Internal Medicine Residents' Perceptions of Team-Based Care and its Educational Value in the Continuity Clinic: A Qualitative Study

Tacara N. Soones, MD, MPH[1,4], Bridget C. O'Brien, PhD[2], and Katherine A. Julian, MD[3]

[1]Department of Geriatrics and Palliative Medicine, Mount Sinai School of Medicine, New York, NY, USA; [2]Department of Medicine and Office of Research and Development in Medical Education, University of California, San Francisco, San Francisco, CA, USA; [3]Division of General Internal Medicine, University of California, San Francisco, San Francisco, CA, USA; [4]Icahn School of Medicine at Mount Sinai, New York, NY, USA.

BACKGROUND : In order to teach residents how to work in interprofessional teams, educators in graduate medical education are implementing team-based care models in resident continuity clinics. However, little is known about the impact of interprofessional teams on residents' education in the ambulatory setting.

OBJECTIVE: To identify factors affecting residents' experience of team-based care within continuity clinics and the impact of these teams on residents' education.

DESIGN: This was a qualitative study of focus groups with internal medicine residents.

PARTICIPANTS: Seventy-seven internal medicine residents at the University of California San Francisco at three continuity clinic sites participated in the study.

APPROACH: Qualitative interviews were audiotaped and transcribed. The authors used a general inductive approach with sensitizing concepts in four frames (structural, human resources, political and symbolic) to develop codes and identify themes.

KEY RESULTS: Residents believed that team-based care improves continuity and quality of care. Factors in four frames affected their ability to achieve these goals. Structural factors included communication through the electronic medical record, consistent schedules and regular team meetings. Human resources factors included the presence of stable teams and clear roles. Political and symbolic factors negatively impacted team-based care, and included low staffing ratios and a culture of ultimate resident responsibility, respectively. Regardless of the presence of these factors or resident perceptions of their teams, residents did not see the practice of interprofessional team-based care as intrinsically educational.

CONCLUSIONS: Residents' experiences practicing team-based care are influenced by many principles described in the interprofessional teamwork literature, including understanding team members' roles, good communication and sufficient staffing. However, these attributes are not correlated with residents' perceptions of the educational value of team-based care. Including residents in interprofessional teams in their clinic may not be sufficient to teach residents how team-based care can enhance their overall learning and future practice.

This work was presented at the Society of General Internal Medicine Annual Conference, April 2014.

Published online July 15, 2015

KEY WORDS: interprofessional collaboration; graduate medical education; qualitative research; primary care.

J Gen Intern Med 30(9):1279–85

DOI: 10.1007/s11606-015-3228-3

INTRODUCTION

In 1999, the Institute of Medicine reported that health care is delivered by teams of healthcare providers, yet team members are trained to focus on their own roles with little attention as to how their responsibilities contribute to a broader, complex system.[1] Some studies suggest that reducing these silos of practice may decrease medical errors and increase professional job satisfaction.[2–5] As a result, many healthcare reform efforts have aimed to increase and improve interprofessional training and education at the graduate medical education level.[6] Future physicians will be expected not only to work within interprofessional teams, but also to redesign the practices they join.[7]

Educators in graduate medical education are looking to the ambulatory setting as one of many authentic workplace experiences to teach trainees how to provide interprofessional (IP) team-based care.[8,9] Meeting this goal may be challenging for many residency programs due to inconsistent resident schedules (making consistent participation in IP teams difficult), a lack of financial resources to support team-based care, cultural misunderstandings between physicians and other staff, and the need to balance redesigning ambulatory practices with creating an IP learning opportunity for trainees.[10–13] Furthermore, little is known about what factors residents identify as being important to their practice of IP team-based care in the clinic, and what factors, e.g. high-quality teams or curricula, have the greatest impact on their education.[14,15]

We conducted this qualitative study to assess the factors internal medicine residents identified as affecting their ability to provide and learn about IP team-based care in their continuity clinics, and to determine the educational impact of IP teamwork.

