



Creating Community-Clinical Linkages Between Community Pharmacists and Physicians

A Pharmacy Guide



Centers for Disease Control and Prevention
National Center for Chronic Disease Prevention and Health Promotion

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Objectives

This document describes a framework for creating linkages between community pharmacists and physicians that benefit community collaborators and the patients they serve.

The objectives of this document are to:

- Discuss the importance of community-clinical linkages specific to community pharmacists and physicians.
- Illustrate examples of existing community-clinical linkages between community pharmacists and physicians.
- Discuss common barriers to and potential solutions for creating community-clinical linkages between community pharmacists and physicians.
- Provide a framework for how community pharmacists and physicians might approach the development of a link to help community members.

This resource serves as a supplement to *Community-Clinical Linkages for the Prevention and Control of Chronic Diseases: A Practitioner's Guide*,¹ and it specifically focuses on creating community-clinical linkages between community pharmacists and physicians using the LINKAGE framework.

Background

Community-clinical linkages are connections between the community, clinics, and other settings where primary care is provided to improve population health.¹ Community-clinical linkages help to ensure that those at high risk for chronic diseases and their complications have access to quality community resources to best manage their conditions.² Community-clinical linkages may aid in facilitating access, referral, and payment for effective community programs.¹ In this supplement, the community-clinical linkage described is between community pharmacists and physicians. These linkages are dependent on collaborative care relationships between community pharmacists and physicians, and they are intended to connect the two groups. Community pharmacists are defined as pharmacists in community settings (e.g., independent, chain, supermarket, mass merchandiser community pharmacies), and physicians are clinicians in health care settings (e.g., hospitals, primary care clinics).

Pharmacists' education and training fully prepares them for participation in and contribution to team-based care, disease management, and the provision of wellness services. However, pharmacists' skills may be underused, as patients and physicians are not always aware of the extent of pharmacists' training and qualifications. Pharmacists in the community serve a valuable role, as they are often the most accessible health care to patients; 86% of Americans live within 5 miles of a community pharmacy.³ Pharmacists are able to provide medication assessment and counseling and lifestyle management recommendations. They can serve as key partners in improving outcomes associated with chronic diseases, such as cardiovascular disease and diabetes. To increase patient access to quality care, physicians and pharmacists can partner to create community-clinical linkages.

Community pharmacists provide many clinical services that include triaging patients, referring patients to physicians, and working with physicians to manage patients' chronic conditions. The collaboration between community pharmacists and physicians can lead to improved medical care and help improve access and efficiency of health care in the community.² The types of activities that can occur as part of these linkages can include:

- Health assessment in the pharmacy and subsequent referral to physician for diagnosis or treatment.
- Physician referral of patients to the pharmacist for assistance with medications or chronic condition management.
- Pharmacist triage of patient into primary care after identifying medication-related problems or other health conditions that arise or worsen.



Successful Models of Pharmacist-Physician Collaborations

Collaborative care is the provision of health care by at least two practitioners working together with the patient to accomplish shared goals. Collaborative care has been shown to improve hypertension control and cholesterol management, especially when the team involves a physician or nurse and a pharmacist.⁴ Two examples of collaborative care models involving pharmacists and physicians include Medication Therapy Management (MTM) and Collaborative Drug Therapy Management (CDTM).

MTM is a service provided by pharmacists (in collaboration with a physician or other prescriber) to help patients get the best benefits from their medications.² MTM services are patient centered and empower patients to actively work on managing their medications and reach their therapeutic goals, such as blood pressure control, lipid reduction, and diabetes control.⁵

CDTM is a formal collaborative practice model between physicians and pharmacists where pharmacists—per a collaborative practice agreement—assume the responsibility for monitoring and managing drug therapy to optimize patient outcomes and safety. By engaging pharmacists as members of the health care team, providers can better identify and control high blood pressure, improve cholesterol management, and reduce health care costs.

