Public Health
Mendocino County

Poki Stewart Namkung, M.D., M.P.H.
President, California Conference of Local
Health Officers
Director of Public Health and Health
Officer, City of Berkeley

Bruce Pomer, Executive Director
Health Officers Association
Public Health Advocacy and Consulting
Pomer & Associates

Judith Reigel, Executive Officer
County Health Executives Association
of California

Arthur L. Reingold, M.D.
Professor and Head of Epidemiology
U.C. Berkeley, School of Public Health

Roger Richter
Senior Vice President of Professional
Services
California Healthcare Association

Rebecca Stark Rivas
The PICO California Project

Debby Rogers, Health Consultant
Senate Republican Caucus

Roger Rosenberg
HOAC Administrator
Health Officers Association of California

Daniel R. Smiley
Chief Deputy Director
California Emergency Medical Services
Authority

Gerald Solomon, J.D.
PHFE - Public Health Foundation
Enterprises

Marion Standish
Senior Program Officer
California Endowment

James W. Stratton, M.D., M.P.H.
Medical Epidemiologist
Office of Environmental Health Hazard
Assessment

Kenneth Takata
Public Health Lab Director
Department of Health and Human Services
Sacramento County

Verdie L. Thompson, R.N., M.S.N.
Public Health Nursing Chair, California
Public Health Association, North
Lt. Colonel, California National Guard
Manager of Health Promotion/Director
of Nurses
Health and Human Services, City of
Berkeley

Terri Thorfinnson, Director of Policy
California Primary Care Association

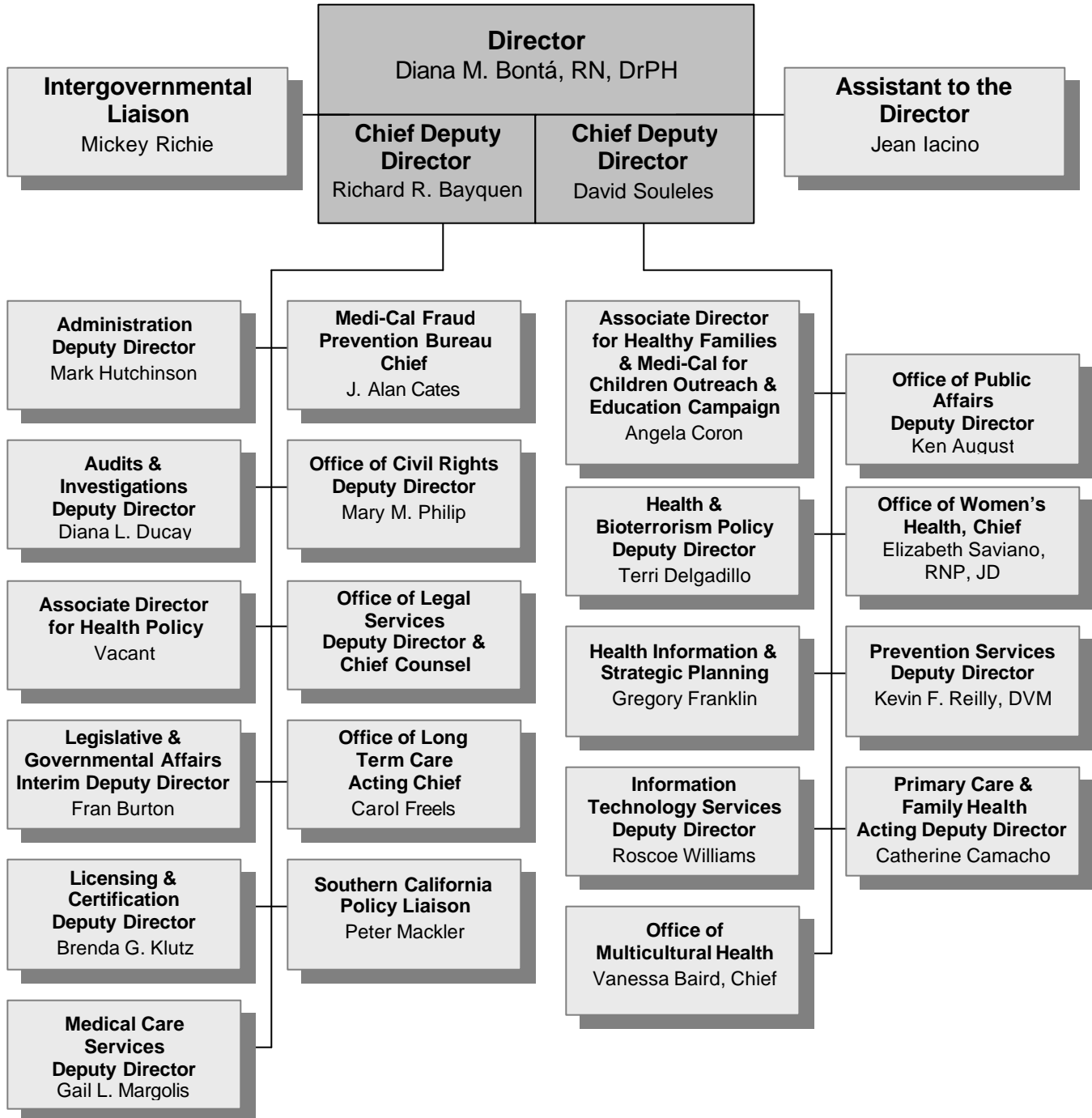
Stephen Waterman, M.D.
Senior Medical Epidemiologist
U.S. – Mexico Border Infectious Disease
Coordinator, CDC
California Office of Binational Border
Health

Brigadier General Stephen Wyman, M.D.
California National Guard

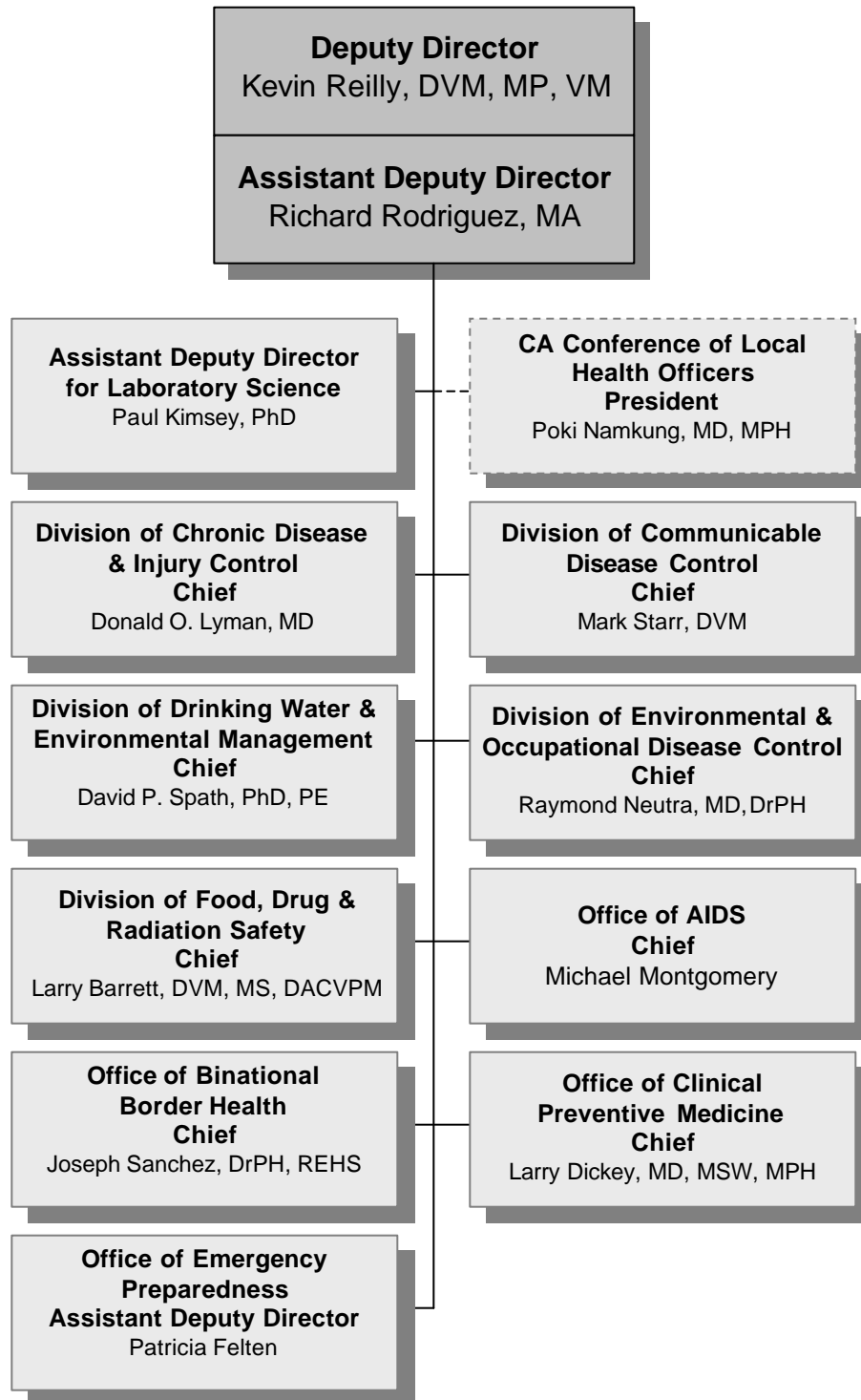
Appendix D

Organizational Charts for Public Health Departments

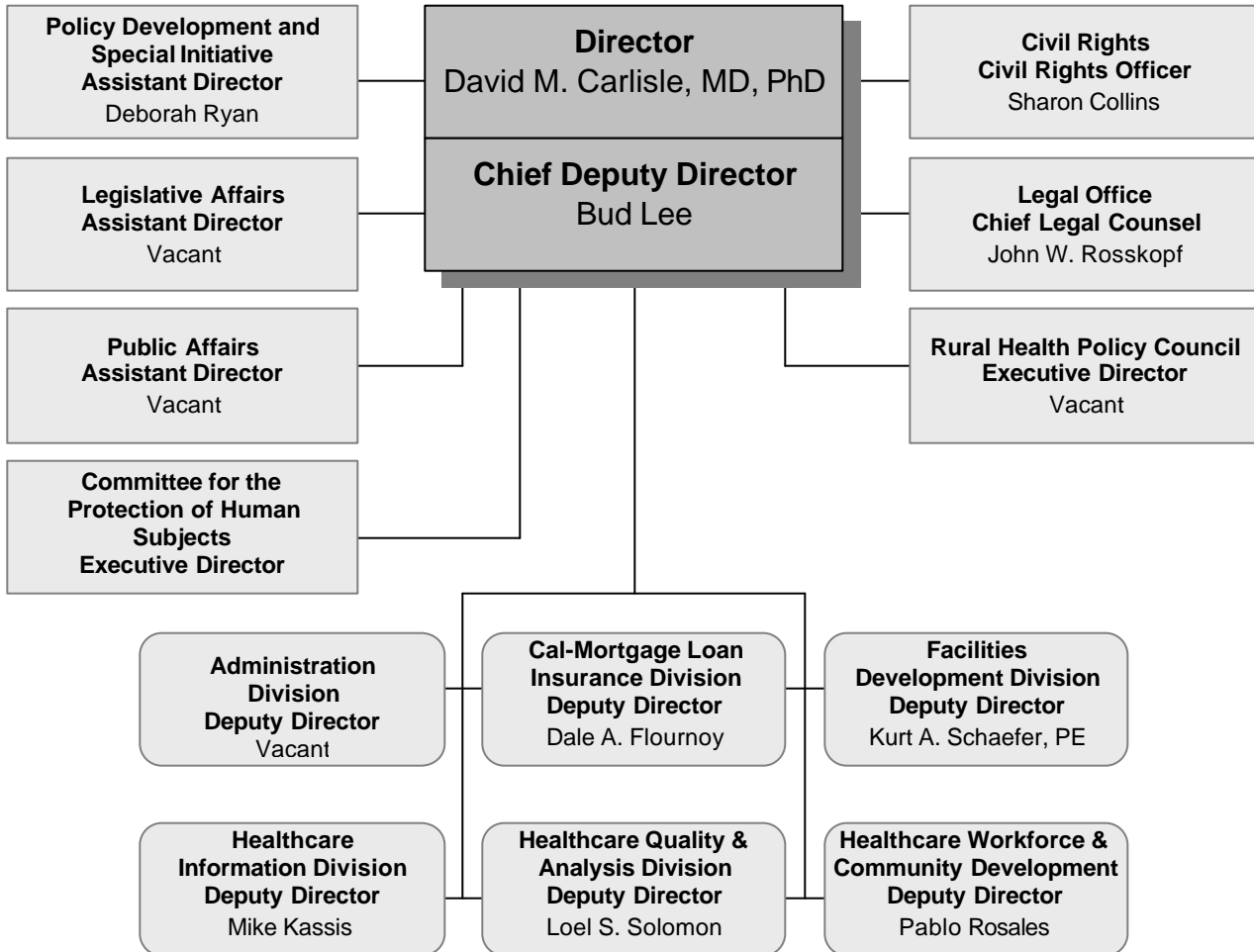
California Health & Human Services Agency Department of Health Services (January 2003)



