

# Integrated Community Collaborative Care for Seniors with Depression/Anxiety and any Physical Illness



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## ABSTRACT

### Background

We report on the feasibility and effectiveness of an integrated community collaborative care model in improving the health of seniors with depression/anxiety symptoms and chronic physical illness.

### Methods

This community collaborative care model integrates geriatric medicine and geriatric psychiatry with care managers (CM) providing holistic initial and follow-up assessments, who use standardized rating scales to monitor treatment and provide psychotherapy (ENGAGE). The CM presents cases in a structured case review to a geriatrician and geriatric psychiatrist. Recommendations are communicated by the CM to the patient's primary care provider.

### Results

187 patients were evaluated. The average age was 80 years old. Two-thirds were experiencing moderate-to-severe depression upon entry and this proportion decreased significantly to one-third at completion. Qualitative interviews with patients, family caregivers, team members, and referring physicians indicated that the program was well-received. Patients had on average six visits with the CM without the need to have a face-to-face meeting with a specialist.

### Conclusion

The evaluation shows that the program is feasible and effective as it was well received by patients and patient outcomes improved. Implementation in fee-for-service publicly funded health-care environments may be limited by the need for dedicated funding.

**Key words:** seniors, mental health, collaborative care, integrated care, depression, anxiety, psychotherapy, chronic illness

## INTRODUCTION

Traditional outpatient models are not sufficient to meet the growing care needs of seniors with chronic physical and mental health comorbidities.<sup>(1)</sup> Although this can be partly attributed to the growing population of seniors in the community, the scarcity of specialty resources and the lack of knowledge and training are the main drivers of this issue.<sup>(2)</sup> In Ontario, the current supply of geriatric specialty care professionals is not sufficient to meet the growing demand. For example, the Canadian Academy of Geriatric Psychiatry had only 187 full members<sup>(3)</sup> in 2017 for a population of over 6 million seniors.<sup>(4)</sup> In fact, the majority of seniors receiving mental health care are treated by their primary care providers and not specialists.<sup>(5)</sup> However, due to insufficient training primary care providers (PCPs) may not have sufficient knowledge and capacity to manage seniors with co-occurring physical and mental health conditions.<sup>(6)</sup> As a result, mental health problems in seniors are often overlooked or misattributed to physical illness.<sup>(7)</sup> In addition, seniors with co-occurring mental and physical health concerns in primary care encounter numerous barriers to effective care including poorly integrated specialty services, lack of support for system navigation by patients/caregivers, and stigma for both ageism and mental illness. As a result, both patients and providers often report dissatisfaction with the current state.<sup>(8)</sup>

Collaborative care, on the other hand, has been proven to be effective at improving depression outcomes over both the short and long term.<sup>(9,10,11)</sup> Collaborative care models for depression have been developed and well-described,<sup>(12)</sup> including for the elderly.<sup>(13,14,15)</sup>

In 2014 in Ontario, the University of Toronto and three large general and specialty hospitals (Trillium Health Partners, the Center for Addictions and Mental Health, and the Hospital for Sick Children), with the financial support of the Ontario Ministry of Health & Long Term Care and a generous anonymous donor, formed the Medical Psychiatry Alliance (MPA)<sup>(16)</sup> to improve the care of patients with co-occurring mental health and physical conditions. The Seniors Outpatient Collaborative Care Project at THP is one of the MPA initiatives that aimed to develop a transformative and sustainable model of community-based collaborative care to address anxiety and depression symptoms co-existing with at least one chronic physical condition impacting function in seniors 65 years of age or older.

The Seniors Outpatient Collaborative Care project targeted the segment of this population that currently has a moderate severity of illness but is at a high risk of developing persistent complex health problems. As described in the Four-Quadrant Clinical Integration Model, seniors with higher severity of illness are best managed with use of specialty care services, and those with low severity of illness can be managed in primary care.<sup>(5)</sup> The ‘rising-risk’ patient population falls in the gap between primary care and the unmet need for seniors’ services. This may be due to numerous factors, including lack of recognition of the need for mental health care and resistance to referral due to stigma. The goal of targeting the rising-risk population with a collaborative care model is to deliver services within primary care, preventing crises and the need for emergency room or specialty care clinic visits. It is estimated that the rising-risk population makes up approximately 15–35% of patients in primary care.<sup>(17)</sup>

