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An approach to interprofessional management of complex patients: a case report

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Introduction: *Complex patients are frequently high-users of health care resources. Case management has been demonstrated to be an effective and efficient approach for this demographic.*

Case Presentation: *A 36-year old, medically complex male patient was referred to an interprofessional primary care team to optimize health status. Team involvement included a case manager, nurse practitioner, pharmacist, social worker, team assistant and chiropractor. Interventions involved medication*

Introduction : *Les patients ayant des besoins complexes sont souvent ceux qui utilisent le plus les ressources en soins de santé. La gestion de cas s'est avérée être une approche efficace et efficiente pour ce groupe de personnes.*

Présentation de cas : *Un patient de 36 ans présentant des problèmes de santé complexes a été dirigé vers une équipe interprofessionnelle de soins primaires afin d'optimiser son état de santé. L'équipe comprenait un gestionnaire de cas, un infirmier praticien, un pharmacien, un travailleur social, un assistant d'équipe et un chiropraticien. Les interventions portaient sur la gestion des médicaments, l'abandon du tabac, les*

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management, smoking cessation, mindfulness skills and musculoskeletal treatment.

Summary: *Complex patients are increasingly managed by teams. To continue, these teams will have to demonstrate positive outcomes and cost-effectiveness. Chiropractors have skills that can enhance team-based patient care.*

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KEY WORDS: complex patients, case management, primary care, chiropractic, interprofessional

compétences liées à la pleine conscience et le traitement musculosquelettique.

Résumé : *Les patients ayant des besoins complexes sont de plus en plus pris en charge par des équipes. Pour continuer à exercer, ces équipes devront démontrer des résultats positifs et un bon rapport coût-efficacité. Les chiropraticiens ont des compétences qui peuvent améliorer les soins aux patients dispensés en équipe.*

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MOTS CLÉS : patients ayant des besoins complexes, gestion de cas, soins primaires, chiropratique, interprofessionnel.

Introduction

In Ontario, Canada the top five percent of healthcare system users consume two-thirds of healthcare resources.[1] Starting in 2012, the Ontario Ministry of Health and Long-Term Care established Health Links to more effectively provide care to this challenging population.[1] The KW4 Health Link serves a portion of Waterloo Wellington Region.[2] A participating program in this initiative is the KW4 Community Ward Team (CWT).[2] Members of this team include Local Health Integration Network (LHIN) care coordinators, nurse practitioners, a pharmacist, a social worker, an outreach worker, a team assistant, a team manager and a chiropractor.[2] A consultant physician is available to the team as needed.[2] The CWT supports the patient's primary care provider for a period of time until the patient is stabilized and has supports in place.[1] In some cases, the CWT is a patient's only access to primary care and they maintain a longer-term relationship with the patient.[2] The following case illustrates how the CWT manages a complex patient.

Case presentation

History

This patient was a 36-year old male referred to the CWT by a community-based addictions worker. After CWT LHIN care coordinator/case manager triaging, it was determined the patient fit the CWT referral criteria as he had four or more chronic health conditions.[2] His conditions that qualified him included addictions, hepatic encephalopathy, liver cirrhosis and polypharmacy. The referral source's goal for this patient was more support for physical health concerns. The patient's goals were to abstain from alcohol, improve health and get help with their shoulder pain.

The initial visit was made by the CWT nurse practitioner (NP) and social worker. Past medical history included hepatic failure secondary to alcoholism, hepatic encephalopathy, seizures, portal hypertension, depression, anxiety, chronic pain, shoulder bursitis, multiple sports concussions, smoking, falls (8 in 12 months) and polypharmacy. A systems review showed frequent headaches, dizziness, tinnitus, some exertional shortness of breath, decreased appetite, reported vomiting twice a day and shoulder pain affecting function. Based on this analysis, immediate referrals were to the CWT NP for overall case management and to the CWT pharmacist to do a thorough medication review. As the case progressed, the CWT social worker provided counselling and the CWT chiropractor addressed the patient's pain goals and frequent falls.

Intervention and outcome

The CWT NP's role involves having an overall understanding of the patient's case. This includes visiting patients where they reside, triaging immediate concerns, prioritizing the problem list, reviewing medications, reviewing available bloodwork and relevant imaging and

consulting/referring as necessary. This patient had a meaningful connection with their family physician so the NP's role related to acute episodic or significant chronic disease management was less than in cases of orphan patients or where a family physician meaningful connection had not been established.

