

Using a Resident Discharge Clinic for Resident Education and Patient Care: A Feasibility Study

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Abstract

Background Many patients in internal medicine resident continuity clinics experience difficulty accessing care, making posthospitalization ambulatory follow-up challenging. Experiential learning in care transitions is also lacking for residents.

Objective We sought to assess the feasibility and impact of a weekly Resident Discharge Clinic (RDC) in increasing access to early posthospitalization follow-up and providing learning opportunities for residents.

Methods We staffed the RDC with an ambulatory block resident, an internal medicine preceptor, and a clinical pharmacist. We assessed time to posthospitalization follow-up, readmission rates, and resident perceptions of postdischarge care for resident-clinic patients, comparing data before and after RDC implementation.

Results There were 636 discharges in the baseline group, 662 during the intervention period, and 56 in the RDC group. Six months after RDC implementation, the percentage of discharged resident-clinic patients with follow-up within 7 days improved from 6.6% at baseline to 9.7% ($P = .04$). The mean interval to the posthospitalization follow-up appointment in the RDC group was 7.4 days compared with 33.9 days in the baseline group ($P < .001$). The percentage of surveyed residents ($n = 72$) who agreed that early follow-up was easy to arrange increased from 21% to 77% ($P < .001$). There was no significant decrease in the 30-day readmission rate for patients in the RDC group (18.1% versus 12.5%, $P = .29$).

Conclusions The RDC was easily implemented, increased access to timely posthospitalization follow-up, and provided a platform for resident learning about care transitions.

Editor's Note: The online version of this article contains the resident discharge clinic checklist and residents' survey on posthospitalization follow-up for resident-clinic patients.

Introduction

Posthospitalization care is challenging for many patients in internal medicine (IM) resident continuity clinics due to

difficulty accessing care, which can result in delayed follow-up, missed test results, medication errors, hospital readmission, or emergency department visits.¹⁻⁶ Studies of early posthospitalization follow-up have shown reduced 30-day readmission rates and emergency department visits; however, these interventions have not been applied to resident continuity clinic patients.⁷⁻⁹

To improve postdischarge care in teaching hospitals, residents need training in evidence-based postdischarge practice, particularly learning about care transitions.¹⁰ Most existing transitions-in-care curricula focus on inpatient-to-inpatient handoffs.¹¹ Discharge interventions in some IM residency programs have focused on the quality and timeliness of discharge summaries,^{12,13} but improving the inpatient-to-outpatient handoff involves multiple factors. A study of IM residents identified a lack of postdischarge feedback and formal training as a barrier to high-quality posthospital care in teaching institutions.^{14,15} Another study suggested that a clinical experience in posthospital follow-up care may improve residents' discharge practices.¹⁶ In 2011 at the University of Chicago, IM and medicine-pediatrics (MP) residents perceived difficulty in obtaining posthospitalization follow-up in the resident clinics as a barrier to patient care. In addition, there was no structured resident curriculum on postdischarge care. To

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address these needs, we created a resident discharge clinic (RDC) to provide a platform for structured experiential learning in posthospital care transitions and to improve patient access to postdischarge appointments. Here we describe the RDC design, our initial experience, the impact on access to posthospital care, and next steps.

Methods

Setting and Participants

The University of Chicago has more than 90 IM and MP residents. Each resident is a primary care provider for approximately 100 patients by the end of their training. In the traditional clinic model, residents were in clinic 1 half-day each week and had several consecutive weeks with no clinic sessions because of inpatient service obligations.

The sample for this study consisted of adult patients (18 years and older) who were deemed eligible for the RDC if they had an established relationship with the resident continuity clinic and were discharged from the University of Chicago Hospital or an affiliated community hospital. Patients with a faculty primary care provider and patients who had not been followed in the resident clinic before their hospitalization were excluded.

Intervention

The RDC was established on September 2, 2011. It occurred 1 half-day every week within the University of Chicago's resident continuity clinic. In the weekly scheduling template, not all available continuity clinic sessions were filled. This provided flexibility to include the weekly RDC session in the clinic. The RDC was staffed by a postgraduate year (PGY)-2 or PGY-3 IM resident, an IM attending preceptor, and a clinical pharmacist. The RDC resident was on an ambulatory block rotation and differed each week; the half-day RDC session replaced an independent study half-day in the ambulatory block. For the RDC we maintained the Accreditation Council for Graduate Medical Education–required preceptor-to-resident ratio of 4:1, with the clinic preceptor supervising the RDC resident and up to 3 continuity clinic residents.¹⁷ This allowed the clinic to be scheduled without an increase in attending-physician time and clinic space or cost.

The inpatient resident caring for a patient about to be discharged contacted the clinic staff to schedule the appointment and communicated this appointment to the patient. The clinic staff preferentially scheduled the postdischarge follow-up with the patient's regular continuity resident if an appointment was available in the requested timeframe. If not, clinic staff scheduled the patient in the RDC.¹⁸ Communication between the inpatient and RDC teams was facilitated by an electronic

What was known

Following their continuity patients after a hospitalization is challenging for internal medicine residents, and experiential learning in care transitions is limited.

