Published in final edited form as:

Gerontol Geriatr Educ. 2018 ; 39(2): 160–169. doi:10.1080/02701960.2016.1247069.

Development and Preliminary Evaluation of the Resident Coordinated-Transitional Care (RC-TraC) Program: A Sustainable Option for Transitional Care Education

E. Chapman¹, A. Eastman¹, A. Gilmore-Bykovskyi², B. Vogelman¹, and A. J. Kind^{1,2,3,4}

¹Department of Medicine, University of Wisconsin School of Medicine and Public Health, Madison, Wisconsin

²University of Wisconsin School of Nursing, Madison, Wisconsin

³Geriatric Research Education and Clinical Center (GRECC), William S Middleton Hospital, United States Department of Veterans Affairs, Madison, Wisconsin

⁴University of Wisconsin School of Pharmacy, Madison, Wisconsin

Abstract

Older adults often face poor outcomes when transitioning from hospital to home. Although physicians play a key role in overseeing transitions, there is a lack of practice-based educational programs that prepare resident physicians to manage care transitions of older adults. An educational intervention to provide residents with real-life transitional care practice was therefore developed – Resident-coordinated Transitional Care (RC-TraC). RC-TraC adapted the evidence-based Coordinated-Transitional Care (C-TraC) nurse role for residents, providing opportunities to follow patients during the peri-hospital period without additional costs to the residency program. Between July 2010 and June 2013, thirty-one Internal Medicine residents participated in RC-TraC, caring for 721 patients. RC-TraC has been a sustainable, low-cost, practice-based education experience that is recognized as transitional care education by residents and continues in operation to this day. RC-TraC is a promising option for geriatric-based transitional care education of resident physicians and could also be adapted for non-physician learners.

Keywords

Clinical training; active learning; Graduate Medical Education; physician education; program evaluation

INTRODUCTION

Older adults are at risk for a range of negative outcomes after hospital discharge, including medication discrepancies (Coleman, 2005), lack of appropriate follow-up (Coleman, 2003), unnecessary emergency room visits, and rehospitalization (Coleman, 2004). Health care

systems are often ill-equipped to handle the complex needs of older adults with multiple chronic conditions as they leave the hospital (Hirschman, 2015). With both higher rates of multimorbidity (Gerteis, 2014) and of complicating problems like frailty and cognitive impairment, geriatric patients are particularly vulnerable to the health care system gaps that lead to complicated transitions (Hirschman, 2015).

While physicians play a key role in hospital discharge processes, formal instruction during residency training on providing care to elderly patients as they leave the hospital is limited. The Accreditation Council for Graduate Medical Education (ACGME) requires residency programs to provide transitional care instruction (ACGME, 2015 and Riebschleger, 2011), and models for such education have proliferated recently (Buchanan, 2011). Specific educational standards are vague, however, and most existing programs rely on lecture-based tools (Buchanan, 2011). Data suggest that this prevailing structure – didactics without skill practice opportunities – does not effectively change physician behaviors (Forsetlund, 2009). Further, although more transitional care education models have emerged in the literature, little data exist regarding feasibility or sustainability.

To address these gaps, a geriatric-based transitional care educational program for Internal Medicine residents called RC-TraC was developed from an existing rotation previously lacking a transitional care curriculum. A successful nurse-led transitional care program called Coordinated Transitional Care (C-TraC) served as the model for RC-TraC (Kind, 2012). In previous testing, C-TraC decreased 30-day rehospitalizations by one-third and estimated costs by over \$1,200 per patient (Kind, 2012). C-TraC itself has been sustainable, continues in operation to this day, and has disseminated to multiple other sites. Keeping RC-TraC cost-neutral for the residency program was also critical to ensure that it, like C-TraC, was sustainable and feasible. The following details the adaptation of the clinical C-TraC program to create a transitional care educational experience for residents.

METHODS

Setting and Participants

This Midwestern academic Internal Medicine residency program includes rotations in three hospital settings, including an 87-bed tertiary care Veterans Affairs (VA) hospital. The residency program is comprised of 87 trainees, of whom 31 have VA-based primary care clinics. The remaining 56 trainees see patients in university-affiliated clinics. Only residents with VA primary care clinics participate in the RC-TraC rotation, rotating once during intern year and at least once thereafter. The VA hospital sees approximately 4400 admissions annually, drawing patients across three states. C-TraC-eligible veterans have an average age of 75 years and are medically complex (Kind, 2012).

