Highlights:

- In Canada, between 33% and 50% of the population has at least one chronic condition and the prevalence of multimorbidity is increasing.
- Integrated care models are recognized as best practice for chronic disease management; however, to date, few health regions in Canada have achieved full-systems integration in a chronic disease management context.
- Many health regions in Canada have acknowledged that moving toward a more integrated system is their intended future direction and jurisdictions are in various stages of progression in achieving that goal (e.g., Alberta Health Services, Northern Health in BC).
- Essentially every health authority references the Expanded Chronic Care Model as an overarching framework to guide the work of their departments/organizations.
- Common themes and challenges in achieving integrated and coordinated chronic disease management emerged across Canada and mirror the factors reported in the literature (e.g., patient-centred approaches, support from senior management, use of interdisciplinary teams, self-management principles, coordinating care transitions, etc.).
- Internationally, best practice models exist for providing integrated chronic disease management from various countries including the US, Australia, Singapore, France, and the UK.
- The Stanford Self-Management Program is the most widely adopted self-management program in Canada. More efforts are being made across the country to educate providers about self-management and to encourage the integration of self-management principles into regular service delivery.
- Emerging generalist approaches to chronic disease management often begin with diabetes as a pilot, then look at integrated care pathways across the continuum and role-redesign such as through the implementation of a multimorbidity nurse.

BACKGROUND

Introduction

To supplement the literature review to inform the Chronic Disease Initiative at Capital Health, a cross-Canada jurisdictional scan was conducted. The purpose of the scan was to identify what other health authorities across Canada are doing regarding integrated/coordinated chronic disease management from a service delivery perspective, with a particular emphasis on managing multimorbidity. Follow up interviews were conducted with identified key informants and programs/clinics of interest. Detailed methodology for the scan can be found in Appendix A. For a list of contributors to this report, refer to Appendix B. Moreover, this report includes international best practice service delivery models and programs that were identified through the literature review process. Please refer to the literature review for detailed methodology.

Please note that this is a working document and will be updated as further conversations with health authorities and chronic disease management experts across Canada occur.

COMMON THEMES ACROSS CANADA

Summary

In Canada, between 33% and 50% of the population has at least one chronic condition (CIHI, 2012; Nasmith et al., 2010) and multimorbidity is highly prevalent, illustrating the burden of chronic disease on the health care system (Fortin et al., 2012, Tinetti et al., 2012). Integrated care models are recognized as best practice for chronic disease management given the high prevalence of multimorbidity being observed in today’s population and the fragmented nature of existing services in the health care system (Kodner, 2009; Smith et al., 2012a; Smith et al., 2012b; State of Victoria, 2008; Nolte & McKee, 2008). However, to date, few health regions across Canada have achieved...
full-systems integration in a chronic disease context. The vast majority of health regions have acknowledged that this is their intended direction; however, regions are in various stages of progression in achieving that goal.

Common themes in chronic disease management models/programs across Canada include:

- Essentially every health authority references the Expanded Chronic Care Model as an overarching framework to guide the work of their departments/organizations
- Primary Health Care plays a key role in the management and coordination of chronic conditions
- The Stanford Self-Management Model is the most widely adopted self-management program across Canada
- Chronic disease management programming remains largely disease-specific, but many regions acknowledge that with diabetes management programs, you are also looking at multimorbidities; however, diabetes is still viewed as the index-disease.
- Multiple risk-factor management occurs most often within stroke care and wellness/lifestyle clinics
- Diabetes as a pilot: when implementing multi-disease integrated models, diabetes was most commonly described as a “first step” in identifying integrated care pathways across the continuum and/or piloting generalist practitioner roles within the model
- Delivery of care through multidisciplinary and interdisciplinary teams is highly prevalent
- There is widespread recognition of the need for coordination and to have a team member that plays a coordinating role, especially among more complex patients
- A key success factor in implementing delivery systems redesign for chronic condition care is support for chronic disease strategies from senior management
- Stakeholder engagement and relationship building are essential factors for success

Common challenges for delivery systems redesign:

- Physician engagement
- Large geographical areas
- Lack of information systems/single EMR
- Lack of awareness about integrated care models and their benefits to individuals, providers, and the system
- Transitions of care
- Attaining funding to begin integration efforts/delivery systems redesign
- The “silhouette” nature of many health care organizations results in disease-specific health care delivery, which reflects a provider-centric model

Notable variances between health regions:

- Level of provincial involvement – some health regions focus on developing their own strategies whereas other health regions focus on implementing provincial strategies (e.g. LHINs in Ontario)
- Level of connection with family doctors – some regions report high degrees of collaboration and engagement of primary care physicians, whereas others report little connection with family doctors
- Level of integration (horizontal and vertical variations)
- Level of readiness regarding a shift toward a generalist or multimorbidity approach

The common themes observed in chronic care delivery across Canada reflect gravitation toward more integrated, patient-centred approaches, which have shown to improve health outcomes in the literature (Kodner, 2009; Boyd & Fortin, 2010). However, this transition from disease-focused service delivery to a more coordinated, generalist approach is impeded by common challenges that mirror those cited in the literature regarding integrated care models and delivery systems redesign (Kodner et al., 2009; Sutter et
Moving forward in achieving optimal care for those with chronic conditions will require a thoughtful and organized approach that draws upon multiple stakeholders.

**SUMMARY BY PROVINCE**

Nasmith et al. (2010) suggests: “Canada is lagging behind other countries in performance and infrastructure to support people living with multiple chronic conditions, particularly in the critical primary care sector. At the same time, across the country, there are many promising and sometimes isolated initiatives or ‘islands of innovation’ that move in the direction of integrated, comprehensive care” (p.3). Best efforts were made to identify such programs.

Listed below is a summary by province based on telephone consultations held with each regional health authority (*incomplete*). Specific examples of notable models and strategies are highlighted. The majority of programs listed have a foundation in primary health care. This is consistent with the literature in recognizing that having a strong primary health care system, which supports coordination of care across the continuum, is the strongest enabling factor in providing high quality chronic care for those with single and multiple chronic conditions (e.g., France et al., 2012; Norris et al., 2003; Smith 2012a, Smith 2012b; et cetera).

**Alberta**

Alberta has one health authority, Alberta Health Services (AHS), responsible for health care delivery in the province, which serves as an enabler of chronic disease management program delivery. Alberta’s system approach to chronic disease management and prevention using the Expanded Chronic Care Model, focuses on client-centred care, self-management, and the facilitation of care across the continuum (Delon & MacKinnon, 2009). This systems approach requires engagement of providers, patients, and the community as a whole to transition away from a reactive, acute, and episodic model to one that is proactive and focuses on population health. The hallmarks of the integrated system include clinical pathways and algorithms to address continuity of care across the continuum, enhancing patient-centred care by helping to educate patients about managing their condition in their own context, reducing clinical variation, improving process management, and integrating and partnering with primary care to strengthen team based approaches and collaboration among providers (Delon & MacKinnon, 2009). The integrated approach has evolved significantly since its implementation in the Calgary Health Region in the early 2000’s. The model first began with diabetes and further conditions were added to the model upon re-allocation of funding (hypertension, obesity, dyslipidemia, etc.). Upon amalgamation of health regions, the integrated approach expanded beyond Calgary to become province-wide.

As one example, outcomes pertaining to the implementation of the Expanded Chronic Care model and improving integration within the Calgary zone demonstrated significant improvement in patient outcomes, decreased costs, and improvements in length of stay:

- 17% increase in the percentage of diabetic patients with A1C control
- 19% decrease in patients with COPD-related exacerbations resulting in hospitalizations
- 41% decrease in in-patient hospitalizations across all patients
- 34% decrease in emergency room visits across all patients

(Delon & MacKinnon, 2009; Briggs, 2009)

There are many notable examples of integrated approaches to chronic disease management within Alberta; a non-exhaustive list of key example is listed below.
**Alberta Healthy Living (Integrated Community-Based CDM Program)**

The strategy for integrated community-based chronic disease management programming, released fall 2012, builds upon existing program infrastructure and regional work that began in 2010. The goal of the strategy is to address duplication and fragmentation among chronic disease management programs offered in the communities across the province. For the purpose of this strategy, community-based CDM refers to any programming occurring outside of a hospital and is not limited to that offered by health care providers. The strategy takes a non-disease specific approach, looking at integrating programming across various conditions and recognizing that clinical practice guidelines for various conditions (e.g., COPD, cardiovascular, diabetes) contain many commonalities such as the three service pillars listed below.

