



The Impact of the Case Management Model at MedZou Community Health Clinic

David Lesko, MD¹; Jesse Day, MD¹; Rachel Honig¹; Debra Howenstine, MD¹; Erik Lindbloom, MD¹

¹University of Missouri School of Medicine, Columbia, Missouri, USA

Corresponding Author: David Lesko, MD; email: leskod@uthscsa.edu

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Abstract

MedZou Community Health Clinic is the University of Missouri's student-run clinic (SRC) that serves the uninsured of central Missouri. While successful, MedZou has faced barriers to delivering continuity and coordination of care, spurring the creation of the Case Management Model (CMM) in 2013. This innovative model consists of medical students serving as case managers, case management directors, and MedZou clinic directors, supported by physician advisors. At its foundation, a case manager is paired with a patient who has a chronic, complex medical history along with multifactorial psychosocial issues. The case manager assesses each patient's health needs, helps them navigate medical resources, and coordinates their medical care with the help of a physician advisor. This report describes two cases that demonstrate how the CMM has led to improvements in coordination and continuity of health care. Case 1 involves a patient with severe psoriasis who obtained mandatory lab testing before starting Humira[®] (adalimumab) and received Humira free of charge. Case 2 involves a patient who received timely treatment for a myocardial infarction, as well as help with Family and Medical Leave Act paperwork, medication coverage, and accessing social services post-hospitalization. In each case, the CMM led to greatly improved health outcomes and quality of life for patients and provided case managers with valuable educational experiences. We believe that this simple model can be easily implemented at other SRCs and we urge its adoption to better serve communities abroad.

Introduction

MedZou Community Health Clinic, the University of Missouri's student-run clinic (SRC), opened in October 2008 and has served approximately 1,400 uninsured patients since its inception. The mission of MedZou is to provide high-quality, patient-centered care for uninsured residents of central Missouri, while educating health care students about working with underserved populations. The clinic functions as the primary care facility for most of its patients and has helped numerous individuals obtain much needed health services. It offers weekly general clinics and monthly dermatology, psychiatry, women's health, and combined musculoskeletal-neurology, and diabetes-ophthalmology clinics.¹

MedZou has partnerships with local laboratories and pharmacies to deliver affordable lab testing and prescription drugs to patients. The Patient Assistance Program (PAP) at MedZou works with pharmaceutical companies to obtain name-brand medications and insulin free of charge. In addition, the clinic provides a multitude of social work services and streamlines referrals to the University of Missouri hospital system. Overall, patient care at MedZou is delivered in a multidisciplinary fashion through a collaboration between students and professionals from the University of Missouri's Schools of Medicine, Nursing, Health Administration, Pharmacy, Social Work, and Public Health.¹

While MedZou has successfully provided outpatient services to many individuals who might otherwise not have access to health care, it still faces many of the same issues that other SRCs face today. Chief among them are a lack of continuity

of care, coordination of care between clinic sectors, and coordination of care between the clinic and outside services/university hospital system. These issues have been difficult to address, largely because MedZou has a rotating schedule of medical student and physician volunteers at each weekly clinic.

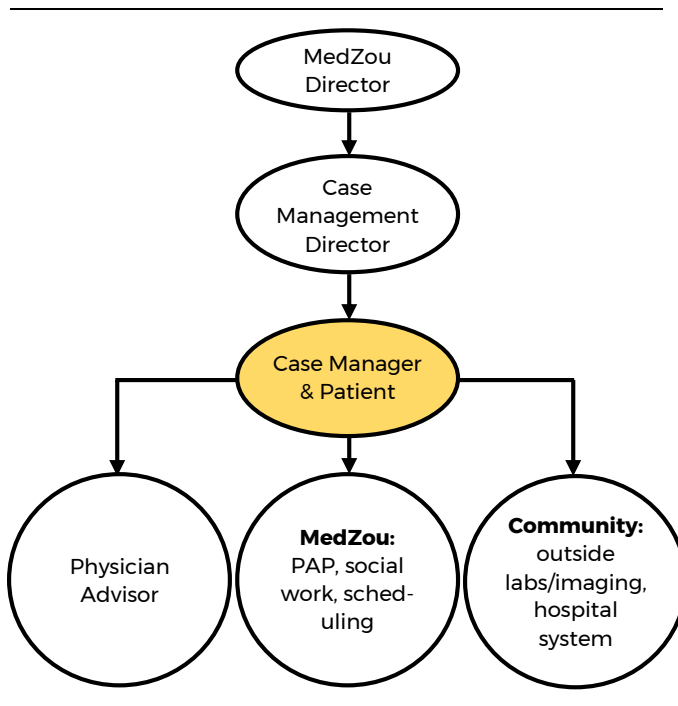
In response to these issues, MedZou created the Case Management Model (CMM) in 2013. The CMM consists of 12-14 case managers who are first or second-year medical students, 2 case management directors who are second-year medical students, 1 MedZou student director who is a second-year student, and lastly, 5 physician advisors. These physician advisors include family medicine specialists, internal medicine specialists, and one psychiatrist.

