### Branch Laboratory

**South Texas Laboratory**
- Regional Public Health Laboratory
  - Harlingen, Texas
  - Includes Biosafety Level 3 (BSL-3)
  - Performs clinical testing for South Texas
    - Clinical laboratory serves the Outpatient Clinic of the Rio Grande State Center and 10 Texas regions with more than 70 clinics
  - Performs public health testing for South Texas
    - Mycobacteriology tests tuberculosis specimens
    - Consumer Microbiology tests drinking water
    - Syphilis serology tests for antibodies associated with a syphilis infection
  - Serves as LRN laboratory for South Texas
    - Biological threat laboratory
    - Influenza surveillance laboratory

**Laboratory Overview**

#### Laboratory Services Section
- Largest testing volume Public Health Laboratory in the United States
- Largest testing volume Newborn Screening Program (NBS) in the world
- Laboratory facility includes Biosafety Level 3 (BSL-3)

#### Laboratory Operations Unit
- Biochemistry and Genetics
  - Newborn Screening
  - Clinical Chemistry
- Emergency Response
  - Biological Threat Response
  - Chemical Threat Response
- Environmental Sciences
  - Radiochemistry
  - Organic Chemistry
  - Inorganics Analysis
- Microbiological Sciences
  - Bacteriology/Parasitology Diagnostics Group
  - Mycobacteriology Group
  - Serological Analysis Group
  - Medical Virology Group
  - Consumer Microbiology Group

#### Quality Assurance Unit
- Quality Assurance
- Safety and Environmental Compliance
- Specimen Acquisition
- Data Entry and Results Reporting
- Building Systems Management

**DSHS Vision:** A healthy TX  
**Mission:** Improve health and wellbeing in TX

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### Receiving to Response

**Specimen Receiving**
- Processes/accessions all samples and specimens
  - Approximately 1.2 million per year
  - 5,000 per day
- Provides sample collection supplies and shipping containers to submitters
  - Ships 640,000 specimen mailing kits per year

**Data Entry**
- Provides demographic data entry and validation
  - 800,000 NBS specimens per year
  - 265,000 Microbiological specimens per year
  - 350,000 Texas Health Steps (THSteps) specimens per year

**Results Reporting**
- Distributes test reports
  - Approximately 1.5 million per year
- Responds to submitter requests for information
  - Approximately 27,000 telephone, email, and fax inquiries per year, plus 62,000 duplicate reports.

**Emergency Response**
- Part of the Laboratory Response Network (LRN) established by the Centers for Disease Control and Prevention (CDC).

**Biological Threat Laboratory**
- Performs rapid testing of environmental and clinical samples
- Provides surge capacity for state LRN laboratories
- Trains staff in regional sentinel LRN laboratories

**Chemical Threat Laboratory**
- Trains hospitals, ER physicians, Poison Control Centers, and first responders for chemical threat exposure recognition and testing
- Screens clinical specimens (blood and urine) for the detection of chemical Weapons of Mass Destruction agents such as cyanide, nerve agent metabolites, Volatile Organic Chemicals and toxic metals

### Laboratory Operations

**Newborn Screening**
- Screens each baby born in Texas for disorders that cause intellectual disability or death in seemingly normal newborns.
  - First screen collected at 24-48 hours old
  - Second screen collected at 1-2 weeks old
  - 400,000 babies are screened per year
  - 800,000 specimens are tested per year
  - Out of Range results are immediately forwarded to NBS Clinical Care Coordination to initiate follow-up
  - Includes 28 genetic disorders and hypothyroidism, for a total of 29 disorders including:
    - Amino Acid Disorders
    - Biotinidase Deficiency
    - Congenital Adrenal Hyperplasia
    - Congenital Hypothyroidism
    - Cystic Fibrosis
    - Fatty Acid Disorders
    - Galactosemia
    - Hemoglobinopathies
    - Organic Acid Disorders
    - Severe Combined Immunodeficiency
  - Additional services including PKU Dietary Monitoring and second-tier molecular tests for NBS disorders

**Clinical Chemistry**
- Tests specimens for:
  - Lead
  - Total Hemoglobin
  - Hemoglobin types
  - Diabetes
  - Hyperlipidemia

### Environmental Sciences

**Radiochemistry**
- Analyzes drinking water samples for radionuclides
- Monitors for radionuclides in environmental samples for nuclear power plants, a weapons facility, and other locations

**Organic Chemistry**
- Analyzes drinking water samples for volatile organic chemicals, synthetic organic chemicals, disinfection byproducts and other organic chemicals
- Tests indoor samples for volatile organic chemicals

**Inorganics Analysis**
- Tests drinking water samples to determine metal constituents (arsenic, cadmium, lead and mercury), salts and minerals
- Determines metals content in environmental samples, consumer products and food items
- Performs tests on food and meat samples

### Microbiological Sciences

**Bacteriology/Parasitology Diagnostics Group**
- Using conventional and Molecular methods, tests specimens for bacteria associated with communicable diseases
- Tests specimens for parasites associated with communicable diseases
- Regional PulseNet Laboratory

**Mycobacteriology**
- Tests specimens for bacteria causing tuberculosis (TB); determines antibiotic resistance of TB isolates

**Serological Analysis**
- Tests for presence of antibodies from exposure to infectious diseases

**Medical Virology**
- Identifies viruses in patient and reference specimens
- Tests animals for rabies; performs surveillance for arboviruses

**Consumer Microbiology Group**
- Tests food and environmental specimens associated with foodborne outbreaks