The strategy has 3 service pillars:
- Patient Education (disease specific and integrated general health)
- Physical Activity (multi-disease and both centre and home based)
- Self-Management Support (workshops, tools, and integrated messaging)

The goal is to create standards of practice for each pillar so that the same level of service is offered across the province. As well, strategies will be integrated with primary care to ensure continuity, coordination, and ongoing follow up. Care pathways will determined the most appropriate type and level of support and services will be provided through specialty care when a patient’s needs exceed those that can be met by integrated community care.

In order to facilitate integration across services, sectors, populations, and diseases, the following will be established:
- Care pathways and defining patient flow
- Sharing of staff, facilities, information, and resources
- Co-location of services
- Interprofessional, cross sector training

In order to address the duplication, fragmentation and gaps in programming, existing services will be mapped and compared against prevalence rates of chronic conditions (including areas with high rates of multimorbidity) to determine an area’s need. As well, programs from the three service pillars offered in an acute care setting will be transferred to the community, as appropriate. For example, upon referral to the diabetes specialty clinic, the Diabetes, Hypertension, and Cholesterol Control Centre (Calgary Zone) provides standardized community-based education before the first appointment (which used to be offered in hospital) and staff cross-over between these two settings.

A common evaluation tool to identify outcomes of this program is in development (Alberta Health Services, 2012).

**Complex Chronic Care Clinic (Peter Lougheed Centre, Calgary)**

The Complex Chronic Care Clinic located at the Peter Lougheed Centre in Calgary is a multimorbidity clinic that sees complex patients who have ≥2 chronic conditions, are 18 years or older, and have had an ED visit or inpatient admission in the past year. However, they will accept patients who do not meet the criteria based on the fact that FPs are barely managing to keep them out of the acute care system, among other reasons. Typically, they do not refuse any referrals.

**Staffing:**
- 2.0 FTE RNs
- Physician for 3 sessions a week – alternates by week between a hospitalist and a general internal
medicine specialist (the cases are complex enough that ideally it would always be an internist)

- 0.6 FTE Pharmacist (not enough FTE as they have no time to do research or prep beforehand)
- Have access to non-dedicated staff as needed – dietician, social work, specialists e.g., cardiologists, nephrologists (under the Specialty Clinics portfolio)
- Continuity of care is provided by the RNs and the pharmacist as the rest of the staff rotate through

**Operations:**

- 3, ½ clinic days per week to treat complex chronic conditions (patient base n=130).
- The clinic takes a multimorbidity approach; however, it is not limited to certain conditions nor does it identify clusters (wide variety of combinations individualized to each patient; nurses emphasize that no particular clusters of disorders stand out to them; highly dynamic patient group and treating patients individually was integral to success, in their opinion). Often see CHF, renal disorders, COPD, liver disease, diabetes, among many others.
- Nurses play a “quarterback” role by coordinating between the patient and all of the patients’ current providers. The RNs are very independent in terms of maximizing their scope of practice; consult with physicians as needed for advice

**Barriers/Gaps in Service:**

- Have trouble with managing chronic pain (not staffed appropriately to handle this)
- No mental health support – there are no mental health resource in clinic, yet ≥80% of referrals could benefit from mental health services
- No EMR

**Evaluation:**

- Hospital admissions for patients at the clinic have been reduced by 60% (Alberta Health Services, 2011)
- Number of days spent in hospital for patients who are admitted has been reduced by 90% since the clinic opened in 2008 (Alberta Health Services, 2011)
- No formal, rigours research evaluation

**Personal Health Portal**

The Personal Health Portal is an online patient record where individuals can access information on chronic conditions, receive information about their health, see their lab results, program listings, online tutorials, courses, etc. (e.g., self-management course, see below). As well, patients will be able to book appointments online through a central booking database and self-refer to select CDM programs. The personal health portal has features analogous to a Personal Health Record (PHR) and is currently being piloted, but will be available to all residents in 2013.

**Self-Management Supports**

AHS is looking to expand community-based chronic disease management services, as mentioned above, with self-management supports being a key area of this expansion. The Stanford self-management model has been adopted province wide and is often (or ideally) offered by a provider and lay-person dyad. AHS has piloted an online version of the Stanford self-management course, which will be available for all in 2013. To date, results show that a different patient demographic is participating in the online version of this course (younger, male, and those with chronic pain). This course is available via the Personal Health Portal. In terms of outcome evaluation, preliminary results convey that this online Canadian pilot had the best outcomes when compared to other countries participating in the pilot (e.g., US, UK, AUS).
Patient coaching is an area that AHS is actively exploring and highly promoting across the province, mentioning Dr. Michael Vallis as a key leader in the field that they are learning more from in this area. Coaching patients to navigate the system is a way to empower the patient in coordinating their own care. This will also include provider coaching to educate providers on how to help their patients develop self-management and behaviour change skills. Currently, there is an education program for providers called Choices and Changes; however, many providers are expressing interest in more advanced training.

**Strategic Clinical Networks**

Strategic Clinical Networks (SCNs) are a new initiative within AHS. Currently, there are six in operation, with a chronic disease and primary health care team to be established by March 2013. The network membership includes medical directors and physicians (primary care and specialist), VPs, executive directors, a patient lead, community/public representatives, administrative staff, clinical providers (non-physicians), researchers, and policy analysts. These clinical networks are being thought of as a way to engage physicians and providers in integrated care models by collaboratively working together to improve patient-centred care through the development of care pathways, programs, clinical guidelines, outcomes monitoring, and more. The end result will be to facilitate transitions between primary care and specialist care and acute and community care. Including a patient and community representatives on the team aims to transform models from bring provider-centric to patient-centred and their involvement is identified as a key success factor moving forward. As well, a key lesson is to show the providers who are operating in different areas of the system is that “everyone is sharing the same patients.”

**Family Health Clinics**

Family Health Clinics are a new initiative looking at zone mapping to identify service barriers and gaps within a defined geographical area. The premise of the development of these clinics is, “knowing the population, what services do they need?” Zones will request the Rural & Communities Department to evaluate identified communities to determine prevalence rates of various chronic diseases and existing services offered. Then, services will be planned based on the needs to the community and through stratification of risk, but avoiding duplication with existing services (whether offered by AHS or external partners).

**Red Deer Primary Care Network**

Primary Care Networks are a collaborative initiative between the Alberta Medical Association, Alberta Health Services, and Alberta Health and Wellness. The Red Deer Primary Care Network (PCN) is one of 42 PCNs across the province that is optimizing chronic disease management in primary care through program integration and teamwork. Through the implementation of the Expanded Chronic Care Model, the PCN takes a health promotion approach to provide programming to improve quality of life and empower patients.

Some examples of the Red Deer PCN chronic disease management approach include:

- Multidisciplinary teams: physicians, family nurses, pharmacists, mental health counsellors (psychologists and social workers), and health basics coaches (kinesiologists, dietitians, nurses)
- Case management algorithms for providers (e.g., hypertension)
- Disease specific programming (Asthma & COPD, hypertension, diabetes, mental health)
- Health Basics Program (physical activity and weight loss program)
- Navigation for linkages to community resources
- Pharmacist Program for medication management
Some key enabling success factors include: engaging and building strong relationships with the community and partners, promoting a healthy workplace environment for staff, and having a wellness, not illness, focus (Red Deer Primary Care Network, 2012a; 2012b).

**Current Challenges**

Despite moving toward a province-wide integrated approach, there are still many challenges encountered when delivering care for those with chronic conditions. The engagement of primary care physicians has been an ongoing challenge; however, the development of the Primary Care Networks (PCNs) has helped to advance engagement. Currently, AHS is working on improving transitions of care through a discharge model; however, it has been a challenge to get primary care providers engaged in this planning process. As well, AHS is looking at standardizing processes, such as through the development of a closed loop referral process (e.g., who gets referred and when, establishing feedback loops, and agreeing on a central referral process to specialty services). Through a central referral process, all CDM patients will be referred to a “pod” of specialists in queue, whereas with current methods, the primary care provider has to refer to a specific specialist and sometimes patients get lost in the communication channels. This will further help to support integration across the continuum. Similarly to other provinces in Canada, AHS is working toward implementing a shared EMR and they do appear to be making significant progress in this domain.

**British Columbia**

In British Columbia, there are five health regions responsible for delivering care to BC residents. BC is moving toward an integrated approach for care delivery in the majority of health regions and is a leader in providing appropriate support to physicians for managing chronic conditions, notably through compensation for guideline consistent management of chronic disease and multimorbidity.

**Northern Health**

Northern Health is currently implementing a new model of service delivery for their entire health system, which is relevant, but not specific to, chronic disease management. Their initiative is to create integrated, accessible health services built on a foundation of primary health care. The desired outcomes of the initiative include: providing continuous, coordinated, comprehensive care for the “whole person,” controlling wait lists, reducing pressure on emergency rooms, and long term sustainability of the health care system.

