Management of Populations with Multiple Chronic Conditions in Ontario:

Suggested Components of Standard Care and Performance Measurement for Shared Accountability

Applied Health Research Question Evidence Brief

HEALTH SYSTEM PERFORMANCE RESEARCH NETWORK (HSPRN)

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Executive Summary

The high number of patients with multiple chronic conditions creates a compelling need for re-thinking health care systems worldwide to deliver integrated, patient-centred care. This brief report synthesizes existing research evidence from studies that have shown improved outcomes after assessing programs of care specifically developed for multimorbid patients.

The five promising international models of integrated care for patients with multimorbidity included in this study were:

- The Geriatric Resources Assessment and Care of Elders (GRACE) Model
- The Program of All-inclusive Care for the Elderly (PACE)
- The Guided Care Model
- The SIPA/COPA Model
- The Program of Research to Integrate Services for the Maintenance of Autonomy (PRISMA)

The following 21 common elements of care that must be components of standard care for the multimorbid population were identified: 1) case management; 2) patient enrolment and assessment; 3) interdisciplinary primary care teams; 4) team meetings; 5) individualized care plan; 6) mental health management; 7) medication management; 8) facilitate home and community-based services; 9) support for self-management; 10) caregiver education and support; 11) involvement of patient and family in decision making; 12) integration of home care services; 13) single-entry point; 14) continuity of care and transition management; 15) electronic health records; 16) use of information technologies; 17) guidelines for multiple chronic conditions; 18) performance measurement; 19) blended capitation remuneration system; 20) remuneration system adjusted to patient need; and 21) team based financial incentives.

Performance measures for integrated care to multimorbid patients should include process and outcome measures at three levels of care delivery: individual, team and organizational. However, they should focus on promoting provider collaboration to achieve common goals and obtain associated incentives, for which the most critical measures are at the team level (e.g. composite processes of care).

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A. Context

The high prevalence of chronic conditions and the common occurrence of multiple chronic conditions (MCC) simultaneously in the same individual (also known as multimorbidity) creates a challenge for the health care systems worldwide[1-4]. The way that the health care services are currently structured, essentially oriented to manage acute events, including exacerbations of chronic diseases, is not appropriate for the management of patients with MCC. There is a compelling need for re-thinking the system and for restructuring the provision of care accordingly, to deliver integrated care where the patient is at the centre of the provision of services.

B. Objective

This research report has been developed in response to an Applied Health Research Question (AHRQ) requested by the Long-Term Care and Community Unit, Health Policy and Care Standard Brach, Health System Strategy and Policy Division of the Ontario Ministry of Health and Long-Term Care for a brief report synthesizing existing research evidence that identify common elements of care that must be components of standard care for the multimorbid population and their family caregivers.

C. Methods

We first provide a synthesis of evidence in the scientific literature identifying common elements required to improve outcomes of the multimorbid population and their family caregivers, across different programs, disciplines and geographic boundaries, and regardless of healthcare sub-sectors, provider types, diseases, and social context. Second, we define characteristics of the types of performance measures that should be adopted to generate shared accountability in the delivery of care as to

achieve improved outcomes for patients with MCCs.

D. Findings

Evidence-based care components for multimorbid patients

The evidence provided in this report comes from research studies that have shown evidence of improved outcomes for multimorbid patients after assessing programs of care specifically developed for these types of patients. The following represent some of the most promising international models of integrated care for patients with MCC that have shown improved care outcomes and lower costs of care:

- *The Geriatric Resources Assessment and Care of Elders (GRACE) Model*
- *The Program of All-inclusive Care for the Elderly (PACE)*
- *The Guided Care Model*
- *The SIPA/COPA Model (French acronym for System of Integrated Care for Older Persons / Coordination of Professional Care for the Elderly)*
- *The Program of Research to Integrate Services for the Maintenance of Autonomy (PRISMA)*

