



ADVANCING DIAGNOSTIC AND SURVEILLANCE TESTING: UPDATES FROM THE PUBLIC HEALTH LABORATORY

Presented to Community & Public Health
Committee— December 15, 2026

Dr. Godfred Masinde, Laboratory Director



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Agenda

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- Overview of the Public Health Laboratory
- Annual Testing Workload
- Preparedness: Staffing, Equipment & Data
- Laboratory Information Management System Modernization (LIMS) (Beaker Go-Live)
- Emerging Pathogens: Mpox & H5N1 Updates
- New Public Health Laboratory at Zuckerberg San Francisco General Hospital (ZSFGH) & Phased Move-
- Closing

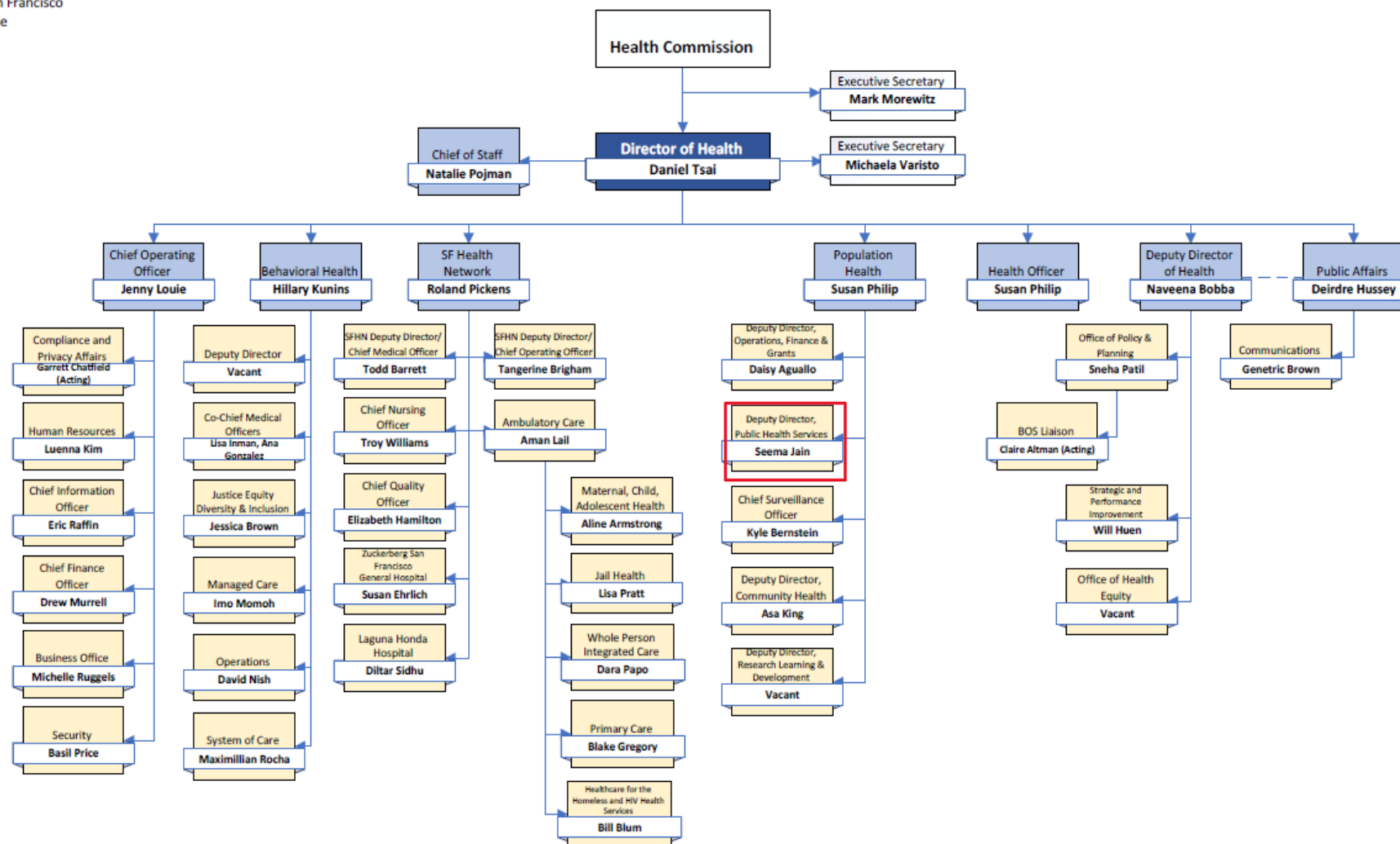


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City and County of San Francisco
Daniel L. Lurie
Mayor