The foundation of primary health care will be built through the development and implementation of Primary Health Care Homes. The Primary Health Care Home is a place where individuals will establish a long term relationship with a multidisciplinary team in order to both receive care and to receive support for managing their own health in a holistic and patient-centred manner. The key functions of the primary health care home include:

- Access to health services (point of intake)
- Assessment (biopsychosocial approach)
- Shared care planning (home care, caregiver support, specialist services, palliative)
- Coordination of care
- Ongoing improvement (evidence based guidelines, EMR, communication links, population health)

Development of the model includes three phases:

1. Understanding the community
2. Understanding the system
3. Understanding the patient within the system (implementation)
From a chronic disease perspective, understanding the system involved bringing together staff from all program areas to determine what is currently being done. Zone by zone, Northern Health first looked at who does CDM? What are the processes and related forms? This identified gaps in the system, areas of overlap, issues around staff not knowing what each other’s roles were, fallacies about the sharing of patient information, and more. Additionally, the groups looked at other functions such as case management, care planning, financial assessments, and clinical assessments. From here, working groups were developed to support clinicians to do financial assessments, developing a common intake process/form and developing privacy/information sharing policies and procedures.

From a multimorbidity perspective, Northern Health will begin looking at clustering of chronic conditions within the next year. Another next step is to look at transitions and connections between specialists and the Primary Health Care home. Multidisciplinary team membership is to be determined and it is suspected that a nurse (RN) leader will provide the coordination function within the Primary Health Care Home.

**Vancouver Island Health Authority (Integrated Health Networks)**

Integrated Health Networks (IHNs) are multidisciplinary teams that have a chronic disease management focus. They were a provincially mandated initiative that VIHA received funding for as part of the provincial Integrated Primary and Community Care Initiative in 2007-2008. There are five teams currently in operation within VIHA and their target population is complex patients with co-morbidities.

**Providers:**
The multidisciplinary team consists of:
- RN Leader
- Social Worker
- Dietitian
- Administrative support
- Primary Care Physician Partners

The number of FTEs allocated to each team varies based on the population served. In many teams, the providers hold partial FTE positions and this has been identified as a barrier for retention. The teams work collaboratively with primary care physicians within their area to help care for patients with chronic conditions (act as an additional resource for physicians). Various levels of physician engagement with the teams exist; in some areas, there is a very high level of engagement and some physicians are even paying for the space that the IHN works from as they have recognized their value in helping to care for their complex patients. In other areas, there is less physician buy-in to the model. The high-level of interest in working with the teams is hypothesized to be a result of the reputation of the team providing quality care and the relationship building skills of the IHN staff.

**Operations:**
Referrals to the team come from physicians who think a certain patient would benefit from the team based on having two or more chronic conditions. Depression is notably paired with one other chronic condition (anecdotally). Once referred to the team, participants also have access to community-based services, as mandated to be funded by VIHA, through external partnerships. This leads to a notable limitation of the model in that it creates a “two-tiered” approach for wellness services for patients by virtue of who their family doctor is. Patients of physicians who partner with the IHN receive free services (e.g., access to community wellness centres) as a result of this funding. Group sessions are another area of focus, which concentrate on self-management, patient education, behaviour change, and action plans.

**Evaluation:**
Formal evaluation has yet to occur post-provincial funding (from pilot stage); however, preliminary data
suggest suspected reductions in acute care costs and there has been noticeably fewer CTAS 4 & 5 cases presenting at the emergency departments in areas where the teams are active.

**Vancouver Coastal Health Authority**

The Vancouver Coastal Health Authority is addressing integrated care by focusing on complex populations. Complex populations are identified as those with multimorbidity, the frail elderly, those with moderate-severe mental health and addictions issues, and to a lesser extent, palliative and maternity patients. For complex patients, there is an emphasis on providing care for the “whole” person, considering both medical and non-medical components to treatment and referring to the appropriate community resources as necessary.

There are three main initiatives being undertaken to address chronic disease in complex patients:
1. General Practitioners Services Committee incentives program (see below)
2. Integrated Primary and Community Care (pilot projects as part of a provincial initiative)
3. Transitions of Care Strategies

The goal of the Integrated Primary and Community Care Initiative is to provide integrated care over the long term. Quality improvement and LEAN methodology was used in the implementation of this initiative and it required ongoing engagement of providers. There are various pilot strategies in place:
- Streamlining the referral process between GPs and the home health team and implementing organized feedback from the care manager to the GP post-assessment.
- Case conferencing between GPs and case managers (in person and telephone)
- Mental health and primary care collaborative (mental health counselors in GP office)

Initiatives are piloted with a small group and upon success, will enter the spread phase and expand to other interested physicians.

Transitions of Care strategies target acute care system users (inpatients and frequent emergency department users) and facilitate their transition back into the community. Specific to chronic disease, individuals with COPD and CHF receive follow up from a rehab services interdisciplinary team (occupational therapists and physiotherapists) who work with the patient's primary care physician. The rehab team follows the patient in the community, providing and coordinating care and self-management support for three months, at which time there is a ‘handover’ to the GP. Similar processes are in place for mental health and the frail elderly. As well, high frequency ED users (e.g., those with 10 or more visits per year) are targeted for follow up. Upon identification as a high frequency user (many of which have multiple chronic conditions), the patients’ GP is identified and through case conferencing, the GP and other providers create a community care plan and an emergency care plan in the event that they re-enter the emergency department.

Key success factors in achieving integrated care approaches at Vancouver Coastal include: engaging all stakeholders and building strong relationships, creating a clear vision for integration by specifying exactly what it will look like in practice (helps to achieve buy-in), and developing solutions from the bottom-up via stakeholder engagement. Barriers to integration include interaction/communication between providers and awareness of others' roles.

**General Practice Services Committee (GPSC)**

The GPSC is a partnership between the BC Medical Association and the BC Ministry of Health Services and it undertakes several initiatives to improve the role of the General Practitioner/Family Physician in chronic disease care. Examples include the Practice Support Program and the Full-Service Family Practice Incentive Program.
The Full-Service Support program supports and compensates GPs in delivering guideline based chronic condition care. Specifically, there is a “Chronic Disease Management” Incentive which provides funding for identification of chronic illnesses, to develop care plans, and to work with flow sheets and registries to manage patient care. The “Complex Care” Incentive compensates FPs for the time and skill needed to work with patients with two or more of the qualifying chronic diseases (e.g., diabetes and ischemic heart disease), to develop a care plan, and to discuss with the patient (GPSC, 2012).

The health regions work very closely with the GPSC in implementing programs to improve chronic disease management through the Practice Support Program. Vancouver Island Health Authority has reported particular success; 75% of primary care physicians have been involved in some Practice Support Initiative, namely quality improvement learning modules. The GPSC also holds chronic disease management forums, which serve as an opportunity for providers to come together learn about chronic disease management.

**Manitoba**

Manitoba’s health system is currently being restructured, with the eleven pre-existing regional health authorities (RHAs) being amalgamated to five RHAs.

**Winnipeg**

Winnipeg uses the Expanded Chronic Care Model as a guiding framework as well as the recommendations set forth by Kriendler et al. (2008) for its implementation. Through implementation of the model, Winnipeg is actively developing a more integrated, systematic approach to chronic disease management through the development of a Chronic Disease Collaborative. The goal of the collaborative is to: “enable the development and implementation of an integrated strategy on chronic disease prevention, care and management in Winnipeg that is achieved by collaboration among jurisdictions, across sectors and on several diseases.” Thus, the collaborative will take a non-disease specific approach that looks at CDM across the continuum of care.

Current system redesign initiatives include the development of integrated care pathways for diabetes, COPD, osteoporosis and participating in the Cancer Patient Journey Initiative. Aligned with the Primary Care Renewal Strategy, the redesign initiatives are using a chronic disease lens to develop an integrated approach to connect family medicine and specialty services, with care delivered at home and in the community. The long range plan is to develop a WRHA comprehensive generalist chronic disease integrated care pathway. Diabetes was chosen as a pilot initiative and a full care pathway spanning the continuum for adults with newly diagnosed type-II diabetes has been developed and is currently being implemented into practice (Winnipeg RHA, 2012).

The Primary Care Renewal Strategy (as mentioned above) involves the development of Primary Care Networks and Primary Care Homes which will both be critical in providing support for individuals with chronic conditions. Winnipeg RHA has been divided into four zones, each representing a PCN, which will contain medical homes with multidisciplinary teams.