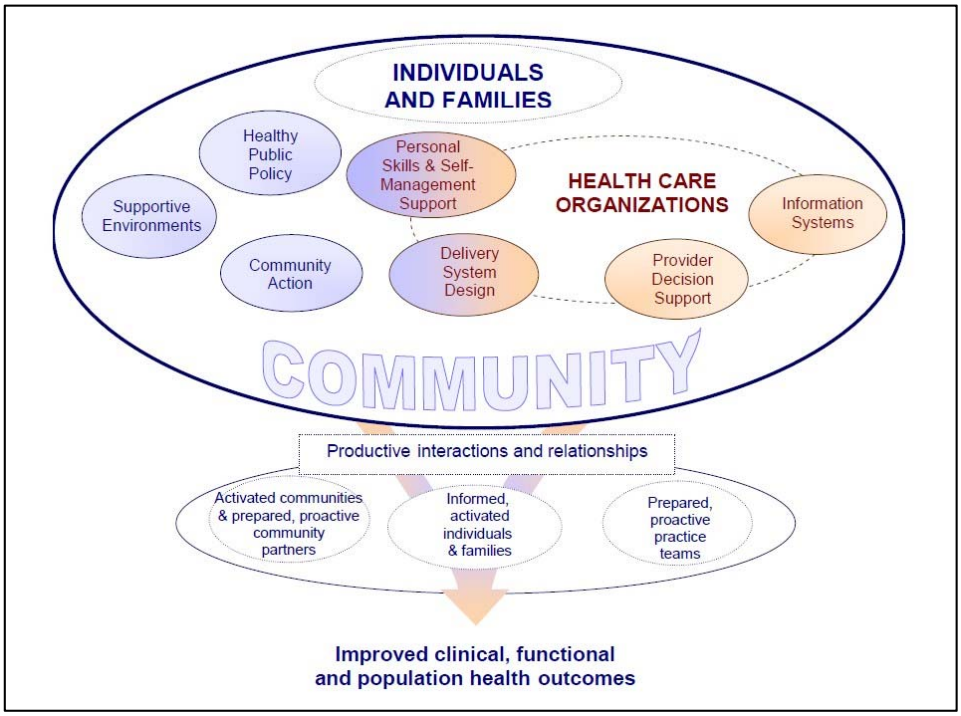
Throughout the literature, the overwhelming theme is that the optimal approach to manage patients with MCC is integrated healthcare system service delivery, with primary care at the centre, integrated with social community services, acute care hospitals, specialized medical care, rehabilitation services, and long-term care. This is particularly important in the MCC population due to the occurrence of different conditions simultaneously, the need for care and support from providers at different levels, and the complexity of therapeutic plans and transitions. Multimorbid patients need to learn how to live with their chronic conditions and require active support from families and community.

Table 1 presents the 21 essentials that we recommend to be included as components of standard care for the multimorbid population in Ontario. Every component has been linked to a dimension of the Ontario's Chronic Disease Prevention and Management Framework (Figure 1).

Table 1: List of recommended components of standard care for patients with MCCs

Care component	Dimension of the Ontario CDP&M Framework
1. Case management	→ delivery system design
2. Patient enrolment and assessment	→ delivery system design and personal skills & self-management support
3. Interdisciplinary primary care teams	→ delivery system design
4. Team meetings	→ delivery system design
5. Individualized care plan	→ delivery system design and personal skills & self-management support
6. Mental health management	→ delivery system design
7. Medication management	→delivery system design and provider decision support
8. Facilitate home and community-based services	→supportive environments, community action, and delivery system design
9. Support for self-management	→ personal skills & self-management support
10. Caregiver education and support	→ personal skills & self-management support
11. Involvement of patient and family in decision making	→ personal skills & self-management
12. Integration of home care services	→ delivery system design
13. Single-entry point	→ delivery system design
14. Continuity of care and transition management, including: • **Long-term care homes and assisted living facilities** • **Specialized medical care** • **Acute hospital care** • **Rehabilitation facilities**	→ delivery system design
15. Electronic health records	→ information systems
16. Use of information technologies	→ information systems and provider decision support
17. Guidelines for MCCs	→ provider decision support
18. Performance measurement	→ delivery system design and provider decision support
19. Blended capitation remuneration system	→ delivery system design
20. Remuneration system adjusted to patient need	→ delivery system design
21. Team based financial incentives	→ delivery system design

Figure 1: Ontario's Chronic Disease Prevention and Management Framework



From: Ontario Ministry of Health and Long-Term Care (2007).

