The Dyad Model for Interprofessional Academic Patient Aligned Care Teams

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Combining interprofessional education, clinical or workplace learning, and physician resident teachers in the ambulatory setting, the dyad model enhances teamwork skills and increases nurse practitioner students' clinical competence.

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This article is part of a series that illustrates strategies intended to redesign primary care education at the Veterans Health Administration (VHA), using interprofessional workplace learning. All have been implemented in the VA Centers of Excellence in Primary Care Education (CoEPCE). These models embody visionary transformation of clinical and educational environments that have potential for replication and dissemination throughout VA and other primary care clinical educational environments. For an introduction to the series see Klink K. Transforming primary care clinical learning environments to optimize education, outcomes, and satisfaction. Fed Pract. *2018;35(9):8-10.*

BACKGROUND

In 2011, 5 US Department of Veterans Affairs (VA) medical centers were selected by the VA Office of Academic Affiliations (OAA) to establish Centers of Excellence in Primary Care Education (CoEPCE). As part of VA's New Models of Care initiative, the 5 CoEPCEs are using VA primary care settings to develop and test innovative approaches to prepare physician residents and students, advanced practice nurses (APRNs), undergraduate nursing students, and other health professions trainees (such as pharmacy, social work, psychology, physician assistants) for primary care practice. The CoEPCE sites are developing, implementing, and evaluating curricula to prepare learners from relevant professions to practice in patient-centered, interprofessional team-based primary care settings. Patient aligned care teams (PACTs) that have 2 or more health professions trainees engaged in learning, working, and teaching are known as interprofessional academic PACTs (iAPACTs), which is the preferred model for the VA.

The Cleveland Transforming Outpatient Care (TOPC)-CoEPCE was designed for collaborative learning among nurse practitioner (NP) students and physician residents. Its robust curriculum consists of a dedicated half-day of didactics for all learners, interprofessional quality improvement projects, panel management sessions, and primary care clinical sessions for nursing and physician learners that include the dyad workplace learning model.

In 2015, the OAA lead evaluator observed the TOPC-CoEPCE dyad model process, reviewed background documents, and conducted 10 open-ended interviews with TOPC-CoEPCE staff, participating trainees, faculty, and affiliate leadership. Informants described their involvement, challenges encountered, and benefits of the TOPC-CoEPCE dyad model to participants, veterans, VA, and affiliates.

Lack of Interprofessional Learning Opportunities

Current health care professional education models typically do not have many workplace learning settings where physician and nursing trainees learn together and provide patient-centered care. Often in a shared clinical environment, trainees may engage in "parallel play," which can result in physician trainees and NP students learning independently and being ill-prepared to practice effectively together.

Moreover, trainees from different professions have different learning needs. For example, less experienced NP students require greater time, supervision, and evaluation of their patient care skills. On the other hand, senior physician residents, who require less clinical instruction, need to be engaged in ways that provide opportunities to enhance their ambulatory teaching skills. Although enhancement of resident teaching skills occurs in the inpatient hospital setting, there have been limited teaching experiences for residents in a primary care setting where the instruction is traditionally faculty-based. The TOPC-CoEPCE dyad model offers an opportunity to simultaneously provide trainees with a true interprofessional experience through advancement of skills in primary care, teamwork, and teaching, while addressing health care needs.

THE DYAD MODEL

In 2011, the OAA directed COEPCE sites to develop innovative curriculum and workplace learning strategies to create more opportunities for physician and NP trainees to work as a team. There is evidence demonstrating that when students develop a shared understanding of each other's skill set, care procedures, and values, patient care is improved.[1] Further, training in pairs can be an effective strategy in education of preclerkship medical students.[2] In April 2013, TOPC-CoEPCE staff asked representatives from the Student-Run Clinic at Case Western Reserve University (CWRU) in Cleveland, Ohio, to present their approach to pairing nursing and medical students in clinic under supervision by volunteer faculty. However, formal structure and curricular objectives were lacking. To address diverse TOPC-CoEPCE trainee needs and create a team approach to patient care, the staff formalized and developed a workplace curriculum called the dyad model. Specifically, the model pairs 1 NP student with a senior (PGY2 or PGY3) physician resident to care for ambulatory patients as a dyad teaching/learning team. The dyad model has 3 goals: improving clinical performance, learning team dynamics, and improving the physician resident's teaching skills in an ambulatory setting.

