Utilize technology to harness multi-sector, social, behavioral and medical data to drive a scalable, values-based care coordination model that reduces avoided healthcare utilization and costs, while increasing quality of life for complex patients.

Background

Individuals are known to be complex by their use of many medical and social services. Their complex needs make improving their health challenging since they face many individual and systemic barriers.

They are often struggling with competing priorities and unmet medical, behavioral, and social needs. Complex patients have frequent encounters across medical, social service, criminal justice and governmental organizations.

Problem Identified

Integrated medical and social data is rarely available in the U.S. Incentives across medical, social and government systems are lacking, and most care coordination occurs within an agency rather than across agencies.

While many systems are adopting care coordination to serve complex patients, care within individual agencies rather than across multiple agencies has led to duplication of services and disjointed care plans across disparate care providers, resulting in high costs to the system, ongoing unmet needs of the community’s most vulnerable individuals, and inadequate health outcomes for individuals served by the system.

A scalable, evidence-based framework for inter-agency care coordination is needed.

Method Highlight: Tech Drives Values-Based Workflow

Modeling care around patient values is more engaging than the traditional, problems-based approach. The patient identifies who or what is important to them and with the care coordinator, develops personalized health goals and strategies to overcome the many barriers they face.

The workflow below demonstrates how the Unified Continuum Platform’s core components—Community Data exchange (CDX), Community Care Coordination (CCC) and Community Resource Exchange (CRI)—link social and medical data to streamline values-based care coordination.

Outcomes

Aggregate average pre- to post-outcomes for 91 patients served since 2014:

<table>
<thead>
<tr>
<th>Category</th>
<th>Pre-Platform</th>
<th>Post-Platform</th>
<th>Improvement</th>
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<tbody>
<tr>
<td>12 months before PCC Interv.</td>
<td>12 months after PCC Interv.</td>
<td>Change in Hospital Utilization (Centiles: 10% vs. 90%)</td>
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<tr>
<td>Emergency Room Utilization</td>
<td>6,000</td>
<td>4,500</td>
<td>1,500</td>
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<tr>
<td>Acute Hospital Utilization</td>
<td>4,000</td>
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Conclusion

By utilizing an integrated data system to provide comprehensive care, PCIC has demonstrated improvements in health outcomes for patients and cost efficiencies across health and behavioral agencies.

The values-based model coupled with the data sharing technology increases patients quality of life by allowing patients to express what is most important to them and focus efforts on how to reach the patient and provider negotiated goals.

The system includes two key experts: community partners and the patient. The patient’s own values, preferences and expressed needs are essential in guiding the care plan. Provider partners can communicate with one another; in real time, about patient data and care plans to the fullest extent permissible under state and federal laws.

The integrated database used in conjunction with the values-based model is proven and scalable to reduce patient costs, better patient care, increase productivity and improve quality of life, while collecting key data points about systemic barriers to health. By improving communication and workflow, partners are given the technological advantage to deliver results.

Humanizing Healthcare: Multi-sector collaborative for complex patient populations

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Project Design

This project was uniquely designed to incorporate values-based care with social, behavioral and medical determinants into an innovative comprehensive health record (the Unified Care Continuum Platform, or “UCCP”) that would help guide targeted care coordination interventions for complex patients. The Plan—Do—Study—Act (PDSA) model was used throughout the iterative process of refining the care coordination program, technology platform, and data collection methods. This was enhanced by a tight feedback loop established between members of the care coordination, data analysis and technology development teams.

The care coordination intervention occurs over 6 months, during which care coordinators identify root causes of patient complexity and healthcare utilization and assist patients in accessing appropriate resources (primary care, behavioral health, social services) to address unmet needs. The patient selection process involves rigorous analysis of the past 12 months of utilization data collected from multi-sector partner organizations such as local hospitals, health plans and EMS (Fire Department) to identify individuals with high utilization of acute healthcare services. The UCCP streamlines this process by equipping providers with care plans and data dashboards that are shared across social, behavioral and medical agencies. A holistic approach to care coordination recognizes patients as experts of their own health. Care plans document each patient’s progress toward goals, putting the patient at the center of his or her care, and creating accountability across provider systems. This results in fewer duplicate services, more appropriate healthcare utilization, and more efficient stewardship of resources.

An inter-agency, interdisciplinary team consisting of technology experts, medical professionals, social workers, community partners and researchers in applied psychology from University of Southampton, UK met bi-weekly for planning, protocol development and outcomes evaluation.

Improvements to Design and Actions Taken

Since 2014, PCIC has facilitated care coordination interventions to a wide range of individuals with high healthcare costs, high hospital and emergency room utilization, and significant social vulnerability. PCIC’s care coordination intervention has occurred in three iterations:

- Iteration 1: 2014–2015; 64 reported patients
- Iteration 2: 2015–2018; 77 Reported patients
- Iteration 3: 2018–Present; 50 patients to be enrolled by Q4 2018

A tight feedback loop between care coordination services and technology developers, who are both in-house at PCIC, ensures that learnings from PDAs done on past iterations of the care coordination intervention are systematically incorporated into the Unified Care Continuum Platform technology to increase the efficiency and scalability of high-touch care coordination efforts.

Adding streamlined functions to the technology platform, such as multi-agency access, real-time alerts and resource referral features, along with additional standardizations of the care coordination model, has helped bring down costs from $3,000 per patient per month to ~$900 per patient per month, while maintaining outcomes across iterations. Iterative improvements to the care coordination intervention, technological capacity, and assessments for data collection are documented below.

Next Steps

The next steps in advancing this initiative will include a controlled evaluation of the values-based model, demonstrating expanded platform support, continued development and integration of the Community Resource Exchange (CRI), and evaluations of new assessments in facilitating meaningful interventions. As PCC scales, randomized controlled trials will be initiated to test different parts of the model once there is a sufficient sample size to ensure that statistical power is acceptable. PCIC is incorporating additional evidence-based assessments into the health record and care coordination workflow to improve capacity for viewing outcomes on a more holistic level that includes mental wellbeing, social stability, patient and provider engagement.