METHODS

Study Design and Participants

We conducted a qualitative study using a general inductive approach with sensitizing concepts from Bolman and Deal's work on organizational analysis, to explore resident perceptions of team-based care.[16,17] All 182 residents in the Internal Medicine Residency Program at the University of California San Francisco were eligible for participation. Internal medicine residents were in a continuity clinic at one of three sites: a veteran's clinic, a safety net clinic within a county hospital, or a university-based clinic. Residents were also in one of two residency tracks: primary care (university and safety net clinics only) or categorical (all three clinic sites). We purposively sampled residents from all tracks, sites and years (PGY1–PGY3) to ensure residents represented a variety of ambulatory experiences. We also conducted separate focus groups by site and track. We invited residents to participate in focus groups during their regularly scheduled didactics, and no residents declined to participate.

Settings

Over the 2011–2012 academic year, all three resident clinic sites adopted an IP team-based care model, defined as two or more healthcare providers working collaboratively to improve quality of care. Team members and processes varied by site based on patient population and clinic resources. However, all models included residents at inception, established at least monthly team meetings or huddles, and were undergoing continuous quality improvement in response to staff and patient feedback.

The veteran's clinic was awarded a VA Center of Excellence in Primary Care Education grant in 2012.[18] As a result, this site had additional funding to support staffing and to develop an innovative educational model. In the VA model, two residents were on a team with a nurse practitioner student, medical clerk, licensed vocational nurse, registered nurse, pharmacist, social worker and an attending. The formal educational curriculum included a full-day, team-building retreat for all staff and 2 hours per week of IP learning activities related to team-based care (e.g., communication skills and panel management) for trainees.[19]

The university and safety net clinics developed team-based care models to improve patient care, continuity and trainee oversight. Both sites provided a brief orientation to the team-based care model for all staff, but did not have formal curricula or additional funding. At the university clinic, teams consisted of one to two interns, two to four residents, a licensed vocational nurse, medical assistant and an administrative assistant. A pool of registered nurses and social workers supported the teams. At the safety net clinic, six residents, a nurse practitioner, medical assistant, registered nurse, a behaviorist, two medical clerks and three attendings were a team.[20] The institutional review board at the University of California San Francisco approved this study.

Data Collection

We developed focus group questions based on input from researchers in internal medicine, medical education and qualitative research. The focus group discussion guide was based on a framework by Bolman and Deal that uses four frames for understanding people's experiences in organizations or teams: structural, human resources, political and symbolic.[17] The structural frame includes an organization's goals and processes. The human resources frame highlights the relationships between people in an organization. The political frame examines the distribution of scarce resources and the conflicts that arise. The symbolic frame highlights the cultural context in which organizational behavior is embedded. In the focus groups, the facilitator (TS) asked residents to identify the members of their clinic team and to describe team members' roles and skills, how team members worked together, the experience of conflict, the ideal role of residents on the team, and the impact of teams on residents' education (see Appendix).

Given that perceptions may be influenced by clinic site and culture or a desire to pursue a primary care career, focus groups were held separately by clinic site and residency program track to allow homogenous group interactions to contribute to our data. The first author (TS) conducted 11 focus groups during the 2012–2013 academic year. The groups ranged from five to nine residents. Focus groups lasted 30–60 min and were digitally recorded and transcribed by a professional transcriptionist. Demographic information collected included gender, year of residency training, clinic site, and residency track.

Data Analysis

We calculated descriptive statistics for participants' characteristics. We used a general inductive approach with sensitizing concepts for qualitative data analysis.[16,21] Through close reading of the data, three authors (TS, BO, KJ) developed a coding scheme of inductive codes derived from patterns identified in our data and deductive codes aligned with the Bolman and Deal framework used in the focus group discussion guide. This approach allowed us to remain open to new themes, while also exploring residents' experiences in relation to our

sensitizing concepts from Bolman and Deal. Coding and analysis occurred as an iterative process, allowing modification of the interview guide in order to more deeply explore themes. After the authors finalized the coding scheme, two authors coded all transcripts independently using Dedoose software. Disagreements in coding were discussed by the authors until consensus was reached. When differences in opinions by site, track or year of residency occurred, we reported them. We used a member-checking process of sharing our findings with a subset of residents from each site who participated in the focus groups to verify our findings. Residents agreed with all stated themes and no new themes emerged. We first present factors affecting the residents' perceptions of their teams within Bolman and Deal's four frames, and then present the impact of team-based care on their education.

