

Patients can safely self-administer long-term IV antibiotics, reducing hospital stays

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From left to right Drs. Kavita Bhavan and Robert Haley. Credit: UT Southwestern Medical Center

Uninsured patients can be trained to safely and efficiently self-administer long-term intravenous antibiotics, UT Southwestern Medical

Center physicians have found, a result that may have profound implications for patient treatment at public hospitals across the country.

A four-year study compared outcomes of Parkland Memorial Hospital patients who either self-administered long-term IV antibiotics or had their long-term antibiotics administered by a health care worker. The study found similar or better outcomes for the group that administered their own antibiotics, a practice that is rare among hospitals.

"This really taps into human potential, giving a voice to the uninsured at the same time that it offers an opportunity for enormous cost savings to hospitals," said Dr. Kavita Bhavan, Assistant Professor of Internal Medicine at UT Southwestern and first author on the study, published online today in *PLOS Medicine*.

Infections such as endocarditis (an infection of the heart valve) and osteomyelitis (a bone infection) may require treatment with IV antibiotics for six weeks or longer. While patients who have insurance typically go home or to a nursing home once their antibiotics course has started - having their daily dose of IV antibiotics administered by a home health care worker or nursing home employee - it has been standard practice for uninsured patients to remain in hospitalized settings for the entire treatment course.

"Requiring these patients to be hospitalized for several weeks means loss of personal freedom for the patients and a delay in activities of daily living, such as returning to work and caring for children at home," said Dr. Bhavan, who is also Medical Director of the Infectious Diseases OPAT (Outpatient Parenteral Antibiotic Therapy) Clinic at Parkland and Parkland Hospital Infectious Diseases Services Chief. "This practice also can lead to a tremendous cost for public hospitals, taking up beds that could go to patients who require more intensive care."

A multidisciplinary group of physicians, nurses, care managers, pharmacy specialists, and hospital administrators devised a training program to teach these patients or a family member how to safely administer these medications at home.

Nurses instructed patients at their bedside using a teach-back method, with the assistance of health education material. Patient teaching has recently been reinforced with a nine-minute video that explains everything about the procedure, including how to mix the medicine, how to hang the IV bag using a coat hanger, and how to adjust the drip rate to the rate indicated on the label. Before they were allowed to perform the infusion at home, patients were required to demonstrate proficiency on three separate occasions. In addition, all were required to return to the hospital clinic once a week to have their infusion site dressings changed and to complete labs to verify that they were receiving the correct dosage of antibiotics.

"People have been wondering for years if it would be possible for patients to deliver their own IV antibiotics, but there was concern about the possibility of infection at the infusion site, worry about whether patients would give themselves the right amount of antibiotics, and so on," said Dr. Robert Haley, Professor of Internal Medicine and senior author of the paper.

The study compared 944 uninsured patients who administered their own IV antibiotics with 224 insured patients whose antibiotics were administered by a health care worker, analyzing 30-day hospital readmission rates and mortality.

"We compared these two groups to see if these patients could accomplish this without worse outcomes, and - to our surprise - it turned out the self-administered group had a 47 percent lower rate of 30-day readmission," said Dr. Haley.

The authors suggest that patient empowerment and engagement in their own health care contributed to the lower rate of readmission among those who self-administered their drugs. Mortality rates were similar between the two groups.

"This is a win-win situation," said Dr. Haley, who holds the U.S. Armed Forces Veterans Distinguished Chair for Medical Research, Honoring Robert Haley, M.D., and America's Gulf War Veterans. "It's an obvious win for the patients, who don't have to sit in the hospital for six weeks and can go about their normal lives. It's also a big win for the public hospitals. Having these patients take up beds has been costly for these hospitals, which are often full."

The self-administered antibiotics program saved 27,666 patient days at Parkland during the four years of the study - the equivalent of adding 26 beds.

"Dr. Bhavan was courageous to do this, and now there is a group of infectious disease physicians who are extremely excited about these findings," said Dr. Haley.

More information: Bhavan KP, Brown LS, Haley RW (2015) Self-Administered Outpatient Antimicrobial Infusion by Uninsured Patients Discharged from a Safety-Net Hospital: A Propensity-Score-Balanced Retrospective Cohort Study. PLoS Med 12(12): e1001922. [DOI: 10.1371/journal.pmed.1001922](https://doi.org/10.1371/journal.pmed.1001922)

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