Online Resources

VA Centers of Excellence in Primary Care Education (CoEPCE)
www.va.gov/oaa/coepce

Academic PACT (Patient Aligned Care Team)
www.va.gov/oaa/apact

Center of Excellence in Primary Care Education (CoEPCE)
www.va.gov/oaa/coepce/Cleveland.asp

Planning and Implementation

Planning the dyad model took 4 months. Initial conceptualization of the model was discussed at TOPC-CoEPCE infrastructure meetings. Workgroups with representatives from medicine, nursing, evaluation and medical center administration were formed to finalize the model. The workgroups met weekly or biweekly to develop protocols for scheduling, ongoing monitoring and assessment, microteaching session curriculum development, and logistics. A pilot program was initiated for 1 month with 2 dyads to monitor learner progress and improve components, such as adjusting the patient exam start times and curriculum. In maintaining the program, the workgroups continue to meet monthly to check for areas for further improvement and maintain dissemination activities.

Curriculum

The dyad model is a novel opportunity to have trainees from different professions not only collaborate in the care of the same patient at the same time, but also negotiate their respective responsibilities pre- and postvisit. The experience focuses on interprofessional relationships and open communication. TOPC-CoEPCE used a modified version of the RIME (Reporter-Interpreter-Manager-Educator) model called the O-RIME model (Table 1), which includes an observer (O) phase as the first component for clarification about a beginners' role.[3,4] Trainees undergo a short orientation for the dyad that provides the foundation for the overall structure and purpose and a formalized microteaching session curriculum, which is completed each week with the dyad team after the

TABLE 1 Core of O-RIME Model Relevant to TOPC-CoE Dyad Model[4]

Observer	Reporter	Interpreter	Manager	Educator
Pay attention and perceive with open-mindedness: see, listen, notice	Able to complete basics of SOAP and able to answer basic "what"' questions	Able to complete assessment part of SOAP and as such able to answer basic "why" questions	Able to independently formulate and write a plan of care	Able to teach juniors and peers, including giving constructive feedback and guidance

Abbreviations: SOAP, subjective, objective, assessment, plan; TOPC-CoE, Transforming Outpatient Care Center of Excellence.

morning huddle. The sessions consist of 3 components: curriculum content, reflection on application of previous content, and a check-in on teamwork skills. The curriculum content is based in adult learning theory and focuses on the team approach to care, case presentation for precepting, and clinical skills. After the microteaching session, dyad teams engage in collaborative care of patients, using structured method (Appendix).

Four dyad pairs provide collaborative clinical care for veterans during one half-day session per week. The dyad conducts 4 hour-long patient visits per session. To be a dyad participant, the physician residents must be at least a PGY2, and their schedule must align with the NP student clinic schedule. Participation is mandatory for both NP students and physician residents. TOPC staff assemble the pairs.

The dyad model requires knowledge of the clinical and curricular interface and when to block the dyad team members' schedules for 4 patients instead of 6. Physician residents are in the TOPC-CoEPCE for 12 weeks and then on inpatient for 12 weeks. Depending on the nursing school affiliate, NP student trainees are scheduled for either a 6- or 12-month TOPC-CoEPCE experience. For the 12-month NP students, they are paired with up to 4 internal medicine residents over the course of their dyad participation so they can experience different teaching styles of each resident while developing more varied interprofessional communication skills.

Faculty Roles and Development

The dyad model also seeks to address the paucity of deliberate interprofessional precepting in academic primary care settings. The TOPC-CoEPCE staff decided to use the existing primary care clinic faculty development series bimonthly for 1 hour each. The dyad model team members presented sessions covering foundational material in interprofessional teaching and precepting skills, which prepare faculty to precept for different professions and the dyad teams. It is important for preceptors to develop awareness of learners from different professions and the corresponding educational trajectories, so they can communicate with paired trainees of differing professions and academic levels who may require different levels of discussion.

Resources

By utilizing advanced residents as teachers, faculty were able to increase the number of learners in the clinic without increasing the number preceptors. For example, precepting a student typically requires more preceptor time, especially when we consider that the preceptor must also see the patient. The TOPC-CoEPCE faculty run the microteaching sessions, and an evaluator monitors and evaluates the program. The microteaching sessions were derived from several teaching resources.

