

Battling Antibiotic-Resistant Gonorrhea: A Timeline of Coordinated Teamwork

STD Prevention
**SUCCESS
STORIES**

Those in public health and healthcare know that gonorrhea is a very stubborn disease. It is one of the most common sexually transmitted diseases (STDs), and over time has become notorious for being resistant to almost every drug ever used to treat it. A major part of public health protection is continuous legwork to ensure the treatments that healthcare providers give to patients still work, and as a result CDC is able to keep its [STD Treatment Guidelines](#) updated. Currently, there is only one CDC recommended treatment option for gonorrhea: a dual regimen of a single shot of ceftriaxone and an oral dose of azithromycin. When test results from seven patients in Hawaii showed possible resistance to *both* drugs in this *last* recommended treatment, local public health professionals quickly sprang into action.

From the STD clinic, to the lab, to the disease detectives – or Disease Intervention Specialists (DIS) who track down those who are infected – it takes a lot of hard work and coordination to keep the public safe and healthy.

Over 395,000
— the number of
gonorrhea cases
reported in 2015

13% increase
in the rate of
reported gonorrhea
since 2014

15–24-year-olds
account for half
of newly reported
cases of gonorrhea

30% of new cases
of gonorrhea each
year are resistant to
at least one drug

“Teamwork is essential in the success of STI and HIV prevention strategies,” said Juval Tomas, the nurse manager for the Hawaii State Department of Health’s (HDOH) STD clinic. “Collaborative and coordinated efforts between in-house DIS and clinic staff are key in providing appropriate treatment and prompt patient care.”



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Viral Hepatitis, STD, and
TB Prevention

And those prevention efforts began right there at the HDOH STD clinic, a critical sentinel site for [monitoring antibiotic-resistant gonorrhea](#), where healthcare providers working closely with HDOH laboratory colleagues first diagnosed the seven patients whose gonorrhea culture test results would soon trigger a public health marathon.

“Culture tests offer the best way of knowing if gonorrhea samples are susceptible or resistant to antibiotics,” said Dr. Alan Katz, the medical director for the HDOH STD clinic. The STD clinic collected five of the samples, and the other two were obtained by private physicians. All positive gonorrhea cultures in Hawaii are sent to the HDOH Laboratory for testing. While most gonorrhea cases in the U.S. are diagnosed without cultures, the HDOH has maintained an active statewide gonorrhea culture surveillance program since the early 1970s [see sidebar, ‘Monitoring for Antibiotic-Resistant Gonorrhea’]. The invaluable work of the HDOH lab, coupled with the health department’s robust data, identified the alarming fact that in the lab, these samples did not respond to either antibiotic in CDC’s recommended dual therapy as well as the team expected.

Once the lab realized what they had uncovered, they quickly handed the information off to the next link in the chain. Enter DIS, the efficient, boots-on-the-ground public health professionals who are known for getting incidents like this under control. As they regularly do, DIS went into the community to 1) make sure that the seven patients were cured by the treatment they received, and 2) to find out who had been in contact with them to contain any spread of this potentially resistant strain of gonorrhea.

“DIS are such a dedicated group of people with wonderful interpersonal skills. They’re able to easily talk to people who might be suspicious of government employees to locate partners and break the train of transmission,” said Katz. And in this investigation, it was DIS’s unmatched communication skills and specialized training that led to all but one of those seven patients getting tested (and re-treated in one case) within a matter of weeks. Their onsite availability in the Hawaii clinic allowed DIS to move quickly to get the job done, but unfortunately, the resources dedicated to DIS have been declining over the years, and many STD clinics cannot offer these services.

Treatment failure will always be a concern for those who seek to stop the spread of resistant gonorrhea, although CDC continues to work with researchers and industry on new treatments. But as the quick actions of the Hawaii team demonstrate, dedicated and engaged healthcare providers, laboratorians, and DIS will always be the invaluable front line of defense for controlling it.

CDC has been at the forefront of this issue for over 30 years, working to monitor antibiotic resistance trends and develop effective treatment guidelines for clinicians across the country. Here is one story of CDC’s efforts to ensure safe and effective treatment for gonorrhea is available for those who need it.

Monitoring for Antibiotic-Resistant Gonorrhea

The [Gonococcal Isolate Surveillance Project \(GISP\)](#) was established in 1986 to monitor antibiotic resistant trends in *Neisseria gonorrhoeae* – the bacteria that causes gonorrhea – in the United States. GISP – a collaborative project among selected STD clinics, regional laboratories, and CDC – annually collects approximately 5-6,000 *N. gonorrhoeae* samples from men diagnosed with gonorrhea at STD clinics in about 25-30 U.S. cities.

Participating regional laboratories test the specimens for resistance to several antibiotics currently or previously used for gonorrhea treatment. The ability of the bacteria to resist the effect of the antibiotics in the laboratory is measured, and the results are interpreted according to criteria recommended by the Clinical and Laboratory Standards Institute (CLSI). The results of these tests are then transmitted to CDC where they are collated, analyzed, and used to inform treatment guidelines.



Gonorrhea surveillance in Hawaii

- Hawaii is a critical site for monitoring antibiotic-resistant gonorrhea due to resistance historically emerging in the East and moving into the U.S. through the state.
- Hawaii collects a higher percentage of samples for monitoring resistance from gonorrhea cases than from any other state.
- Samples to detect resistance were obtained for almost one-quarter (963) of the ~4,000 gonorrhea cases diagnosed in Hawaii

Learn MORE at [cdc.gov/std](https://www.cdc.gov/std)

- [Antibiotic Resistant Gonorrhea Overview](#)
- [Gonorrhea Fact Sheet](#)
- [Antibiotic Resistant Gonorrhea Lab Information](#)