Development of a Primary Care Transitions Clinic in an Academic Medical Center

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INTRODUCTION: Transitions of care experiences leave patients vulnerable to adverse outcomes, including readmissions, worsening symptoms, and reductions in functional status.

AIM: To describe and evaluate a primary care transitions clinic that serves patients with medical and/or social needs that must be addressed prior to establishment of primary care.

SETTING: Brigham Health, an academic medical center in Boston, MA.

PROGRAM DESCRIPTION: The transitions clinic opened within an existing primary care practice in January 2019. It employs one full-time nurse care coordinator and one full-time medical assistant, and is staffed by one primary care physician (PCP) or nurse practitioner each weekday afternoon. Both medical and social diagnoses that require follow-up post-discharge are addressed. Patients with any insurance are seen as many times as necessary until PCP care is established.

PROGRAM EVALUATION: In the year after its establishment (January 20, 2019, to January 19, 2020), the transitions clinic received 498 referrals (73.2% from the emergency department (ED), 23.3% from inpatient), with 207 patients ultimately seen. Patients were seen 5 (median; IQR 4–6) work days post-discharge, with 2 (median; IQR 1–3) visits per patient. Patients seen in the transitions clinic had significantly fewer ED visits than a comparator cohort referred to Brigham Health Primary Care after ED or hospital discharge in the year prior (January 20, 2018, to January 20, 2019). Patients seen in the transitions clinic additionally had significantly fewer ED visits and hospitalizations in the three months post-referral than in the three months pre-referral. The most common social determinants addressed by the clinic's nurse coordinator were insurance, transportation, and housing.

DISCUSSION: A primary care transitions clinic can provide accessible, attentive care post-discharge with positive effects on healthcare utilization. Availability of a multidisciplinary team that can see patients for repeated visits until establishment of PCP care was a key success factor for the transitions clinic.

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INTRODUCTION

Experiences of transitions of care, such as between the emergency department (ED) or hospital and home, leave patients vulnerable to adverse outcomes. About a fifth of Medicare patients are readmitted within 30 days after discharge,[1] and one in ten Medicaid patients is readmitted in this timeframe.[2] Numerous studies have demonstrated additional adverse outcomes associated with transitions of care including worsening symptoms, reductions in functional status, and psychological distress.[3–5] Among many challenges, issues with medication reconciliation, inconsistent handoff processes and information transfer among providers, lack of preparation for self-care among patients, inadequate test result follow-up, and patients' social barriers to health (e.g., food, transportation, support services, housing) make the hospital or emergency department to home transition particularly fraught.[6]

The adverse outcomes associated with the transitional period are compounded by challenges with access to primary care, with enhanced primary care access associated with better healthcare outcomes.[7] According to a recent survey, Massachusetts has among the highest wait times in the nation for primary care,[8] and this is further amplified in an academic medical center where many primary care physicians (PCPs) practice part time and fewer new patient slots may be available.

Diverse interventions have been studied for enhancing transitions of care. These range from single-modal information transfer and telephonic transitional programs to multimodal programs such as the C-TraC, which combines interdisciplinary pre-discharge rounds, pharmacist medication reconciliation, and post-discharge follow-up calls to enhance care for veterans transitioning from the hospital to the community.[6] Complementing these interventions, studies have shown that earlier post-discharge follow-up is associated with reduced readmissions in some populations.[9,10] Transitions clinics, which provide a structured post-discharge follow-up touchpoint, have shown promise at enhancing post-discharge outcomes and may be an effective tool to address challenges with access to primary care.[11–14] These clinics offer a post-discharge bridge to primary care for medically and socially complex patients without a PCP. They are variably staffed by hospital medicine or PCPs, and they see patients for a time-limited period post-discharge. They may be a particularly effective post-discharge tool for caring for vulnerable populations, such as those without established primary care[11] or insurance, those experiencing homelessness,[15] or those recently released from prison.[16]

In the context of national efforts to improve care transitions[17] and our academic medical center's accountable care arrangements across payor types, we sought to develop a transitions clinic model within our primary care network. Building on previous work, the transitions clinic is staffed by primary care providers, employs a multidisciplinary team, and provides longitudinal primary care for a limited (but flexible) time period until permanent primary care can be established.