RESULTS

Participant Characteristics

Seventy-seven of the 182 eligible residents participated in one of 11 focus groups (three at the veteran's clinic, four at the university clinic, and four at the safety-net clinic). Of the study participants, 55 % were female, 64 % were in the categorical track, 57 % were PGY2 residents, and 43 % had their continuity clinic at the university clinic (Table 1). Resident perceptions of factors affecting IP team-based care varied within a single focus group; for, example interns' views differed from those of residents. As a result, we report individuals' perceptions rather than those of distinct focus groups. In general, senior residents at the veteran's clinic had positive views of team-based care and gave frequent examples of interprofessional collaboration. Interns at all sites and senior residents at the safety net and university clinics had more negative views of team-based care and were less likely to feel like they were part of a team. There were no differences between categorical and primary care residents' perceptions. Finally, while their perceptions of team-based care varied, residents with positive and negative views described similar, important factors (Table 2).

Table 1. Participant Characteristics (*N*=77)

	Characteristic	Residents n (%)
Gender	Male	35 (45)
	Female	42 (55)
Site	SFVAMC	21 (27)
	SFGH	23 (30)
	UCSF	33 (43)
Training program	Categorical	49 (64)
	Primary care	28 (36)
Level of training	R1	16 (21)
	R2	44 (57)
	R3	17 (22)

SFVAMC San Francisco Veterans Affairs Medical Center, SFGH San Francisco General Hospital, UCSF University of California San Francisco

Factors Affecting Perceptions of Team-Based Care

Structural Frame. Within the structural frame, residents described the goals of team-based care and the structural factors that impacted achievement of this goal. They identified the primary goal of IP team-based care as working with other individuals to improve continuity and quality of care. One resident gave an example of working collaboratively with a nurse practitioner and an attending over the course of several months to ensure that a patient's skin ulcer healed, noting that without the team's continuity, she didn't think it would have been possible.

Three factors impacted their ability to achieve this goal. The first was communication. Residents believed that better continuity of care was achieved with good communication, allowing a patient to seamlessly transition from one provider within the team to another. A handful of residents at the veteran's clinic noted that electronic communication allowed for the entire team to receive a message and then for the most appropriate person to respond. On the other hand, several residents at the university clinic explained that they were unfamiliar with the person on the other end of their communications, particularly when emailing a pool of administrative assistants rather than a specific person. This made it difficult for residents to trust that tasks would be completed.

The second structural factor was resident schedules. Many residents commented on the dominance of inpatient schedules, limiting the time spent in clinic and making it difficult to focus on clinic when there. This point was particularly salient for interns who have fewer clinics per year than senior residents. However, one senior resident noted that, because of inpatient call schedules and international rotations, he hadn't seen his team members in 3 months.

Finally, residents identified huddles and team meetings as an opportunity to build relationships and troubleshoot team processes. At these meetings, residents learned the names and personal details of their team members. These relationships improved their clinic satisfaction. Some residents also commented that huddles were an opportunity to "bounce ideas off of each other" and improve their efficiency in clinic. A few residents who did not feel like they were part of a team attributed it to an inability to attend team meetings.

Human Resources Frame. Residents identified two factors within the human resources frame that impacted their ability to trust their team members. These were team stability and role

