University of Kentucky

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Variation in Hospital Care Transition Strategies and their Effects on Post-Discharge Patterns of Care

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Project ACHIEVE

Achieving Patient-Centered Care and Optimized Health In Care Transitions by Evaluating the Value of Evidence

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UK Center for Health Services Research

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Background

- **Patients in the U.S. suffer harm** too often as they move between sites of health care, and **their caregivers experience significant burden.**

- The usual approach to health care **does not support continuity and coordination during such "care transitions"** between hospitals, clinics, home or nursing homes.

- **Poorly managed care transitions can lead to** worsening symptoms, **adverse effects** from medications, unaddressed test results, failed follow-up testing, and excess rehospitalizations and ER visits.

Background

We do not know what outcomes matter most to patients and their caregivers and what transitional care approaches work best.

Specific Aims

1. Identify transitional care (TC) outcomes and components that matter most to patients and caregivers.

2. Determine which evidence-based TC strategies or clusters most effectively yield patient and caregiver desired outcomes overall and among diverse patient and caregiver populations in different types of care settings and communities.

3. Identify barriers and facilitators to the implementation of specific TCs or TC strategies for different care settings and communities.

4. Develop recommendations for dissemination and implementation of the research findings on the best evidence regarding how to achieve optimal TC services and outcomes to patients, caregivers and providers.

Project ACHIEVE Model
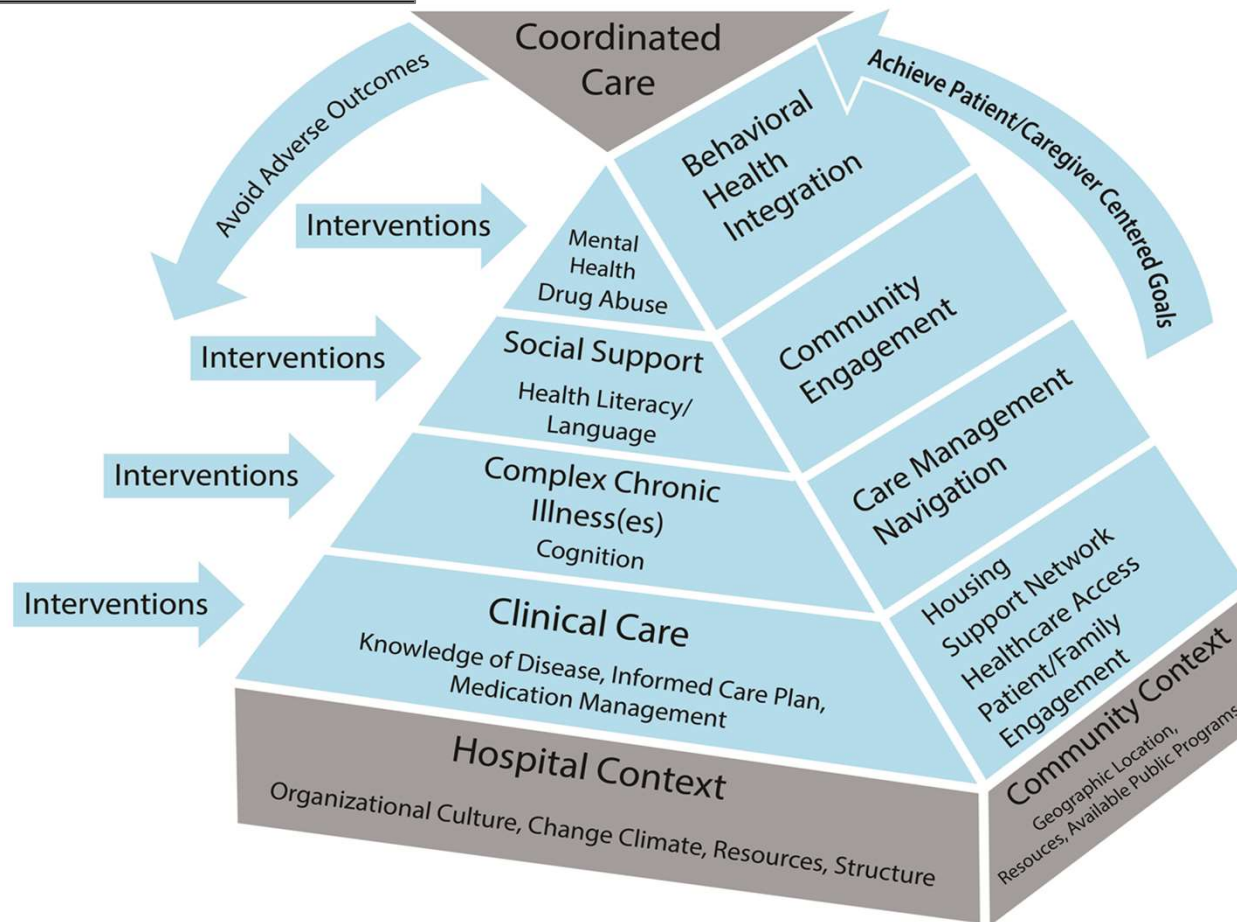
ACHIEVE Targeted Populations