In this paper, we describe the context for the development of a Brigham Health Primary Care Transitions Clinic, characterize the services that it renders, report on the population served over the first year of operation, and assess its impact on healthcare utilization and establishment of primary care.

METHODS

Setting

The Brigham Health Primary Care Transitions Clinic was established at Brigham Health, an academic medical center in Boston, MA. Brigham Health Primary Care serves 160,000 patients yearly, and its 18 clinics range from academic teaching practices located on the main Brigham Health campus to community health centers and community primary care practices. It is one of the two academic medical centers comprising the MassGeneral Brigham System, which cares for over 1.5 million patients annually.

In late 2017, MassGeneral Brigham (the parent organization of Brigham Health) entered into an agreement with MassHealth (the Massachusetts Medicaid Program) to develop a Medicaid Accountable Care Organization (ACO), with enrollment based upon the affiliation of members' primary care physicians. As part of this arrangement, MassGeneral Brigham receives fee for service payments from MassHealth, but is accountable for total costs of care, with shared savings and losses if total costs of care are above or below set benchmarks. This complemented existing risk contracts with both commercial insurers and Medicare.

In this setting, Primary Care and Care Management leaders at Brigham Health realized that an intervention was needed that would enable patients at high risk after discharge from the emergency department or hospital to be quickly seen prior to the establishment of permanent care with a PCP. Our goal was to ensure that patients across all insurance types and risk contracts had ready access to primary care, with an aim of preventing avoidable utilization, facilitating timely discharges in the setting of emergency and inpatient capacity constraints, and improving healthcare outcomes.

Intervention

The primary care transitions clinic was established within an existing Brigham Health primary care practice and opened in January 2019. Notably, the practice in which it is co-located is within several blocks of the main hospital campus to avoid patients having to navigate to an unfamiliar location post-discharge. The transitions clinic employs one full-time nurse care coordinator and one full-time medical assistant, and is staffed by one PCP or nurse practitioner each weekday afternoon. The clinic is meant for patients with a medical and/or social need (i.e., access to housing/food) that must be addressed prior to establishment of PCP care or their next available appointment with an existing PCP (in practice, it has predominantly served patients without a PCP). While we initially envisioned that the clinic would predominantly serve patients in the MassGeneral Brigham Medicaid ACO, our team realized within the first two weeks that its services were needed more broadly, and it now serves patients with any type of insurance accepted at Brigham Health. Patients without insurance who may benefit from the transition clinic's services are referred to Patient Financial Services for assistance with enrolling in an insurance plan, and then seen in the transitions clinic when they choose an insurance plan accepted by Brigham Health.

Referrals to the transitions clinic are placed via an electronic form in the medical record (see Appendix 1). They can be placed by any member of the patient's care team, including physicians, physician assistants, nurses, care coordinators, and emergency department navigators within the Brigham Health system. On the referral form, clinicians are asked to indicate in what interval patients should have follow-up (i.e., 3 days, 2 weeks). The form additionally provides room to choose a reason for referral to the transitions clinic, or to add free text explaining the reason. Prior utilization patterns are not a criterion for referral to the transitions clinic.

Patients who meet the criteria for the clinic (noted above) are called by the clinic's nurse care coordinator post-discharge to assess how they are doing, reassess needs, and schedule an appointment. The nurse care coordinator may address insurance or other logistical issues before a first appointment. Both medical and social diagnoses that require close follow-up post-discharge are addressed during transitions clinic visits with doctors and nurse practitioners, which are scheduled for one hour. Services needed are guided both by available discharge documentation and by a standard clinical interview that in addition to standard medical content, integrates queries regarding food, housing, access to transportation, etc. In addition to standard provider-led primary care, the transitions clinic additionally offers visits with its embedded nurse care coordinator and, as needed, with the pharmacist and social worker who staff the co-located primary care practice. The transitions clinic schedule is designed so that providers can see patients multiple times in a row and follow post-discharge problems over time.