### **The Seniors Outpatient Community-Based Collaborative Care Model**

The THP seniors outpatient community-based collaborative care model was created based on the principles of collaborative care as described by the Advancing Integrated Mental Health Solutions (AIMS) Center at the University of Washington, and includes the following components:<sup>(18)</sup>

#### **Care Management**

CMs with training and experience in the areas of both mental health and geriatrics who could be either an occupational therapist, a social worker or a registered nurse. CMs met with patients bi-weekly and provided integrated assessments, care coordination, and psychotherapy. Furthermore, CMs presented cases during systematic case reviews and communicated with the patient’s primary care provider.

#### **Integrated Assessments**

The initial assessment by the CM included both a physical health and a mental health integrated assessment with use of validated tools. Functional disability was measured via the World Health Organization Disability Assessment Schedule (WHODAS 2.0).<sup>(19)</sup> The WHODAS 2.0 captures level of functioning in six domains: cognition, mobility, self-care, getting along with people, life activities, and participation in

society over the past one month.<sup>(20)</sup> Severity of depressive symptoms was measured with the Patient Health Questionnaire (PHQ-9),<sup>(21)</sup> and anxiety severity was measured by the Generalized Anxiety Disorder 7-item scale (GAD-7).<sup>(22)</sup> Cognitive screening was done with either the Montreal Cognitive Assessment (MoCA)<sup>(23)</sup> or Rowland Universal Dementia Assessment Scale (RUDAS).<sup>(24)</sup> Follow-up assessments by the CM were biweekly. Most visits took place in the patient’s home, but were also available by telephone or in the clinic. Patient care was up to 16 weeks in duration for a maximum of nine visits. Response to treatment was focused on assessment of depression and anxiety symptoms using treat-to-target outcomes based on PHQ-9 and GAD-7 scores.

### **Systematic Case Reviews (SCR)**

Clinical support and supervision of the CM was provided via a regular (weekly or bi-weekly) SCR meeting with both a geriatric psychiatrist and a geriatrician. A Primary Care Physician (PCP) representative was present in the project, and the patient’s PCP was encouraged to participate in the SCR via telephone. Each patient was presented at the SCR by the CM following the initial assessment, and then in follow-up while enrolled in the program as needed when updated recommendations were required. Based on the discussion during the SCR, the integrated care plan was developed by the CM following evidenced-based practices. Recommendations regarding pharmacological and non-pharmacological interventions were shared with the patient and PCP. The PCP remained the most responsible provider (MRP) providing requisitions for investigations and prescriptions for medications.

#### **Case Presentation**

We developed a new means for case presentation based on modifying the SBAR<sup>(25,26)</sup> (situation, background, assessment, recommendations) model of communication, using a novel clinical approach we developed called the “12 Ds of Geriatric Medical-Psychiatry” rather than the traditional medical model for case presentation. The case presentation model is presented as follows:

- Situation: includes referral source, reason for referral, and patient’s expectations.
  - Background: includes age, gender, language spoken, marital status, and living arrangements.
  - Assessment: described below using the 12 Ds of Geriatric Medical-Psychiatry.
1. Dementia: (any cognitive changes) MoCA or RUDAS scores reported here.
  2. Depression/anxiety-demoralization: PHQ 9 and GAD 7 scores reported here, as well as any concerns regarding suicidal ideation. Determine if symptoms correspond to early-life recurrent depression or late-life onset depression which commonly correlates with a depression-executive dysfunction syndrome.
  3. Delirium (subsyndromal): to recognize cognitive disruption from reversible factors.

4. Disabling medical illness: describe the medical history resulting in physical limitation in function and/or activities of daily living.
  5. Drugs-including drinking & dope: includes prescriptions, over-the-counter and homeopathic products, and any substance use.
  6. Disconnection/disengagement (social health): patient's social support network.
  7. Delusions: psychotic depression is an exclusion for participation in the model.
  8. Decision-making capacity: patient's ability to consent to health-care decisions.
  9. Discharge planning: for appropriate referral following completion of the time-limited collaborative care model, if needed.
  10. Deconditioning: WHODAS 2.0 score reported here.
  11. Driving: due to the mandatory reporting law in Ontario, any geriatrics assessment requires consideration if a condition exists that may impair driving which requires reporting to the Ministry of Transportation.
  12. Death: mortality issues in the self or others.
- Recommendations: for investigations, pharmacological, and non-pharmacological suggestions to patient and PCP.

