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High-Risk Care Coordination: Opportunities, Barriers, and Innovative Initiatives in Medicaid

As of 2015, approximately half of U.S. adults (those over age 21) suffer from one chronic condition, and 25 percent have multiple chronic conditions.¹ Persons with disabilities and multiple chronic conditions are often at higher risk for increased utilization of health services and poorer general health status. Individuals with chronic conditions often receive care from multiple clinicians in disparate healthcare settings. Lack of communication between clinicians can result in inadequate, unnecessary, and duplicative care.² High-risk care coordination (also referred to as care management and case management) is a strategy that has been used to improve quality of care, safety, and outcomes. Care coordination can minimize gaps in care for high-risk members through effective use of evidence-based services and supports. This report details the ways in which the Medicaid population benefits from care coordination programs and offers case studies from Medicaid health plans demonstrating their efforts. Key components of care coordination programs, common payment mechanisms, and potential barriers to successful implementation are provided along with clinical, research, and policy opportunities that could improve the quality of and access to care coordination services.



The mission of the Institute for Medicaid Innovation is to improve the lives of Medicaid enrollees through the development, implementation, and diffusion of innovative and evidence-based models of care that promote quality, value, equity and the engagement of patients, families, and communities.

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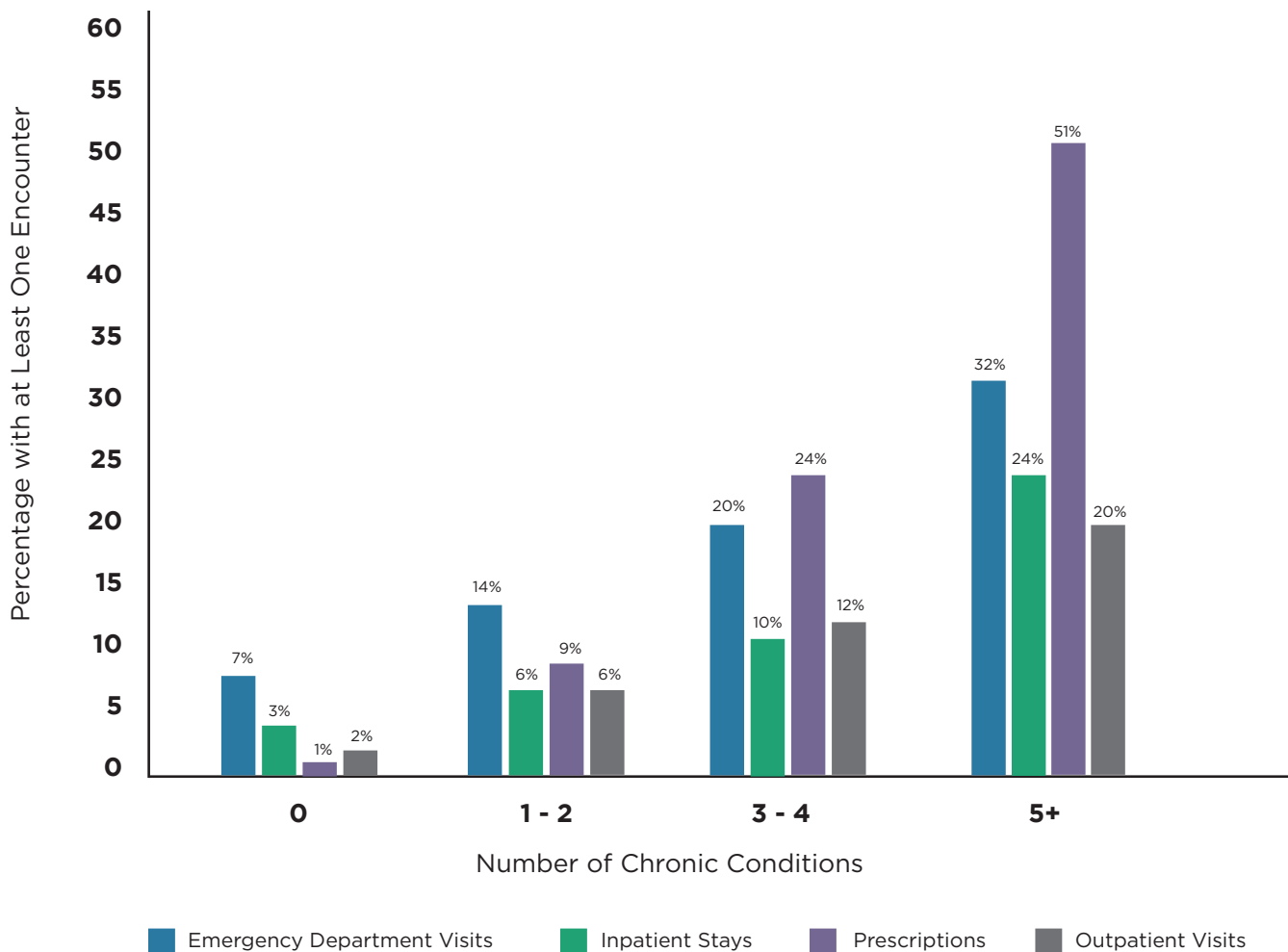
“Care coordination” is a broad term that encompasses a range of activities performed by clinicians, hospital systems, managed care organizations, and government entities. The most common forms of care coordination are case management services and discharge planning. Case management can include referrals from primary care providers; identification of members at higher risk for future increased health care utilization through analytics; transition support, and coordination between health care providers; transportation coordination; and other interventions designed to help people navigate the complexities of the health system. Care coordination also includes member, caregiver, and family education in self-management, healthy behaviors, and assistance with adherence to a prescribed medication regimen.³ Information exchange (i.e. medical records, referrals, authorizations) and care transitions are crucial to care coordination efforts, particularly as individuals interact with multiple, independent health care organizations responsible for their care. Adequate transition management has decreased hospitalization readmissions and improved individual outcomes.⁴

