

Changing the channel: a qualitative analysis of an innovative video intervention to explore resident attitudes towards interprofessional collaboration on a Geriatric Medicine Unit

Changer de cassette : analyse qualitative d'une innovation pédagogique au moyen d'une vidéo visant à explorer les attitudes des résidents à l'égard de la collaboration interprofessionnelle dans une unité de gériatrie

Krista Whitney,^{1,2} Vanessa Peck,² Allen R Huang,^{2,3,4} Junghyun Park,^{1,2} Prudy Menard,^{1,2} Jason MacDonald,^{1,2} Edward Spilg,^{2,3,4} Lara Khoury^{2,3,4}

¹University of Ottawa, Ontario, Canada; ²The Ottawa Hospital, Ontario, Canada; ³Division of Geriatric Medicine, Department of Medicine, University of Ottawa, Ontario, Canada; ⁴The Ottawa Hospital Research Institute, Ontario, Canada

Correspondence to: Krista Whitney; email: kwhitney@uottawa.ca

Published ahead of issue: Dec 8, 2022, published: Apr 8, 2023. CMEJ 2023, 14(2) Available at <https://doi.org/10.36834/cmej.71529>

© 2023 Whitney, Peck, Huang, Park, Menard, MacDonald, Spilg, Khoury; licensee Synergies Partners. This is an Open Journal Systems article distributed under the terms of the Creative Commons Attribution License. (<https://creativecommons.org/licenses/by-nc-nd/4.0>) which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is cited.

Abstract

Background: Medical learners develop a more positive attitude toward Interprofessional Collaboration (IPC) following Interprofessional Education (IPE) programs. However, IPE is not standardized, and the most effective teaching tool is unclear. The purpose of our study was to develop an IPE teaching tool for medical residents during an inpatient geriatric medicine rotation at an academic hospital, evaluate and explore the impact of the program on resident attitudes towards teamwork, and identify barriers and facilitators to interprofessional collaboration.

Methods: An innovative video was developed which simulated a common IPC scenario. Near the start of the rotation, learners watched the video then participated in a facilitated discussion around principles of IPE, using the Canadian Interprofessional Health Collaborative (CIHC) framework, which highlights interprofessional communication, patient-centered care, role clarification, team functioning, collaborative leadership, and interprofessional conflict resolution. At the end of their four-week rotation, focus groups were conducted to explore resident attitudes towards IPE. The Theoretical Domain Framework (TDF) was used for qualitative analysis.

Results: Data from 23 participants in five focus groups were analyzed using the TDF framework. Residents were able to identify barriers and facilitators to IPC in five TDF domains: environmental context and resources, social/professional role and identity, knowledge, social influences, and skills. Their observations correlated with the CIHC framework.

Conclusion: The use of a scripted video and facilitated group discussion gave insights into residents' attitudes, perceived barriers, and facilitators towards IPC on a geriatric medicine unit. Future research could explore the use of this video intervention in other hospital services where team-based care is important

Résumé

Contexte : Les apprenants en médecine développent une attitude plus positive à l'égard de la collaboration interprofessionnelle (CIP) après avoir suivi un programme de formation interprofessionnelle (FIP). Toutefois, la FIP n'est pas standardisée et on ne sait pas quel outil d'enseignement est le plus efficace. Le but de notre étude était d'élaborer un outil de FIP pour les résidents en stage de gériatrie dans un hôpital universitaire, d'évaluer et d'explorer les effets du programme sur les attitudes des résidents à l'égard du travail d'équipe, et de recenser les facteurs qui entravent ou facilitent la collaboration interprofessionnelle.

Méthodes : Une capsule vidéo innovante simulant un scénario courant de CIP a été créée. Au début de leur stage de résidence, les apprenants ont regardé la capsule et participé à une discussion animée sur les principes de la CIP, conformément au référentiel du Consortium pancanadien pour l'interprofessionnalisme en santé (CPIS), qui prône notamment la communication interprofessionnelle, les soins centrés sur le patient, la clarification des rôles, le fonctionnement de l'équipe, le leadership collaboratif et la résolution des conflits interprofessionnels. À la fin de leur stage de quatre semaines, des groupes de discussion ont été organisés pour explorer les attitudes des résidents à l'égard de la CIP. Un cadre de domaines théoriques (*Theoretical Domains Framework*) a été appliqué pour réaliser l'analyse qualitative.

Conclusion : Au moyen d'une capsule scénarisée et d'une discussion de groupe dirigée, nous avons pu cerner les attitudes des résidents d'une unité de gériatrie par rapport à la CIP ainsi que leurs perceptions quant aux facteurs qui peuvent l'entraver ou la faciliter. Des travaux futurs pourraient explorer le recours à cette formule d'enseignement de la CIP dans d'autres services hospitaliers où les soins en équipe sont importants.