To address the social determinants of health, WRHA also has Access Centres which provide medical and social services to individuals. Similar models for Aboriginal and French communities also exist to provide a combination of primary care and social services. WRHA looks at “who is coming to the centres and who are we not getting to and why?” Addressing this typically goes beyond traditional medical models.

Improving self-management is also a key initiative at WRHA and it is being addressed in an innovative way to ensure patients with chronic conditions are using knowledge garnered effectively. To promote
functional use of self-management education, they suggest using Bloom’s Taxonomy Principles to promote effective integration and synthesis of information. They recommend provider-led self-management education where a formalized plan is created to apply self-management principles.

Southern RHA

The western half of the Southern RHA has adopted a generalist model for chronic disease management in primary health care. This model originated as a diabetes management model that has since evolved to take a multimorbidity approach to chronic disease management. Nursing staff must maintain their Diabetes Educator Certificate; however, they no longer focus specifically on diabetes, although the vast majority of clients referred do present with diabetes. The goal of the model is to “see the person as a whole” while promoting the use of evidence-based guidelines for effective chronic care.

The multidisciplinary team includes a 1.5 RN and 1.5 dietitian that work collaboratively with a primary care provider (FP or NP). Upon referral to the model, the goal is to control medical symptoms and have the patient be competent in self-management. Once the client is able to self-manage, they are discharged from the program. As well, the team goes to inpatient units to begin chronic disease management education before discharge to help facilitate the transition from the acute care setting back to the community. Inpatient visits are specific to diabetes and the team also educates acute-care nurses on diabetes practices as well.

Notable barriers for the implementation of this model include: physician engagement (making referrals, collaborative decision making), engagement of acute care nursing (diabetes education to inpatients, referrals), and engaging experienced Diabetes Centre Staff in the generalist model.

Interlake Eastern RHA

The Interlake Eastern RHA has also adapted their diabetes management model to take a multimorbidity approach. This primary health care delivery model consists of a chronic disease management base team that networks to form partnerships with other providers. The CDM base team includes: a PHC nurse, a dietitian, and a wellness facilitator. The team forms partnerships with primary care providers in the community (both family physicians and nurse practitioners), mental health colleagues, and home health (home care) teams. A notable success factor of this model is the co-location of the chronic disease teams with approximately 75% of family physicians within the region. Previously, the team traveled as well; however, they now focus on co-locating with primary care providers to build relationships. Another notable success factors is the presence of a single EMR – all physicians, nurse practitioners, and CDM teams can access patients’ information. Currently, no formal evaluation to assess patient outcomes has been completed.

The teams primarily see those with diabetes (about 80% of clients) and heart disease; however, they also see patients with some cancers and respiratory disease. Their prevention programs all take a generalist approach and are all conducted in group sessions. Referrals to the team can be made by any health care provider and patients can self-refer as well. As a result of Manitoba’s provincial Advanced Access initiative, all new referrals must be seen by primary health care within seven days.

To address transitions across the continuum, the nurse from the CDM team visits individuals when in hospital for an acute episode. For example, referrals are made to the CDM team for individuals who have experienced a heart attack or are newly diagnosed with diabetes. The nurse then visits the individual in hospital to establish a connection and to let the patient know about the teams, their location, and their function. The nurse does not provide any in-hospital education, but rather increases awareness of the CDM team so the patients know where to go for follow up.
New Brunswick

There are two health regions in New Brunswick, both working on developing CDM strategies, with the long term goal being to address integration and multimorbidity. The Horizon Health Network is in the process of developing a strategy for health promotion and chronic disease management that spans that continuum of care. Their guiding documents are the Wagner Chronic Care Model, approaches from Western Canada (e.g., Living Well with Chronic Disease in Saskatchewan), health promotion work in Australia, and the Nasmith et al. (2010) report on Transforming Care for Canadians with Chronic Conditions. As well, the Horizon Health Network is looking to implement CDM case coordinators, who will act as case managers for more complex cases and serve to help patients navigate between specialists and general practice. At Vitalité Health Network, they are in the process of integrating CDM within primary health care. Currently, they have one model in Grand Falls addressing complex chronic care through case management and group education.

Newfoundland

In Newfoundland, there are four health regions delivering care to the residents. All four regions use the Wagner Chronic Care Model/Expanded Chronic Care Model to guide their work. The vast majority of chronic condition management occurs through disease-specific programs which fall under many different portfolios within each health region. For example, diabetes management is under the Medicine portfolio in Eastern Health, but under Community Health portfolio in other regions. There were no multimorbidity care provision approaches identified across the province. There is little organization across the continuum of care, with only stroke centres looking at care transitions. The Stanford self-management program is active in all health regions.

Strategies

Eastern Health has developed a chronic disease prevention and management strategy that was released in June 2012. This strategy focuses on integrating care, using the Expanded Chronic Care Model as an overarching framework to create objectives and activities for implementation. Diabetes was chosen as the focus of this strategy. As of August 2012, no integrated programs/services have yet to emerge from the strategy. Western Health is also moving towards integrated chronic care, focusing first on addressing diabetes across the continuum similarly to Eastern Health. The goal of this initiative is to design a model that can be applicable to other chronic conditions as well, such as COPD, with the end goal being to then integrate across diseases. The Western Health model will also address diabetes at various level of severity through implementation of the Kaiser Permanente Chronic Care Pyramid.

Lifestyle Clinics

The Central RHA holds lifestyle clinics for multiple risk factor management on a self-referral basis. These clinics are open to anyone with a risk factor and staff (Public Health Nursing) work with clients to gather a history, complete an assessment, create goals, and focus on an action plan. For example, people may self-refer with hypertension as a risk-factor and the clinic would help to create a goal to lower blood pressure by quitting smoking. However, Labrador-Grenfell RHA noted a similar lifestyle clinic in operation that transformed into a Diabetes Management Clinic as their predominant referrals were individuals with diabetes.
Ontario

Within Ontario, the approach to chronic disease management is largely disease-specific. The LHINs are structured differently than other health regions in Canada as they are not responsible for direct service delivery. As a result, many of the LHINs focus on the implementation of provincial programs and strategies (e.g., diabetes strategy, vascular disease strategy, chronic disease management and prevention strategy, self-management programs) developing care pathways across the continuum of care for specific diseases (e.g., COPD, diabetes), and monitoring performance of organizations to ensure provincial strategies are being implemented with improved outcomes (e.g., ED wait times). Some of the provincially run programs related to chronic disease management include Cancer Care Ontario and the Ontario Renal Network. The LHINs are in the process of developing their third Integrated Health Services Plan since their formation and many, but not all, are making chronic disease management a priority.

**Waterloo Wellington Rehabilitative Care System**

The Waterloo Wellington Rehabilitative Care System has taken a clustering approach to managing streams of care within the rehab sector. Clusters were identified through a concurrent review on stroke care in the province. Through that process, 13 streams of care were identified; however, Waterloo Wellington condensed the streams into four key clusters based on critical mass within the LHIN. The streams include:

- Stroke/neurology
- Musculoskeletal
- Cardio-pulmonary
- Frail elderly/medically complex

As well, these streams of care were coordinated geographically, with four hospitals in the region taking on one of the four streams. The next step is to create integrated care pathways that span the continuum to help improve coordination and connections with community resources. Chronic disease management principles will be incorporated into the care pathways, recognizing that the majority of this patient cohort will have one or more chronic condition.

**Hamilton Niagra Haldimand Brant LHIN**

Currently, the Hamilton Niagra Haldimand Brant (HNHB) LHIN is in the process of developing a strategy for integration of health care services within the entire LHIN, with the goal being to develop a person-centred care delivery model aligned with the Triple Aim Framework. Their framework focusses on integration and accountability, value for money, and the patient experience (access, quality, transitions). Specifically, the strategy will also address priority populations, which includes individuals with chronic disease. The HNHB LHIN is one of the few LHINs in Ontario taking a multimorbidity approach to chronic disease management, looking at non-disease specific care pathways and programming. (HNHB LHIN, 2012a).

The HNHB LHIN is looking at high-level health systems integration and the LHIN has identified potential models with high functioning chronic disease programs to learn from. Best practice models from the US for consideration include: Intermountain Health in Utah, Kaiser Permanente, the Henry Ford Health System and Veterans’ Health (strategy development still in progress).