RC-TraC Program Description

RC-TraC evolved from C-TraC, a protocolized, nurse-led geriatric-based transitional care program employing inpatient team integration, in-hospital visits with patients/families, and intensive phone-based contacts with transitioning patients/families in the post-hospital period. C-TraC utilizes basic tenets of transitional care in its protocols, including patient and

caregiver empowerment, medication reconciliation, development of individualized, patient-specific “red flags”, coordination of follow-up, and provision of direct contacts for post-discharge concerns (Coleman, 2006)

RC-TraC launched on July 1, 2010, growing from an existing four-week “urgent care” rotation where residents saw patients with pressing medical issues in a clinic (Figure 1). To incorporate transitional care education, a team of educators, residents and transitional care experts adapted C-TraC protocols (www.hipxchange.org/C-Trac) via an iterative process so resident physicians could assume the role of C-TraC nurses.

RC-TraC follows protocols (Figure 2) nearly identical to C-TraC (Kind, 2012). Residents meet eligible hospitalized patients in person before discharge and begin the process of patient education and empowerment. They elicit concerns, provide a list of individualized “red flags” that should prompt medical attention, write down a direct telephone number the patient can use to ask questions or share concerns, and verify he/she can attend follow-up appointments. If issues arise, residents serve as liaisons to the inpatient team, seeking solutions before discharge. Additionally, the resident verifies the patient’s contact information and schedules a time to contact him/her by telephone within 72 hours after discharge. The encounter is documented in the electronic medical record using the C-TraC program template notes.

Thereafter, residents and patients communicate via telephone until program completion. During the contacts, residents utilize a protocolized, scripted question list and document in C-TraC note templates. The first post-hospital contact includes a detailed, patient-led medication reconciliation, review of “red flags”, and inquiry about other concerns. Residents also ensure the patient can attend follow-up appointments. Subsequent calls follow standard C-TraC protocols, with regular review of “red flags”. Staff physicians who oversaw residents in the former clinic rotation now act as attendings for RC-TraC, guiding development of discharge plans for RC-TraC patients, and assisting in triage of concerns noted during contacts. When patients reach thirty days post-discharge, see their primary care providers, or mutually agree no additional follow-up is necessary, they discharge from RC-TraC.

In addition to providing direct transitional care for patients, residents participate in didactic sessions on transitional care, system considerations, and health policy during the rotation through online learning modules, assigned reading, and narrated presentations (Appendix A).

Measures/Analysis

RC-TraC residents maintain a clinical spreadsheet tracking enrollment volumes. The number of participating residents for July 2010 through June 2013 was also calculated. Additionally, a 24-item survey of residents conducted during May and June of 2013 included one question addressing recognition of transitional care education. The question asked, “Have you had formal training during residency regarding transitions of care? (Yes/No)” Because only residents with VA primary care clinics rotate in RC-TraC, residents with university-based clinics served as a convenient comparison group. Item frequencies for the ordinal survey question from RC-TraC participants and non-participants were compared, with the

difference assessed using a Chi-square test. P-values were two-sided. Statistical analysis was performed using Stata 12 software (StataCorp., College Station, TX). Both the university hospital's Institutional Review Board and the VA Research and Development Committee deemed this project "not research" and did not require participant informed consent.

RESULTS

Adaptation of C-TraC to Accommodate Resident Learners

Adapting the clinical RN role in C-TraC to one appropriate for resident education required key alterations to account for differences in training background, practice scope, and supervision requirements (Table 1). Unlike physician education, nursing training often emphasizes patient education and creation of patient-specific care plans. Formal discharge processes rely heavily on nursing for discharge education, and telephone triage is a well-established nursing role. Residents are only peripherally involved in education of patients at discharge and rarely have front-line contact over the telephone with recently discharged patients.

As a result, resident physicians required coaching from experienced transitional care nurses from C-TraC and attending physicians. For each patient, residents independently developed a list of "red flag" symptoms and received input from a C-TraC RN and attending physician with specific focus on the use of patient-friendly terminology and prioritization of symptoms most likely to suggest clinical deterioration. These transition coaches also helped triage patients' concerns, schedule clinic visits, and facilitate hand-offs to incoming residents at the end of the four-week rotation. The coaching role ensured patients' specific risks for readmission were addressed and improved care continuity while providing the supervision for residents expected in training programs.

Differences in practice scope between physicians and nurses provided new opportunities for in-person contact with patients after discharge in RC-TraC. C-TraC RNs have extensive telephone contact with patients, but resident physicians can also see patients in follow-up clinic visits, connecting discharge plans of care with outpatient management. RC-TraC residents thus provide additional in-person outpatient care to their colleague's patients rather than just alerting colleagues to problems. With these changes, RC-TraC still maintained a high degree of fidelity to the original C-TraC model by adhering to scripting during patient encounters.

Resident and Patient Volumes

Between July 1, 2010 and June 30, 2013, RC-TraC residents cared for 721 patients, each resident following an average of 10.6 people during the rotation. Thirty-one residents completed at least one rotation during this period, representing 100% of residents with VA primary care clinics. Seventy-one resident RC-TraC rotations took place, or 2.3 per trainee. Fifty-six residents, all with university-affiliated clinics, did not experience RC-TraC.