One successful example of a pharmacist-directed MTM program that demonstrated significant improvements in hypertension control is the Asheville Project. The Asheville Project was initiated in 1997 to provide intensive education about correct medication usage and lifestyle approaches coordinated between physicians, pharmacists, and other health care practitioners. The project originally focused on diabetes, but it was later expanded to include hypertension and asthma.^{6,7} In one evaluation of the study, participants' mean systolic blood pressure was reduced from 137.3 mmHg to 126.3 mmHg, and participants' mean diastolic blood pressure was reduced from 82.6 mmHg to 77.8 mmHg. The Asheville model reduced the health care costs associated with a cardiovascular event from \$14,343 to \$9,931.⁸

Project IMPACT has also demonstrated that pharmacists can be integrated into a variety of practice settings and be involved in collaborative care of patients. Care was delivered by integrating pharmacists into care teams and using patient self-management tools in 25 communities at community pharmacies, free clinics, worksites, medical clinics, and federally qualified health centers. Each community identified a champion responsible for leading the implementation that was supported by the APhA Foundation. The evaluation of this program demonstrated the value of including pharmacists in care models because of their ability to assist in meeting the patients' needs. Project IMPACT also highlighted the importance of flexibility in implementation strategies to allow for customization of patient care.⁹

Another example is the Pharm2Pharm service model, funded by the Centers for Medicare & Medicaid Services Innovation Center. The model aimed to improve care and reduce costs by using pharmacists' expertise to optimize medications during care transitions. The model focused on the collaboration between hospital staff, community pharmacists, and primary care physicians as patients are being discharged and transition home. In this model, hospital pharmacists worked with the hospital care team and case managers to assist with the transition to the community, including close communication with community pharmacists and physicians. Health information technology supported the program, and all written communications between pharmacists and physicians were sent electronically. In the Pharm2Pharm model, patients were more likely to achieve hypertension and cholesterol control as compared with a control group. The total cost of care for patients receiving Pharm2Pharm services decreased by more than 30%, although overall medication costs increased by 20%. Medication costs increased due to pharmacists treating previously untreated symptoms and addressing effectiveness, safety, and adherence issues.¹⁰

Research also demonstrated the effectiveness of a general team-based care model in health-system settings. The intervention used in one randomized controlled trial with 625 patients from 32 varying medical offices in 15 states involved pharmacists communicating with patients, making recommendations to physicians about potential changes in medications, and tracking the time spent with each patient. At follow-up (9 months later), the average systolic blood pressure was 6.1 mmHg lower in the intervention group than in the control group.¹¹



Overcoming Common Barriers to Establishing Community-Clinical Linkages Between Community Pharmacists and Physicians

Despite the benefits of developing and sustaining community-clinical linkages between pharmacists, physicians, and other health care professionals, establishing these linkages is not always easy. There are many factors that can affect these linkages. Some of these include the traditional culture of health care, understanding the role of pharmacists, and understanding pharmacist reimbursement. In spite of these barriers, the accelerating movement toward team-based care and outcomes-based reimbursement have encouraged and fostered linkages to improve the quality, efficiency, and value of our evolving health care system.

Traditional Culture of Health Care

The traditional culture of health care training and practice for pharmacists, physicians, and other health care providers has been to work separately. Health care professionals are not accustomed to working collaboratively across disciplines or between settings. A study of a large urban teaching hospital showed that providers of varying disciplines caring for the same patients often could not identify each other and had different priorities for these patients, suggesting that coordination of care was “less than optimal.”⁹ Team-based care has the ability to more effectively meet the core expectations of the health care system proposed by the Institute of Medicine. These expectations require that care be safe, effective, patient centered, timely, efficient, and equitable.¹²

An example of a successful team-based care model is the Oklahoma Heartland Project (Heartland).¹³ This care-coordination program in Oklahoma targets patients with uncontrolled high blood pressure. It connects the local county health department, regional medical

center, a free community-based health clinic, more than 60 local providers, and pharmacists in a protocol-driven strategy to reduce uncontrolled hypertension. Heartland uses public health nurses to engage and connect patients identified with uncontrolled hypertension to community resources. This model has resulted in 25% of Heartland patients previously diagnosed with uncontrolled high blood pressure meeting National Quality Forum 18 within 90 days of enrollment. Including public health nurses in the model allowed the project to identify patient-specific barriers to adherence and have local community-based social services address them. Community pharmacists also took on this role of identifying barriers to adherence and addressing them through social services.