The clinic's nurse care coordinator has her professional effort completely dedicated to the clinic. In addition to helping patients with medical needs such as wound care and medication teaching, she spends about half of her time helping patients obtain insurance, schedule appointments, keep track of their appointments, access needed social and medical services, and fill out paperwork (such as for food stamps or to sign up for Medicaid).

Patients are referred to a permanent primary PCP from within the clinic, and are seen as many times as necessary until PCP care is established (defined as being referred to and keeping their first appointment with a new PCP). As part of the transition to primary care, patients are given a brochure which introduces them to the concept of primary care and associated services. Specialty referrals are additionally placed from within the clinic as necessary. While there is not a specific handoff to primary care that occurs from the transitions clinic, patients have often been seen multiple times in the transitions clinic by the time they establish care with a PCP with urgent health needs and many of their health maintenance needs addressed.

Data Collection and Analysis

Data for this analysis were derived from the Epic electronic medical record and associated MassGeneral Brigham Electronic Data Warehouse and Research Patient Data Registry. This study was approved by the MassGeneral Brigham IRB.

After describing demographics and care process metrics (time to and number of transitions clinic visits, % connected to PCP) for patients attending the transitions clinic, we evaluated the effect of the program on emergency department (ED) utilization and inpatient hospitalizations for patients seen in the year after the clinic's opening (January 20, 2019, to January 19, 2020).

We first compared average numbers of post-referral ED visits and hospitalizations for patients seen in the transitions clinic to those for a Brigham Health Primary Care comparator cohort. This cohort was referred to Brigham Health Primary Care between January 20, 2018, and January 19, 2019 (prior to the establishment of the transitions clinic) from the ED or inpatient setting. Patients in this comparator cohort did not receive transitional services between referral to primary care upon discharge and when they established PCP care. Average per-patient ED visits and hospitalizations were calculated for both the transitions clinic and Brigham Health comparator groups for the three months after referral. Between-group comparisons were made using the Wilcoxon-Mann-Whitney test (due to non-normal distribution of data).

We additionally performed pre- and post-referral utilization comparisons for the transitions clinic cohort. Specifically, we compared the average number of ED visits and hospitalizations per patient in the three months before referral to the transitions clinic to the average number in the three months after referral to the clinic. Comparisons were made on a per-patient basis using the Wilcoxon signed rank test (similarly, due to non-normal distribution of data).

RESULTS

In the year after its establishment (January 20, 2019, to January 19, 2020), the transitions clinic received 498 referrals. 73.2% of referrals were derived from the emergency department and 23.3% were from the inpatient setting, with 3.3% from outpatient specialty clinics or home nursing. A total of 403 patients interacted with the transitions clinic in some capacity (e.g., phone call with the nurse care coordinator, appointment scheduled but patient did not attend). Two hundred seven (41.5%) patients were ultimately seen in the transitions clinic. Among patients referred who did not ultimately attend a transitions clinic appointment, the most common reasons were insurance issues such as being part of another ACO or lack of insurance (36.4%), inability to reach patients (22.7%), and patients having an existing PCP who could meet

Table 1 Characteristics of the Transitions Clinic and Comparator Cohorts

	Transitions clinic	Comparator	p for difference
Description	Patients referred to and seen in the transitions clinic between January 20, 2019, and January 19, 2020	Patients referred to Brigham Health Primary Care after discharge between January 20, 2018, and January 20, 2019	
Number of patients	207	1198	
Age (mean ± SD)	48.4 ± 18.9 years	46.2 ± 19.0 years	0.12
% with primary language other than English	23.1%	18.0%	0.08
Insurance distribution	54.2% Medicaid (29.0% in the MassGeneral Brigham ACO) 22.2% with commercial insurance 15.9% with Medicare 8% with no or pending insurance	30.8% Medicaid (5.3% in the MassGeneral Brigham ACO) 37.0% with commercial insurance 19.3% with Medicare 14.7% without insurance information/no insurance	< 0.01

their needs in a timely fashion (20%). There was not a difference in transitions clinic participation by referral source.