Introduction

Interprofessional collaboration (IPC) is increasingly relevant in the context of providing health care to an aging population with complex care needs. According to the World Health Organization (WHO), IPC occurs when “multiple health workers from different backgrounds provide comprehensive services by working with patients, their families, careers and communities to deliver the highest quality of care across settings.”¹ There is growing emphasis on training future health professionals to work effectively within teams since IPC optimizes health-services delivery and improves health outcomes.² Interprofessional Education (IPE) is defined as “two or more professions learn with, from and about each other to improve collaboration and the quality of patient care.”³ It prepares students to understand how to work in interprofessional teams so that they are ready to practice in a collaborative workforce.¹ Within the medical education curriculum, there has been an increased focus on how best to facilitate and implement interprofessional education. A seminal paper by D’Eon in 2004 proposed that experiential and cooperative learning frameworks may be key to successful interprofessional learning.⁴ Since then, a number of studies have looked at the effects of IPE on collaborative practice and of various learning methods, but there is no consensus among educators to explain “how, why, or when learning through IPE is successful.”⁵ Interprofessional educational guidelines created by the Centre for Advancement of Interprofessional Education (CAIPE) emphasize the importance of learning together to cultivate mutual awareness, trust and respect, countering ignorance, prejudice and rivalry in readiness for collaborative practice.⁶ Educational strategies need grounding in educational and sociological theory, and can be adopted and adapted by health care providers to suit their different workplace settings.⁶

For many years, geriatric medicine has embraced the importance of IPC in caring for the complex needs of older adults. The core geriatric medicine team often involves pharmacists, occupational therapists, physiotherapists, social workers, nurses, and physicians, and provides the ideal milieu within an academic hospital to develop and implement an IPE program for medical residents. Previous studies have extensively examined health care professionals’ perspectives on interprofessional education (IPE) in various educational settings.⁷⁻¹³ However, understanding learners’ perspectives on IPC in specific healthcare settings is paramount to addressing the barriers

to effective IPC. Furthermore, this can help tailor learning interventions to best teach its concepts. Specific research has shown that learners develop a more positive attitude toward IPC following IPE programs,¹⁴⁻¹⁶ although there is no consensus on the best practice and intervention model for IPE in the academic hospital¹⁷ or in geriatric medicine.¹⁸

Behaviour change after a learning intervention is key to attaining improvement in clinical practice. Several psychological theories of behaviour change have been described in implementation research.^{19,20} The Theoretical Domains Framework (TDF) lists a validated set of behavioural domains that can assist with exploring and understanding factors that influence individual and collective behaviour with the goal of informing future IPE learning.²¹⁻²⁶ The TDF is comprised of 84 determinants across the domains of: 1) knowledge, 2) skills, 3) social/professional role and identity, 4) beliefs about capabilities, 5) optimism, 6) beliefs about consequences, 7) reinforcement, 8) intentions, 9) goals, 10) memory, 11) attention and decision processes, 12) environmental context and resources, 13) social influences, 14) emotion and behavioural regulation.

The TDF has been previously used to identify barriers to implementing a range of practices with implications for patient safety such as reducing prescribing errors among trainee doctors, engaging patients in having advanced care planning conversations, and encouraging hand hygiene practices.^{25,27-30} The purpose of this study was to explore resident attitudes towards IPC using an intervention consisting of an innovative video simulation and facilitated discussion of IPC principles. This study applies the Theoretical Domains Framework to a learning intervention to: 1) explore attitudes of medical residents towards effective interprofessional collaboration, 2) identify barriers and facilitators to IPC on an inpatient geriatric medicine rotation and 3) develop a future interprofessional education intervention that may improve interprofessional collaboration in an academic hospital.

Methods

Setting

The study took place on the inpatient acute care Geriatric Medicine Unit (GMU) from March 2016 to October 2018 at an academic tertiary-care hospital in Ottawa, Ontario.

Participants

Medical residents from training programs including internal medicine, family medicine, psychiatry and others,

who were starting their four-week rotation in geriatric medicine, were invited to participate. The residents' clinical rotation experience was divided between time spent on the acute care inpatient 24-bed GMU and the geriatric medicine ambulatory clinics and day hospital.

