

From Policy to Implementation

Collaborative Drug Therapy Management in an Independent Pharmacy



A CASE STUDY

National Center for Chronic Disease Prevention and Health Promotion
Division for Heart Disease and Stroke Prevention



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Background

Hypertension, which affects one in three adults in the United States,¹ is a leading risk factor for heart disease, stroke, and diabetes—the first, fifth, and seventh leading causes of death in this country, respectively.² High blood pressure costs an estimated \$48.6 billion each year, including \$3.6 billion in lost productivity and \$45.0 billion in direct medical expenses.³ Controlling blood pressure and other risk factors can substantially lower cardiovascular disease mortality and morbidity, but only 54% of people with high blood pressure have their condition well controlled.¹

The [Community Preventive Services Task Force](#), an independent panel of public health and prevention experts, [recommends](#) team-based care approaches to improve blood pressure control. The recommendation is based on strong evidence that these approaches are effective. The Task Force found that when health care teams included pharmacists, their hypertensive patients were significantly more likely to have controlled blood pressure than were hypertension patients overall. Moreover, when team members were allowed to modify antihypertensive drug therapy, either independently or with the primary care provider's authorization, medication adherence was greater.⁵ Pharmacists can improve the management of chronic conditions like hypertension and diabetes by providing drug therapy management, counseling, education, and other health

Collaborative drug therapy management

is a collaborative practice agreement between one or more health professionals and pharmacists in which qualified pharmacists working within the context of a defined protocol are permitted to assume professional responsibility for performing patient assessments; ordering drug therapy–related laboratory tests; administering drugs; and selecting, initiating, monitoring, continuing, and adjusting drug regimens.⁹

care services.^{6,7} In addition, studies and systematic reviews have demonstrated reduced health care use when pharmacists are included on the health care team and found the team-based care approach to be cost effective.^{5,8}

To become pharmacists, students must obtain a doctor of pharmacy degree (Pharm.D.) and pass a national standardized licensing exam. In addition, pharmacists can receive advanced training and certification, including clinical residencies in various specialty areas, such as chronic disease management. This level of training, combined with state laws authorizing pharmacists to enter into **collaborative practice agreements** (CPAs) with physicians and other prescribers, allows pharmacists to provide **collaborative drug therapy management** (CDTM) and other advanced coordinated patient care services. As of 2012, 46 states had authorized pharmacists to engage in CPAs or CDTM through legislation or administrative regulations, although the

range of services authorized varied by state.⁴

This report describes the experience of Osterhaus Pharmacy, an independent community pharmacy in eastern Iowa that formed collaborative relationships with two local medical groups of family practice physicians, physician assistants, and nurse practitioners: Medical Associates of Maquoketa and Maquoketa Family Clinic. Osterhaus participated in the Collaborative Practice Agreement Case Study Project, which was launched in September 2011 to better understand how state laws authorizing CPAs are being put into action. The case study project, which included the Osterhaus Pharmacy case study, focused on community settings where pharmacists collaborated with physicians and nurse practitioners to provide services that improved chronic disease management and related health outcomes for patients. Its findings are intended to inform and guide practitioners and others who are considering adopting CPA policies or implementing CDTM.

Setting

Overview of Iowa CPA Legislation

Iowa regulates the practice of CDTM by physicians and pharmacists through rules promulgated by the Iowa Board of Medicine and the Iowa Board of Pharmacy (Table 1). The regulations set forth distinct requirements for CDTM in a hospital versus a community setting that include written protocols, pharmacist qualifications, and record-keeping procedures. In a community pharmacy setting, the parties must enter into a **community practice protocol (CPP)**, through which the physician delegates specific CDTM duties to a pharmacist. A CPP is a written, signed agreement to engage in CDTM between an authorized pharmacist and a physician establishing drug therapy management criteria “for one or more of the pharmacist’s and physician’s patients residing in

a community setting” (e.g., a home, group home, assisted living facility, correctional facility, hospice, long-term care facility).