What is new

A resident discharge clinic increases access to early posthospitalization follow-up and provides opportunities for resident learning.

Limitations

Small sample and nonvalidated survey tool.

Bottom line

A resident-staffed discharge clinic teaches residents about care transitions and improves patient access to posthospital care.

discharge summary, the electronic health record, and an e-mail from the inpatient team to an RDC e-mail account that included a list of pending tests, additional tests needed, medication changes, and symptoms to assess. The ambulatory chief resident distributed this e-mailed information to the RDC team each week. If the RDC resident needed clarification, he or she paged the inpatient team. The ambulatory chief resident also oriented the RDC resident to clinic flow and the resident's role in the clinic, dedicating 1 hour each week to these duties.

The electronic scheduling template for the RDC session used 1-hour appointments, 30 minutes longer than typical resident-clinic appointments. The longer appointment allowed for medication reconciliation and counseling by the clinical pharmacist and the resident's and attending physician's evaluations of the patient. The pharmacist was a clinic-based practitioner with a doctorate of pharmacy who was dedicated to the RDC each week. For each RDC patient, the pharmacist performed medication reconciliation and provided the RDC resident with an accurate list of the patient's medications before the resident evaluation. A paper checklist adapted from published posthospitalization follow-up visit checklists was provided to the RDC resident to guide the visit and as a possible teaching tool for posthospital visit care (provided as online supplemental material).¹⁹ After performing an initial evaluation, the RDC resident saw the patient with the attending, providing an opportunity for teaching and direct observation of the resident's performance.²⁰ The RDC resident and attending then discussed medication changes or counseling needs with the pharmacist, who performed final medication reconciliation and counseling.

Our study was granted exemption status by the Institutional Review Board of the University of Chicago Biological Sciences Division.

TABLE 1 UNIVERSITY OF CHICAGO RESIDENT CONTINUITY CLINIC PATIENTS DISCHARGED FROM UNIVERSITY OF CHICAGO HOSPITALS^a

	Baseline Period (September 2010– February 2011)	Intervention Period (September 2011– February 2012)	RDC-Only Group (September 2011– February 2012)
Total patient discharges	636	662	56
No. of unique patients	436	490	52
Age, mean (SD), (range), years ^b	60.9 (15.1), (19–94)	60.6 (14.3), (18–98) <i>P</i> = .76	62.3 (16.5), (27–93) <i>P</i> = .56
Female, % (n) ^b	57.8 (252)	58.4 (286) <i>P</i> = .86	61.5 (32) <i>P</i> = .61
Discharged from a medicine service, % (n)	64.0 (407)	66.0 (437) <i>P</i> = .45	100 (56) <i>P</i> < .001
Mean hospital length of stay, (SD), (range), days	5.3 (6.9), (1–122)	5.4 (6.4), (1–78) <i>P</i> = .79	4.4 (3.6), (1–16) <i>P</i> = .11

Abbreviation: RDC, resident discharge clinic.

^a *P* values are for comparison to the baseline-period group. The intervention period includes the RDC group.

^b Denominator is number of unique patients.

Analysis

To assess the effect of the RDC on time to posthospitalization follow-up and 30-day readmissions, we conducted a pre-post study of hospitalized resident-clinic patients from September 2010 through February 2011 (*n* = 436) and September 2011 through February 2012 (*n* = 490). Patients were identified from the University of Chicago Hospital billing data. Because of the small number of patients scheduled in the RDC (*n* = 52), we examined this group separately. Only adult patients who were not discharged with hospice services and did not have planned admissions for chemotherapy, cardiac interventions, research studies, or labor and delivery were included. Basic demographic information, date of the first follow-up visit in primary care after hospitalization, and future hospital admission dates were collected from billing data.

The IM and MP PGY-2 to PGY-4 residents (*n* = 72) were surveyed anonymously about their perceptions on posthospitalization care for their patients using August 2011 and a limited convenience sample of residents as the baseline. The effect of the intervention was assessed in March 2012, 6 months after initiation of the RDC (the survey is provided as online supplemental material). Perceptions were assessed using a 5-point Likert scale in which responses ranged from strongly disagree to strongly agree. Responses before and after implementation of the RDC were compared.

Descriptive statistics were used to summarize patient data and resident perceptions in all time periods using Stata version 11.0 (StataCorp LP). In addition, χ^2 test, Fisher exact test, and Student *t* test were used, as appropriate, to compare patient data and resident perceptions during the different time periods.

Results

During the first 6 months of the RDC, 24 clinic sessions were staffed by 24 residents. There were 122 available appointments, 56 (46%) of which were filled with posthospitalization visits. Of the 56 scheduled appointments, 22 visits were not completed (39% no-show rate).

There were no major differences in age, sex, or length of hospital stay among baseline, intervention, and RDC patients (TABLE 1). Patients seen in the RDC had improved timeliness of posthospital care, but 30-day readmissions did not differ from that of the other 2 groups (TABLE 2).

