

# University of Maryland Boosts Prescription First-Fill Rates 20% to 25% With Pharmacist Intervention

Peer-Reviewed Study Finds Mobile Integrated Health Program Improves Medication Adherence Among High-Risk Patients



**Baltimore, Maryland**

2,487 Licensed Beds

12 Affiliated Hospitals

5,200 Medical Staff Members

EHR: Epic

University of Maryland Medical System is a private, university-based regional health system focused on serving the needs of the people of Maryland and educating the state's future physicians and healthcare professionals through partnerships with the UM School of Medicine and the UM Schools of Nursing, Pharmacy, Social Work, and Dentistry in Baltimore. The health system offers primary and specialty care at 12 hospitals, in more than 150 locations, and through a network of UM Urgent Care locations.

## The Challenge

Patients who don't take their medication as prescribed are more likely to have poor clinical outcomes. They are also 2.5 times more likely to be readmitted to the hospital,<sup>1</sup> which costs hospitals \$11,000 per patient on average.<sup>2</sup> Readmissions within 30 days of discharge also put health systems at risk of costly penalties as part of the Centers for Medicare & Medicaid Services' value-based reimbursement models.

Patients with chronic conditions such as congestive heart failure (CHF) and chronic obstructive pulmonary disease (COPD) are of particular concern because they are at greater risk of poor outcomes if they don't take their medications as prescribed. These risks can be exacerbated by social disadvantages that negatively impact medication adherence, such as access to transportation, language and literacy barriers, and economic obstacles.

## The Solution

In 2018, the University of Maryland Medical Center and the Baltimore City Fire Department partnered to implement a mobile integrated health and community paramedicine (MIH-CP) program to address the problem of medication non-adherence in patients diagnosed with CHF and/or COPD. MIH-CP programs use emergency medical service (EMS) providers to deliver in-home care with the multidisciplinary support of pharmacists, physicians, nurses, and community health workers to assist patients with complex medical conditions and needs as they transition from the hospital to home.

The objective was to evaluate the impact of the MIH-CP program on medication adherence among this population of patients. After discharge from the hospital, qualifying patients were enrolled in the MIH-CP program for intensive follow-up. To establish a baseline and measure the impact of these pharmacist-led interventions on patients with these chronic conditions, the team used data from DrFirst's population health management solution to measure individual prescription fill data for specific populations of patients.

<sup>1</sup>Rosen OZ, Fridman R, Rosen BT, Shane R, Pevnick JM. Medication adherence as a predictor of 30-day hospital readmissions. *Patient Prefer Adherence*. 2017;11:801-810. <https://doi.org/10.2147/PPA.S125672>

<sup>2</sup>Society of Hospital Medicine, Safer medication management for better transition of care. <https://www.hospitalmedicine.org/clinical-topics/medication-reconciliation>



## PEER-REVIEWED ARTICLE

**See the full study:**  
Exploratory Research in Clinical  
and Social Pharmacy  
Volume 8, December 2022

**Impact of a mobile integrated  
healthcare and community  
paramedicine program on  
improving medication adherence  
in patients with congestive heart  
failure and chronic obstructive  
pulmonary disease after hospital  
discharge: A pilot study**

The DrFirst population health management and medication history solutions streamline medication reconciliation workflows by providing accurate and clinically actionable medication history for individual patients at hospital admission and in the emergency department. Population health management extends benefits from individuals to populations of patients.

“We were able to merge Epic’s Clarity data with the DrFirst data to calculate first-fill rates for new medications,” said Olufunke Sokan, PharmD, MPharm, BCACP, Advanced Practice Pharmacist at the University of Maryland School of Pharmacy and lead author of the peer-reviewed study. Clinicians used this information to monitor prescription fill patterns and counsel patients accordingly.

The MIH-CP program included a field team of specially trained community paramedics and a pharmacy technician, working with a virtual team comprised of a pharmacist, a community health worker, and an advanced licensed provider such as a nurse practitioner or physician. The field team visited patients in their homes and connected as needed with the virtual team using a HIPAA-compliant telehealth video platform.

## The Results

The University of Maryland study found that patients are more likely to fill their prescriptions when enrolled in an MIH-CP program after hospital discharge. Prescription first-fill rates increased by nearly 20% for patients with CHF and by 25% for patients with COPD in the first 30 days after enrollment. The six-month pilot also improved medication adherence by 8% to 14% in the 60 days after a pharmacist-led intervention.

The study authors suggest that additional pharmacist consultations at 30 and 60 days post-discharge using population health management data could achieve a prolonged impact on medication adherence beyond the improvement achieved in the pilot.