In addition, interprofessional education has grown significantly over the last decade and is now an accreditation standard in pharmacy and other health professions. This approach involves collaboration of two or more disciplines in the learning process with the goal of fostering interprofessional interactions that enhance the practice of each discipline. Such interdisciplinary education is based on mutual understanding and respect for the actual and potential contributions of each discipline. The ability to collaborate is vital as the increasing specialization and role differentiation of a plethora of health professions combine with the complexity of patient care.

Understanding the Role of Pharmacists

Health care has not always been recognized as a team activity. The physician-pharmacist relationship traditionally has focused on filling prescription orders rather than on collaborative linkages. Collaborations between physicians and pharmacists who are not colocated require effective and efficient communication to ensure patients receive timely, high-quality, patient-centered care. The community-clinical linkage between community pharmacists and physicians can begin to change this perception.

Despite numerous success stories from integrated programs, many organizations struggle to gain provider engagement and support, which is critical to driving patient use. Establishing trust in any relationship is essential. Physicians often do not recognize the benefits of adding a pharmacist to the primary care team. Pharmacy support can be viewed as an extension of the primary care services and can increase the primary care provider's capacity to focus on non-medication-related issues. Regular meetings with physicians and pharmacists discussing success stories, practice-related issues, shared expectations, quality indicators, and patient needs may facilitate building trust and promoting effective collaboration.

Understanding Pharmacist Reimbursement

Community-clinical linkages are not dependent on reimbursement to be effective or sustainable; in fact, they can be effective without regard to payment. That is, community-clinical linkages are not dependent on payment and the type of services provided within the model and are often within the scope of the health care professionals' daily activities, just more formalized. However, realizing the full value of clinical pharmacy services does depend on sustainable payment models. Although resolving the payment and reimbursement issues that face clinical pharmacy practice are beyond the scope of this document, pharmacists are encouraged to work with partners, payers, health care providers, and peers to explore, discuss, and learn about existing and emerging payment models, including value-based approaches that support community-clinical linkages. For example, pharmacists may establish community-clinical linkages with one of the more than 700 accountable care organizations¹³ as a way to seek reimbursement for clinical services. State health departments might also work with their Medicaid agency or private payers to create a payment structure for clinical pharmacy services or for supporting community health workers who connect patients with health care and community resources. In the end, all stakeholders and partners need to be considered to maximize resources and create comprehensive and sustainable systems of care for patients with chronic diseases.



The LINKAGE Framework

The LINKAGE Framework used in this document describes important strategies when building linkages between community pharmacists and physicians, including to:

- **L**earn about the community and clinical sectors.
- **I**dentify and engage key stakeholders from the community and clinical sectors.
- **N**egotiate and agree upon goals and objectives of the linkage.
- **K**now which operational structure to implement.
- **A**im to coordinate and manage the linkage.
- **G**row the linkage with sustainability in mind.
- **E**valuate the linkage.

The following sections provide rationale and evidence for why each component of the framework is important and specific action steps for community pharmacists and physicians. Although in many cases pharmacists are initiating the creation of the linkage, physicians should also consider initiating linkage if interested. Examples of successful community-clinical linkages between community pharmacists and physicians are included throughout to demonstrate how the strategies have been applied in practice.

Learn About the Community and Clinical Sectors

Before implementing a community-clinical linkage between pharmacists and physicians, the first step is to identify the unmet health care services needs of the community, including existing resources, organizations, health issues, policy, and existing services provided by pharmacists and physicians. Comprehensive gathering of information will ensure that the community-clinical linkages have a strong purpose, leverage existing community strengths and resources, and meet the needs of patients, pharmacists, and physicians.