Intervention

The intervention consisted of a scripted recorded video that was viewed by a group of residents within the first few days of starting their four-week geriatric medicine rotation. The video was paused at fixed points and a structured interactive discussion with the group was led by one of the investigators (VP, AH). The total runtime of the video was 25 minutes and the entire intervention lasted approximately 55 minutes. The video was developed, scripted, produced and recorded by a team which included an author (PM) who had experience in IPE research, a geriatric medicine resident, two geriatricians and a social worker. The video included a simulation of an interprofessional team meeting discussing the care of a patient within the GMU as would take place at weekly interprofessional rounds. The complete video can be found at the following link:

<https://www.youtube.com/watch?v=BICr31O-NzA>.³¹

Part 1. The first segment of the video included an introduction of the interprofessional team members as well as a narrative of their roles. The next segment showed a scenario demonstrating poor IPC. The video was then paused and the group was asked to reflect on what had been seen so far and led through a facilitated discussion based on the National Competency Framework for Interprofessional Collaboration, which was developed in 2008 by the Canadian Interprofessional Health Collaborative (CIHC).³² This framework identifies six core competencies necessary for interprofessional collaboration: patient/client/family/community-centred care, role clarification, team functioning, interprofessional conflict resolution and collaborative leadership. The framework recognizes that interprofessional collaborative approaches may differ on the continuum of complexity and considers contextual issues and highlights the importance of interprofessional collaboration on quality improvement and that teams can effectively address quality issues especially in complex systems.³³

Part 2. The video was resumed and the next segment presented a scenario showing an example of good IPC principles. A final reflection and facilitated discussion with the group ensued.

Focus groups

At the end of the four-week rotation, one-hour focus group meetings were conducted. All residents who had previously participated in the intervention were invited to voluntarily participate. All focus group sessions were conducted by the same facilitator (VP) who was experienced in conducting focus groups and individual interviews for qualitative research in health care settings using a semi-structured approach. Focus group questions focused on attitudes towards and perceptions about IPC, and explored the facilitators and barriers towards working in interprofessional teams in an acute hospital setting (see list of questions used as a guide in Appendix A).

Between August 2017 to September 2018, five focus groups were completed involving a total of 23 participants. Each group ranged from four to six residents. There were 18 post-graduate year (PGY)-1 (nine family medicine, four internal medicine, five psychiatry), two PGY-2 (internal medicine), two PGY-3 (internal and family medicine) and one PGY-4 resident (geriatric medicine) participants.

Data analysis

Focus group interviews were audio-recorded, anonymized, and transcribed verbatim. A thematic analysis was performed following the methods of Braun and Clarke to analyze the data owing to its strengths of accessibility and flexibility in analysis, enabling deep exploration of a rich dataset and to identify repeated concepts.³³ Three researchers (KW, VP and JP) coded participants' responses into the relevant theoretical domains. They each independently coded two transcripts then met to discuss codes and develop a coding strategy. The remainder of the focus group interviews were coded by KW and the remainder of the transcripts were randomly reviewed by VP. Following coding, KW and VP met to categorize codes into constructed themes that best capture the final concepts. We used an inductive approach where themes were then mapped to the TDF framework by VP and LK.

Data collection

Qualitative data were collected from focus group meetings that were conducted at the end of the four-week rotation with the intervention group participants. This study was approved by The Ottawa Health Science Network Research Ethics Board. Analysis of data from a quantitative study that examined the change in attitudes following the innovative video intervention compared to a control group of participants is ongoing. The authors chose a qualitative design for this part of the study to understand in greater

depth the factors that influence resident thinking and attitudes towards IPC.

Results

Theoretical domains framework (TDF)

Following analysis of the first four focus groups, no new constructs were identified in the fifth focus group. Of the 14 TDF domains, five (*behavioral regulation, optimism, reinforcement, intention, and memory, attention, and decision processes*) were not captured by the data. Nine relevant domains were identified through consensus discussion among the investigators KW, VP and LK.

Domains were classified into either significant relevance or minor relevance according to the frequency of comments and the perceived importance by the learners during focus groups. The five domains with significant relevance included: *environmental context and resources, social/professional role and identity, knowledge, social influences, and skills*. TDF domains which had minor relevance included: *beliefs about consequences, capabilities/confidence, emotion, and motivation and goal setting*. Table 1 lists the five domains with significant relevance and Table 2 lists the four domains that met the criteria of minor relevance.

Table 1. Domain categories evaluated as significant contributors to resident perceived barriers and facilitators to interprofessional collaboration.