**Vascular Disease Approach**

Provincially, and many LHINs themselves, are taking a vascular disease approach to chronic disease management (e.g., Central East). This is a step away from disease-specific strategies to move toward a “catch all” condition. The rationale behind this is that vascular disease is the “umbrella condition” for the
chronic diseases with the highest prevalence rates in Ontario, such as diabetes, renal disease, cardiovascular disease, and stroke. By focusing on vascular disease as a whole, it looks at multiple chronic conditions and risk factors for initial acquisition and exacerbations of these conditions. The provincial strategy was just recently released and thus far, no initiatives have emerged, with the exception of the Central LHIN where specific targets have been set by the LHIN for health care organizations to achieve regarding vascular disease (e.g., reduction in inpatient days and ED visits).

**Bridgepoint Health Centre, Toronto**

Bridgepoint Health's is a health care organization in Toronto that provides patient care, research, and teaching in complex chronic disease prevention and management. They provide and coordinate chronic disease focused care through a hospital and a family health team. Their services include complex care services (e.g., multimorbidity, stroke, progressive neurodegenerative disease, frail elderly, diabetes with complications, etc.), complex rehabilitation services, specialty clinics, and primary health care through the family health team in the community. Bridgepoint takes referrals from health professionals from 50+ different health centres based on predetermined admissions criteria.

**Self-Management**

Self-management has been identified as a provincial priority and as a priority within the vast majority of the LHINs. There is no standardized self-management program for the province; each LHIN operates their own self-management programs based on the Stanford model. The Central East LHIN’s work in self-management has been provincially recognized as best practice and will potentially become the provincial standard.

**Prince Edward Island**

PEI has one health region responsible for delivering health care. Integrated chronic disease prevention and management has been identified as a strategic direction by Health PEI and they will be starting to develop a framework for integrated CDPM in the fall of 2012. The areas of focus for the framework are three highly prevalent conditions: COPD, hypertension, and diabetes. They are looking at disease specific approaches to managing these conditions as well as developing tools to help providers educate patients on self-management. Currently no multimorbidity approaches are taken, but they would like to move in that direction in the future. The Expanded Chronic Care model is also their guiding framework.

**Quebec**

**Gatineau (Agence de la santé et des services sociaux de l'Outaouais)**

The three local community service centres (CLSCs) within Gatineau take a multimorbidity approach to chronic disease management, using the Expanded Chronic Care Model as an overarching framework. They focus on four conditions: diabetes, hypertension, dyslipidemia, and asthma. These four conditions were chosen based on prevalence rates and high hospitalization rates. The goal of CDM at each CLSC is to stabilize the condition and conduct follow up (medical management), and to provide education for lifestyle/behaviour change, self-management, and risk factor management. Follow up and teaching appointments are conducted in both a group and individual setting. Any health professional can make a referral (the majority come from physicians, nurses, and pharmacists) and individuals can self-refer as well. Individuals are seen three times and then discharged. Ongoing follow up occurs every year by phone.
The chronic disease management teams consist of:

- RN
- Dietitian
- General Internist (for a ½ day a week in 1 of 3 CLSCs)
- There is also ongoing communication with primary care physicians, if the individual has one. If they do not, clinic staff will assist in finding them one.

The original vision for the team also included a community pharmacist, a kinesiologist, and a psychologist. However, due to lack of resources and difficulty recruiting, these three positions remain vacant at all three CLSCs. Between the three CLSCs, there are 3.0 FTE dieticians and 10.0 RNs to service a population of approximately 200,000+. Between 35% and 50% of the population is without a primary care provider and there are insufficient numbers of specialists in the area to meet the demands of the complex patients within the region. The general internist based model was adopted as an innovative approach to address this specialist physician shortage by providing secondary care within the community.

The internist model has been provincially recognized and other CLSCs are now interested in moving toward this approach. Preliminary outcome data suggests decreased presentations at the local emergency department for chronic disease-related exacerbations.

**Montreal (Agence de la santé et des services sociaux de Montréal)**

Montreal has 12 local community service centres (CLSCs) and they are working towards integrated chronic disease management programming in each of these centres.

At each CLSC, there is a CDM team consisting of:

- RN
- Kinesiologist
- Dietitian

The team collaborates with physicians in the area to provide support in the areas of diabetes, COPD, and hypertension. Referrals to the CDM team primarily come from family physicians and individuals must have at least one of the three listed conditions. As well, individuals must have a family doctor in order to be received by the team; if the person is an unattached patient, the team may provide resources and support to help find a family doctor. Collaboration with physicians was difficult at first; however, collaboration is now working well. The team also plays a role in facilitating transitions from hospital and community and in facilitating transitions from primary to secondary care through the development of referral agreements. Treatment is provided in both individual and group settings. Individuals see the team for 24 or 36 months, contingent upon the discretion of the clinician. Upon completion of the 24 or 36 months, patients are discharged.

An integrated treatment approach has been developed for diabetes and hypertension through the interdisciplinary cardiometabolic program. Preliminary findings for this pilot project suggest outcome improvement for high-risk patients (Provost et al., 2011). The ultimate goal is to integrate COPD into this care pathway as well.

**PR1MaC Study (Agence de la santé et des services sociaux de Saguenay-Lac-Saint-Jean)**

The PR1MaC Study was before and after randomized control trial led by Dr. Martin Fortin, a leading expert in multimorbidity research, investigating the effects of the integration of chronic disease prevention and management services into primary health care. This study targeted individuals with at least one of the following chronic conditions: type II diabetes, cardiovascular disease, heart failure,
asthma, COPD, or associated risk factors (obesity, hyperlipidemia, glucose intolerance, metabolic syndrome). This study excluded those with dementia, acute psychiatry conditions, and arthritis.

Patients were randomized to receive a five-hour treatment intervention at the time of referral or at a later date. The five-hour treatment was an intervention provided by an interdisciplinary team, which includes motivational interviewing, risk factor management, training to improve self-management, patient education specific to the patient’s individual disease, and follow up appointments.

Two CDM teams were created and integrated into eight family practices in two separate cities. The two teams work on-site with family practices to offer services and support CDM. Referrals to the team come from family physicians and family physicians serve as the patient’s care coordinator. Communication between providers primary occurred via a shared electronic health record. The intervention team consists of:

- RN
- Respiratory therapist
- Dietitian
- Kinesiologist

Formal evaluation of this study is in progress and results have not yet been released. Preliminary evaluation suggests increases in self-efficacy, patient empowerment, quality of life measures, and changes in health behaviours (e.g., smoking, physical activity). As well, of the 350 patients who participated in the study, only 3/150 did not have multimorbidity. While multimorbidity was not a referral criteria, the study designers relied on the fact that family physicians were only going to refer for more complex patients (e.g., those with multimorbidity) and this hypothesis appears to hold.

An important consideration of this study is that it did not span the continuum of care. If individuals participating in the study had to be referred on to secondary care, they were excluded from the study evaluation.

**Saskatchewan**

Saskatchewan has twelve regional health authorities (RHAs) that are responsible for delivering care across the province. All health regions in Saskatchewan note the challenges of providing care across large urban, suburban, rural, and remote areas.

**Saskatoon**

Saskatoon, Saskatchewan’s largest Regional Health Authority, has identified chronic disease management as an area of focus for the region. Primary Health Care and Chronic Disease Management are separately managed within this region, but closely linked.

Through Live Well, Saskatoon RHA has extensively developed a chronic disease prevention and management program with three key pillars (see figure):
The mission of Saskatoon’s Live Well chronic disease program is to provide programming for clients, families, health care professionals and students in relation to specific health diseases. Providers involved in the Live Well CDM program work together in a multidisciplinary team and include: physicians (family and specialists), dietitians, nurses, exercise/physical therapists, social workers, pharmacists, outreach workers, health educators, physiologists, physical therapists, peer leaders and support staff. Both individual/group education and specialty clinics are provided through the various programs. Referrals can come from health care professionals, family, or be self-referrals.

Related to the exercise pillar, Saskatoon’s multi-disease exercise program has been provincially recognized. At one point in time, there were separate programs for individuals with diabetes, respiratory disease, and cardiovascular disease; however, now the exercise programs have been integrated so it is applicable across all conditions. Through the Live Well program, comprehensive disease specific programming offered in areas such as asthma, COPD, diabetes, heart disease, cancer, and many more. Finally, related to the self-management pillar, a challenge for the Saskatoon RHA has been integrating self-management principles into existing programs. Clinical Health Psychology has just become part of the CDM Portfolio and will play an important role for both patients and providers in terms of behaviour change principles. Another challenge is providing sustainable care in rural areas. Difficulties in recruitment and retention of providers as well as closures of small hospitals impact chronic care for rural residents.