Monitoring and Assessment

The Cleveland TOPC administered 2 different surveys developed by the Dyad Model Infrastructure and Evaluation workgroup. A 7-item survey assesses dyad team communication and interprofessional team functioning, and an 8-item survey assesses the teaching/mentoring of the resident as teacher. Both were collected from all participants to evaluate the residents' and students' point of view. Surveys are collected in the first and last weeks of the dyad experience. Feedback from participants has been used to make improvements to the program (eg,

monitoring how the dyad teams are functioning, coaching individual learners).

Partnerships

In addition to TOPC staff and faculty support and engagement, the initiative has benefited from partnerships with VA clinic staff and with the associated academic affiliates. In particular, the Associate Chief of General Internal Medicine at the Cleveland VA medical center and interim clinic director helped institute changes to the primary care clinic structure. Additionally, buy-in from the clinic nurse manager was needed to make adjustments with staff schedules and clinic resources. To implement the dyad model, the clinic director had to approve reductions in the residents' clinic loads for the mornings when they participated.

The NP affiliates' faculty at the schools of nursing are integral partners who assist with student recruitment and participate in the planning and refinement of TOPC-CoEPCE components. The Frances Payne Bolton School of Nursing at CWRU and the Breen School of Nursing of Ursuline College in Pepper Pike, Ohio, were involved in the planning stages and continue to receive monthly updates from TOPC-CoEPCE. Similarly, the CWRU School of Medicine and Cleveland Clinic Foundation affiliates contribute on an ongoing basis to the improvement and implementation process.

DISCUSSION

One challenge has been advancing aspects of a nonhierarchical team approach while it is a teacher-student relationship. The dyad model is viewed as an opportunity to recognize nonhierarchical structures and teach negotiation and communication skills as well as increase interprofessional understanding of each other's education, expertise, and scope of practice.

Another challenge is accommodating the diversity in NP training and clinical expertise. The NP student participants are in either the first or second year of their academic program. This is a challenge since both physician residents and physician faculty preceptors need to assess the NP students' skills before providing opportunities to build on their skill level. Staff members have learned the value of checking in weekly on this issue.

TABLE 2 Center of Excellence in Primary Care Education Core Domains

Shared Decision Making (SDM): Care is aligned with the values, preferences, and cultural perspectives of the patient. Curricula focus is on communication skills necessary to promote patient's self-efficacy.

Sustained Relationships (SR): Care is designed to promote continuity of care; curricula focus is on longitudinal learning relationships.

Interprofessional Collaboration (IPC): Care is team based, efficient, and coordinated; curricula focus is on developing trustful, collaborative relationships.

Performance Improvement (PI): Care is designed to optimize the health of populations; curricula focus is on using the methodology of continuous improvement in redesigning care to achieve quality outcomes.

Factors for Success

VA facility support and TOPC-CoEPCE leadership with the operations/academic partnership remain critical to integrating and sustaining the model into the Cleveland primary care clinic. The expertise of TOPC-CoEPCE dyad model faculty who serve as facilitators has been crucial, as they oversee team development concepts such as developing problem solving and negotiation skills. The workgroups ensured that faculty were skilled in understanding the different types of learners and provided guidance to dyad teams. Another success factor was the continual monitoring of the process and real-time evaluation of the program to adapt the model as needed.

Accomplishments and Benefits

There is evidence that the dyad model is achieving its goals: Trainees are using team skills during and outside formal dyad pairs; NP students report improvements in skill levels and comfort; and physician residents feel the teaching role in the dyad pair is an opportunity for them to improve their practice.

Interprofessional Educational Capacity

The dyad model complements the curriculum components and advances trainee understanding of 4 core domains: shared-decision-making (SDM), sustained relationships (SR), interprofessional collaboration (IPC), and performance improvement (PI)

APPENDIX Typical Dyad Session

The morning starts with a large group huddle at the whiteboard in the Cleveland VA primary care clinic. Two dyads, other TOPC-CoEPCE trainees, clinic staff, and TOPC-CoEPCE faculty attend. A senior TOPC-CoEPCE trainee leads the huddle and uses a checklist that includes review of staff coverage, specific patient issues, quality-improvement projects, system issues that have recently arisen in the clinic, and ends with an interesting "fact of the day" shared by a learner (eg, something health-related in the news). A TOPC-CoEPCE faculty member asks the group about how the new check-in process is going.