TDF Domain	Construct	Quote
Environmental context and resources	Resources	Barrier - <i>It would be ideal if all inpatient units had a similar funding model and available resources that are available here</i>
	Redundancy	Barrier - <i>One downside is maybe over redundancy sometimes and having different professionals involved in care can add more information</i> Facilitator - <i>Typically you have complex but slow moving issues, and the patient population and the pace lends itself well</i>
	Patient load and acuity	Facilitator - <i>I like the environment here where everybody is around, and the communication happens face to face</i> Barrier - <i>...Frustrating sometimes because people are always going away doing different type of assessments... it can be frustrating trying to track everyone down...</i>
	Physical layout	
Social/professional role and identity	Organizational climate	Facilitator - <i>...Needs to be a culture of respect and trust and a willingness to value other members and services</i> Barrier - <i>...If the higher ups who are allocating the pie don't believe that its (interdisciplinary approach) necessary then it's not going to happen</i>
	Role clarification	Facilitator - <i>...Mutual respect too and mutual understanding of each other's roles...</i> Facilitator - <i>...System itself is way too complex for a single discipline to manage everything...</i>
Social influences	Team leadership	Facilitator - <i>...In a team you need a leader it doesn't necessarily mean that the leader has to be the physician...</i> <i>...It sort of depends on how you define a leader right?</i> Barrier - <i>A perception from patients that they need to see a doctor for everything...</i> Barrier - <i>Sometimes it can happen that a family won't really take the recommendations of the allied health professional until they hear it from the physician...</i>
Knowledge	Filling gaps	Facilitator - <i>Every time you involve a member of the team it seems like something arises that you didn't necessarily think about. Whether it's some barrier to mobility, financial barrier, social stress or something. There's something extra that comes up that ends up being pretty important...</i>
Skills	Focus on the medical issues	Facilitator - <i>Along the lines of efficiency, it allows the physician to be more efficient because he can focus on other things and know there is an expert doing this comprehensive assessment of their mobility or cognition and you have the luxury of having this concise plan and recommendations and then you can tie that into your full medical plan and that helps out a lot.</i>

Environmental context and resources

Residents recognized both the physical environment and resources as important factors in facilitating or hindering IPC. Having a dedicated area where consistent team members can meet and effectively communicate was identified as an important facilitator. It is helpful to have consistent team members to be able to know who they are and get to know them well. Residents were also able to understand how organizational complexity can influence collaborative practice.²⁰

Residents identified a higher patient volume and medical acuity on other services as being barriers to effective IPC. This bias suggests that residents are having trouble extrapolating the IPC model outside the geriatric medicine setting.

Residents also observed that richness in allied health resources on the geriatric unit may have an impact on successful IPC.

Table 2. Domain categories evaluated as minor contributors to resident perceived barriers and facilitators to interprofessional collaboration.

TDF Domain	Construct	Quote
Beliefs about Consequences	Consequences	Barrier - ...One downside is maybe over redundancy sometimes and having different professionals involved in care can add more information...
Beliefs about Capabilities	Perceived competence	Barrier - I think that there's maybe also a perception from patients that they need to see a doctor for everything and maybe also think of a patient who says I haven't seen a doctor for this and I still can't walk. Well you've seen the experts in walking and strength and mobility they're not doctors, they're physiotherapists, occupational therapists and changing their expectations as well...
	Professional confidence	Facilitator - ...Allows the physician to be more efficient because he can focus on other things and know there is an expert doing this comprehensive assessment of their mobility or cognition...
Emotion	Anticipated regret	Barrier - I remember one patient discharged from TCU (transitional care unit) literally the minute he left the floor people were saying I'll just give it two days, and another said I'll give it three it actually sounded like an auction which is sad
	Positive/negative affect	Facilitator - ...You feel really well supported and you know that the patient is also really well supported because you know that all aspects of care are being taken care of
	Stress	Barrier - I find it kind of frustrating sometimes because people are always going away doing different types of assessments Everyone is quite busy and we have a lot of tasks as a resident so it can be frustrating trying to track everyone down
Motivation and Goals	Goal targeting/setting	Facilitator - I think that sometimes when a patient comes in they focus on one issue. So as a team we can elicit different information from them. And family centered having the whole team attend family meetings it helps as they can answer all of the questions the patient or family may have
	Goal priority	Facilitator - ...as soon as they are admitted we start working on a variety of issues so that everything is addressed by the time they are ready to go home...
	Goal priority	Facilitator - ...A clear understanding of the trajectory of care and what the barriers are and clear goals shared between each member of the team. We should all be working in the same direction.

Social/professional role and identity

Residents identified that the organizational climate can influence IPC either positively or negatively. They felt that when there is mutual respect and understanding of each other's roles in an IPE model that this can act as a facilitator of collaborative work. Conversely, the climate can have a negative influence, particularly if they do not feel that management supports teamwork.