Table 2 shows the inclusion of care components in programs of MCC management and corresponding research studies providing evidence of improved outcomes, such as patient experience, functional status, cost, and services utilization. Performance measures used in these studies are listed in Table 5.

Table 2: Performance measures for models for MCC management in the literature.

Program	GRACE	PACE	Guided Care Model	SIPA	PRISMA
Evidence	Counsell et al. (2007)[5]	Mukamel et al. (2006 & 2007) [6;7]	Boult et al. (2008)[8] Marsteller et al. (2010)[9] Wolff et al. (2010)[10] Boyd et al. (2008)[11] Sylvia et al. (2008)[12]	Beland et al. (2006)[13]	Hebert et al. (2010)[14]
Care Components					
Case management	✓		✓	✓	✓
Patient enrolment assessment	✓	✓	✓	✓	✓
Interdisciplinary Primary Care Teams	✓	✓		✓	
Team meetings	✓	✓		✓	
Individualized care plan	✓	✓		✓	✓
Mental health management	✓	✓			
Medication management	✓	✓			
Facilitate home and community-based services	✓	✓		✓	
Support for self-management	✓		✓		
Involvement of patient and family in decision making	✓	✓	✓	✓	✓
Caregiver education and support		✓	✓		
Integration of home care services	✓	✓		✓	
Continuity of care and transition management	✓	✓	✓	✓	✓
Single entry point		✓		✓	✓
24-hour on-call services		✓		✓	
Services coordination		✓		✓	✓

with nursing homes with specialized medical care with acute-hospital care		✓ ✓ ✓		✓ ✓ ✓	✓ ✓ ✓
Electronic Health Records and information technologies	✓	✓	✓		✓
Guidelines for MCCs	✓	✓		✓	
Performance measurement		✓			
Capitation remuneration systems		✓		✓	
Remuneration system adjusted to patient need		✓			

It is worth noting differences in the list of components as presented in Table 1 and Table 2. The types of services to be coordinated are adapted in Table 1 to the Ontario context. For example, Telehealth Ontario currently provides 24-hour on-call nursing services for the whole population of Ontarians.

The advancement of performance measurement in MCC programs has been slow and mostly limited to the outcome measures used to test program effectiveness. A similar situation is observed for the slow introduction of incentives to performance and changes in remuneration schemes for these programs. Nevertheless, the implementation of blended-capitation remuneration systems and the use performance measurement to monitor outcomes at the team level, as well as the linkage of these outcomes to financial incentives for teams and providers are considered essential components for care coordination and team performance throughout the

MCC literature.[15-17] Consequently, “team-based financial incentives” has been included in Figure 1 as standard of care for multimorbid patients.

In the following section, the 21 components are briefly explained, providing some Ontario context.

1. **Case Management**

   A central component of almost every MCC management program is the use of case management. This role is generally performed by a social worker (SW), registered nurse (RN), or nurse practitioner (NP) (Table 3). In the GRACE program, a RN and a SW perform the case management functions as a team, which we consider the optimal approach. SWs are especially important in connecting the interdisciplinary team with the social context of the patient and its family, while RNs are especially important in coordinating the team’s effort and manage transitions between providers, ensuring timely access and information transfer. Case management is often targeted to higher risk patients with functional limitations and among different care providers.

2. **Patient Enrolment Assessment**

   Case managers conduct a combined health and social assessment of the patient upon enrollment, and at least annual reassessments. The health component should ideally be led by an RN and the social component by a SW.

3. **Interdisciplinary Primary Health Care Teams**

   Most programs showing evidence of improved outcomes for multimorbid patients are based on interdisciplinary primary care teams. Table 3 provides a summary of the types of providers integrating these teams in different programs.

Table 3: Types of healthcare providers in the primary care teams for patients with MCCs

	GRACE	PACE	SIPA
Primary Care Physician	Yes	Yes	Yes
Care manager (type)	NP & SW		RN
Nursing		RN & NP	
Social worker	Yes[a]	Yes	Yes
Physical therapist	Yes	Yes	
Occupational therapist		Yes	Yes
Respiratory therapist		Yes	
Speech language therapist		Yes	
Mental healthcare provider	Yes (SW)		Yes
Pharmacist	Yes		
Dietician		Yes	
Geriatrician	Yes		Yes

[a] GRACE defines the role as community-based services liaison instead of SW.

