



# PARKLAND HEALTH & HOSPITAL SYSTEM

## Improved Access to Penicillin Allergy Testing Impacts Quality of Care

DALLAS

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*Quality, Honorable Mention*

### OVERVIEW

In collaboration with the Allergy and Immunology department at University of Texas Southwestern, Parkland Health & Hospital System in November 2014 started a proactive, pharmacist-led penicillin allergy testing program as part of the Texas Healthcare Transformation and Quality Improvement Program 1115 Waiver.

### PROBLEM IDENTIFIED

Although penicillin allergy is the most reported drug allergy nationwide, approximately 90 percent of history-positive patients actually tolerate penicillin. For some patients, reaction histories are remote and poorly characterized; others experience symptoms that might represent non-Immunoglobulin E (IgE)-mediated consequences of an underlying illness. Additionally, hypersensitivity to penicillin wanes with time. Patients allergic to penicillin often receive greater doses of vancomycin, fluoroquinolones, and clindamycin. The prevalence of health care-associated infections such as *Clostridium difficile* (*C. diff*), vancomycin-resistant *Enterococcus* (VRE), and methicillin-resistant *Staphylococcus aureus* (MRSA) is higher in the penicillin-allergic population, and a sample of this population at Parkland had a longer hospital stay by an average of 0.98 days.

### METHODS

Parkland trained pharmacists to work with allergists to conduct penicillin allergy testing. Before testing, patients watched an educational video; after testing, they received a wallet card with test results and a follow-up call to assess the occurrence of delayed reactions.



### ENGAGEMENT

Front-line staff were trained to perform allergy testing and proactively screen patients. Program leaders incorporated clinical decision support to notify pharmacists, providers, and nursing staff of testing considerations and necessary allergy relabeling.

Program leaders reported outcomes to organizational leadership and through the hospital district as part of the 1115 Waiver Transformational Initiatives. Program leaders also reported outcomes to the public through publications in *The Daily Beast*, *Medscape*, *the Journal of Allergy and Clinical Immunology*, and *Open Forum Infectious Diseases*.

### RESULTS AND DATA

In the program's first four years, 961 patients were tested for penicillin allergy, compared to 22 patients in the four years prior. Of the 961 patients, 92.5 percent were allergy free, and only 2.8 percent that tested negative for IgE-mediated reactions were relabeled due to side effects or delayed mild cutaneous reactions.

In the first 223 patients who tested negative for a penicillin allergy, 504 inpatient and 648 outpatient days on antibiotics were avoided. A cost savings analysis of 341 patients showed that average antibiotic cost savings decreased in patients tested from \$1,265.81 to \$592.06 per patient. In a cohort of 702 patients, *C. diff* and VRE occurred at lower rates in patients tested.