Social influences

The residents also highlighted as important the social influence of leadership. They debated the concept of leadership within an interprofessional team, with most residents agreeing that a successful team needs an identified leader. There was disagreement among residents, as some viewed physicians as intrinsic leaders due to medico-legal responsibilities, whereas others felt that any member of the team could be a leader at various times in patient care.

Knowledge and skills

Residents recognized that they have knowledge gaps and acknowledged the value of the contributions from various health professionals. Residents also realized that in order to improve their communication skills and to practice collaboratively, they needed to learn basics about each health professional and their roles. This recognition supports the CanMED role acquisition, where residents are learning not only how to become medical experts but are also acquiring the skills of collaborators and communicators, which are essential for IPC.³⁴ Residents discussed that improved IPC skills can result in positive outcomes such as more comprehensive patient care and enhanced patient safety.

A recurrent issue discussed in the focus groups was the impact of IPC on efficiency and workflow. Some residents felt that IPC resulted in more efficient care, as it allowed each team member to focus on their area of expertise. Other residents highlighted the redundancy of tasks with a

collaborative model and the potential for time management constraints.

Alignment with The Canadian Interprofessional Competency Framework

The CIHC framework's six competency domains of *Interprofessional communication, Patient-centered care, Role clarification, Team functioning, Collaborative leadership and Interprofessional conflict resolution* map to the TDF framework and teaching of these principles during

the intervention. Table 3 outlines how the CIHC and TDF framework align.

The facilitated discussion portion of our study was designed around these competencies as a means of teaching the framework to our residents near the start of their rotation. The CIHC framework domains were clearly represented in our data analysis, which demonstrates that at the end of their four-week rotation, residents learned about foundational IPC principles.

Table 3. National Interprofessional Competency Framework mapping to TDF.

National Interprofessional Competencies Framework Domain	Theoretical Domains Framework	Quote
Interprofessional communication	Skills	<i>... I think there is value to communication training in teams... There are some people who you are naturally more involved with their patients which is great and then there are some people who will contact you only when they need to contact you so its somewhere in between</i>
Patient-centered care	Environmental context and resources	<i>You also need to have organizational support that an interdisciplinary approach is best and to have the funding and resources put behind that because otherwise you'll have wards that patient's may benefit from an interdisciplinary approach but if the higher ups who are allocating the pie don't believe that its necessary than it's not going to happen.</i>
Role clarification	Social/professional role and identity	<i>...Mutual respect too and mutual understanding of each other's roles... For this to work effectively, you need to understand your role and everyone's role and respect that you're all partners or collaborators with one common goal essentially</i>
Team functioning	Knowledge	<i>Every time you involve a member of the team it seems like something arises that you didn't necessarily think about. Whether it's some barrier to mobility, financial barrier, social stress or something. There's something extra that comes up that ends up being pretty important I would say in 90% of cases</i>
Collaborative leadership	Social influences	<i>... It sort of depends on how you define a leader right? ... where I went to med school we were sort of taught that the definition of leader is not necessarily this authority figure. The definition of a leader is someone who can recognize the strengths of each team member brings and someone who can facilitate that towards a common goal. Recognizing that every member including the physicians' strengths and weaknesses...</i>
Interprofessional conflict resolution	Skills	<i>It is... good for patients to have people with different skill sets to address the different sides of their care and it just seemed like communication was very open and efficient and useful. I think that if there had been friction between the team or personalities... then I can see it being a bit of a problem or a hindrance...</i>

Discussion

This study analyzed resident attitudes towards interprofessional collaboration (IPC) after completing an intervention of watching a recorded interprofessional video simulation, participating in a facilitated discussion, and completing their four-week rotation in geriatric medicine. The TDF framework was used to map the data into themes and interpret the results. Residents' perceived barriers and facilitators to IPC were captured in five main domains including environmental context and resources, social/professional role and identity, knowledge, social influences, and skills.

Facilitators and barriers addressed by the video simulation intervention

Residents identified that a physical layout which encourages interactions between health professionals as an important facilitator, which is consistent with the literature.^{1,5,32} They understood the importance of bringing all involved health professionals together for an interdisciplinary meeting to discuss patient care and treatment plans. They believed that the funding model on the geriatric unit may afford a high number of allied health resources and that the slower patient flow/lower level of acuity may be positive contributors to IPC in a geriatric medicine setting. Their lack of experience may have limited their ability to understand the utility of IPC in other settings such as in the emergency room or intensive care unit.

Replicating this study on other units may clarify this perception and any additional biases.

