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Mobility Clinic Team Composition: Optimizing Care for Individuals with Spinal Cord Injury

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Abstract

INTRODUCTION Specialized interprofessional primary care-based Mobility Clinics represent a significant opportunity to improve spinal cord injury (SCI) care, however, there are no gold standards to inform team composition. This study explored the ideal mix of skill sets and competencies for Mobility Clinics.

METHODS Twelve individual interviews were conducted with primary care and rehabilitation clinicians and individuals from professional associations representing nurses, nurse practitioners, social workers, physical therapists, occupational therapists, physicians, physician assistants, and recreation therapists. Participants received briefing notes on the Mobility Clinic care model and roles of each discipline within this model. Questions were asked related to discipline specific scope of practice, ideal team composition to meet consumer needs, and opportunities for expanding and sharing discipline roles.

RESULTS Discipline specific role descriptions within the Mobility Clinic were perceived to be comprehensive and accurate; in some cases additional activities were suggested for some disciplines. Suggestions were made for cross discipline sharing of tasks (e.g., some social worker activities can be assumed by occupational therapists, OT or nurse practitioners, NPs). Recommendations for core team members included a physician, nurse, OT, exercise therapist, and a representative from a SCI-specific community service, with linkages to specialists or interprofessional rehabilitation teams for consultation support. Potential roles were described for disciplines not currently represented in this care model (nurse practitioners, physiotherapists, physician assistants, recreation therapists).

CONCLUSION As there exists a critical balance of optimizing care and availability of resources, this study informs appropriate Mobility Clinic team composition, adaptable within the context of existing human resources.

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Implications for Interprofessional Practice

- Interprofessional primary care for individuals with spinal cord injury requires a mix of competencies and experience aimed at addressing medical, physical, psychological, and social care needs.
- Depending on availability of human resources, these care needs can be met by a variety of health professionals; overlap in some competencies may allow some disciplines to substitute for others where human resources are limited.

Introduction

Mobility impairment is the inability to ambulate in a normal or usual manner, particularly without the use of an assistive device such as a cane, walker, or wheelchair and can be affected by neurologic conditions such as spinal cord injury (SCI), multiple sclerosis, and stroke, and musculo-skeletal conditions such as arthritis or general frailty. Although individuals with mobility impairments have similar basic health care needs as the general population, adults with physical disabilities are less likely to receive the same level of basic and preventative care (Iezzoni, McCarthy, Davis, & Siebens, 2000). They are at high risk for falls (Chang & Ganz, 2007) and experience decreased independence in activities of daily living (Hasegawa et al., 2008) and a variety of co-morbid health conditions such as depression, obesity, and diabetes (Chen, Divivo, & Jackson, 2005; Krassioukov, Furlan, & Fehlings, 2003; McDermott et al., 2005; Sharts-Hopko & Sullivan, 2003), plus significant secondary complications (e.g., pressure ulcers, spasticity, neurogenic bladder). Environmental barriers, such as the lack of wheelchair ramps, inadequate space for mobility aids or to transfer to an examination table and lack of appropriate equipment such as height-adjustable examination tables and grab bars, challenge access to health care for individuals with mobility impairments (Guilcher et al., 2010; Hwang et al., 2009). Other significant barriers include limited health professional knowledge of the care needs of individuals with mobility impairments (McColl et al., 2008) and health system disincentives for providing care to this patient population (DeJong, 1997; Marks & Teasell, 2009). As a consequence of these barriers many individuals with mobility impairments access emergency departments for primary

health care (Guilcher et al., 2010). There is much support for improving access to care for individuals with mobility impairments through integrated care models that include community-based primary care and interprofessional care and that provide capacity building for health care professionals (Hwang et al., 2009; McColl et al., 2006).

In Ontario, Canada, health care reforms over the past 10 to 15 years aimed at improving accessibility and quality of care have resulted in the development of new models of primary care, replacing the predominant solo practitioner care model with more team-focused models. In general, primary care reformation in Ontario has sought to develop a system of care that promotes accessible, safe, effective, efficient, equitable, coordinated, and person-centred care (Aggarwal & Hutchison, 2012). One of these new care models is the Family Health Team (FHT), which consists of physicians, nurses, pharmacists, social workers, and other allied health professionals working together to meet the primary health care needs of their community (Rosser, Colwill, Kasper, & Wilson, 2010; Hutchison, Levesque, Strumpf, & Coyle, 2011). These teams aim to provide interdisciplinary, comprehensive, coordinated, and integrated primary care and in some areas of the province provide specialized services to meet the health care needs of unique populations such as the homeless and Aboriginal and Mennonite communities (Ontario Ministry of Health and Long-Term Care, 2016). Across the province, FHTs vary in size (number of medical practices and patient base), composition of health professionals, structure (single vs. multiple site models), and governance (Howard, Brazil, Akhtar-Danesh, & Agarwal, 2011). There are currently 184 FHTs operating across 200 locations in Ontario and

serving over 3 million patients.

While primary care-based models of care have been established for managing a number of health conditions such as dementia (Lee, Hillier, Molnar, & Borrie, 2017) and diabetes (Arevian, 2005), the implementation of care models focused on SCI or physical disabilities has been largely neglected (Ho, 2016). Existing care models for SCI typically involve the integration of both primary and speciality or rehabilitative care (McCull et al., 2009; U.S. Department of Veterans Affairs, 2017; Stillman & Williams, 2014), with preventative health activities (annual examinations, immunizations) being managed by primary care providers and more complicated health activities (colonoscopy, secondary complications) being managed by specialists, even though some of these activities may usually be in the domain of primary care. It is not clear the extent to which these types of care models are truly integrative or simply reflect division of health care tasks across types of care providers. Moreover, there is little evidence of the effectiveness of these types of care models.