Survey Responses

The survey response rate was 95% (29 of 31 RC-TraC participants and 54 of 56 non-participants). RC-TraC participants were more likely to identify formal transitional care education experiences (n=28, 97%) compared to non-participants (n=13, 24%; $p < 0.001$).

Sustainability

The rotation continues in operation to this day and has been deemed to meet ACGME requirements for transitional care education by the residency program director. Rotation implementation did not require additional supervising physician or ancillary staff positions (Figure 1).

DISCUSSION

RC-TraC successfully adapted the C-TraC nurse role for resident education, providing unique learning opportunities while still adhering to supervision requirements for trainees and basic tenets of transitional care for patients. Minimal changes were needed to incorporate a resident learner into the C-TraC RN role, and because it evolved from an existing rotation, it has not required additional staff full time equivalents to function, making it a low-cost intervention to implement. RC-TraC has been embraced as a sustainable, feasible program as a result, and the Program Director has deemed it to meet ACGME requirements for transitional care education. Further, because it exists concurrently with an active and successful C-TraC program, RC-TraC was well-accepted by both veterans and physician providers as a means of ensuring safe transitions and is well-integrated into current hospital and clinic practices.

Through RC-TraC, residents witness the spectrum of illness and recovery frequently confronted by complex, elderly patients but rarely seen directly by the physician. Typical hospital ward experiences with these patients lack an outpatient follow-up component, and outpatient experiences miss the evolution of patients' recoveries between discharge and clinic visits. RC-TraC, however, places the resident at the forefront of the patient experience passing through this continuum of care, providing direct exposure to discharge process problems that cause readmissions.

As the survey results demonstrate, the majority of RC-TraC non-participants identified a transitional care as a gap in their training. RC-TraC residents, who consistently recognized their transitional care educational experience, could have greater insight into the challenges facing recently discharged patients. This may translate into better discharge practices and outpatient care of the recently discharged.

Unlike the majority of other resident-specific transitional care educational experiences, which are didactic-based, RC-TraC provides a hands-on experience with care transitions (Buchanan, 2011). RC-TraC affords opportunities to apply knowledge of best practices for discharge processes to actual patient care. Residents also witness instances where discharge planning fails to meet patients' needs and then work to resolve problems and avoid readmissions. This method of education, a combination of didactic and interactive learning,

is regarded as most effective in altering physician behavior and could impact patient outcomes (Forsetlund, 2009).

RC-TraC could serve as a model for geriatric-based resident transitional care education at other sites and could be further adapted for other disciplines. C-TraC, upon which RC-TraC is based, has been disseminated to both other VA and non-VA settings since inception, and RC-TraC may be similarly adaptable. RC-TraC's development could also serve as a model for creation of transitional care educational programs for non-physicians, since many disciplines touch a patient during the discharge process. The iterative processes used to develop RC-TraC could account for differing educational backgrounds and supervision needs among other health care professional trainees.

The data presented here have limitations, primarily because launch of RC-TraC and its evaluation were conducted as pilot for feasibility and initial proof-of-concept. It is unclear whether RC-TraC has altered residents' discharge practices and improved care transitions. Whether RC-TraC is as effective as C-TraC in reducing readmissions is also unclear. Going forward, rigorous analysis of these endpoints is needed to better understand RC-TraC's impact, dissemination potential, and sustainability.

RC-TraC has been successful in its aims thus far by providing a feasible, sustainable, practice-based method to meet the need for resident education in transitional care best practices critical for safe management of older, complex adults. With education budgets shrinking and readmission penalties rising, a low-cost educational program such as RC-TraC is a promising option for transitional care education.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

Acknowledgments

This work was supported by a VA Transformation-21 Grant (Patient-Centric Alternatives to Institutional Extended Care, PI: Kind) and the Madison VA Geriatrics Research, Education and Clinical Center (GRECC-Manuscript #2016-XX). Dr. Kind is also supported by a National Institute on Aging Beeson Career Development Award (K23AG034551 [PI: Kind], National Institute on Aging, The American Federation for Aging Research, The John A. Hartford Foundation, The Atlantic Philanthropies and The Starr Foundation). Additional support was provided by the University of Wisconsin School of Medicine and Public Health's Department of Medicine, and the Community-Academic Partnerships core of the University of Wisconsin Institute for Clinical and Translational Research (UW ICTR), grant 1UL1RR025011 from the Clinical and Translational Science Award (CTSA) program of the National Center for Research Resources, National Institutes of Health. No funding source had a role in the design and conduct of the study; collection, management, analysis, and interpretation of the data; or preparation, review, or approval of the manuscript, and decision to submit the manuscript for publication.