Action Steps for Pharmacists:

- Identify pharmacy services that can meet areas of unmet need in the community.
- Review the pharmacy practice act within your state and determine whether pharmacists are permitted to enter into collaborative practice agreements with physicians. If so:
 - Learn which types of physicians can enter into agreements and in which settings.
 - Learn the types of patient care services pharmacists are allowed to provide.
 - Learn for which health conditions an agreement is allowed.
- Contact your state and national pharmacy associations to:
 - Identify other pharmacists who have successfully established community linkages or practice agreements with physicians to learn how that has been achieved.
 - Learn about ongoing pharmacist-physician linkage initiatives currently taking place in your state.
- Take the time to learn about physicians' clinical processes and understand where a pharmacist may fit in.

Action Steps for Physicians:

- Seek examples from your local medical associations on how physicians have created linkages with pharmacists and the community to address unmet health service needs.
- Seek to understand the scope of services pharmacists can provide for your patients (e.g., medication therapy management, medication adherence counseling, lifestyle modification counseling, chronic disease management, identification of drug-related problems, smoking cessation guidance, and patient self-management education for hypertension, diabetes, and other chronic conditions).

Collaborative Action Steps for Pharmacists and Physicians:

- Host a collaborative meeting between the pharmacist and physician to share information and learn about each other's priorities.
- Contact your state or local health department or nonprofit health-systems organizations that conduct needs assessments to understand the incidence and prevalence of disease within your community and identify unmet needs.
- Consult with state and local health departments to learn about important ongoing national and state health priorities and strategies to improve care, patient outcomes, health care use, and health information technology. Consider how a community-clinical linkage between community pharmacists and physicians can support these efforts.
- Take the time to understand how physicians and pharmacists operate in their respective practice environments.

Identify and Engage Key Stakeholders from Community and Clinical Sectors

Engaging stakeholders is essential to building successful community-clinical linkages between pharmacists and physicians. Soliciting the opinions, interests, concerns, and priorities of key stakeholders from the beginning helps address their needs and increase buy-in.¹ Building trust and relationships is key to gain support for a new care model and to develop effective working relationships. Often this relationship grows out of the initial conversations between a pharmacist and physician about their population's needs and how they can work together to better serve their patients and help patients meet their therapeutic goals.

Pharmacists in Virginia visited potential collaborative physicians for face-to-face meetings to tell them about the pharmacy services they could provide to patients. These meetings strengthened the working relationships between the pharmacists and physicians and led to increased referrals for pharmacy services.¹⁴

Collaborative Action Steps for Pharmacists and Physicians:

- Engage representatives from multiple levels of each organization (e.g., administration/management, clinical leadership, practitioners) to ensure that activities are integrated and supported by all team members.¹
- Identify a champion from within each stakeholder group or organization to promote linkage activities and align priorities.¹⁴
- Share economic and return-on-investment data from previous successful community-clinical linkages with decision makers to highlight potential cost/benefit implications (see Table).

Table. Cost Implications from Successful Linkages

Linkage Project	Annual Mean Decrease in Costs per Patient
Asheville Project: Diabetes ⁶	\$1,200
Asheville Project: Hypertension ⁸	\$4,412
Asheville Project: Asthma ⁷	\$725
Asheville Project Expansion: Diabetes ¹⁵	\$918

- Use early meetings to:
 - Educate stakeholders about pharmacists' training and capabilities using simple, understandable terms.
 - Discuss the need for integration of pharmacists beyond usual care (i.e., the gaps that will be filled or addressed).
 - Present information showing that the collaboration aligns with physicians' and pharmacists' missions and goals.
 - Illustrate how collaboration fits well with physicians' and pharmacists' workflows and cultures.
 - Provide data from past initiatives to demonstrate the benefits of team-based care that includes pharmacists and physicians.¹⁵
 - Identify and address stakeholders' needs and concerns.^{14,16}

Stakeholders to Engage¹

Participants: Those served or affected by the program, such as:

- Patients or clients
- Caregivers
- Community members
- Community leaders

Implementers: Those involved in program operations in community and clinical organizations, such as:

- Coordinators
- Liaisons, sometimes referred to as spanners
- Frontline practitioners (pharmacist, primary care physicians)
- Administrators
- Quality improvement staff
- Colleges of pharmacy
- Colleges of medicine
- State pharmacy associations
- State medical associations