California Health & Human Services Agency
Department of Health Services
Prevention Services
(January 2003)



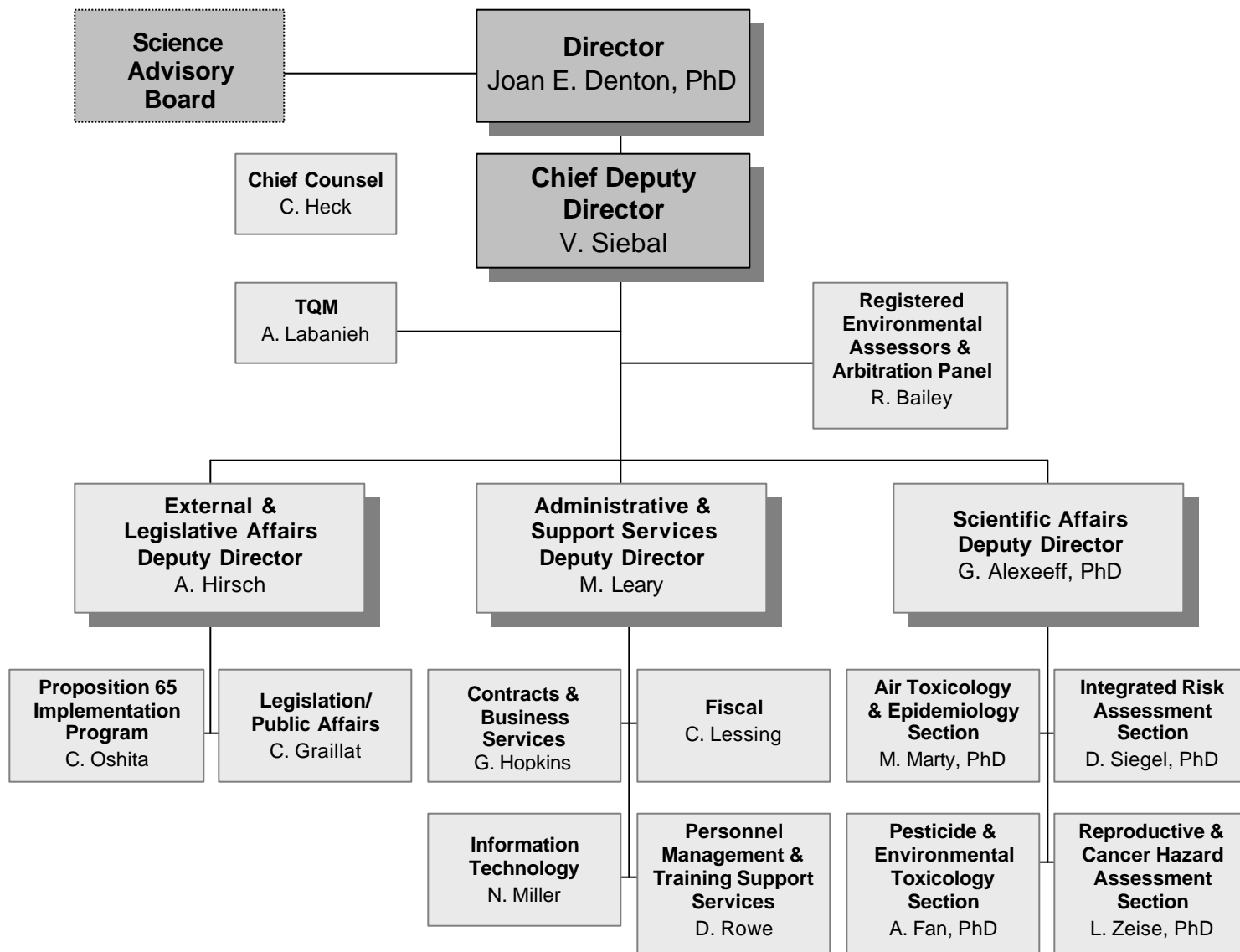
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Office of Statewide Health Planning & Development
(August 2003)**



Statutory Commissions and Boards



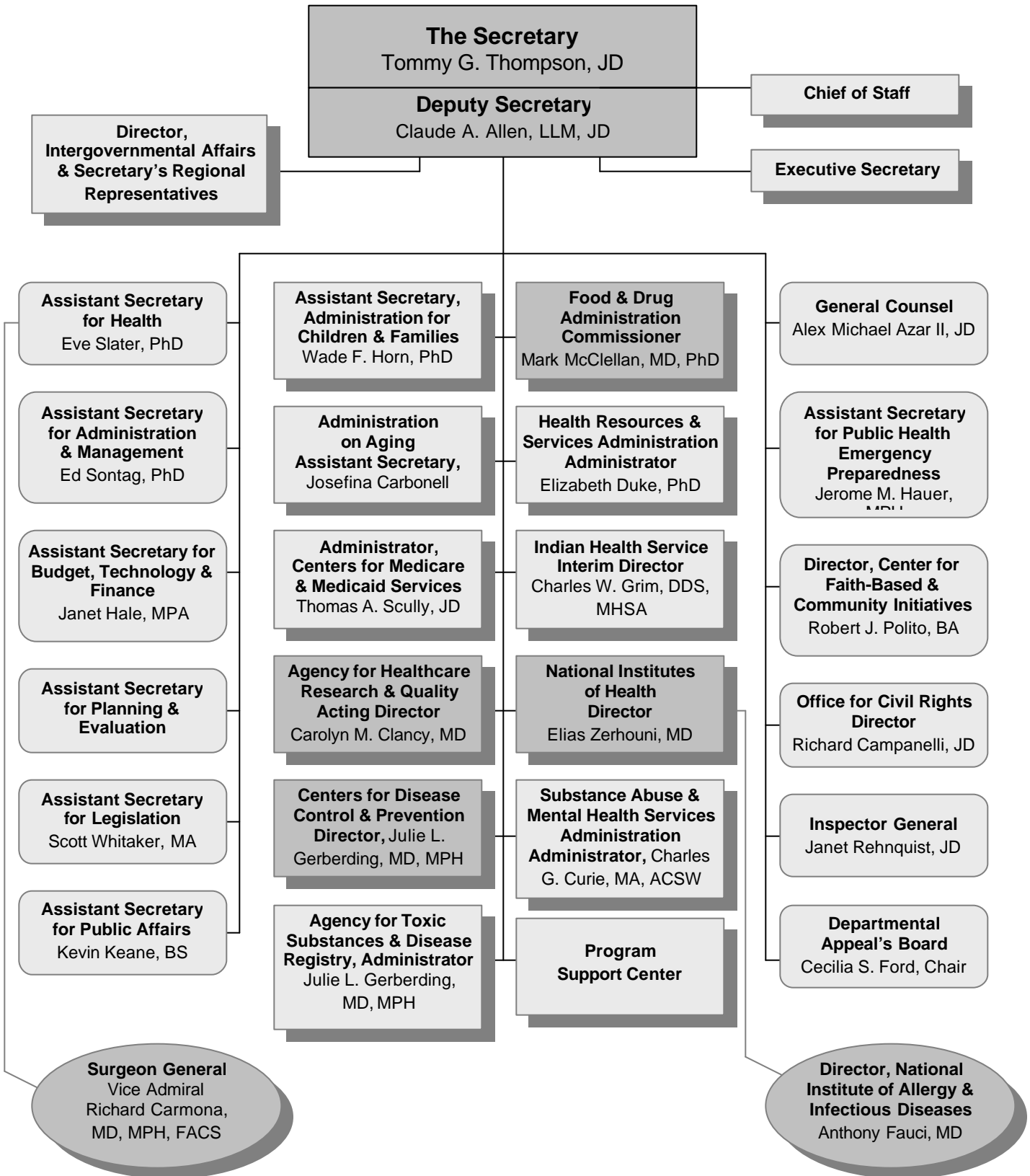
Environmental Protection Agency
Office of Environmental Health Hazard Assessment
(February 2003)



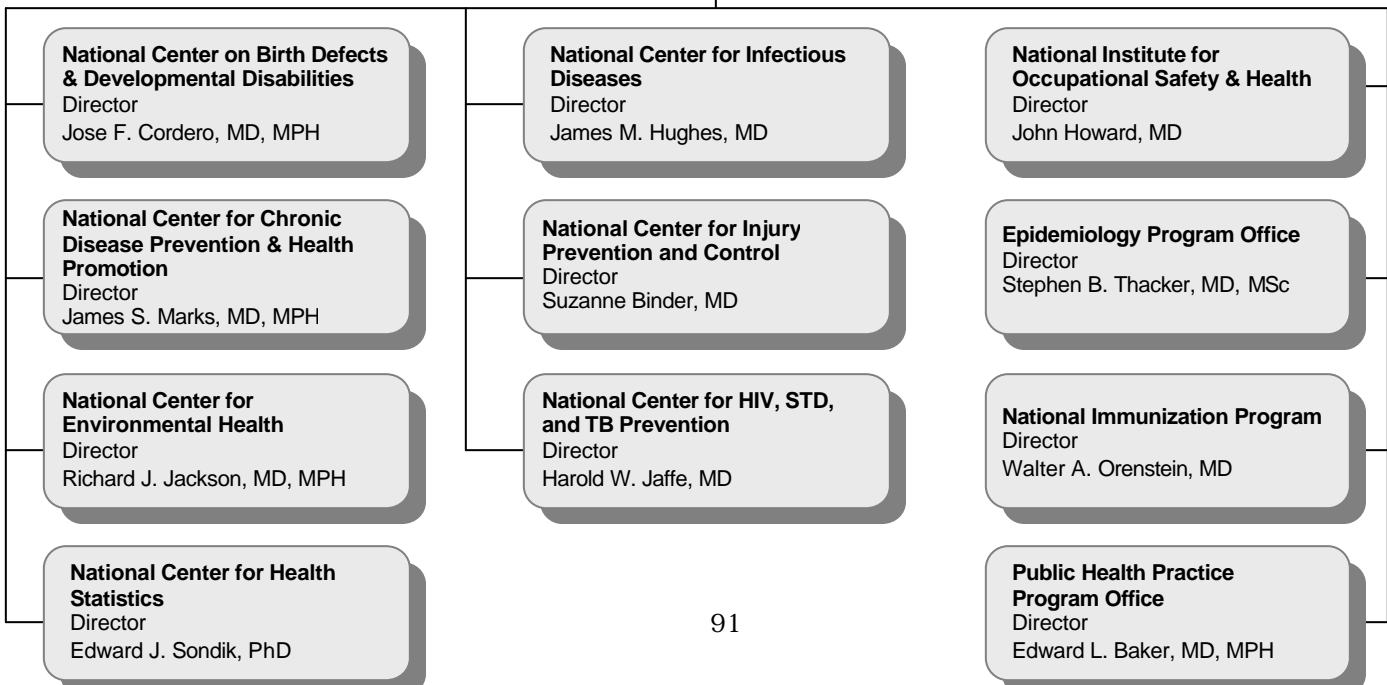
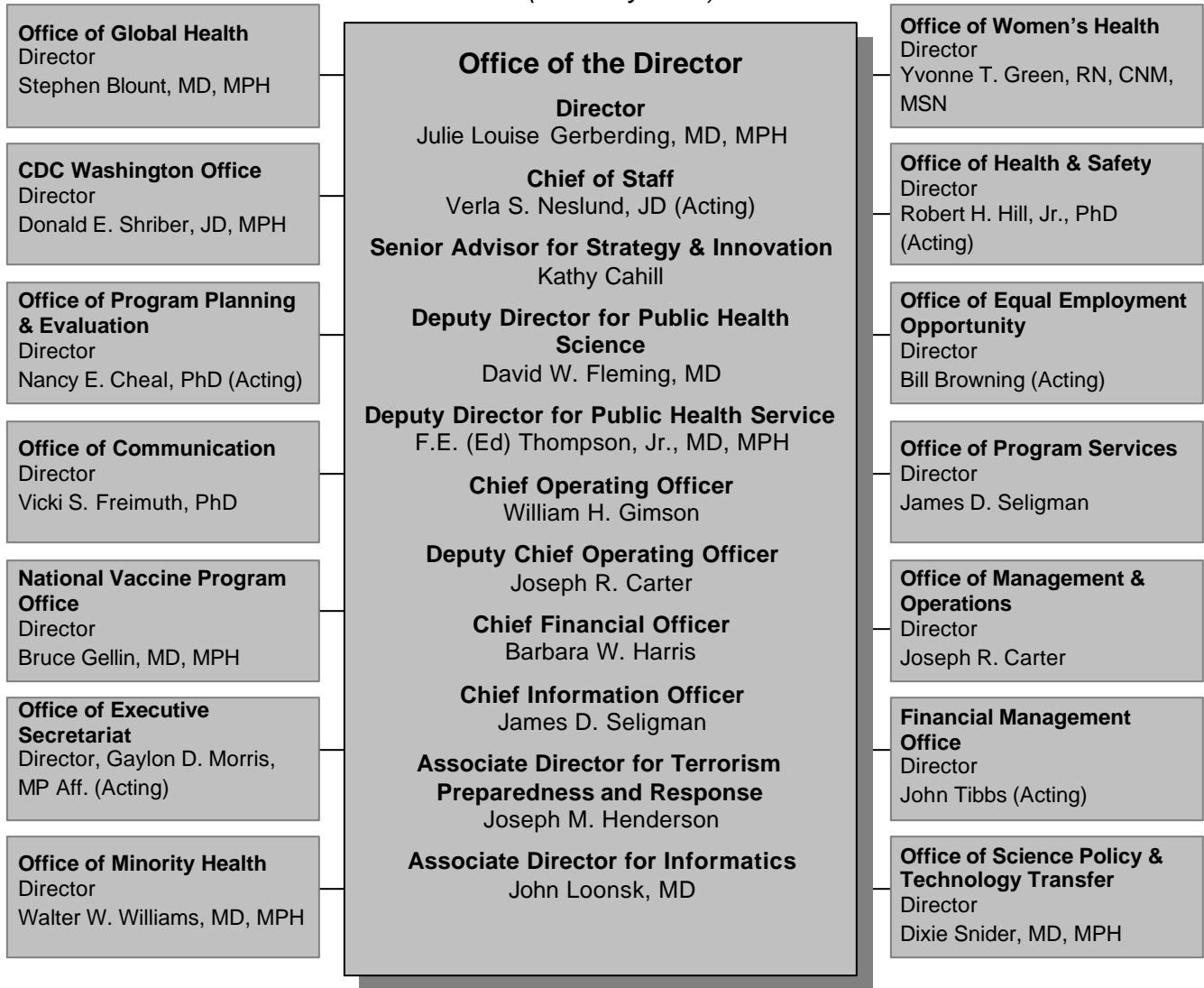
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 Department of Toxic Substances Control**
 (March 2003)