### **Psychotherapy**

In our opinion, cognitive behavioural therapy and problem-solving therapy are not amenable to affordable, reliable, and sustainable provision by CMs. A search was completed for a psychotherapy skill set for CMs that could be taught to CMs in a reliable way and provided effectively by CMs with different scopes of practise. We chose “ENGAGE”—a psychotherapy that uses “reward exposure” to increase behavioral activation<sup>(27,28,29,30)</sup>—as meeting the needs of the program and those of our patients. All CMs received training from a developer of ENGAGE, Dr. P. Raue. The training had three parts: 1) group training (lecture and role-play) in ENGAGE; 2) one-to-one individual training in ENGAGE using role-play; and 3) evaluation by Dr. Raue of three recoded sessions of ENGAGE delivered by the CM to a patient to assess fidelity to ENGAGE.

Any psychotherapy provided was done as per the ENGAGE model, but we did not record the quantity or quality of ENGAGE psychotherapy sessions a patient may have formally or informally received. The project did not attempt to evaluate the ENGAGE psychotherapy.

## **METHODS**

The seniors outpatient community-based collaborative care model was implemented as an outpatient service in Trillium Health Partners—a large community teaching hospital in Mississauga, Ontario, home to one of the most ethnically diverse populations in Canada. The evaluative study was approved by the THP Research Ethics Board.

## **Inclusion and Exclusion Criteria**

The inclusion criteria for the program were: seniors 65 years or older, suffering from anxiety and or depression symptoms co-existing with at least one chronic physical health condition impacting function. There was no requirement for a formal medical or psychiatric diagnosis.

The exclusion criteria were patients with moderate-to-severe cognitive decline as measured by a MoCA score less than 18 or a RUDAS score less than 24. A lower score would possibly interfere with the effectiveness of the ENGAGE psychotherapy. Additional exclusion criteria were: behavioural and psychological symptoms of dementia (BPSD), positive psychotic symptoms, active suicidal ideation (planning) or attempt within last year, psychiatric admission within the last year, or falls and/or incontinence as the main reason for referral. Patients who met these exclusion criteria were referred to other available geriatric specialty care clinics at THP.

## **Participants**

The program received 332 referrals between June 2017 and June 2019 from two different sources, either directly from family physicians or via an offer extended to patients initially referred to other outpatient geriatric mental health or physical health clinics in the hospital. Of the 332 referred patients, 212 (64%) were enrolled into the program. Most patients who were not enrolled did not meet the inclusion criteria and some patients declined participation. In addition, 25 enrolled patients (7.5%) completed only the initial assessment. Of these 25 patients, most withdrew from the program (n=14) or were redirected to other services by the CM (n=7). A comparison between these 25 patients and patients who completed the assessment tools at least twice showed no difference in age, gender, and initial levels of depression or anxiety. This left 187 patients whose data were analyzed. In addition, to gain insights into the sustainability of the results, we decided in January 2019 to contact patients three months after completion of the program to assess their levels of depression, anxiety, and physical functioning. The 45 patients who completed the program between January and September 2019 were contacted by telephone three months after completion of the program and of those, 25 patients were reached and were assessed.

## **Data Collection**

### **Measures**

The PHQ-9, GAD-7, and WHODAS 2.0 were used to assess depression, anxiety, and functioning, respectively. For the evaluation, rating scales completed upon admission and discharge from the program were included. Furthermore, patient demographics, the number of sessions with the CMs, and the length of stay in the program was recorded.

### **Interviews**

As a component of the project's evaluation, qualitative in-person and telephone interviews were conducted with patients/family caregivers (n=14), care team members (n=7), and referring primary care providers (n=12).