Individuals with multiple chronic conditions often have high rates of service utilization that increase with the number of comorbidities (Figure 1).⁵ Higher rates of utilization often result in higher costs. While between 1 and 10 percent of the U.S. non-institutionalized adult population is made up of high-risk and high-cost individuals, it accounts for anywhere between 24 and 68 percent of total health care spending.⁶

Recent healthcare reform initiatives have viewed care coordination as a way to improve care for populations considered high-risk. Care-coordination interventions have been associated with improved satisfaction and experiences for participants, fewer inpatient admissions, reductions in unnecessary care, and improved health outcomes.⁷⁻⁹ A randomized quality-improvement trial of a complex care management program for high-need, high-cost Medicaid patients found that carefully designed and targeted care coordination reduced total medical expenditures by 37 percent and inpatient utilization of services by 59 percent.¹⁰



Figure 1. Annual Service Utilization by Number of Chronic Conditions in the U.S. Civilian, Noninstitutionalized Population



Source: Buttorff, C., Ruder, T. and Bauman, M. (2017) Multiple chronic conditions in the United States. RAND Corporation. <https://www.rand.org/pubs/tools/TL221.html>.

Identification of Members to Enroll in Care Coordination Programs

Identifying individuals for inclusion in care coordination programs takes many forms. At a basic level, it is necessary to specify the enrollees who are included in the program. Techniques include adopting clinical staff referrals, using diagnostic codes in administrative data, targeting site-specific populations (e.g. incarcerated individuals), identifying individuals with high utilization of health services, and designating specific populations such as children with special healthcare needs. Diagnostic codes and utilization data from medical claims are common sources for identifying individuals who may benefit from care coordination services. Administrative data may also be used to identify members who would benefit from care coordination such as those with high utilization of services, frequent emergency room visits, and multiple inpatient stays. Site-specific approaches to identification can increase operational efficiencies and are frequently used to provide screenings, education services, and simple interventions.

Improving the precision of identification is a major goal for those developing care coordination programs. As data systems and digital information technology have improved, advanced analytics have allowed for more sophisticated identification methods such as predictive algorithms.¹¹ Enhancements to data reliability and interoperability between previously independent data sets have the potential to further the capabilities of care coordination programs in the calculation of risk and those who would benefit from the programs.¹² The inclusion of mental health, socioeconomic, and social determinants of health data sets might also increase precision in identifying individuals who might benefit from care coordination.¹²

Common Approaches to Care Coordination

Care coordination programs often include a specific evidence-based approach. In some instances, the care coordination program includes a combination of one or more approaches such as utilization of community health workers and home-based services. The most common approaches to care coordination include 1) education and self-maintenance, 2) transition management and information exchange, 3) facilitation of access to clinicians and health care systems, 4) utilization of community health workers, 5) home-based services, and 6) patient-centered medical homes.

Education and self-maintenance care coordination programs provide the resources and support to enhance and modify health behaviors and improve adherence to care plans. The goal of these programs is to prevent the formation or exacerbation of disease or injury. Activities might include targeting educational materials to a specific population, facilitating discharge planning by reviewing post-care instructions prior to a person's leaving a facility, or utilizing digital member portals to increase access to educational videos and resources.¹³

Transition management and information exchange programs are designed to prevent poor health outcomes that might occur because of systemic challenges and communication failures. Transition management helps to ensure that individuals receive needed care when transitioning between service providers by facilitating the exchange of member information. Medication management services also are included. The development of a shared care plan with the individual and family, if applicable, coordinates communication across all clinicians and organizations and aligns the various services and supports provided.

Facilitation of access to clinicians and health care systems is intended to help individuals, caregivers, and families schedule appointments, guide them to the necessary service centers, coordinate transportation to appointments, and assist with referrals. These care coordination programs might also facilitate access to social services, such as housing assistance, that are outside the traditional healthcare system.¹⁴

Utilization of community health workers has increased since passage of the Patient Protection and Affordable Care Act, supporting reimbursement for services under Medicaid.¹⁵ Payers, hospital systems, and provider groups have enlisted CHWs to provide case management services in the individual's home. CHWs offer cultural concordant support and community-based knowledge that help to build connections with individuals, caregivers, and families while also interfacing with the health care system to ensure that their needs are being met.¹⁵ The CHW model of engagement can be a major asset to help address the needs of high-risk and disabled individuals and has been shown to be a cost-effective approach in the Medicaid population.^{10, 16}

Home-based care utilization has expanded with the availability of section 1915 (c) waiver authority to allow care coordination programs to occur in the home. This approach supports easier identification of the social and environmental needs of individuals and their families when a person is receiving care in the home.¹⁴ Home-based service programs offer risk assessment, identification and mitigation of home-based environmental factors, and other services that might be deemed necessary for an individual to safely stay at home.

