

IS THE SANTA BARBARA COUNTY PUBLIC HEALTH DEPARTMENT PREPARED FOR THE NEXT EPIDEMIC?



SUMMARY

Another epidemic in Santa Barbara County is not merely a possibility—it is an inevitability. The emergence of new infectious agents that may cause devastating outbreaks is occurring at an alarming rate. The 2024-2025 Grand Jury has identified shortcomings in Santa Barbara County’s readiness for a new epidemic. Our County must adopt a proactive approach to preparedness. This includes utilizing up-to-date technologies, implementing proactive risk assessment and disaster planning strategies, strengthening early detection, and improving communication to prepare for bioterrorism threats. (References 1-3)

The Santa Barbara County Public Health Department is the front line. While federal and state agencies may provide guidance, it is the County Public Health Department’s responsibility to plan for and respond to infectious epidemics that might occur in Santa Barbara County.

BACKGROUND

Infectious disease epidemics, such as COVID-19, have devastating effects on communities. They overwhelm existing health care resources, result in massive illness and death, and have terrible consequences for public health, education, and the economy.

County public health departments have defined responsibilities under California law (California Health and Safety Code, Part 3, Chapter 2, Sections 101025 – 101165). County health departments are tasked with protecting public health, which includes planning for, preventing, and managing outbreaks of infectious diseases. Their responsibilities include:

1. Surveillance and Monitoring: Tracking the spread of diseases and identifying outbreaks through data collection and analysis.
2. Preparedness Planning: Developing and maintaining public health emergency response plans, including those for epidemics and pandemics.
3. Education and Outreach: Informing the public about disease prevention measures and providing resources to mitigate the spread of illnesses.
4. Coordination: Working with state and federal agencies, healthcare providers, and other local entities to respond effectively to public health threats.
5. Vaccination and Treatment: Organizing vaccination campaigns and ensuring access to medical treatment during an epidemic.

Three potential sources of new epidemics could impact our County:

- Natural disease epidemics. There is potential for current endemic disease to mutate and create epidemic risk. For example, new and more virulent strains of COVID-19 or influenza viruses could emerge (such as avian influenza). Further, with increases in international travel and migration, diseases which were once isolated to confined regions of the world may rapidly become global. Examples include Mpox and Ebola, once confined to East Africa; mosquito-borne diseases such as malaria, Zika, and West-Nile virus; and, polio, historically isolated to localized populations. (References 4-6)
- Laboratory leaks. Technology to alter infectious microorganisms using genetic engineering has rapidly evolved, has become widely available, and is now being utilized in numerous research and commercial laboratories across the globe. There are currently no international regulations to ensure the safety of this technology, resulting in a risk of new virulent pathogens escaping and disseminating. (References 7-8)
- Bioterrorism. Genetic engineering may also be utilized to alter dangerous microorganisms to create potential biological weapons. Such engineering has been detected in Russia, China, North Korea, and Iran, and among independent terrorist organizations. The weaponization of such agents as Smallpox, Anthrax, Corona, Ebola, and influenza viruses is a real and present threat. The strategic importance of the Vandenberg Space Force Base

makes this a potential target that would threaten the greater Santa Barbara County. (References 9-11)

Given these threats, there is a high likelihood of an infectious epidemic occurring again in Santa Barbara County.

METHODOLOGY

The Grand Jury used the following investigative methods:

- Requests for information from County departments.
- Interviews with public health experts, epidemiology experts, community physicians, representatives from Vandenberg Space Force Base, County department employees and County officials.
- Review of information on websites of:
 - The Santa Barbara County Public Health Department
 - The World Health Organization (WHO)
 - The Centers for Disease Control and Prevention (CDC)
 - The National Association of County and City Health Officials (NACCHO)
 - The California Department of Public Health
 - The US Department of Homeland Security
 - The California Office of Emergency Services
- Review of news articles reporting new epidemic threats.
- Review of scientific literature and recently published books (see References section at the end of this report).

DISCUSSION

According to its website, the CDC recommends several key strategies for developing a comprehensive local epidemic preparedness plan:

- Surveillance and Monitoring: Establish robust systems for continuous surveillance and monitoring of disease trends. This includes collecting data from hospitals, laboratories, and public health departments to identify unusual patterns or increases in disease incidence.
- Risk Assessment: Perform ongoing evidence-based risk assessments to determine which infections are most likely to occur. This involves analyzing the most current epidemiologic data to prioritize potential threats.

