

# **Southern Nevada Public Health Laboratory**

Presentation to SNHD  
Board of Health  
February 2010



# Public Health Laboratories

- Perform functions essential for development of population-based health policies
- Provide laboratory support for primary health care services

# State Public Health Laboratories

## 11 Core functions

- Disease prevention, control, and surveillance
- Integrated data management
- Reference and specialized testing
- Environmental health and protection
- Food safety
- Laboratory improvement and regulation
- Policy development
- Emergency response
- Public health-related research
- Training and education
- Partnerships and communication

Reference: CDC MMWR September 20, 2002; 51 (RR14);1-8

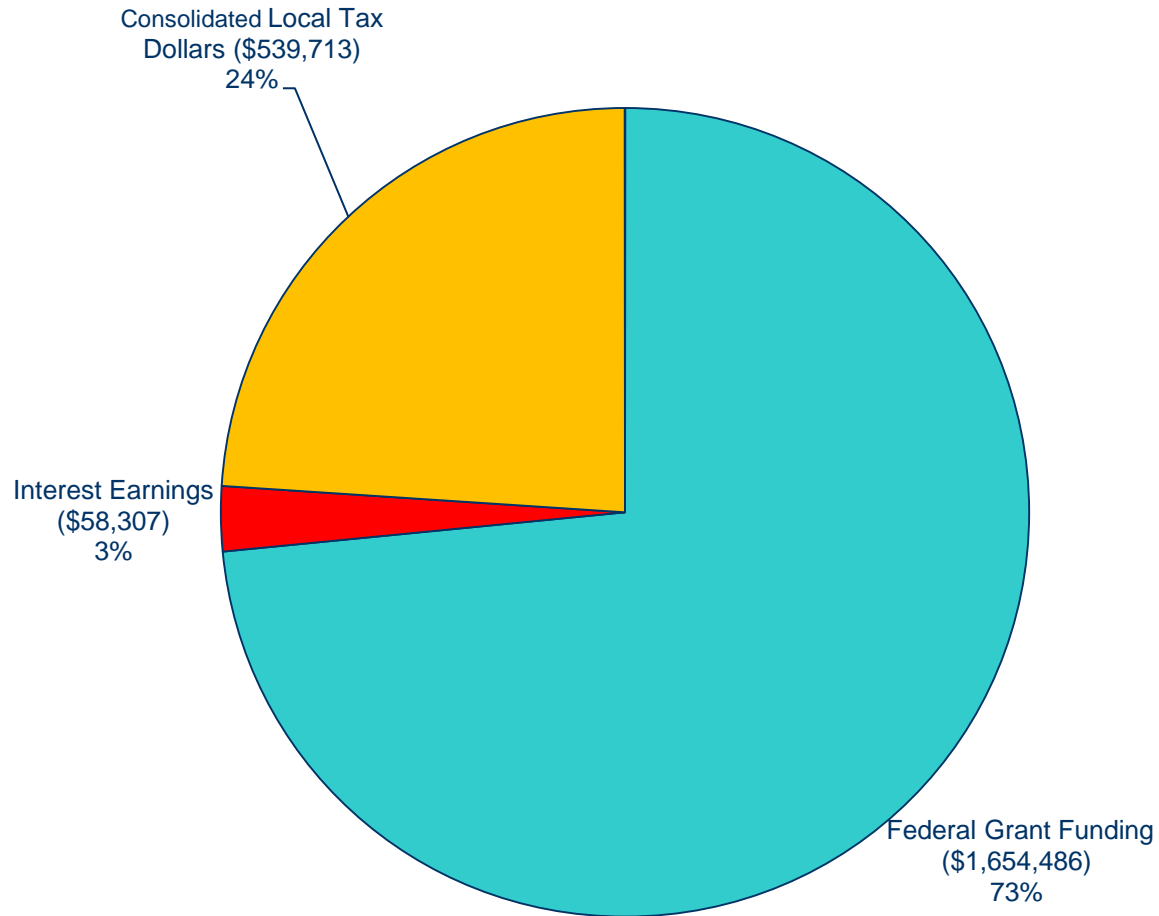
# Southern Nevada Public Health Laboratory (SNPHL)