## Statistical Analysis

Descriptive statistics were used to characterize the study population and evaluate patient outcomes. Continuous measures were summarized using means, standard deviations, medians, and interquartile ranges, while categorical measures were summarized with frequencies and percentage. Paired *t*-tests and McNemar's tests were used to evaluate significant changes in initial and final measurements, as appropriate. All data were analyzed using R software (version 3.6.2) (R Foundation for Statistical Computing; <https://www.r-project.org/foundation/>) or Excel software Microsoft Corporation, Redmond, WA).

## RESULTS

### Program Characteristics

Table 1 gives an overview of the program measures and patient characteristics. Patients had on average six visits over the course of the program that were mainly home visits. Most of the patients, 86%, were discharged from the program when 16 weeks of treatment was completed or when their health conditions were improved, whichever came first. Only a small subset of patients (9%) was referred to another geriatric service before program completion. None of the patients who completed the program required a face-to-face visit with the Geriatrician or Geriatric Psychiatrist. We are aware of two cases that required emergency room consultations during participation in the program; one for a physical health crisis and one for suicidal ideation that did not result in hospitalization.

The average age of the patients in the program was 80 years, with majority being male (64%) either living at home with a partner (31%) or alone (25%). The most common chronic physical conditions of the group fell in the musculoskeletal (22%), cardiovascular (17%), and neurological (8%) categories.

### Measurement-Based Care Management

Table 2 illustrates the proportion of patients who had minimal, mild, moderate or severe scores for depression, anxiety, and functioning upon admission to the program and at discharge from the program. Both the proportions of patients that had moderate-to-severe depression or moderate-to-severe anxiety decreased significantly at completion; from 64% down to 26% for moderate-to-severe depression and from 52% down to 23% for moderate-to-severe anxiety. In addition, a quarter of these patients went into remission (score on the PHQ-9 or GAD 7 below 5). A little more than one-quarter (28%) of the patients indicated moderate-to-severe limitation in their functioning upon admission, and that reduced slightly to one in five patients (20%) at discharge.

No differences in effect on the main outcomes were observed between males and females or seniors <80 years of age compared to those ≥80 years of age.

Among the 45 patients who completed the program between January and September 2019, 25 were re-assessed at three months following completion of the program. Table 3

summarizes their characteristics and any changes in scores. Some patients' scores on the assessment tools for depression, anxiety, and functioning improved over the three months: 16% had improved depression scores, 32% improved anxiety scores, and 12% improved functioning. Most patients' scores stayed consistent within the same category (minimal or none, mild, moderate or severe) over the three months: 80% for depression, 60% for anxiety, and 84% for functioning.

TABLE 1.  
Program and patient characteristics

<i>Program Characteristics</i>	<i>Patients, n=187</i>
Average number of weeks from admission to discharge:	
Mean (SD)	14.52 ± 5.25
Median [IQR]	16.0 [12.4-17.1]
Average no. of visits per patient:	
Mean (SD)	5.79 ± 2.55
Median [IQR]	6 [4.0-8.0]
Visit type breakdown for all MPA visits, % (n)	
Home visit	71.4% (797)
Clinic visit	12% (134)
Phone visit	16.6% (185)
Other (PCP office)	1.0% (1)
Program Completion, % (n)	
Completed the program	85.6% (160)
Patient redirected to Seniors Services	8.6% (16)
Patient Withdrew	5.9% (11)
Age	
Mean (SD)	79.98 ± 7.43
Range	65 - 97
Gender, % (n)	
Male	63.6% (119)
Female	36.4% (68)
Living situation, % (n)	
Spouse/Partner	30.8% (52)
Alone	24.9% (42)
Family	14.2% (24)
Retirement Home	7.1% (12)
Most common physical conditions reported, <sup>a</sup> % (n)	
Musculoskeletal	21.6% (62)
Cardiovascular	17.4% (50)
Neurological	8.7% (25)

<sup>a</sup>Up to 2 physical condition could be included per participant. Count reflects combined physical conditions (n=287)