- **Emergency Operations Plan (EOP):** Develop an Emergency Operations Plan that includes specific actions for before, during, and after an outbreak. This plan should outline procedures for screening, testing, contact tracing, physical distancing, isolation, and mask use.
- **Communication and Coordination:** Ensure effective communication and coordination with law enforcement, first responders, healthcare providers, and hospital staff. Establish clear channels for sharing information and coordinating responses.
- **Resource Allocation:** Allocate resources effectively, including vaccines, treatments, and medical supplies. Ensure that there are sufficient stockpiles and distribution plans in place.
- **Training and Exercises:** Conduct regular training and practice exercises with all partners involved in the response. This helps ensure that everyone is prepared and knows their roles in the event of an outbreak.
- **Public Education:** Educate the public about the importance of preparedness and the steps they can take to protect themselves. This includes promoting vaccination, hygiene practices, and awareness of symptoms.

The Santa Barbara County Public Health Department is aware of the risk of future epidemics and the important role that it must play in epidemic preparedness and response. However, based on numerous interviews and review of recent scientific literature, the Grand Jury has identified that there are some important approaches to epidemic preparedness that are currently not utilized in Santa Barbara County. These include the use of new technologies to identify and document the specific infectious agents that pose the greatest risks of potential future epidemics. Such tools can be utilized to formulate the current risk assessment to identify the pathogens most likely to cause an epidemic in Santa Barbara County. Additionally, based upon evidence-based and disease-specific risk assessment, the Santa Barbara County Public Health Department could develop disaster response plans specific to each potential epidemic risk.

Determination of Epidemic Risks

The Grand Jury has learned from testimony and from literature review that the following three proactive approaches would improve the preparedness and response to potential new infectious epidemics in Santa Barbara County.

Current Technologies

The first important tool to lessen potential epidemic risk is use of up-to-date technologies. The Santa Barbara County Public Health Department currently relies upon reporting of selected diseases by Santa Barbara County hospitals and health care providers. These events can be entered into a state program called the California Reportable Disease Information Exchange (CalREDIE). Reports from other California counties are also available through CalREDIE. However, witnesses have testified that CalREDIE program does not provide sufficient information, in part because many potentially dangerous diseases that occur in Santa Barbara County and elsewhere in

California are not reported. There is usually no reporting for non-hospitalized patients, even if they have symptoms of an infection that could pose a risk of spread. Hospitals might also not report potentially dangerous infections to CalREDIE because of HIPAA concerns. In addition, patients with unusual and unexplained symptoms might not be reported, as their diseases are not recognized as reportable. Furthermore, the current system only includes selected cases that have been reported from within California. It does not systematically utilize or analyze data from national or international threats.

The currently available computer software platforms have the power to provide much more robust information regarding risk assessment and the early detection of possible epidemic threats. Such systems utilize artificial intelligence to collect and analyze infectious risk signals from many sources, not just locally, but also around the state, nation, and globally. Data are gathered not just from case reports, but also from testing laboratories, pharmacy sales, migration and travel data, and more. Geo-mapping and big data analytics are utilized to assess the likelihood of potential threats to local jurisdictions. Such software allows local public health departments to perform evidence-based risk assessment to facilitate proactive preparedness for potentially dangerous organisms and infections. (References 12-18)

Examples of contemporary software tools available to county health departments now include:

- A. ESSENCE: The Electronic Surveillance System for the Early Notification of Community-based Epidemics, available from the US Department of Defense.
- B. Bio Sense Platform: A cloud-based platform for agencies to analyze data and identify potential epidemic risk.
- C. Epi Info: A platform that supports outbreak investigations, including risk analysis.
- D. HealthMap: A platform that provides real-time tracking of emerging health threats globally and analyzes local threats.
- E. ArcGIS: A geospatial platform allowing public health departments to map and analyze epidemic risks.
- F. BlueDot: An AI model that collects world-wide data to track infectious disease and provides early warning of potential local risks.
- G. Metabiota: A software platform that uses AI to project the likelihood of potential outbreaks.
- H. Epidemic Intelligence from Open Sources (EIOS): An open-source, web-based system for epidemic intelligence from WHO.
- I. PHC Global: New software platform for epidemic detection, which may be available for beta testing.