A brief description of these roles and responsibilities is provided next:

- **Primary care physician:** The Primary Care Physician (PCP) is the lead to provide medical care and coordinate the medical management of the multimorbid patient, monitoring treatment by medical specialists and other healthcare providers. With the support of case managers and the primary care team, PCPs shall understand the physical, mental and social context of the patient, as well as his/her preferences, making sure that they are reflected in the medical decisions.
- **Case manager nurse:** The nursing case management role starts with patient enrolment assessments in partnership with the SW case manager, and is especially responsible for the health component of the assessment.

Coordination of care and transition management are also major tasks of RN case managers.

- **Case manager social worker:** The social worker case manager also performs patient enrolment assessments in partnership with the RN case manager, and will be especially responsible for the social component of the assessment. Facilitate home and community-based services and caregiver education and support are also major tasks of SW case managers.
- **Physiotherapist:** Rehabilitation and ongoing maintenance to ensure the optimal physical functional condition of the patients with MCCs is best addressed by a physiotherapist.
- **Occupational therapist:** Ensuring the highest level of functional autonomy of older patients with MCCs also involves adaptations best supported by an Occupational Therapist (OT).
- **Mental health care provider:** This role is performed by a nurse or SW specially trained in mental health assessment and management for older multimorbid patients, to ensure the optimal mental and emotional status of the patients with MCCs.
- **Pharmacist:** Manages complex medication and advises the MCC team on medication reconciliation.
- **Dietician:** This role ensures optimal nutritional status of MCC patients.
- **Geriatrician:** A Geriatrician provides expert advice to the MCC team in the management of complex geriatric syndromes and provides specialized medical care to the more complex older multimorbid patients.

4. **Interdisciplinary primary care team meetings**

Team meetings necessitate active engagement including all MCC team members. Individualized care plans shall be presented and approved in the context of interdisciplinary team meetings. These may be conducted as daily patient rounds.

5. **Individualized care plan**

Developed upon patient enrolment, individualized care plans need to be presented and approved in the context of interdisciplinary team meetings. Care managers ensure participation of the patient and caregiver. Individualized care plans require periodic revision and team approval.

6. **Mental health management**

Although mental health management is led by the mental health team provider (e.g. nurse or SW with mental health experience and training), all team members must be involved in mental health management from their specific roles according to disciplines. Patient-centred care requires understanding and supporting the mental dimension of the patient in every activity of the team, with MCC team members interacting to improve and prevent mental and emotional decline. For example, care manager SWs play an essential role in detecting situations for poor mental health outcomes and coordinating mental health support from the community.

PCPs and geriatricians in the MCC teams should be supported by a psychiatrist and other mental health specialists working in network in the diagnosis and treatment of mental health conditions.

7. **Medication management**

   Polypharmacy represents one of the main issues in MCC and reducing complex medication regimens to those necessary and aligned with patient health goals should be central to the model. This is a key role of the team pharmacist.

8. **Facilitate home and community-based services**

   Case manager SWs need to provide the necessary support and optimize services to avoid institutionalization for both acute and long-term care, and coordinate support from community services. They should ensure increased family and community involvement in care of multimorbid patients. Services should also consider transportation and housing.

9. **Support for self-management**

   Support the development of patient's skills for managing their chronic conditions, preventing complications, and adopting healthy life styles is an essential component of MCC programs to ensure sustainability and engagement of patients through the majority of time when they are not directly in contact with clinicians and are managing on their own.

10. **Caregiver education and support**

    Supports are necessary to enable the development of caregiver's skills for taking care of dependent multimorbid patients and helping them to self-manage their chronic conditions and adopt healthy lifestyles. Providing support to informal caregivers to prevent or reduce distress, in the forms of emotional or psychological support, respite care, complementing home care services, and others according to need is also critical for sustainable management for MCC patients.

11. Involvement of patient and caregivers in decision making

Involving patients and caregivers in care planning should consider patient and caregiver concerns and priorities of care, promoting their participation in elaborating individualized care plans.

