Strategies to Achieve Alignment, Collaboration, and Synergy across Delivery and Financing Systems

Testing an Integrated Delivery and Financing System for Older Adults with Health and Social Needs

Research In Progress Webinar
Wednesday, April 11, 2018
12:00-1:00 pm ET/ 9:00 am-10:00 am PT

Funded by the Robert Wood Johnson Foundation
Agenda

Moderator: Shana S. Moore, PhD, MPA

*Director of Dissemination and Research Development, RWJF Systems for Action* National Coordinating Center
University of Kentucky College of Public Health
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Presenters: José Pagán, PhD

*Professor, College of Global Public Health, and Chair, Dept. of Public Health Policy and Management*
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Q & A: Moderated by Dr. Shana Moore
José Pagán, PhD

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College of Global Public Health
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Testing an Integrated Delivery and Financing System for Older Adults with Health and Social Needs

José A. Pagán, Annie Wells, Elisa Fisher
AGENDA

• Project Team
• Community Care Connections: Overview
• Pilot Evaluation: Findings and Lessons Learned
• Systems for Action Project
• Questions

Support for this presentation was provided by the Robert Wood Johnson Foundation through the Systems for Action National Coordinating Center, ID 75162.
PROJECT TEAM OVERVIEW

LIFESPAN
Program implementation

ROCHESTER RHIO
Health data management

NEW YORK UNIVERSITY & NEW YORK ACADEMY OF MEDICINE
Research project implementation
LIFESPAN OF GREATER ROCHESTER

Lifespan “helps older adults and caregivers take on the challenges and opportunities of longer life.”

Lifespan serves over 30,000 people in the Greater Rochester Region annually, including older adults, people with disabilities and caregivers.

https://www.lifespan-roch.org/
LIFESPAN OF GREATER ROCHESTER

Lifespan offers over 30 services directly to community members as well as unbiased guidance and linkages to other community-based resources available locally.

<table>
<thead>
<tr>
<th>NY Connects</th>
<th>Elder Abuse Prevention &amp; Intervention</th>
<th>Health &amp; Wellness</th>
<th>Caregiving</th>
<th>Education &amp; Training</th>
</tr>
</thead>
<tbody>
<tr>
<td>Care Coordination</td>
<td>Volunteerism</td>
<td>Connection to Services for Low-Income Older Adults</td>
<td>Emotional Wellness and Mental Health Services</td>
<td>Health Initiatives</td>
</tr>
<tr>
<td>Social Connections</td>
<td>Aging Adults with Developmental Disabilities</td>
<td>Home Safe Home – home modifications program</td>
<td>Financial Management Services</td>
<td>Guardianship</td>
</tr>
<tr>
<td>Geriatric Addictions Program</td>
<td>Ombudsman Program</td>
<td>Give-a-Lift Transportation &amp; Coordination Services</td>
<td>Health Insurance Information Counseling &amp; Assistance Program</td>
<td>Cafés at the YMCAs – Multi-Purpose Aging Resource Centers</td>
</tr>
</tbody>
</table>
ROCHESTER REGIONAL HEALTH INFORMATION ORGANIZATION (RHIO)


- 89% of providers in Greater Rochester Region benefit from Rochester RHIO.
- Access to data for over 1.4 million patients

https://rochesterrhio.org/
PROJECT TEAM

RESEARCH TEAM

New York University
• José A. Pagán, PhD (PI)

The New York Academy of Medicine
• Elisa Fisher, MPH, MSW (Co-PI)
• Yan Li, PhD, (Research Scientist)

PROGRAM AND TECHNICAL LEADS

Lifespan
• Annie Wells, BA (Lifespan Technical Lead)

Rochester RHIO
• Sara Abrams, MPH (RHIO Technical Co-Lead)
• Andrea Richardson (RHIO Technical Co-Lead)
LIFESPAN’S COMMUNITY CARE CONNECTIONS PROGRAM*

Annie Wells, Director of Care Transitions

* Funded by the New York State Department of Health
ISSUES TO ADDRESS

• Most older adults interact with the medical system as they age, but few are engaged in services that address the social determinants of health.
  • 80% of modifiable health risks result from factors outside of the health care system.

• Health care is fragmented and difficult to navigate, especially for older adults with multiple health care needs.

• Health care and social services operate in silos, despite the importance of having a comprehensive understanding of patient health and wellbeing.