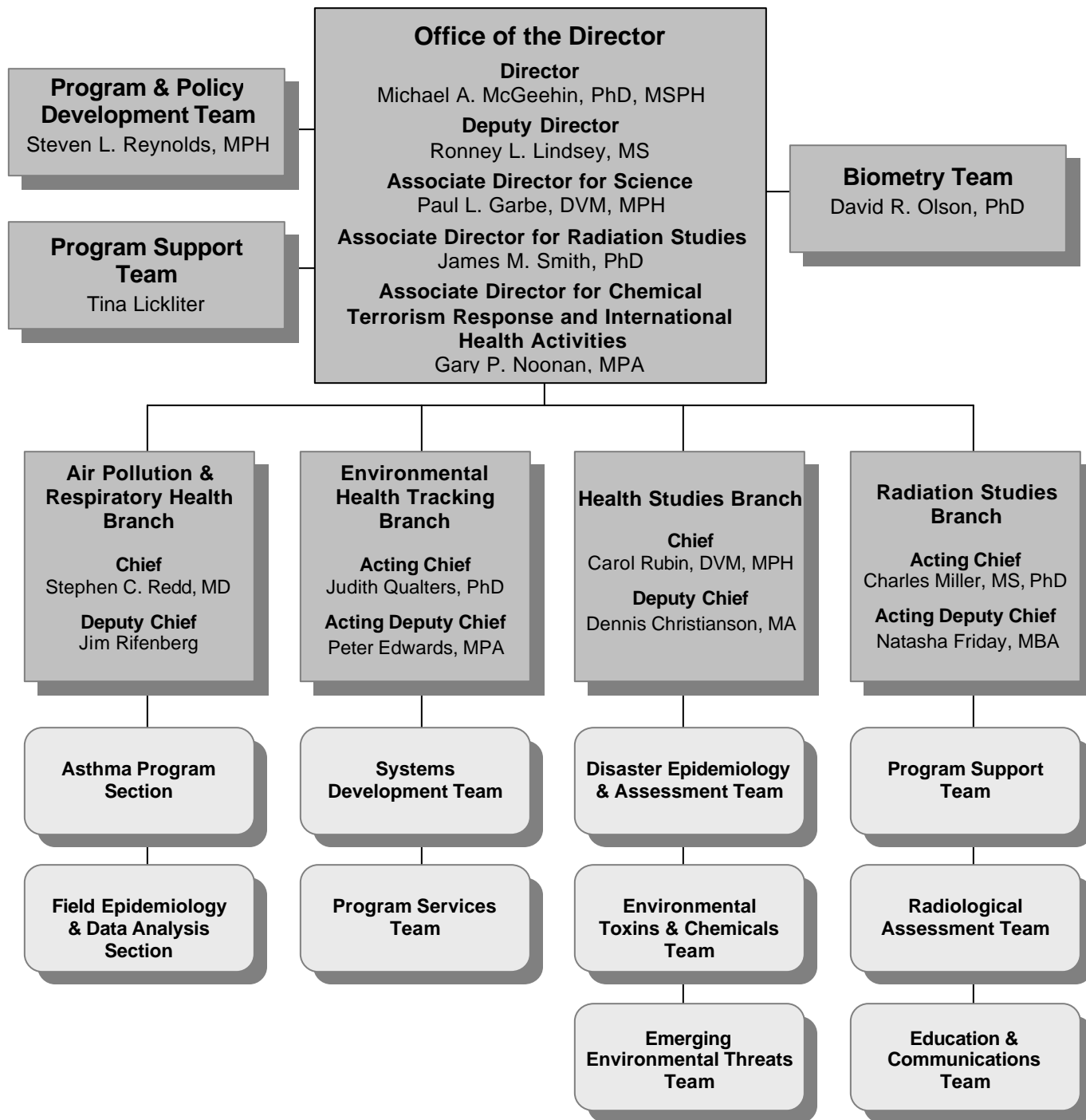
U.S. Department of Health and Human Services
(February 2003)



Centers for Disease Control and Prevention
(February 2003)



**Centers for Disease Control and Prevention
National Center for Environmental Health
Division of Environmental Hazards and Health Effects
(January 2003)**



Appendix E

California's Supporting Public Health Agencies and Departments

In addition to the Department of Health Services, which has the lead role for public health in the state, the following departments and agencies also have important public health roles.

Office of Emergency Services. A component of the Governor's Office, the Office of Emergency Services (OES) is the lead agency in charge of coordinating of emergency activities for the State. Its stated goal is "to save lives and reduce property losses during disasters and to expedite recovery from the effects of disasters." OES also is the lead planning entity charged with helping state and local agencies prepare for effective deployment of federal, state, local and private sector resources in emergencies. During emergencies, OES functions as the Governor's staff to coordinate the state's responsibilities under the Emergency Services Act and federal statutes.

Health and Human Services Agency

Within this umbrella agency are many public health related departments, including the Department of Health Services (DHS). In addition, the Office of Statewide Health Planning and Development, The Emergency Medical Services Authority and the Managed Risk Medical Insurance Board's each have significant connections to public health as follows:

Office of Statewide Health Planning & Development. This office is charged with one of the core responsibilities of public health. According to the Governor's budget, the Office of Statewide Health Planning and Development (OSHPD) develops policies, plans, and programs to help health care systems meet current and future health needs of Californians by ensuring the safety of health care facilities, evaluating the ability of facilities to provide necessary health services during a disaster, and improving the overall delivery and accessibility of health care in the state.

Emergency Medical Services Authority. The Emergency Medical Services Authority (EMSA) also is charged with classic public health responsibilities. Working with OES in emergencies, EMSA coordinates emergency medical services statewide. EMSA also develops guidelines for local emergency medical service (EMS) systems, and has regulatory authority for the education, training, and certification of EMS personnel. EMSA also is the designated public health agency to receive Federal Preventive Health and Health Services Block Grant funds for developing and improving local EMS systems. EMSA also funds poison control centers to allow health professionals to advise the public on preventing and responding to poisonings.

Health Insurance Entities

State entities that oversee or purchase health insurance influence public health through the benefit packages and financial incentives that shape treatments and behaviors that significantly drive health outcomes, and as a result, public and private expenditures over the long run.

Managed Risk Medical Insurance Board. The Managed Risk Medical Insurance Board (MRMIB) administers three programs that provide health coverage through private health plans to over 6 million Californians without other health care coverage. MRMIB runs 1) the high-risk pool for individuals who cannot obtain insurance elsewhere do to their medical histories, 2) The Access for Infants and Mothers health coverage program for pregnant mothers, young mothers and infants, and 3) the federal children's health insurance program "Healthy Families."

Department of Insurance. The Insurance Commissioner and the Insurance Department have the responsibility to enforce California Insurance Code and to regulate the insurance industry. The department regulates over \$80 billion in direct premiums written in the state, but only a small portion of that is traditional health and long term care insurance.

Department of Managed Health Care. Created in 1998, this department is housed within the Business, Transportation and Housing Agency. The majority of Californians have health coverage that falls under the regulation of this department because of the dominance of health maintenance organizations (HMOs) in the California market.

Department of Consumer Affairs

The following three medical professional oversight bodies, which are housed in the Department of Consumer Affairs, have the important public health role of ensuring the competency of the health care workforce, including setting standards for continuing medical education.

Medical Board of California. The Medical Board of California licenses and is responsible for enforcement actions against physicians, midwives, opticians, visual lens dispensers, and research psychoanalysts. The board also oversees the Boards of Physical Therapy, Acupuncture, Podiatric Medicine, Psychology, Respiratory Care, Speech-Language Pathology and Audiology, and the Physician Assistant Committee.

Board of Registered Nursing. The Board of Registered Nursing ensures that registered nurses are competent and safe to practice through 1) licensing standards, 2) an enforcement program to prosecute violations of the Nursing Practice Act, 3) a diversion program to intervene with chemically dependent or mentally ill nurses, and 4) oversight of nursing school programs.

Board of Vocational Nursing & Psychiatric Technicians. This board establishes and enforces licensure standards for vocational nurses and psychiatric technicians, and approves educational and training programs.

California Medical Assistance Commission

The California Medical Assistance Commission (CMAC) reports through the Governor's Office. It was established in 1982 to negotiate contracts for the Medi-Cal program. The goal of CMAC is to promote efficiency through a system of negotiated contracts that foster competition and maintain access to quality health care. The Commission negotiates contracts with hospitals for inpatient services statewide and negotiates contracts with health care plans to serve Medi-Cal beneficiaries on a per capita basis (managed care).

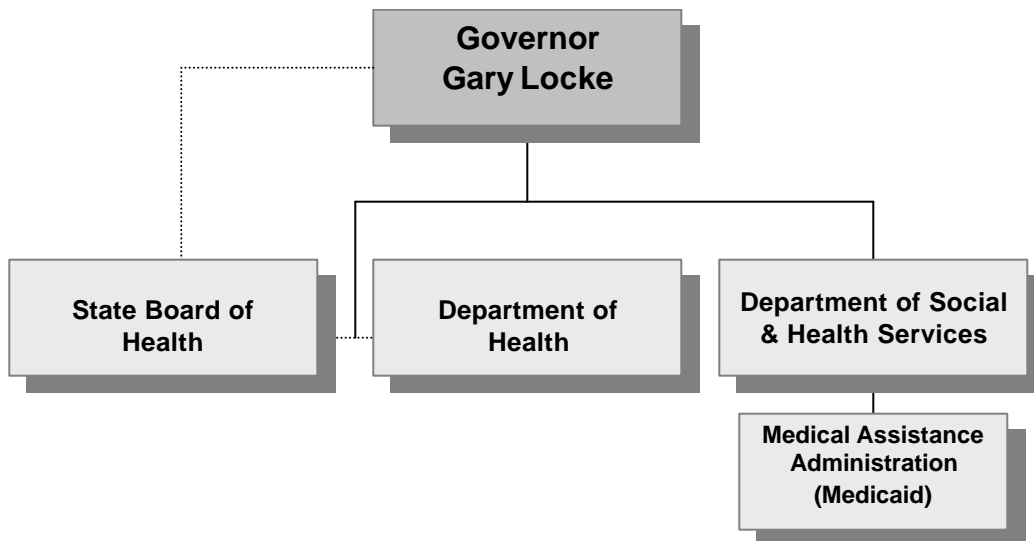
Appendix F

Washington State Board of Health A Model for California

Washington's board of health was created more than 100 years ago. It is one of 30 state boards of health nationwide and one of 19 state boards with regulatory authority. The 10-member board is mandated to be a citizen forum for the development of public health policy and its regulatory authority covers several areas including communicable disease, environmental health and children's health. Through its biennial State Health Report, the board outlines health priorities for the ensuing biennium. The Governor must approve, modify or disapprove the report.