The supervising physician has the ultimate responsibility for patient care.

Osterhaus Pharmacy

Osterhaus Pharmacy is a family-owned, independent community pharmacy practice established in 1965 in Maquoketa, Iowa. The pharmacy also serves as a pharmacy residency training program practice site, hosting 1 resident and 12 to 15 students each year. Approximately 6,500 patients visit the pharmacy annually, and about 60% have diabetes, hypertension, or hyperlipidemia. Osterhaus offers a variety of patient care services and emphasizes caring for the aging population. The

seven pharmacists on staff strive to provide high-quality, personalized, and cost-effective services in an environment “where you know your pharmacist and your pharmacist knows you.”¹²

Collaborative practice is embedded into the culture at Osterhaus Pharmacy; staff described collaboration as “the way we do things here.” Osterhaus and the two local medical practices (Medical Associates of Maquoketa and Maquoketa Family Clinic) have a shared history of collaboration: They have engaged in CDTM for more than 5 years, and they engaged in non-CDTM collaborations before Iowa adopted CDTM regulations in 2006. In addition, the pharmacy and Medical Associates of Maquoketa jointly relocated to the same building several years ago to provide patients with more convenient access to services.

Table 1. Regulations Relevant for this Case Study

	Relevant Regulations
Iowa Board of Medicine	<ul style="list-style-type: none">• Iowa Admin. Code r. 653 § 13.4(148) (2012): Supervision of pharmacists engaged in collaborative drug therapy management.• Iowa Admin. Code r. 653 § 13.3(147) (2012): Supervision of pharmacists who administer adult immunizations.¹⁰
Iowa Board of Pharmacy	<ul style="list-style-type: none">• Iowa Admin. Code r. 657 § 8.34(155A) (2012): Collaborative drug therapy management.¹¹

Osterhaus Pharmacy Patient Population Stats

- 13% enrolled in Medicaid
- 42% enrolled in Medicare¹²

Maquoketa, Iowa Population Stats

- 96% white
- 17% below poverty level¹³

Implementation

CDTM Implemented at Osterhaus Pharmacy

Osterhaus Pharmacy put its initial CDTM program into action through a CPA with Medical Associates of Maquoketa and Maquoketa Family Clinic: a medication substitution protocol.

The **medication substitution protocol**—begun in 1995—does not include any significant changes to dose or therapeutic effect, but it does allow pharmacists to substitute medications based on availability, patient preference, or insurance for five reasons:

1. To enhance adherence or patient acceptance.
2. To substitute extended-release medications with the same chemical entity.
3. To dispense the preferred product of the patient's insurance carrier.
4. To convert nystatin topical cream to miconazole topical cream, or convert Medrol Dosepak to prednisone.
5. To clarify shorthand orders for insurance company audit issues.

Osterhaus implemented a second CPA, an immunization protocol, with Maquoketa Family Clinic. The **immunization protocol**, implemented in 2005, originally authorized Osterhaus' pharmacists to administer injectable influenza vaccine in compliance with Chapter 155.A, section 155A.3, of the Iowa Pharmacy Practice Act. The pharmacy and clinic later expanded the protocol to include all adult immunizations and pediatric influenza vaccinations for people aged 6 years or older.

Osterhaus Pharmacy, Medical Associates of Maquoketa, and Maquoketa Family Clinic established CPAs to improve patient care. The pharmacists reported that the CPAs worked well and helped to maintain the working relationship with the collaborating physicians.

Additional CPAs Implemented at Osterhaus Pharmacy After 2012

When the Collaborative Practice Agreement Case Study Project was completed in 2012, Osterhaus' pharmacists planned to continue to expand their working relationship with both clinics and to establish more comprehensive CPAs with the medical groups in the future. The pharmacy and the two medical clinics have continued to expand their collaboration since the completion of the report for the case study project.