Decision makers: Those who can make decisions about the community-clinical linkages, such as:

- Local leaders
- National or state leaders
- Senior managers
- Funders
- Purchasers
- Payers
- Employers
- Local media

Negotiate and Agree on Goals and Objectives of the Linkage

The mission, goals, and objectives of the linkage should be jointly determined by all participating stakeholders and communicated across all levels of the respective organizations. It may take time to build the trust needed to negotiate and agree upon a shared mission and goals. These goals and objectives should be tailored to the local setting to ensure they are relevant and appropriate.¹ All collaborating parties should be involved in defining, writing, executing, reviewing, and renewing the partnership and associated agreements.¹⁶

Collaborative Action Steps for Pharmacists and Physicians:

- Agree on short-term, intermediate, and long-term processes, objectives, and outcome measures (including economic, clinical, and humanistic outcomes).¹ Objectives should be challenging, achievable, and significant. Objectives that are overly ambitious or too cautious may discourage stakeholders if they feel they are not achieved or are not worth their time.¹ Consider how the linkage between pharmacists and physicians can be used to improve health outcomes, communication, flow of information, and lower costs.
- Develop a mission statement and a logic model or diagram to show how linkage activities will lead to desired outcomes.^{1,17}
- Specify stakeholder roles and responsibilities and how each will contribute toward reaching the objectives (e.g., providing funding, products, services, training, administrative support).
- Align incentives and reimbursement for all team members.¹⁴⁻¹⁶
- Appoint a community advisory board to guide and oversee linkage implementation.¹

Know Which Operational Structure to Implement

Creating an operational structure will ensure that linkage activities make effective use of stakeholder resources to work toward the common goals and objectives. Evaluations of community-clinical linkages between pharmacists and physicians have shown that many different operational structures can be successful. However, what they have in common is that they are built on trusting relationships, leverage the strengths and resources of participating stakeholders, and facilitate open communication.

Collaborative Action Steps for Pharmacists and Physicians:

- Determine how the community-clinical linkages between pharmacists and physicians will be structured (see Figure).
- Define the workflow that will be used by the pharmacist and physician, with specific emphasis on how referrals, communication, and documentation will occur.
- Facilitate electronic bidirectional communication between pharmacists and physicians through use of electronic health records (EHRs), a health information exchange, or other electronic system.^{16,18} If access to EHRs is not possible for pharmacists, develop a plan for how to share necessary patient information efficiently.
- Determine whether a formal agreement will facilitate the linkage. Depending on the nature of the partnership, the agreement may be a business agreement such as a contract or memorandum of understanding, or it can be a professional agreement that facilitates patient care service delivery such as a collaborative practice agreement.¹

Figure. The Continuum of Operational Structures for Community-Clinical Linkages with Pharmacists¹



Aim to Coordinate and Manage the Linkage

Continued coordination and management is important to ensure that the linkage is running smoothly, potential challenges are identified and addressed, and all stakeholders are held accountable. Having a coordinator to provide management oversight and administrative support for the linkage can help free up physicians and pharmacists to focus on providing patient care.¹⁹ Coordination and management of a community-clinical linkage can help by:

- Engaging and maintaining stakeholders' interests in the agreed-upon goals and objectives of the linkage.
- Providing appropriate infrastructure, resources, and coordination mechanisms to implement the chosen strategies.
- Developing ways to promote constructive conflict and manage destructive conflict.
- Implementing information systems to monitor progress over time.
- Adjusting implementation plans when leaders or stakeholders leave their jobs or are no longer involved with or committed to the linkage.
- Creating methodology for data collection, as well as a reporting system to track results and improve performance.¹ Align with performance measures that are deemed important to payers and processes that meet expectations of stakeholders within the agreement.