Saskatoon has been successful in coordinating transitions of care across the continuum. They quote high levels of coordination between acute and community settings and between primary care physicians and specialist providers. For example, upon referral, there is a nurse educator that visits those with chronic conditions in hospital to facilitate the transition back into the community. Nurses in this area have a ‘major’ and a ‘minor’ area of expertise in chronic disease. Given the large geographic area of the region, this model is effective in ensuring that nurses’ expertise is distributed across the region. Moreover, each chronic disease specific program has a specialist lead. This helps to promote communication between providers and to promote a systems perspective for management of chronic care across the continuum. To further improve coordination, a central referral form is currently being developed for all CDM-related specialist referrals.

**Sun Country**

Sun Country RHA has been active in role redesign for members of the interdisciplinary team involved in providing CDM. For example, they have adapted the role of the diabetes nurse to become a multimorbidity chronic disease management nurse. The nurse must maintain diabetes certification. The role will be piloted with diabetes and kidney disease and will evolve to include more chronic conditions over time. As well, pharmacists have been actively integrated into an interdisciplinary team model. Recently, an initiative to better integrate community pharmacists with the region (particularly in rural areas) has been undertaken by a physician champion who has worked closely with pharmacy over the past number of years. The pharmacists will be educated about existing chronic disease programs so they can make referrals. Referrals will be made to the pharmacists by primary care providers as well for things such as diabetes meter training, which no longer requires the expertise of the nurse, allowing the nurse role to focus more on coordination and multimorbidities.
Lessons from Regina Qu’Appelle

In 2009, the Regina Qu’Appelle RHA developed a strategy to improve chronic disease management and prevention, highlighting 50+ recommendations based on the Expanded Chronic Care Model with 10 highlighted priorities to be completed within the next year. Following the release of the strategy, there was no support from senior leadership for the strategy, which recommended shifting services away from the acute care sector, expanding community/outpatient services, and reducing fragmentation in the system. As a result, only a few non-priority, low impact recommendations were implemented and there were no observable improvements in care for those with chronic conditions within the region. As of September 2012, the steering committee responsible for leading the chronic disease management strategy disbanded. This serves as an example highlighting the importance receiving support from senior management in implementing a CDM strategy.

The Territories

Planning and service delivery for chronic disease management in the Northwest Territories, Yukon, and Nunavut occurs at the provincial level. There are numerous challenges for providing comprehensive CDM programs in the territories including health human resource shortages and their isolated, rural geography. The North West Territories has collaborated with the Canadian Foundation for Health Information to move toward a more integrated approach to the delivery chronic care services in disease specific areas. Once successful pilot projects have been completed in the areas of self-management, clinical pathways, and program implementation, the integrated approaches will be assessed for applicability to other conditions.

INTERNATIONAL BEST PRACTICE MODELS

Australia

In Australia, chronic disease accounts for more than 70% of overall disease burden due to death, disability, and diminished quality of life (State of Victoria, 2008). There are many successful examples of best practice models and programs stemming from Australia and specifically, the State of Victoria is a leader in developing and implementing integrated chronic disease management program delivery.


The National Public Health Partnership (2001) developed the comprehensive model for chronic disease prevention and control. This model is recognized and applied
worldwide as an effective framework for service delivery and population stratification to prevent exacerbation of current conditions (Singh & Ham, 2006; State of Victoria, 2008).

Some key recommendations from the model include:
- clustering related risk factors and linked conditions
- strengthening prevention and health promotion
- integrated primary health care systems
- integrated planning at local or regional levels
- partnerships
- consumer participation

Examples of programs following this framework include: Eat Well Australia, Active Australia, and Sharing Health Care (collaborative model between providers and patients to promote self-management), among many other national and local strategies (NPP, 2001). Eastern Health also cites this as a guiding framework in their strategy development (Eastern Health, 2012).

**State of Victoria CDM Guidelines (2008)**

The State of Victoria has developed a comprehensive strategy for providing integrated care across the continuum of health sectors and disease progression. Their model incorporates the aforementioned National Public Partnership strategy model for prevention and control, the Wagner Chronic Care Model, and the Kaiser Permanente Chronic Care Pyramid for service delivery.

The authors suggest that implementing integrated chronic disease management strategies is an incremental process. The guidelines take a population health approach and make recommendations for providing care at varying levels of intervention intensity and for integrating care between levels:
- joint planning across programs
- joint governance for steering committee arrangements
- consistency in evaluation methods and indicators
- workforce development opportunities across the continuum
- joint marketing
- no duplication of services
- central intake to promote coordination

(State of Victoria, 2008)

**Hospital Admissions Risk Program for Chronic Disease Management (HARP CDM)**

The purpose of HARP CDM is to provide integrated, effective, and sustainable chronic disease management and complex needs care to support clients who have presented at the Emergency Department several times, are at high risk for admission to the hospital, and/or are referred
by their GP for specific services. The program’s goal is intensive care coordination with the target population being those at the top end of the pyramid depicted above.

**HARP CDM Programs:**

1. Children’s Asthma Team
2. Chronic Conditions Program – the program involves assessment, care planning, coordination, self-management support/interventions, and monitoring, review and discharge for adults with a chronic condition who otherwise do not have access to these services
3. Chronic Disease Management Clinic – multimorbidity clinic where individuals are assessed by a multidisciplinary team, including a registered nurse, a clinical physician and a clinical pharmacist, to determine areas of their health that require further investigation or a streamlining of service provision
4. Chronic Heart Failure
5. Chronic Respiratory Disease
6. Complex Psychosocial Conditions (Care in Context) – addresses navigation of the system as well as other non-health care related social services for high risk populations
7. Diabetes Ambulatory Care Stream
8. Diabetes Cardiovascular Risk Management
9. Exercise Maintenance
10. Medication Review Service
11. Pulmonary Rehabilitation

The program has 35.45 FTE and has an operating budget of AU$4,250,000 (2006-2007). As well, promising outcomes regarding improved patient outcomes, reduced hospital admissions, and fewer ED visits have been observed across multiple chronic conditions (Southern Health, 2007).

**Primary Care Partnerships (PCPs)**

PCPs are a collaborative approach between divisions of general practice, women’s health, aged care, nursing, ethno-specific services, and metropolitan and rural services to promote a more integrated community-based health and community services sector. The goals of PCPs include: providers planning and working together in integrated care models, people with chronic conditions being active partners in their own care, coordination across health sectors, early identification of needs, etc. (State of Victoria, 2008).

**New South Wales Chronic Care for Aboriginal People**

This model, specifically addressing the chronic care needs of Aboriginal people in New South Wales, uses the Chronic Care Model to address delivery methods and access of care for this population. This model has been recognized as leading practice for chronic care delivery for complex populations (HNHB LHIN, 2012b). The model aims to improve delivery and access to chronic care services in rural and remote
regions. The model specifically targets Aboriginal individuals who are at risk of developing diabetes, or kidney, heart, or liver disease.

The model contains the following key elements: identifying the population, gaining trust of the population, completing screening and assessment, assessing clinical indicators, providing treatment (emphasis on providing treatment in early stages as opposed to delaying until problems more acute), providing education, referral and navigation services as required, and providing follow-up (Gordon & Richards, 2012).

**Flinders Program for Chronic Condition Management**

The Flinders Self-Management Model has been internationally recognized as best practice to be an effective self-management model (Victoria Department of Human Services, 2012). The Flinders Program is clinician-administered, providing clinicians with tools to assess self-management capability and tools to develop collaborative care plans with clients (Victoria DHS, 2012).

The Flinders Program has five core functions for the care planning process:

- Generic and holistic chronic condition management
- Case management
- Self-management support
- Systemic and organizational change
- Health professional change

(Flinders University, 2012).

Benefits of the Flinders Program include: individualized, person-centred care focus, focuses on the individual’s goals as opposed to clinical goals, training promotes systems change within organizations to promote self-management and chronic illness care, and training educates providers on the key differences between acute and chronic care models. Limitations of the Flinders Program include: time intensive, the model needs to align with the individual’s readiness for change, and some clinicians report that the training is sufficient for assessment and development of self-management plans, but not for ongoing sustainability of self-management plans and behaviour change (Victoria DHS, 2012). It should be noted that Alberta Health Services recently reported difficulties implementing a pilot Flinders model (Health Council of Canada, 2012).

**France**

In 2000, the World Health Organization (2000) ranked France #1 in health systems performance. For comparison purposes, Canada was ranked #30 (Stuart & Weinrich, 2004). It is hypothesized that this ranking is in part a result from directing attention to chronic care.