Occasionally there are medication discrepancies found between the family physician's medication list, pharmacy's list and what the patient is actually taking. Medication concerns noted in this case were that the patient was nonadherent to certain medications due to side effects and an important medication related to liver dysfunction and encephalopathy was not on the family physician's medication list. Rifaxamin is well documented in the treatment of acute hepatic encephalopathy, is shown to reduce symptoms associated with hepatic encephalopathy (for example confusion) and reduces liver failure hospitalizations.[3] Often, the pharmacy is contacted first regarding a medication concern however in this case the family physician was asked about the status of the Rifaxamin. This was being prescribed by the gastroenterology specialist and therefore was not on the medication list provided by the family physician's office. In that same letter, the family physician was notified that a referral for concussion rehabilitation as well as inquiry into the appropriateness of an ABI (Acquired Brain Injury) program, was underway. Since multiple medication concerns were found, the CWT pharmacist was consulted and a full review was performed.

The CWT clinical pharmacist performed an in-home medication review.[4] A medication review is a complete assessment of all medications a patient is taking, including prescriptions, over-the-counter (OTC), herbal or natural products.[4] The purpose of the review is to improve a patient's health outcomes by ensuring the patient understands their medication regimen.[4] Often times, the role of the clinical pharmacist would be more in-depth and involve medication management. Medication management is a more thorough process where medications are optimized to ensure that they are safe, effective and appropriate.[4] This involves pharmacist collaboration with the patient's physician or NP (or any other health care provider) to assess a patient's medications and health conditions, identify drug therapy problems, create a care plan and follow-up with any recommendations made.

An in-home medication review provides more detailed information. It allows the pharmacist an opportunity to declutter and remove expired drugs, determine if the patient is compliant and if they have a system that is working for them.[4] The clinical medication review has been shown to have positive results for all outcomes and is favoured over other adherence reviews which show no significant effect on hospitalization or mortality. Evidence suggests that advanced clinical medication reviews for hypertension and dyslipidemia are most effective in improving health outcomes.[4] The CWT pharmacist and NP discussed the patient's medications. In this case, the patient was not using his lactulose as prescribed for hepatic encephalopathy and they stated that their physician knew. A letter was faxed to the physician to confirm this finding along with a complete medication list.

It was also identified that this patient was interested in quitting smoking. The CWT pharmacist and social worker collaborated on this objective. Pharmacists in Ontario are able to help with smoking cessation by determining the patient's stage of change, assessing the patient's condition and history of smoking, providing education and prescribing smoking cessation therapy when indicated. The transtheorectical model of behavior change or "stages of change" was used.[5] There are six stages where the patient could reside including precontemplation, contemplation, preparation, action, maintenance and termination.[5] You identify which stage the patient is at and try to progress them through to the next higher stage.[5] This patient was in the contemplative stage prior to pharmacist involvement, and successfully moved to the preparation and then action stages thereafter. He was prescribed nicotine replacement therapy, which was covered by the STOP (Smoking Treatment for Ontario Patients) program. However, after a short trial of the patches and nicotine inhalers, he realized that he did not like them and continued with "the reduce to quit" method.

As the case evolved, the CWT social worker introduced the therapeutic approach of mindfulness to help the patient accept and adapt to the uncontrollable circumstances of a chronic illness. Mindfulness can be defined as "paying attention in a particular way: on purpose, in the present moment and non-judgementally".[6] It is important that they learn to live with peace and purpose despite the limitations imposed by their condition, essentially making peace with the life they now have. Mindfulness tools

were introduced to the patient to help ground them in the present and to combat anxiety about the future.

The concept of Acceptance was integrated to recognize the perfection of each moment, as each moment is caused by all that preceded it, and could not, therefore, be otherwise more perfect than it is.[7,8] Embracing Acceptance on a journey with chronic illness is critical. The Buddhist teacher, Shinzen Young, developed this formula to explain suffering. He said "Suffering = Resistance x Pain, Acceptance is the opposite of Resistance".[9] The more you resist and struggle with your illness, the greater the suffering you experience.

Working alongside team members, the CWT chiropractor's contribution to a case may include mobility and falls assessments of a patient's function and their home environment, attending and advocating for a patient at specialist appointments and at times manual therapy and prescribing specific exercises. In this particular case a chiropractic history and examination occurred. Diagnoses included a right shoulder strain, a lumbar spine strain with distal radiation and a thoracic spine strain. Manual therapy and specific exercises were administered. Techniques avoiding pressure on the liver were utilized as the gastroenterologist identified a risk with any sudden pressure on the diseased liver which could lead to its injury. The outcomes of chiropractic treatment are as follows: the right shoulder strain went from a pain score of 6-9/10 to near complete relief, the lumbar spine strain with distal radiation went from an 8/10 to mild pain and the thoracic spine strain went from a 4-10/10 to 50% improved. The patient was pleased with the results. As this was a male patient, after a few visits the chiropractor attended the patient independently. This would not occur with a female patient for risk management reasons. By the time the CWT chiropractor assessed the patient, the falls had stopped without CWT intervention and were not a concern.[10] This was likely due to a multitude of factors. Previous to team involvement the patient had been hospitalized and had become deconditioned. The patient credited starting to exercise at a gym with stopping the falls.