Collaborative Action Steps for Pharmacists and Physicians:

- Designate one stakeholder organization and staff members with appropriate skills to coordinate and facilitate the linkage.¹
- Conduct training for participating pharmacists, physicians, and support staff regarding the referral-and-feedback process, patient care protocols, documentation, and communication protocols.¹
- Determine processes for data collection and sharing (see Evaluate the Linkage for more information).
- Provide regular opportunities for pharmacists and physicians to meet, review data, and discuss challenges and solutions. In addition to promoting smooth implementation and process improvement, these face-to-face meetings will help build trust and relationships.²⁰

Grow the Linkage with Sustainability in Mind

To achieve its stated long-term goals and objectives, it is often necessary to grow the community-clinical linkages. Sustainability, scalability, and financial viability should all be discussed during early planning with stakeholders, particularly payers, employers, and other decision makers.¹⁴ Starting small, such as working with one clinic or provider, allows stakeholders to monitor and refine linkage activities before expanding. Focusing on short-term goals in a small area can lead to small wins, which can build momentum, commitment, and trust among stakeholders.¹

One persistent challenge in expanding community-clinical linkages is the limited number of established mechanisms to compensate pharmacists for providing patient care services. Therefore, to be successful, those working to integrate pharmacists into the health care team need to consider sustainability and funding mechanisms from the outset. Aligning incentives for patients, physicians, and payers is also important to sustain community-clinical linkages with community pharmacists.^{16,21}

Collaborative Action Steps for Pharmacists and Physicians:

- Start with a small pilot with one clinic, a small group of patients, or a limited linkage protocol. Monitor and revise the protocols as necessary. If process and outcome data are promising, then scale up to reach more patients, care settings, and health conditions.¹⁴
- Conduct public education and outreach to inform patients about pharmacist and physician collaborative services.¹⁴
- Work with payers, employers, and other stakeholders to build scalable, sustainable, and financially viable business models.¹⁴
- If applicable, provide incentives for patients to participate in collaborations, such as eliminating copays for medications and medical devices, gift cards, free screenings or consultations, and transportation vouchers.^{14,15,19}
- Consider how to provide incentives for pharmacists by working with payers and employers to ensure reimbursement and compensation for services rendered.²¹

Work with Employers to Sustain Linkages

In the Asheville Project and the Diabetes Ten-City Challenge, self-insured employers provided financial support for community-clinical linkages with pharmacists for eligible employees. The employers reimbursed pharmacists for chronic-disease-related patient care services and provided incentives for participating employees (e.g., waived copays for medications, transportation to appointments). Because the employers were at risk for their employees' and beneficiaries' medical expenditures, they supported the program because they believed the benefits would outweigh the costs. Indeed, economic evaluations of these programs demonstrated a positive return on investment in terms of lower health care use, improved employee well-being, and reduced absenteeism. These results have been used to promote expansion of these models to new communities and employers.^{6-8,19}

Evaluate the Linkage

Evaluating the community-clinical linkage between pharmacists and providers is essential to determining how effectively it is achieving its objectives. Different types of evaluation include process, outcome, impact, and summative evaluation. The perspectives of different stakeholders must be taken into account early in the planning process to determine the goals of the evaluation (i.e., what you hope to learn from the evaluation) and data collection and access requirements.¹

Access to clinical and process data for the evaluation must be discussed early and often to ensure data availability and mutual trust among stakeholders. Data sharing agreements may be necessary to specify what data may be accessed, and by whom, for the purposes of implementing and evaluating the linkage. Data sharing agreements should be developed early in the planning process, as they often take time to develop.

Evaluation Frameworks

The **CDC Evaluation Framework in Public Health**, which provides general principles for program evaluation of public health programs, is one model that can be used to evaluate community-clinical linkages.²²

The Agency for Healthcare Research and Quality developed the **Clinical-Community Relationships Measures Atlas** that provides a measurement framework that physicians can use in evaluating clinical-community relationships.²³

The Robert Wood Johnson Foundation's Diabetes Initiative also released a series of checklists that are tied to the **Framework for Building Clinic-Community Partnerships to Support Chronic Disease Control and Prevention**. These checklists were designed as tools to assist practitioners in tracking the progress and success of their clinical-community relationships.^{1,19,24}

Goals of Evaluation:¹⁶

- Track how well the program is being implemented.
- Assess the program's success.
- Determine what went well, what didn't, and why.
- Make program improvements using the evaluation results.
- Determine the strength of the partnership.
- Provide support for individual partners to seek funding for their own.
- Document what the partnership has provided for the community as an aid to strengthening their support.
- Present or publish in professional, practice, or other settings.