- **Patients:**
  Medicare Beneficiaries and their Family Caregivers

  - Multiple chronic conditions
  - Medicare/Medicaid dual eligible
  - Mental health issues
  - Rural area domicile
  - Limited English proficiency/ Low health literacy
  - Low socioeconomic status
  - Disabled & <65 years old

- **Providers:**
  Hospitals & Community-Based Organizations

  (*purposive sampling to ensure adequate representation*)

  - Urban and rural areas;
  - Safety-net;
  - Critical access;
  - Integrated delivery systems; and
  - In care delivery demonstrations (e.g., ACO, BPCI).

ACHIEVE Study Design

Study Period: January 2015 – June 2019

Phase 1: What Matters Most

- Focus Groups & Key Informant Interviews (Patient, Caregiver, Provider)
- Survey Development, Site Visits

Phase 2: Patient Experience and Outcomes with TC

- *Retrospective Longitudinal Comparative Analyses – Today's Presentation*
- Prospective Cohort Analysis
  - Patient and Caregiver Surveys
    - Transitional care strategy "Exposure"
  - Contextual Analysis

Methods Overall

Use secondary data sources and survey data for a quasi-experimental examination of patterns of exposure to TC strategies and outcomes of patients hospitalized during a five-year time period (2009-2014) in which hospitals and communities began to adopt TC programs in large numbers.
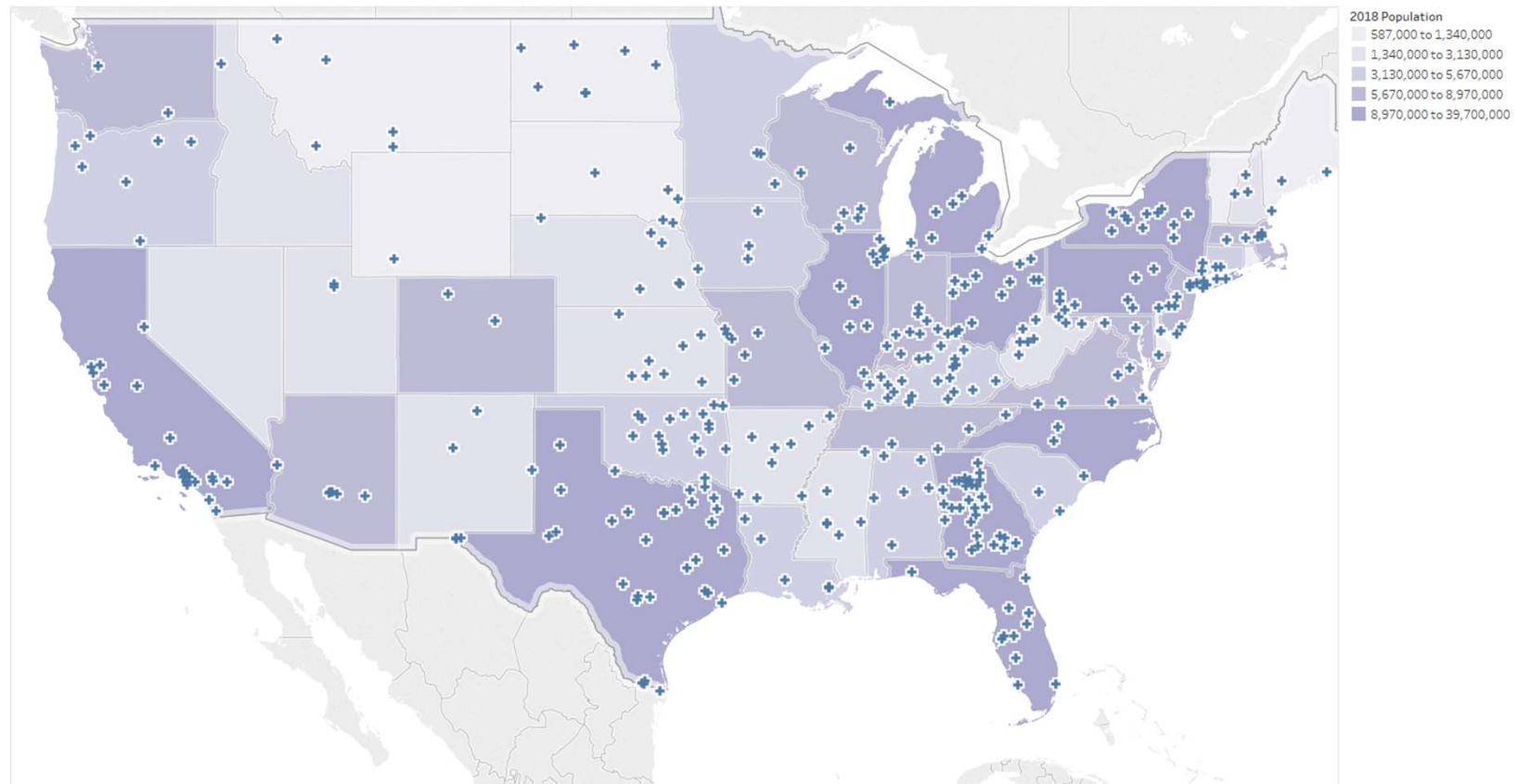
Methods- TC Strategy Data Collection