Some residents pointed out that the organizational climate and role clarification are important factors. They felt that the system was too complex for one discipline to be able to manage it alone and appreciated the need for more disciplines to be involved in the care of patients. As has been previously described,^{5,11,13,32} they identified the positive influence role clarification has on team work, as has the presence of culture of respect and trust. These concepts were clearly highlighted in our intervention, and later consolidated by the residents practicing them in their daily work, and seeing the interprofessional team modeling their importance. These results support the key concepts from the WHO model which states that “staff participating in collaborative practice need clear governance models, structured protocols and shared operating procedures.”¹

Team leadership was seen as an important social influence. There was disagreement among residents who viewed physicians as intrinsic leaders while others felt that any member of the team could be a leader. Even after the video intervention, this dichotomy shows that some residents were able to understand the notion of collaborative or shared leadership, whereas others still believed in the concept of physician as the leader of the interprofessional team, who is ultimately responsible for overall wellbeing of patients and overall quality of care provided. Residents acknowledged that some patients may express the desire for knowledge to be disseminated by physicians which limits the utility of IPC led by other team members.

Medical residents clearly recognized their skill in medical expertise while acknowledging their gaps in knowledge that needed to be filled by other health care professionals. They recognize that the expertise of other disciplines is needed to come up with the optimal care plan for a patient.

A recurrent issue discussed in the focus groups was the impact of IPC on efficiency and workflow. Some residents felt that IPC resulted in more efficient care, while others highlighted that the redundancy of tasks with a collaborative model can lead to time management challenges. Although these reflections demonstrate insight into the complexities of a health care system in some of the residents, other residents were not convinced of the importance and benefits of IPC.

There was a lack of clinical examples of collaboration other than morning rounds or family meetings. This could reflect the fact that learners were unable to describe clinical

examples of collaboration, or that the questioning did not lead the focus group to discuss this, or that they had a lack of opportunities to engage with IPC. When describing IPC, some of the responses were vague such as “I loved it” or “it was great.” These responses without detail may also reflect that some residents do not have a deep understanding of IPC. Future studies with alternative prompting questions during focus groups may help guide what factors led to these responses.

The blueprint for interprofessional learning by D’Eon⁴ has been used to guide interprofessional learning in the literature. This innovative video intervention of a simulated interprofessional case utilized the key practice point of the blueprint “use cases (paper, simulations, real...) to approximate the actual situations in which interprofessional teams will practice.”⁴ The use of a video simulation depicting IPC (bad and good) potentially addresses the *Plan*, *Observe* and *Reflect* stages of experiential learning of the blueprint for interprofessional learning⁴ while the *Act* stage would need to be captured by a different tool. The cooperative learning elements of mutual interdependence, face-to-face interactions, individual accountability, and group processing were certainly part of each learners’ experience while rotating through the geriatrics service. Whether there was ‘learning’ that led to any ‘durable change’ in the residents’ experience with the intervention, be it in thinking, doing, feeling or relating in groups remains the subject of the next investigation.

Limitations

Although the sample size was small with five focus groups, no new data were obtained after four focus groups, as no new constructs emerged from the fifth focus group. There were challenges with recruitment and resident availability, thus not all consented residents were able to participate in the focus groups. The facilitator was a social worker on the geriatric medicine unit, which may have introduced bias into the participants’ responses. The experienced focus group facilitator was able to overcome many of these responses with predetermined guided questioning.

Conclusion

Our study utilized an intervention consisting of an innovative recorded video simulation of interprofessional collaboration (IPC) on a geriatric medicine unit with facilitated discussion to explore medical resident attitudes towards interprofessional collaboration. Following this

intervention, medical residents were able to recognize some of the health care system complexities that impact interprofessional collaboration (IPC) during an inpatient geriatric medicine rotation. The teaching tool gave insight into residents' attitudes, perceived barriers and facilitators towards IPC as analyzed through the Theoretical Domains Framework. Future research could explore the use of this video intervention in other hospital services where team-based care is important.

Conflicts of Interest: Each of the authors declares that no conflicts of interest exist due to financial or personal relationships which could potentially bias this work.

Funding: This research was funded by a Department of Medicine Medical Education Research/Medical Innovation Projects Grant (University of Ottawa, Ottawa, ON).

Affiliation: The affiliation of each author is based on the time of the research study.