Wastewater Testing

A second important tool for the determination of epidemic risk is epidemic wastewater testing. The technology to detect threatening infectious microorganisms that may cause epidemics by testing their presence in wastewater has rapidly evolved and is now widely implemented, including in

most California counties. In Santa Barbara County, wastewater treatment plants have traditionally tested wastewater for organisms such as E-coli, which pose a threat to streams and beaches.

However, more sophisticated testing for organisms that might cause epidemics has not been widely implemented. One notable exception is a site in Lompoc where epidemic wastewater testing is ongoing with the support of a private grant. These data are reported to a California database, data.wastewaterscan.org. The Goleta Sanitary District has also recently begun to perform testing, in partnership with the California Department of Public Health. There was a previous testing site funded by a nonprofit agency in the City of Santa Barbara, but this is no longer operating. There is currently no testing in other major population centers, including Santa Maria.

Wastewater testing for pathogens to track potential outbreaks and coordinate early responses is now an essential component of epidemic preparedness, which is the legal responsibility of California county public health departments. Many California county public health departments have assumed the responsibility to assure that wastewater testing for potential epidemic pathogens has been implemented in their counties. These public health departments include those in the counties of Los Angeles, San Francisco, Sacramento, Santa Clara, Fresno, Riverside, Orange, Kern, and Alameda. However, the Santa Barbara County Public Health Department does not operate or supervise any wastewater testing facilities, nor does it routinely receive results. In addition, while the Public Health Department might informally review some wastewater testing results, there is currently no defined process or procedure for the Public Health Department to review local and regional wastewater test results nor to incorporate these reviews into risk analysis. (References 19-22)

Information Sharing

The third important tool in determining epidemic risk is optimal communication. The County Public Health Department currently has useful communication with the California Department of Public Health and with officials from other county health departments in the state. These conversations facilitate important information sharing regarding public health issues throughout California.

In addition, communication amongst local care providers is an important component of effective epidemic preparedness. Sharing information regarding suspicious infections and other potential risks that have been identified in the County can provide early warning of new epidemic risks. Several California public health departments have established community task forces or advisory groups for epidemic preparedness. These task forces typically include public health officials, healthcare providers, emergency responders, community leaders, representatives from jails and prisons, and sometimes representatives from local businesses and schools. Their goals include:

- Early detection of new infections in the community
- Coordinating response plans: Ensuring that local hospitals, clinics, and first responders have a unified strategy.

- Public communication: Developing clear messaging for residents about risks, prevention, and available resources.
- Adequate resource allocation: Planning for supplies, vaccines, and treatments.
- Community engagement: Addressing specific needs of vulnerable populations.

The California Department of Public Health works with county health departments to facilitate these efforts. Many public health departments, including those in Los Angeles and San Francisco, have established dedicated pandemic planning groups. The Santa Barbara County Public Health Department has recently participated in meetings with local healthcare providers, including physicians as well as representatives from healthcare and educational institutions about local epidemic risks. However, these community meetings have not occurred regularly, nor are any recommendations documented or formally communicated. Furthermore, representatives from other important stakeholders such as public health officials from surrounding counties have not been included in these meetings, nor have representatives from the county jails, Vandenberg Space Force Base, nor the Federal Correctional Complex in Lompoc.

Risk Assessment and Disaster Planning: Proactive or Reactive?

Although Santa Barbara County engaged a consultant to develop an epidemic disaster plan in 2024, it is not specific to Santa Barbara County. The plan has not been fully disseminated or practiced and does not identify specific responses to potential high-risk epidemics. The current plan lacks detailed responses for specific epidemics identified through risk analysis as having a high likelihood of occurrence. Most importantly, the plan remains reactive.

In contrast, a proactive approach would involve performing ongoing evidence-based risk assessments derived from the most current epidemiologic data to determine which infections are most likely to occur in Santa Barbara County. Based on these risk assessments, the County could develop specific disaster plans for each potential epidemic infection. (References 23-26)

An example of a process to perform proactive risk assessment would be to utilize all available information through up-to-date computer software with artificial intelligence, wastewater testing data, and effective communication to identify those infections which pose the greatest potential risks to the citizens of Santa Barbara.