Table 2. Factors Affecting Resident Perceptions of Team-Based Care

Bolman and Deal frame	Resident-identified factors	Selected quotes
Structural: *goals and processes of care*	Improved continuity	Before the team model, the patient would get assigned to a random [provider]… [Now], I'm not the sole person watching over everybody. It makes me feel comfortable being away. (Safety net clinic)
	Communicating through the EMR	We have a lot of continuity within each team. We'll typically all get attached on every email. So when we can't check email [for medication refills], the pharmacist or my preceptor can take care of it. We watch out for each other. (Veteran's clinic)
	Resident schedules	I don't think there's a sense of team-based care. Part of that is that we meet once a month and I think I've been to one team meeting in the past 6 months, if that. (University clinic)
Human Resources: *relationships between team members*	Clear roles	I don't have a clear understanding of who does what. There's a person who schedules me. And I don't have a face to that name. I don't know what's her responsibility, what's my responsibility. Sometimes I would rather do things myself. (Safety net clinic)
	Huddles & team meetings	The most important step that happens in team meetings is putting faces and stories and names together. You start to realize how trustworthy they are, what they know, what they don't know. So you can say, "Have X call this person." (University clinic)
	Stable teams	We meet once a month with our whole team. Working with the other staff, the non-MDs, non-NPs, it's made things a lot easier. And a lot more fun. (University clinic)
Political: *resource scarcity and conflict*	Low staffing ratios	When I did a month with [an orthopedist], she was able to see a ton of patients. She has one to two medical assistants for her. Ours are covering two to four providers. That dramatically reduces what they're capable of doing. (Safety net clinic)
		It seems like almost all of their time, the nurses are running triage, [a task] that's not part of the team-based care. And if that's the role of the nurses, we should reorganize our teams so that we're not expecting them to play a role that they don't actually have time to play. (Safety net clinic)
Symbolic: *organizational beliefs*	Culture of resident responsibility	I think because you're residents, they assume if someone else doesn't do it, you'll do it. On part of the administration and everyone else, it's like, "We don't really need to plug all the holes, because they'll just stay later." (Safety net clinic)
		The buck stops with us. If something goes wrong in patient care, it's my fault… We delegate tasks, but if it doesn't get done… ultimately, we're responsible. (Veteran's clinic)

clarity. Residents without team stability described frequent team-member turnover and commented that their teams only consisted of a resident and attending. One noted that the broader teams were "nominal." Residents without role clarity described uncertainty about the scope of practice of other team members, e.g., "what's her responsibility, what's my responsibility?" As a result, some residents expressed a tension between their desire to share the workload and a lack of trust that the work would be completed.

Residents with more stable teams and well-defined roles described more positive views of IP team-based care, noting that knowing their team members made it "much easier to do my job and much more enjoyable." They felt comfortable asking for help, saying, "When it's the same people and you're comfortable with each other, you can say, 'How can we as a team best get this done?'" Residents at the veteran's hospital and senior residents at all clinic sites were more likely to share this sentiment.

Political Frame. Political factors describe resource scarcity and the resultant conflicts. The overarching theme within this frame was low staffing ratios for IP team-based care. Residents commented on the need for more medical assistants (MA), noting that clinics with higher staffing ratios had higher MA job satisfaction, better MA–physician communication and were more efficient. Residents also discussed the impact of registered nurses (RNs). One resident commented that team-based care tasks were added to the job descriptions of RNs in his clinic without decreasing other responsibilities. In these instances, RNs were frequently unable to perform team-based care tasks, such as glucometer teaching, or attend team meetings to discuss nursing needs for the clinic session. This led to a lack of trust in their ability to complete tasks and resultant uncertainty about RN roles. This belief was most prevalent at the safety net clinic where they were actively advocating for additional resources.

Symbolic Frame. Within the symbolic frame, residents described a pervasive culture of resident responsibility and sacrifice. Residents with positive and negative perceptions of team-based care expressed the feeling that they were ultimately responsible for patient care, despite the presence of a team-based care model. This meant that if a task was not completed or done incorrectly, residents felt that they, rather than other team members, would be held accountable. Residents noted that the staff and administration also believed that residents would "plug all the holes" because other team members would not complete tasks and the clinic administration tolerated low staffing ratios.

Educational Impact

Many residents believed that team-based care improved their experience in clinic, but that it was not intrinsically educational. Residents noted a few areas in which they personally benefitted from teamwork. The first was being part of a team allowed them to learn clinical skills from other team members. For example, seeing how a fellow resident or nurse practitioner managed a patient would give them ideas for future patient care. Similarly, having to care for the same panel of patients with team members improved their written and verbal communication skills.