- In 2013, Osterhaus Pharmacy established a CPA with both Medical Associates of Maquoketa and Maquoketa Family Clinic to enhance the availability of epinephrine auto injectors (EpiPens) for patients with allergy conditions who might need emergency treatment. The CPA allows the pharmacists to assess the patient's need for an EpiPen due to an expired pen or prescription. The pharmacists may also use a questionnaire to determine whether a patient previously without an EpiPen prescription meets the criteria for an EpiPen.
- In 2014, Osterhaus established an informal collaborative arrangement with two prescribers at Medical Associates of Maquoketa to monitor patients with hypertension. Pharmacists check blood pressure and pulse and monitor adherence and response to therapy. They then share results and recommendations with the prescribers via fax. To date, Osterhaus has identified seven patients not at goal, and prescribers respond to and accept most of their recommendations within 24 hours. Also in 2014, the pharmacy added monitoring for diabetic patients, including blood glucose meter downloads shared with the prescriber in a user-friendly format, to enhance diabetes control.
- In 2015, Osterhaus established a CPA with Maquoketa Family Clinic to offer pharmacogenomics lab testing to their patients. Pharmacy staff do a cheek swab, which is submitted to the lab, and the pharmacy evaluates the results and makes recommendations to the prescriber. Osterhaus Pharmacy is initially targeting patients on clopidogrel, antidepressants, and antipsychotic medications.

Facilitators of CDTM Implementation

The pharmacists and physicians have an established working relationship.

Osterhaus Pharmacy and Medical Associates of Maquoketa have experience working together to provide non-CDTM services. The existing professional relationships between pharmacists and physicians, along with open and regular communication and a shared vision for collaboration, provided the foundation for a smooth transition to providing CDTM services. As pharmacists successfully worked with physicians to provide patient care, physician and pharmacist buy-in increased and the professional relationships already in place were strengthened.

The CPAs provide an additional avenue for pharmacist-physician collaboration.

The two CPAs implemented at Osterhaus provide additional opportunities for pharmacists and physicians to collaborate. Osterhaus pharmacists and the prescribers from Medical Associates of Maquoketa and Maquoketa Family Clinic who have engaged in CDTM through the two CPAs are well-positioned to establish additional and more comprehensive CPAs in the future.

The pharmacy serves as a training site for residents and students, who are often interested in CDTM.

The resident and pharmacy students in training at Osterhaus each year have interests and expertise that the pharmacy could use to conduct CDTM-related projects. Interviewees—including a pharmacist, a physician, and a pharmacy resident—believed that these students and recent graduates are more likely to be open to and skilled at pharmacist-physician collaboration, perhaps because of a shift in schools of pharmacy, medicine, and nursing to a more collaborative training approach and increased training opportunities in collaborative patient care.

Barriers to CDTM Implementation

Lack of reimbursement for pharmacists.

Osterhaus pharmacists reported that, because pharmacists are not recognized as health care providers under the Social Security Act and cannot bill for services, they receive limited compensation for providing CDTM services. The Osterhaus pharmacists were compensated for providing vaccines under the immunization protocol. Additionally, because of the time and resources required to implement CDTM for the relatively small

population of CDTM-eligible patients (compared with the total pharmacy patient population), CDTM may not be cost-effective, although Osterhaus did not perform a formal cost-effectiveness analysis. As a result, Osterhaus had no financial incentive to enter into a more extensive level of CDTM.

Pharmacists' limited access to patient clinical information.

The pharmacy and medical practice did not have a shared electronic health record

system. As a result, the pharmacists sometimes lacked access to current and complete patient health records, hindering their ability to make recommendations for patients.

Walk-in patient visits to physicians.

Medical Associates of Maquoketa and Maquoketa Family Clinic often accept patients on a walk-in basis, which could make it difficult for pharmacists to coordinate their provision of CDTM services with patients' physician visits.