TABLE 2.  
Clinical measurements of patients

<i>Measures</i>	<i>N<sup>a</sup></i>	<i>Admission</i>	<i>Discharge</i>	<i>P value</i>
PHQ-9 score: mean ± SD	180	11.62 ± 5.31	7.06 ± 5.02	<0.001
PHQ-9 Severity Scale, % (n)				
Minimal or none (0-4)		9.4% (17)	35.6% (64)	
Mild (5-9)		26.7% (48)	38.3% (69)	
Moderate (10-14)		32.8% (59)	17.2% (31)	
Severe (15-25)		31.1% (56)	8.9% (16)	
GAD-7 score: mean ± SD	180	9.99 ± 5.33	5.83 ± 4.49	<0.001
GAD-7 Severity Scale, % (n)				
Minimal or none (0-4)		16.7% (30)	46.7% (84)	
Mild (5-9)		31.7% (57)	30.6% (55)	
Moderate (10-14)		29.4% (53)	18.3% (33)	
Severe (15-25)		22.2% (40)	4.4% (8)	
WHODAS 2.0 score: mean ± SD	171	2.43 ± 0.80	2.22 ± 0.87	0.018
WHODAS 2.0 Severity Scale, % (n)				
Minimal or none (1-1.9)		26.9% (46)	39.8% (68)	
Mild (2-2.9)		45.6% (78)	40.4% (69)	
Moderate (3-3.9)		24.0% (41)	17.0% (29)	
Severe (4-5)		3.5% (6)	2.9% (5)	

<sup>a</sup>The N varies for different measures due to missing data for some patients.

### Qualitative Results from Interviews

Patient and family caregivers were very appreciative of the collaborative care model, and found the support and guidance provided by the CM to be very helpful. In particular, they appreciated the short wait times to access geriatric expertise, the ENGAGE psychotherapy, the support provided by the CM, as well as the convenience of home visits. While both patients and family caregivers found the intervention to be extremely helpful, some recommended that there be an extension to the time-limited intervention to include periodic follow-up once the program had concluded. Some patients were not comfortable with the program's mental health language as a consequence of the rating scale use and described this as stigmatizing. Program clinicians appreciated the opportunity to be part of a collaborative team, and reported that the SCRs supported interdisciplinary learning, care, and a more holistic approach to the physical and mental health needs of patients. While the home visit component of the intervention was valued by CMs, communications with busy PCPs was at times challenging and time-consuming. Referring PCPs interviewed as a component of the qualitative evaluation appreciated the timely access to geriatric expertise, high-quality CM care, and mental health support for their older patients. Although PCPs were interested in participating in the SCRs, several reported that it was challenging to attend these teleconferences given their busy clinical schedules. In general, the program was well-received by patients, families, and health-care providers.

### DISCUSSION

In this community collaborative care model for seniors with at least one chronic physical condition impacting function and co-occurring symptoms of depression or anxiety, CMs (RN, OT or SW) with a dual (mental and physical health) skill set provided holistic assessments and tracked treat-to-target outcomes using the PHQ-9 and GAD-7. In addition, an integrated care plan was developed in supervision by both a geriatric psychiatrist and geriatrician at the SCR, where case presentation followed a modified SBAR approach that we developed called the 12 Ds of Geriatric Medical-Psychiatry. CMs provided coordination of care, assisted with health system navigation, assured treatment adherence, and provided the ENGAGE psychotherapy for self-management support. The PCP remained the MRP, and the model utilized the very limited geriatric psychiatry and geriatric medicine resources in a more efficient way, while supporting PCPs in building capacity, skills, and confidence to manage a rising-risk patient population.

The evaluation of the care model showed that the proportions of patients who had moderate-to-severe depression or anxiety decreased significantly at completion of the program. In addition, a quarter of these patients went into remission. Follow-up data from a small group of participants suggested that these results were sustained after three months. Furthermore, the qualitative findings showed that the program was well-received by patients, families, and health-care providers.

TABLE 3.  
Three-month post discharge follow-up

<i>Measures</i>	<i>Patients n=25</i>
Age – mean (SD)	75.44(7.49)
Gender, % (n)	
Male	32.0% (8)
Female	68% (17)
Did participant see a psychiatrist since discharge? % (n)	
Yes	16% (4)
No	84% (21)
Did participant see a geriatrician since discharge? % (n)	
Yes	16% (4)
No	84% (21)
PHQ-9 change at 3-month follow-up, % (n)	
Improved <sup>a</sup>	16%(4)
No change	80% (20)
Worsened <sup>b</sup>	4% (1)
GAD-7 change at 3-month follow-up, % (n)	
Improved <sup>a</sup>	32% (8)
No change	60% (15)
Worsened <sup>b</sup>	8% (2)
WHODAS 2.0 change at 3-month follow-up, % (n)	
Improved <sup>a</sup>	12% (3))
No change	84% (21)
Worsened <sup>b</sup>	4% (1)

<sup>a</sup>Improved means the score at three-month follow-up was at least one category better than the score at discharge (e.g., discharge score indicated moderate depression and three-month follow-up score indicated mild depression).