Patient-centered medical home (PCMH) programs encompass five functions: comprehensive care, patient-centered relationship building, coordinated care, accessible services, and quality and safety.¹⁷ Evidence from PCMH evaluations has shown that the program's emphasis on team-based approaches to care, patient accountability, and care coordination improves the composite quality of care scores and reduces costs.¹⁸ PCMHs are a common model of care coordination among state Medicaid plans.^{19, 20} In 2019, 30 state Medicaid programs served at least some Medicaid enrollees through a PCMH.*

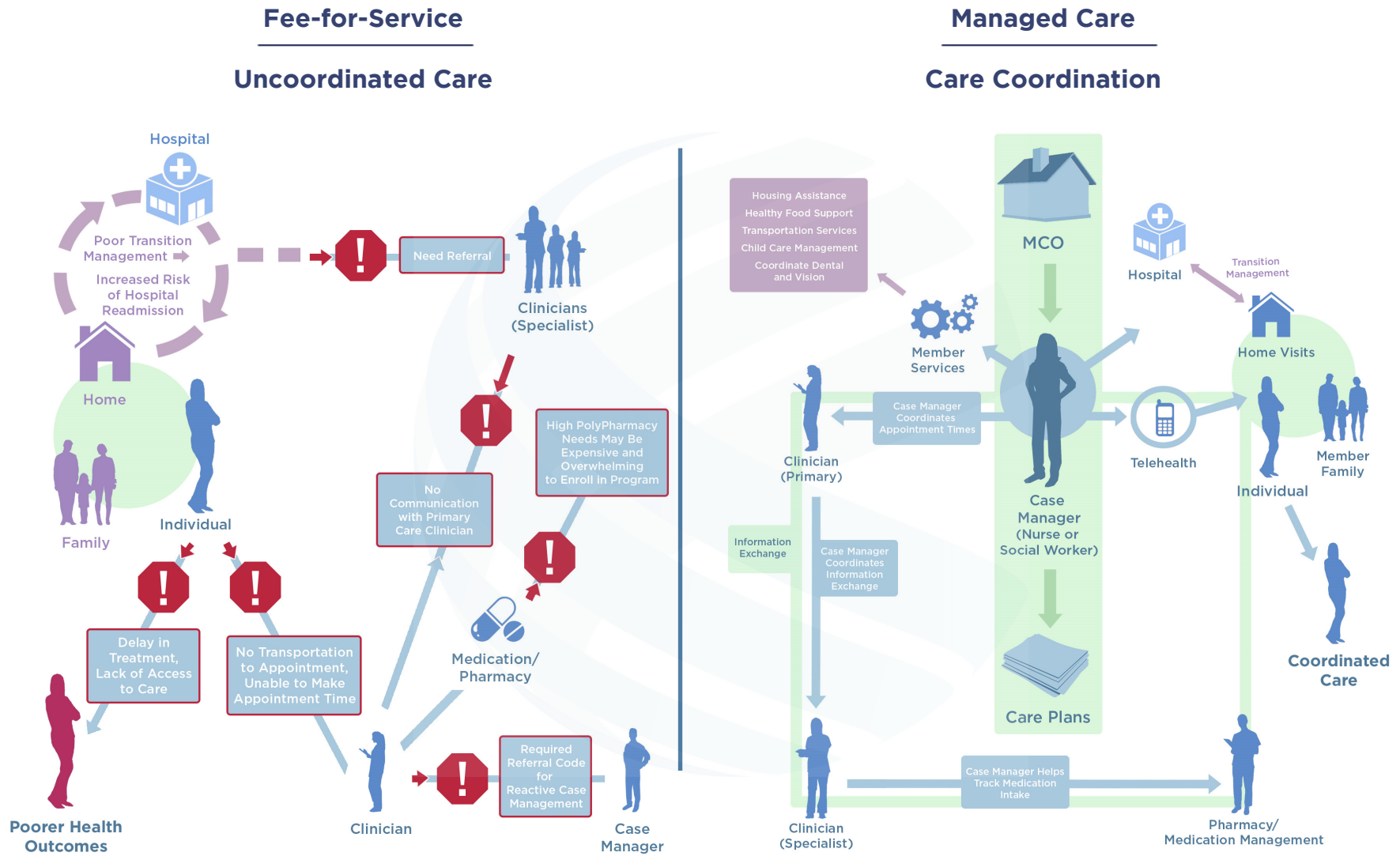
Care Coordination in Medicaid Managed Care Organizations

From 1999 to 2012, the use of Medicaid managed care increased substantially, with rates of enrollment for non-elderly, non-disabled adults growing from approximately 63 percent to 89 percent.²¹ State Medicaid agencies have increased their utilization of managed care in order to improve care quality and predictively manage costs.²² A defining feature of Medicaid managed care organizations (MCOs) is their ability to provide care coordination. Through the use of case managers, they are able to work with the individual, caregivers, and family to perform functions such as conducting a health risk or needs assessment, developing an individualized care plan for the member, ensuring that all home equipment and home visiting needs are coordinated, ensuring compliance with a medication and/or treatment regimen, scheduling appointments, arranging transportation to medical appointments, providing condition-specific and general care education, and connecting to community-based social supports to address social determinants of health.⁸ Figure 2 illustrates the relationship between care coordination and the key members of an individual's care team as part of managed care and how it differs from an uncoordinated and/or reactive care coordination in the fee-for-service Medicaid model.