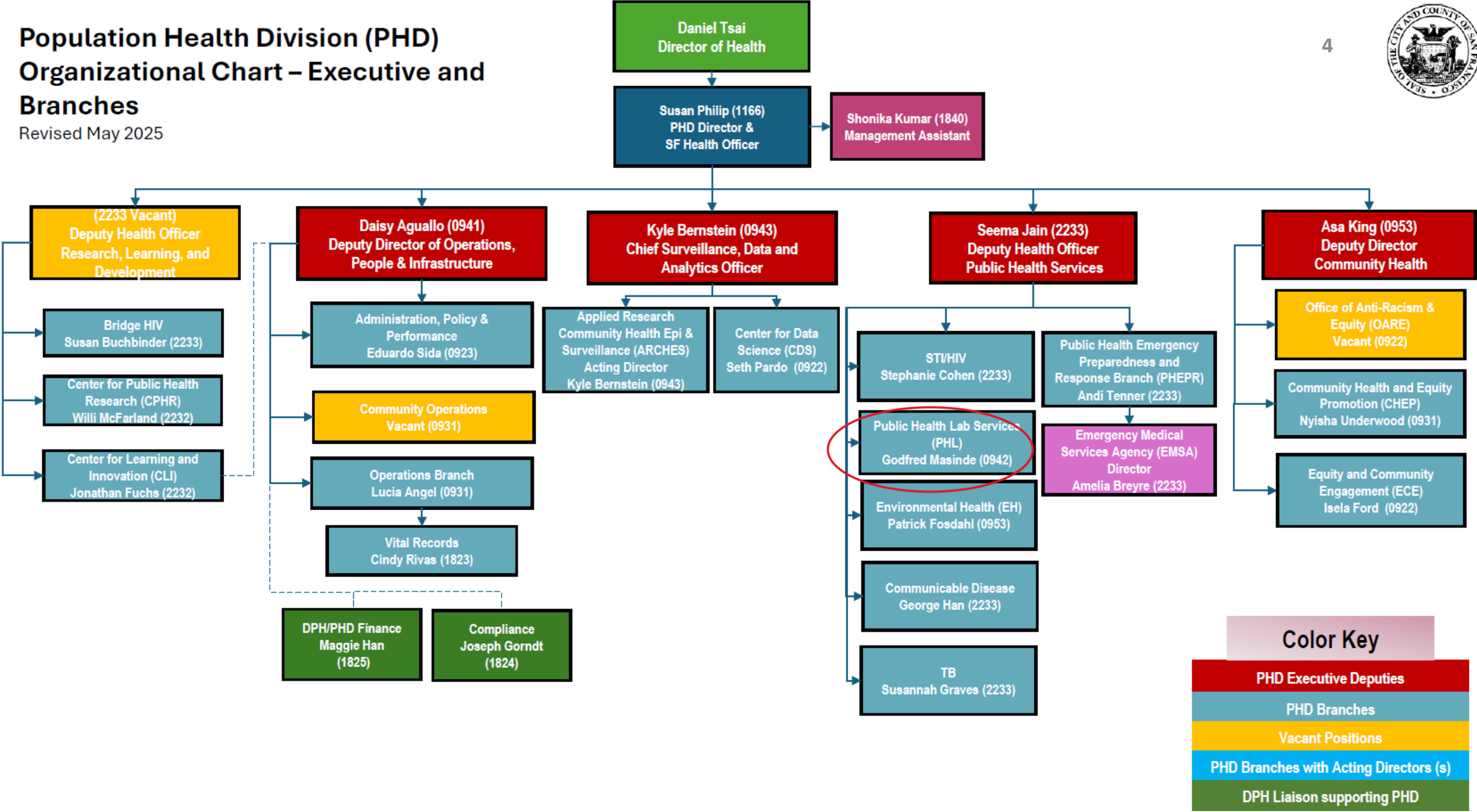
San Francisco Department of Public Health
Daniel Tsai
Director of Health



