Partners Advancing Transitions in Healthcare (PATH) Project Evaluation

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OBJECTIVES

The PATH project was a patient-engagement community-driven project created and funded by The Change Foundation (TCF) and implemented by the Northumberland Community (patients and partners) in May 2014 to improve health system transitions for older adult participants with chronic disease conditions and their family caregivers.

The objectives of this research project were to:

1. Evaluate participant experiences with the *My Health Experience* mobile/web-based technology platform co-designed and used by project participants to collect and share personal health data; &
2. Conduct a summative evaluation assessing changes to health service utilization for PATH project participants in comparison to a matched control group, using health administrative data.

PATH enrollees were/had:

a) Residents of Northumberland county (Central East LHIN);
b) Aged 65 years or older at the time of enrollment;
c) One of the following chronic conditions: Congestive Heart Failure (CHF), Cardiovascular Disease, Chronic Obstructive Pulmonary Disease (COPD)/Emphysema, Diabetes, Arthritis, Cerebral Vascular Accident (CVA) (stroke), Gastrointestinal (GI)/Crohn's/Colitis, Dementia, Osteoporosis, Mental Health, Kidney Disease, Parkinson's, Cancer, Glaucoma; &
d) At least one care transition in the year prior to enrolment defined as any health care visit or health service use.

METHODS & DATA SOURCES

Objective 1:

Real-time survey data were collected via participant and provider self-report from the *My Health Experience* eHealth technology between May 2014 – June 2015. Data collected included:

a) Baseline and demographic information;
b) Self-reported needs;
c) Participant experiences with health care encounters;
d) CollaboRATE shared-decision making scale, Patient Activation Measure (PAM) and Patient Assessment of Care for Chronic Conditions (PACIC) measure; &
e) The overall utility of the tool for participants and providers

A total of 121 older adults and 39 unique health providers (physicians, nurses, and administrative staff) contributed data. Data were analyzed by the HSPRN team on weekly basis to provide real-time feedback to the PATH project team on participant needs and barriers to care.

Objective 2:

A propensity-matched cohort was constructed selecting controls meeting the PATH participant enrolment criteria. Outcome measures of interest included acute hospitalizations (DAD), ED visits (NACRS), days in acute care (DAD), primary care and specialist visits (OHIP). These were measured over a 1-year period pre- and post-index. Comparative effectiveness evaluation was performed on each indicator using a Difference-in-Differences (DID) approach with generalized estimating equations (GEE). DID analysis assumes parallel trends, that is in the absence of enrolment, average change in measured outcomes would be equivalent for enrollees and controls.

RESULTS

Objective 1:

Figure 1: Change in CollaboRATE Scores over Time

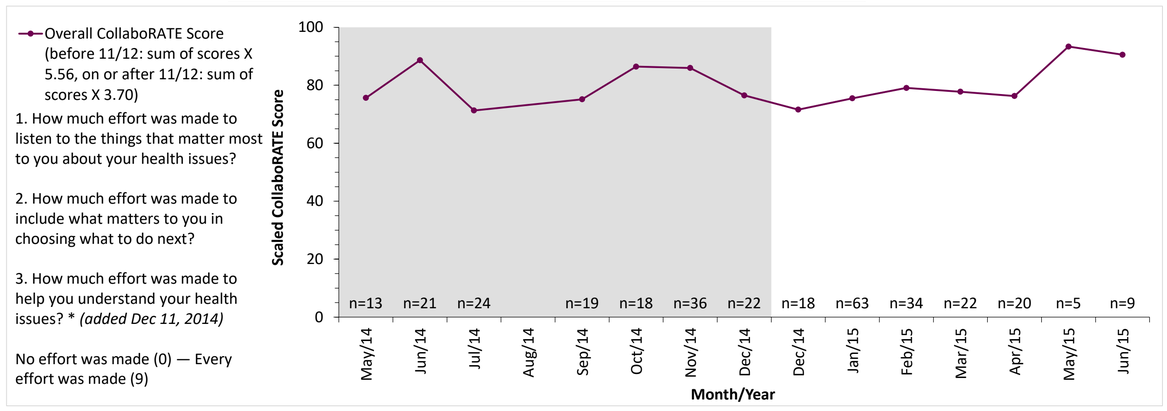

Figure 2: Change in PAM Scores from Start to Finish of Pilot

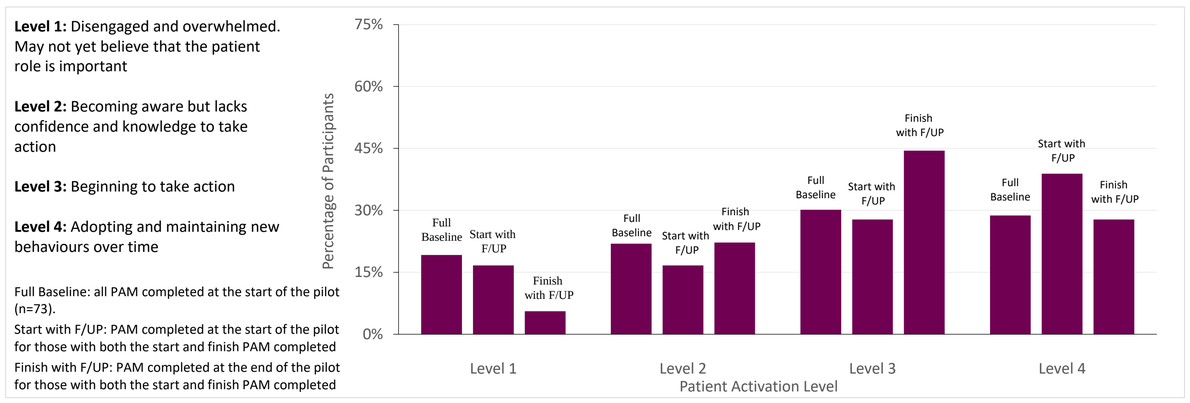

Figure 3: Change in PACIC Scores from Start to Finish of Pilot

Figure 4: Change in Provider Ratings over Time

Objective 2:

Table 1: Comparison of Baseline Characteristics of Matched Enrollees with Matched Controls

Variable	Control	Case	Std Diff
Total # Cases	106	106	
Matching Variables			
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Sex (%)	50	50	0
Age (Mean (SD))	76.52(3.62)	76.53(6.06)	0
RIO (Mean (SD))	36.96(4.18)	36.19(4)	0.19
Neighbourhood Income Quintile (%)			
Lowest (1)	13.68	15.09	0.04
2	15.57	16.04	0.01
3	18.87	16.98	0.05
4	35.85	36.79	0.02
Highest (5)	16.04	15.09	0.03
Comorbidity (CADGs) (%)			
Acute Minor	71.38	70.75	0.01
Acute Major	86.01	83.02	0.08
Likely To Recur	74.06	72.64	0.03
Asthma	3.93	<6 records	0.01
Chronic Medical Unstable	83.02	81.13	0.05
Chronic Medical Stable	79.09	79.25	0
Chronic Specialty Stable	6.76	8.49	0.07
Eye Dental	22.33	21.7	0.02
Chronic Specialty Unstable	14.62	15.09	0.01
Psychosocial	30.97	29.25	0.04
Prevention, Administration	29.4	27.36	0.05
Pregnancy	0	0	0
Past Year Health Care Utilization (Mean (SD))			
# of Primary Care Visits	7.66(5.03)	7.49(10.17)	0.02
# of Specialist Visits	14.25(8.66)	14.42(15.73)	0.01
# of ED Visits	1.04(0.89)	1.05(1.66)	0.01
# of Homecare Visits	14.15(34.26)	13.8(49.9)	0.01
# Days in Acute Hospital	1.71(3.08)	1.72(6.47)	0
Other Ambulatory Care Visits (%)	4.4	<6 records	0.02
Propensity Score (Mean (SD))	4.63(0.5)	4.62(0.84)	0.01

SD = standard deviation
CADGs = Johns Hopkins Collapsed Adjusted Clinical Groups
Std Diff = Standardized Difference

Table 2: Results from difference-in-difference analysis for select indicators

Measure		Mean or Rate (95% CI) Pre-Index Period[1]	Mean or Rate (95% CI) Post-Index Period	Difference- in-Differences	*p-val*
Hospitalizations[2]					
	PATH Project Enrollees	0.26 (0.15, 0.44)	0.29 (0.18, 0.47)	1.13 (0.59, 2.17)	0.7215
	Control Group	0.30 (0.23, 0.40)	0.30 (0.23, 0.40)		
Emergency Department Visits[2]					
	PATH Project Enrollees	1.04 (0.78, 1.39)	0.88 (0.64, 1.21)	0.74 (0.5, 1.08)	0.1218
	Control Group	1.03 (0.88, 1.20)	1.18 (0.99, 1.40)		
Days in Acute Care[2]					
	PATH Project Enrollees	1.90 (1.01, 3.57)	1.92 (1.00, 3.68)	0.43 (0.17, 1.11)	0.0827
	Control Group	1.62 (1.11, 2.35)	3.77 (2.11, 6.75)		
Primary Care Visits[2]					
	PATH Project Enrollees	7.55 (5.85, 9.73)	6.90 (5.65, 8.42)	0.82 (0.63, 1.08)	0.1584
	Control Group	7.98 (7, 9.09)	8.86 (7.59, 10.35)		
Specialist Visits[2]					
	PATH Project Enrollees	14.37 (11.67, 17.69)	14.64 (11.85, 18.07)	0.99 (0.78, 1.25)	0.9038
	Control Group	13.2 (11.49, 15.17)	13.64 (11.45, 16.26)		

[1]All pre-index comparisons (enrollees vs controls) not statistically significant, confirming parallel trends assumption of DID model
[2] Rates per person-year presented, with incidence rate ratios as differences (otherwise, means and mean differences presented)

KEY FINDINGS

Objective 1:

- A total of 319 participant experience surveys were completed by 73 of the 121 PATH enrollees.
- A net positive trend was noted for questions assessing participant needs and experiences, and provider communication.
- Only 25% of patients completing Baseline PAM and PACIC surveys also completed final surveys.
- CollaboRATE scores remained consistent over time averaging around 79% positive, while some increases were noted in PAM (Level 1 to Level 3) and PACIC scales from start to end of pilot.
- Provider participation in the survey was limited; those who did participate reported low utilization of the tool and few derived benefits.

Objective 2:

- Control matches were found for 106 PATH participants (94% of eligible candidates).
- For enrollees, there were no statistically significant differences pre vs post-index one year trends on all measured outcomes
- The number of hospital days increased significantly pre vs post-index for controls (p=0.017 [sig=0.10]).
- Through DID estimation, utilization patterns differentially decreased (i.e. a more favourable change in outcome) in the post-index period among the enrollee group relative to controls, for days in acute care, but not the other four indicators at the 10% level of significance.

IMPLICATIONS

PATH had limited effects on health system utilization and relatively low response rates to self-reported experience measures longitudinally. Total acute days were notably lower among PATH enrolees.

The eHealth technology was used by patients including older adults with complex health needs demonstrating that this population can engage with technology. Although the eHealth technology may have demonstrated utility, certain systematic barriers exist, such as patient and provider motivation which may prevent the tool from contributing to significant changes in participants' health service utilization.

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