



# BioWatch

United States Department of Homeland Security  
DHS.GOV

**BioWatch Program**, operational since 2003, is funded through congressional appropriations to provide a critical national security capability.

Federally funded, locally-operated civilian **biodetection program** overseen by the Department of Homeland Security.

Addresses multiple aspects of **National Biodefense Strategy** through programmatic activities that **inform decision making**, **enhance preparedness**, and provide **post-incident support** to limit impacts.

Designed to detect the presence of select **biological threat agents** as determined by federal interagency threat assessments

## With Early Detection: More Lives are Saved



Early warning aids in the quick and efficient initiation of rapid needs assessment and subsequent transition to emergency response, medical care, and consequence management activities.

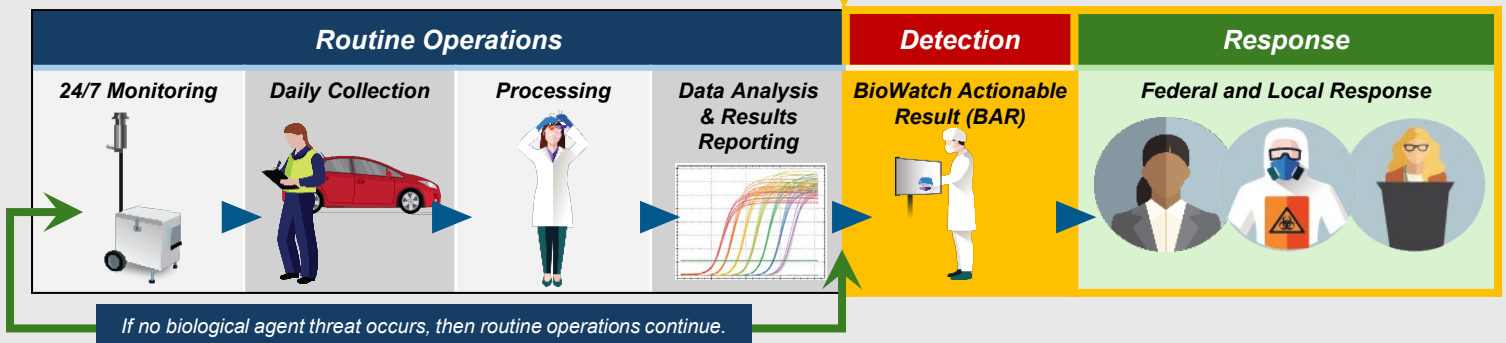
## Without Early Detection: More Lives are Lost



The combination of early warning and rapid public health response can greatly reduce the morbidity and mortality from the intentional aerosol release of a biological agent.

## How Does Biodetection Work?

*If laboratory analysis reveals a BioWatch biological agent, then a series of response actions occur.*



**30+**

Metropolitan Areas  
in 22 States.



**1,100+**

Trainings, completed annually.



**235,000**

Filter samples annually.



**80+**

Special Events per year.



### Q: Why is early warning important?

Early warning of a biological attack saves lives by enabling response activities before people develop symptoms. Responses could include issuing warnings, preventive medical treatment, and curtailing travel or activities.

Study estimates indicate that the early warning provided by BioWatch can reduce the total number of casualties by a third and potentially reduce the number of fatalities in half.

### Q: How do you know the BioWatch system works?

BioWatch capabilities have been independently assessed, tested, and validated by multiple Department of Defense (DOD) institutions, U.S. Department of Energy (DOE) national laboratories, and other federally funded research and development centers (FFRDC).

- The results of these activities demonstrate that the system is highly sensitive (i.e., detects very small amounts) and specific (i.e., detects specific strains of agents) and reinforce confidence in the system's performance.

Additionally, the program continuously monitors operations against established performance benchmarks and requirements.

- Multiple annual proficiency tests and the analysis of tens of thousands of quality assurance samples demonstrate that the system operates well above benchmarks.

### Q: What are other benefits of BioWatch?

BioWatch advances preparedness for a biological incident:

- 30+ jurisdictions protect 113,251,554 people.
- Considering the economic value associated with saving lives, detecting a major attack over the next two decades could result in substantial cost-benefit savings. With an annual cost of approximately \$89 million, BioWatch is considered a cost-effective investment.
- Delivers over 1,100+ trainings annually to stakeholders on a variety of topics including biodetection, incident characterization, and notification and response activities.
- Plans and executes over 100 exercises and drills a year to test, evaluate, and continually improve coordination, communication, and decision making.
- Provides federal, state, and local (FSL) stakeholders with networking, communication, and engagement opportunities.

### Q: Have there been attempts to improve or replace the BioWatch System?

There have been incremental improvements to the BioWatch system over the years such as:

- Sample pooling to screen multiple samples at the same time
- Laboratory assay improvements
- Optimization of PSU network based on population changes
- Upgrades to field sampling equipment

There have been multiple attempts to upgrade the BioWatch system over the past 20+ years, but none have been able to successfully match or improve the current system performance at the same or less cost.



### Q: How long does it take to get results?

In total, it takes between 8 to 12 hours from sample collection to confirmed positive results.

- Sample collection and transport times vary but take approximately 2-4 hours.
- Once filters are received at the laboratory, results are returned in as few as 6-8 hours.

The easiest way to reduce the time to detection would be to increase collection frequency (e.g., twice a day, three times a day).

### Q: Is there available technology that would return results sooner?

There is no commercial or government (i.e., DOD) technology currently available that can return results sooner while meeting the current system's sensitivity, specificity, and that meets stakeholders' need for actionable public health results.

Other available technologies would cost much more with no meaningful improvement to public health response.

### Q: How does the current time to detection compare to other approaches, such as public health surveillance?

Traditional public health surveillance relies on healthcare systems to identify an illness before reporting. BioWatch results would likely be reported before exposed individuals become symptomatic and seek medical care.

Because the initial symptoms of the diseases associated with the BioWatch agents are usually non-specific (i.e., flu-like), they may be mistaken for other illnesses leading to a delay in traditional public health reporting, often by several days to weeks.

### Q: What does a detection mean?

A detection means that a BioWatch agent's genetic material is present on a filter collected from a sampling unit and that additional action should be taken.

A detection does NOT mean that a terrorist attack has occurred or that there is risk to the public's health.

### Q: What happens after a detection?

The laboratory reports the detection to the DHS National Operations Center, which notifies BioWatch Program Office personnel to initiate the federal response. Jurisdictional response plans are activated.

Pre-planned information gathering/sharing calls are held at jurisdictional and federal levels, a common operating picture is established, and next steps are identified.

### Q: What improvements are planned for the future?

DHS and the BioWatch Program Office are continuously seeking ways to improve current biodetection capabilities while continuing pursuit of new, transformative capabilities.

Near-term enhancement efforts are focused on the following areas:

- Re-evaluating the BioWatch agent list and opportunities to further reduce risk;
- Reducing the time to detection and response;
- Capitalizing on opportunities for expansion and enhanced coverage for special events; and
- Improving public health warnings, preparedness, and trainings.