Collaborative Action Steps for Pharmacists and Physicians:

- Determine outcomes, measures, and data sources using the goals and objectives outlined at the start of collaboration.
- Identify the availability of data needed to address evaluation questions.
- Begin developing data sharing agreements early.
- Consider how much primary versus secondary data collection is needed for the evaluation.

LINKAGE Summary

L I N K A G E

- **L**earn about the community and clinical sectors: Learn about the health care community needs that include existing resources, organizations, health issues, policy, and existing services provided by pharmacists and physicians. Comprehensive gathering of information will ensure that the community-clinical linkages have a strong purpose, leverage existing community strengths and resources, and meet the needs of patients, pharmacists, and physicians.
- **I**dentify and engage key stakeholders from the community and clinical sectors: Solicit the opinions, interests, concerns, and priorities of key stakeholders from the beginning to help address their needs and increase buy-in. Building trust and relationships are key to gaining support for a new care model and to develop effective working relationships.
- **N**egotiate and agree upon goals and objectives of the linkage: Jointly determine the mission, goals, and objectives of the community-clinical linkage and communicate them across all levels of the respective organizations. These goals and objectives should be tailored to the local setting to ensure they are relevant and appropriate.
- **K**now which operational structure to implement: The operational structure should be built on trusting relationships, leverage the strengths and resources of participating stakeholders, and facilitate open communication.
- **A**im to coordinate and manage the linkage: Coordination and management of a community-clinical linkage deal with the following issues:
 - Engaging and maintaining stakeholders' interests in the agreed-upon goals and objectives of the linkage.
 - Implementing the chosen strategies by providing appropriate infrastructure, resources, and coordination mechanisms.
 - Developing ways to promote constructive conflict and manage destructive conflict.
 - Implementing information systems to monitor progress over time.
 - Adjusting when leaders or stakeholders leave their jobs or are no longer involved with or committed to the linkage.
- **G**row the linkage with sustainability in mind: Start with a small pilot with just one clinic, a small group of patients, or a limited linkage protocol. Monitor and revise the protocols as necessary. If process and outcome data are promising, then scale up to reach more patients, care settings, and health conditions.
- **E**valuate the linkage: Use an evaluation framework to understand how effectively a community-clinical linkage is meeting its desired outcomes.

References

1. Centers for Disease Control and Prevention. Community-Clinical Linkages for the Prevention and Control of Chronic Diseases: A Practitioner's Guide. Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Division for Heart Disease and Stroke Prevention. Atlanta, GA:2016.
2. Centers for Disease Control and Prevention. Partnering with Pharmacists in the Prevention and Control of Chronic Diseases: A Program Guide for Public Health. Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Division for Heart Disease and Stroke Prevention and Division of Diabetes Translation. Atlanta, GA:2012.
3. National Association of Chain Drug Stores Foundation. Face-to-Face with Community Pharmacies. NACDS.
4. Guide to Community Preventive Services. Cardiovascular disease prevention and control: team-based care to improve blood pressure control. www.thecommunityguide.org/cvd/teambasedcare.html. Accessed 1/7/2016.
5. American Pharmacists Association, National Association of Chain Drug Stores Foundation. Medication therapy management in pharmacy practice: core elements of an MTM service model (version 2.0). *Journal of the American Pharmacists Association : JAPhA*. 2008;48(3):341-353.
6. Cranor CW, Bunting BA, Christensen DB. The Asheville Project: long-term clinical and economic outcomes of a community pharmacy diabetes care program. *Journal of the American Pharmaceutical Association (Washington,D.C.: 1996)*. 2003;43(2):173-184.
7. Bunting BA, Cranor CW. The Asheville Project: long-term clinical, humanistic, and economic outcomes of a community-based medication therapy management program for asthma. *Journal of the American Pharmacists Association : JAPhA*. 2006;46(2):133-147.
8. Bunting BA, Smith BH, Sutherland SE. The Asheville Project: clinical and economic outcomes of a community-based long-term medication therapy management program for hypertension and dyslipidemia. *Journal of the American Pharmacists Association : JAPhA*. 2008;48(1):23-31.
9. Watson LL, Bluml BM. Integrating pharmacists into diverse diabetes care teams: implementation tactics from Project IMPACT: Diabetes. *Journal of the American Pharmacists Association: JAPhA*. 2014;54(5):538-541.