Residents also commented that team-based care decreased the number of non-patient care tasks. With this time, residents were able to spend more time with patients or reading about clinical topics. A resident noted, "I was able to pass off a lot of stuff and look up something," and "it's helpful in taking some of the non-learning tasks away from us." A handful of residents believed that learning about teams was intrinsically educational. One noted that primary care around the world was headed in this direction, and that it was helpful to be part of "an effort to try to make it happen, both in terms of what works and what doesn't work."

Despite these benefits and regardless of their experience within teams, the majority of residents believed that teams had "minimal" impact on their education. Residents implied that IP team-based care was not educational because it was not clinical knowledge. One resident stated, "I don't think there's anything inherently educational. I do know more about an LVN (licensed vocational nurse) versus an RN… while that is valuable knowledge, it's not valuable patient care knowledge." Similarly, residents at the veteran's hospital commented that having a curriculum for team-based care actually took away from their educational experience by decreasing time spent learning medical knowledge.

DISCUSSION

This study examined residents' perceptions of interprofessional (IP) team-based care within their continuity clinics and its impact on their education. Residents believed teams could improve patient care and healthcare providers' job satisfaction. Their ability to work within IP teams and their overall perceptions of team function were improved by good communication and stable team members. Similarly, opportunities to learn team members' roles and build relationships, such as regular team meetings or huddles, were also important. Residents' experience within IP teams was hindered by absences created by residents' schedules, frequent team member turnover, low staffing ratios, and a negative cultural perception that residents will do all of the work when teams break down.

This study is consistent with prior research on interprofessional teamwork and graduate medical education. Residents described factors required for successful teams as published within the IP teamwork literature, including team stability, participation in routines such as huddles, and economic support.[22] As a result, improvements in overall team structure and consistency will likely improve residents' experiences, too. However, even when these factors were in place, residents did not see IP teamwork as educationally meaningful. Residents and senior clinicians in other studies have also identified their domain as medical knowledge, while downplaying the importance of IP team-based care skills.[10,23] However, this study is the first to the author's knowledge to explore resident perceptions of IP team-based care within their continuity clinics and to show that IP team function is not the sole determinant of the educational impact of IP teamwork.

This raises important questions about how to make practicing the skills of IP team-based care a meaningful learning opportunity. IP team-members participating in shared problem solving in simulations or the classroom, called collaborative learning, is generally thought to be the preferred method of learning the skills of IP teamwork and is usually well received among trainees.[24] On-the-job learning in a working clinic could be viewed as an even more effective form of collaborative learning. However, in real-world practice, a tension exists between learning the skills of IP teamwork and providing clinical care. As a result, IP education is often viewed by trainees as "elective."[25] At this time, there is a lack of evidence regarding the ideal timing or method of IP education among residents who are trying to balance competing interests.

There are many potential explanations for this disconnect between the value placed on IP teamwork skills between educators and residents. According to workplace learning theory, individuals (rather than leadership) ultimately decide what constitutes "workplace affordances," or opportunities for workplace learning.[26] In order for full learner participation, engagement of learners' goals is equally as important as creating the learning opportunity. Therefore, while residents may be meeting some goals of IP teamwork education, such as the ability to describe the goals of team-based care and team members' roles, they may not see this as useful to the practice of medicine. Engaging residents in describing the problems they experience within their continuity clinic and in designing solutions utilizing the IP team may improve resident perceptions of IP team-based care as a learning opportunity. In this way, learning how to leverage the dynamic process of practice redesign in resident continuity clinics, rather than incorporating residents into an established structure, may increase resident engagement.

Similarly, learners generally place value on educational opportunities with certain attributes, such as observing senior clinicians, receiving feedback and having opportunities for reflection.[27] However, most team-based care activities occur without observation or specific criteria for feedback. Attempts to address this include the addition of huddle coaches, where senior faculty provide feedback on the communication and

processes observed during team huddles.[8] Without building these types of experiences into learning the practice of IP teamwork, residents may not transfer their subconscious practice of teamwork skills into explicit knowledge that they see as educationally valuable.