The Centre for Family Medicine (CFFM) FHT has established a primary care-based Mobility Clinic with the aim of enhancing quality of care and improving health outcomes of adults with mobility impairments by increasing access to care and building capacity among health professionals to provide quality care for these patients within a primary care setting. The CFFM is a multi-site FHT in Kitchener, Ontario, Canada with 19 family physicians serving a patient base of over 30,000 patients. Located in the Waterloo Wellington region of south western Ontario, this geographic area is largely urban, 11% being rural, and has a population base of approximately 79,000 (Waterloo Wellington Local Health Integration Network, 2017). While the Mobility Clinic focuses predominantly on SCI, referrals are also accepted for individuals with other physical disabilities (e.g., multiple sclerosis, stroke, arthritis).

There is currently interest in expanding the CFFM Mobility Clinic model of care to other FHTs across the province. Interprofessional resources across FHTs vary dependent on the needs of the community and availability of human resources. Team composition is a critical factor in the successful delivery of appropriate and timely interprofessional care (Nancarrow et al., 2013; Lee, Hillier, & Weston, 2014). As there exists a

critical balance of optimizing care and the availability of resources, it is necessary to have an understanding of the skill set and competencies required to meet the primary health care needs of individuals with SCI in order to develop a clinic model that can be applied and adapted to other primary care settings. As there are no similar primary care-based clinic models, there are no gold standards to inform ideal team composition. The purpose of this study was to explore the ideal mix of skill sets and competencies for a primary care-based Mobility Clinic in order to enable optimal health and wellness for individuals with SCI and to support the ultimate goal of full community integration and social participation. This study aimed to describe an appropriate interprofessional team composition for a Mobility Clinic, within the context of existing human resources and exploring potential roles for disciplines not currently included within the CFFM Mobility Clinic. This study addresses two key research questions: 1) What health care disciplines are most essential to meet the care needs of individuals served in Mobility Clinics? 2) What skill set and competencies are required by each discipline to provide optimal care in Mobility Clinics?

Description of the Mobility Clinic

The CFFM Mobility Clinic is led by a family physician, working with an interprofessional team including a nurse, musculoskeletal / exercise therapist, occupational therapist, project manager, administrative assistant, and a social worker and pharmacist as needed. A rehabilitation specialist is available via electronic consultation to discuss challenging questions or concerns that arise within the clinic team. Within this clinic, team members work collaboratively to administer a comprehensive assessment that includes a complete medical history, physical examination, social and environmental assessment, cognitive and mental health assessment, medication review, and mobility assessment including balance, gait, falls, ambulation, use of assistive devices, and transfers. Assessments cover items of general health and prevention, as well as issues that are of particular concern for individuals with SCI, including: bowel, bladder, and sexual health, pain, skin, mood, psychosocial well-being, medications, and equipment needs. When applicable, attention is also paid to family caregivers, assessing their role in the patient's ability to self-manage their care and the potential for caregiver stress or burden. The interpro-

professional team works collaboratively to develop a plan of care based on the assessment results and goals of the patient. The Mobility Clinic provides a fully accessible physical environment including adequate space to accommodate movement with a wheelchair, access to van-accessible parking, wheel chair accessible scale, height-adjustable examination tables, a mechanical lift to assist with transfers, and portable examination equipment. Home visits are arranged for individuals as needed for added flexibility and accessibility to health care. The clinic mission statement is: to deliver quality primary care, education, and research for individuals with spinal cord injury and those who support them.

Evaluations of this clinic model have concluded that this model is a viable and effective way of improving access to quality care to patients with SCI and other physical disabilities (Lee, Milligan, Hillier, & McMillan, 2013; Lee, Milligan, Hillier, & McMillan, 2014). Patients expressed satisfaction with having access to a service that understood their needs and could provide preventive care that they could not previously access. Similarly, referring family physicians reported satisfaction with the clinic as an opportunity to provide the time and expertise needed to manage complex care issues of their patients, given their time constraints in busy family practice and limited knowledge given that SCI is a low volume condition (McMillan, Lee, Milligan, Hillier, & Bauman, 2016).

A strength of this team-based care model is the flexibility of roles; each team member is able to perform the integral aspects of the assessment (review patient goals and history), while also completing discipline specific assessments consistent with their professional scope of practice. Table 1 summarizes the role of each team member within the clinic model. Once all assessments are complete the team gathers to discuss findings and develop patient-focused recommendations. Within these team discussions, each team member contributes to the decision-making process so that the team works in a synergistic, collaborative, and integrated manner to develop an effective care plan to meet patient needs. This is in contrast to some multidisciplinary teams in which each team member works independently, with minimal collaborative interaction, to address specific patient needs (D'Amour, Ferrada-Videla, San Martin, & Beaulieu, 2005).

Literature Review

Interprofessional care approaches are aptly suited for the rehabilitation and primary care of individuals with SCI and other disabilities given the complex nature of their care needs (Pritchard, 2013; McColl, Jarzynowska, & Shortt, 2010; Donovan, Francis, Muter, Nevin, & Warren, 2017). Most of the literature on interprofessional teams focuses on team functioning, collaboration, and impact on health outcomes. Within interprofessional teams, members work together to meet the needs of the patient population based on each disciplines' expertise and experience, with levels of collaboration ranging from consultation to integrated and coordinated intervention processes (Suter et al., 2008; Sicotte, D'Amour, & Moreault, 2002). The effectiveness of interprofessional teams has been attributed to a number of factors, including members' willingness to cooperate and collaborate, knowledge and respect for one another's role and scope of practice, and organizational support for this care model (Goldman, Meuser, Rogers, Lawrie, & Reeves, 2010; Howard et al., 2011; Vyt, 2008). There is much support for interprofessional teams as an efficient and effective model for providing high-quality health care (Borrill, West, Shapiro, & Rees, 2000; Pullon, McKinlay, Stubbe, Todd, & Badenhorst, 2011), particularly the management of chronic conditions (Cioffi, Wilkes, Cummings, Warne, & Harrison, 2010). Generally, there is growing evidence that collaborative interprofessional practice can optimize health services and improve health outcomes (Zwarenstein, Goldman, & Reeves, 2009; Naylor, Griffiths, & Fernandez, 2004; McAlister, Stewart, Ferrua, & McMurray, 2004; World Health Organization, 2010).

