

Rapid Synthesis

Enhancing Health Promotion and Disease
Prevention in Networked Primary Care

21 December 2018



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**Rapid Synthesis:
Enhancing Health Promotion and Disease Prevention in Networked Primary Care
30-day response**

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McMaster Health Forum

The McMaster Health Forum's goal is to generate action on the pressing health-system issues of our time, based on the best available research evidence and systematically elicited citizen values and stakeholder insights. We aim to strengthen health systems – locally, nationally, and internationally – and get the right programs, services and drugs to the people who need them.

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Timeline

Rapid syntheses can be requested in a three-, 10-, 30-, 60- or 90-business-day timeframe. This synthesis was prepared over a 30-businessday timeframe. An overview of what can be provided and what cannot be provided in each of the different timelines is provided on McMaster Health Forum's Rapid Response program webpage (www.mcmasterforum.org/find-evidence/rapid-response).

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Conflict of interest

The authors declare that they have no professional or commercial interests relevant to the rapid synthesis. The funder played no role in the identification, selection, assessment, synthesis or presentation of the research evidence profiled in the rapid synthesis.

Merit review

The rapid synthesis was reviewed by a small number of policymakers, stakeholders and researchers in order to ensure its scientific rigour and system relevance.

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KEY MESSAGES

Questions

- How have networked primary care approaches in Canadian provinces and select comparator countries incorporated a focus on health-promotion and disease-prevention services?
- What are the barriers and facilitators to networked primary-care providers in undertaking coordinated and comprehensive health promotion and disease-prevention services, including population health needs, equity assessments and community engagement in planning and service delivery?

Why the issue is important

- Health systems are moving away from traditional primary care (e.g., by increasingly shifting to group practice and interprofessional teams rather than solo practice primary-care providers), which is often siloed and results in barriers to timely access to care.
- The Ministry of Health of British Columbia, which requested this rapid synthesis, is undergoing health-system transformation to better coordinate and potentially integrate primary care with some community care and public-health services, and includes the implementation of patient medical homes and primary-care networks.
- The transformation presents an important time-limited opportunity to improve primary care and preventive care services through improved management of clinical conditions coupled with health promotion and disease-prevention services.
- As the focus of this synthesis, another important part of primary-care transformation is determining how to incorporate health promotion and disease prevention, and what the possible barriers and facilitators are to incorporating these activities in primary-care networks.

What we found

- We identified a total of 31 relevant documents by searching two databases (Health Systems Evidence and PubMed), including one overview of reviews, 10 systematic reviews, three scoping reviews and 17 primary studies focused on the barriers and facilitators to networked primary-care providers in undertaking coordinated and comprehensive health promotion and disease-prevention services.
- In addition, we undertook a jurisdictional scan of networked primary-care approaches in Canadian provinces and select comparator countries (Australia, New Zealand, Sweden, U.K. and U.S.).
- To varying degrees, all provinces (with the exception of Newfoundland and Labrador) and comparator countries have some form of networked primary care or have outlined plans to implement networked primary care in the health system, however, we found limited information about how health promotion and disease prevention has been incorporated in the models identified.
- Generally, the reviews and primary studies focused on: 1) the effects of networked primary care and the integration of public health; 2) effects of networked primary care on improving care among particular populations; 3) implementation considerations for networked primary care; and 4) facilitators and barriers to collaborations with primary care and public health.
- Patient-centred medical homes were the most frequently cited approach that we identified and they typically include five key components: 1) team-based care; 2) care coordination; 3) patient-centred orientation; 4) enhanced access to care; and 5) quality improvement.
- We found evidence for increased social support and education provision for immigrant patients (and cultural barriers were mitigated), and improvements in addressing the needs of those living with HIV and those with little social support in networked primary care that includes population and public-health approaches.
- Barriers to implementation of the integration of public health with primary care focused on: misinformation and a lack of clear objectives among networked health professionals and organizations; lack of visibility of select networked professionals and organizations; and challenges reimbursing professionals for services outside of their remit.