12. Integration of home care services

Nursing and other home health care services should be integrated with the primary care services provided by the MCC team. In addition, homemaking and personal support services provided by personal support workers (PSWs) should be coordinated directly by the MCC team. The MCC team has a unique advantage when assessing the needs and consequential eligibility for receiving home care services for multimorbid patients. These assessments, together with those for institutional long-term care placement, should be performed by the MCC team and coordinated with the regional authority.

13. Single entry

Access to non-emergency services for patients in MCC programs should be exclusively through the MCC team, which is in an unbeatable proximity with physical, mental and social context of the patient and their family. These services should including specialized medical care, home care, rehabilitation services, long-term care homes, and social community services.

14. Continuity of care and transition management

Case manager RNs coordinate attention and optimize transitions and information flow among different providers and different levels of care. Coordination of care should include long- term care homes and assisted living facilities, specialized medical care, acute hospital care, and rehabilitation facilities.

15. Electronic health records (EHRs)

EHRs are necessary to support case management and continuity of care across and within organizations, and for the generation of data for performance measurement.

16. Use of information technologies

Information technologies are necessary to enable care coordination, facilitate communication, and increase efficiency in consultations between multiple sites (networks) and among providers in the same setting.

17. Guidelines for MCCs

Protocols in common geriatric syndromes, similar to the GRACE protocols[18], adapted to the Ontario context should be used. These protocols must be evidence-based, with inputs from MCC teams. Team members should receive special training on these guidelines.

18. Performance measurement

Performance measurement of MCC teams is necessary to improve processes and monitor outcomes of care and costs. It is also necessary for providing incentives for performance and teamwork, and shared accountability. Performance measurement and accountability is further addressed in the following section of this report.

19. Blended-capitation remuneration system

The reimbursement method implemented should include a capitation component for MCC teams, blended with another remuneration model, such as salary or fee-for-service, depending on the type of provider and type of service.

20. Remuneration system adjusted to patient need

A blended-capitation remuneration system needs to be adjusted for patient need, measured by appropriate comorbidity indices such as that provided by the Johns Hopkins' Ambulatory Care Groups (ACG©) model.

21. Team-based financial incentives

Financial incentives should encourage collaborative team-based work, linking incentives to performance measures that each individual team member contributes to accomplish.[15-17] These incentives may be combined with individual incentives, or others linked to organizational goals. Incentives need to be aligned with the particular needs of the patients with MCCs, using measures such as Patient Reported Outcomes Measures (PROMs) among others, which will be discussed further in the following section.

Measuring performance for people with multimorbidity

Performance measurement in MCC patients is particularly challenging compared to single disease measurement. First, the variability in the severity of each of the conditions and the mix of chronic conditions themselves, and how they interact with each other, make it difficult to develop adequate disease specific outcome measures.[19] Second, the mix of performance measures need to reflect the interdisciplinarity of the care required, integration of services, and the simultaneous physical, mental and social approach of care required for patients with MCCs. In addition, incentive mechanisms derived from these measures have to encourage teamwork and collaboration.

Performance measurement to promote high performance of MCC teams

Performance measures for integrated care to multimorbid patients should focus on promoting provider collaboration in the achievement of common goals and obtaining associated incentives. Table 4 summarizes the types of measures that should be involved, including process and outcome measures at three levels of care delivery: individual, team and organizational.

Table 4: Types of performance measures for high performer MCC teams

	PROCESSES	OUTCOMES
Organizational level	Inter-team collaboration and transitions	Accomplishment of organizational goals (organizational objectives, care delivery and financial outcomes)
Team level	Composite processes of care (aggregated of individual tasks completed) Intra-team transitions Shared patient record and information	Health outcomes: - Patient-level targets of care - Patient-level health outcomes - PROMs System utilization Financial outcomes (costs)
Individual level	Individual tasks completed	Patient-level targets of care System utilization

The most critical measures for achieving high performing MCC teams are at the team level of care delivery. Effective performance measures for teams reflect the work of all, or at least a majority of, the team's members. These indicators should be as simple as possible, easy to understand and applied in a fair and objective manner.[17]