Interprofessional teams have been developed to manage a variety of health conditions including diabetes (Arevian, 2005), depression (Liu et al., 2003), chronic obstructive pulmonary disease (Adams et al., 2007), and seniors' issues such as elder abuse (Baker & Heitkemper, 2005), fall prevention (Baxter & Markle-Reid, 2009), dementia (Lee, Weston, & Hillier, 2013; Lee et al., 2014), and primary care (Moore et al., 2012; MacAdam, 2008). Much has been written on the characteristics of effective interprofessional teams such as processes for collaboration, organizational culture, structures and support, effective communication, team development, mutual respect and trust, and willingness to work together (San Martin-Rodriguez, Beaulieu, D'Amour, &

Table 1. *Mobility clinic team member roles. Where disciplines appear in brackets activities could be assumed by these other disciplines.*

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|---|
| <p>Family Physician: The team physician is responsible for:</p> <ul style="list-style-type: none"> • conducting a medical history review (current, past), physical examination, medication review, • identifying and ordering appropriate medical tests/ further investigations and prescriptions, • reviewing the SCI Patient Toolkit (a tool completed by patients prior to appointment to identify patient concerns regarding their health and well-being), • reviewing the SCI Primary Care Flowsheet, complemented by the SCI Patient Toolkit; a tool completed by team members consisting of various care categories and prompts for care elements to be completed in the assessment (Milligan, Lee, Hillier, Slonim, & Craven, 2018), • reviewing assessment findings with team and working collaboratively with team members to develop a care plan, • communicating with patients regarding assessment findings and care planning, • documentation: charting, summary and consult notes for external referrals, and, • monitoring and acting on test results when received. |
| <p>Musculoskeletal/ Exercise Therapist (M/ET): The team M/ET possesses a specific set of skills to assess function, prescribe exercise, and maintain patient-centered, evidence-informed interventions in a spinal cord injury (SCI) population. The M/ET aligns prescription of exercise with SCI Action Canada guidelines (SCI Action Canada, 2011), or may suggest treatment for specific conditions (tendonitis). This role can originate from a variety of professional backgrounds (chiropractor, physiotherapist, kinesiologist). The M/ ET is responsible for:</p> <ul style="list-style-type: none"> • conducting a history and physical examination to develop an understanding of the patient’s physical condition (areas of strengths, weaknesses), • collaborating in team discussions regarding their assessment and recommendations, • working with clients to provide instructions on specific exercises to be done at home, [Occupational Therapist] • providing recommendations on suitable equipment, as needed, with suggestions on where and what to purchase, within the patient’s budget, [Occupational Therapist] and, • monitoring client progress on a regular basis. |
| <p>Nurse: In the assessment process, the team nurse is responsible for:</p> <ul style="list-style-type: none"> • reviewing the SCI Patient Toolkit, • completing discipline appropriate aspects of the SCI Primary Care Flowsheet [immunizations, vital signs (blood pressure, heart rate, weight), social characteristics, skin health, mobility function, and pain)], and, • collaborating in team discussions regarding their assessment and recommendations, <p>At follow-up appointments the nurse is responsible for:</p> <ul style="list-style-type: none"> • completing vital signs [Occupational Therapist] • obtaining the history regarding specific patient concerns, • providing a liaison function, alerting the patient to other team members that will be seeing them, • ensuring all necessary tests are ordered and requisitions are faxed to appropriate services, and, • informing the patient about the outcome of tests as relayed by the physician. |

Table 1 Continued. *Mobility clinic team member roles. Where disciplines appear in brackets activities could be assumed by these other disciplines.*

Occupational Therapist (OT): The team OT is responsible for:

- reviewing the SCI Patient Toolkit, obtaining patient history,
- completing discipline appropriate aspects of the SCI Primary Care Flowsheet as well as complete many aspects of the SCI Primary Care Template.
- providing direct assessment and care for patients; interventions are individualized, client-centered and goal-oriented and include:
 - re-assessment of transfers,
 - seating and mobility assessments,
 - recommendations about home modifications and equipment,
 - completion of funding applications for equipment (i.e. Assistive Devices Program),
 - addressing functional goals related to managing activities of daily living, work and leisure activities, [Social Worker]
 - advocacy and system navigation, and, [Social Worker]
 - education for patients and caregivers. [Social Worker]
- conducting in-home assessments, as needed.

Social worker (SW): The team SW assists people with SCI and their families to manage the psychosocial impact of SCI. The SW is responsible for, as relevant:

- completing a psychosocial assessment, [Physician, Occupational Therapist, Nurse]
- collaborating with the team on the patient-centred care plan,
- providing advocacy, information and education, [Occupational Therapist]
- assisting with practical tasks such as income maintenance, [Nurse]
- assisting with environmental factors that affect people with SCI such as personal care and housing, [Nurse]
- assisting clients with a number of problems in living:
 - problems in coping (personal, family and work life), [Nurse]
 - mood and anxiety disorders, [Nurse]
 - grief and loss, [Nurse]
 - caregiving, [Occupational Therapist - assessment of caregiver stress]
 - conflict or safety in the home adapting to medical and chronic health problems including end of life care, fragile support system, system navigation, and difficulties goal-setting, problem-solving, negotiating support and future care planning. [Occupational Therapist, Nurse]

Ferrada-Videla, 2005; D'Amour & Oandasan, 2005; D'Amour et al., 2005; Lemieux-Charles & McGuire, 2006; Oandasan & Reeves, 2005; Heinemann & Zeiss, 2002; Shortell et al., 2004) and competencies for inter-professional collaboration have been developed (Canadian Interprofessional Health Collaborative, 2010).