As shown in Table 1, patients seen in the clinic had an average age of 48.4 ± 18.9 years and 23.1% spoke a language other than English as their primary language. Of the patients seen in the transitions clinic, 54.2% had Medicaid as their primary insurance (29.0% in the MassGeneral Brigham ACO), 22.2% had commercial insurance, and 15.9% had Medicare. In contrast, our Brigham Health Primary Care comparator group (n = 1198) had an average age of 46.2 ± 19.0 years and 18.0% had a language other than English as their primary language. Fewer patients in the comparator cohort had Medicaid or were part of the Brigham Health–affiliated ACO (30.8% and 5.3%, respectively), while more patients (37.0%) had commercial insurance.

The transitions clinic saw an average of 20 patients per week. Patients were seen a median (interquartile range [IQR]) of 4 (3, 6) days after discharge. This contrasts with a median (IQR) of 41 (5, 111) days for patients referred to Brigham Health Primary Care upon discharge between January 20, 2018, and January 19, 2019. Patients were seen in the transitions clinic a median (IQR) of 2 (1, 3) times (with a maximum of 8 times) prior to establishing care with a new PCP. While many patients were seen for follow-up of the conditions that led to their ED visit or hospitalization, some received necessary health maintenance; some were started on therapy for depression, anxiety, diabetes, hypertension, and other chronic diseases; and some were connected to care for life-threatening diseases such as newly diagnosed metastatic cancer. See Figure 1 for vignettes of sample patients referred to the clinic. Many received care coordination services through the clinic, such as referrals to home nursing for dressing changes or coordination of time-sensitive biopsies. The most common social determinants of health addressed were insurance issues, transportation challenges, and housing issues, including homelessness.

At the time of writing, 167 (80.6%) patients seen in the transitions clinic were successfully connected with a new PCP (defined as being referred to and keeping their first appointment with a new PCP), with 95% establishing care with a Brigham Health PCP. This contrasts with a 59.6% rate of successful connection to a PCP in the comparator cohort.

In our comparator cohort of patients referred to Brigham Health Primary Care after discharge between January 20, 2018, and January 20, 2019, patients had an average of 1.10 ± 2.03 ED visits and 0.04 ± 0.26 hospitalizations in the 3 months after their referral. In contrast, patients seen in the transitions clinic had an average of 0.33 ± 0.80 ED visits and 0.15 ± 0.47 hospitalizations in the 3 months after their referral to the transitions clinic, representing a significantly lower rate of ED visits than in the comparator cohort of patients referred directly to primary care the year prior ($p < 0.01$) (Fig. 2a).

Patients seen in the transitions clinic additionally had significantly lower ED visits and hospitalizations post-referral than they did in the 3 months prior to referral. Specifically, patients seen in the clinic had an average of 1.22 ± 1.37 ED visits in the 3 months pre-referral vs. 0.33 ± 0.80 visits in the 3 months post-referral and 0.33 ± 0.58 hospitalizations pre-referral vs. 0.15 ± 0.47 hospitalizations post-referral ($p < 0.01$ for pre-post differences in both ED visits and hospitalizations) (Fig. 2b). In a sensitivity analysis, we explored whether pre-referral and post-referral hospitalizations and ED visits differed for patients seen in the latter six months of our analysis period (July 20, 2019, to January 20, 2020), at which point any startup process refinements would have already taken place. Hospitalization and ED visit values were similar for patients seen in these latter six months.

DISCUSSION AND CONCLUSIONS

We have demonstrated that a transitions primary care clinic staffed by primary care personnel can reduce healthcare utilization and serve as an effective bridge to primary care in the fragile period post-discharge from the ED or hospital. Patients seen in the transitions clinic had significantly fewer ED visits in the 3 months after their referral as compared to a comparator cohort referred to Brigham Health Primary Care in the prior year, despite being slightly older, and representing a higher proportion of patients with Medicaid insurance or with a primary language other than English. These patients also had significantly fewer ED visits and hospitalizations in the 3 months after their referral as compared to the 3 months prior to their referral.