*States that served at least some Medicaid enrollees through a PCMH in 2019: AL, AK, AR, CO, CT, FL, GA, ID, IL, LA, MI, MN, MO, MN, NE, NJ, NM, NY, NC, OH, OK, OR, PA, RI, SC, TN, TX, VT, VI, & WY.²⁵



Figure 2. Uncoordinated versus Coordinated Care



Source: Institute for Medicaid Innovation (2020). Overview of high-risk Care coordination: Opportunities, barriers, and innovations for the Medicaid population.

As shown in Figure 3, the most common approach for care coordination by Medicaid MCOs is the creation of a shared care plan among clinicians, case managers, and the enrollee. Other common approaches include providing support for adherence to the care plan and conducting individual-level risk assessments.²³ MCO case management programs are also supporting the facilitation of transportation to appointments, providing connections to and supporting the provision of information about social service eligibility, offering full coordination with social service organizations (i.e. affordable housing programs, food insecurity organizations, and job services), and coordinating with home-based services to ensure the timely provision of appropriate levels of care.²³



Figure 3. Core Functions Performed by Medicaid MCOs under High-Risk Care Coordination, 2018

Core Function	Always (i.e., Required for care coordination.)	Sometimes (i.e., Based on member needs.)	Limited (i.e., Small pilot program or case-by-case.)	Did Not Provide
Served as a single point of contact for the member	56%	44%	0%	0%
Engaged a care team of professionals to address the needs of the member	67%	33%	0%	0%
Developed a plan of care	77%	23%	0%	0%
Supported adherence to plans of care	77%	23%	0%	0%
In addition to supplying the provider directory, supported the member in identify and connecting with providers	45%	55%	0%	0%
Coordinated in-home services	33%	67%	0%	0%
Prepared the member for appointments	17%	73%	12%	0%
Arranged transportation for appointments	11%	89%	0%	0%
Provided information on other types of social services (e.g., faith-based, non-profit, other government programs)	27%	73%	0%	0%
Provided guided referrals or “hand-offs” to other needed social services (e.g., faith-based, non-profit, other governmental programs)	17%	78%	5%	0%
Coordinated with social services (i.e., housing providers, nutrition programs) as part of care plan development and adherence	17%	78%	5%	0%
Shared data with social services	17%	44%	22%	17%
Coordinated with multiple care coordinators from health systems, provider practices, clinics, etc.	33%	67%	0%	0%

Source: Institute for Medicaid Innovation. (2019). Medicaid access & coverage to care in 2018: Results from the Institute for Medicaid Innovation’s 2019 Annual Medicaid Managed Care Survey. Retrieved from: https://www.medicaidinnovation.org/_images/content/2019_Annual_Medicaid_MCO_Survey_Results_FINAL.pdf

Cost Savings for Care Coordination in Medicaid

In general, the primary goal of care coordination is to improve health outcomes using efficient, evidence-based interventions. In addition, state Medicaid agencies might experience cost savings or stability from the implementation of care coordination programs. These goals depend on successful condition management and the reduction of uncoordinated, duplicative, and/or non-evidence-based care.

Assessing the cost savings derived from care coordination can be difficult. Some models have demonstrated cost savings; however, such models were in defined populations and settings that might prohibit generalization.³ However, these models have demonstrated that care coordination focused on inpatient discharge planning and transitions along the care continuum are effective in reducing unnecessary care; ensuring that individuals receive coordinated, nonduplicative, evidence-based care; and preventing unnecessary hospital readmissions.³ Programs that target specific populations have also been found to be more effective than is generalized care coordination.³

Short-term costs of care coordination include increased administrative costs and spending as a result of higher utilization rates and improved access to care, and challenges to the scale and scope of the programs. Administrative costs associated with operating a care coordination program such as information technology and personnel can be high but are often not included in program evaluations.²⁴ Although the programs might produce cost savings and improve the quality of clinical care, the total cost may be net-neutral as expenses are shifted from medical to administrative costs in the early days of program administration.²⁴ This might mean greater short-term healthcare costs, offset by the long-term benefit of healthier members.²⁴ Proponents argue that while costs may be higher in the short term, care coordination facilitates preventive care and might improve long-term health outcomes, which would in turn reduce future costly episodes of care.

Payment Models for Care Coordination in Medicaid

Payment for care coordination has multiple pathways. Current procedural terminology (CPT) codes are used in Medicare for care coordination services and chronic care management (e.g. CPT 99490, CPT 99487, and CPT 99489).²⁵ States may use these codes for Medicaid reimbursement. In recent years, alternative payment models developed under the 1115 waiver by state Medicaid agencies have contained payments specific to care coordination. Specific care management, such as chronic care management, may also be billed by clinicians to cover services such as an in-practice care manager.²⁶

Despite the additional reimbursement to clinicians for care coordination activities, evidence suggests that these payments are inadequate for robust clinician-led management programs.²⁶ Clinician practices report that the payments do not fully cover the upfront investment necessary to staff programs, adjust workflows, and allocate the time necessary to address complex health issues.²⁶ Under chronic care management (CCM) payment policies, providers may bill for the time of clinical staff once a month for care coordination activities, with the reimbursement amount averaging \$42.²⁶ The onus of care coordination often falls on larger organizations, such as MCOs, to fund and develop robust programs.