There is some evidence that team size and composition may impact effectiveness and patient outcomes associated with interprofessional teams. While some studies have found no relationship between team size and team effectiveness as related to patient care, health care practice, or efficacy (Poulton & West, 1999; Shortell et al., 2004), other studies have found that larger team sizes are associated increased innovation (Borrill et al., 2001) and better health outcomes (Lemieux-Charles & McGuire, 2006). A review of the effectiveness of health care teams found that the inclusion of specific professions impacted specific outcomes such as wait time for service, documentation, response time to crises, and team functioning and concluded that diversity in skill and expertise contributed to higher levels of innovation as each member brings a different perspective to problem-solving complex health issues (Borrill et al., 2001). Consistent with this, others have noted that team effectiveness can be increased and patient care improved by increasing the range of competencies with professional mix within a team (Tannenbaum, Salas, & Cannon-Bowers, 1996; Lemieux-Charles & McGuire, 2006). In these studies, the health care teams were broad primary care teams, similar to FHTs; less is known about the impact of team composition for smaller, sub-specialty teams within these larger health teams and the ideal membership for these disease-specific teams.

Team composition is usually based on patient care goals, which determine which team members are involved with specific patients; interprofessional teams generally provide an appropriate mix of team skills and competencies to meet patient care goals (Nancarrow et al., 2013). Related to interdisciplinary acquired brain injury teams, it has been suggested that team membership varies based on the patient population and age, type of impairment, stage of recovery and specialized training of team members (Joint Committee on Inter-professional Relations Between the American Speech-Language-Hearing Association and the American Psychological Association, 2007). Team membership is also influenced by availability of human resources and

the specific model of care implemented (Wilberforce et al., 2013). Although condition specific interprofessional teams may strive toward common goals, discipline composition across teams tend to vary. For example, the composition of primary care-based memory clinics varies based on available resources, from a minimum of one physician and one nurse, with some clinics including varying numbers of social workers, pharmacists, occupational therapists, care navigators, mental health counsellors, and representatives of the local Alzheimer Society (Lee et al., 2014). Other studies examining team-based models for specific health conditions have found variability in team composition (Health Quality Ontario, 2014; Suddick & De, 2006; Wilberforce et al., 2013), though it is not clear why this variability exists. Recently, health human resource guidelines were published for staffing multidisciplinary cystic fibrosis healthcare teams, describing the ideal team composition, outlining the specific role of each team member and minimal staffing requirements for each discipline based on the size of the patient population served. As no such standards exist for the Mobility Clinics, this study sought to describe potential team composition adaptable to other settings within the context of available human resources.

Methods

A qualitative (interview) methodology was employed in this study. This study was granted exemption from the Hamilton Integrated Research Ethics Board, McMaster University as a quality improvement initiative.

Participants

Criterion-based sampling was used to identify 14 key informants representing family physicians, allied health professionals working with individuals with mobility impairments and spinal cord injury and representatives from professional associations representing various health disciplines. Snow-ball sampling was used to identify additional key informants and disciplines to be represented; this generated four additional key informants. Participants represented disciplines currently included in the Mobility Clinic care model as well as those not currently represented, some of whom were recommended by interview participants (e.g., physiotherapists, nurse practitioners, physician assistants, dietitians, recreation therapists).

A total of 12 participants were recruited (66.7% response rate) representing primary care (N=2; physician, physician assistant) and rehabilitation clinicians (N=5; occupational therapist, two physiotherapists, nurse recreational therapist) and representatives from professional associations representing nurse practitioners (N=1), social workers (N=1), physical therapists (N=1), physician assistants (N=1), and FHTs (N=1). All but one of the professional association representatives were also working in clinical practice, all of whom had experience working with individuals with mobility impairments and/ or spinal cord injury; four participants had clinical practices that focused primarily, or solely, on spinal cord injury. All of the participants were recruited via e-mail.

Data Collection

Prior to the interview, participants were provided with a briefing note that described the Mobility Clinic model of care (mission, vision, function, care processes) and roles of each of the disciplines within this model and were given several published papers on the Mobility Clinic as supplemental material; they also received the interview questions in advance to review. In the interview, participants were asked to reflect on the Mobility Clinic model and role descriptions from the perspective of their own discipline to consider ideal team membership competencies. The questions covered in the interview appear in Table 2.

All interviews were via telephone by a trained research associate (LMH), who conducted all of the interviews to ensure consistency. All of the interviews were audio-recorded and transcribed. The interviews ranged in length from 18 to 55 minutes, with an average of 29 minutes.

Data Analysis

Consistent with a qualitative descriptive design, interview transcriptions were analysed using qualitative content analysis, which aims to organize, categorize and summarize the informational contents of narrative text and provides a deep understanding of the phenomenon being studied (Sandelowski, 2010; Patton, 2015). Responses to study questions aimed at understanding each discipline's contribution to SCI care were analyzed

to develop a descriptive summary. Responses to other questions were categorized and contrasted to create a summary of responses to identify recurring themes in the data without prior assumptions (Krueger & Casey, 2000). This analysis was conducted by one of the authors (LMH) and then reviewed by a second author (LD), who also reviewed the transcripts to identify and finalize key themes generated by the analysis (Braun & Clarke, 2006). Study rigor was further ensured with an audit trail of decisions related to participant recruitment, data collection, and analysis, as well as overall feedback from the entire research time on the analysis and study findings and conclusions.

Results

Roles of Various Disciplines within the Mobility Clinic Care Model

Interview participants perceived the role description of their discipline within the Mobility Clinic to be comprehensive, appropriate, and accurate, reflecting discipline scope of practice. In addition, some suggested additional activities to consider within the Mobility Clinic. A social worker suggested that the team social worker could also assume advocacy functions, advocating locally for accessible communities and social justice/ equity.

"I thought maybe a few pieces around advocacy for clients that had mobility issues and challenges with navigating about, out and about in a community at large and I know that's part of Waterloo's age friendly community designation, making Kitchener-Waterloo actually accessible and friendly for all ages and level of disability and that would include your clientele. So I think there might be a role for social work in that area, in community development and social advocacy and social justice around inequality." [KSID 1]

It was also suggested that with specialized training nurses could assume a greater role in managing complicated wound conditions, reoccurring secondary complications (UTI), mental health issues, and patient education, which was perceived as extremely important for patients with SCI transitioning from rehabilitation programs to the community.

"I really think that there's a huge component of health

Table 2. Interview questions***Discipline specific scope of practice within the Mobility Clinic***

- Generally, what do you think about the description of your discipline within the Mobility Clinic? Do you think the functions and roles expected of your discipline are accurate? Are they within the scope of practice for this discipline?
- Do you have any concerns about the expectations for your discipline within this care model?