The CMM is outlined in Figure 1. First, the MedZou student director identifies patients who may benefit from case management based on direct feedback from student volunteers. Next, each of these patients is paired with a case manager by a case management director. The case manager then accompanies the patient at each clinic appointment, helps the patient navigate the various sectors of MedZou, and makes weekly check-ins with the patient via text or phone conversation. The case manager also helps coordinate care outside of MedZou and accompanies the patient to those visits as well. Each case manager has access to a physician advisor who provides ongoing recommendations about patient care. Case managers relay these recommendations to the MedZou health care team at each patient appointment. In addition, case managers consult their physician advisor in the event their patient has a medical emergency.

Each month, the entire case management team of medical students and physician advisors meets for the purpose of quality control. During these meetings, case managers present their patient's case and include any updates in their care plan or struggles that they have faced. The team then determines if appropriate care strategies are being employed and helps devise alternative care options if necessary.

Case management is new phenomenon in SRCs. To our knowledge, there is no literature on the success of case management at other SRCs.

Figure 1. The Case Management Model (CMM) at MedZou Community Health Clinic



PAP: Patient Assistance Program

MedZou itself has had past success with a similar model. Prior to the CMM at MedZou, a Diabetes Case Management program was created. The results of this program led to statistically significant improvements in patients' hemoglobin A1C levels and weight.² Given its success, it was thought that the CMM could be just as effective on a wider scale and should be offered to patients with any complex medical and psychosocial history.

Objective data is difficult to track under the CMM because each patient presents with his or her own unique challenges. However, our experience would suggest that this model has been extremely beneficial to improving continuity and coordination of care for specific MedZou patients with complex medical, social, and mental health issues. We present two unique cases to illustrate how this model has helped MedZou overcome systemic issues and deliver more effective patient care.

Case 1 - For the Sake of a Drug

The first patient is a 48-year-old Caucasian male with long-standing, widespread psoriasis and psoriatic arthritis. After trying multiple therapies, he was prescribed Humira® (adalimumab), which finally gave him symptomatic control. Unfortunately, upon moving from South Dakota to Missouri, he lost his health insurance and could no longer afford the medication out-of-pocket. As a result, his symptoms became unmanageable.

He was seen at one of MedZou's monthly dermatology specialty clinics. His treatment team decided that restarting Humira was the only viable option. Before this could be done, several hurdles remained. Humira is a TNF-alpha inhibitor that is very expensive and can only be prescribed after laboratory testing rules out hepatitis B, HIV, and TB infections.

To help him navigate these challenges, he was assigned a case manager. Within a matter of days, his case manager scheduled the necessary laboratory testing for free so that the medication could be safely prescribed. Furthermore, his case manager worked closely with MedZou's PAP team to obtain and fill out paperwork so that he could receive the medication directly from the pharmaceutical company free of charge.

Case 2 - A Life-saving Call

The second patient is a 51-year-old African American male with a history of hypertension, hyperlipidemia, coronary artery disease, type II diabetes mellitus, and peptic ulcer disease. After office hours, he called his case manager complaining of new bilateral leg swelling and persistent nocturnal dyspnea. Realizing the acuity of this situation, his case manager contacted his physician advisor, who recommended that he go straight to the emergency department at the University of Missouri.

The advice proved to be critical for him. A cardiac workup revealed a non-ST elevation myocardial infarction. Soon thereafter, he underwent emergent cardiac catheterization with stent placement of his left anterior descending artery. Without the rapid response of his case manager, his problem could have become even more life-threatening.

Unfortunately, he continued to face multiple obstacles post-hospitalization. After missing a significant amount of work, he was at risk of losing his job and unable to afford prescriptions, rent, and various other necessities. His case manager and physician advisor completed a Family and Medical Leave Act form, which provided him with job security. His case manager was also able to work with MedZou's PAP team to procure much needed medications directly from pharmaceutical companies free of charge. Lastly, the case manager worked with social work students at MedZou to help him fill out forms for rent assistance, utilities assistance, food stamps, financial assistance for his hospital stay, and a Medicaid application.

Discussion

Since its inception in 2013, the CMM has led to multiple notable achievements in patient care at MedZou Community Health Clinic. The two unique cases presented here illustrate how the model has addressed systemic challenges at MedZou and greatly improved the health outcomes and quality of life for its patients.

The success in the first case stemmed from the case manager's ability to coordinate between MedZou sectors and the community laboratory completely outside of a standard clinic visit. In addition, the second case highlights several additional strengths of the CMM. With after-hour access to his case manager, the second patient received prompt advice in an acute situation. He also received extensive ancillary support post-hospitalization because his case manager could effectively coordinate between various resources within MedZou and the community. Again, most of this assistance was provided outside of clinic via the unique case manager-patient relationship.