References

- World Health Organization. *Framework for action on interprofessional education and collaborative practice*. 2010. <https://apps.who.int/iris/handle/10665/70185>
- Reeves S, Pelone F, Harrison R, Goldman J, Zwarenstein M. Interprofessional collaboration to improve professional practice and healthcare outcomes. *Cochrane Database of Systematic Reviews*. 2017;6,CD000072. <https://doi.org/10.1002/14651858.CD000072.pub3>
- CAIPE (2002) *Interprofessional Education - Today, Yesterday and Tomorrow* (Barr, H.) Higher education academy, learning & teaching support network for health sciences & practice, Occasional Paper 1. 2017, Dec 6. <https://www.caipe.org/resources/publications/caipe-publications/caipe-2002-interprofessional-education-today-yesterday-tomorrow-barr-h> [Accessed on Nov 23, 2020].
- D'Eon, M. A blueprint for interprofessional learning. *Med Teach*. 2004;26:7, 604-609 <https://doi.org/10.1080/01421590400004924>
- Visser CLF, Ket JCF, Croiset G, Kusurkar RA. Perceptions of residents, medical and nursing students about Interprofessional education: a systematic review of the quantitative and qualitative literature. *BMC Med Educ*. 2017;17:77. <https://doi.org/10.1186/s12909-017-0909-0>
- CAIPE. *Interprofessional education guidelines*. Barr H, Ford, J Gray R, et al. 2017, Aug 4. Available from <https://www.caipe.org/resources/publications/caipe-publications/caipe-2017-interprofessional-education-guidelines-barr-h-ford-j-gray-r-helme-m-hutchings-m-low-h-machin-reeves-s> [Accessed on Feb 26, 2022].
- Vernon MM, Moore N, Mazzoli A, De Leo G. Respiratory therapy faculty perspectives on interprofessional education: Findings from a cross-sectional online survey. *J Interprof Care*. 2017;32:1-4. <https://doi.org/10.1080/13561820.2017.1389865>
- Vernon MM, Moore NM, Cummins L-A, et al. Respiratory therapy faculty knowledge of and attitudes toward interprofessional education. *Resp Care*. 2017;62:873-881. <https://doi.org/10.4187/respcare.05034>
- Tolle SL, Vernon MM, McCombs G, De Leo G. Interprofessional education in dental hygiene: Attitudes, barriers and practices of program faculty. *J Dental Hygiene*. 2019;93:13-22.
- Patton Z, Vernon M, Haymond K, Anglin J, Heboyan V, De Leo G. Evaluation of interprofessional education implementation among nutrition program directors in the United States. *TIN*. 2018;33:196-204. <https://doi.org/10.1097/TIN.000000000000143>
- Kent F, Glass S, Courtney J, Thorpe J, Nisbet G. Sustainable interprofessional learning on clinical placements: The value of observing others at work. *J Interprof Care*. 2020:1-7. <https://doi.org/10.1080/13561820.2019.1702932>
- Armstrong KJ, Walker SE, Feld SD, Weidner TG. Athletic training students' engagement in interprofessional education in the classroom and during clinical education. *J Interprof Care*. 2019:1-6. <https://doi.org/10.1080/13561820.2019.1707173>
- Zechariah S, Ansa BE, Johnson S, Gates A, De Leo G. Interprofessional education and collaboration in healthcare: An exploratory study of the perspectives of medical students in the United States. *Healthcare*. 2019;7(117). <https://doi.org/10.3390/healthcare7040117>
- Barker KK, Oandasan I. Interprofessional care review with medical residents: Lessons learned, tensions aired - a pilot study. *J Interprof Care*. 2005;19(3), 207-214. <https://doi.org/10.1080/13561820500138693>
- Fox L, Onders R, Hermansen-Kobulnicky CJ, et al. Teaching interprofessional teamwork skills to health professional students: a scoping review. *J Interprof Care*. 2018;32(2), 127-135. <https://doi.org/10.1080/13561820.2017.1399868>
- Faulk CE, Lee TJ, Musick D. Implementing a multidimensional geriatric curriculum in a physical medicine and rehabilitation residency program. *Amer J Phys Med Rehab* 2012;91(10), 883-889. <https://doi.org/10.1097/PHM.0b013e318264408f>
- Menard P, Varpio L. Selecting an interprofessional education model for a tertiary health care setting. *J Interprof Care*. 2014;28(4), 311-316. <https://doi.org/10.3109/13561820.2014.893419>
- Keijsers CJPW, Dreher R, Tanner S, Forde-Johnston C, Thompson S. Interprofessional education in geriatric medicine. *J Euro Ger Med*. 2016;7(4), 306-314. <https://doi.org/10.1016/j.eurger.2016.01.011>
- Ajzen I. The theory of planned behavior. *Organ Behav Hum Decis Process*. 1991;50(2):179-211.
- Bandura A. *Social foundations of thought and action: a social cognitive theory*. Prentice-Hall, Inc: Englewood Cliffs, NJ, US; 1986.
- Atkins L, Francis J, Islam R, et al. A guide to using the theoretical domains framework of behaviour change to investigate implementation problems. *Implement Sci*. 2017;12(1):77. <https://doi.org/10.1186/s13012-017-0605-9>
- Debono D, Taylor N, Lipworth W, et al. Applying the theoretical domains framework to identify barriers and targeted interventions to enhance nurses' use of electronic medication