Ideal Mobility Clinic team composition

- Given your knowledge and experience providing care to individuals with mobility impairments and/ or spinal cord injury, what do you think is the ideal team composition for Mobility Clinics?
- Which disciplines do you think are the most essential for Mobility Clinics to be effective?
- At a minimum, which disciplines should be included as part of a core team, and which could be accessed as needed?

Potential opportunities for expanding and sharing discipline roles within the clinic model

- Are there opportunities for expanding your discipline's role within the clinic model?
- Are there any functions or activities associated with other disciplines that you think could be assumed by your discipline? Likewise, are there functions or activities associated with your discipline that could be assumed by other discipline (for example, if your discipline was not available, which discipline(s) are best suited, if at all, assume specific functions or activities?)

Knowledge needed by specific disciplines to function optimally within the Mobility Clinic model.

- Considering the curriculum that has been offered as part of the professional training for your discipline, is additional education or training needed for your discipline to function effectively within a Mobility Clinic?

teaching that the nurse can do if she has that background, and that is just so crucial. Patients go through rehab and then they come out and they go in to the community and that's really when they start realizing some of the difficulties they're having. So really that component of being able to educate is huge... I think it would be ideal to have someone that has the wound care expertise for pressure ulcers, which are always a problem for that population and definitely if you could incorporate that as part of it would be a real plus for [the Mobility Clinic]." [KSID8]

Similarly, it was noted that occupational therapists have the knowledge and skills to play a greater role in pain assessment and management related to mobility and can conduct home visits to ensure that any mobility aids that are recommended are appropriate for the specific home environment in which they are used. Moreover, some occupational therapists have specialized training in mental health counseling, which would be relevant for working with the SCI population.

Cross-Discipline Sharing of Roles

Participants noted that within each discipline there are

often areas of specialty so that depending on the specific skills of the health care providers working within the Mobility Clinic, there may be opportunities for greater expansion of roles. For example, a social worker noted that she specializes in couple therapy, which may be of particular relevance to those with SCI as the injury can have a significant impact on marital relationships. Similarly, some occupational therapists have some expertise in musculoskeletal assessment, which would be valuable within the Mobility Clinic model.

Several overlaps in competencies across disciplines were noted, with suggestions that some clinic services could be assumed or shared across disciplines. It was noted that occupational therapists can prescribe exercise programs, so they can assume some activities of the musculoskeletal/ exercise therapist role and can assume some basic health assessments (vitals) conducted by nurses. Both social workers and occupational therapists noted the overlap in their roles, related to advocacy, system navigation support, assessing caregiver stress, assessment of activities of daily living, psychosocial assessment, and patient and caregiver education. Related to basic psychosocial assessments, it was sug-

gested that most disciplines on the clinic team would have the skills required to complete these assessments. It was also noted that nurse practitioners could assume some of the activities usually assumed by social workers related to accessing funding for community services and assistive devices.

“A lot of the social worker role could be part of an occupational therapist role, so we’d look at the physical and the emotional elements and how they impact on a person’s day to day functioning...you know a big part of an OT’s job is working in mental health specifically, so completing a psychosocial assessment, advocacy, information, education, looking at sort of vocational role, looking at advocacy information for looking at income maintenance would be something that vocation or worker role, definitely looking at environmental factors that affect people.” [KSID4]

“If you’re properly trained and there’s an [psychosocial] assessment that is kind of a general overall assessment, I definitely think social work could do that. I think any member of the team should be able to do that.” [KSID1]

“[Nurse Practitioners] are good at building relationships with patients and we generally are knowledgeable around the funding mechanisms for patients and understanding that, but not at the level of a social worker for sure, so we could do some of that work potentially.” [KSID10]

Ideal Mobility Clinic Team Composition

Generally, there was much support for development of multidisciplinary teams for the optimal management of mobility issues and SCI, as reflected in the following comment.

“For 12 plus years I had that kind of a team [multidisciplinary], that I felt gave a really good holistic interprofessional approach to client care and when we’re dealing with some people that have mobility issues, it’s been my experience, all of these things [wound and dietary issues] come to the forefront.” [KSID1]

Participants most frequently suggested that core team members consist of a physician, nurse, occupational therapist, and exercise therapist, a role which could be assumed by a physiotherapist, occupational therapist, chiropractor or kinesiologist. It was also suggested that

the team should include a representative from SCI Ontario, a community-based agency providing advocacy, peer support and service navigation support, or community service navigators to assist patients to access community-based support services. Social workers, pharmacists, dietitians, were also identified as important team members though some indicated that these could be involved on an ‘as needed’ basis. It was also suggested that the clinics could be nurse practitioner-led. To facilitate access to comprehensive care, it was suggested that Mobility Clinics establish linkages/partnerships with a number of other specialists and services that are relevant to the SCI population, such as: prosthetic/ orthotic services, chiropody/ podiatry, registered dietitians/ nutritionist, sleep clinics, and specialists for at-risk conditions such as diabetes and respiratory illnesses.

“Definitely I would say like a prosthetics, orthotics link for sure is really important. With spinal cord injury even nail care, giving them: ‘Oh this is a chiropodist or a podiatrist that you could go to for nail care’, because you know, ingrown toenails are a huge issue in terms of causing autonomic dysreflexia. Having a nutritionist, some kind of a link with a nutritionist because a lot of times it’s hard for people to exercise and there’s a lot of weight gain which makes everything more difficult. Having some kind of a link with a diabetes specialist because after you have a spinal cord injury you can have an increased chance of then developing diabetes. Having a link with a respirologist. A lot of times people can have sleep apnea so you know will they need a sleep study or that kind of thing, so having a link of where to send that person.” [KSID7]

Additional Disciplines for Inclusion in the Mobility Clinic Care Model

Individuals representing disciplines not currently represented in the CFFM Mobility Clinic (i.e., physiotherapists, nurse practitioners, physician assistants, dietitians, recreation therapists) suggested potential roles for their discipline within this care model, some of which were also suggested by other interview participants. Suggested roles for these disciplines are summarized in Table 3.