QUESTIONS

- How have networked primary-care approaches in Canadian provinces and select comparator countries incorporated a focus on health-promotion and disease-prevention services?
- What are the barriers and facilitators to networked primary-care providers in undertaking coordinated and comprehensive health promotion and disease-prevention services, including population health needs, equity assessments and community engagement in planning and service delivery?

WHY THE ISSUE IS IMPORTANT

Health systems are moving away from traditional primary care (e.g., by increasingly shifting to group practice and interprofessional teams rather than solo practice primary-care providers), which is often siloed and results in barriers to timely access to care.(1) The Ministry of Health of British Columbia, which requested this rapid synthesis, is undergoing system transformation to better coordinate and potentially integrate primary care with some and community care and public-health services.(2) The transformation presents an important opportunity to improve primary care and preventive care services through improved management of clinical conditions coupled with health promotion and disease-prevention services. The initiative is made up of two core components:

- 1) using a patient medical-home model to provide team-based family practice;(2) and
- 2) implementing primary-care networks which consist of a clinical network of health professionals within a geographic area.(3)

Primary-care networks include physicians in patient medical homes, other primary-care providers, allied health professionals, health authority services and community health services collaborating in order to meet the needs of the local population.(3) More specifically, networked primary-care providers (as defined by the requestor) refers to the local system of primary-care providers, which can include: patient medical homes networked with each other; networked public-health service providers; community-health service providers (e.g., mental health, substance use and home-care service providers); and other health organizations (e.g., community health centres, non-government organizations and the First Nations Health Authority).

The eight core attributes of primary-care networks, as outlined by the General Practice Services Committee (one of four joint collaborative committees that represent a partnership between the Government of British Columbia and Doctors of BC), are: improved access and attachment to primary care; after-hours care; same-day access to urgent care; information provision; comprehensive care; culturally safe care; coordinated care; and clear communication.(3)

Box 1: Background to the rapid synthesis

This rapid synthesis mobilizes both global and local research evidence about a question submitted to the McMaster Health Forum's Rapid Response program. Whenever possible, the rapid synthesis summarizes research evidence drawn from systematic reviews of the research literature and occasionally from single research studies. A systematic review is a summary of studies addressing a clearly formulated question that uses systematic and explicit methods to identify, select and appraise research studies, and to synthesize data from the included studies. The rapid synthesis does not contain recommendations, which would have required the authors to make judgments based on their personal values and preferences.

Rapid syntheses can be requested in a three-, 10-, 30-, 60- or 90-business-day timeframe. An overview of what can be provided and what cannot be provided in each of these timelines is provided on the McMaster Health Forum's Rapid Response program webpage (www.mcmasterforum.org/find-evidence/rapid-response)

This rapid synthesis was prepared over a 30-business-day timeframe and involved four steps:

- 1) submission of a question from a policymaker or stakeholder (in this case, the British Columbia Ministry of Health);
- 2) identifying, selecting, appraising and synthesizing relevant research evidence about the question;
- 3) drafting the rapid synthesis in such a way as to present concisely and in accessible language the research evidence; and
- 4) finalizing the rapid synthesis based on the input of at least two merit reviewers.

As the Ministry of Health of British Columbia moves forward with primary-care transformation through the introduction of primary-care networks, it presents a time-limited opportunity to enhance the provision of preventive care services in primary care through the collaboration and coordination with public health services. In order to maximize the effects of the integration of population and public health at the primary-care level, it is important to learn from other jurisdictions that have incorporated similar approaches, as well as from the published literature to understand the barriers and facilitators to networked primary care. The rapid synthesis focuses specifically on this, but in relation to efforts to incorporate health-promotion and disease-prevention services in networked primary care.

WHAT WE FOUND

We identified a total of 31 relevant documents by searching two databases (Health Systems Evidence and PubMed), with the search strategy for these databases detailed in Box 2. We identified nine systematic reviews, three scoping reviews and nine primary studies on the barriers and facilitators to networked primary-care providers in undertaking coordinated and comprehensive health promotion and disease-prevention services. We provide details about each of the reviews and primary studies in Appendices 1 and 2, respectively.