Challenges with Care Coordination

Care coordination programs have experienced challenges with implementation in the Medicaid population. To better understand the barriers faced by those providing and receiving care coordination services, one study explored the perspectives of frontline clinical staff and Medicaid members.²⁷ The identified barriers to care coordination programs included:

- Language and Cultural Barriers
- Housing Insecurity
- Professional Territorialism
- Mental Illness
- Limited Access to Food, Shelter, and Transportation
- Difficulty Accessing Healthcare Services
- Substance Use Disorder
- Lack of Working Phone Number
- Appointment Length
- Distrust of Government or Authority
- Difficulty of Care Coordination Staff Working with Certain Individuals, Caregivers, and/or Family Members

The study noted that many of the identified barriers are related to or exacerbated by a lack of information exchange between different healthcare providers.²⁷ Information exchange includes discharge planning, which requires transmitting enrollee information and referrals to the post-acute care facility, home health care, or additional health providers. Fifty-six percent (56%) of MCOs report frequent challenges accessing information from discharging provider.²³ Ninety-five percent (95%) of MCOs report inaccurate member information as a major barrier to care coordination activities.²³ Information exchange helps to ensure that members receive evidence-based care for their conditions in a timely manner, that medications are prescribed with attention paid to contraindications, and that care plans are followed. Managed care coordination programs can facilitate information exchange between providers of care and other organizations, but challenges might persist when there are communication and/or data issues.

Innovation in Care Coordination in Managed Care

To improve Medicaid enrollee health status, Medicaid MCOs are investing in care coordination models that better integrate and support social services. The UPMC for You and Kern Health Systems are examples of referrals and coordination efforts among health systems, health plans, and community agencies. Models seeking to address systemic disparities, such as the UnitedHealthcare Community & State case study, illustrate recognition of social factors that drive poor health outcomes and chronic disease development. The following case studies provide a snapshot of innovative initiatives that are incorporating telehealth, participant preferences, and social determinants of health into their care coordination programs. Highlights from their key lessons learned include:

- Effective communication between program managers and staff is critical.
- Partnerships with organizations outside the MCO require slow, persistent relationship building.
- Technology can be a useful tool in creating and implementing care coordination programs.



A Team-Based Approach to Care: *UPMC for You: Community Team*

Overview

The Community Team (CT) care management program provides comprehensive targeted interventions and care coordination to high-risk members. Intensive case management is provided in the member's home, provider sites, and other community-based settings. The primary criteria for the CT intervention are recent admission to care services, a proprietary measure of persistent health risk, or high polypharmacy. The aims of the program are to engage members, minimize unplanned care, improve health status, reduce gaps in care, and mitigate risk factors for bad outcomes. CT care managers, who are nurses or social workers, coordinate care across primary care practitioners, specialists, and behavioral health services; they also provide medication management, address gaps in care, refer members to community resources and support services, assist members with their wellness goals, and provide connection to adequate housing and other unmet needs.

For more than 10 years, *UPMC for You* has been partnering with a community-based organization whose mission is to empower individuals to live in stable housing, connect to community resources, build relationships, and access good-quality food. This partnership was expanded in 2019 to provide housing for additional dozens of homeless and at risk for homelessness members.

Innovation: Utilizing Telehealth

The CT intervention incorporates telehealth in innovative ways. It uses web-based technology with information-sharing capabilities to support individual health care choices and the use of telehealth, remote monitoring, and web-based tools. Community Team care managers utilize a link on their smartphones for telehealth and video conferencing through a secure visual communication environment. This approach enables CT staff to employ a multi-disciplinary team approach with members. Telehealth enhances a single care manager's efficiency and reach to engage more members per manager and provides additional opportunities for education, clarification, and real-time support. A study that compares the impact of in-person case management with a telehealth-based intervention, funded by the Patient Centered Outcomes Research Institute, is currently underway. PCORI will compare the effectiveness of these models on patient activation in health care, health status, and subsequent re-hospitalization. The study will also determine which options work best for whom under which circumstances.

Outcomes to Date

- Higher member engagement rate with both in-person and telehealth approaches than with telephone alone
- Telehealth engagement rates are similar to in-person engagement rates
- Majority of members are comfortable using new technology and feel the program helps manage their health conditions

Key Lessons Learned

Community Team staff require specialized training to successfully implement both in-person and telehealth approaches models, including motivational strategies used to engage individuals with complex needs, mental health conditions, and substance use disorders. Addressing social determinants of health such as housing, food security, social support, and transportation needs has been critical to engaging members in optimal health and is a key component of the Community Team interventions. The strong, integrated physical/behavioral health focus of the team has been invaluable in the design of effective service plans



Collaboration and Coordination to Address Social Determinants of Health: Kern Health Systems Transitional Care Model

Overview

The Kern Health System Transitional Care Model (TCM) has demonstrated improved quality and cost outcomes for high-risk enrollees in comparison to those outside the program. Collaborative, team-based care is the primary strategy utilized under the TCM model. The model focuses on six key areas: chronic cardiovascular conditions, chronic respiratory conditions, diabetes management, emergency department utilization, inpatient care and discharge planning, and a transitional care clinic.

Kern uses the Johns Hopkins ACG Predictive Modeling to stratify members by risk of admission within six months. This tool allows Kern to track the identified population through the continuum of care with improvements in outpatient management and post-acute care coordination with community-based organization (CBO) partners.

Kern implemented an interdisciplinary clinic with collaborating partners to develop robust inpatient discharge coordination and improved transition management. TCM uses a team-based approach with a physician, associate provider, nurse, care coordinator, and social worker to provide adaptable wrap-around services that inform an individual's care plans. The services are tailored to the unique needs of a member and vary greatly. Kern also focuses on providing pharmacy management, collaborating with social services, administering intensive diabetic education services, and facilitating frequent in-person contact.