VISION
SAN FRANCISCO DEPARTMENT OF PUBLIC HEALTH

Population Health Division (PHD)
Organizational Chart – Executive and
Branches

Revised May 2025



The 11 Core Functions



Disease Prevention,
Control and
Surveillance



Food Safety



Public Health
Related Research



Integrated Data
Management



Laboratory
Improvement and
Regulation



Training and
Education



Reference and
Specialized Testing



Policy
Development



Partnerships and
Communication



Environmental
Health and
Protection



Public Health
Preparedness and
Response



PHL's Mission within DPH

- The purpose of the Public Health Laboratory is to provide accurate, timely and low-cost laboratory testing to support the diagnosis and prevention of communicable diseases.



How Public Health Laboratories Differ from Clinical Laboratories

| Clinical Laboratories | Public Health Laboratory |
|---|--|
| Operate 24 hours a day, 7 days a week | Operate Monday–Friday, 8 a.m.–5 p.m. |
| Serve individual patients | Serve the entire community |
| Funded through billing and insurance reimbursement per test | Bill primarily Medi-Cal and a few private insurers; remaining work supported by public-health funds and grants |
| Focus on rapid turnaround and individual patient reports | Focus on disease surveillance, prevention, and outbreak response |
| Test for common or routine diseases | Test for rare, emerging, and reference pathogens |
| Report results to ordering physicians | Report results to health departments, CDC, and epidemiology programs |

SF PHL Test Volumes

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Legend:

STI – Sexually Transmitted Infections

CT – *Chlamydia trachomatis*

M. GC – *Neisseria gonorrhoeae* (Gonorrhea)

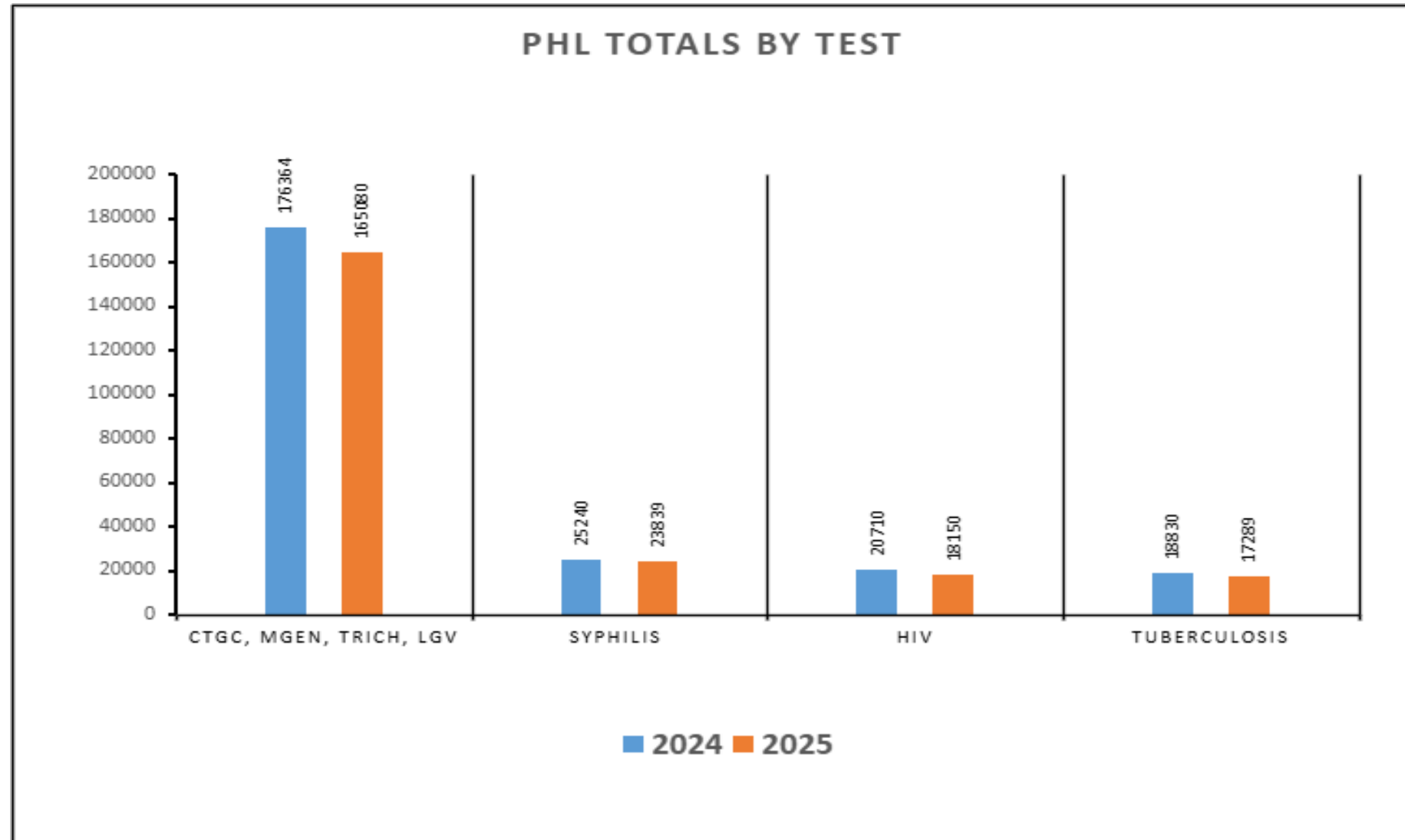
M. gen – *Mycoplasma genitalium*

Trich – *Trichomonas vaginalis*

LGV – *Lymphogranuloma venereum* (a subtype of *Chlamydia trachomatis*)

RPR – Rapid Plasma Reagin (Syphilis screening)

HIV – Human Immunodeficiency Virus



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Prepared for Emerging Pathogens: Staffing, Equipment and Data Sharing



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Public Health Laboratory Staffing and Capacity

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The Public Health Laboratory is fully staffed and operating at full capacity.



The Lab processes **more than 280,000 specimens each year** across microbiology and molecular testing programs.



Current staffing includes:

- **15 Public Health Microbiologists**
- **8 Laboratory Technicians**
- **2 Operations and Administrative Support Staff**



The team's expertise ensures seamless coordination across all testing programs.



Staffing levels support both **high-volume routine testing** and **rapid emergency response** under Clinical Laboratory Improvement Amendments of 1988 (CLIA '88) and state mandates.



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Diverse Equipment for Testing

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Our lab uses a wide range of testing platforms, enabling us to perform over **280,000 tests per year** across all major programs.

Having multiple instruments provides three key benefits:

Redundancy: Testing continues even if one instrument is down.

Flexibility: Different platforms support HIV, hepatitis, TB, respiratory viruses, emerging pathogens, and sequencing.

Surge Capacity: We can rapidly scale up testing during outbreaks.

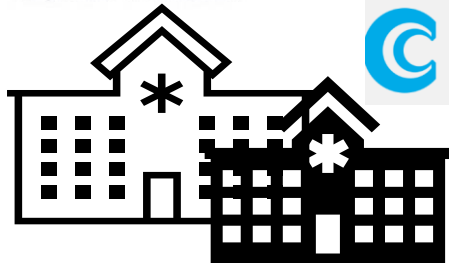
This diverse equipment ensures San Francisco has a **strong, reliable, and scalable public health laboratory system.**



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Electronic Data Exchange

Faster data delivery to all our partners electronically.



eCW



PHLIP



HL7



California
Public Health
Laboratories

ETOR



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Beaker Laboratory Information Management System (LIMS) Go-Live and Integration