In addition, we undertook a jurisdictional scan of networked primary-care approaches in Canadian provinces and select comparator countries (Australia, New Zealand, Sweden, U.K. and U.S.). To conduct the scan, we purposefully sampled governmental websites from each of the jurisdictions, as well as key organizations (e.g., European Observatory on Health Systems and Policies, Organisation for Economic Cooperation and Development and Health Systems in Transitions) involved in providing health-systems information for the select comparator jurisdictions. One limitation we note with respect to the jurisdictional scan was the availability of information on governmental websites specific to networked primary care. Some jurisdictions provided limited details about the networked primary-care models we identified, which made it difficult to document whether and how health promotion and disease prevention are incorporated in them.

Box 2: Identification, selection and synthesis of research evidence

For the first question, we conducted a jurisdictional scan of networked primary-care approaches in Canadian provinces through a grey literature search of provincial government or regional health authority websites. For the select comparator countries, we primarily drew on health-systems reviews (Health Systems in Transition) where available, as well as documents from the Organisation for Economic Co-operation and Development and the European Observatory on Health Systems and Policies. The searches were conducted in December of 2018.

For the second question, we identified research evidence (systematic reviews and primary studies) by searching (in December 2018 and January 2019) Health Systems Evidence (www.healthsystemsevidence.org) and PubMed. In Health Systems Evidence, we used the following search strategy: (network OR medical home). We also applied the following filters: under domain - sector 'primary care' and 'public health'; under any theme 'health promotion/primary prevention'; and under document type 'overviews of systematic reviews,' 'systematic reviews of effects' and 'systematic reviews addressing other questions.' In PubMed, we used the following search strategies: "primary care" AND network; "primary care" AND network AND ("health promotion" OR preven*); "primary care" AND (network OR "medical home") AND ("health promotion" OR preven*); "patient-centered medical home" OR "patient-centred medical home"; public health AND primary care AND (integrat* OR collaborat*); and limiting publication dates to the last 10 years.

The results from the searches were assessed by one reviewer for inclusion. A document was included if it fit within the scope of the questions posed for the rapid synthesis.

For each systematic review we included in the synthesis, we documented the focus of the review, key findings, last year the literature was searched (as an indicator of how recently it was conducted), methodological quality using the AMSTAR quality appraisal tool (see the Appendix for more detail), and the proportion of the included studies that were conducted in Canada. For primary research (if included), we documented the focus of the study, methods used, a description of the sample, the jurisdiction(s) studied, key features of the intervention, and key findings. We then used this extracted information to develop a synthesis of the key findings from the included reviews and primary studies.

How have networked primary-care approaches in Canadian provinces and select comparator countries incorporated a focus on health-promotion and disease-prevention services?

We provide a summary of the results of the jurisdictional scan in Table 1 and for each jurisdiction we describe (where possible) the networked primary-care approach and the features of the approach related to health promotion and disease prevention. Given that our scan consisted of a purposeful sampling of key websites in each jurisdiction (as described above), Table 1 may not provide a comprehensive overview of networked primary-care approaches, but rather a broad outline of how networked primary care is applied in the jurisdiction.

Canada

All provinces, with the exception of Newfoundland and Labrador, have some form of networked primary care or have outlined plans to implement networked primary care in the health system. In Saskatchewan, the Ministry of Health in the most recent annual report has outlined actions to establish primary-care networks in Regina and Saskatoon.(4) Similarly, the Nova Scotia Health Authority's guiding document for primary-care delivery outlines a Health Home model, which will use a population-health approach to primary care, and include wellness and chronic-disease management across a geographic framework.(5) While Quebec has integrated network clinics, which combine family-medicine groups with interprofessional care, it is unclear in the available grey literature if this is a true approach to networked primary care.(6)

In the majority of provinces, approaches to networked primary care focused on coordinated interprofessional care covering a specific geographic area. The types of health professionals engaged in networked primary care in provinces include: family physicians, registered nurses, nurse practitioners, dietitians, pharmacists, social workers and mental health professionals. Common objectives of networked primary-care approaches centre on improving access to care, building partnerships between primary care and community organizations, and supporting transitions in care (e.g., across sectors such as acute care to home and community care).