Innovation: Social Determinants of Health

The TCM program approaches the social determinants of health in innovative ways. Kern collaborates heavily with CBOs to add to the wrap-around services provided in their program. For example, they work with a local housing authority to support housing-specific case management services to address housing insecurity among its membership. Kern communicates with other CBOs and the public health department to better coordinate needed services and cites these community relationships as a key part of the program's success.

Kern utilizes technology to enhance its TCM program member engagement through the use of text messaging to members across the continuum of care. Geospatial mapping to identify high-risk geographic areas has also improved Kern's TCM program planning, allowing them to understand and contextualize various risk factors and strategize new approaches.

Highlighted Outcomes

- Improvements in health outcomes post-discharge
- Readmission rate reductions
- Increased member satisfaction
- Cost savings derived from ER, pharmacy, and inpatient utilization reductions

Future Directions

Kern is looking to expand the program to include additional populations and risk groups to shift to a more proactive case management approach, incorporating members with lower health risks to prevent the development of poor health outcomes.



Addressing Systemic Disparities through Community-Focused Care Coordination: UnitedHealthcare Community & State

Overview

UnitedHealthcare Community & State (UnitedHealthcare) developed a strategic initiative targeting the female justice-involved population. Approximately 219,000 women are incarcerated in the United States, and the majority are of childbearing age.²⁸ This population has a high incidence of unintended pregnancies, which have significant impacts on the women, their children, and the communities in which they reside. Historically and in the recent past, reproductive health care in the criminal justice system has been associated with coercive practices such as sterilization.²⁹ Federal law defines a legal right to “adequate medical care and equal treatment” while in correctional facilities. Women’s health care and contraception have not been specifically addressed through legal measures. A managed care organization can contribute to improved health outcomes in this uniquely vulnerable population through contraception education.

UnitedHealthcare’s program works to address unintended pregnancy and its associated consequences, including high-risk pregnancies, high maternal mortality, and increased rates of pre-term birth, low birthweight, and NICU admission. A community health worker (CHW) and nurse educator provide information on evidence-based contraception and the risks of unintended pregnancy through classes with interactive learning techniques. UnitedHealthcare currently provides education on both contraception options and Medicaid and is planning to offer long-acting reversible contraceptives (LARC) placement prior to release from justice facilities to facilitate uptake when desired.³⁰

Innovation: Meeting Participants’ Needs

UnitedHealthcare has developed a simple, adjustable program that can respond to participants’ feedback. Technology is purposefully avoided, because the program has found that the use of laminated pages with questions about Medicaid/contraception has promoted active engagement and empowers the women to teach each other from their previous knowledge/experience. UnitedHealthcare gives relative autonomy to the CHW and nurse educator to adjust the curriculum so that it responds to the needs of individuals in the program. UnitedHealthcare emphasizes reliability, cultural awareness, and an environment where participants and the instructors learn from one another.

Outcomes to Date

- More than 150 women have attended classes.
- Women report they are more likely to use birth control once they are released.
- Attendees expressed appreciation for the program, especially its hands-on, bi-directional approach.
- 50% of women who attended classes have reported they would choose to receive a LARC device before release from incarceration.

Lessons Learned

UnitedHealthcare reports that slow, persistent relationship building with jail systems is critical to successfully coordinating care for the justice-involved population. Securing funding for device placement and data collection is a persistent barrier for the program. They are hoping to expand the program into more facilities and support contraception placement during incarceration.

Looking Forward

As quality and cost continue to be major drivers of policy and innovation, care coordination is poised to maintain a position of interest in the Medicaid program. Further research and program evaluations of new care coordination models are essential as the healthcare system evolves. In the future, organizations will rely on the results of this research to develop effective and efficient models. Technology will better enable the identification of members, the interventions designed for them, and better tracking of the outcomes. The growing recognition of the social determinants of health will promote the integration of health services with case management, and the place of care will shift to more-intensive home-based programs for high-risk individuals are created.

Building the case for strong return on investment is necessary for widespread adoption among health organizations. As risk-based contracts and value-based payment methods are adopted, the focus on cost savings will continually align with the use of care coordination. Health systems, MCOs, and other individual organizations interested in improved outcomes and addressing unnecessary cost for high-risk enrollees will highlight the continued need to invest in program development and evaluation to ensure the efficiency and effectiveness of their care coordination models. Promoting active engagement of members, caregivers, and families is key to the success of care coordination, and research on patient preferences in these services is critical.

On the administrative side, better case management tracking and workflow management systems have improved operational efficiency. Predictive analytics have allowed for more-sophisticated targeting of high-risk individuals. This trend will continue as technology continues to develop, enhancing clinical performance and transitional care.

Managed care organizations are designing, implementing, and evaluating care coordination programs for high-risk individuals. As case management programs evolve and focus on quality and cost, high-risk care coordination will begin to see more wrap-around, data-driven, and community-based care to ensure that the right person gets the right care in a timely manner. This report considers several clinical, research, and policy priorities that support the development of effective, equity-orientated care coordination programs.



Clinical Opportunities

Consider developing high-risk care coordination models aimed at addressing social determinants of health and mitigating barriers related to these factors.

Research has shown that vulnerabilities related to social determinants of health, such as housing instability and lack of adequate transportation, present key barriers to individuals in need of care coordination services. Incorporating these factors into the clinical practice of care coordination might improve efficacy and outcomes.