Of the 72 residents, 29 (40%) residents responded to the preintervention survey and 44 (61%) responded to the postintervention survey. In the baseline survey, 21% (6 of 29) of respondents agreed that it was “easy to arrange timely (1–3 weeks) follow-up for resident-clinic patients discharged from the hospital”; after RDC implementation, 77% (34 of 44, *P* < .001) agreed with the same statement. At baseline, 79% (23 of 29) of respondents agreed with the statement, “I worry that my clinic patients are not getting adequate care after discharge from the hospital because of difficulty getting a follow-up appointment with me soon after discharge.” After implementation of the RDC, this declined to 30% (13 of 44, *P* < .001). Responses to the other survey questions did not change significantly.

Discussion

After adding a weekly RDC, IM and MP residents found it easier to arrange early posthospitalization follow-up for resident continuity patients; most RDC patients were scheduled within 14 days. Despite the significant improvement in the rate of follow-up within 7 days, the

TABLE 2 TIME TO POSTHOSPITALIZATION FOLLOW-UP AND READMISSION RATES FOR RESIDENT-CONTINUITY CLINIC PATIENTS^a

	Baseline Period (September 2010– February 2011)	Intervention Period (September 2011– February 2012)	RDC-Only Group (September 2011– February 2012)
Total patient discharges	636	662	56
Completed follow-up visit during period, % (n)	50.2 (319)	52.4 (347) <i>P</i> = .42	60.7 (34) <i>P</i> = .13
No follow-up appointment scheduled, % (n)	41.0 (261)	37.5 (248) <i>P</i> = .19	N/A
No show to follow-up appointment, % (n) ^b	14.9 (56/375)	16.2 (67/414) <i>P</i> = .63	39.3 (22/56) <i>P</i> < .001
Follow-up visit within 7 days, % (n)	6.6 (42)	9.7 (64) <i>P</i> = .04	41.1 (23) <i>P</i> < .001
Follow-up visit within 14 days, % (n)	15.1 (96)	16.8 (111) <i>P</i> = .41	57.1 (32) <i>P</i> < .001
Follow-up visit within 30 days, % (n)	27.5 (175)	30.7 (203) <i>P</i> = .21	60.7 (34) <i>P</i> < .001
Mean time to follow-up appointment, (SD), (range), days ^b	33.9 (27.8), (1–140)	33.5 (34.4), (1–181) <i>P</i> = .86	7.4 (4.8), (1–28) <i>P</i> < .001
30-day readmission rate, % (n)	18.1 (115)	16.6 (110) <i>P</i> = .49	12.5 (7) <i>P</i> = .29

Abbreviations: RDC, resident discharge clinic; N/A, not applicable.

^a *P* values are for comparison to the baseline-period group. The intervention period includes the resident discharge clinic group.

^b Denominator is the number of discharges with a scheduled follow-up appointment.

reduction in the 30-day readmission rate was not significant. The clinic was feasible and easily implemented into the existing clinic model without additional costs.

Despite many available RDC appointments, only 46% (56 of 122) of appointments were filled and there was a high no-show rate. Of the scheduled patients for whom we could review the electronic discharge instructions, only 57% (32 of 56) had the RDC appointment in their electronic health record, and this absence of appointment information in the discharge paperwork may have contributed to the no-show rate. Other postdischarge clinics have experienced similar low appointment-fill volume and high no-show rates.^{16,21} Additional efforts to maximize RDC utilization are needed, including scheduling patients discharged from nonmedicine services.

Our initial evaluation of the RDC has several limitations. We did not capture admissions to other hospitals, emergency department visits after hospitalization, and follow-up visits with subspecialists. Our primary focus was on the feasibility of obtaining early follow-up in the RDC, but these are pertinent measures to be included in future analyses. Our sample size may have been too small to detect a difference in 30-day readmissions, in part because of the low appointment-fill volume and high no-show rates. The pre-post design may have introduced differences in the patient cohorts. External validity may be limited because of unique features of our medical center

and clinic. Our survey of residents' perceptions was not validated; thus, respondents may have interpreted the questions differently than was intended, and our convenience sampling of residents for the baseline survey may have introduced bias.

Like other IM residency programs, we are transitioning to distinct inpatient-outpatient block scheduling ("4 + 2" or similar variations), incorporating a team-based approach to primary care that has been demonstrated to improve the ambulatory training experience.²¹ At the same time, ensuring early posthospitalization follow-up for patients likely will remain a challenge, given scheduling limitations, and structured education on postdischarge care will still be needed. The RDC is an experience unlike existing didactic curricula for teaching discharge care because it provides a supervised clinical setting to practice posthospital care within the resident clinic.^{13,22} Further objective evaluation of the educational effect of the RDC is needed and could be done by measuring outcomes related to the discharge process, such as frequency of medication reconciliation errors and missed test results after discharge.

Conclusion

The RDC was easy to implement in the existing resident-clinic structure and did not require additional funding for personnel or space. A resident-staffed discharge clinic is a feasible setting to teach residents about care transitions and improve patient access to posthospital care. It could also

provide an opportunity for resident-initiated quality improvement projects.

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