The Governor appoints nine of the board members to three-year terms. Law requires the board to consist of two local board members recommended by the cities or counties, one local health officer recommended by local health officers, four health and sanitation experts, two consumers, and the Secretary of Health. The board selects an executive director and receives assistance from the Department of Health in the form of administrative support, additional staff, facilities, etc. Board members do not receive a salary but are reimbursed for expenses for monthly meetings.

Washington's Public Health Governance Structure

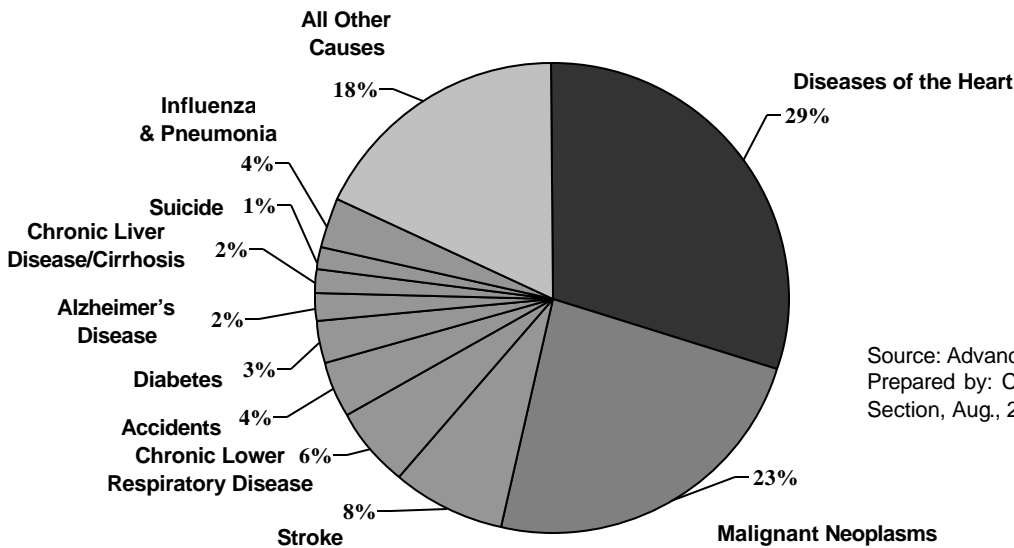


Appendix G

How California Compares

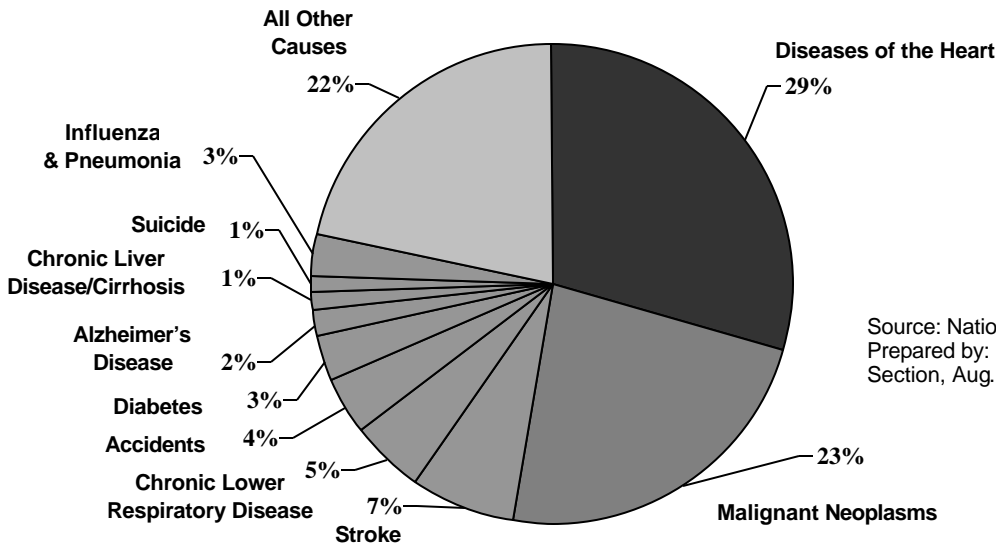
In 2000, chronic diseases and injuries accounted for more than three quarters of the deaths in California – slightly higher than the national average. More than 100 years ago, these types of deaths accounted for only a third of all deaths.

Chronic Disease & Injury Deaths in California, 2000



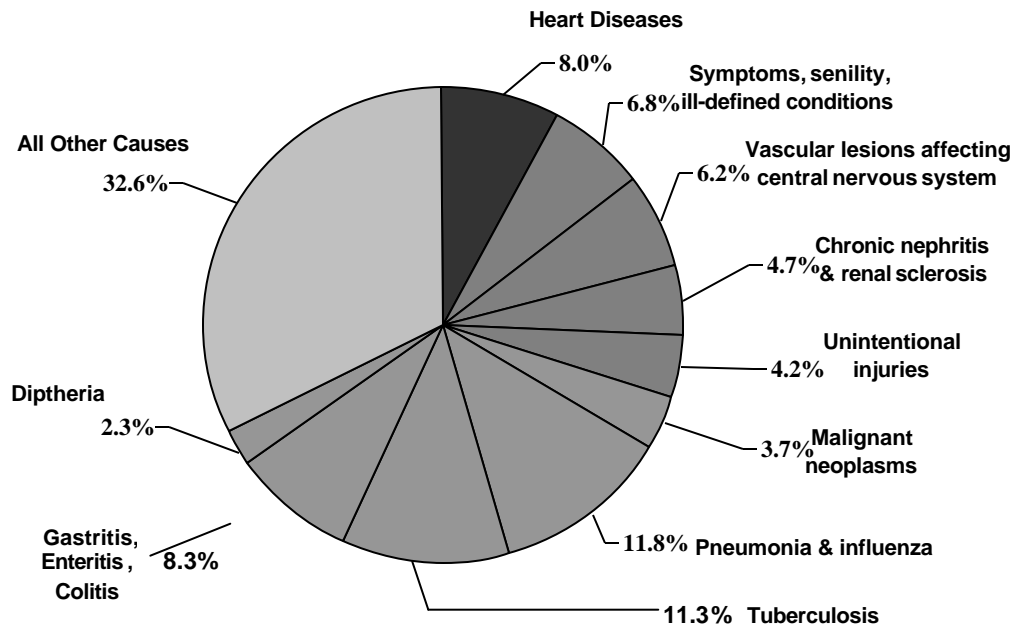
Source: Advance Report: California Vital Statistics 2000. Prepared by: Chronic Disease Epidemiology & Control Section, Aug., 2002.

Chronic Disease & Injury Deaths in the U.S., 2000



Source: National Vital Statistics Report, Vol. 49, No. 12. Prepared by: Chronic Disease Epidemiology & Control Section, Aug., 2002.

Chronic Disease & Injury Deaths in the U.S., 1900



Source: Chronic Disease Epidemiology and Control. APHA, 1993.
Prepared by: DHS Chronic Disease Epidemiology & Control Section, Aug., 2002.

Appendix H

Public Health Related Legislation for 2001-2002

Among public health legislation placed into statute during the 2001-2002 session were the following bills:

- **SB 406 (Ortiz)** – Appropriated \$50.8 million in federal funds for bio-terrorism preparedness to the Department of Health Services (DHS) for disbursement to local health jurisdictions. Provided a minimum allocation of \$100,000 per jurisdiction, with the remainder to be allocated on a per capita population percentage basis. The funds are to be used for activities to improve and enhance local health jurisdictions' preparedness for and response to bio-terrorism and other public health threats. Chapter 393, Statutes of 2002.
- **SB 1298 (Ortiz)** – Updated and clarified the role of local health jurisdictions in regards to the public health functions of disease control, surveillance and epidemiology. Chapter 1114, Statutes of 2002.
- **SB 1350 (McPherson)** – Established the Emergency Response Training Advisory Committee to develop terrorism-training standards for law enforcement, fire service, and emergency medical services personnel. Chapter 612, Statutes of 2002.
- **SB 1629 (Soto)** – Created a grant program for firefighters to receive Emergency Medical Technical Paramedic training. Chapter 1050, Statutes of 2002.
- **SB 1809 (Machado)** – To address the laboratory personnel shortage, created a new license category for a medical laboratory technician to perform waived and moderate complexity tests or examinations under supervision. Chapter 356, Statutes of 2002.
- **AB 1988 (Diaz)** – Required the Emergency Medical Services Authority to convene a task force to study the delivery and provision of emergency medical services in the state. Chapter 333, Statutes of 2002.
- **AB 2067 (Nakano)** – Required DHS to work with the KI (potassium iodide) working group, coordinated by the Office of Emergency Services (OES), to establish and implement a program to oversee distribution of potassium iodide tablets to all persons who reside, work or attend school within the state-designated emergency planning zone of an operational nuclear power plant. Chapter 852, Statutes of 2002.
- **AB 2409 (Jackson)** – Required the Office of Emergency Services to conduct a study of the emergency notification systems at California television and radio broadcast stations to determine the ability of these stations to notify the public of emergency situations 24 hours a day. Required the office to report its findings and any recommendations for improving the system to the Legislature no later than July 1, 2003. Chapter 855, Statutes of 2002.

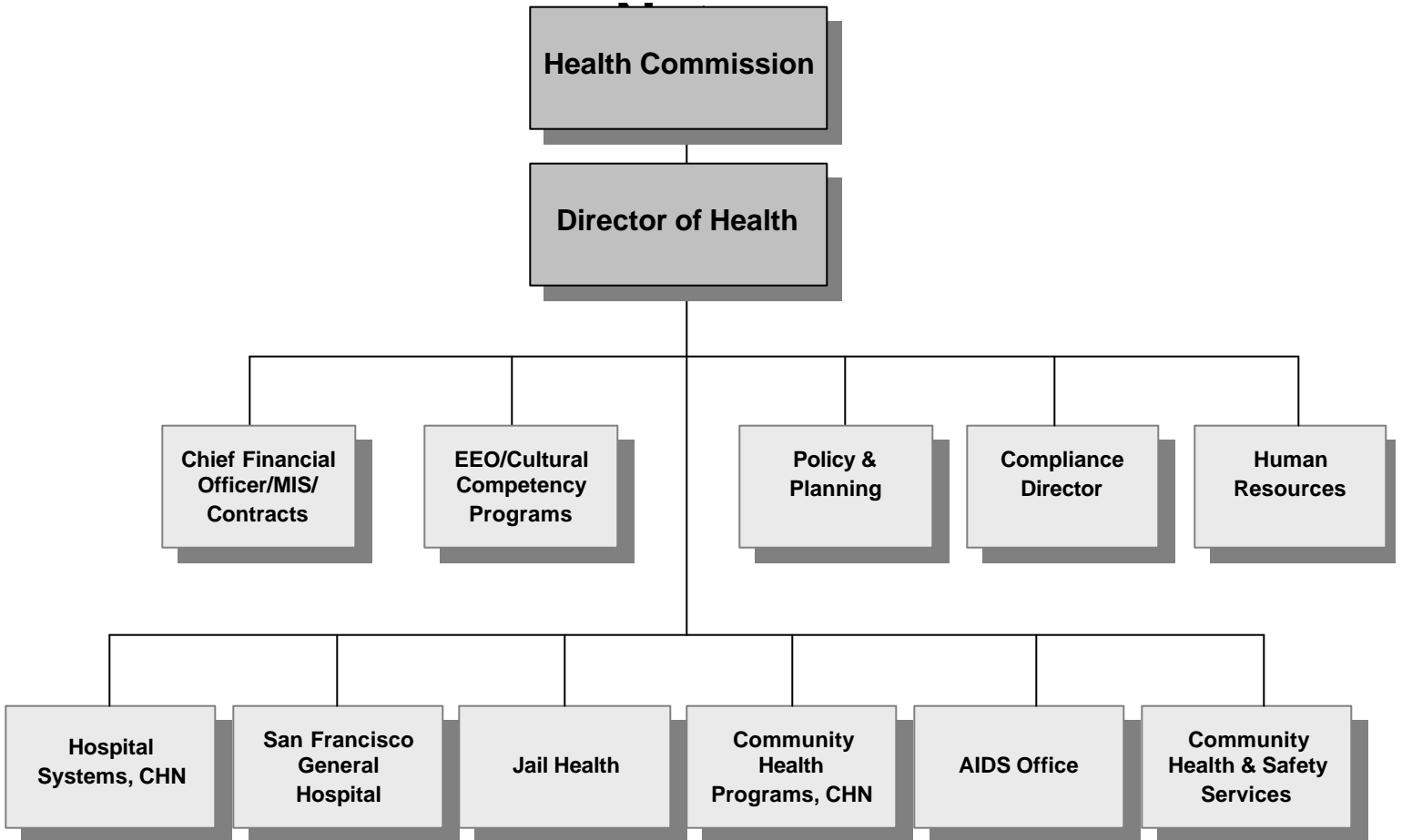
The following bills failed passage:

- **SB 616 (Chesbro)** – Would have declared legislative intent to enact legislation to create a Public Health Laboratory Training Program. The program would help meet the projected need and address the current lack of public health microbiologists and public health lab directors in the state.
- **SB 1260 (Escutia)** – Would have required the Children’s Environmental Health Center within the California Environmental Protection Agency to address the unique needs of children in bio-terrorism preparedness and response.
- **AB 1763 (Richman)** – Would have established the Public Health Emergency Powers Commission to advise the Governor and Legislature on public health emergency issues. Would have required that Commission to submit to the Governor and Legislature a report recommending revisions to existing public health emergency laws, regulations and ordinances. This would have included possible recommendations to adopt portions of the Model Emergency Health Powers Act, drafted by the Center for Law and the Public’s Health for the CDC as a guide for states. The Commission also would have had to submit to the Governor a public health emergency plan. This bill has been reintroduced in the 2003-2004 legislative session as AB 206.
- **AB 2035 (Frommer)** – Would have established a system of disaster response field hospitals to improve the state's preparedness for a disaster or terrorism incident.
- **AB 2819 (Aroner)** – Public Health Laboratories. This bill would have strengthened California law regarding the eleven core functions and capabilities recommended by the National Association of Public Health Laboratories. It failed in appropriations due to funding requirements associated with strengthening the network of public laboratories in California. It is expected to be reintroduced.

Appendix I

County Health Agency Examples

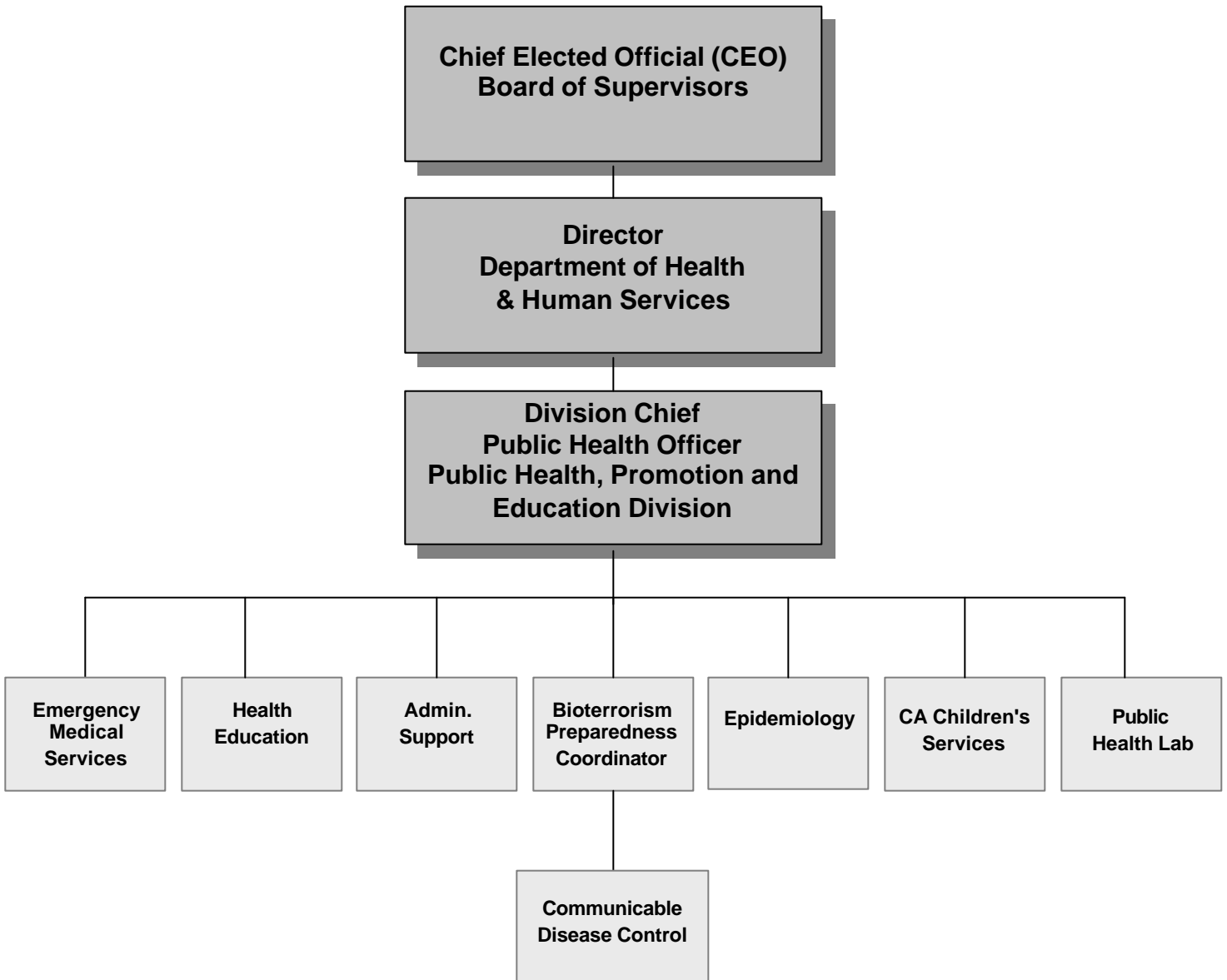
San Francisco County Department of Public Health



2002-03 Budget: \$1.044 Billion

Staff: 6,000 Positions

Sacramento County Department of Health & Human Services



2002-03 Budget: \$455 Million

Staff: 2,538 Positions

Notes

1. Alan Zelicoff, M.D., Senior Scientist, Center for Arms Control and National Security, Sandia National Laboratories, September 9, 2002 presentation to the Commission subcommittee and advisory committee. RAND, K. Jack Riley, Mark Hanson, Russell W. Glenn and Bruce W. Bennett, Issue Paper "The Implications of the September 11 Terrorist Attacks for California; California's Preparedness for Weapons of Mass Destruction Attacks." P. 48, Table 4.1 "Comparing Potential Lethality of Various Weapons of Mass Destruction Attacks." "Proliferation of Weapons of Mass Destruction: Assessing the Risks" US Congress Office of Technology Assessment, August 1993, p. 53-54.
2. William R. Jarvis, Director of Extramural Research, Infectious Disease Division, CDC, March 2003 direct communication.
3. Lawrence Livermore National Laboratories, "Web-based Public Health Reporting in California: A Feasibility Study," California Health Care Foundation Report, December 2001: www.chcf.org/topics/view.cfm?itemID=12909.
4. U.S. Centers for Disease Control. November 8, 1996, Morbidity and Mortality Weekly, "Outbreak of Escherichia coli 0157:H7," and October 1996, "Infections Associated with Drinking Unpasteurized Commercial Apple Juice." Direct communications with advisory committee members.
5. Mike Ascher, MD, Medical Advisor to the Office of Science and Technology Policy in the Executive Office of the President and former director of the California State Virology Laboratory (retired February 2003), February 2003 direct communication.
6. Institute of Medicine, *The Future of Public Health*, Page 7, National Academy Press 1988; Richard D. Remington, Lester Breslow et al..
7. Advisory committee discussions July 31 and November 18, 2002.
8. George R. Flores, M.D., M.P.H., former San Diego health Officer and consultant to the California Endowment, written testimony to the Commission June 27, 2002. Jack Lewin, M.D. MPH, Chief Executive Officer and Executive Vice President, California Medical Association, June 27, 2002, testimony to the Commission.
9. University of California at Davis, International Symposium on Emerging and Infectious Diseases and Bioterrorism, December 5 & 6, 2002. Conference Proceedings: <http://ccm.ucdavis.edu/isibt>.
10. National Library of Medicine web site 2002: www.nlm.nih.gov/. For additional detail, see www.health.gov/phfunctions; and www.asph.org/aa_section.cfm/3.
11. Institute of Medicine, *The Future of Public Health*, Page 7, National Academy Press 1988; Richard D. Remington, Lester Breslow et al.
12. Advisory committee discussions and finance presentations to the Commission subcommittee by Richard Burton, MD, MPH, Associate Director, DHS and Greg Franklin, deputy director for Health Information and Strategic Planning, DHS July 31, 2002, and Kevin Reilly, DVM, deputy director for November 18, 2002. Carmen Nevarez, MD, MPH, Medical Director, Public Health Institute, testimony to the Commission, June 27, 2002. Direct discussions with Karen Bodenhorn, President, Center for Health Improvement.
13. RAND gap analysis project letter to California experts, 1/3/03.
14. Arthur Reingold, MD, Chief of Epidemiology, UC Berkeley, 9-9-02 presentation to Commission subcommittee and advisory committee. Alan Zelicoff, M.D., Senior Scientist,

- Center for Arms Control and National Security, Sandia National Laboratories, 9-9-02 presentation to Commission subcommittee and advisory committee. Stephen Waterman, M.D., Senior Medical Epidemiologist, U.S. – Mexico Border Infectious Disease Coordinator, Centers for Disease Control, California Office of Binational Border Health 9-9-02 presentation to Commission subcommittee and advisory committee. Sydney Harvey, Ph.D., President, CAPHLD, Director, Los Angeles County Public Health Laboratory. Mike Ascher, MD, Medical Advisor to the Office of Science and Technology Policy in the Executive Office of the President, direct communications.
15. Testimony 6-27-02: Jack Lewin, MD, CEO, California Medical Association. Subcommittee Advisory committee Meetings July 31, September 9, October 29, and November 18, 2002: Approximately 10 % of the main public health department's funds are now spent on public health, and the vast majority of time and attention of the director and senior staff are devoted to Medi-Cal.
 16. History provided to Commission by State Library, December 2002. 6-27-02 testimony Lester Breslow, M.D., M.P.H., Member, Los Angeles County Public Health Commission, Professor Emeritus and Former Dean, UCLA School of Public Health, Former Director of Public Health, State of California.
 17. Mark McAlpin Skubik, "Public Health Politics and The San Francisco Plague Epidemic of 1900-1904," San Jose State University master's thesis, June 2002. www.Skubik.com.
 18. Ibid.
 19. Lester Breslow, M.D., M.P.H., Member, Los Angeles County Public Health Commission, Professor Emeritus and Former Dean, UCLA School of Public Health, Former Director of Public Health, State of California, combined written testimony with Philip R. Lee, M.D., former Assistant Secretary for Health, U.S. Health and Human Services in the Clinton and Carter administrations; Consulting Professor, Stanford University, October 24, 2002, Commission hearing.
<http://www.lhc.ca.gov/lhcdir/pubhealth/LeeBreslowOct02.pdf>
 20. Ibid.
 21. Ibid. Poki Namkung, M.D, President, California Conference of Local Health Officers and City of Berkeley local health officer testimony June 27, 2002. Richard J. Jackson, M.D., M.P.H., Director, National Center for Environmental Health, U.S. Centers for Disease Control & Prevention, presentation to subcommittee and advisory committee November 2002. Mike Ascher, MD, Medical Advisor to the Office of Science and Technology Policy in the Executive Office of the President and former director California Virology Laboratory February 2003, direct communication. California Association of Public Laboratory Directors, letter to the Commission December 2002. Kenneth Takata, Sacramento Laboratory Director, September 2002, letter to the Commission.
 22. Testimony 6-27-02: Jack Lewin, MD, CEO, California Medical Association. Discussions at Subcommittee Advisory committee (AC) meetings July 31, September 9, October 29, and November 18, 2002. Direct communications with advisory committee members.
 23. Testimony June 27, 2002 Poki Stewart Namkung, M.D., M.P.H., President, California Conference of Local Health Officers, Director of Public Health and Health Officer, City of Berkeley. Discussions at Subcommittee advisory committee meetings July 31, September 9, October 29, and November 18, 2002. Direct communications with advisory committee members. Kenneth Takata, Sacramento County Laboratory Director, September 2002, letter to the Commission.