The authors would like to thank Michael Peregrin, MD, Laury L. Jensen, BSN, RN, Holly Isenhower Bottoms, MD, PharmD, and Mary K. Thompson, PhD for their contributions to the study concept and design. Also, thanks to Emily Schmitz, Michael Gehring, and Jacquelyn Mirr for their assistance with formatting the manuscript.

References

Accreditation Council for Graduate Medical Education (ACGME). VI.B. Transitions of care. ACGME Program Requirements for Graduate Medical Education in Internal Medicine. 2015. Retrieved from https://www.acgme.org/Portals/0/PFAssets/ProgramRequirements/140_internal_medicine_07012015.pdf

- Buchanan IM, Besdine RW. A systematic review of curricular interventions teaching transitional care to physicians-in-training and physicians. *Acad Med*. 2011; 86:628–639. [PubMed: 21436664]
- Coleman EA. Falling through the cracks: challenges and opportunities for improving transitional care for persons with continuous complex care needs. *Journal of the American Geriatrics Society*. 2003; 51:549–55. [PubMed: 12657078]
- Coleman EA, Min S, Chomiak A, Kramer AM. Posthospital care transitions: patterns, complications, and risk identification. *HSR: Health Services Research*. 2004; 39(5):1449–66. [PubMed: 15333117]
- Coleman EA, Smith JD, Raha D, Min S. Posthospital medication discrepancies: prevalence and contributing factors. *Archives of Internal Medicine*. 2005; 165:1842–7. [PubMed: 16157827]
- Coleman EA, Parry C, Chalmers S, Min S. The care transitions intervention: results of a randomized controlled trial. *Arch Intern Med*. 2006; 166:1822–1828. [PubMed: 17000937]
- Forsetlund L, Bjørndal A, Rashidian A, Jamtvedt G, O'Brien MA, Wolf FM, Davis D, Odgaard-Jensen J, Oxman AD. Continuing education meetings and workshops: effects on professional practice and health care outcomes. *Cochrane Database Systematic Reviews*. 2009; 2:CD003030.doi: 10.1002/14651858.CD003030.pub2
- Gerteis, J., Izrael, D., Deitz, D., LeRoy, L., Ricciardi, R., Miller, T., Basu, J. Multiple Chronic Conditions Chartbook. Rockville, MD: Agency for Healthcare Research and Quality; 2014. AHRQ Publications, No. Q14–0038 [Accessed February 29, 2016]
- Hirschman K, Shaid E, McCauley K, Pauly M, Naylor M. Continuity of Care: The Transitional Care Model. *OJIN: The Online Journal of Issues in Nursing*. 2015; 20(3)
- Kind AJH, Jensen L, Barczy S, Bridges A, Kordahl R, Smith MA, Asthana S. Low-cost transitional care with nurse managers making mostly phone contact with patients cut rehospitalization at a VA hospital. *Health Affairs (Millwood)*. 2012; 31:2659–2668.
- Riebschleger, M., Philibert, I. New standards for transitions of care: discussion and justification. In: Philibert, I., Amis, S., editors. *The ACGME 2011 Duty Hour Standards: Enhancing Quality of Care, Supervision, and Resident Professional Development*. Chicago, IL: Accreditation Council for Graduate Medical Education; 2011. p. 57-59.

Figure 1.
Incorporation of RC-TraC into existing clinic and rotation structures

Figure 2.
RC-TraC Protocol

Table 1

Key C-TraC nurse role adaptations to create RC-TraC resident role

Area of Adaptation	C-TraC Nurse Role	RC-TraC Resident Role
Patient Populations [/]	<ul style="list-style-type: none"> Patients with <u>non-resident</u> primary care providers 	<ul style="list-style-type: none"> Patients with <u>resident</u> primary care providers
Supervision Requirements	<ul style="list-style-type: none"> <u>Independently</u> creates list of “red flags”, triages patient concerns, and arranges clinic visit with primary care provider as needed Must <u>consult with primary care physician</u> when new orders needed 	<ul style="list-style-type: none"> <u>Requires RN C-TraC and attending physician oversight</u> to create “red flags”, triage patient concerns, and schedule clinic visits <u>Can provide new orders</u> when indicated and notifies primary provider
Post-Discharge Patient Contact	<ul style="list-style-type: none"> <u>Telephonic</u> contact only 	<ul style="list-style-type: none"> May also <u>see patients in clinic</u> when indicated
Duration of Role	<ul style="list-style-type: none"> Works <u>full time</u> in C-TraC role and follows all patients for the <u>duration of program enrollment</u> 	<ul style="list-style-type: none"> <u>Shares role</u> with other resident physician colleagues; <u>hands off patients</u> to incoming resident after <u>four weeks</u>

[/] C-TraC and RC-TraC function concurrently in a single VA hospital setting. RC-TraC enrolls only hospitalized patients who have Internal Medicine residents as primary care providers, whereas C-TraC enrolls only those who do *not* have Internal Medicine residents as primary care providers.