- management systems in two Australian hospitals. *Implement Sci.* 2017;12(1):42. <https://doi.org/10.1186/s13012-017-0572-1>
23. Lawton R, Heyhoe J, Louch G, et al. Using the theoretical domains framework (TDF) to understand adherence to multiple evidence-based indicators in primary care: a qualitative study. *Implement Sci.* 2015;11(1):113. <https://doi.org/10.1186/s13012-016-0479-2>
 24. Murphy K, O'Connor DA, Browning CJ, et al. Understanding diagnosis and management of dementia and guideline implementation in general practice: a qualitative study using the theoretical domains framework. *Implement Sci.* 2014;9(1):31. <https://doi.org/10.1186/1748-5908-9-31>
 25. Peck V, Valiani S, Tanuseputro P, et al. Advance care planning after hospital discharge: qualitative analysis of facilitators and barriers from patient interviews. *BMC Palliative Care.* 2018;17:127. <https://doi.org/10.1186/s12904-018-0379-0>
 26. Heinemann GD, Schmitt MH, Farrell MP, Brallier SA. Development of an attitudes toward health care teams scale. *Eval Health Profess.* 1999;22(1), 123-142. <https://doi.org/10.1177/01632789922034202>
 27. Taylor N, Lawton R, Moore S, et al. Collaborating with front-line healthcare professionals: the clinical and cost effectiveness of a theory based approach to the implementation of a national guideline. *BMC Health Services Research.* 2014;14(1):648. <https://doi.org/10.1186/s12913-014-0648-4>
 28. Mirbaha F, Shalviri G, Yazdizadeh B, Gholami K, Majdzadeh R. Perceived barriers to reporting adverse drug events in hospitals: a qualitative study using theoretical domains framework approach. *Implementation Science.* 2015;10(1):110. <https://doi.org/10.1186/s13012-015-0302-5>
 29. Duncan EM, Francis JJ, Johnston M, et al. Learning curves, taking instructions, and patient safety: using a theoretical domains framework in an interview study to investigate prescribing errors among trainee doctors. *Implementation Science.* 2012;7(1):1. <https://doi.org/10.1186/1748-5908-7-86>
 30. McCluskey A, Vratsistas-Curto A, Schurr K. Barriers and enablers to implementing multiple stroke guideline recommendations: a qualitative study. *BMC Health Services Research.* 2013;13(1):323. <https://doi.org/10.1186/1472-6963-13-323>
 31. Khoury, L. *Interprofessional education in geriatrics.* [Video]. 2020. Available from: <https://www.youtube.com/watch?v=BICr31O-NzA>
 32. Canadian Interprofessional Health Collaborative. *A national interprofessional competency framework.* 2010. https://www.cihc.ca/files/CIHC_IPCompetencies_Feb1210.pdf [Accessed Aug 1, 2019].
 33. Terry G, Hayfield N, Clarke V, Braun V. *Thematic analysis.* In: The Sage handbook of qualitative research in psychology. Los Angeles: Sage; Jun 30, 2017:17-37.
 34. Frank JR, Snell L, Sherbino J. (Eds.). *CanMEDS 2015 Physician Competency Framework.* Ottawa: Royal College of Physicians and Surgeons of Canada. 2015.

Appendix A.

Focus group interview questions

- How do you feel about working within an interprofessional team?
- Are there benefits to working within an interprofessional team? Does it impact efficiency, patient safety?
- Are there downsides to working with an interprofessional team? Are there time when an interprofessional approach may not work well?
- What kind of environment is conducive to effective interprofessional teamwork?
- What should be expected for each member of a team to work together efficiently?
- Has working within interprofessional teams on the Geriatric Medicine Unit impacted your attitude about interprofessional teams? If so, how?
- What are you going to take away for your future practice?
- Can you tell me about your thoughts towards working within interprofessional teams and how it affects your efficiency as a physician?
- In what ways, if any, does a team-based approach allow for patient and family centered care?
- As a resident, what are your thoughts on the role of physicians on interprofessional teams? Should physicians always assume. Leadership position or are they equal members of the team?
- How does team-based care support patient safety and the delivery of quality care?
- Do you think communication in teams is something that happens naturally, or is it a laborious process?