24. University of California at Davis, International Symposium on Emerging and Infectious Diseases and Bioterrorism, December 5 & 6, 2002. Conference Proceedings: <http://ccm.ucdavis.edu/isibt>.
25. Marc Lipsitch, Associate Professor, Department of Epidemiology, Harvard School of Public Health, et al, March 2003, "Geographic Diversity and Temporal Trends of Antimicrobial Resistance in Streptococcus Pneumoniae in the United States," Nature Medicine. Advance Online Publication. (doi:10.1038/nm839).
26. Jonathan E. Fielding, M.D., M.P.H., Director of Public Health and Health Officer, Los Angeles County Department of Health Services, June 27, 2002 testimony. Stephen Waterman, M.D., Senior Medical Epidemiologist, U.S. – Mexico Border Infectious Disease Coordinator, Centers for Disease Control, California Office of Binational Border Health, September 9, 2002 presentation to Commission subcommittee and advisory committee.
27. Stephen Waterman, M.D., Senior Medical Epidemiologist, U.S. – Mexico Border Infectious Disease Coordinator, Centers for Disease Control, California Office of Bi-national Border Health. September 9, 2002 presentation to the Commission.
28. University of California at Davis, International Symposium on Emerging and Infectious Diseases and Bioterrorism, December 5 & 6, 2002, Conference Proceedings: <http://ccm.ucdavis.edu/isibt>.
29. Ibid.
30. Because hospitals are not required to report hospital-acquired infections, this preventable cause of death is not yet listed in standard CDC causes of death charts. CDC estimates that this is the leading cause of death from infectious disease based on extrapolating the data that is voluntarily reported through CDC's National Nosocomial Infections Surveillance (NNIS) program that samples hospitals nationally. "The emergence of hospital-acquired vancomycin-resistant Staphylococcus aureus infection is a public health emergency!" Source: Presentation by William R. Jarvis, Director of Extramural Research, Infectious Disease Division, CDC February 2003 direct communication. DHS web site & Jon Rosenberg, MD, Disease Investigation and Surveillance Branch, DHS.
31. William R. Jarvis, MD, Director of Extramural Research, Infectious Disease Division, CDC February 2003 direct communication. DHS web site & Jon Rosenberg, MD, Disease Investigation and Surveillance Branch, DHS.
32. Direct Communication. W. R. Jarvis, M.D., O.D., Director, Extramural Research, National Center For Infectious Disease, CDC, MMWR, February 14, 2003. "The Spectrum of Healthcare Associated Infections in the 21st Century," Health Care Epidemiology, 2000; William R. Jarvis, M.D. Investigation and Prevention Branch, Hospital Infections Program, National Center For Infectious Disease; CDC.
33. Michael J. Berens, Chicago Tribune, July 21-23, 2003, three part series of articles on hospital-acquired infections.
34. Alan P. Zelicoff, 9-9-02, presentation to Commission Subcommittee and advisory committee discussion.
35. Kevin Reilly, DVM, DPVM, Deputy Director, Prevention Services, California Department of Health Services. December 6, 2002 presentation to the University of California at Davis International Symposium on Emerging Disease and Bioterrorism.
36. RAND, K. Jack Riley, Mark Hanson, John Parachini, Issue Paper, "The Implications of the September 11 Terrorist Attacks for California, Access and Control of Dangerous Biological Materials in California," 2002, p. 65-75.

37. Ibid. p. 71.
38. California Title 17 of the Code of Regulations, Health and Safety Code, Sections 1300 & 1250 (see page 28 text box). Direct communications with the Californian Conference of Local Health Officers and the Health Officers Association of California.
39. University of California at Davis, International Symposium on Emerging and Infectious Diseases and Bioterrorism, December 5 & 6, 2002, conference proceedings: <http://ccm.ucdavis.edu/isibt>.
40. Lester Breslow, M.D., M.P.H., Member, Los Angeles County Public Health Commission, Professor Emeritus and Former Dean, UCLA School of Public Health, Former Director of Public Health, State of California, combined written testimony with Philip R. Lee, M.D., former Assistant Secretary for Health, U.S. Health and Human Services in the Clinton and Carter administrations; Consulting Professor, Stanford University, October 24, 2002, Commission hearing.
41. June 27, 2002: Jack C. Lewin, M.D., Chief Executive Officer and Executive Vice President, California Medical Association; Carmen Rita Nevarez, MD, MPH, Medical Director and Vice President, Public Health Institute. Lester Breslow, M.D., M.P.H., Member, Los Angeles County Public Health Commission, Professor Emeritus and Former Dean, UCLA School of Public Health, Former Director of Public Health, State of California and Philip R. Lee, M.D., Former Assistant Secretary for Health, U.S. Health and Human Services; Consulting Professor, Stanford University, October 24, 2002 joint written testimony to the Commission. Joe Hafey, CEO, Public Health Institute, presentation November 18, 2002 to Commission subcommittee and advisory committee.
42. George Flores, M.D., M.P.H., Consultant, California Endowment, June 27, 2002 written testimony to the Commission. September 9 presentations to the Little Hoover Commission Public Health subcommittee and advisory committee: Alan Zelicoff, M.D., Senior Scientist, Center for Arms Control and National Security, Sandia National Laboratories; Stephen Waterman, M.D., Senior Medical Epidemiologist, U.S. - Mexico Border Infectious Disease Coordinator, Centers for Disease Control, California Office of Binational Border Health.
43. Mark DiCamillo, Director, The Field Institute, July 31, 2002 advisory committee meeting discussion (see conclusion for quote). Alan Zelicoff, M.D., Senior Scientist, Center for Arms Control and National Security, Sandia National Laboratories, September 9, 2002 advisory committee meeting. Richard J. Jackson, M.D., M.P.H., Director, National Center for Environmental Health, U.S. Centers for Disease Control & Prevention, presentation to subcommittee and advisory committee November 18, 2002. International Symposium on Emerging Infectious Diseases and Bioterrorism, Regional Threats, Global Impact; UC Davis, December 2002.
44. Advisory committee discussions. June 27, 2002 testimony: James B. Simpson, J.D., General Counsel, Public Health Institute, Poki Namkung, MD, MPH, Berkeley Health Officer and President, California Conference of Health Officers; October 24, 2002, testimony Loren Johnson, MD, representing the California Emergency Physicians; Raymond Baxter, Ph.D., Senior Vice President, Community Benefit, Kaiser Permanente. Warner Hudson, MD, November 18, 2002, presentation to the subcommittee and advisory committee.
45. Lawrence Livermore National Laboratories, " Web-based Public Health Reporting in California: A Feasibility Study, " California Health Care Foundation Report, December

2001. Advisory committee discussions. Deana Bonta, RN, Ph.D., director, Department of Health Services, testimony to the Commission November 15, 2001, page 17 of transcript. October 24, 2002, testimony Loren Johnson, MD, representing the California Emergency Physicians; Raymond Baxter, Ph.D., Senior Vice President, Community Benefit, Kaiser Permanente. Warner Hudson, MD, presentation to the Commission subcommittee and advisory committee, November 18, 2002.
46. Little Hoover Commission Subcommittee and advisory committee discussions September 9 and October 29, 2002. Richard Burton, MD, MPH, former Associate Director, Department of Health Services and current Placer County Health Officer, September 9, 2002, statement to the Commission during advisory committee meeting.
 47. Little Hoover Commission advisory committee discussions September 9 and October 29, 2002. Direct communications with advisory committee members such as Brigadier General Wyman, California National Guard.
 48. Arthur L. Reingold, M.D., Professor and Head of Epidemiology, U.C. Berkeley, School of Public Health, presentation to the subcommittee and advisory committee September 9, 2002. Mike Ascher, MD, Medical Advisor to the Office of Science and Technology Policy in the Executive Office of the President and former director, California Virology Laboratory. Multiple written testimony, such as Breslow and Lee.
 49. Testimony 6/27 hearing: Carmen Rita Nevarez, MD, MPH, Medical Director and Vice President, Public Health Institute; Jack Lewin, MD, CEO, California Medical Association; Jonathan Fielding, Los Angeles County Public Health Director and Health Officer. 10-24-02 testimony: Raymond Baxter, Ph.D., Vice President, Kaiser Permanente; Loren Johnson, MD, California Emergency Physicians.
 50. Zelicoff 9-9 presentation and direct communications. Carol Glaser, MD, DVM, Acting Director, Viral and Rickettsial Disease Laboratory, Division of Communicable Disease Control, DHS, State of California, presentation to International Symposium on Emerging Infectious Diseases and Bioterrorism, Regional Threats, Global Impact; UC Davis, December 2002.
 51. C. Duane Dauner, President, California Healthcare Association, October 24, 2002 testimony. Jack C. Lewin, M.D., Chief Executive Officer and Executive Vice President, California Medical Association, June 27 testimony.
 52. C. Duane Dauner, President, California Healthcare Association; Loren Arthur Johnson, M.D., Immediate Past President, California Chapter of the American College of Emergency Physicians (CAL/ACEP); October 24, 2002, written testimony to the Commission.
 53. Governor's Budget, 2002-2003.
 54. Carmen Rita Nevarez, MD, MPH, Medical Director and Vice President, Public Health Institute, June 27, 2002 written testimony. Lester Breslow, M.D., M.P.H., Member, Los Angeles County Public Health Commission, Professor Emeritus and Former Dean, UCLA School of Public Health, Former Director of Public Health, State of California and Philip R. Lee, M.D., Former Assistant Secretary for Health, U.S. Health and Human Services; Consulting Professor, Stanford University joint written testimony October 24, 2002. Discussions with experts, DHS staff, and advisory committee discussions.
 55. Advisory committee discussions, discussions with experts, testimony: October 24, 2002 Lester Breslow, M.D., M.P.H., Member, Los Angeles County Public Health Commission, Professor Emeritus and Former Dean, UCLA School of Public Health, Former Director of Public Health, State of California, combined written testimony with Philip R. Lee, M.D.,

- former Assistant Secretary for Health, U.S. Health and Human Services in the Clinton and Carter administrations; Consulting Professor; Stanford University; June 27, 2002: Carmen Rita Nevarez, MD, MPH, Medical Director and Vice President, Public Health Institute; Poki Namkung, M.D, president, California Conference of Local Health Officers and City of Berkeley local health officer. Richard J. Jackson, M.D., M.P.H., Director, National Center for Environmental Health, U.S. Centers for Disease Control & Prevention, presentation to subcommittee and advisory committee November 18, 2002. Mike Ascher, MD, Medical Advisor to the Office of Science and Technology Policy in the Executive Office of the President and former director California Virology Laboratory February 2003, direct communication. California Association of Public Laboratory Directors, letter to the Commission December 2002. Kenneth Takata, Sacramento Laboratory Director, September 2002, letter to the Commission.
56. Loren Arthur Johnson, M.D., Immediate Past President, California Chapter of the American College of Emergency Physicians (CAL/ACEP), October 24, 2002. Jack C. Lewin, M.D., Chief Executive Officer and Executive Vice President, California Medical Association, June 27, 2002 written testimony to the Commission. Kenneth Takata, Public Health Lab Director, Department of Health & Human Services. letters CAP HC letter, 11-13-02.
 57. <http://web.health.gov/phfunctions/public.html>. Accessed June 2002 and March 2003.
 58. Jonathan E. Fielding, Director of Public Health and Health Officer, Los Angeles County and adjunct professor, UCLA, "Public Health in the Twentieth Century," Annual Review of Public Health 1999. Advisory committee discussions; discussions with experts.
 59. Advisory committee member and expert direct communications.
 60. Jack C. Lewin, M.D., Chief Executive Officer and Executive Vice President, California Medical Association written testimony June 27, 2002. George Flores, M.D., M.P.H., Consultant, California Endowment, June 27, 2002, written testimony to the Commission.
 61. George Flores, M.D., M.P.H., Consultant, California Endowment, June 27, 2002, written testimony to the Commission.
 62. Loren Arthur Johnson, M.D., Immediate Past President, California Chapter of the American College of Emergency Physicians (CAL/ACEP), testimony October 24, 2002. Raymond Baxter, Ph.D., Senior Vice President, Community Benefit, Kaiser Permanente, written testimony October 24, 2002. Direct discussions with advisory committee members and other experts.
 63. Discussions, Little Hoover Commission Advisory committee meeting. October 29, 2002.
 64. T. Warner Hudson, M.D., FACOEM, FAAFP, Director, Health, Safety and Environment, DST Output, Member, Disaster Subcommittee of American College of Occupational & Environmental Medicine, presentation to Commission subcommittee and advisory committee, November 18, 2002.
 65. Title 17, Sections 1300, 1250.
 66. Discussions with state and national experts, as well as health professionals. See also Simpson and Namkung testimony to Commission, June 27, 2002. California Conference of Local Health Officers, letter to the Commission, December 2002.
 67. Association of State and Territorial Health Officers, January 2003, direct communication.
 68. Reorganization Plan Number 1 of 1970, February 26, 1970 eliminated Article III, Section 372 which required that "the director and each of the other members of the board shall be duly licensed and practicing physicians of this state." Breslow testimony June 27, 2002.