Logistical and administrative challenges. Being a small, independent community pharmacy, Osterhaus lacked the time and administrative resources (e.g., staffing capacity, data collection system) necessary to develop,

operationalize, and evaluate additional or more comprehensive CPAs.

The specificity of CDTM regulations. Interviewees expressed concern that the specificity of the state's

CDTM regulations could act as an administrative or logistical barrier in the future if the pharmacy opts to implement additional or more comprehensive CPAs (e.g., addressing additional disease states or medications).

Lessons Learned

Build CDTM into existing collaborative practice. Osterhaus pharmacists set the groundwork for successful CPA implementation by building relationships with Medical Associates of Maquoketa and Maquoketa Family Clinic prescribers that did not require a CPA. For example, the pharmacy and medical practice collaborate to provide medication therapy management services to patients through the Iowa Medicaid Pharmaceutical Case Management (PCM) program. The PCM program was implemented in 2000 and enables pharmacists and physicians to work together to serve Medicaid enrollees who take four or more medications for chronic conditions.

Allow enough time to lay the groundwork for successful collaboration. Pharmacists noted that it can take time to lay the groundwork for the level of collaboration necessary

to successfully implement CDTM. They reported a strong sense of satisfaction from working collaboratively with physicians, and interviewees said that the collaboration strengthened the existing professional relationship between pharmacists and physicians.

Make CDTM a win-win-win for all stakeholders. Osterhaus Pharmacy, Medical Associates of Maquoketa, and Maquoketa Family Clinic developed their CPAs with an aim of making the collaborations successful for patients, physicians, and pharmacists, which helped ease the implementation process. Pharmacists may need to continually highlight the benefits of collaboration to physicians and patients in the short term to successfully carry out CDTM over the long term. Osterhaus staff also reported that having champions from key stakeholder groups can help facilitate successful CDTM implementation.

Emphasize a team-based approach to patient care.

Successful implementation of CDTM requires a strong sense of teamwork, trust, and communication between providers. To optimize patient health outcomes, pharmacists and physicians should work as a team to solve problems and address patient needs.

Maintaining high physician participation in CPAs is important to expand pharmacists' roles on health care teams in the long term. In 2012, approximately 80% of the prescribers for the two clinics were engaged in the CPAs. CDTM may require some physicians to shift away from a traditional model of care to a more collaborative approach that involves working alongside other health care providers such as pharmacists. To continue to expand the role of pharmacists on health care teams in the long term, Osterhaus and the two clinics will need to maintain physician buy-in and participation in CDTM.

Summary and Conclusions

The Osterhaus Pharmacy case study provided useful insight into implementing a model of CDTM involving an independent community pharmacy and local independent medical clinics. The two CPAs were carried out as planned despite a few ongoing challenges, including lack of reimbursement for pharmacists providing CDTM, limited access for pharmacists to patient clinical information, and logistical challenges. However, pharmacy leaders leveraged the available resources—in particular, their existing collaborative relationships with physicians—to facilitate successful implementation. Although Osterhaus did not have the capacity to conduct formal evaluations of patient health outcomes, the pharmacists reported that the CPAs worked as intended.

Successful CDTM implementation requires a strong sense of teamwork

between providers and high physician buy-in and participation. Osterhaus was successful in creating this sense of teamwork and can continue to grow its role in health care teams by expanding physician buy-in and participation in CDTM initiatives and developing additional CPAs. To develop additional and more comprehensive CPAs, Osterhaus Pharmacy will need to overcome logistical and administrative challenges (e.g., staffing capacity, data collection system).

Osterhaus Pharmacy has many assets that it could leverage to develop additional or more comprehensive CPAs in the future. These include a strong collaborative relationship with physicians, successful existing CPAs, and pharmacy students and residents on rotation at the pharmacy who have expertise and interest in CDTM. With these key elements already in place,

pharmacists at Osterhaus are well positioned to play an even greater role on health care teams to improve patient health outcomes.

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