Beaker LIMS is live and operational at PHL

Integration completed across ZSFG Clinical Lab, PHL, and Anatomic Pathology Lab

Advantages of unified LIMS:

- – Streamlined ordering and results reporting
- – Reduced manual data entry errors
- – Improved turnaround time and interoperability

Enhances alignment with Epic systems across DPH

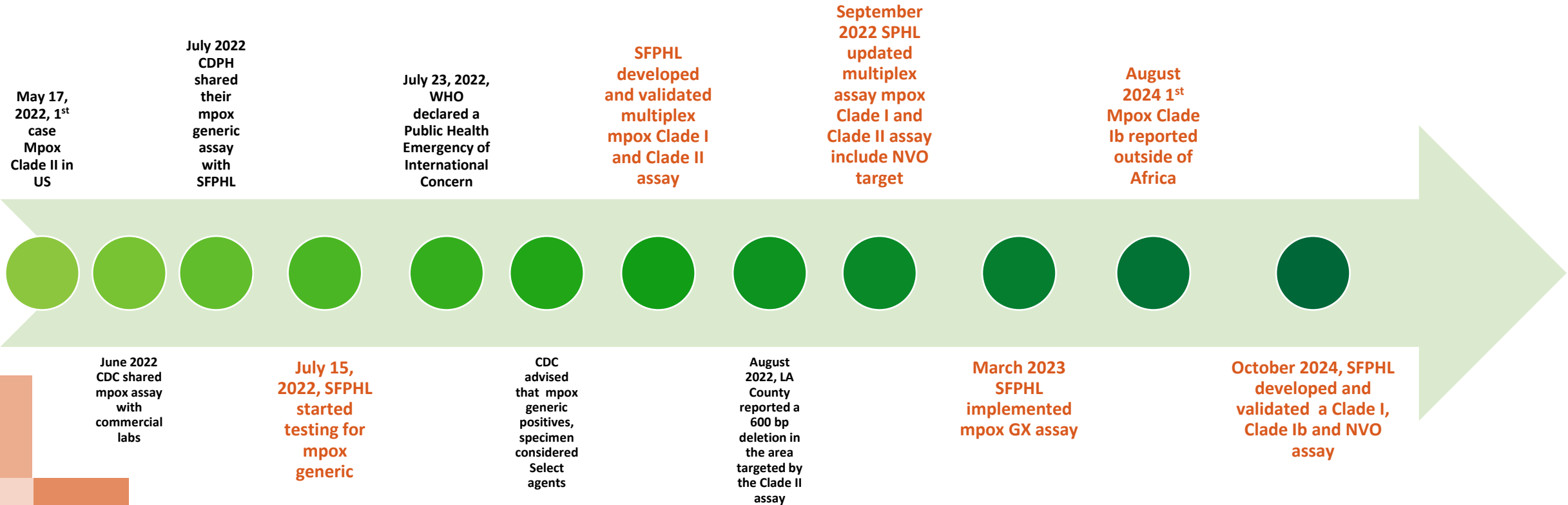
Electronic orders from Oregon Community Health Information Network (OCHIN), Community Health Equity and Promotion (CHEP) and Adult Immunization and Travel Clinic (AITC).