This study has a few limitations. We collected data at one institution with three diverse academic practices. This may decrease the external validity of our results. Additionally, successful interprofessional teamwork requires considering the perspectives of all team members. Yet, this study only includes the perspectives of residents. We also conducted this study after team-based care had been present at the sites for only 2 years. Therefore, it is possible that our results reflect the transition from a traditional system to team-based care rather than true team-based care. However, as residents may be expected to help their future practices make the same transition, this is still a meaningful educational experience. While these limitations mean that our results should be interpreted with caution, this is an important first step in describing the factors affecting residents' experiences in practicing team-based care and its perceived educational value.

CONCLUSION

Residents' ability to practice interprofessional (IP) team-based care is influenced by processes that improve trust in their teammates, such as stable teams, good communication, and sufficient staffing. However, internal medicine residents perceived team-based care to have minimal impact on their education, irrespective of the quality of their teams. Educators in graduate medical education need to explore ways to improve perceptions of the educational value of IP team-based care and engage residents' learning goals in order to teach them how IP team-based care can contribute to their future practice.

Acknowledgements:
Contributors: *The authors thank Theresa Iker for her transcription services.*

Funders: *This study was supported by the Department of Internal Medicine at the University of California San Francisco.*

Conflict of Interest: *The authors declare that they do not have a conflict of interest.*

Corresponding Author: *Tacara N. Soones, MD, MPH; Icahn School of Medicine at Mount Sinai, One Gustave Levy Place, Box 1070, New York, NY 10029, USA (e-mail: tacara.soones@mssm.edu).*