We found limited information with respect to features of networked primary care related to health promotion and disease prevention and no information for three provinces (Quebec, Nova Scotia and Prince Edward Island). Of the provinces for which we were able to find information regarding health promotion and disease prevention in networked primary care, the extent to which they incorporated these types of programs and services varied. For example, Health Links in Ontario are teams of health professionals providing coordinated care (e.g., across home and community care, primary care, specialty care and long-term care) for patients with multiple chronic conditions within a geographic area.(7; 8) The Advanced Health Links Model supports vulnerable populations (e.g., frail and elderly, mental health and addictions, and palliative) by moving beyond the health sector to bridge services across the healthcare continuum and social-services sectors (e.g., housing and justice).(9) An example from New Brunswick is the Horizon Health Network's Fredericton Primary Health Care Network, which provides programs and services including: 1) clinical sexual health services in high schools; 2) chronic obstructive pulmonary disease screening (COPD); 3) group counselling in nutrition (e.g., low-cost healthy eating), mental health (e.g., anxiety and stress management) and system navigation for older adults; and 4) outreach services (e.g., diabetic clinic and healthy-aging clinic).(10)

Select comparator countries

In Australia and New Zealand, Primary Health Networks and Primary Health Organizations assume the responsibility of assessing and meeting local health needs.(11; 12) The amount of funding received by these decentralized bodies is based on the characteristics and needs of the population. Primary Health Networks in Australia have seven priority areas: 1) mental health; 2) Aboriginal and Torres Strait Islander health; 3) population health; 4) health workforce; 5) digital health; 6) aged care; and 7) alcohol and other drugs.(11) In New Zealand, Māori health is a focus of Primary Health Organizations and each District Health Board

receives a template to assist in the development of a unique plan for improved health outcomes amongst the Māori population.(13)

In Sweden, primary care focuses on the general health of populations by treating illnesses that do not require hospitalization and aiding patients with navigation of the health system. The health system is decentralized, with 21 county councils and 290 local authorities (municipalities). The county councils and regions, which act similar to a network, are responsible for meeting the health and housing needs of their populations.(14; 15)

The four publicly funded health systems in the U.K. (National Health Service England, National Health Service Scotland, National Health Service Wales and Health and Social Care in Northern Ireland) each operate independently to provide networked primary care to their respective populations.(16) For instance, Clinical Commissioning Groups in England plan and commission health services after assessing population health needs. Health needs vary based on population, but include services such as mental health, emergency care, infectious-disease control, cancer awareness and community care.(17)

Accountable Care Organizations were implemented as part of changes to the United States Patient Protection and Affordable Care Act enacted in 2012 with the aim of achieving the health system ‘triple aim’ (improving patient experience, meeting population health needs and reducing per capita costs).(18-20) Accountable Care Organizations are broadly characterized by groups of physicians, hospitals and other healthcare providers who voluntarily enrol in a network to provide coordinated high-quality care and to lower costs.(20; 21). For more information on Accountable Care Organizations, please see the McMaster Health Forum’s rapid synthesis on *Examining the Impacts of Accountable Care Organizations on Patient Experience, Population Health and Costs.*(20)

Table 1. Summary of networked primary-care approaches in Canadian provinces and comparator countries