- 2002-2003 Southern Nevada Health District (SNHD) received 2.3 million dollars in funding from a CDC bioterrorism (BT) grant to establish a branch of the State public health laboratory in Southern Nevada
- Interlocal agreement developed in 2003 between SNHD and UNR School of Medicine Nevada State Public Health Laboratory (NSPHL)

## KEY OUTCOMES – CDC Grant Guidance

“The public health laboratory, working in close partnership with public health epidemiology, environmental health, law enforcement, agriculture, and veterinary officials, hospitals, and other appropriate agencies, produces timely and accurate data to support ongoing public health investigations and implementation of appropriate preventive or curative countermeasures.”

# SNPHL Actual Revenues FY 2008-09



# SNPHL organization

- SNHD provides staff and facility
- UNR provides the laboratory director and responsible official for select agent program
- Lab is located on SNHD campus
- Supplies, staffing, and equipment funded with federal grant and SNHD dollars
- Only Biosafety Level 3 (BSL-3) containment laboratory in Clark County

# Biological Safety Levels (BSL)

## BSL-1

Lowest level of Biosafety

Open bench testing

e.g. Urinalysis



## BSL-2

Second level of Biosafety containment

Microbes of moderate risk

e.g. Blood culture

Stool culture



# Biological Safety Levels 3 and 4

## BSL-3

Third level of Biosafety containment  
Microbes that cause serious or potentially lethal diseases as a result of exposure by the inhalation route  
E.g. *Brucella*, *Francisella*, *Yersinia*



## BSL-4

Highest level of Biosafety containment  
Highly infectious or dangerous microbes – little or no treatment available if infected  
E.g. Smallpox, Ebola



# SNPHL Personal Protection Equipment (PPE) staff training 2009



# SNPHL is 3 labs in 1

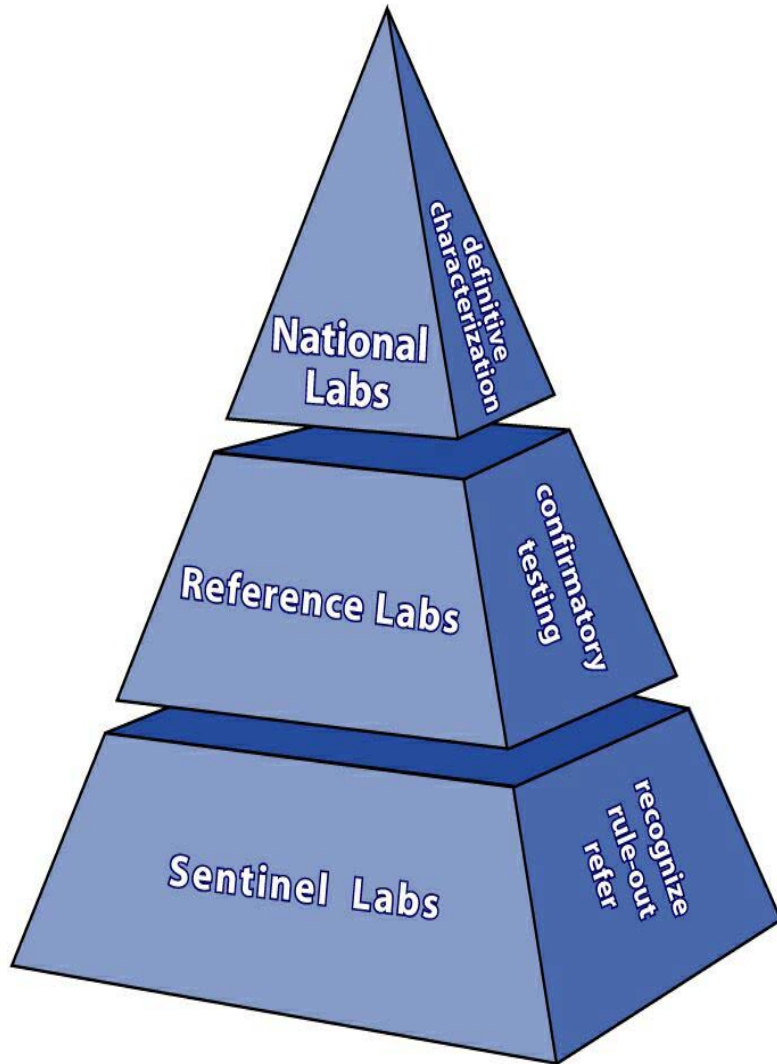
1. Registered with CDC as the only Laboratory Response Network (LRN) lab in Clark County to perform bioterrorism, chemical terrorism and emerging disease testing
2. Branch of State Public Health laboratory located in Clark County
3. Clinical testing for SNHD nursing for syphilis, HIV and gonorrhea