69. Department of Health Services and ASTHO records 2002-03.
70. DHS testimony and presentations to advisory committee, organization charts.
71. Discussions with experts and advisory committee members. Written testimony June 27, 2002: Carmen Rita Nevarez, MD, MPH, Medical Director and Vice President, Public Health Institute.
72. Chairman's telephone interview of Oregon Governor John Kitzhaber, M.D. 12-2-02; Joe Hafey, president, Public Health Institute, presentation and paper on state models, 11-18-02; Don Sloma, MPH, Executive Director, Washington State Board of Health, presentation to subcommittee and advisory committee 11-18-02.
73. HSC 101030: "Enforcement duties... including quarantines and other regulations prescribed by the department."
74. Direct communications with CDC regarding their hiring procedures, January and February 2003.
75. Reorganization Plan Number 1 of 1970, February 26, 1970 eliminated Article III, Section 372, which required that "the director and each of the other members of the board shall be duly licensed and practicing physicians of this state."
76. Advisory committee discussions and discussions with state and national experts. Written testimony Lee and Breslow, October 24, 2002.
77. Testimony: Dauner, Namkung, Lewin, Johnson, Lee & Breslow.
78. Joe Hafey, MPA, Public Health Institute and Warner Hudson, MD presentations, 11-18-02; Lee & Breslow testimony.
79. "State Public Health Governance in the United States," Adele Amodeo, MPH, Bob Prentice, Ph.D., Carol Woltring, MPH, Public Health Institute, November 18, 2002, state models white paper on LHC web site. Association of State and Territorial Health Officers web site (www.astho.org). Direct communications with state and national experts, for instance, Phillip R. Lee, MD re. Texas Board appointing director of public health and Alabama's model.
80. Ibid.
81. Don Sloma, MPH, Executive Director, Washington State Board of Health, November 18, 2002 presentation to the Commission subcommittee and advisory committee.
82. Carmen Rita Nevarez, MD, MPH, Medical Director and Vice President, Public Health Institute; June 27, 2002 written testimony to Commission. Robert Ross, MD, President and CEO, California Endowment, October 24, 2002 testimony to the Commission; advisory committee discussions and presentations and testimony from Namkung, Johnson, Baxter, Hafey, Flores, Hudson, Sloma.
83. CDC is working on a collaborative effort to have all local health departments certified by fiscal year 2006 as meeting Project Public Health Ready standards. California local health officers have been working with CDC on that, as well as a "Core Capacity Standards Project." See Standards and Accreditation text box p. 35.
84. According to Advisory committee discussion, the laws are not specific enough and the State has lost leverage with counties through realignment. Carmen Rita Nevarez, MD, MPH, Medical Director and Vice President, Public Health Institute, testimony June 27, 2002.
85. See Finding 3.
86. Flores testimony June 27, 2002 and written communication February 2003. National Association of County and City Health Officials, January 23, 2003 Recommendations.

87. Little Hoover Commission Advisory committee meetings July 31 and November 18, 2002. Further details discussed in Finding 4.
88. DHS presentation to the Commission subcommittee and advisory committee, July 31, 2002.
89. According to direct communication with CDC and DHS staff in 2002 and 2003, the inventory information is not public, and as of March 2003, has not been comprehensively analyzed by the State. However, DHS has expressed that this information is useful for planning and distributing resources.
90. Roger On, MD, David Carlisle, MD, Jack Lewin, George Flores, MD, testimony June 27, 2002. AC discussions and presentation by Carol Mordhorst 10-29-02.
91. Steven E. Hon, President, County Health Executives Association, testimony October 24, 2002.
92. Task Force Report December 1998, "California Health Care System: Overview of the Hospital/EMS Crisis Winter of 1997-98, Findings and Recommendations."
93. Little Hoover Commission advisory committee meeting October 29, 2002. Direct communications with advisory committee members. Kenneth Takata, Sacramento Laboratory Director, September 2002, letter to the Commission.
94. Project Public Health Ready requirements- see box page 35.
95. Flores, Ross testimony, advisory committee discussion 10-29-02.
96. Capacity advisory committee discussion 10-29-02, James Stratton, MD, MPH, Medical Epidemiologist, Office of Environmental Health Hazard Assessment.
97. Ibid. and Takata presentation to the Commission subcommittee and advisory committee, October 29, 2002.
98. Ibid and Mordhorst presentation to the Commission subcommittee and advisory committee, October 29, 2002
99. Advisory committee meeting discussion, October 29, 2002 re. federal CLIA law requiring lab directors to have post-doctoral training.
100. June 27, 2002 testimony to the Commission from Poki Namkung, MD, President, CCLHO; Jim Simpson, JD, Public Health Institute; Assemblyman Keith Richman, MD, MPH.
101. Richard J. Jackson, M.D., M.P.H., Director, National Center for Environmental Health, U.S. Centers for Disease Control & Prevention, presentation to subcommittee and advisory committee November 18, 2002, regarding learnings from NY 9-11-01.
102. Advisory committee discussions, review of organization charts, and direct communication with advisory committee members, state scientists, and experts such as Mike Ascher, MD.
103. Ibid.
104. Direct communications.
105. AB 206, January 28, 2003 version.
106. Poki Namkung, MD testimony June 27, 2002. As of March 2003, The Health Officers of California are supporting AB 206, and will work with the author on amendments (direct communication with Bruce Pomer, Executive Director, HOAC).
107. Loren Johnson, MD, California Emergency Physicians, direct communications and testimony 10-24-02. 10-29-02 testimony on large employer connectivity with public health authorities, Warner Hudson, MD, FACOEM, FAAFP, Director, Health, Safety and Environment, DST Output. Direct communications with experts and public health leaders.
108. Ibid.

109. Testimony and AC discussions, specific goal of Project Public Health Ready (see p. 35).
110. Various direct communications with advisory committee members and experts.
111. Advisory committee discussions September 9, 2002. Testimony of Kaiser. Direct communications with General Wyman, California National Guard.
112. Ibid.
113. Stephen Waterman, M.D., Senior Medical Epidemiologist, U.S. – Mexico Border Infectious Disease Coordinator, Centers for Disease Control, California Office of Bi-national Border Health 9-9-02 presentation to Commission subcommittee and advisory committee.
114. Testimony: Lewin, Fielding. 6-27. Burton, Dauner, Johnson, 10-24. Zelicoff 9-9. Hudson 11-18. Lawrence Livermore National Laboratories, "Web-based Public Health Reporting in California: A Feasibility Study," California Health Care Foundation Report, December 2001.
115. Jeffrey L. Rubin, Chief, Disaster Medical Services Division, EMSA, testimony, 10-24-02.
116. Advisory committee discussion and Alan Zelicoff presentation, 9-9-02. Lawrence Livermore National Laboratories, "Web-based Public Health Reporting in California: A Feasibility Study," California Health Care Foundation Report, December 2001.
117. Ibid.
118. U.S. Centers for Disease Control, November 8, 1996, Morbidity and Mortality Weekly, "Outbreak of Escherichia coli 0157:H7," and October 1996, "Infections Associated with Drinking Unpasteurized Commercial Apple Juice." Direct communications with advisory committee members.
119. Ibid.
120. Advisory Committee discussions. International Symposium on Emerging Infectious Diseases and Bioterrorism, Regional Threats, Global Impact; UC Davis, December 2002.
121. Department of Health and Human Services, National Institute of Health and the National Institute of Allergy and Infectious Disease, Request For Proposals, Public Law 92-218, BAA-NIH-NIAID,-NCRR-DMID-03-36; NIAIC Code 541710, pages 4, 8.
122. Example: University of California-DHS application for the bio-safety level four laboratory, February 2002.
123. Testimony at both hearings and all four advisory committee discussions. Written examples on our web site: 6/27/02 Carmen Rita Nevarez, MD, MPH, Medical Director and Vice President, Public Health Institute, Jack Lewin, MD, CEO, California Medical Association; Poki Stewart Namkung, MD, MPH, President, California Conference of Local Health Officers; Jonathan Fielding, MD, MPH, Director of Public Health and Health Officer, Los Angeles County. AC discussion. CAPHL written communications. Lawrence Livermore National Laboratories, " Web-based Public Health Reporting in California: A Feasibility Study," California Health Care Foundation Report, December 2001: www.chcf.org/topics/view.cfm?itemID=12909.
124. Carol Glaser, MD, DVM, Acting Director, Viral and Rickettsial Disease Laboratory, Division of Communicable Disease Control, DHS, State of California, presentation to International Symposium on Emerging Infectious Diseases and Bioterrorism, Regional Threats, Global Impact; UC Davis, December 2002.
125. Carmen Rita Nevarez, MD, MPH, Medical Director and Vice President, Public Health Institute, testimony June 27, 2002. Art Reingold, MD, Professor and Chief of Epidemiology, UC Berkeley School of Public Health, September 9, 2002 presentation to Commission subcommittee. October 29, 2002, Kenneth Takata, representing the

- California Public Health Laboratory Association, presentation to Commission subcommittee. Advisory Committee discussions and discussions with experts.
126. Ibid.
 127. Ibid and direct communications with federal officials.
 128. Governor's Budget, Salaries & Wages Supplement 2002-03, March 14, 2002.
 129. In February 2002, without publicly announcing the position or establishing formal minimum requirements, the department named an associate director for health and bioterrorism policy, Terri Del Gadillo, at a salary of \$107,004. The new incumbent is not a scientist or a physician. The department stated that this associate director position is a different one than the position previously filled by a physician who was also the state epidemiologist. The state epidemiologist position mostly has been left vacant for years, according to professor Art Reingold testimony to the Senate Health and Human Services Committee, November 2001. On March 17, 2003, DHS announced that a physician, Gilberto F. Chavez, MD, MPH, "on assignment from the Centers for Disease Control and Prevention," will become "an associate director serving in the Director's Office", working in the capacity of a medical consultant, beginning April 1, 2003.
 130. Veterinarians fill two key positions normally held by physicians: the director of Prevention Services and the acting director of the Division of Communicable Disease Control (which by law is required to be a physician). As of March 2003, the DHS director's executive and senior staff scientific expertise is limited to nursing and veterinary science.
 131. October 29, 2002 presentation to Little Hoover Commission subcommittee by Catherine Dower, JD, The Center for the Health Professions, UCSF "Changing Health Workforce Environment in California."
 132. Kenneth Takata, representing the California Public Health Laboratory Association, presentation to Commission subcommittee, October 29, 2002, . Advisory Committee discussions and discussions with experts. Letters from Takata 9-12-02, California Association of Public Health Laboratories Directors, letter, December 12, 2002.
 133. California Association of Public Health Laboratories Directors, letter December 12, 2002.
 134. CDC direct discussions and written communication, February 2003.
 135. Breslow & Lee October 24, 2002 testimony and direct communications with public health professionals.
 136. Direct discussion with advisory committee members and experts, for instance, Verdie L. Thompson, RN, MS, director of nursing, City of Berkeley, department of public health, section chair, Public Health Nursing, California Public Health, Association- North and former president of the California Association of Public Health Nurses, February 2003. Deana Bonta, RN, Ph.D., director, Department of Health Services, transcribed testimony, p. 3-4, November 15, 2001: "The difficulty, I think in terms of public health, is we're not uniformed personnel."
 137. Testimony 6/27 hearing: Carmen Rita Nevarez, MD, MPH, Medical Director and Vice President, Public Health Institute; Jack Lewin, MD, CEO, California Medical Association; Jonathan Fielding, Los Angeles County Public health director and health officer. 10-24-02 testimony: Raymond Baxter, Ph.D., Vice President, Kaiser Permanente; Loren Johnson, MD, California Emergency Physicians. Alan Zelicoff presentation to Commission subcommittee and advisory committee 9-9-02.