Prepared for Emerging Pathogens: Updates, H5N1, Mpox, and Beyond



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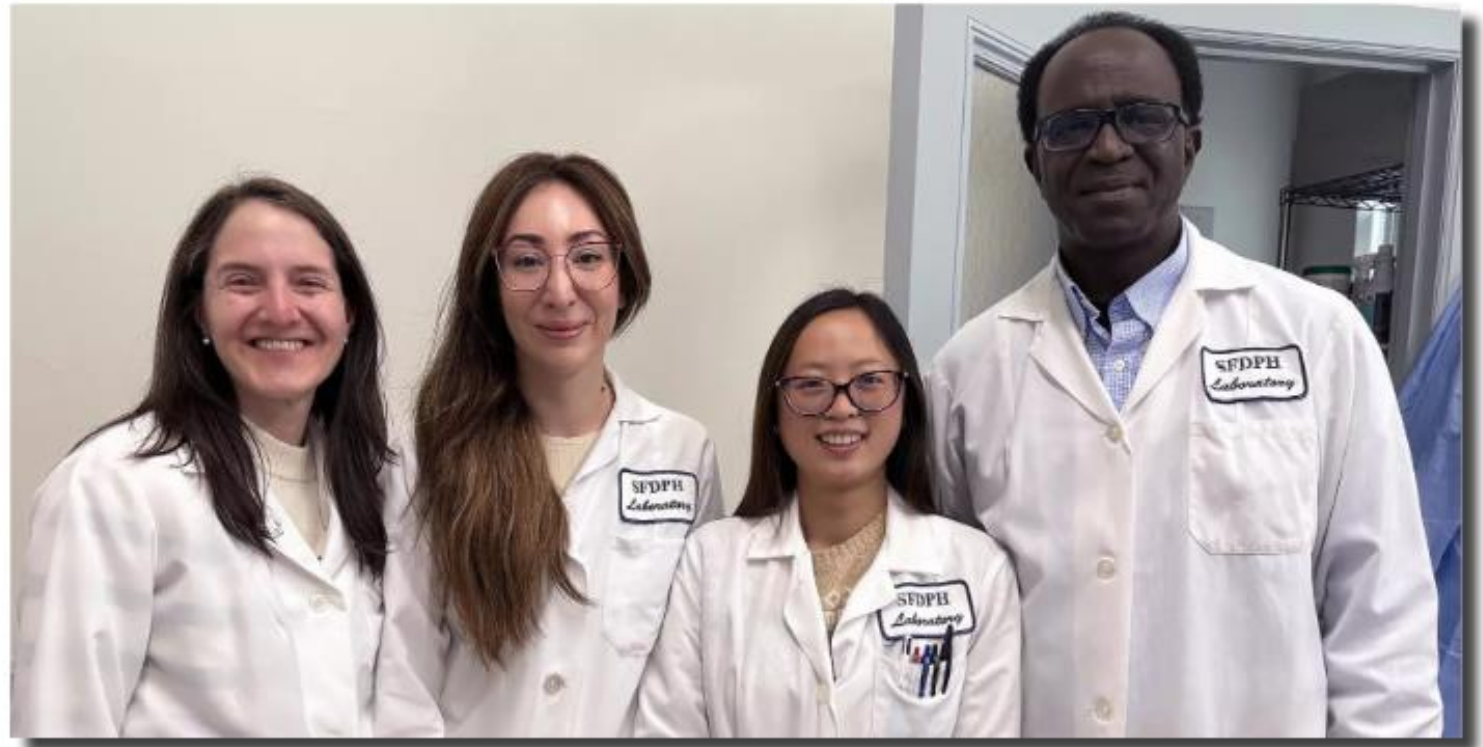
Mpox Response Timeline