• Despite the collection of large amounts of hospital data, the data are not regularly used to make the business and sustainability case for valuable services offered by local community organizations.
PROGRAM OVERVIEW:
COMMUNITY CARE CONNECTIONS

A program that integrates Lifespan’s community–based aging services with the health care delivery system.

The program:

• Uses care access points to break down the traditional barriers and silos between community–based aging services and medical systems of care
• Provides linkages to other service providers to address the social needs of older adults

Main goal: To help older adults remain in their own homes, reduce hospital admissions/readmissions and emergency department use, and reduce caregiver burden.
PROGRAM OVERVIEW: COMMUNITY CARE CONNECTIONS

• Lifespan Social Work Care Navigators are embedded in 5 physician practices in Monroe, Ontario and Livingston counties; also receive referrals through home care agencies linked with hospitals.

• Healthcare coordinators are serving a subset of complex, high need patients.

![Services received by enrolled clients](image)

- 64% Social Work
- 25% Nursing
- 11% Both

12
Client A:
- 67 year old male
- Diabetes diagnosis
- Insulin dependent
- No local support system
- Recently hospitalized due to low glucose levels

CCC Service Connections
- Doctor appointments
- Diabetes self-management program
- Free transportation
- "Matter of Balance" program

Improvements
- Improved access to non-emergency care
- Improved ability to monitor glucose
- Improved eating habits
- Improved social support
- Increased physical activity

Health Outcomes
- Fewer diabetes complications
- Fewer ER/hospital visits
- Reduced need for meds
- Improved mental health
- Improved mobility, fewer falls

Long-term Impacts
- Lower health care costs
- Higher quality of life
- Reduced caregiver/family stress
Inpatient Hospitalization
ER Visit

Q1, 2016

April, 2016

CCC program

Q1, 2017

Care coordination
Transportation
Diabetes self-management program
Mobility and physical activity program

Average costs* for patients age 65 or older
Hospitalization: $13,907
ER Visit: $918

No ER/Hospitalizations

9.8 Reduced HbA1C 7.7

Among patients with diabetes, those with controlled HbA1c have health care costs that are 2–8x lower than those with uncontrolled HbA1c**

*NYAM calculations based on 2014 data from the Medical Expenditure Panel Survey, adjusted to December 2016 using the Consumer Price Index for medical care (U.S. city average, all urban consumers). The sample included for the average cost calculations included adults 65 years of age and older with Medicare or Medicaid health insurance coverage which had a hospitalization stay or an emergency department visit.

PILOT EVALUATION FINDINGS
PILOT EVALUATION

• 6-month (180 days) pre-post analysis of inpatient hospitalizations and emergency department visits for all CCC clients who provided informed consent to participate.

• Data provided by Rochester RHIO (Regional Health Information Organization).

• Total of 325 clients with 6 months of data available.
PILOT DATA

- **Peer Place Customized Platform**: Demographics, diagnoses, community services needs and referrals and standardized wellness assessments, conducted at intake and case closure.

- **Rochester RHIO Data**: Hospital inpatient and emergency encounters from health systems in Greater Rochester Region.
## PILOT EVALUATION: DEMOGRAPHICS

<table>
<thead>
<tr>
<th>Demographics</th>
<th>% (N)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age</strong></td>
<td></td>
</tr>
<tr>
<td>60–69</td>
<td>23.69 (77)</td>
</tr>
<tr>
<td>70–79</td>
<td>30.55 (99)</td>
</tr>
<tr>
<td>80+</td>
<td>44.14 (143)</td>
</tr>
<tr>
<td>Unknown</td>
<td>1.54 (5)</td>
</tr>
<tr>
<td><strong>Race</strong></td>
<td></td>
</tr>
<tr>
<td>Asian</td>
<td>0.92 (3)</td>
</tr>
<tr>
<td>Black/African American</td>
<td>13.85 (45)</td>
</tr>
<tr>
<td>White [Latino/a]</td>
<td>1.54 (5)</td>
</tr>
<tr>
<td>White [Non-Latino/a]</td>
<td>75.38 (245)</td>
</tr>
<tr>
<td>2 or more</td>
<td>0.31 (1)</td>
</tr>
<tr>
<td>Other/Not Available</td>
<td>8.00 (26)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Demographics (continued)</th>
<th>% (N)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Poverty status</strong></td>
<td></td>
</tr>
<tr>
<td>&lt;100% FPL</td>
<td>10.46 (34)</td>
</tr>
<tr>
<td>&lt;185% FPL</td>
<td>24.62 (80)</td>
</tr>
<tr>
<td>&gt;185% FPL</td>
<td>30.77 (100)</td>
</tr>
<tr>
<td>Not Available</td>
<td>34.15 (111)</td>
</tr>
<tr>
<td><strong>Living situation</strong></td>
<td></td>
</tr>
<tr>
<td>Alone</td>
<td>36.90 (120)</td>
</tr>
<tr>
<td>With Spouse</td>
<td>32.00 (104)</td>
</tr>
<tr>
<td>With Others (relatives or non-relatives)</td>
<td>19.38 (63)</td>
</tr>
<tr>
<td>Not Available</td>
<td>11.72 (38)</td>
</tr>
</tbody>
</table>
## PILOT EVALUATION: HEALTH CHARACTERISTICS

