



## Original research

# Patient perceptions of integrated care and their relationship to utilization of emergency, inpatient and outpatient services



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## ABSTRACT

**Background:** Patients with multiple chronic conditions have garnered particular attention from policymakers and health service researchers because these patients utilize more services and contribute disproportionately to rising health care expenses. The growing prevalence of patients with multiple chronic conditions has increased the importance of achieving better health care integration for this patient population. Patients may be well positioned to assess integration of their care, but the relationship between patients' perceptions of care integration and use of health services has not been studied. We sought to understand how patient-perceived integrated care relates to utilization of health services.

**Methods:** We fielded the Patient Perceptions of Integrated Care survey among a random sample of 3000 ( $\leq 65$  years) patients with multiple chronic conditions belonging to the Massachusetts General Hospital Physician Organization; 1503 responses were collected (50% response rate). We assessed relationships between provider performance on 11 domains of patient-reported integrated care and rates of emergency department (ED) visits, hospital admissions, and outpatient visits.

**Results:** Better performance on two of the surveyed dimensions of integrated care (information flow to other providers in your doctor's office and responsiveness independent of visits,  $p < 0.05$ ) was significantly associated with lower ED visit rates. Better performance on three dimensions of integrated care (information flow to your specialist,  $p < 0.05$ , post-visit information flow to the patient,  $p < 0.001$ , and continuous familiarity with patient over time,  $p < 0.05$ ) was associated with lower outpatient visit rates. No dimensions of integration were associated with hospital admission rates.

**Conclusions:** In a single health system, patient perceptions of integrated care were associated with ED and outpatient utilization but not inpatient utilization. With further development, patient reports of integration could be useful guides to improving health system efficiency.

## 1. Introduction

The growing prevalence of patients with multiple chronic conditions, whose care delivery is especially complex and expensive, has increased attention on achieving better health care integration for this patient population. Care delivery for patients with multiple chronic conditions is particularly challenging because these patients may be frequently hospitalized, take many medications, and/or receive treatment from multiple providers across a variety of care settings, including at home. Patients with multiple chronic conditions have garnered attention from policymakers because these patients utilize more services and contribute significantly to rising health care ex-

penses.<sup>1</sup> In the United States, approximately 25% of individuals who have multiple chronic conditions account for approximately 65% of total health care spending.<sup>2</sup>

Challenges around treating patients with multiple chronic conditions highlight the need for more integrated patient care. We define integrated patient care as care that is coordinated across professionals, facilities, and support systems; continuous over time and between visits; patient and family centered; and based on shared responsibility between patients, family members, and caregivers.<sup>3</sup> We believe the patient's perspective on the ability of the health care system to integrate care may warrant special attention given that patients have a unique vantage across all the services they receive.

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**Table 1**  
Sample characteristics.

	All Respondents (N=1059)
<b>Patient Utilization</b>	
Mean ED visits	1
Mean hospital admissions	0.7
Mean outpatient visits	8.8
<b>Chronic Conditions</b>	
CHF	3.0%
Asthma	1.0%
Diabetes	5.1%
Depression	17.4%
Ischemic heart disease (IHD)	21.5%
Average number of chronic conditions	4.3
<b>Self-reported health</b>	
Excellent, very good, or good	79.6%
Fair or Poor	20.4%
<b>Age</b>	
65 to Less than 75	45.2%
75 or older	54.8%
<b>Gender (% male)</b>	
	48.1%
<b>Education</b>	
Less than high school graduate	6.8%
High school graduate or GED	24.9%
Some college or 2-year degree	20.8%
4-year college graduate	14.5%
More than 4-year college degree	33.0%
<b>Race/Ethnicity</b>	
White	96.2%
Non-White	3.8%

**Table 2**  
Mean patient utilization stratified by provider performance on PPIC domains.

	N	Mean number of emergency department visits	Mean number of hospital admissions	Mean number of outpatient visits
<b>Information Flow to Primary Care Provider</b>				
Providers in Top Performing Quartile	259	1.04	1.45	9.45
Providers in Bottom Performing Quartile	267	0.97	1.13	9.43
<b>Information Flow to Specialist</b>				
Providers in Top Performing Quartile	216	0.87	0.91	9.75
Providers in Bottom Performing Quartile	208	1.04	1.33	12.3
<b>Information Flow to Other Providers in Primary Provider's Office</b>				
Providers in Top Performing Quartile	124	0.85	1.16	9.53
Providers in Bottom Performing Quartile	128	1.59	1.36	10.41
<b>Information Flow Post Hospitalization</b>				
Providers in Top Performing Quartile	74	2.21	1.62	10.57
Providers in Bottom Performing Quartile	75	2.27	1.81	11.8
<b>Proactive Action Before Visits</b>				
Providers in Top Performing Quartile	281	0.67	0.43	7.17
Providers in Bottom Performing Quartile	267	1.24	0.83	11.51
<b>Post-visit Information Flow to the Patient</b>				
Providers in Top Performing Quartile	263	0.94	0.76	7.82
Providers in Bottom Performing Quartile	248	1.3	0.86	9.35
<b>Responsive Independent of Visits</b>				
Providers in Top Performing Quartile	301	0.97	0.72	9.17
Providers in Bottom Performing Quartile	335	1.11	0.61	8.64
<b>Continuous Familiarity with Patient Over Time</b>				
Providers in Top Performing Quartile	289	1	0.78	7.67
Providers in Bottom Performing Quartile	266	1.27	0.92	11.68
<b>Coordination with Home and Community Resources</b>				
Providers in Top Performing Quartile	252	1.32	1.05	10.01
Providers in Bottom Performing Quartile	243	0.99	0.6	7.93
<b>Patient-Centeredness</b>				
Providers in Top Performing Quartile	260	1.07	0.78	9.66
Providers in Bottom Performing Quartile	277	1.2	0.71	9.09
<b>Shared Responsibility</b>				
Providers in Top Performing Quartile	259	1.18	0.73	8.73
Providers in Bottom Performing Quartile	255	1.06	0.59	7.67

The Affordable Care Act has created programs such as Accountable Care Organizations (ACOs) and Patient-Centered Medical Homes (PCMHs) that share the underlying premise that integrated care delivery may lead to better patient outcomes and lower utilization of unnecessary health services.<sup>4–7</sup> However, the integration of organizations and organizational activities may or may not result in integration of care delivered to patients. Results of these delivery models have so far have been mixed, and program evaluations fail to consider whether patients experience their care as more integrated as a result of interventions.<sup>8–12</sup>

Evaluating the extent to which patients perceive their care to be integrated could help policymakers and organizations better understand the mechanisms through which patient outcomes improve and warrants special attention. Patients have a distinctive perspective on the ability of systems to integrate care and are the only ones to experience all the care they receive across providers and provider organizations. In addition, patients are uniquely qualified to say whether their care is integrated in ways that meet their needs and preferences. Moreover, increased patient integration is expected to yield increased patient satisfaction and efficiency.<sup>13</sup> Indeed, improved integration is a central goal to many delivery reform initiatives because of the anticipated reduction in inappropriate utilization of services. However, the extent to which patient perceptions of care integration relates to lower utilization has not been addressed in the literature.

To our knowledge, this study is the first to evaluate associations between patient perceptions of care integration and health care utilization. To assess patients' perceptions of care integration, we fielded a recently developed patient experience measure, the Patient Perceptions of Integrated Care (PPIC) survey<sup>14</sup> among Massachusetts General Hospital (MGH) patients with multiple chronic conditions. We

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