REFERENCES

1. **Kohn LT, Corrigan JM, Donaldson MS.** To Err is Human: Building a Safer Health System. Washington, DC: National Academy Press; 2000.
2. **Chang WY, Ma JC, Chiu HT, Lin KC, Lee PH.** Job satisfaction and perceptions of quality of patient care, collaboration and teamwork in acute care hospitals. J. Adv. Nurs. 2009;65:1946–55.
3. **Helfrich C, Dolan ED, Simonetti J, et al.** Elements of team-based care in a patient-centered medical home are associated with lower burnout among VA primary care employees. J. Gen. Intern. Med. 2013;29(Suppl 2): S659–66.
4. **Schmidt I, Claesson C, Westerholm B, Nilsson L, Svarstad B.** The impact of regular multidisciplinary team interventions on psychotropic prescribing in Swedish nursing homes. J. Am. Geriatr. Soc. 1998;46:77–82.
5. **Zwarenstein M, Goldman J, Reeves S.** Interprofessional collaboration: effects of practice-based interventions on professional practice and healthcare outcomes. Cochrane Database Syst. Rev. 2009;3:Art no CD000072.
6. **Davis K, Abrams M, Stremikis K.** How the affordable care act will strengthen the nation's primary care foundation. J. Gen. Intern. Med. 2010;26:1201–3.
7. **Crabtree B, Nutting P, Miller W, Stange K, Stewart E, Jaen CR.** Summary of the national demonstration project and recommendations for the patient-centered medical home. Ann. Fam. Med. 2010;8:s80–90.
8. **Shunk R, Dulay M, Chou C, Janson S, O'Brien B.** Huddle coaching: a dynamic intervention for trainees and staff to support team-based care. Acad. Med. 2014;89:244–50.
9. ACGME Home [Internet]. Chicago: Accreditation Council for Graduate Medical Education; c2000–2013. ACGME program requirements for graduate medical education in internal medicine. [cited 11 Aug 2013]. Available from: http://www.acgme.org/acgmeweb/tabid/134/ProgramandInstitutionalAccreditation/MedicalSpecialties/InternalMedicine.aspx
10. **Muller-Juge V, Cullati S, Blondon K, et al.** Interprofessional collaboration on an internal medicine ward: role perceptions and expectations among nurses and residents. PLoS ONE. 2012;8:e57570.
11. **Veerapen K, Purkis ME.** Implications of early workplace experiences on continuing interprofessional education for physicians and nurses. J. Interprof. Care. 2014;28:218–25.
12. **Drummond N, Abbott K, Williamson T, Somji B.** Interprofessional primary care in academic family medicine clinics. Can. Fam. Physician. 2012;58(8):e450–8.
13. **Lawlis TR, Anson J, Greenfield D.** Barriers and enablers that influence sustainable interprofessional education: a literature review. J. Interprof. Care. 2014;28:305–10.
14. **Morphet J, Hood K, Cant R, Baulch J, Gilbee A, Sandry K.** Teaching teamwork: an evaluation of an interprofessional training ward placement for health care students. Adv. Med. Educ. Pract. 2014;5:197–204.
15. **Joyal KM, Katz C, Harder N, Dean H.** Interprofessional education using simulation of an overnight inpatient ward shift. J. Interprof. Care
16. **Bowen G.** Grounded theory and sensitizing concepts. Int J Qual Methods [Internet] 2006 Sept [cited 2014 Dec 3];5(3):12–23. Available from: http://ejournals.library.ualberta.ca/index.php/IJQM/article/view/4367
17. **Bolman L, Deal T.** Reframing Organizations. San Francisco: Jossey-Bass; 2003.
18. U.S. Department of Veteran's Affairs Homepage [Internet]. Washington, DC: U.S. Department of Veteran's Affairs; 25 Nov 2014. VA Centers of Excellence in Primary Care Education (CeEPCE); 2014 [cited 1 Jan 2015]. Available from: http://www.va.gov/oaa/rfp_coe.asp
19. **Rugen KW, Watts SA, Janson SL, et al.** Veteran Affairs Centers of Excellence in Primary Care Education: transforming nurse practitioner education. Nurs Outlook. 2014;62:78–88.
20. **Gupta R, Davis E, Horton C.** Interval examination: building primary care teams in an urban academic teaching clinic. J. Gen. Intern. Med. 2013;28:1517–21.
21. **Thomas DR.** A general inductive approach for analyzing qualitative evaluation data. Am. J. Eval. 2006;27:237–46.
22. **Reeves SL, Espin S, Zwarenstein M.** Interprofessional Teamwork for Health and Social Care. Oxford: Wiley-Blackwell; 2010.
23. **Barker KK, Bosco C, Oandasan IF.** Factors in implementing interprofessional education and collaborative practice initiatives: findings from key informant interviews. J. Interprof. Care. 2005;19:166–76.
24. **D'Eon M.** A blueprint for interprofessional learning. J. Interprof. Care. 2005;19(Suppl 1):49–59.
25. **Oandasan I, Reeves S.** Key elements for interprofessional education. Part 1: the learner, the educator and the learning context. J. Interprof. Care. 2005;19(Suppl 1):21–38.
26. **Billett S.** Constituting the workplace curriculum. J. Curric. Stud. 2006;38:31–48.
27. **Teunissen P, Scheele F, Scherpbier A, et al.** How residents learn: qualitative evidence for the pivotal role of clinical activities. Med. Educ. 2007;41:763–70.

APPENDIX

Table 3. Focus Groups Discussion Guide

Frame	Frame description	Discussion guide questions
Structural	Examines team goals and processes, including team design, skills of each team member and how members of the team are differentiated and integrated.	Describe how your clinic team is organized. What are the special skills of each team member? How does your team coordinate its efforts?
Human resource	Examines relationships between team members, including team leadership, decision-making, residents' empowerment within the team, and if there is a shared philosophy between residents and team members.	How do you participate in your team?
Political	Examines resource scarcity and team member differences through the experience of conflict. Conflict is not felt to be negative. Rather, if managed appropriately, it will challenge the status quo and stimulate creativity and innovation.	Has your team ever experienced conflict? If so, describe the conflict and how it was managed.
Symbolic	Examines the culture of the team (or at least the residents' perception of culture). This question may also give insight into how team functioning could improve.	In your opinion, what should the role of your team be? What is the residents' role on the team?
N/A	Impact of team-based care on their educational experience.	What impact, if any, has team-based care in the clinic had on your educational experience?