Support member needs to engage in care coordination services.

By ensuring that members', caregivers', and families' preferences are heard, valued, and integrated into program development, clinicians might be able to encourage greater uptake in care coordination services.

Explore the integration of digital information systems that enhance information exchange to promote effective transitions between care providers.

Research has shown that issues preventing easy data exchange can limit the scope and effectiveness of care coordination programs, particularly as individuals are transitioning to and from different providers or settings. Ensuring information exchange could encourage greater adoption of care coordination services.



Research Opportunities

Develop and evaluate evidence-based care coordination interventions.

Researchers have found that care coordination interventions that focus on specific populations and help individuals transition between care providers are effective in improving health outcomes. Further research on how to develop these interventions will help health systems approach care coordination, and evaluation and outcome data will inform development.

Investigate the return on investment for specific care coordination models for specific populations.

Care coordination is a diverse field, and research is continually emerging. Building a strong business case for the care coordination model is critical. Further research might explore how care coordination can improve health outcomes and produce cost savings in the long term.



Policy Opportunities

Explore funding and prioritization of care coordination programs.

Care coordination requires up-front investment and higher administrative costs in the short term. Understanding how care coordination improves long-term health outcomes, integrates social determinants of health, and reduces costs might help to ensure the continuation of funding for care coordination programs.

Encourage payment mechanisms that facilitate care coordination, including adequate reimbursement and incentivized cross-collaboration.

Clinician-led care coordination services require funding to support the upfront and administrative costs of implementation. Reimbursement for care coordination services needs to be adequate and sustainable for clinicians and Medicaid MCOs to adopt and refine care management programs.

References

- ¹ Castaño, A., & Maurer, M. S. (2015). Multiple chronic conditions and labor force outcomes: A population study of U.S. adults. *American Journal of Medicine*, 20(2), 163–178. <https://doi.org/10.1007/s10741-014-9462-7>. Natural
- ² Koch, G., Wakefield, B. J., & Wakefield, D. S. (2014). Barriers and facilitators to managing multiple chronic conditions: A systematic literature review. *Western Journal of Nursing Research*, 37(4), 498–516. <https://doi.org/10.1177/0193945914549058>
- ³ Berkowitz, S.A. Parahsuram, S., Rowan, K., Andon L, Bass, E.B., Bellatoni, M.,...Johns Hopkins Community Health Partnership (J-CHIP) Team. (2018). Association of a care coordination model with health care costs and utilization: The Johns Hopkins Community Health Partnership (J-CHIP). *JAMA Network Open*, 1(7), e184273. <https://doi.org/10.1001/jamanetworkopen.2018.4273>
- ⁴ Mitchell, S. E., Martin, J., Holmes, S., Van Deusen Lukas, C., Cancino, R., Paasche-Orlow, M., ... Jack, B. (2016). How hospitals reengineer their discharge processes to reduce readmissions. *Journal for Healthcare Quality*, 38(2), 116–126. <https://doi.org/10.1097/JHQ.0000000000000005>
- ⁵ Buttorff, C., Ruder, T. and Bauman, M. (2017) Multiple chronic conditions in the United States. RAND Corporation. <https://www.rand.org/pubs/tools/TL221.html>.
- ⁶ Wammes, J. J. G., van der Wees, P. J., Tanke, M. A. C., Westert, G. P., & Jeurissen, P. P. T. (2018). Systematic review of high-cost patients' characteristics and healthcare utilisation. *BMJ Open*, 8(9), e023113. <https://doi.org/10.1136/bmjopen-2018-023113>
- ⁷ De Regge, M., De Pourcq, K., Meijboom, B., Trybou, J., Mortier, E., & Eeckloo, K. (2017). The role of hospitals in bridging the care continuum: A systematic review of coordination of care and follow-up for adults with chronic conditions. *BMC Health Services Research*, 17(1). <https://doi.org/10.1186/s12913-017-2500-0>
- ⁸ Gilchrist-Scott, D. H., Feinstein, J. A., & Agrawal, R. (2017). Medicaid managed care structures and care coordination. *Pediatrics*, 140(3), e20163820. <https://doi.org/10.1542/peds.2016-3820>
- ⁹ Gorin, S. S., Haggstrom, D., Han, P. K. J., Fairfield, K. M., Krebs, P., & Clauser, S. B. (2017). Cancer care coordination: A systematic review and meta-analysis of over 30 years of empirical studies. *Annals of Behavioral Medicine*, 51(4), 532–546. <https://doi.org/10.1007/s12160-017-9876-2>
- ¹⁰ Powers, B.W., Modarai, F., Palakodeti, S., Sharma, M., Mehta, N., Jain, S., & Garg, V. (2020). Impact of complex care management on spending and utilization for high-need, high-cost Medicaid patients. *The American Journal of Managed Care*, 26(2), e57-e63. <https://doi.org/10.37765/ajmc.2020.42402>
- ¹¹ Bates, D. W., Saria, S., Ohno-Machado, L., Shah, A., & Escobar, G. (2014). Big data in health care: Using analytics to identify and manage high-risk and high-cost patients. *Health Affairs*, 33(7), 1123–1131. <https://doi.org/10.1377/hlthaff.2014.0041>
- ¹² Paxton, C., Niculescu-Mizil, A., & Saria, S. (2013). Developing predictive models using electronic medical records: challenges and pitfalls. *AMIA ... Annual Symposium Proceedings. AMIA Symposium*, 2013, 1109–1115. Retrieved from <http://www.ncbi.nlm.nih.gov/pubmed/24551396> <http://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=PMC3900132>
- ¹³ Yen, P. Y., Walker, D. M., Smith, J. M. G., Zhou, M. P., Menser, T. L., & McAlearney, A. S. (2018). Usability evaluation of a commercial inpatient portal. *International Journal of Medical Informatics*, 110(June 2017), 10–18. <https://doi.org/10.1016/j.ijmedinf.2017.11.007>
- ¹⁴ Daniel-Robinson, L., & Moore, J. E. (2019). Innovation and opportunities to address social determinants of health in medicaid managed care (January). Retrieved from www.MedicaidInnovation.org
- ¹⁵ Shah, M., Heisler, M., & Davis, M. (2014). Community health workers and the patient protection and affordable care act: An opportunity for a research, advocacy, and policy agenda. *J Health Care Poor Underserved*, 25(1), 17–24. <https://doi.org/10.1353/hpu.2014.0019>. Community
- ¹⁶ Kangovi S., Mitra N., Grande D., Long J.A., & Asch D.A. (2020). Evidence-based community health worker program addresses unmet social needs and generates positive return on investment. *Health Affairs*, 39(2). <https://doi.org/10.1377/hlthaff.2019.00981>
- ¹⁷ Agency for Healthcare Research and Quality. (n.d.) Defining the PCMH. Retrieved from: <https://pcmh.ahrq.gov/page/defining-pcmh>
- ¹⁸ Paustian, M. L., Alexander, J. A., El Reda, D. K., Wise, C. G., Green, L. A., & Feters, M. D. (2014). Partial and incremental pcmh practice transformation: Implications for quality and costs. *Health Services Research*, 49(1), 52–74. <https://doi.org/10.1111/1475-6773.12085>
- ¹⁹ Mandros, A. (2019). The Medicaid Care Coordination Models Driving Strategy in Your State. *Open Minds*. Retrieved from: <https://www.openminds.com/market-intelligence/executive-briefings/the-medicaid-care-coordination-models-driving-strategy-in-your-state/>
- ²⁰ Kaiser Family Foundation. (n.d.) States that reported patient centered medical homes in place. Retrieved from: <https://www.kff.org/medicaid/state-indicator/states-that-reported-patient-centered-medical-homes-in-place/?currentTimeframe=0&sortModel=%7B%22colld%22:%22Location%22,%22sort%22:%22asc%22%7D>
- ²¹ Burns, A., Layton, B., & Nelson, L. (2018). Exploring the growth of Medicaid managed care, (August 2018), 1–29. Retrieved from www.cbo.gov/publication/54235
- ²² Centers for Medicare and Medicaid Services. (2014b). Making connections: Strengthening care coordination in the medicaid benefit for children & adolescents (September). Retrieved from <https://www.medicaid.gov/medicaid/benefits/downloads/epsdt-care-coordination-strategy-guide.pdf>