138. Donna Nowell and Fred Warren, Lawrence Livermore National Laboratory, "Web Based Reporting In California," p. 15-16, March 2001. Report commissioned by the California Health Care Foundation in cooperation with the Department of Health Services.
139. Lawrence Livermore National Laboratories, " Web-based Public Health Reporting in California: A Feasibility Study," California Health Care Foundation Report, December 2001: www.chcf.org/topics/view.cfm?itemID=12909.
140. Testimony: Fielding 6-27, Dauner 10-24. Discussions with experts.
141. October 29, 2002, Kenneth Takata, representing the California Public Health Laboratory Association, presentation to Commission subcommittee and advisory committee. AC discussions and discussions with experts. "Results of the CHEAC/CCLHO Survey on the Public Health Workforce." September 2000.
142. Sydney Harvey, Ph.D., President, California Public Laboratory Association, and Director, Los Angeles County Public Laboratory, March 2003. Association of Public Health Laboratories (national core competencies) 2002.
143. Sydney Harvey, Ph.D., President, California Public Laboratory Association, and Director, Los Angeles County Public Laboratory, March 2003, and other lab directors. Mike Ascher, MD, Medical Advisor to the Office of Science and Technology Policy in the Executive Office of the President and former director of the California State Virology Laboratory (retired February 2003), February 2003 direct communication. Department of Health and Human Services, National Institute of Health and the National Institute of Allergy and Infectious Disease, Request For Proposals, Public Law 92-218, BAA-NIH-NIAID,-NCRR-DMID-03-36; NIAIC Code 541710.
144. Direct communication with lab directors. Department of Health and Human Services, National Institute of Health and the National Institute of Allergy and Infectious Disease, Request For Proposals, Public Law 92-218, BAA-NIH-NIAID,-NCRR-DMID-03-36; NIAIC Code 541710.
145. Association of Public Health Laboratories (national core competencies) 2002. Ascher and other lab directors. University of California at Davis, International Symposium on Emerging and Infectious Diseases and Bioterrorism, December 5 & 6, 2002. Conference Proceedings: <http://ccm.ucdavis.edu/isibt>.
146. Mike Ascher, MD, Medical Advisor to the Office of Science and Technology Policy in the Executive Office of the President and former director of the California State Virology Laboratory (retired February 2003), February 2003 direct communication.
147. Association of Public Health Laboratories 2002.
148. Direct discussions with California laboratory experts.
149. Direct communication, National Public Health Laboratories Association, January 2003.
150. Little Hoover Commission Advisory committee meetings September 9, October 29 and November 18, 2002. Richard Burton, MD, then-DHS associate director, stated to the Commission subcommittee on September 9, 2002, that the surge capacity report being developed by EMSA and DHS for the federal government would detail the needs in this area. Testimony June 27, 2002: Roger On, MD and Jack Lewin, MD, CEO, California Medical Association; October 24, 2002: Duane Dauner, CEO California Health Care Association; Loren Johnson, MD, immediate past president, California Emergency Physicians.
151. David Carlisle, MD, Ph.D., Director, California Office of Statewide Health Planning and Development, testimony June 27, 2002. Jeffrey L. Rubin, Chief, Disaster Medical Services

- Division, EMSA, testimony, 10-24-02. Advisory committee discussions and communications with experts.
152. David Carlisle, MD, Ph.D., Director, California Office of Statewide Health Planning and Development, testimony June 27, 2002 and direct staff communication.
 153. C. Duane Dauner, President and CEO, California Health Care Association October 24, 2002 testimony to Commission.
 154. Interview of NDMS staff February 2003.
 155. Advisory committee discussions, direct communications with senior staff and discussions in the public health subcommittee of the State Strategic Committee on Terrorism 2002.
 156. California National Guard (CNG) presentation to the Commission subcommittee and advisory committee, September 9, 2002. Public Health Service Disaster Assistance Team Web site: <http://oep.osophs.dhhs.gov/dmat/>
 157. CNG presentation to the Commission subcommittee and advisory committee, September 9, 2002. General Wyman, CNG, direct communication, Feb 2002.
 158. Written communications from advisory committee members, Colonel Cross and General Wyman, February and March 2003.
 159. General Wyman, California National Guard, February 2003 written communication.
 160. General Wyman, direct communications, February 2003.
 161. Ibid.
 162. Ibid.
 163. Advisory committee discussions.
 164. Advisory committee discussions and communications with experts.
 165. Raymond D. Goodman, M.D., M.P.H., Health Care Consultant, December 30, 2002, written communication to the Commission. Advisory committee discussions.
 166. Business and Professions Code, Section 2395.
 167. Jack McConnell, M.D., Founder, Volunteers in Medicine Institute, Hilton Head Island, S. Carolina; Example re-licensing bill: Article 1, Chapter 47, Title 40, Section 40-47-245, March 23, 1992, S. Carolina. Program Description: www.rwjf.org/reports/grr/021804s.html.
 168. New England Journal of Medicine, Burke, "Infection Control" February 13, 2003; Direct communications with DHS and CDC.
 169. Because hospitals are not required to report hospital-acquired infections, this preventable cause of death is not yet listed in standard CDC causes of death charts. CDC estimates that this is the leading cause of death from infectious disease based on extrapolating the data that is voluntarily reported through CDC's National Nosocomial Infections Surveillance (NNIS) program that samples hospitals nationally. William R. Jarvis, MD, Director of Extramural Research, Infectious Disease Division, CDC February 2003 direct communication. "The Spectrum of Healthcare Associated Infections in the 21st Century," Health Care Epidemiology, 2000; William R. Jarvis, M.D. Investigation and Prevention Branch, Hospital Infections Program, National Center For Infectious Disease; CDC. "Monitoring Hospital-Acquired Infections to Promote Patient Safety -- United States, 1990-1999," Morbidity and Mortality Weekly, CDC, March 3, 2000/ 49/08; 149-153; In 1999 285 hospitals in 42 states participated in the voluntary National Nosocomial Infections Surveillance program run by the CDC.
 170. "The emergence of hospital-acquired vancomycin-resistant Staphylococcus aureus infection is a public health emergency!" Source: Presentation by William R. Jarvis, MD,

- Director of Extramural Research, Infectious Disease Division, CDC February 2003 direct communication and presentation materials.
171. William R. Jarvis, MD, Director of Extramural Research, Infectious Disease Division, CDC March 2003 direct communication.
 172. William R. Jarvis, MD, Director of Extramural Research, Infectious Disease Division, CDC presentation citing Rosenberg et al IDSA 1997 (abstract #726).
 173. Jon Rosenberg, MD, Disease Investigation and Surveillance Branch, DHS, March 4, 2003, written communication.
 174. Ibid.
 175. Supplied by CDC February 2003 from Jarvis presentation materials, and directly discussed.
 176. "Control of Vancomycin-Resistant Enterococcus in Health Care Facilities In a Region," Belinda Ostrowsky, MD, MPH et. al., *New England Journal of Medicine*, Vol. 344, No. 19, pp 1427- 1433, May 10, 2001. February 2003, written communication to the Commission from CDC. "Nosocomial Group A Streptococcal Infections Associated with Asymptomatic Health-Care Workers -- Maryland and California, 1997," *Morbidity and Mortality Weekly, CDC*, March 5, 1999/ 48(08), 163-166.
 177. "Control of Vancomycin-Resistant Enterococcus in Health Care Facilities In a Region," Belinda Ostrowsky, MD, MPH et. al., *New England Journal of Medicine*, Vol. 344, No. 19, pp 1427- 1433, May 10, 2001. February 2003, written communication to the Commission from CDC.
 178. Ibid.
 179. Ibid.
 180. William R. Jarvis, MD, Director of Extramural Research, Infectious Disease Division, CDC March 2003 direct communication.
 181. "Communicable Disease Control In California," DHS, September 2000.
 182. Jon Rosenberg, MD, Disease Investigation and Surveillance Branch, DHS, February and March 2003, written communications.
 183. Ibid.
 184. Ibid.
 185. Ibid.
 186. *New England Journal of Medicine*, Burke, "Infection Control," February 13, 2003. Direct communications with DHS and CDC. "Cost Comparison -- Preventive and Therapeutic Interventions-- per Quality Adjusted Life Year Saved," Jarvis presentation based on Wenzel RP data from *Journal of Hospital Infection* 1995; 31: 79-87, estimates cost of infection control at between \$1,786 to \$7143 per quality adjusted life year saved, as opposed to, for instance, therapy for severe hypertension \$11,400, and liver transplantation \$1,144,000.
 187. Advisory committee presentations and discussions July and November. United States Department of Health & Human Services, News Release, "HHS Announces Bioterrorism Aid For States, Including Special Opportunity For Advance Funding," March 20, 2003.
 188. Ibid. 7-31 and 11-18 DHS presentations by Richard Burton, MD and Kevin Reilly, DVM.
 189. Ibid.
 190. Discussions with advisory committee members and California public health professionals.
 191. Ibid.
 192. Ibid.

193. Direct discussions with Karen Bodenhorn, President, Center for Health Improvement regarding previous research conducted collaboratively with The California Budget Project.
194. Advisory committee discussions. Carmen Nevarez, MD, MPH, Medical Director, Public Health Institute, written testimony to the Commission, June 2002.
195. Ibid.
196. 7-31 and 11-18 DHS presentations by Richard Burton, MD and Kevin Reilly, DVM. Advisory committee discussions and direct communications with experts.
197. Advisory committee discussions and direct communications with experts.
198. Ibid.
199. 7-31 and 11-18 DHS presentations by Richard Burton, MD and Kevin Reilly, DVM. Advisory committee discussions and direct communications with experts
200. Ibid.
201. Steven E. Hon, President, County Health Executives Association, testimony October 24, 2002.
202. Ibid and advisory committee discussions.
203. Steven E. Hon, President, County Health Executives Association, testimony October 24, 2002.
204. Ibid.
205. Peter Abbott, M.D. Chief, Office of County Health Services, written communication, March 12, 2003.
206. Advisory committee discussions. Carmen Nevarez, MD, MPH, Medical Director, Public Health Institute, written testimony to the Commission, June 27, 2002. Poki Namkung, M.D, president, California Conference of Local Health Officers and City of Berkeley local health officer testimony June 27, 2002. Kenneth Takata, letter 9-12-02.
207. Testimony from Breslow, Lee, Nevarez, Namkung. Advisory committee discussions.
208. DHS October 2002 testimony.
209. Direct communications with Department of Finance (DOF), DHS and California public health financing experts.
210. Ibid. and advisory committee discussions.
211. Ibid.
212. Governor's Budget Highlights 2003-04, pages 56-57.
213. 7-31 and 11-18 DHS presentations by Richard Burton, MD and Kevin Reilly, DVM., inquires to DOF.
214. Steven E. Hon, President, County Health Executives Association, testimony October 24, 2002. Advisory committee discussions
215. Advisory committee discussions and finance presentations to the Commission Subcommittee by Richard Burton, MD, MPH, Associate Director, DHS and Greg Franklin, deputy director for Health Information and Strategic Planning, DHS July 31, 2002.
216. Ibid.
217. Advisory committee discussions July and November and discussions public health financing and other experts.
218. Advisory committee discussions July and November. Carmen Nevarez, MD, MPH, Medical Director, Public Health Institute, testimony to the Commission, June 27, 2002.
219. Chairman's telephone interview of Oregon Governor John Kitzhaber, M.D. 12-2-02.

220. United States Department of Health & Human Services. News Release. "HHS Announces Bioterrorism Aid For States, Including Special Opportunity For Advance Funding." March 20, 2003.
221. Direct communications with advisory committee members.
222. Ibid.
223. Bruce Pomer, Executive Director, Health Officers Association, Public Health Advocacy and Consulting, Pomer & Associates, direct communication, September 2002 and March 2003. AB 472 (Correa) is a current attempt to create a continuous appropriation for these federal funds.
224. Direct communications with DHS and advisory committee members.
225. AC discussion and direct communication with AC members.
226. Jack Lewin, M.D. MPH, Chief Executive Officer and Executive Vice President, California Medical Association, June 27, 2002, testimony to the Commission. Direct discussions with public health professionals.
227. July 1, 1854, President Abraham Lincoln. "The Political Thought of Lincoln," edited by Richard N. Current, 1967.
228. Mark Di Camillo, Director, Field Poll, Advisory committee Meeting statement June 2002 and direct communication March 2003.

*All Web site listings were accessed between May 2002 to March 2003.