ACHIEVE Hospital TC Effort Adoption Survey

- Cross-sectional, June 2015 – March 2016

- AHA members – target hospital staff with responsibility for implementing TC strategies

- 380 hospitals in analytic file
  - general acute care short term and critical access

Hospitals in ACHIEVE Retrospective Study

Methods - Other Data Sources

1. Medicare fee-for-service claims data obtained through ResDAC (MEDPAR, inpatient, outpatient, carrier, home health, and SNF);

2. Medicare Master Beneficiary Summary File, obtained through ResDAC;

3. AHA Hospital Survey, purchased from AHA;

4. CMS Hospital Impact File;

5. Dartmouth Atlas of Healthcare Health Service Area (HSA) and Hospital Referral Region (HRR) data files;

6. Area Health Resources Files (ARHF); and

7. Area deprivation index (ADI), 2010 U.S. Census data files.

Methods – TC Strategies

- 13 TC strategies evaluated in the retrospective analysis, guided by
  - the findings from ACHIEVE patient and caregiver focus groups;
  - literature review; and
  - iterative discussions among members of the core research team, scientific advisory committee, and stakeholder advisory group.

Methods – Clusters of TC Strategies

- 5 overlapping clusters of TC strategies identified that hospitals often implement

  - exploratory factor analysis to model reported TC strategies implemented in practice, and their covariance structure, in terms of a smaller number of combinations of TC strategies [underlying unobservable (latent) "factors"].

 - incorporated recommendations from research team and stakeholders

Methods – Clusters of TC Strategies

TC Strategy	Care Plan (Cluster 1)	Shared Decision (Cluster 2)	Identify High-Risk (Cluster 3)	Medication Reconciliation (Cluster 4)	Cross-Setting Information Exchange (Cluster 5)
Urgent Plan	X				
Care Coordination (passive)	X				
Care Plan	X			X	
Shared Decisions		X			
Skill Assessment /Teachback		X			X
Needs Assessment		X			X
Identify High-Risk			X		
Referral to Community Services			X		
Interdisciplinary Team			X		
Availability of Transition Team			X	X	
Medication Reconciliation				X	
Timely Follow-up				X	
Information Exchange					X

Note: Each cluster has requisite strategies-- (1) Care Plan must have Urgent Plan; (2) Shared Decision must have Shared Decisions; (3) Identify High-Risk must have Identify High-Risk or Referral to Community Services; (4) Medication Reconciliation must have Medication Reconciliation or Timely Follow-up; and (5) Cross-Setting Information Exchange must have Information Exchange.