The following is a hypothetical example of a proactive risk assessment.

Based upon global and regional event reporting, geo-mapping, and artificial intelligence, the greatest epidemic risks to Santa Barbara County might be:

1. Avian influenza
2. Mpox
3. New coronavirus strain

4. New influenza strain
5. Introduction of anthrax by bioterrorism
6. Introduction of smallpox by bioterrorism
7. Reemergence of polio
8. Mosquito-borne influx of Zika virus infections
9. Mosquito-borne influx of West Nile Virus
10. Mosquito-borne influx of Dengue Fever

Currently, the epidemic response plans in Santa Barbara County are primarily reactive. If an epidemic outbreak occurs, the County will respond by determining the necessary actions and then begin to implement them. This reactive approach is likely to result in delays in detecting the outbreak and providing the necessary resources for effective responses, including testing, vaccination, antimicrobials, isolation, communication, and medical care.

In contrast, the Santa Barbara County Public Health Department could implement a proactive approach. In response to risk assessments, ongoing disaster planning can be performed based upon the epidemics of greatest threat. For example, if an evidence-based risk assessment identified that a potential avian influenza epidemic posed a significant risk, a specific disaster plan would be formulated in advance. Such a plan might include how the County would:

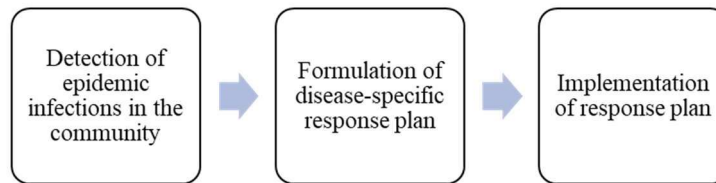
- Rapidly deploy testing.
- Acquire and distribute vaccinations and anti-viral medication.
- Provide necessary healthcare resources.
- Determine and institute appropriate isolation and contact tracing strategy.
- Mobilize the necessary human and material resources to implement the disaster plan.
- Communicate current information to health care providers and to the public.
- Protect vulnerable populations, including those confined to jails and long-term care facilities.

This proactive planning process can and should occur for each high-risk epidemic threat defined by the evidence-based risk analysis. (Reference 27)

A proactive strategy would help ensure that Santa Barbara County is better prepared to respond swiftly and effectively to future epidemic threats.

Responses to Infectious Epidemics: Reactive Versus Proactive Approaches

Reactive Approach: Current Santa Barbara County Process



Proactive Approach: Recommended Process



As illustrated in the diagram above, if a new infectious epidemic began infecting citizens of Santa Barbara County under the current reactive approach, there may be delayed detection and a delay in formulating a response plan. In contrast, under the suggested proactive approach, the start of the epidemic would be detected without delay and the response would already be formulated and ready for implementation.

Bioterrorism

The widespread availability of genetic engineering technology has enabled hostile organizations and nations to develop potential weaponized microorganisms, significantly increasing the threat of bioterrorism. Santa Barbara County is particularly vulnerable to a microbiological bioterrorism attack, especially given the strategic importance of Vandenberg Space Force Base.

The federal government recognizes bioterrorism as a significant risk and actively monitors and gathers information on this threat. Witnesses have testified that federal agencies, including the Department of Defense and the Department of Homeland Security, are employing significant resources to detect potential bioterrorism attacks. Bioterrorism preparedness is essential for county health departments to protect public safety, coordinate rapid responses, and prevent widespread casualties. While federal agencies help identify the risks of bioterrorism, county health departments must be prepared to effectively respond. However, there is currently no formal communication regarding these risks between the Santa Barbara County Public Health Department and federal agencies.

In contrast, a number of California county public health departments actively collaborate with federal agencies regarding bioterrorism threats through communication protocols and partnerships with agencies including the CDC, Department of Homeland Security, the Federal Bureau of Investigation, and the Department of Defense. Examples of California county public health departments that regularly communicate with federal agencies about bioterrorism threats include those in Los Angeles County, San Francisco County, Sacramento County, San Diego County, Alameda County, and Orange County. (References 28-29)

Bioterrorism poses an additional risk that new epidemic diseases could be spread in Santa Barbara County.