A useful type of team level performance measures are composite processes of care, which are aggregated of tasks completed individually by different team members. As well, performance measures at the organizational level are desirable to ensure the achievement of organizational goals, to incentivize inter-team collaboration, and to increase performance at the system level. One complication is that there are no widely used standard composite process measures, because they depend on the specific health, functional and social needs of every patient. Therefore these performance measures, crucial for fostering team collaboration and successful patient outcomes, should be defined by the MCC team for every individualized patient care plan. As an example, a patient whose enrolment assessment includes COPD, depression, risk of functional

decline, and increased risk of family caregiver distress; the ideal composite process of care would include that the patient receives: a) corresponding seasonal vaccines by the team's RN; b) periodical evaluations by the mental health team provider; c) program of functional support by physical and/or occupational therapist; d) follow-up of family caregiving by case manager; e) evaluations by PCP according to frequency defined in the individual plan; and f) medication reconciliation assessment by pharmacist. Teams should also share information on client goals and support, such as housing security, food security, equipment, and social capital. Clearly further research is needed to better define appropriate team performance measures. Unfortunately there is not sufficient high quality guidance from existing evidence to determine these more specifically.

Despite the critical role of team level performance measures, they should be combined with outcome measures at the individual level to maximize performance, at least for providers who make transcendent individual decisions or perform key tasks, such as PCPs and case managers.

A list of examples of performance measures used in the research literature for assessing the impact of MCC management programs is presented in Table 5.

Table 5: Performance measures for models for MCC management in the literature.

Research Study	Model of MCC Management	Performance Measures
Counsell et al. (2007)[5]	GRACE	ACOVE quality indicators. SF-36 medical outcomes: physical functioning, role-physical, bodily pain, general health, vitality, social functioning, role-emotional and mental health. Functional index score created from 7 Instrumental and 6 basic ADLs. ED visits, acute-care hospitalizations and mortality rates.
Mukamel et al. (2006 & 2007) [6;7]	PACE	Risk-adjusted outcomes at 3 and 12 months post PACE enrollment: - Self-assessed health status. - Functional status (ability to perform ADLs) - Mortality at 12 months.
Boult et al. (2008)[8]	Guided Care Model	PACIC (at 0 % 6 months) PCAT (PCP satisfaction, time allocation, knowledge, and care coordination; at 0 & 12 months) Nurses' job satisfaction instrument (at 12 months)
Marsteller et al. (2010)[9]	Guided Care Model	Physician satisfaction with chronic care, time allocation, and PCAT questions on knowledge and care coordination (at 0 & 12 months). Practice characteristics (physician panel size)
Wolff et al. (2010)[10]	Guided Care Model	PACIC adapted to caregivers (quality of chronic illness care), caregiver depression, strain, and productivity loss (at 0 & 18 months)
Boyd et al. (2008)[11]	Guided Care Model	PCAS (physician-patient communication, interpersonal treatment, knowledge of patient, integration of care, and trust in physician; at 0 & 6 months)
Sylvia et al. (2008)[12]	Guided Care Model	Insurance expenditures (6 months, for all fee-for-service care) Services utilization (hospital admissions, hospital days, and ED visits; 6 months)
Beland et al. (2006)[13]	SIPA	Admission, service utilization and public cost of care for: - Inpatient acute care - ALC days - Nursing homes - Home health care - Home social care Health status; Satisfaction with care Out-of-pocket expenses Caregiver burden
Hebert et al. (2010)[14]	PRISMA	Disability, functional decline and unmet needs using the SMAF [French acronym for Functional Autonomy Measurement System] ED visits and hospitalization Utilization of community health and social services Health care satisfaction and empowerment questionnaires Caregiver's burden and desire to institutionalize

Although the examples provided in Table 5 offer useful guidance, it is important to notice the shortage of team-based performance measures in the literature. This element represents an important research gap and a challenge for the development of adequate programs for patients with MCCs. In addition, the set of measures to be implemented in Ontario should reflect aims for dimensions in the Chronic Disease Prevention and Management Framework[20] (Figure 1).

E. Conclusions

An integrated, patient-centred system is the most effective approach to managing the needs of patients with MCCs, as broadly agreed by experts across several countries. However, implementing such approach requires important changes in the way our healthcare services in Ontario are delivered.

This report suggests the essential elements of healthcare delivery that are required to effectively and efficiently manage patients with MCCs in the Ontario context. These elements need to be articulated with adequate performance measures and attached to incentives, in order to successfully achieve transformational care improvement and to attain system goals for this population.