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Methods – Clusters of TC Strategies
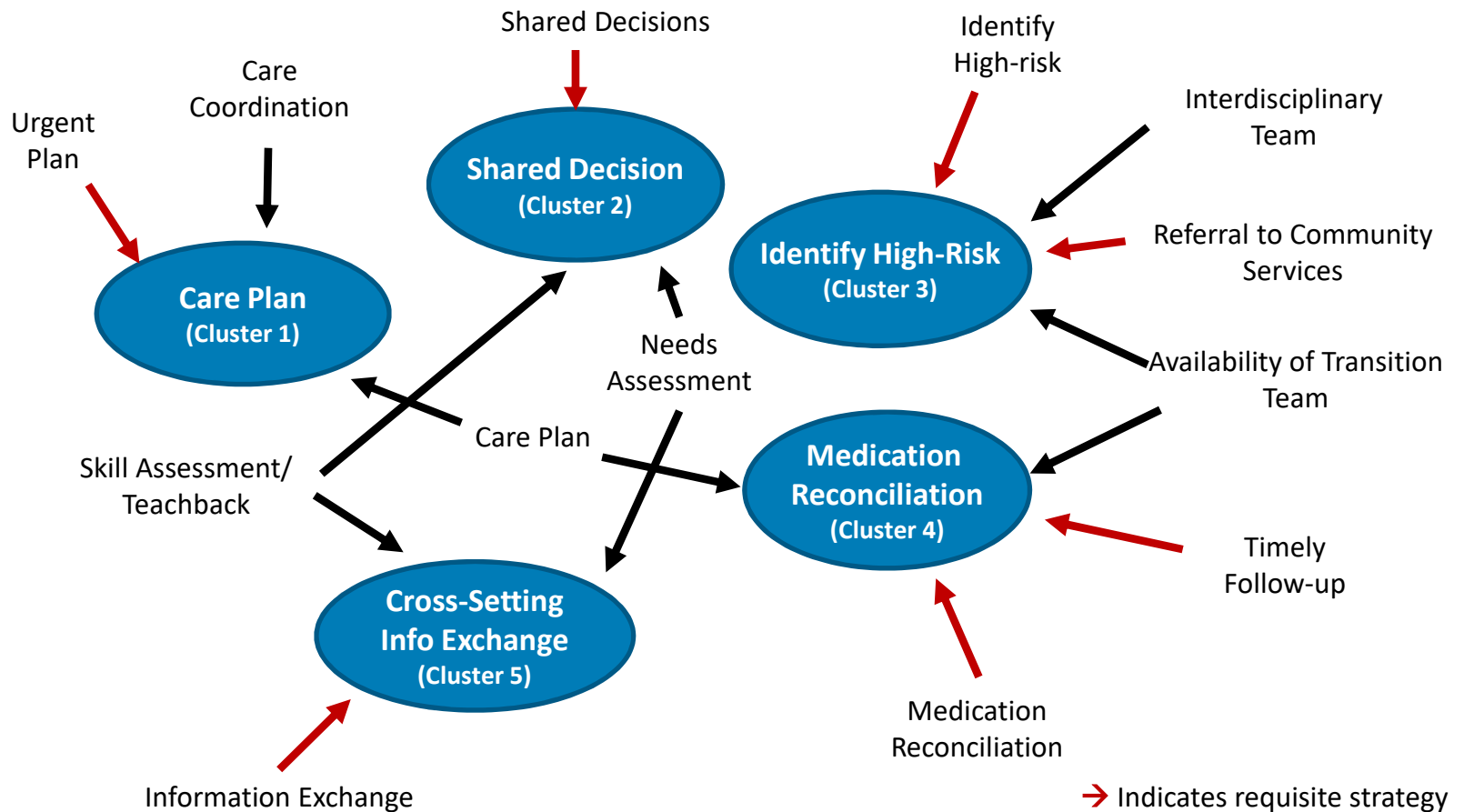
Methods – Analytic Approach

- **Cluster of TC strategies**: intent-to-treat analysis

- **Unit of Analysis**: a fixed "episode of care transition" – begins with an index hospital admission and ends 30 days after discharge

- **Pre-Implementation & Post-Implementation Time Periods**: selected October 1, 2012, the Hospital Readmission Reduction Program effective date, to compare before vs. after

Methods – Analytic Approach

- **Risk Adjustment, Confounding and Covariate Control**
  - **Patient level** – age, sex, race, dual-eligibility, urban/rural, ADI, distance to hospitals, co-morbidities (Elixhauser), previous utilization

  - **Hospital level** – size, for-profit/not-for-profit, AMC, urban/rural, in-system, in alternative payment models, structure (e.g., having SNFs)

  - **Community level** – proportions of uninsured, white, poverty, and high school education, median household income, PCP and hospital bed per 100,000 residents

Methods – Analytic Approach

- ## <u>Statistical Model</u>:

  - The primary patient outcome of interest in the retrospective is the dichotomous measure of 30-day, all-cause unplanned readmission (READMIT).

