

# Pharmapreneurial Partnerships by the University of Maryland's Center for Innovative Pharmacy Solutions are Transforming Digital Health

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## OBJECTIVE

To establish a sustainable structure that advances the pharmacist role in digital health.

## BACKGROUND

The University of Maryland School of Pharmacy established the **Center for Innovative Pharmacy Solutions (CIPS)** to develop and oversee programs and activities that deliver products and services that address medication-related gaps in health care and promote improved medication effectiveness at the patient, provider, and health system levels.

- Clinical Initiatives and Programs:** The Patients, Pharmacists, Partnership (P<sup>3</sup>) Program® is the clinical initiative arm of CIPS, providing solutions that address chronic disease management, transitions in care, medication therapy management, and more.

- Technology:** CIPS uses state-of-the-art technology to implement its programs and other activities, including electronic medical records systems (EPIC®, Cerner®, Athena®, and ThinkEHRx®), video conferencing software (Zoom®, Vidy® and Skype for Business), and instant messaging platforms (DocHalo® and TigerConnect®), which provide greater cost efficiency and improved clinical outcomes.

- Program Management and Consulting:** CIPS provides expertise in leadership and strategic planning, enhancing efficiencies, optimizing performance, and driving sustainable results.

- Training and Education:** CIPS and the P<sup>3</sup> Program train health care professionals, residents, fellows, students, and technicians in clinical care and administration.

- Research:** CIPS implements and manages a number of research projects and contracts and provides cutting-edge technology and experienced researchers trained in pharmacoconomics, practice experiences, and research.

### CIPS Overview

[https://www.youtube.com/watch?v=ZCL43yVU\\_Vs](https://www.youtube.com/watch?v=ZCL43yVU_Vs)

## METHODS

Three recent initiatives in CIPS' e-Health Center (a subdivision of the P<sup>3</sup> Program) are examples of how the CIPS structure is supporting the transformation of digital health:

- The e-Health Center partners with health systems and insurers to offer emocha Mobile Health's HIPAA-compliant app for patients to video-record themselves taking medications. Nurses and pharmacists review the videos, reinforce adherence, and intervene in medication-related problems (MRPs).
- Through the University of Maryland's Quality Care Network (UMQCN) and Transform Health MD (THMD) partnership with primary care providers and practices, pharmacists provide patients with comprehensive medication therapy and management of chronic diseases via videoconference.
- The e-Health Center also partners with UMB health profession schools, the UM Medical Center, and Baltimore City Fire Department through the Mobile Integrated Healthcare – Community Paramedicine (MIH-CP) initiative to connect Baltimore City residents who are frequently hospitalized chronic disease patients with a health care team including a paramedic, registered nurse, pharmacist, and nurse practitioner or physician for 30 days of free in-home transitional care.

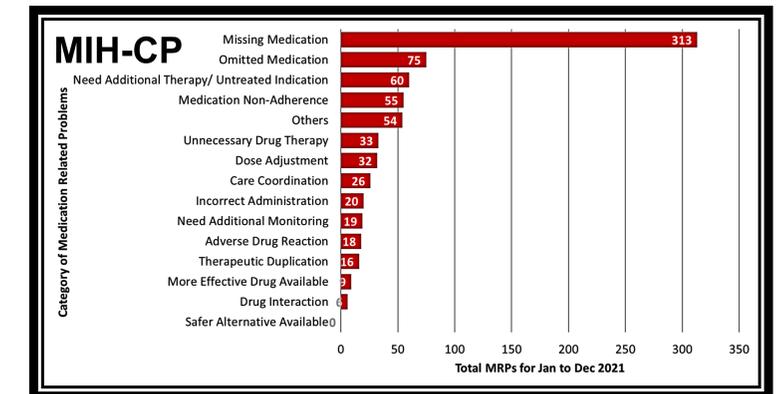
## RESULTS

Since its inception 13 years ago, CIPS has brought in more than \$12 million to the School of Pharmacy. Its pharmapreneurial initiatives are expanding, including 11 grant and contracts totaling \$1.67 million in 2020 alone. Dozens of pharmacy and social work students have rotated through the center in the last few years.

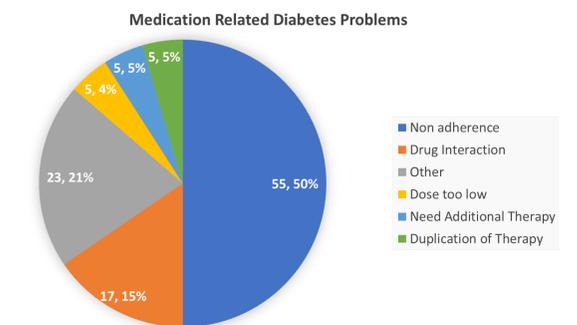
- Between 2019 – 2020, the emocha pilot initiative identified 292 MRPs in 59 asthma and diabetes patients, an average of five MRPs per patient. Of the 292 MRPs identified in the emocha pilot initiative, 102 (35%) were medication nonadherence, 50 (17%) were administration technique, and 35 (12%) of patients required additional therapy.
- In 2021, the UMQCN and THMD engaged 350 primary care providers across 75 practices throughout Maryland. MIH-CP encounters identified a total of 736 medication-related problems in 2021 including missing or omitted medication (53%), untreated indication (8%), dose adjustment (4%), care coordination (4%), incorrect administration (3%), adverse drug reactions (3%), and therapeutic duplication (2%).

## IMPLICATIONS

These pharmapreneurial initiatives successfully demonstrate the essential role of the pharmacist in value-based models and population health utilizing technology. Managing these initiatives through CIPS' e-Health Center ensures consistency and continuity and provides APPE ambulatory care training for students, residents and faculty, and ensures optimal health care for all patients. Future capacity will ensure telehealth training for all Maryland students.



7 MONTHS PILOT STUDY, November 2019 - May 2020  
n=21 patients with Type 2 Diabetes



8 MONTHS PILOT STUDY, May - December 2020  
n=38 patients with Asthma