It was noted that physiotherapists, who have only recently been introduced into FHTs in Ontario, are a relatively new role in primary care settings that could

Table 3. Interview participants' recommendations for the inclusion of additional disciplines and potential roles within the Mobility Clinic model of care.

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| <p>Physiotherapists can:</p> <ul style="list-style-type: none"> • assume the role of musculoskeletal/ exercise therapists, • conduct physical function tests (standardized tests, passive range of motion goniometry) • assess mobility and functional goals related to activities of daily living • assess spasticity • contribute to treatment planning- recommendations for exercises or splints that would be implemented in-home by a community-based physiotherapist • assume many of the tasks completed by occupational therapists: transfers, home modification, equipment, functional goals, advocacy, system navigation, seating assessments, funding applications, case management support • able to screen for depression, conduct pain assessments, support self-management with goal setting/ planning. |
| <p>Nurse Practitioners can:</p> <ul style="list-style-type: none"> • prescribe required medications (with the exception of controlled medications) • order a broad range of diagnostic tests • admit, treat and discharge patients in hospital • refer to specialists • respond to rapid access needs. |
| <p>Dietitians can:</p> <ul style="list-style-type: none"> • address swallowing issues • teach efficient cooking methods • recommend diet to maximize wound healing and special diets for bowel and renal issues. |
| <p>Physician Assistants can:</p> <ul style="list-style-type: none"> • conduct home visits, mental health assessments, and patient education • conduct full medical history and physical assessments, including assessing gait and range of motion • arrange referrals for laboratory testing, imaging, specialists and community services; • prescribe required medications (with the exception of controlled medications). |
| <p>Recreation Therapists can:</p> <ul style="list-style-type: none"> • assist with system navigation • assist with physical navigation in the community – using transportation services, accessing community programs and services that have been recommended • assist with safety planning. |
| <p>Pharmacists can:</p> <ul style="list-style-type: none"> • conduct medication reviews to assess for potential medication interactions and suggest alternatives. |
| <p>Assistive Device Program Authorized Provider can:</p> <ul style="list-style-type: none"> • assess for and recommend appropriate assistive devices to meet patients' unique needs • facilitate access to Assistive Device Program funding for assistive devices • be an occupational therapist or physiotherapist. |

potentially play an important role in Mobility Clinics. They were described as uniquely positioned to understand mobility in relation to disability, well trained to work with individuals with SCI, and competent to assume many of the activities conducted by occupational therapists as summarized in Table 3.

“When I look at the occupational therapist role, because we know not all teams have an occupational therapist, I would certainly argue that a number of these pieces would be very relevant to the physiotherapist.... if there’s not an occupational therapist they could certainly be filled by a physiotherapist quite easily.... Where I feel like physiotherapists are uniquely positioned is in relation to the exercise prescription and transition of mobility and function.” [KSID3]

It was noted that primary care nurse practitioners can play an important role in Mobility Clinics, being particularly relevant in areas underserved by physicians, such as rural and remote areas. Nurse practitioners were described as being trained to manage primary care and chronic disease management and thus well suited to managing the care needs of individuals with SCI. Moreover, they are able to work in ways that physicians cannot because of funding structures. It was noted that physicians’ fee for service funding model does not lend itself well to spending a lot of time with patients; NPs are funded differently so are able to spend more time with patients.

“I think if there is a skillset and an interest then, my experience has always been a bit both, a physician assistant and a nurse practitioner have been well received and sometimes have the time in their schedule to be able to dedicate different ways than the physicians.” [KSID3]

“The nurse practitioner could be an alternative to a physician or an adjunct too so what the nurse practitioner could do is be the primary contact and consult and collaborate for issues that were beyond knowledge skill and judgement...the first visit, the consultative visit might be with a physician and the nurse practitioner together let’s say, and then from then on most of the client’s issues could probably be addressed by the nurse practitioner and they might need to consult if it’s a particularly complex issue or something that is beyond their scope.... I think nurse practitioners provide a great approach to care. We are nurses first so our primary goal is building relationships

and understanding the experience of illness, but with access to greater knowledge and greater access to scope of practice to be able to meet client’s needs better than we did previously.” [KSID10]

It was also suggested that a dietitian could contribute to supporting patients with SCI as related to ongoing rehabilitation and integration into the community and enhancing health outcomes.

“I would also suggest that you should probably have a dietitian...I was thinking there’s often times a lot of issues around swallowing, changed diet, perhaps changing the cooking methods so that it’s easier for someone with mobility issues to get a meal on the table, still getting all of the nutrients that are going to be needed, but doing it in the most efficient way and occupational therapy would have a role in that as well. But I just often think that dietitians would know about quality proteins that are needed for perhaps if there’s wounds and the best diet to maximize wound care and healing I think would be essential there.” [KSID1]

A role for physician assistants within the Mobility Clinic model was also recommended. Although physician assistants are trained as generalists, many specialize with experience working with special populations. It was noted that while physician assistants have a broad scope of practice and could potentially assume some of the activities assumed by physicians, exercise therapists and social work, this role was not recommended as a replacement for any of the existing roles within the clinic as these roles are generally more specialized than physician assistants. Physician assistants were described as ideally suited for multidisciplinary teams as they are typically employed in team models. Similar to nurse practitioners, they were described as particularly suited for chronic disease management as they are able to spend extended time with patients that is not practical for physicians.

“They [physician assistants] can be more of a sort of a right hand for the physician... they’re pretty capable of doing very thorough assessments. Secondly they’re also very good at...navigating community resources, and thirdly I think ...the other big key is that they’re able to be prescribers, which even in Mobility Clinic situations that’s also an important part that that can be something that can be offloaded by the physician so they don’t have to

write all the prescriptions and things like that.” [KSID6] Recreation therapists were recommended as an opportunity to assist individuals with SCI to integrate successfully into the community, particularly following discharge from rehabilitation, assisting to manage some of the social determinants of health (access to education, employment, shopping and social inclusion).