References

(1) Yach D, Hawkes C, Gould CL, Hofman KJ. The global burden of chronic diseases: overcoming impediments to prevention and control. *JAMA* 2004;291:2616-2622.

(2) Cornell JE, Pugh JA, Williams JW, Kazis L, Parchman ML. Multimorbidity Clusters: Clustering Binary Data From Multimorbidity Clusters: Clustering Binary Data From a Large Administrative Medical Database. *Applied Multivariate Research* 2007;12:163-182.

(3) Ontario Medical Association (OMA). Policy on Chronic Disease Management. 2009.

(4) Bloom DE, Cafiero ET, Jane-Llopis E, Abrahams-Gessel S, Bloom LR, Fathima S et al. The Global Economic Burden of Noncommunicable Diseases. 2011. Geneva, World Economic Forum.

(5) Counsell SR, Callahan CM, Clark DO et al. Geriatric care management for low-income seniors: a randomized controlled trial. *JAMA* 2007;298:2623-2633.

(6) Mukamel DB, Temkin-Greener H, Delavan R et al. Team performance and risk-adjusted health outcomes in the Program of All-Inclusive Care for the Elderly (PACE). *Gerontologist* 2006;46:227-237.

(7) Mukamel DB, Peterson DR, Temkin-Greener H et al. Program characteristics and enrollees' outcomes in the Program of All-Inclusive Care for the Elderly (PACE). *Milbank Q* 2007;85:499-531.

(8) Boult C, Reider L, Frey K et al. Early effects of "Guided Care" on the quality of health care for multimorbid older persons: a cluster-randomized controlled trial. *J Gerontol A Biol Sci Med Sci* 2008;63:321-327.

(9) Marsteller JA, Hsu YJ, Reider L et al. Physician satisfaction with chronic care processes: a cluster-randomized trial of guided care. *Ann Fam Med* 2010;8:308-315.

(10) Wolff JL, Giovannetti ER, Boyd CM et al. Effects of guided care on family caregivers. *Gerontologist* 2010;50:459-470.

(11) Boyd CM, Shadmi E, Conwell LJ et al. A pilot test of the effect of guided care on the quality of primary care experiences for multimorbid older adults. *J Gen Intern Med* 2008;23:536-542.

(12) Sylvia ML, Griswold M, Dunbar L, Boyd CM, Park M, Boult C. Guided care: cost and utilization outcomes in a pilot study. *Dis Manag* 2008;11:29-36.

(13) Beland F, Bergman H, Lebel P et al. A system of integrated care for older persons with disabilities in Canada: results from a randomized controlled trial. *J Gerontol A Biol Sci Med Sci* 2006;61:367-373.

(14) Hebert R, Raiche M, Dubois MF, Gueye NR, Dubuc N, Tousignant M. Impact of PRISMA, a coordination-type integrated service delivery system for frail older people in Quebec

(Canada): A quasi-experimental study. *J Gerontol B Psychol Sci Soc Sci* 2010;65B:107-118.

(15) Paulus RA, Davis K, Steele GD. Continuous innovation in health care: implications of the Geisinger experience. *Health Aff (Millwood)* 2008;27:1235-1245.

(16) Xyrichis A, Lowton K. What fosters or prevents interprofessional teamworking in primary and community care? A literature review. *Int J Nurs Stud* 2008;45:140-153.

(17) Blumenthal DM, Song Z, Jena AB, Ferris TG. Guidance for structuring team---based incentives in healthcare. *Am J Manag Care* 2013;19:e64-e70.

(18) Counsell SR, Callahan CM, Buttar AB, Clark DO, Frank KI. Geriatric Resources for Assessment and Care of Elders (GRACE): a new model of primary care for low---income seniors. *J Am Geriatr Soc* 2006;54:1136-1141.

(19) Bayliss EA, Ellis JL, Steiner JF. Subjective assessments of comorbidity correlate with quality of life health outcomes: initial validation of a comorbidity assessment instrument. *Health Qual Life Outcomes* 2005;3:51.

(20) Ontario Ministry of Health and Long---Term Care. Preventing and Managing Chronic Disease: Ontario's Framework. 2007.