Throughout this case, the CWT team assistant (TA) fielded calls from the patient, notified the required professionals for their services as needed and facilitated the booking of ongoing visits. The TA provided the necessary co-ordination and made sure nothing slipped through the cracks. The CWT electronic medical record allowed for documentation and secure communication within the team. The CWT also used Clinical Connect which is a secure, web-based portal that provides clinicians with real-time access to their patients' electronic medical information from all acute care hospitals, LHIN Home & Community Care Services and Regional Cancer Programs in South West Ontario, plus various provincial data repositories.

Discussion

Chiropractors are increasingly participating in team-based care.[10] This may involve managing a complex patient who is defined as having multiple comorbidities, being at high risk for poor outcomes and being high cost to the healthcare system.[11] The CWT classifies complex patients as having four or more chronic health conditions (with a focus on mental health and addictions, frail elderly or prematurely frail), polypharmacy (five or more medications) and negatively affected by the social determinants of health.[2] The social determinants of health includes factors such as early childhood development, education, employment, income, social support, housing and gender.[12] The CWT patients require many aspects of the healthcare system, are unwell and have barriers to care including limitations in the social determinants of health (Figure 1).

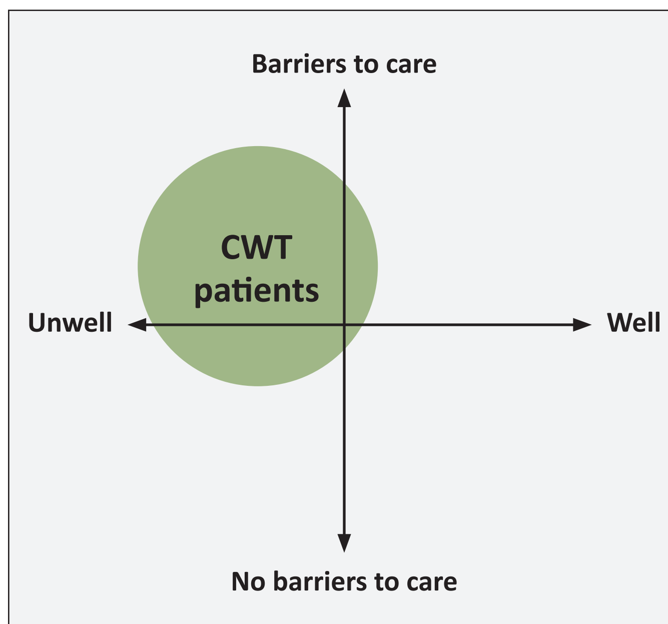

Figure 1.
The Community Ward Team (CWT) patient population.

Table 1.
Acute Care Utilization 3, 6, and 12 months Pre- and Post-Community Ward Team (CWT) Involvement.[2]
ED (Emergency Department), LOS (Length of Stay in hospital), ALC (Alternate Level of Care in hospital), ACSC (Ambulatory Care Sensitive Condition in hospital). Data collected from 2014 and 2015.

3 months pre-post CWT (n=83)	**6 months pre-post CWT (n=79)**	**12 months pre-post CWT (n=78)**
Average age: 65.2	Average age: 64.3	Average age: 64.2
• ED visits decreased by 38.3% • Total inpatient visits decreased slightly by 20.7% • Total inpatient LOS decreased by 35.6% • Average inpatient LOS decreased by 18.8% • Total ALC LOS decreased by 64.6% • Total inpatient readmission remained relatively constant	• ED visits decreased by 31.9% • Total inpatient visits remained relatively unchanged • Total inpatient LOS decreased by 30.3% • Average inpatient LOS decreased by 28.9% • Total ALC LOS decreased by 20.8% • Total inpatient readmissions decreased slightly by 22.7%	• ED visits decreased by 33.3% • Total inpatient visits, total inpatient LOS, and average inpatient LOS remained relatively similar • Total inpatient visits for ACSC increased by 260% • Total ALC LOS increased by 36.6% • Total inpatient readmissions decreased by 33.3%

Anyone within the team's sub-region can refer to the CWT including patients themselves.[2] Where the referral criteria are met, patients are triaged by need and the presence, or not, of other healthcare supports. The CWT is not for crisis management; but rather to support patients and more effectively and efficiently manage them to reduce hospital Emergency Department (ED) utilization and hospital admissions.[13-19] This team has demonstrated a decrease in health care system usage by its rostered patients in a number of key areas (Table 1).[2] There is also literature demonstrating this approach is ineffective in reducing ED utilization.[20-22] Increasingly, the CWT is also working with patients who previously were non-users of healthcare.