“I think they [recreation therapists] could play a huge role in that a lot of times for medical clinics, they’re looking at more medical issues but it’s the whole patient. Are they social isolated? Able to get out? Are they able to access information? Do they know what’s even in the community that they could do? Its integration, community problems, its other parts of the person and I think a lot of our patients they don’t really know. A lot of the focus is on physical here [rehabilitation program] and then when they go home they realize: ‘Yea, I might be able to make myself something to eat, I might be able to get out and about, but I have no idea how to do that, and I have no idea what’s accessible and I have no confidence to go out and do it on my own’... to be identified through the team that there’s a need, that this person is socially isolated, or has no knowledge or skill to access community activities and then do an assessment to learn their interests, needs and then doing a plan to get them out in the community to hopefully give them skills that they could independently access on their own or with family.” [KSID12]

Interview participants also suggested that that pharmacists would be useful on the team to assess for potential medication interactions and alternatives, including off-label use, to manage comorbidities such as depression, pain, and spasticity.

“I guess my fortune was when we were at the family health team the pharmacists really were able to think about medication interactions, really looking at are there alternatives to certain medications? Especially if we’re thinking around potential comorbidities like depression, other mental health and pain, and spasticity management sometimes... a physician or the nurse practitioner may not have all the current understandings of the new medication or some of the off label use and that’s where a pharmacist really has been instrumental in trying to reconcile some of that. So I would say more often than not I often saw many complex co-morbid or multi-morbid situations the fact that the physician referring to the pharmacist for recommendations.” [KDID3]

The inclusion of an Assistive Device Program (ADP) Authorized Provider on the clinic team was recommended to assess, recommend, and trial appropriate assistive devices (walkers, wheelchairs) and to assist in completing the paperwork for ADP funding. (In Ontario, the ADP provides consumer centered support and funding to individuals with long-term physical disabilities who require, as deemed by an ADP authorized health care professional, personalized assistive devices.) Occupational therapists and physiotherapist can potentially become ADP Authorized Providers; in the CFFM Mobility Clinic, the occupational therapist is an ADP Authorized Provider.

Knowledge Requirements

When asked whether their disciplines would require additional education or training to function effectively within the Mobility Clinic model, considering the curriculum offered as part of their professional training, almost all interview participants commented that additional SCI specific knowledge and experience was required for work within the Mobility Clinic. It was suggested that generalist preparation or new graduates would not be appropriate given the unique and often complicated health care needs of individuals with SCI. Given the paucity of post-graduate training opportunities specific to mobility issues and SCI, experience, garnered through clinical practice and mentorship were recommended for capacity building.

“I would never put a new grad [physiotherapy] in there... I think absolutely [experience] is necessary, absolutely it’s necessary... You do need to have a fairly high level of expertise and I don’t know, just general competency even in terms of navigation and education and with other members of the team, family members and just a whole lot of different skills that you kind of need so I think that that’s kind of not a new grad skill.” [KSID9]

“An occupational therapist, either a physical therapist or a nurse that has a lot of training in complicated transfers because to do the assessment you’ve got to be able to transfer the person out of whatever they came in with, on to a table, they have to be examined, you have to look at pressure spots, whatever, so you need at least 2 people who have that sort of training because sometimes it’s a 2 person transfer...Most occupational therapists don’t

graduate with a lot of confidence about gait and therefore wouldn't necessarily have the confidence to graduate and prescribe some of the more complicated walkers. Like the basic Rollator, that's easy. Requires very little planning and it's very straightforward. But when you get in to some of the more complicated balance conditions and a history of complicated falls and clients with Parkinson's and that sort of thing, that's not as straightforward as it might seem." [KSID11]

Related to capacity building, access to a physiatrist and rehabilitation interprofessional team were recommended to support Mobility Clinics (consultation support, capacity building, shared care approach).

"I would say definite connections to any of the specialized rehab sites that were in the vicinity... would be really critical in my mind and having that shared care with the physiatrist even. I would see linking up with the physiatrist, would be your specialty experts a spinal cord injury team situated in a specialized rehab would support these primary care clinics. So an inter-professional team supports the inter-professional team." [KSID4]

Discipline-specific competencies were recommended. For social workers, it was suggested that they have training in medical or health care social work, preferably Master's level, with an understanding of complexity and need for an interprofessional approach. Although it was noted that occupational therapists and physiotherapists are well trained to manage mobility and SCI-related issues, they may require additional training on more complex issues (e.g., complex seating, assistive devices). As SCI is a low prevalence condition, most physicians have had little exposure to it in their training and medical practice, thus it was suggested that physicians working in a Mobility Clinic would require additional continuing medical education and capacity building opportunities.

Discussion

This qualitative study aimed to describe an appropriate interprofessional team composition for a Mobility Clinic within the context of existing human resources and exploring potential roles for disciplines not currently included within the CFFM Mobility Clinic. There is much support in the literature for use of interprofessional health teams to manage complicated

chronic health conditions, however the ideal team composition for interprofessional teams, particularly those aimed at mobility impairments including SCI, has received far less attention. This study revealed that the discipline specific role descriptions within the Mobility Clinic were perceived to be comprehensive, appropriate, and accurate, reflecting discipline scope of practice; in some cases, additional activities/ roles for some disciplines and cross discipline sharing of roles and activities within the clinic model were suggested.

Individuals representing disciplines not currently represented in the CFFM Mobility Clinic (i.e., physiotherapists, nurse practitioners, physician assistants, dietitians, recreation therapists) were represented in this study; they suggested potential roles for their discipline within this care model. Nurse practitioners, operating as advanced practice nurses, provide a significant opportunity for supporting chronic disease management with the provision of high-quality and cost effective, particularly in underserved by physicians or rural areas (Canadian Nurses Association, 2008; De Geest et al., 2008; Dierick-van Daele et al., 2010). Similarly, several reviews on the role of physician assistants have demonstrated that this role has a positive impact on patient care and cost-savings (Kleinpell, Ely, & Grabenkort, 2008; Halter et al., 2013; Hooker & Everett, 2012). Physiotherapy is a mainstay of SCI rehabilitation (Harvey, 2016; Harvey, 2008; Nas, Yazmalar, Sah, Aydin, & Önes, 2015), so this role has the potential to have significant impact on ongoing primary care. Similarly, there is evidence to suggest that dietitians and recreation therapists can have an important role to play in the management of SCI (Di Tucci, 2014; Khalil et al., 2013; Gassaway et al., 2011; Cahow et al., 2012). Although pharmacy was not represented in the interviews, this discipline was identified as having a potential role to play with the Mobility Clinic model. A number of studies have supported the use of pharmacists in care teams to contribute to chronic disease management and demonstrated outcomes related to improved health outcomes and reduced health service utilization (Beney, Bero, & Bond, 2000; Tully & Seston, 2000).