  - Our base model is a mixed-effects logit model to estimate $\Pr(READMIT_{ijhct}=1)$ for each patient i in episode j occurring within hospital h and community c during year t
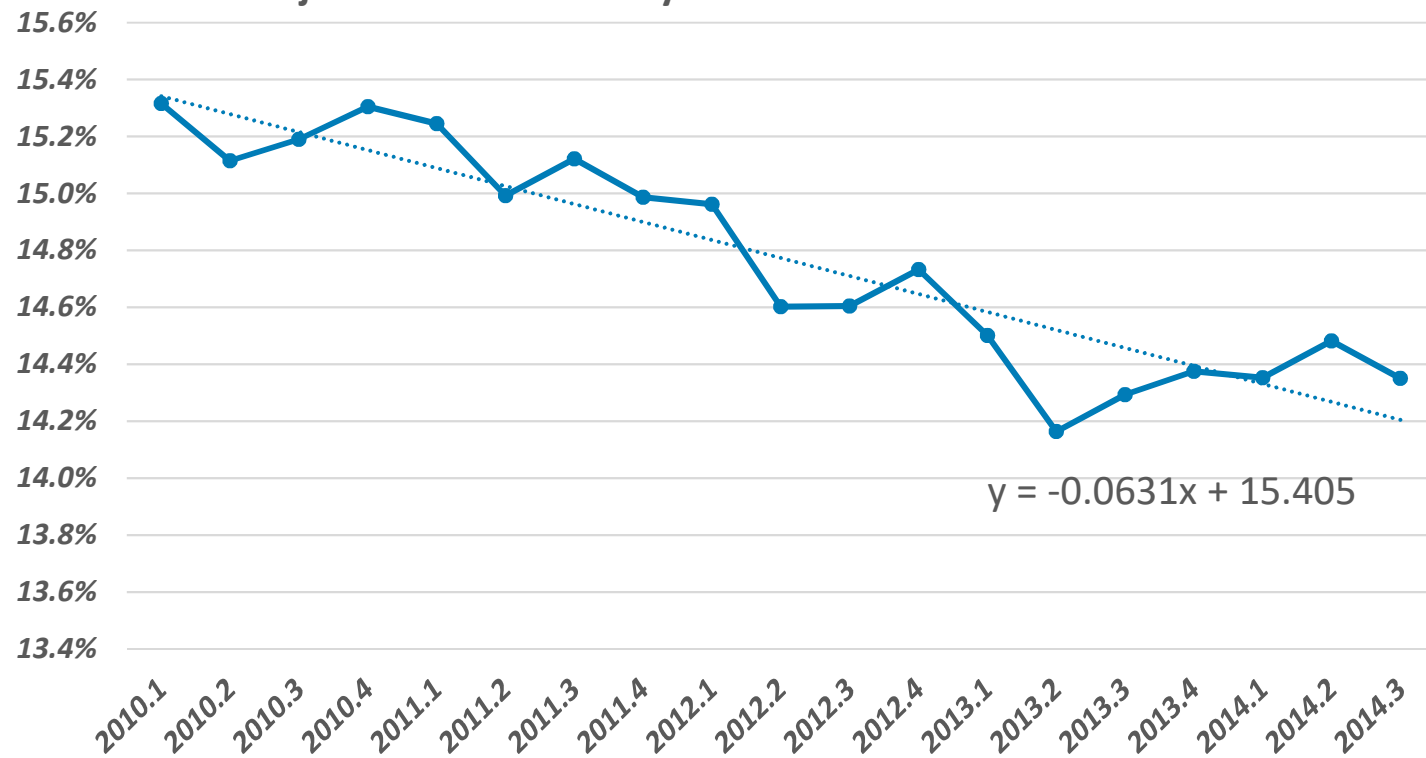
Results