<table>
<thead>
<tr>
<th>Health Characteristic</th>
<th>% (N)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Health Insurance</strong></td>
<td></td>
</tr>
<tr>
<td>Medicare (A, B, C and/or D)</td>
<td>88.62 (288)</td>
</tr>
<tr>
<td>Medicaid (or Medicaid pending)</td>
<td>18.78 (61)</td>
</tr>
<tr>
<td><strong>Disabled</strong></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>64.81 (210)</td>
</tr>
<tr>
<td><strong>Quality of Life Score (out of 5)</strong></td>
<td></td>
</tr>
<tr>
<td>3 or lower</td>
<td>66.46 (216)</td>
</tr>
<tr>
<td>4–5</td>
<td>33.54 (109)</td>
</tr>
<tr>
<td><strong>Has caregiver</strong></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>44.33 (129)</td>
</tr>
<tr>
<td>No</td>
<td>55.67 (162)</td>
</tr>
</tbody>
</table>
PILOT EVALUATION: SUMMARY

- Decrease in hospitalizations
- Decrease in emergency department (ED) visits
- Decrease in costs
## PILOT EVALUATION: FINDINGS
### CHANGE IN HEALTH CARE UTILIZATION

<table>
<thead>
<tr>
<th></th>
<th>Pre-intervention</th>
<th>Post-intervention</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospitalizations</td>
<td>0.15</td>
<td>0.07*</td>
<td>0.01</td>
</tr>
<tr>
<td>ED visits</td>
<td>0.56</td>
<td>0.39*</td>
<td>0.01</td>
</tr>
</tbody>
</table>

Notes: (i) Estimates based on The New York Academy of Medicine’s analysis of data provided from the Rochester Regional Health Information Organization (RHIO) and Lifespan. (ii) Analyses based on 180 days of data for 325 clients enrolled in CCC program between June 2016 and April 2017.
### PILOT EVALUATION: FINDINGS

**MULTIPLE HOSPITALIZATIONS / ED VISITS**

<table>
<thead>
<tr>
<th>Number of hospitalizations/ED visits per client: Counts and % change</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Count</strong></td>
</tr>
<tr>
<td><strong>Hospitalizations</strong></td>
</tr>
<tr>
<td>0</td>
</tr>
<tr>
<td>1 or more</td>
</tr>
<tr>
<td><strong>ED visits</strong></td>
</tr>
<tr>
<td>0</td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td>2 or more</td>
</tr>
</tbody>
</table>

* ≠ Positive direction (more people with 0 occurrences, fewer people with any/multiple occurrences)

Notes: (i) Estimates based on The New York Academy of Medicine’s analysis of data provided from the Rochester Regional Health Information Organization (RHIO) and Lifespan. (ii) Analyses based on 180 days of data for 325 clients enrolled in CCC program between June 2016 and April 2017.
PILOT EVALUATION: FINDINGS