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The larger huddle group disbands, leaving the dyad pairs for a 10-minute microteaching session with a TOPC-CoEPCE faculty, which consists of 3 activities.

First is a discussion of the "pearl" for that week. The pair receives an article the prior week, and they are expected to discuss it (this week it is on avoiding diagnostic errors).

Second, the faculty member asks about the prior week's microteaching session pearl topic and how it was applied during the prior week. In this case, last week's was negotiation, and one of the dyad teams share how they used negotiation in caring for one of their patients.

Third, the faculty member discusses how well their dyads are functioning as a team and how this can be improved. This week they discuss the importance of each team member being heard and the need to have difficult conversations with one another.

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The dyad pairs each then go to their exam rooms and conduct a quick discussion on their 4 patients for that morning clinic. Visits are scheduled for 8 am, 9 am, 10 am, and 10:30 am, and there are different ways of splitting responsibility for patient care. The dyad pair sees patients from the resident's panel.

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At the midpoint of each visit, the pair reconvenes in the precepting room to debrief on the relevant aspects of the case among themselves and then present to the preceptor. The dyad team discusses their strategy for precepting beforehand, including who will present.

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The dyad completes the clinic visit and returns to the precepting room to debrief each of the clinic sessions with a preceptor.

(Table 2). The dyad model supports the other CoEPCE interprofessional education activities and is reinforced by these activities. The model is a learning laboratory for studying team dynamics and developing a curriculum that strengthens a team approach to patient-centered care.

Participants' Knowledge, Attitudes, Skills, and Competencies

As of May 2015, 35 trainees (21 internal medicine physician residents and 14 NP students) have participated in dyads. Because physician residents participate over 2 years and may partner with more than 1 NP student, this has resulted in 27 dyad pairs in this time frame. Findings from an analysis of evaluations suggest that the dyad pair trainees learn from one another, and the model provides a safe space where trainees can practice and increase their confidence.[1,6,7] The NP students seem to increase clinical skills quickly—expanding physical exam skills, building a differential diagnosis, and formulating therapeutic plans—and progressing to the Interpreter and Manager levels in the O-RIME model. The physician resident achieves the Educator level.

As of September 2015, the results from the pairs who completed beginning and end evaluations show that the physician residents increased the amount of feedback they provided about performance to the student, and likewise the student NPs also felt they received an increased amount of feedback about performance from the physician resident. In addition, physician residents reported improving the most in the following areas: allowing the student to make commitments in diagnoses and treatment plans and asking the student to provide supporting evidence for their commitment to the diagnoses. NP students reported the largest increases in receiving weekly feedback about their performance from the physician and their ability to listen to the patient.[1,6,7]

Interprofessional Collaboration

The TOPC-CoEPCE staff observed strengthened dyad pair relationships and mutual respect between the dyad partners. Trainees communicate with each other and work together to provide care of the patient. Second, dyad pair partners are learning about the other profession—their trajectory, their education model, and their differences. The physician resident develops an awareness of the partner NP student's knowledge and expertise, such as their experience of social and psychological factors to become a more effective teacher, contributing to patient-centered care. The evaluation results illustrate increased ability of trainees to give and receive feedback and the change in roles for providing diagnosis and providing

supporting evidence within the TOPC-CoEPCE dyad team.[6-8]

The Future

The model has broad applicability for interprofessional education in the VA since it enhances skills that providers need to work in a PACT/PCMH model. Additionally, the TOPC-CoEPCE dyad model has proven to be an effective interprofessional training experience for its affiliates and may have applicability in other VA/affiliate training programs. The dyad model can be adapted to different trainee types in the ambulatory care setting. The TOPC-CoEPCE is piloting a version of the dyad with NP residents (postgraduate) and first-year medical students. Additionally, the TOPC-CoEPCE is paving the way for integrating improvement of physician resident teaching skills into the primary care setting and facilitating bidirectional teaching among different professions. TOPC-CoEPCE intends to develop additional resources to facilitate use of the model application in other settings such as the dyad implementation template.

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Author disclosures

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Disclaimer

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