A broad literature has explored interventions that enhance care transitions. These have ranged from interventions offering the support of pharmacists[18] to post-discharge follow-up calls,[19] discharge checklists,[20] digital tools,[21] and use of nurse discharge advocates.[22] Multicomponent interventions including a combination of these methods have shown particular efficacy,[23,24] and specifically earlier post-discharge follow-up improves readmission outcomes.[9,10]

Transitions clinics offering earlier post-discharge follow-up have been evaluated in multiple previous studies. Doctoroff et al. demonstrated that a hospitalist-staffed transitions clinic significantly reduced the time to a post-discharge visit and was particularly used by black patients and those seen by residents in the outpatient setting.[13] At Rush University Medical Center, a single post-discharge, primary care–based transitions clinic appointment was associated with lower odds of 30-day readmissions.[11] At Harborview Medical Center, a single Transitional Care Clinic appointment for patients unaffiliated with primary care was associated with significantly lower emergency department utilization.[12]

Although similar in its focus on ensuring ready access to post-discharge follow-up, the transitions clinic model we have described differs from previous ones which are often intended for short-term (i.e., one-time) follow-up,[11,12] may not be staffed by primary care physicians,[13,14] and may be variably

Patient 1
Middle-aged male who had lost insurance and was hospitalized for newly diagnosed diabetes but did not have a PCP anymore. Seen in the Transitions Clinic to start anti-hyperglycemic agents, anti-hypertensives, and a statin. Educated about glucose monitoring and health maintenance completed prior to referral to new PCP. Pharmacist supplemented diabetes management initially provided by PCP and nurse care coordinator.

Patient 2
Elderly woman found to have lymphadenopathy with necrosis during hospitalization. After initial inpatient biopsy, patient referred to Transitions Clinic, which assisted with further coordination of services and consultations until a definitive diagnosis could be made. Lymphadenopathy ultimately shown to represent tuberculosis, and patient subsequently connected with PCP and infectious diseases care. Nurse care coordinator assisted patient with insurance and resource needs as well.

Patient 3
Middle-aged male who was started on diuretics during hospitalization for new CHF. Subsequently with multiple presyncopal episodes due to new regimen. Regimen titrated closely in outpatient setting to minimize symptoms while patient awaited establishment of PCP care. When patient had trouble coming to appointment due to issues with time off of work, nurse care coordinator helped with writing medical letters and helping patient pursue medical leave benefits.

Figure 1 Sample patients referred to the transitions clinic and services rendered.

equipped with the multidisciplinary resources of a patient-centered medical home.[12,14]

Consistent with work demonstrating that primary care medical home features are associated with lower risks of ambulatory care sensitive emergency department visits,[25] our experience suggests that the longitudinal, whole-person approach to care provided by our primary care–based clinic may be beneficial in reducing utilization and facilitating a smooth transition to further primary care. This is also concordant with prior work by Liss et al. demonstrating that a transitions clinic located in a high-poverty area that offers team-based, multidisciplinary care which addressed patients' medical and social needs was associated with a lower probability of inpatient admissions in the 90 and 180 days post-discharge.[15] Our intervention is also similar to that described by Chakravaty et al. which leveraged the skills of a multidisciplinary team composed of a primary care provider, a nurse, a social worker, and a patient navigator, and sought to connect Medicare and Medicaid patients to long-term primary care, resulting in lower odds of 30-day readmission as compared to no follow-up.[11] The Brigham Health Transitions Clinic, which similarly provided a multidisciplinary intervention and facilitated the transition to primary care, significantly lowered ED visits as compared to a comparator cohort, and resulted in significantly lower ED visits and hospitalizations post-referral as compared to pre-referral. In contrast to other studies, we did not assess the effect of this clinic on readmissions.

