



## VA research on **INFECTIOUS DISEASES**

*VA researchers have developed a number of effective new prevention strategies, vaccines, and drugs to treat infectious diseases.*

### **ABOUT INFECTIOUS DISEASES**

- Infectious diseases can be caused by bacteria, viruses, fungi, or parasites. These microorganisms can be present on a person's skin or inside their body. While most microorganisms are harmless, some can cause disease under certain conditions.
- Some infectious diseases are passed through the air by coughing or sneezing. Other diseases are transmitted through insect or animal bites, ingesting contaminated food or water, or being exposed to pathogens in the environment.
- Certain infectious diseases can be treated with antibiotics. However, many have become resistant to antibiotics. Bacteria, for example, can mutate so that they are no longer susceptible to antibiotics. When that happens, it is more difficult to treat those infections and patients often require extended hospital stays. Antibiotic resistance has become a public health threat.
- VA has [determined](#) that nine infectious diseases are related to military service in the first Gulf War, Iraq, and Afghanistan. They include malaria, brucellosis, campylobacter jejuni, coxiella burnetii (Q fever), mycobacterium tuberculosis, nontyphoid salmonella, shigella, visceral leishmaniasis, and West Nile virus.

### **VA RESEARCH ON INFECTIOUS DISEASES: OVERVIEW**

- VA researchers are advancing the understanding, prevention, and treatment of numerous infectious diseases, ranging from the common cold to major public health threats such as COVID-19, tuberculosis, AIDS, hepatitis C, and influenza.
- Some researchers are focusing on infectious diseases that may endanger American troops serving abroad, such as malaria and leishmaniasis. Others are searching for new approaches to treat infectious diseases, focusing on how pathogens change and drug resistance evolves.
- VA's Health Services Research and Development service is partnering with the Centers for Disease Control and Prevention (CDC) to create a research network that will identify ways to better protect patients and employees from infectious diseases in VA medical centers. Researchers will carry out studies in infection control and the proper use of antimicrobial drugs to best meet the growing threat of multi-drug resistant pathogens.

### **SELECTED MILESTONES AND MAJOR EVENTS**

**1946** – Developed and tested effective

therapies for tuberculosis through multicenter clinical trials that led to the development of the VA [Cooperative Studies Program](#)

**2005** – [Demonstrated](#) the effectiveness of a new vaccine for shingles, a painful skin and nerve infection affecting older adults

**2011** – Published [findings](#) showing a 60% or greater decrease in MRSA infections from a VA-wide infection control initiative

**2014** – [Learned](#) that treatment for pneumonia that included the antibiotic azithromycin (Zithromax) was associated with a significantly lower risk of death and a slightly increased risk of heart attack

**2015** – [Found](#) that patients who received antiretroviral therapy within a year of their infection were half as likely to develop AIDS, compared with those who waited longer

**2016** – [Determined](#) that a hospital infection-control program aimed mainly at MRSA can also significantly reduce transmission of bacteria that cause infections such as pneumonia, blood infections, surgical infections, and meningitis

**2018** – [Found](#) that people on a single tablet regimen for HIV infection had better outcomes than those on a multi-pill regimen to suppress the virus

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**2018** – [Partnered](#) with the Centers for Disease Control and Prevention to ramp up the fight against infectious diseases

**2021** – [Learned](#) that patients who recover from COVID-19 are at risk for persistent, long-lasting health problems

**RECENT STUDIES: SELECTED HIGHLIGHTS**

• **A shorter course of multi-drug therapy treats tuberculosis as effectively as standard treatment,** found a study including a VA San Antonio researcher. The international study enrolled more than 2,500 people in 13 countries. It found that four months of therapy that included rifapentine and moxifloxacin treated active TB as effectively as the standard six-month regimen. A shorter treatment course would be easier for people to complete without missing doses. ([New England Journal of Medicine](#), May 6, 2021)

• **COVID-19 patients are at greater risk of hospitalization and death than flu patients,** found a St. Louis VA study. Patients with COVID-19 were nearly five times more likely to die than those with the flu, four times more likely to require breathing machines, and almost 2.5 times more likely to need intensive care. Also, COVID-19 patients were more likely to be hospitalized an average of three days longer than flu patients. ([BMJ](#), Dec. 15, 2020)

• **A common HIV drug may increase kidney disease and fractures,** according to a study by W.J.B. Dorn VA Medical Center researchers. Among 5,000 VA patients with HIV, those taking tenofovir disoproxil fumarate (sold as Viread) were 48% more likely to develop chronic kidney disease compared with those who did not. They also had more than twice the risk of bone fracture due to bone deterioration or low bone mass. ([Current Medical Research and Opinion](#), October 2020)

• **Disadvantaged patients are less likely to get flu shots,** found a study by a Michael E. DeBakey VA Medical Center researcher and colleagues. Among more than 25,000 patients with diabetes, about 36% did not receive a flu shot in a given year. Younger age, Black race, being uninsured, and having no usual source of health care all decreased the odds of getting a flu shot. Nearly 64% of patients with all four of these socioeconomic factors did not receive a flu shot. ([Journal of the Endocrine Society](#), Sept. 24, 2020)

• **Men with HIV have an increased risk for impaired lung function,** according to a study by Minneapolis VA researchers and colleagues. HIV-positive men were more likely than HIV-negative men to have abnormal lung function, based on low diffusing capacity in their lungs. Diffusing capacity measures the

ability of the lungs to transfer oxygen into red blood cells. ([AIDS](#), July 1, 2020)

• **Toilet flushing increases bacterial contamination of hospital rooms,** found an Iowa City VA study. Researchers took air samples in rooms of patients with *C. difficile* infections. They found that the concentration of harmful bacteria was significantly higher after the toilet was flushed. Flushing a toilet can send tiny particles of fecal matter into the air. ([Infection Control and Hospital Epidemiology](#), May 2020)

• **Broad-spectrum antibiotics are ineffective for pneumonia,** according to a VA Salt Lake City study. In a study of nearly 88,000 Veterans hospitalized for pneumonia, the team found no discernable benefit from using vancomycin in addition to standard treatment. Vancomycin is a drug that can help prevent the development of MRSA in the lungs, a rare but hard-to-treat form of pneumonia. ([JAMA Internal Medicine](#), April 1, 2020)

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