Hospitals varied widely in the 13 TC strategies implemented

	Hospitals (N=380)	
TC strategies	n	%
Care Plan	289	76.7
Urgent Plan	262	70.1
Timely Follow-up	263	69.4
Interdisciplinary Team	252	68.1
Availability of Transition Team	240	63.7
Shared Decisions	231	60.8
Referral to Community Services	226	59.5
Medication Reconciliation	137	36.4
Skill Assessment/Teachback	134	35.5
Identify High-risk	108	29.1
Information Exchange	107	28.8
Care Coordination (Passive)	74	20.1
Needs Assessment	51	13.6

Results

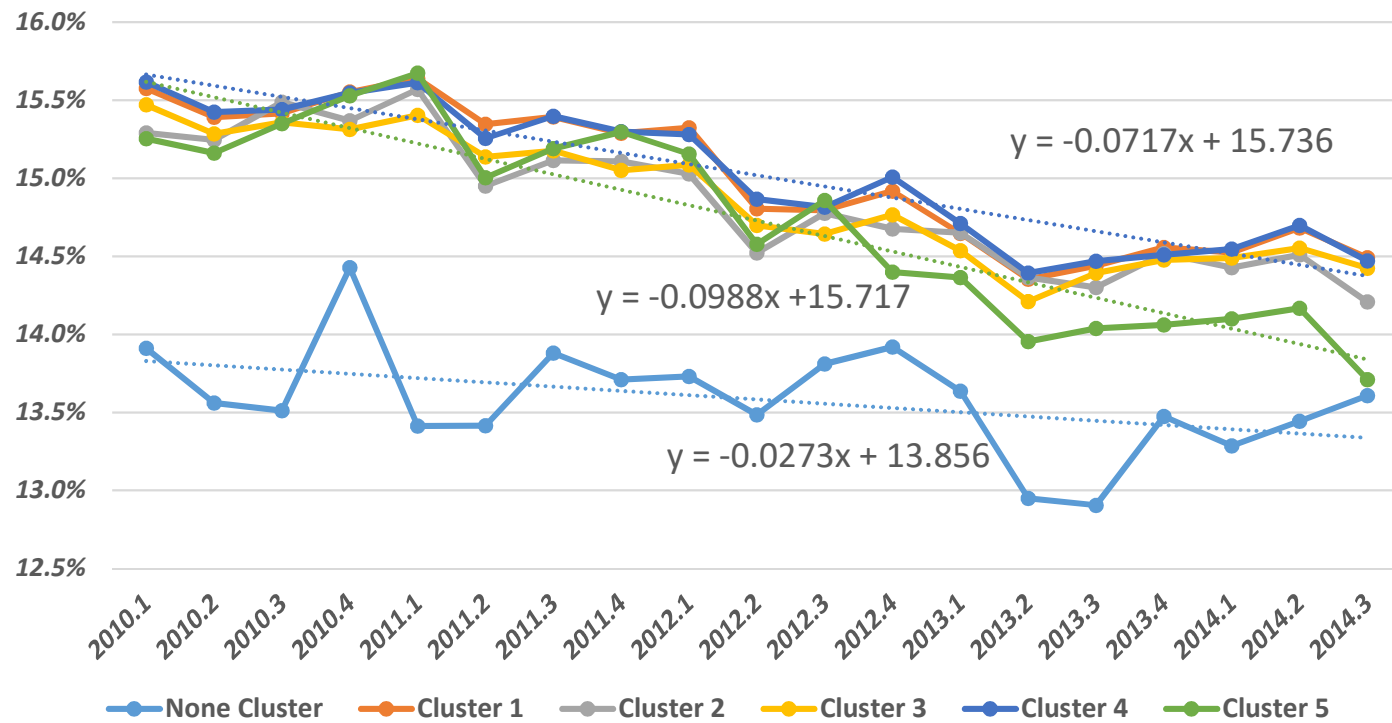
Unadjusted Overall 30-Day All-Cause Readmission Rate Trend