Based on implementing a cost-effective community-based COPD model (Lyonnaisse Regional Health System), the following recommendations for implementing cost-effective chronic care services in other areas were identified. Lessons learned from France include:

1. Physician leadership is of great importance and essential for long-term success
2. Appropriate financial benchmarking (sustainable services)
3. Having a critical mass of patients for clinical competency and economies of scale
4. Continuity of care is of critical importance
5. Personal care services (either from providers or care givers)
6. Promote quality of life for all patients, regardless of the nature of their condition
7. Assistive technology
8. Regional/local organization (network of services) (Stuart & Weinrich, 2004).

Singapore

Singapore is facing similar population trends as the rest of the world regarding the aging population and an increasing prevalence of chronic conditions and multimorbidity (Cheah, 2012). Singapore has adopted the Chronic Care Model (Wagner et al., 1999) and the population stratification pyramid developed by Kaiser Permanente as broad approaches to improving chronic disease management. Singapore is moving toward achieving an integrated health system through adopting an electronic medical record and organizing care across the continuum through the development of five integrated care pathways (stroke, diabetes, acute heart syndrome, COPD, and hip fractures).

As well, it is recognized that in order to provide quality chronic care, the primary health care sector must be strengthened. One way Singapore is doing this is through the use of multidisciplinary teams and through the use of non-physician providers such as advanced practice nurses, care managers, clinical pharmacists, and care coordinators. Moreover, new team-based models of care emerging in Singapore recommend that doctors’ offices be co-located with support services, such as counseling, eye screening, pharmacy, laboratory services (Cheah, 2012).

**ACTION Team Model**

This model aids in the transitions of care from the acute, hospital setting back into community or long term care for those with chronic conditions. The ACTION team includes: nurses, social workers, and other interprofessional team members as required. Patients at high-risk for readmission to the hospital are followed by the ACTION team to determine post-discharge needs and to develop and implement a care plan to prevent readmission to the hospital. Ongoing follow-up occurs until the patient can manage their self-care at home and/or with support from other less-intensive community based programs. Significant cost savings were identified based on reduced hospital days that outweighed the costs of care coordinators’ salaries and costs of additional community programming. There was also a significant improvement in self-reported health from the patient perspective (Cheah, 2012).

Sweden

**Jonkoping County Council**

The Jonkoping County Council in Sweden has been recognized as an exemplary example of health systems transformation, particularly with their work in improving care across the continuum (Baker & Denis, 2011; IHI; Robert Wood Johnson Foundation). Of particular note for chronic disease management systems planning is the “Esther Project.” The goal of this project is to enhance provider and administrator understanding of patient-centred care through mapping the patient journey from the perspective of an
individual with multimorbidity. “Esther” is a hypothetical patient who is elderly, has multiple chronic conditions, and sees providers in both acute, facility-based and community care settings. The providers involved in the project must design a system so that it meets the care needs of “Esther.” The project aims to improve patient flow, realign responsibilities across the system, and improve coordination and communication among providers (Baker & Denis, 2011).

Examples of changes that resulted from the “Esther Project” within the Jonkoping County Council region include: redesigning of the intake and transfer process, open access scheduling, team-based telephone consultations, integrated documentation, and improved education of patients in self-management skills. Finally, outcome measures identified a 20% reduction in hospital admissions, redeployment of resources to the community, and a 30% decrease in inpatient days for heart failure patients (Baker & Denis, 2011).

**United Kingdom**

**The NHS**

In the UK, chronic conditions, more commonly referred to as long-term conditions, affect approximately 15 million people, account for 55% of general practitioner appointments, and for approximately 70% of all NHS spending (Expert Patients Programme, 2012). The NHS has taken an integrated approach to chronic disease management, adopting work from Kaiser Permanente as their guiding model. Integrated care has largely revolved around supported self-care, disease-specific care management, and case management (Singh & Ham, 2006; Busse et al., 2010; Department of Health, 2005).

There are many successful examples of disease-specific integrated approaches for managing chronic conditions within the UK (e.g. case management for diabetes, heart failure, stroke; Busse et al. 2010), highlighting the UK’s success in achieving integrated care. However, there is an identified gap in the literature identifying and evaluating models which address multimorbidity at all intervention intensities (e.g. self-care, disease management, case management). A recent study is suggesting that the NHS’ current disease-specific delivery system is not capable of dealing with the high prevalence of multimorbidity. The authors also assert that a complementary strategy is needed to support generalist clinicians to provide personalized, comprehensive continuity of care, especially in socioeconomically deprived areas (Barnett et al., 2012)

**United States**

**Arizona State Chronic Disease Plan: Integrated Model for Promoting Healthy Communities**

This framework was identified as a best practice planning model for CDPM (Partnership for Prevention, 2005). The framework highlights ways to coordinate the efforts of state level agencies, health care providers, funding agencies, and policy and decision makers, and consumers across new and previously existing programs. The framework addresses coordination and integration across multiple disease-specific chronic disease management programs and risk factor management programs.

The plan first suggests categorizing current CDPM programs (e.g. cardiovascular, cancer, lung disease, diabetes, etc.), clearly defining program goals, and identifying areas of overlap between programs within each category and then between categories. Areas of overlap are can be identified through individual choice in program (e.g. more than one to choose from to meet the same goals), provider responsibility, and system support. Then, look at funding and move towards an integrated approach where individual program consumer priorities, provider priorities, and system priorities align.
Southcentral Foundation (Alaska)

The Southcentral Alaska model has been nationally and internationally recognized a best practice model for providing integrated health care, including chronic disease management, through medical homes (Baker & Dennis, 2011). Northern Health (BC) is modeling their primary health care home concept after this work.

Key feature of this model:
- Small integrated, primary health care teams that build relationships with clients
- Each team includes: primary care physician, medical assistant, nurse who focuses on care coordination, administrative assistant, and a behaviorist
- Each team is responsible for no more than 1200 individuals
- Physicians are compensated based on the team’s overall performance
- Same day access
- Every staff member is expected to understand basic quality improvement methods (Gottleib et al., 2008).

Intermountain Healthcare (Utah)

Intermountain Healthcare has adopted a generalist model of chronic disease management. In the Intermountain approach, which is based on the Wagner Chronic Care Model, care managers (within multipayer primary care clinics) collaborate with physicians, patients, and interprofessional team members to improve patient outcomes for chronic conditions and multimorbidities. The success of the model is highly dependent on the implementation of an organization-wide EHR. Evaluation of the model identifies improved patient outcomes and improved physician productivity (Dorr et al., 2006).

Specifically within primary care clinics, Intermountain Healthcare uses nurse managers and information technology tools to assess care needs, assist with self-management, and to identify and address social, financial, and cognitive barriers in receiving effective chronic care (Becker & Dennis, 2011). Randomized control trial results of this primary-care base program found significant decreases in mortality and reductions in hospital use for some groups (Becker & Dennis, 2011; Dorr at al., 2008).

Henry Ford Excellence in Chronic Care Model

The Henry Ford Health System implemented the Excellence in Chronic Care Model for heart failure, coronary artery disease, diabetes, depression. This model was recognized as an exemplary model by the Institute of Medicine (2006). The initiative targeted those who were at-risk due to mismanagement of risk factors and involved the implementation of electronic prescribing in clinics. The goal of the initiative was to facilitate self-management and avoid inpatient admissions through better integrating care pathways. The model is based on the Wagner Chronic Care Model and IOM aims (e.g. safe, effective, patient-centred, etc.). The model emphasizes the shift from symptom/problem based clinician visits to the proactive development of the individuals’ role in managing their chronic condition (e.g. self-management). Care is then delivered while providing education, care coordination, and coaching. Disease-specific outcome measures indicate improvements in clinical indicators (e.g. HbA1C) and averted hospitalizations (e.g. CHF patients) (Muma, 2006; Baker et al., 2008).

Stanford Self-Management Model

The Stanford Self-management model recognizes that self-management skills are common across many chronic conditions. The model provides individuals with self-management support delivered by lay leaders and/or health care providers. Benefits of the Stanford Model include: group setting enhances
social interactions and promotes self-efficacy, empowers participants through peer-learning and sharing, and the program has a strong goal-setting and problem solving focus. Limitations of the Stanford Model include: not everyone is suited for the group environment and there is limited capacity to address individual concerns, very structured content limits flexibility for different learning styles and needs, and it is time-limited with no structured follow up (Victoria DHS, 2012). Refer to Your Way to Wellness (NS) for an example of the Stanford Self-Management model in our local context.
REFERENCES


Hamilton Niagra Haldimand Brant Local Health Integration Network. (2012b). *Strategic health system plan: Leading practices*. Hamilton, ON: PWC.