Lab Matters Publication

Testing Innovations in San Francisco Address Surge in Mpox Cases

By Rudolph Nowak, MPH, senior specialist, Marketing and Communications

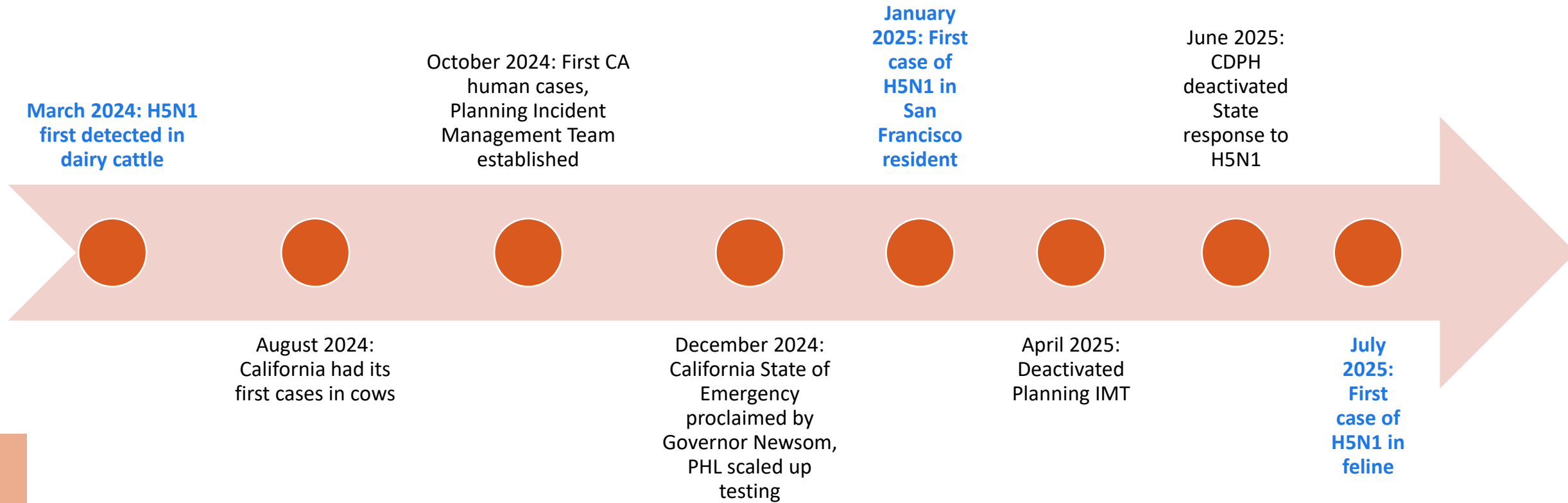


San Francisco Public Health Laboratory's molecular team, from left, Lina Castro, Monica Jacinto, Annie Sheih and Dr. Godfred Masinde.



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H5N1 Response Timeline



Building the Future of Public Health Laboratory Science



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Understanding Laboratory Safety Levels (BSL-1 to BSL-4)

| <u>Level</u> | <u>Type of Agents</u> | <u>Typical Work</u> | <u>Containment Features</u> | <u>Protective Equipment</u> |
|--------------|---|---|--|---|
| BSL-1 | Nonpathogenic organisms (minimal risk) | Teaching labs, basic research | Open bench, handwashing sink | Lab coat, gloves, eye protection |
| BSL-2 | Moderate-risk agents (cause mild disease) | Routine diagnostics, clinical testing | Biosafety cabinet, restricted access | Lab coat, gloves, face mask/shield |
| BSL-3 | Airborne pathogens (serious infection risk) | TB, SARS-CoV-2, research or reference testing | Negative pressure rooms, sealed doors, HEPA filtration | Gown, gloves, respirator |
| BSL-4 | Highly infectious, untreatable agents | Ebola, Marburg, Lassa virus research | Isolated facility, airlocks, chemical showers | Full positive-pressure suit, independent air supply |



Building the Future of Public Health Laboratory Science

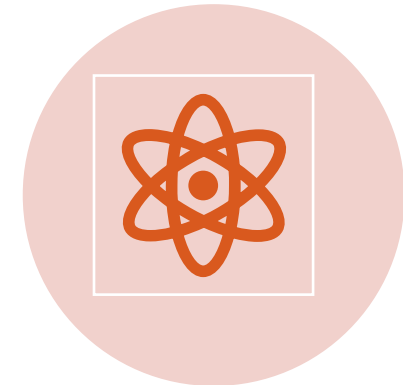
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NEW LAB CONSTRUCTION
AT ZUCKERBERG SAN
FRANCISCO GENERAL
HOSPITAL (ZSFGH),
BUILDING 5.



PHASE 1 (2026):
GENERAL TESTING AREAS
GO LIVE (BSL-2)



PHASE 2 (2027): HIGH-
CONTAINMENT (BSL-3),
MOLECULAR, RABIES
MOVE-IN



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New Public Health Laboratory Construction Progress-2

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BSL3



BSL-2 LAB

More Than a Building — A Commitment to the City



Expanded capacity and resilience for future public health needs



Modern infrastructure for rapid outbreak response



Strengthened collaborations with clinical and academic partners



Protecting San Franciscans — SFPHL Team



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THANK YOU!

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