$y = -0.0631x + 15.405$

Results

Risk Adjusted Readmission Rate by TC Strategy Cluster

y = -0.0717x + 15.736

y = -0.0988x +15.717
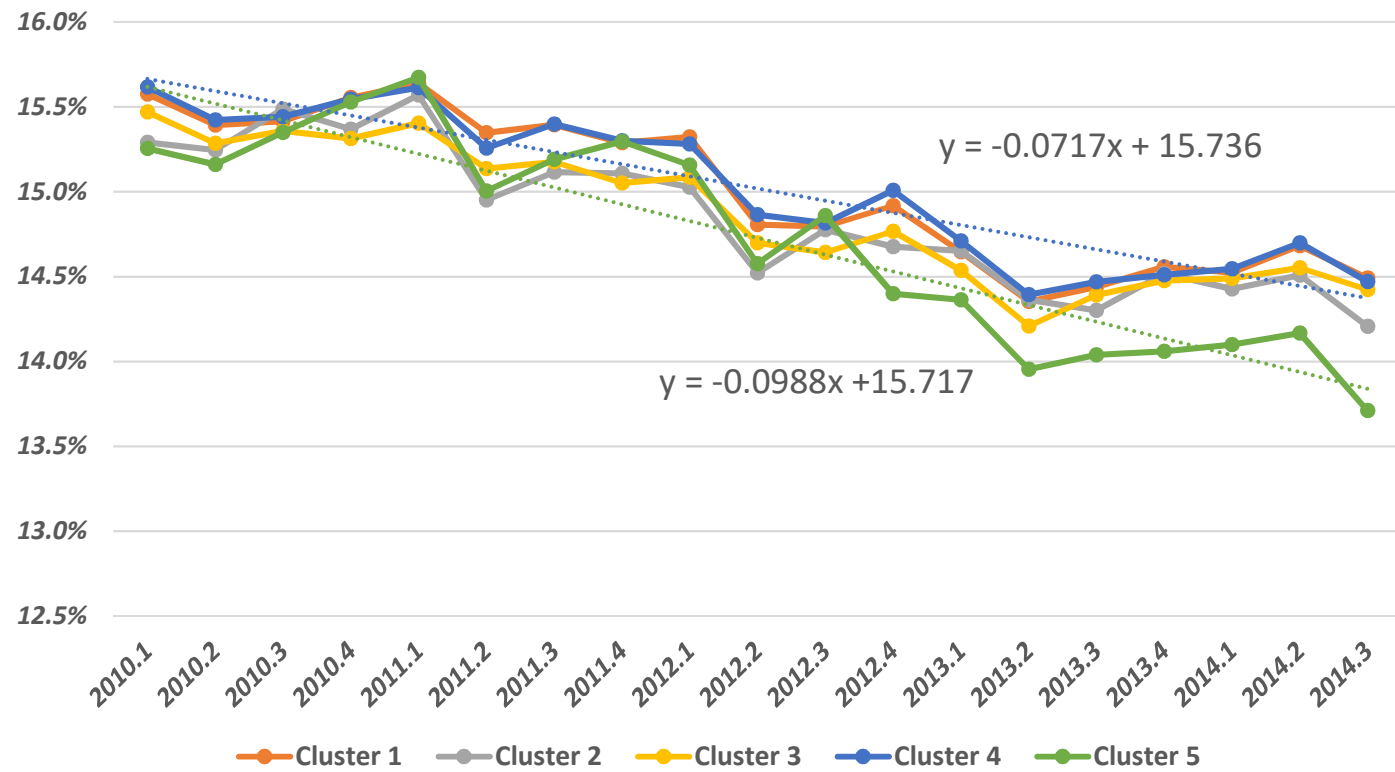
Results

Risk Adjusted Readmission Rates Compared to Hospitals Implementing None of the TC Clusters