Winnipeg Regional Health Authority. (2012). Chronic disease collaborative. Winnipeg, MB: Winnipeg RHA
APPENDIX A: JURISDICTIONAL SCAN METHODOLOGY

Jurisdictional Environmental Scan

To supplement the literature review to inform the Chronic Disease Initiative at Capital Health, a cross-Canada jurisdictional scan was conducted. The purpose of the scan was to identify what other health authorities across Canada are doing regarding integrated/coordinated chronic disease management from a service delivery perspective, with a particular emphasis on managing multimorbidity. Follow up interviews were conducted with identified key informants and programs/clinics of interest.

A standard list of questions was prepared for inquiry:

1. Describe what your health region (or clinic) is doing concerning program delivery for integrated/coordinated chronic disease management? If nothing, are there plans to implement a strategy in the future?
2. If I am a patient, what does this look like?
3. What is the level of service integration? (e.g., full integration versus coordination)

Prompts:

a) Who is involved? (e.g., primary health care, ambulatory care, continuing care, etc.)
b) Does it take a multimorbidity perspective or is it disease specific? Given a multimorbidity focus, what conditions are included in the model? What conditions are being treated together?
c) Who is the target population?
d) Does your model look at different levels of the Kaiser Permanente Chronic Care Pyramid? (e.g., case management for complex patients, risk factor management, etc.)
e) What providers are involved? Can you briefly describe their roles and responsibilities?
f) Can you identify specifics such as the FTE complement, the operating budget, where the responsibility for management lies, and what the referral process is?
g) What is the assessment procedure; is it standardized?
h) Can you describe the care pathways used within the model?
i) Is there a patient education component?
j) What is the model based on? (e.g., clinic in another area, key literature, Wagner model)
k) Has any evaluation been done? (e.g., in terms of patient outcomes or an economic evaluation)
l) What are some key success factors? Can you identify any barriers or service gaps?
m) Care transitions (e.g., from primary to specialist; acute to community)
n) Contact info/email for follow up, if necessary.
## APPENDIX B: JURISDICTIONAL SCAN CONTRIBUTORS

<table>
<thead>
<tr>
<th>Name</th>
<th>Organization</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diane Alyward</td>
<td>Labrador-Grenfell RHA, NFLD</td>
</tr>
<tr>
<td>Alec Anderson</td>
<td>Erie-St. Clair LHIN, ON</td>
</tr>
<tr>
<td>Gayle Anton</td>
<td>Northern Health, BC</td>
</tr>
<tr>
<td>Darlene Arsenault</td>
<td>Interior Health, BC</td>
</tr>
<tr>
<td>Jennifer Baker</td>
<td>Southern RHA, MAN</td>
</tr>
<tr>
<td>Lynn Baughan</td>
<td>Central West LHIN, ON</td>
</tr>
<tr>
<td>Debbie Clevett</td>
<td>Western RHA, MAN</td>
</tr>
<tr>
<td>Denise Connors</td>
<td>Horizon Health Network, NB</td>
</tr>
<tr>
<td>Chrystal Cunningham</td>
<td>Alberta Health Services, AB</td>
</tr>
<tr>
<td>Complex Chronic Care</td>
<td>Peter Lougheed Centre, Alberta Health Services, AB</td>
</tr>
<tr>
<td>Julie Darnay</td>
<td>Hamilton Niagra Haldimand Brant LHIN, ON</td>
</tr>
<tr>
<td>Jean-Marc Desmeules</td>
<td>Keewatin RHA, SASK</td>
</tr>
<tr>
<td>Vennie Detters</td>
<td>Vancouver Coastal Health, BC</td>
</tr>
<tr>
<td>Cathy Dresdell</td>
<td>Agence de la santé et des services sociaux de Montréal, QC</td>
</tr>
<tr>
<td>Erika Espinoza</td>
<td>North East LHIN, ON</td>
</tr>
<tr>
<td>Kathy Filipowich</td>
<td>Five Hills RHA, SASK</td>
</tr>
<tr>
<td>Janet Fisher</td>
<td>Eastern Health, NFLD</td>
</tr>
<tr>
<td>Martin Fortin</td>
<td>Université de Sherbrooke</td>
</tr>
<tr>
<td>Carrie Gall</td>
<td>Mississauga Halton LHIN, ON</td>
</tr>
<tr>
<td>Don Gamache</td>
<td>Northern RHA, MAN</td>
</tr>
<tr>
<td>Gatineau CLSC</td>
<td>Agence de la santé et des services sociaux de l'Outaouais, QC</td>
</tr>
<tr>
<td>Heather Genik</td>
<td>Kelsey Trail RHA, SASK</td>
</tr>
<tr>
<td>Kristy Gensen</td>
<td>Southern RHA, MAN</td>
</tr>
<tr>
<td>Heather Gray</td>
<td>North West LHIN, ON</td>
</tr>
<tr>
<td>Ashley Hog</td>
<td>Central LHIN, ON</td>
</tr>
<tr>
<td>Faye Hoffer</td>
<td>Heartland RHA, SASK</td>
</tr>
<tr>
<td>Peggy Holmes</td>
<td>Cypress RHA, SASK</td>
</tr>
<tr>
<td>Kristy Jensen</td>
<td>Southern RHA, MAN</td>
</tr>
<tr>
<td>Lene Jorgenson</td>
<td>Alberta Health Services, AB</td>
</tr>
<tr>
<td>Natasha Khaflan</td>
<td>South East LHIN, ON</td>
</tr>
<tr>
<td>Name</td>
<td>Organization</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>---------------------------------------------------</td>
</tr>
<tr>
<td>Darla King</td>
<td>Western Health, NFLD</td>
</tr>
<tr>
<td>Candace Kopec</td>
<td>Sun Country RHA, SASK</td>
</tr>
<tr>
<td>Melissa Kwiatkowski</td>
<td>Waterloo Wellington LHIN, ON</td>
</tr>
<tr>
<td>Nicole LaBrie</td>
<td>Vitalite Health Network, NB</td>
</tr>
<tr>
<td>Ruchie Lamba</td>
<td>Northwest Territories Department of Health and</td>
</tr>
<tr>
<td>Michele LeBlanc</td>
<td>South West Health, NS</td>
</tr>
<tr>
<td>Jean MacKinnon</td>
<td>Vancouver Coastal Health, BC</td>
</tr>
<tr>
<td>Bruce MacPherson</td>
<td>Horizon Health Network, NB</td>
</tr>
<tr>
<td>Darla MacPherson</td>
<td>Cumberland Health, NS</td>
</tr>
<tr>
<td>Michelle Meade</td>
<td>Winnipeg RHA, MAN</td>
</tr>
<tr>
<td>Wanda Miller</td>
<td>Sun Country RHA, SASK</td>
</tr>
<tr>
<td>Jane Newlands</td>
<td>Guysborough Antigonish Strait Health Authority,</td>
</tr>
<tr>
<td>Rose Peacock</td>
<td>South West LHIN, ON</td>
</tr>
<tr>
<td>Emmie Perkins</td>
<td>Rehabilitative Care Network</td>
</tr>
<tr>
<td>Kim Bartholomew–Pushie</td>
<td>Cape Breton DHA, NS</td>
</tr>
<tr>
<td>Peggy Riches</td>
<td>Alberta Health Services, AB</td>
</tr>
<tr>
<td>Wanda Rusk</td>
<td>Prince Alberta Parkland RHA, SASK</td>
</tr>
<tr>
<td>France Seguin</td>
<td>Agence de la santé et des services sociaux de</td>
</tr>
<tr>
<td>Marcy Scott</td>
<td>Regina Qu’Appelle RHA, SASK</td>
</tr>
<tr>
<td>Michelle Smith</td>
<td>Sunrise RHA, SASK</td>
</tr>
<tr>
<td>Jeanne Thomas</td>
<td>Central East LHIN, ON</td>
</tr>
<tr>
<td>Linda Thompson</td>
<td>South Shore Health, NS</td>
</tr>
<tr>
<td>Debbie Viel</td>
<td>Interlake Eastern RHA, MAN</td>
</tr>
<tr>
<td>Carolyn Villard</td>
<td>Health PEI, PE</td>
</tr>
<tr>
<td>Melanie Warkin</td>
<td>Cypress RHA, SASK</td>
</tr>
<tr>
<td>Bev White</td>
<td>Central Health, NFLD</td>
</tr>
<tr>
<td>Leslie Worth</td>
<td>Saskatoon RHA, SASK</td>
</tr>
<tr>
<td>Lucie Wright</td>
<td>Yukon Department of Health and Social Services,</td>
</tr>
<tr>
<td>Primary Health Care, Capital Health</td>
<td>CDM Jurisdictional Scan Report</td>
</tr>
</tbody>
</table>