<sup>b</sup>Worsened means that score at three-months follow-up was at least one category worse than the score at discharge.

One of the challenges for the integrated model that had to be addressed was the need for efficient case presentation during the SCR by CMs which would meet the needs of both the geriatrician and the geriatric psychiatrist in a manner that was holistic and not divided into separate medical and psychiatric presentations. The modified SBAR format using the 12 Ds of Geriatric Medical-Psychiatry met that need.

Another challenge of the SCR was including the PCP who often faced difficulties in scheduling a telephone meeting in busy clinical practices. A potential obstacle to PCP participation is the provincial OHIP fee-for-service funding model. Some PCPs were unaware that a billing code for telephone consultations is available in Ontario that pays approximately \$40 per every 10 minutes spent on the telephone.

The team members in our model, including the specialists, were all funded by the Medical Psychiatry Alliance. OHIP billing fees alone would be insufficient to support the specialists' involvement. There is no billing code for consultation or follow-up review with the CM alone. Psychiatrists in Ontario hospitals may have access to sessional funds for non-OHIP

billable time such as case discussion during the SCRs. However, sessional funding is dispersed to hospital psychiatrists at the discretion of the chief of the department and, therefore, this model of ambulatory care specialist compensation is vulnerable to lack of support and the model could only succeed if sessional support was guaranteed. Furthermore, sessional funding is not available for geriatricians, making the model vulnerable to losing its integration with geriatric medicine. Therefore, a limitation of specialist participation in this collaborative care model in Ontario is its dependency on dedicated financial support, as it could not be supported by OHIP billings alone.

Sustainable funding for the CMs would also be required by the health-care agency or facility employing them. A limitation for consideration is that employers may be reluctant to fund a model of service delivery by nurses or allied health workers that emphasizes more frequent visits per patient, even if time-limited, and therefore fewer patients served annually.

Another challenge was finding a psychotherapy model that was amenable to affordable training with reliable and sustainable provision by CMs. Although the project is not a study of ENGAGE psychotherapy, nonetheless we endorse ENGAGE as a behavioural activation program that helps patients identify care goals. ENGAGE does appear to help with symptom reduction, as well as encourage patients to develop self-advocacy skills.

The goal of the model was to be transformational and sustainable. We suggest we met those goals. Traditional models of collaborative care for seniors tend to require a formal diagnosis of depression which, in primary care, may be undiagnosed and, therefore, present an obstacle to care. We opened eligibility to seniors with any symptom of depression and anxiety and yet found that the majority had moderate-to-severe severity of symptoms. Traditional models of collaborative care for seniors also tend to be limited to one particular physical illness, most notably diabetes. Rather, we opened eligibility to seniors with any chronic physical illness impacting function. The majority of our patients had mild-to-moderate severity of functional disability consistent with the rising-risk population we were targeting. Additionally, traditional models of collaborative care for seniors tend to include psychiatry and primary care only, whereas we integrated seniors care with geriatric psychiatry and geriatric medicine together with primary care. To facilitate the integration of communication by CMs with the specialists, we successfully developed a novel method for case presentation that emphasizes the key universal medical psychiatry issues that apply to all seniors.

We met our goal of reducing the dependency on specialty care for seniors for these rising-risk patients within primary care, as none of the patients required an additional independent consultation with either the geriatrician or geriatric psychiatrist.

We found our model of community-based collaborative care improved health outcomes and reported experiences of seniors 65 years of age or older with co-occurring depression/anxiety and chronic physical conditions impacting function, and conclude the model is both feasible and effective.

Implementation in fee-for-service publicly funded health-care environments may be limited, however, by the need for dedicated funding.

## CONFLICT OF INTEREST DISCLOSURES

The authors declare that no conflicts of interest exist.

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