- ²³ Institute for Medicaid Innovation. (2019). Medicaid access & coverage to care in 2018: Results from the Institute for Medicaid Innovation's 2019 Annual Medicaid Managed Care Survey. Retrieved from: https://www.medicaidinnovation.org/_images/content/2019_Annual_Medicaid_MCO_Survey_Results_FINAL.pdf
- ²⁴ McWilliams, J. M. (2016). Cost containment and the tale of care coordination. *New England Journal of Medicine*, 375(23), 2218–2220. <https://doi.org/10.1056/nejmp1610821>
- ²⁵ Centers for Medicare and Medicaid Services. (2014a). DEPARTMENT OF HEALTH AND HUMAN SERVICES Centers for Medicare & Medicaid Services (December 2016), 1–12.
- ²⁶ O'Malley, A. S., Sarwar, R., Keith, R., Balke, P., Ma, S., & McCall, N. (2017). Provider experiences with chronic care management (CCM) services and fees: A qualitative research study. *Journal of General Internal Medicine*, 32(12), 1294–1300. <https://doi.org/10.1007/s11606-017-4134-7>
- ²⁷ Cristofalo, M., Krupski, A., West, I. I., Atkins, D. C., Jenkins, L., & Court, B. (2016). Barriers and facilitators to coordinating care with high-risk, high-cost disabled Medicaid beneficiaries: Perspectives of frontline staff and participating clients. *Care Management Journals*, 17(1), 24–37. <https://doi.org/10.1891/1521-0987.17.1.24>
- ²⁸ Kajstura, A. (2018). Women's mass incarceration: The whole pie 2018. <https://doi.org/10.1001/jamanetworkopen.2018.4295>
- ²⁹ Stern, A. M. (2005). Sterilized in the name of public health: race, immigration, and reproductive control in modern California. *American Journal of Public Health* 95(7), 1128-138.
- ³⁰ Clarke, J. G., Rosengard, C., Rose, J. S., Hebert, M. R., Peipert, J., & Stein, M. D. (2006). Improving birth control service utilization by offering services prerelease vs postincarceration. *American Journal of Public Health*, 96(5), 840–845. <https://doi.org/10.2105/AJPH.2005.062869>

Reviewers

Prior to publication of the final report, the Institute for Medicaid Innovation sought input from independent clinical, scientific, and policy experts as peer reviewers who do not have any financial conflicts of interest. However, the conclusions and synthesis of information presented in this report do not necessarily represent the views of the individual peer reviewers or their organizational affiliation(s).

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