CONCLUSION

As new strains of infectious diseases develop, our local health care services struggle to protect the community, as happened at the inception of the COVID-19 pandemic. This is a dangerous state of affairs for Santa Barbara County. A more proactive approach by the County Public Health Department can ensure that the citizens of the County have ready access to healthcare and medications.

Much of what is necessary to be ready for another outbreak is already available. The Santa Barbara County Public Health Department needs to avail itself of advanced software, wastewater testing, working task forces, and begin proactive disaster planning for specific threats to public health. The County Board of Supervisors would be wise to recognize the risks of delayed proactive actions, support the Public Health Department's acquisition of the innovative technologies, and encourage the employment of new networking organizations.

FINDINGS AND RECOMMENDATIONS

The 2024-2025 Santa Barbara County Grand Jury finds that:

F1. The Santa Barbara County Public Health Department has not developed proactive pathogen-specific risk assessments based upon evidence-based risk analysis.

F2. The Santa Barbara County Public Health Department has not developed proactive pathogen-specific disaster plans based upon evidence-based risk analysis.

F3. The Santa Barbara County Public Health Department has not employed current, more comprehensive software for the early detection of potential epidemic risks.

F4. The Santa Barbara County Public Health Department has the obligation to ensure wastewater testing is carried out throughout Santa Barbara County but is not currently fulfilling its responsibility.

F5. Even though bioterrorism is a growing threat, Santa Barbara County has not established effective channels of communication with federal, regional, and other stakeholders to learn of and apply threat assessment at the local level.

F6. The Santa Barbara County Public Health Department has not established a process to assure effective communication between regional healthcare providers regarding local epidemic risks.

The 2024-2025 Santa Barbara County Grand Jury recommends that:

R1. The Board of Supervisors require the Santa Barbara County Public Health Department to perform ongoing evidence-based assessments to determine the potential pathogens that pose the highest risk in Santa Barbara County. Risk assessments should be updated every three months, or more frequently if new threats are identified. To be implemented by September 1, 2025.

R2. The Board of Supervisors require the Santa Barbara County Public Health Department to develop disaster plans specific to each of the pathogens identified by risk assessment to be at highest risk of causing an epidemic. Disaster plans should be updated every three months, or more frequently if new threats are identified. To be implemented by September 1, 2025.

R3. The Board of Supervisors require the Santa Barbara County Public Health Department to identify, acquire, and implement current, more comprehensive software for the early detection of potential epidemic risks. To be implemented by December 1, 2025.

R4. The Board of Supervisors require the Santa Barbara County Public Health Department to ensure that sufficient wastewater testing sites are operational in Santa Barbara County, to include at least the major population centers. To be implemented by September 1, 2025.

R5. The Board of Supervisors require the Santa Barbara County Public Health Department to seek to institute regular communication with relevant federal agencies, including Vandenberg Space Force Base, regarding the current threat of bioterrorism, and incorporate this information into risk analysis and disaster planning. To be implemented by September 1, 2025.

R6a. The Board of Supervisors require the Santa Barbara County Public Health Department to establish a community task force for epidemic preparedness by instituting regular meetings and

inviting participation by health care providers within Santa Barbara County, as well as public health representatives from surrounding counties, the county jails, Vandenberg Space Force Base, and the Federal Correctional Complex, Lompoc. To be implemented by September 1, 2025.

R6b. The Board of Supervisors require the Santa Barbara County Public Health Department to ensure that the recommendations of the community task force be documented, shared, and acted upon by responsible entities within Santa Barbara County. To be implemented by September 1, 2025.

REQUIREMENTS FOR RESPONSES

Pursuant to California Penal Code §933 and §933.05, the Grand Jury requests each entity or individual named below to respond to the findings and recommendations within the specified statutory time limit.

Responses to Findings shall be either:

- Agree
- Disagree with an explanation
- Disagree partially with an explanation

Responses to Recommendations shall be one of the following:

- Has been implemented, with a summary of the implementation actions taken
- Will be implemented, with an implementation schedule
- Requires further analysis, with an analysis completion date of fewer than 6 months after the issuance of the report
- It will not be implemented with an explanation of why

Santa Barbara County Board of Supervisors - 90 Days

Findings 1, 2, 3, 4, 5, 6

Recommendations 1, 2, 3, 4, 5, 6a, 6b

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