SAVINGS

Estimated annual* total savings from reduced hospitalizations and ED visits

<table>
<thead>
<tr>
<th>Total savings ($)</th>
<th>Hospitalization</th>
<th>Emergency department</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>100,000</td>
<td>100,000</td>
<td>0</td>
<td>100,000</td>
</tr>
<tr>
<td>200,000</td>
<td>200,000</td>
<td>0</td>
<td>200,000</td>
</tr>
<tr>
<td>300,000</td>
<td>300,000</td>
<td>0</td>
<td>300,000</td>
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<tr>
<td>400,000</td>
<td>400,000</td>
<td>0</td>
<td>400,000</td>
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<tr>
<td>500,000</td>
<td>500,000</td>
<td>0</td>
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<td>600,000</td>
<td>600,000</td>
<td>0</td>
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<tr>
<td>700,000</td>
<td>700,000</td>
<td>0</td>
<td>700,000</td>
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<tr>
<td>800,000</td>
<td>800,000</td>
<td>0</td>
<td>800,000</td>
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<tr>
<td>900,000</td>
<td>900,000</td>
<td>0</td>
<td>900,000</td>
</tr>
</tbody>
</table>

Estimated annual* ROI from CCC program

<table>
<thead>
<tr>
<th>ROI ($)</th>
<th>Hospitalization</th>
<th>Emergency department</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.00</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>1.00</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>2.00</td>
<td>2</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>3.00</td>
<td>3</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>4.00</td>
<td>4</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>4.50</td>
<td>4.5</td>
<td>0</td>
<td>4.5</td>
</tr>
</tbody>
</table>

Notes: (i) Estimates based on The New York Academy of Medicine’s analysis of data provided from the Rochester Regional Health Information Organization (RHIO) and Lifespan. (ii) Analyses based on 180 days of data for 325 clients enrolled in CCC program between June 2016 and April 2017. (iii) Admission cost per patient calculations are based on 2014 data from the Medical Expenditure Panel Survey, adjusted to December 2016 using the Consumer Price Index for medical care (U.S. city average, all urban consumers). The sample included for the average cost calculations included adults 65 years of age and older with Medicare or Medicaid health insurance coverage who had a hospitalization stay or an emergency department visit. (iv) Program costs calculated on a per client basis assuming annual program cost of $610,000 for 1,000 patients enrolled.
Every dollar spent on the CCC program generates $4.02 in savings resulting from reduced hospitalizations and emergency department visits

Table. Annual Return on Investment (ROI) from the CCC program

<table>
<thead>
<tr>
<th></th>
<th>Pre-intervention</th>
<th>Post-intervention</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Number of patients</strong></td>
<td>325</td>
<td></td>
</tr>
<tr>
<td><strong>Average number per client</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Hospitalizations</strong></td>
<td>0.30</td>
<td>0.14</td>
</tr>
<tr>
<td><strong>Emergency department visits</strong></td>
<td>1.324</td>
<td>0.688</td>
</tr>
<tr>
<td><strong>Cost per patient ($)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Hospitalizations</strong></td>
<td>13,907</td>
<td></td>
</tr>
<tr>
<td><strong>Emergency department visits</strong></td>
<td>918</td>
<td></td>
</tr>
<tr>
<td><strong>Total costs ($)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Hospitalizations</strong></td>
<td>1,337,853</td>
<td></td>
</tr>
<tr>
<td><strong>Emergency department visits</strong></td>
<td>332,362</td>
<td></td>
</tr>
<tr>
<td><strong>Total CCC program costs ($)</strong></td>
<td>198,250</td>
<td></td>
</tr>
<tr>
<td><strong>Total Savings ($)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Hospitalizations</strong></td>
<td>696,045</td>
<td></td>
</tr>
<tr>
<td><strong>Emergency department visits</strong></td>
<td>100,842</td>
<td></td>
</tr>
</tbody>
</table>

**ROI ($)** 4.02

Notes: (i) Estimates based on The New York Academy of Medicine’s analysis of data provided from the Rochester Regional Health Information Organization (RHIO) and Lifespan. (ii) Data is for 325 clients enrolled in CCC program between June 2016 and April 2017. (iii) Admission cost per patient calculations are based on 2014 data from the Medical Expenditure Panel Survey, adjusted to December 2016 using the Consumer Price Index for medical care (U.S. city average, all urban consumers). The sample included for the average cost calculations included adults 65 years of age and older with Medicare or Medicaid health insurance coverage who had a hospitalization stay or an emergency department visit. (iv) Program costs calculated on a per client basis assuming annual program cost of $610,000 for 1,000 patients enrolled.
LESSONS LEARNED

• Consistent, structured communication among partners is critical to troubleshoot potential problems and issues, understand the full effects of the program, and identify areas of improvement.

• Creating visualizations of actual and hypothesized program impacts can be vital in conversations around long-term effects of the program.

• Cost analyses broken down by population of interest is essential in making the case for sustainability.

