CDC's STD Laboratory:

How Our Mission Meets the Nation's Needs

CDC's STD Laboratory is addressing the public health crisis of increasing rates of STDs by creating tools and techniques to prevent, rapidly detect, and treat STDs. We monitor drug-resistant gonorrhea and issue recommendations to safeguard the remaining treatments. We harness the power of advanced molecular detection to stop STD outbreaks by understanding how individuals infected with STDs are connected. We maintain one of the largest specimen banks of STD-causing microorganisms in the country.

- Creates lifesaving tests.
- Identifies drug resistance in gonorrhea.
- Issues nationwide laboratory guidance.
- Shares scientific findings.
- Serves as the national reference laboratory.
- Provides technical assistance to health departments.
- Performs molecular-based analyses for disease tracking.
- Ensures that STD tests are accurate.

By the Numbers

The medical cost of treating chlamydia is $632 million annually.

The medical cost of treating gonorrhea is $198 million annually.

The medical cost of treating syphilis is $48 million annually.

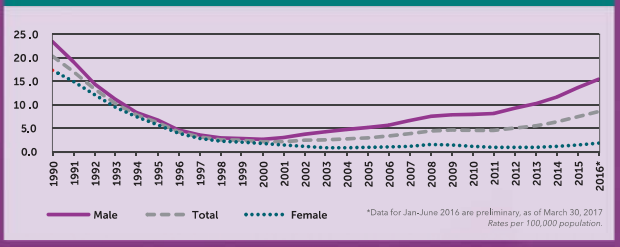
In 2012, 52% of state and local STD programs experienced budget cuts. CDC estimates that 21 local health department STD clinics closed that year.

CDC Laboratories in Action STD

After years of decline, syphilis is on the rise in the United States.

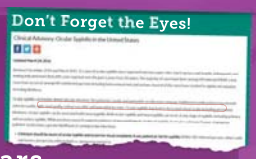
Syphilis can have very serious complications when left untreated. When correctly diagnosed with a laboratory test, it is simple to cure.

Primary and Secondary Syphilis—Rate of Reported Cases by Sex, United States, 1990–June 2016*



Rates of primary and secondary syphilis increased **18%** from 2015 to 2016.

Rare ocular syphilis has increased in numbers in recent years.



Increasing rates of syphilis among women have led to a sharp rise in congenital syphilis.

More than **600** cases of congenital syphilis were reported in 2016.

Without prompt treatment, infants infected with syphilis could die or suffer severe effects.

CDC's STD Laboratory is developing a test to rapidly detect syphilis in newborns.

Syphilis is Preventable and Treatable

0	NUMBER OF VACCINES AVAILABLE TO PREVENT SYPHILIS
0	NUMBER OF BLOOD TESTS TO DIAGNOSE ACTIVE SYPHILIS INFECTION
75	NUMBER OF YEARS CURRENT SYPHILIS TREATMENTS HAVE BEEN IN USE

88,042

NUMBER OF CASES OF SYPHILIS DIAGNOSED IN 2016

CDC's STD Laboratory:

- Assists health departments in the diagnosis of syphilis.
- Helps detect clusters of the disease.
- Researches new ways to detect syphilis.

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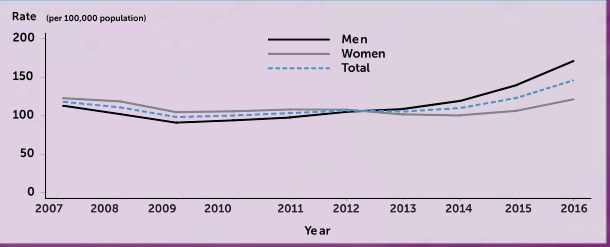
Rates of gonorrhea in the United States are increasing.

This is especially concerning because of the growing threat of drug resistance to the last remaining recommended gonorrhea treatment.

Gonorrhea — Rates of Reported Cases by Sex, United States, 2007–2016



About **820,000** cases of **gonorrhea** occur **each year.**

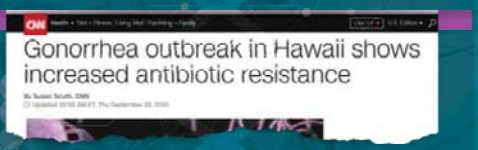
An estimated **246,000** are **resistant** to **at least one drug.**

Only **1** regimen

(dual treatment with ceftriaxone and azithromycin) is currently recommended for treatment of uncomplicated gonorrhea in the United States.

Case Study

CDC used surveillance, laboratory cultures, and whole genome sequencing methods to detect a cluster of resistant gonorrhea cases in Hawaii.



Sample genome sequencing structure

CDC's STD Laboratory:

Assists health departments in rapidly diagnosing drug-resistant gonorrhea.

Helps detect clusters of antibiotic-resistant cases.

Researches new treatments for gonorrhea.

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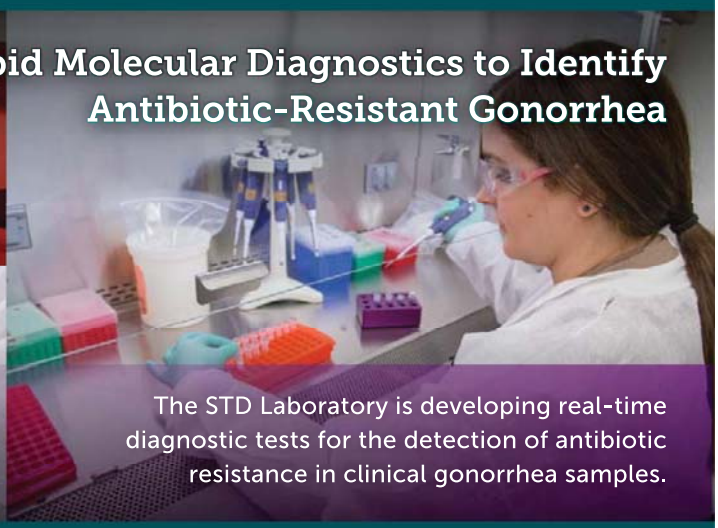
Advanced Molecular Diagnostics

Antibiotic Resistance Prediction Using Genomic Data

The STD Laboratory is developing computer processes to analyze whole genome sequencing data for prediction of antibiotic resistance in gonorrhea samples.

Rapid Molecular Diagnostics to Identify Antibiotic-Resistant Gonorrhea



The STD Laboratory is developing real-time diagnostic tests for the detection of antibiotic resistance in clinical gonorrhea samples.

Utilization of Cutting-Edge Methods

The STD Laboratory is developing methods to better understand how gene expression and modification influence antibiotic resistance in gonorrhea. These data can lead to new ways to combat resistance.

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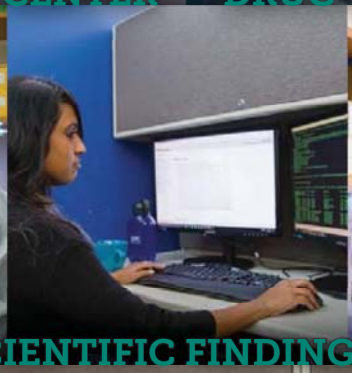
CDC

CDC's STD Laboratory Scientists: Protecting the Health of Americans

NATIONAL REFERENCE CENTER

DRUG-RESISTANT GONORRHEA



SCIENTIFIC FINDINGS

MOLECULAR-BASED ANALYSES

LIFESAVING TESTS

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