Like the majority of transitions of care models described in the literature, the model we have described focuses on enhancing the transition from hospital to home, with a secondary focus on establishing primary care (and the transition from hospital or ED to an outpatient clinic).[6] It is multimodal and contains as building blocks elements that have previously been associated with positive outcomes, including leveraging a transitional care nurse coordinate efforts across the continuum of care, tailored care plans, and patient education regarding their conditions and medications.[6,26]

Several design and operational elements contributed to the success of the transitions primary care clinic we have described. First, this clinic was staffed by an experienced nurse care coordinator who was able to effectively manage the care of the medically and socially complex patients seen in the clinic alongside PCP colleagues. Complete dedication of this nurse care coordinator's professional effort to the clinic allowed her to spend time on coordination tasks important for a vulnerable population (i.e., assisting patients with obtaining insurance, scheduling appointments, applying for social services). Second, the clinic was able to provide patients with hour-long visits during which a dedicated provider could deliver care, sometimes on short notice. The transitions clinic schedule was additionally designed so that providers could see patients multiple times in a row and follow post-discharge problems over time. Finally, the clinic was located close to the hospital and within an existing practice, making it easy to access for patients who had previously received care at Brigham Health, and enabling the clinic to leverage existing patient-centered medical home resources as necessary.

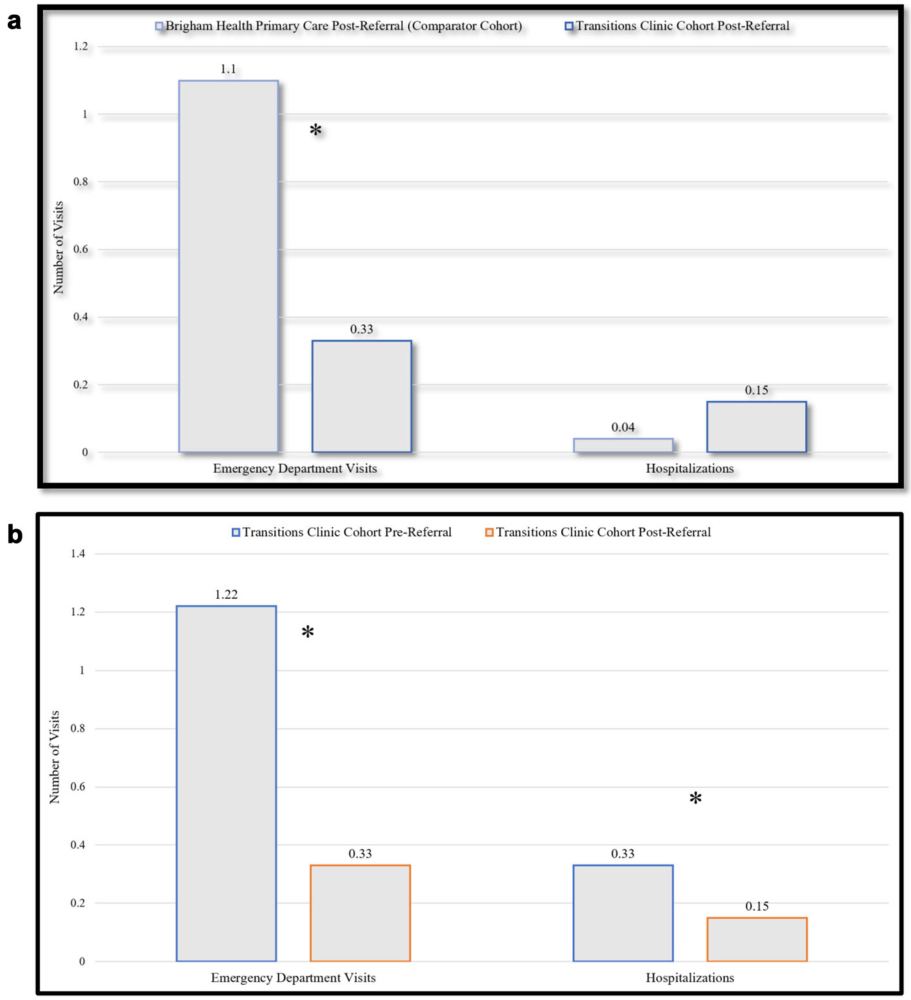

Figure 2 a Post-referral emergency department visits and hospitalizations for the transitions clinic cohort versus the Brigham Health Comparator Cohort. b Pre-post-referral emergency department visits and hospitalizations for the transitions clinic cohort. *Denotes a statistically significant difference between groups.