• Prepare for lack of clarity of different aspects of a project (e.g., understanding how data are collected, variation in data quality, and data availability).
SYSTEMS FOR ACTION: PROJECT GOALS

To test the ability of multiple systems in Greater Rochester to work together in aligning services and delivering efficient, effective care that addresses both the social determinants of health and health care needs.

- Better health
- Fewer costs
- More sustainable programs that address SDOH
SYSTEMS FOR ACTION: RESEARCH OBJECTIVES

1) Build upon pilot evaluation using a **rigorous, mixed-methods approach** to assess the impact of CCC on:
   - Health outcomes,
   - Health care utilization patterns, and
   - Health care costs.

2) Assess barriers and facilitators to alignment across multiple systems that impact health, health care, and health care costs.

3) Analyze the “optimal mix” of social services for improving health outcomes and lowering health care costs, and how this optimal mix varies based on characteristics of the population being served.
S4A PROJECT COMPONENTS: MIXED METHODS APPROACH

Use a mixed methods approach to achieve research objectives:
- Quantitative analysis of secondary data
- Qualitative analysis of interview data with key informants
- Agent-based modeling to test different approaches to service connection and delivery
Analysis of health care utilization data enables us to develop a more comprehensive and accurate understanding of the impact of the CCC program on health outcomes and costs in the context of other ongoing health reform initiatives. It will build upon analyses included in pilot evaluation by:

- Including a larger sample,
- Adding a comparison group, created using propensity score matching of secondary data provided by the Rochester RHIO, and
- Incorporating difference-in-differences and regression analyses.
Conduct *key informant interviews* with CCC staff, referring providers (including physicians, home care agencies, and others), and participants (i.e. patients) in the program. Qualitative analysis will enable us to explore:

- Perceived impact on staff, providers and participants daily functioning, and job satisfaction and/or quality of life,
- Program impact on system alignment and communication across sectors and facilitators and barriers to successful service and care integration, and
- Recommendations for adaptation, expansion, and replication.

Data will be analyzed in Nvivo using iterative process involving repeated reviews of coded text, as well as both inductive and deductive approaches to theme identification.
S4A PROJECT: 
AGENT-BASED MODELING

Using The New York Academy of Medicine Cardiovascular Health Simulation (NYAM–CHS) Model (NYAM–CHS), we will conduct simulated clinical trials and compare short-term and long-term health outcomes to assess differential impacts of various service combinations. This will provide us with:

• Improved understanding of the potential long-term impacts of integrating social and health care services

• Greater insight into the mechanisms through which the CCC program functions

• Replication and translation to new communities with different populations
**S4A PROJECT STATUS**

- Protocol finalization and IRB Approval
  - Tailored interview guides for various types of key informants (staff, providers, patients/clients)
  - Recruitment planning and strategy

- Assessing data availability for propensity score matching and developing analysis strategy
  - Applied for and received approval from RHIO Secondary Use Committee to utilize de-identified RHIO data on non-participating patients to create a control group.

- Literature reviews to support systems science analysis component
Questions?

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efisher@nyam.org
awells@lifespan-roch.org
## Upcoming Webinars

### Testing a Shared Decision-Making Model for Health and Social Service Delivery in East Harlem

**New York City Department of Health and Mental Hygiene**<br>
Principal Investigators: Carl Letamendi, PhD, MBA, and Rachel Dannefer, MPH, MIA

Wednesday, April 25, 2018 12-1pm ET/ 9-10am PT

### Uncompensated Care Provision and the Implementation of Population Health Improvement Strategies

**Systems for Action National Program Office, University of Kentucky College of Public Health**<br>
Principal Investigator: CB Mamaril, PhD

Wednesday, May 9, 2018 12-1pm ET/ 9-10am PT

### Integrating Cross-Sectoral Health and Social Services for the Homeless

**University of Utah and University of North Texas**<br>
Principal Investigators: Jesus Valero, PhD, and Hee Soun Jang, PhD

Wednesday, May 23, 2018 12-1pm ET/ 9-10am PT
Acknowledgements

*Systems for Action* is a National Program Office of the Robert Wood Johnson Foundation and a collaborative effort of the Center for Public Health Systems and Services Research in the College of Public Health, and the Center for Poverty Research in the Gatton College of Business and Economics, administered by the University of Kentucky, Lexington, Ky.
Questions?

S4A
Systems for Action

www.systemsforaction.org