As there exists a critical balance of optimizing care and availability of resources, this study informs appropriate Mobility Clinic team composition, adaptable within the context of existing human resources. As practice

settings consider the establishment of a Mobility Clinic awareness of opportunities to provide quality care with limited access to health professionals may make the model more feasible to implement. The development of interprofessional teams is likely influenced by additional factors other than simply availability of human resources, including leadership support, relevance and potential benefits to patient population served, preparation and experience of available health professionals, supports for ongoing capacity building, maximization of financial resources, and competing workload priorities (Mitchell et al., 2012; Virani, 2012). As suggested in this study, some competencies required to deliver primary care for individuals with SCI overlap across disciplines, so in areas where specific disciplines may be in short supply, other disciplines may be able to assist in filling in the gaps. This is particularly relevant in rural and remote areas where access to human resources is more limited than in larger urban settings. In situations where specific discipline activities are filled by other disciplines, it is important to ensure that discipline specific roles and responsibilities are clearly articulated to prevent role drift. A study examining the role of support workers on community mental health teams concluded that, without role clarity, the potential exists for people to revert to other roles and activities, undermining the value of the role that they were intended to fill (McCrae, Banerjee, Murray, Prior, & Silverman, 2008). Moreover, when substituting professional skills, it is imperative to verify competency to ensure patient safety and reduce risk (Wilberforce et al., 2013).

This study confirmed that while the team composition of the Mobility Clinic model of care is appropriate to meet the care needs of individuals with SCI, other health professionals, such as dietitians and recreation therapists have important contributions to make. Consistent with descriptions of teams in which there are 'core' team members that represent disciplines deemed most relevant to manage the specific health issues, there can be team members who are more transient, being called upon when needed to support specific patient needs (Wilberforce et al., 2013). This is currently the case with the CFFM Mobility Clinic where 'core' team members consist of a physician, nurse, and occupational and musculoskeletal/ exercise therapists, with social workers and pharmacists called upon as needed.

A key finding in this study was that regardless of what mix of disciplines are selected to work within a Mobility Clinic, additional knowledge and experience, beyond that provided in academic preparation for clinical practice is required. This is consistent with other studies identifying knowledge gaps among primary care physicians related to SCI care (McColl, Aiken, McColl, Sakakibara, & Smith, 2012; McMillan et al., 2016). To best support FHTs to establish new Mobility Clinics, the CFFM is currently in the process of developing an education program designed to build capacity for SCI care. This multifaceted education consists e-Learning modules covering key health topics as related to assessment and management of SCI-related health issues (e.g., bowel and bladder health, autonomic dysreflexia, neurological/ musculoskeletal function), opportunities for face-to-face didactic and mentorship learning opportunities, point-of-practice tools for supporting implementation of best practices for SCI care, and self-management tools for patients. A Mobility Clinic website provides a repository for SCI primary care-related information and tools. Consistent with suggestions made by participants in this study, it is anticipated that newly established clinics will have access to specialists for consultation. The CFFM Mobility Clinic team will also be available for ongoing mentorship and capacity building.

There are several limitations to this study. Though this study identified that pharmacists have an important role to play in the primary care of individuals with SCI, the perspectives of pharmacists were not included. Though all other disciplines with a potential role to play in SCI care were included and attempts were made to interview at least two people from each discipline, one representing professional associations and another working with individuals with SCI in primary care or rehabilitation programs, this was not always possible. Challenges in recruiting participants were attributed to SCI being a low volume condition so that few health professionals self-identified as having sufficient expertise and experience with this patient population to contribute to this study. This study did not include the perspective of individuals with SCI. More research is needed to understand consumer perspectives as related to their preferences and needs related to discipline-specific care and how this may vary over time, by age and gender and geographic location (urban, rural, remote).

Conclusions

The findings from this study suggest that Mobility Clinics can optimally meet the complex care needs of patients with a core team consisting of a physician, nurse, OT, exercise therapist, and a community service representative, with linkages to rehabilitation specialists for consult support. Potential for cross-discipline sharing of tasks and integration of other health professionals provides some solutions where there are health human resource limitations. The Mobility Clinic model of care offers a potential solution to gaps in health care for individuals with SCI. This study adds to our growing knowledge about the how this model of care can optimize care to this patient population, maximizing existing human resources available in many health teams, and, where gaps exist, how they might be filled with other disciplines. Regardless of the specific disciplines included in the Mobility Clinic, the complex care needs of individuals with SCI require a knowledgeable and experienced care team; ongoing opportunities for capacity building and specialist support are needed to ensure quality care.

More research is needed to better understand the effectiveness of interprofessional primary care models for SCI care and how effectiveness might vary depending on team composition. Generally, health care team composition is often based on expert opinion of the knowledge, skills, and competencies needed to manage specific health conditions rather than on empirical evidence. More research is needed to validate the skills mix required to optimally manage SCI in primary care, specifically examining team staffing and patient outcomes. Social network analysis or mapping is one methodology that could potentially be used for this purpose (Sykes, Gillespie, Chaboyer, & Kang, 2015). This type of methodology could be used to map discipline contact patterns with specific patient populations and other care providers to identify those accessed most often. This information could serve to identify the appropriate skill mix to meet patient needs. Moreover, understanding the patient experience with interprofessional care in the Mobility Clinic will be vital to further development and implement this care model more widely.

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