y = -0.0717x + 15.736

y = -0.0988x +15.717

y = -0.0273x + 13.856

None Cluster   Cluster 1   Cluster 2   Cluster 3   Cluster 4   Cluster 5

Results

Risk Adjusted Readmission Trend in Dual Eligible Patients

$y = -0.1198x + 18.718$

$y = -0.0658x + 16.937$

None Cluster   Cluster 1   Cluster 2   Cluster 3   Cluster 4   Cluster 5
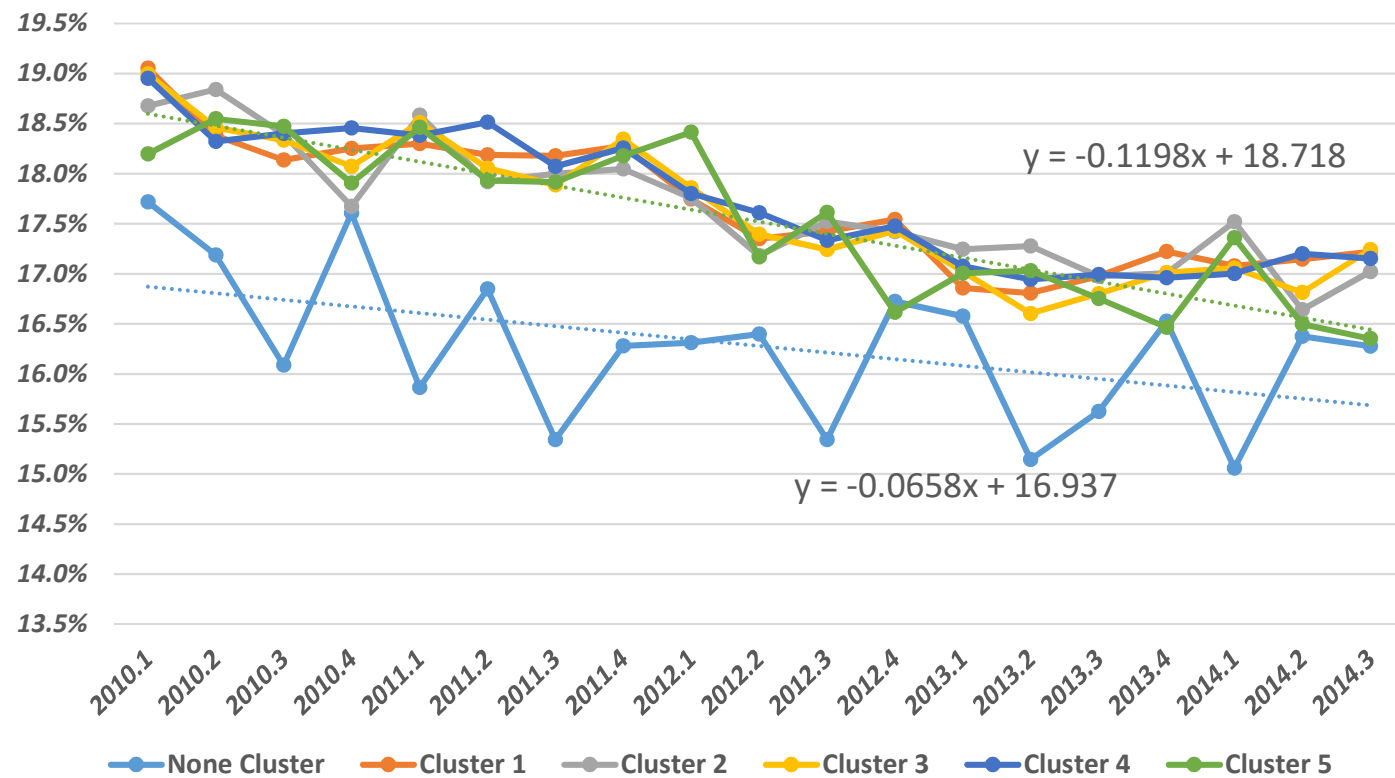
Results - Overlapping hospitals among clusters

	No Cluster (Cluster 0)	Care Plan (Cluster 1)	Shared Decision (Cluster 2)	Identify High-Risk (Cluster 3)	Medication Reconciliation (Cluster 4)	Cross-Setting Information Exchange (Cluster 5)
No Cluster (Cluster 0)	43	0	0	0	0	0
Care Plan (Cluster 1)	0	217	77	151	178	41
Shared Decision (Cluster 2)	0	77	115	90	95	42
Identify High-Risk (Cluster 3)	0	151	90	230	178	44
Medication Reconciliation (Cluster 4)	0	178	95	178	267	47
Cross-Setting Information Exchange (Cluster 5)	0	41	42	44	47	58

Preliminary Conclusions

- Care transition strategies vary widely across hospitals
- Five general overlapping clusters of TC components are evident in current practice patterns
- Hospitals appear to adopt TC clusters preferentially based on baseline readmission rates
- Hospitals that adopt TC clusters experience significantly larger reductions in readmissions than non-adopters
- TC strategies that include information exchange with post-acute providers are associated with the largest reductions in readmissions

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