Our experience with the CMM suggests its superiority over the traditional clinic model. Instead of relying on weekly 15-30 minute appointments, patients can work with a case manager who has access to a real-time, peer-to-peer network at MedZou. Consequently, these patients can more readily attain vital lab work, imaging, and specialty services that would otherwise be unattainable. They are also able to have an advocate for social services, which allows them to successfully navi-

gate hospital financial aid, patient assistance programs, and the Medicaid application process. This assistance has proven to be crucial for patients with low health literacy and limited English proficiency.

In a broader scope, the CMM has likely been a benefit to the health care system at large through the prevention of unnecessary emergency room visits and hospitalizations. Even when hospitalization is ultimately necessary, as in the second patient's case, much of the care needed to prevent readmission can be arranged by case management. While future research will track cost reduction, our experience suggests that the CMM helps control costs and reduce the uninsured burden on the health care system.

In the future, we will conduct quantitative research to determine the true financial benefit that the CMM provides the University Health System. We plan to perform a cost-benefit analysis of a general MedZou clinic appointment versus a similar appointment at the University Hospital. We also plan to complete research comparing health satisfaction and medication adherence between MedZou case management patients, MedZou patients without case management, and Medicaid patients with a nurse case manager receiving care at a different clinic. This data will be available next year and will provide quantitative data assessing the success of the CMM.

The benefits that the CMM provides medical students deserves special attention. First year medical students working as case managers learn invaluable communication skills that are necessary during their medical training and future careers. These students frequently practice taking patient histories, performing physical exams, and presenting cases to an attending physician. They also gain invaluable exposure to many health care disparities as well as the difficulties of navigating a complicated health care system. Not surprisingly, many students have reported that their experience as a case manager has helped them perform well during their third-year clerkships.

The CMM has not been without its own challenges. Early in implementation, some case managers as well as the case management directors were not aware of all the resources available at MedZou. To fix this, the case management director position was extended to two years for the director

to become familiar with the capabilities of different MedZou sectors. In addition, case managers were required to complete an orientation with social work, PAP, and diabetes case managers to better understand available services.

An additional challenge is the appropriate identification of candidates for case management. With a rotating schedule of physicians and students each week, it is easy for referrals to be delayed. In addition, the CMM also relies heavily on direct communication between patients and case managers. If a patient does not have a phone or if the patient changes residence frequently, the effectiveness of case management becomes greatly impaired.

Addressing these limitations may prove to be difficult. However, referrals to case management may be expedited if student volunteers who encounter a potential candidate fill out and submit a form to the clinic director, indicating whether the patient needs short-term or long-term case management. Aside from referrals, communication breakdown could be prevented if each new patient is asked upfront about their means of communication before they are lost to follow-up. Front desk staff could confirm working cell phone numbers at each visit as well. Further interactions with social work may help us provide patients with bus passes, disposable cell phones, and other resources at the initial visit.

While limitations remain, the CMM continues to be a notable success at MedZou Community Health Clinic. The keys to its success are its real-time, peer-to-peer networks and physician advising. With a group of volunteers and the right leadership, we believe that the CMM can be easily replicated elsewhere and scaled to fit any clinic size. We strongly urge other SRCs to adopt this model to overcome common impediments of health care delivery and further improve the lives of patients in their communities.

For SRCs interested in starting their own CMM, the following are our recommendations for implementation:

- (1) Have SRC leadership assess the demand for case management. The SRC director should be able to provide the most insight into this demand based off student volunteer feedback.

- (2) If case management is necessary, determine how a CMM would be integrated into the clinic flow already in place.
- (3) Find a case management director (preferably second-year student familiar with the SRC) whose responsibility will be to recruit first-year medical students to serve as case managers and physicians to serve as physician advisors.
- (4) Define which patients qualify for case management. MedZou gives preference to uninsured patients with multiple chronic uncontrolled health conditions, patients struggling to navigate the health system, undocumented immigrants, and any patient with a complex psychosocial history.
- (5) Set a limit on how many patients can be enrolled in case management. This will be based on how many case managers and physicians are interested and how many patients they are willing to take on at one time. Usually, a case manager is paired with 1-2 patients and a physician advisor is paired with 3 case managers.
- (6) Create a protocol for enrolling patients in the program and training case managers.
- (7) Conduct a trial period with a small number of patients and case managers.
- (8) Assess the results of this trial period and verify that the CMM will be successful on a larger scale.
- (9) Recruit medical students and physicians according to the demand for case management.
- (10) Frequently assess the effectiveness of the CMM by holding monthly case management meetings and quantifying health outcomes, medication adherence, and patient satisfaction with case management.

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Disclosures

The authors have no conflicts of interest to disclose.