## Laboratory Response Network (LRN)

- Formed in 1999 by CDC, Association of Public Health Laboratories (APHL) and FBI to help laboratories prepare and respond to acts of bioterrorism
- LRN supports response to all kinds of public health emergencies, but especially detection and response to Bioterrorism (BT), Chemical Terrorism (CT) and emerging diseases (e.g., Avian Flu, SARS, Influenza H1N1)

# LRN Laboratory Levels



National labs test and characterize samples that are beyond the capabilities of reference labs. They also provide support for other LRN members during a serious outbreak or terrorist event.

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When sentinel labs cannot rule out the presence of a BT agent, they are referred to Reference labs (state, local, or federal facility)

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Sentinel labs perform initial screening of potential pathogens

# Who are some SNPHL partners?

- Federal Bureau of Investigation
- Las Vegas Metropolitan Police Department
- Las Vegas and Clark County Fire Hazmat
- Civil Support Team
- Southern Nevada Hospital and Commercial Laboratories
- United States Postal Service
- Department of Homeland Security
- Southern Nevada Health District
- Nevada State Health Division

## Local services provided by SNPHL

- 24/7 capability to perform LRN testing for 12 Select Agents
- 24/7 support for outbreak investigations
- Critical link in surveillance of infectious diseases
- Local high complexity testing capability for over 40 organisms and analytes that are not routinely tested in a clinical hospital or commercial lab
- Over 5000 courier pickups/deliveries per year
- Participate in over 100 epidemiological investigations or consultations per year
- Provide over 100 teleconferences, training or presentations per year

# SNHD Outbreak Investigation Team

Team is composed of:

Office of Epidemiology

Environmental Health

Southern Nevada Public Health Laboratory

SNHD Nursing

SNHD Public Information Office

# Examples of outbreak investigations

- Infant botulism
- Hepatitis C – endoscopy center
- Confirmatory and post exposure Ricin
- Suspect Nitrate poisoning in food
- Fusarium in contact lens solution
- *E. coli* O157 in spinach
- Legionnaire's Disease
- Suspected measles, mumps, pertussis
- Influenza A (H1N1) 2009

# Clinical testing for SNHD nursing

- Syphilis testing
- HIV testing
- T-cells flow cytometry for HIV patients
- *Neisseria gonorrhoea* culture
- Wet mounts
- Gram stain for gonorrhoea
- Participation in the national CDC sponsored Gonococcal Isolate Surveillance Project (GISP)

# SNPHL challenges

- Laboratory Space
  - 5000 square feet total
    - 2000 square feet BSL-2 lab
    - 500 square feet BSL-3 lab
- Staff within 5000 square feet (15 staff)
  - 2 courier; 2 assistants; 2 technologists;
  - 7 Clinical laboratory scientists; 1 senior administrative assistant, 1 lab manager

# BSL-2 lab testing, storage and desk space (2000 square feet)



# SNPHL Opportunities

- Expand influenza virus surveillance program
  - include 6 additional respiratory viruses
  - future addition of enteric viruses
- Improve laboratory electronic reporting and surveillance
- Upgrade Laboratory Information Management System (LIMS)
- Improve current First Responder proficiency testing program
- Develop new laboratory facility to serve current and future needs of community

# Summary

- The SNPHL is, and will always be, a valuable and critical component of the SNHD
- A new laboratory facility is needed to meet current and future needs of our community