The TA first makes contact with the patient and asks a series of questions to determine if the patient's home is a safe environment for team members. This entails inquiring about pets, weapons and bed bugs. As the CWT members meet the patient in their home, much information can be learned from this including whether the patient is at risk of physical danger, has healthy food or hoards. The CWT's initial assessment involves two team members spending around 90 minutes on two occasions with the patient and working through the intake form. This covers multiple domains to holistically assess the health status of the patient. This document identifies where the patient's health is most vulnerable and improvement is potentially possible. Topics assessed include the major organ systems, medications, mental health, mobility, current care team members and Do Not Resuscitate (DNR) status. Medical Assistance In Dying (MAID) on occasion is requested by the patient, indicating how desperate they are.[2] The entire team convenes at weekly case review and this is where patient information is discussed and, as a group, decisions are made as to which team members will be involved going forward. Frequently the team looks for the "low hanging fruit" where a little help can make a big difference. Common approaches formulated during case review are "meeting the patient where they are", "leaning in" and "holding the narrative for the patient" (their story).

The CWT assists the patient in navigation of the healthcare and social support systems to optimize outcomes.[23] The CWT uses a case management approach: a collaborative process of assessment, planning, advocacy and facilitation for services and options to meet an individual's health needs through available resources; and communication to promote quality cost-effective outcomes.[19] In the past a patient's management was dictated by the system. This often fails and so the CWT attempts to partner with patients to support their efforts to achieve their goals and best life. This may be different than the system's desires.

Table 2.
Trauma-informed care involves 5 principles.[27]

#	Principle
1.	Bear witness to the patient's experience of trauma (commonly adverse childhood experiences).
2.	Help patients feel they are in a safe space and recognize their need for physical and emotional safety.
3.	Include patients in the healing process.
4.	Believe in the patient's strength and resilience.
5.	Incorporate processes that are sensitive to a patient's culture, ethnicity, and personal and social identity.

The CWT patients' goals may be as diverse as stable housing and food supply to finding better pain management.[23]

The CWT works with the patient to support their goals and hopes while trying to steer them towards the best practice management of their conditions. This type of relationship-based care/practice shifts the health care professional from being task-oriented to becoming more aware of caring practices.[24] Instead of focusing on the everyday tasks of patient care, the professional can now focus on what is important to the patient and include the patient and family in a plan of care.[24] The patient is asked to set a goal, which can be quite simple.[24] The professional gets to know the patient as a person versus a diagnosis.[24] Best practice is striving to implement evidence-based programs and strategies to enhance health and lower health problems with the greatest preventable burden.[25] By helping the patient reach their goals while striving for best practice, the CWT aims for a win-win situation.

Frequently with this demographic there is a mental health component to management including trauma.[26] The CWT attempts to practice trauma-informed care as required (Table 2).

The CWT's patient demographic can be challenging to work with. Compassion-fatigue, moral injury or vicarious trauma is more common for health professionals serving this population.[28] This compromises the health care professionals' ability to care for these patients due to avoidance of patient suffering, intrusive thoughts or dreams of distressing symptoms.[28]

Summary

Health care initiatives are under greater pressure than ever to prove their effectiveness and efficiency. For such programs to continue to exist, they will need to be measured for success by a number of different metrics. The CWT's purpose includes generating data and knowledge for future planning. Being able to generate consistent data is an important secondary objective of this program. The chiropractor has since started collecting data on patient outcomes using the BQ (Bournemouth Questionnaire) Pre-Treatment (Baseline) and Post-Treatment (Discharge).[29]

At the time of publication, the patient remained stable however it was determined the patient was not a liver transplant candidate. The patient remained on the CWT case load and monitoring continued. Participating on an interprofessional team is becoming more common for chiropractors. It has been a tremendous source of professional satisfaction for the principal author where every day with the team there is a learning moment. We highly recommend it for those who have this opportunity present itself.

Footnote:

As of April 1st, 2019 the KW4 Community Ward Team no longer has embedded LHIN Care Coordinators but is an entirely The Centre for Family Medicine Family Health Team – based team.

Take Away Points

- Case management is an effective approach for complex patients
- It can improve outcomes and more efficiently administer resources
- Team-based care is becoming more common
- Chiropractors are well positioned to contribute to such teams

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