10. Pellegrin KL. The Daniel K. Inouye College of Pharmacy Scripts: Pharm2Pharm: Leveraging Medication Expertise Across the Continuum of Care. *Hawai'i Journal of Medicine & Public Health*. 2015;74(7):248-252.
11. Polgreen LA, Han J, Carter BL, et al. Cost-Effectiveness of a Physician-Pharmacist Collaboration Intervention to Improve Blood Pressure Control. *Hypertension*. 2015;66(6):1145-1151.
12. Institute of Medicine. *Crossing the quality chasm: A new health system for the 21st century*. National Academy Press. 2001.
13. Oklahoma Improves Hypertension Identification and Control Through Care Coordination and Payer Partnerships. (2016).
14. American Pharmacists Association Foundation, American Pharmacists Association. Consortium Recommendations for Advancing Pharmacists' Patient Care Services and Collaborative Practice Agreements. *Journal of the American Pharmacists Association*. 2013;53:e132-141.
15. Garrett DG, Martin LA. The Asheville Project: participants' perceptions of factors contributing to the success of a patient self-management diabetes program. *Journal of the American Pharmaceutical Association (Washington, D.C.: 1996)*. 2003;43(2):185-190.
16. Centers for Disease Control and Prevention. *Collaborative Practice Agreements and Pharmacists' Patient Care Services: A Resource for Pharmacists*. US Department of Health and Human Services, Centers for Disease Control and Prevention. Atlanta, GA:2013.
17. A Practical Playbook: Public Health and Primary Care Working Together. <https://www.practicalplaybook.org/>. Accessed 7/15/15.
18. Bluml BM, McKenney JM, Cziraky MJ. Pharmaceutical care services and results in project ImPACT: hyperlipidemia. *Journal of the American Pharmaceutical Association (Washington, D.C.: 1996)*. 2000;40(2):157-165.
19. Fera T, Bluml BM, Ellis WM. Diabetes Ten City Challenge: Final economic and clinical results. *Journal of the American Pharmacists Association*. 2009;49:383-391.
20. Snyder ME, Earl TR, Gilchrist S, Greenberg M, Heisler H, Revels M. Collaborative Drug Therapy Management: Case Studies of Three Community-Based Models of Care. *Preventing Chronic Disease* 2015;12:140504.
21. Bluml BM, Watson LL, Skelton JB, Manolakis PG, Brock KA. Improving outcomes for diverse populations disproportionately affected by diabetes: Final results of Project IMPACT: Diabetes. *Journal of the American Pharmacists Association*. 2014;54(5):477-485.

22. Centers for Disease Control and Prevention. A Framework for Program Evaluation. US Department of Health and Human Services, Centers for Disease Control and Prevention. Atlanta, GA:2016. <https://www.cdc.gov/eval/framework/>. Accessed 3/10/17.
23. Dymek C, Johnson M Jr, Mardon R, Hassell S, Carpenter D, McGinnis P, et al. Clinical-Community Relationships Measures Atlas. US Department of Health and Human Services, Agency for Healthcare Research and Quality. Rockville, MD:2013. <https://www.ahrq.gov/sites/default/files/publications/files/ccrmatlas.pdf>. Accessed 3/10/17.
24. Robert Wood Johnson Foundation Diabetes Initiative. Tools for Building Clinic-Community Partnerships to Support Chronic Disease Control and Prevention. Robert Wood Johnson Foundation. Princeton, NJ:2008. http://www.diabetesinitiative.org/documents/Tools_combined_FINAL5108.pdf. Accessed 3/10/17.

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