While these design elements ensured the high-quality, high-touch care provided to transitions clinic patients, they also contributed to its higher-than-average cost structure driven by hour-long visits and use of a dedicated nurse care coordinator for a relatively small population. These expenses were initially supported by dedicated operational funds, with the assumption that they were an investment towards improving outcomes and utilization for patients in risk contracts. Expenses were additionally balanced by embedding the clinic within an existing primary care practice to leverage existing space and resources. Finally, the use of the transitions clinic as a single intake point for patients needing intensive management facilitated efficiency by avoiding the need for individual practices to hold capacity for the lengthy initial appointments required by many of the patients seen in the transitions clinic. In the future, if the transitions clinic can demonstrate continued success at reducing utilization, it may be possible to offset the higher cost structure of a transitions clinic structure via the savings and incentive payments associated with risk contracts and accountable care arrangements.

It is notable that while our initial assumption was that this clinic would largely be needed by and serve patients in the MassGeneral Brigham Medicaid ACO, it quickly became obvious that the need for close transitional care was needed by patients with all types of insurance, resulting in the payor mix previously described. This underscores a broader need for access to primary care across insurance types. Given known issues with access to primary care in many metropolitan areas,[8] the primary care transitions clinic could be considered as a potential routine step in the process of transition to primary care.

Several areas of opportunity exist for enhancing the operations of the transitions clinic. First, many patients seen in the clinic experienced social needs that exceeded the typical scope of a nurse care coordinator but were major barriers to maintaining good health. Accordingly, the transitions clinic may benefit from additional social work or community health worker resources. An inability to reach patients post-discharge was a common reason that patients referred to the transitions clinic were not ultimately seen. Referral workflows that ensure the availability of multiple contact points for patients may help increase transitions clinic access. Finally, in the setting of the COVID-19 pandemic, the transitions clinic will need to optimize workflows for provision of both virtual and in-person care, while ensuring that the vulnerable patients it serves are able to access equitable services.

Strengths of our study include the following: assessment of utilization outcomes and comparison of outcomes both pre- and post-intervention and against a control cohort. We have additionally described a transitions clinic structure that can be embedded into existing operations, serve the needs of a diversity of patients with both medical and social complexity, and effectively facilitate the transition of patients into the traditional primary care structure.

Our study does have several limitations. First, it took place at a single, academic institution, so our experience may not be applicable across all practice settings. It is possible that our pre-post analysis was limited by regression to the mean; accordingly, we also compared our transitions clinic cohort to a historical comparator cohort. However, our comparator cohort differed from the transitions clinic cohort in size, distribution of insurance types, and percentage of people with English as a primary language, and we were unable to match our comparator cohort according to medical complexity, limiting our ability to fully attribute differences in results to the transitions clinic. Our evaluation took place in the first year after the transitions clinic's establishment, and particularly in the early months, the clinic's operations were still likely coming into equilibrium. Finally, it is not possible to completely disaggregate the effect of the transitions clinic from other care management programs taking place simultaneously, such as the Emergency Department Navigator Program (which refers Medicaid patients seen in the emergency department to primary care or social services, but does not provide transitional care) or efforts to generate acute care plans for patients with multiple admissions. However, both our transitions clinic and comparator cohorts would have been exposed to these programs.

In conclusion, we have demonstrated that a primary care transitions clinic can provide accessible, attentive care to some patients post-discharge and can provide needed care at a fragile time in the continuum of care. Such a clinic can effectively care for patients with both medical and social complexity, with positive effects on healthcare utilization outcomes. These findings have implications for design of programs seeking to facilitate effective transitions of care and reduce avoidable utilization in a healthcare and policy landscape that is increasingly focused on high-value care provision. Future research is needed to assess the effect of the transitions clinic on healthcare spending, its quantitative impact on addressing social determinants of health, and the experiences of patients who receive care in the clinic.

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Declarations:

Conflict of Interest: *The authors declare that they have no conflicts of interest.*

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