Jurisdiction	Description of networked primary care	Features of networked primary care related to health promotion and disease prevention
<i>Canada</i>		
Alberta	<ul style="list-style-type: none"> • Alberta Health Services' 41 Primary Care Networks consist of networks of local primary-care clinics, which are made up of family physicians and other health professionals (e.g., nurses and nurse practitioners, dietitians, pharmacists, social workers and mental health professionals) to coordinate and deliver primary healthcare services for a specific geographic area.(22) • 80% of family physicians (3,800 physicians and the full-time equivalent of over 1,000 health professionals) are registered in a primary-care network.(23) • The Primary Care Networks' objectives include: <ul style="list-style-type: none"> ○ creation of clear governance roles, structures and processes to enable accountability; ○ supporting partnerships and care transitions; ○ meeting community and population health needs; and ○ implementing patient's medical home.(23) • Primary Care Networks are undergoing structural reforms, which include creation of Provincial Primary Care Networks Committee and five Zone Primary Care Networks Committees (aligns with current Alberta Health Services' zones).(23) • The five Zone Primary Care Networks Committees will identify population health needs and priorities, and standardize and integrate primary and community services.(24) 	<ul style="list-style-type: none"> • Alberta Health Services publishes profile reports for each of the 41 Primary Care Networks to provide an overview of the network's demographic, socio-economic and population-health statistics.(25) • The Primary Health Care Integration Network sits within Alberta Health Services' Provincial Primary Health Care Program and is one of the 16 Strategic Clinical Networks.(26) <ul style="list-style-type: none"> ○ The network collaborates with the Primary Care Networks, Alberta Health Services' zones and provincial programs with the aim of enhancing care collaboration and transitions in care.(27) ○ The approach allows for primary healthcare providers and Alberta Health Services' zones to work together to address specific challenges by using an Integrated Care Partnership model (i.e., co-creation of care) and centred on the health system 'quadruple aim' (improving patient experience, meeting population health needs, reducing per capita costs and improving the healthcare provider experience).(28) ○ Examples of projects related to health promotion and disease prevention include: 1) Provincial Community & Rural Maternity Care Plan; 2) Patients Collaborating with Teams (implementing care plans within Patient's Medical Home); and 3) Coalition to Address Obesity and Youth.(29)
Saskatchewan	<ul style="list-style-type: none"> • There is currently no province-wide approach to networked primary care in Saskatchewan, however, primary-care networks are under development in Regina and Saskatoon.(4) 	<ul style="list-style-type: none"> • In establishing primary-care networks in Regina and Saskatoon, improving community-based planning and transitions between acute care and community care has been identified as an area of focus.(4)
Manitoba	<ul style="list-style-type: none"> • My Health Teams are under development and provide networked primary care for a geographic area, specific community or population.(30) • The objectives of My Health Teams include: <ul style="list-style-type: none"> ○ improving access to primary care; ○ quality and safety; ○ patient-centred care; ○ transitions in care, including across geographic boundaries; and ○ efficiency in primary care and health-system sustainability.(30) 	<ul style="list-style-type: none"> • My Health Teams will set priorities for programs and services based on individual community needs, however, stated goals include interprofessional provision of mobile and outreach services, health promotion and wellness, chronic-disease prevention and management, group sessions and mental health services.(31) • My Health Teams will include partnering with community-led organizations to reach underserved and marginalized populations within the network.(31)
Ontario	<ul style="list-style-type: none"> • Health Links are teams of health professionals providing coordinated care (e.g., across home and community care, primary care, specialty care and long-term care) for patients with multiple chronic conditions within a geographic area.(7; 8) • There are approximately 82 Health Links and the focus is to improve care for the top 5% of the population that account for the majority of health spending.(32) • Objectives include: 	<ul style="list-style-type: none"> • The Advanced Health Links Model supports vulnerable populations (e.g., frail and elderly, mental health and addictions and palliative) by moving beyond the health sector to bridge services across the healthcare continuum and social services sectors (e.g., housing and justice).(9)

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Jurisdiction	Description of networked primary care	Features of networked primary care related to health promotion and disease prevention
	<ul style="list-style-type: none"> ○ individualized and coordinated care plan; ○ health professionals to support care plan and medication adherence; and ○ access to health professional that is familiar with the plan.(8) 	
Quebec	<ul style="list-style-type: none"> ● Integrated network clinics combine family medicine groups (groups of physicians and nurses) with traditional network clinics (includes a nurse, nutritionist, psychologist, kinesiologist), however, it is unclear in the available literature if integrated network clinics are interdisciplinary team-based primary care or an approach to networked primary care.(6) 	<ul style="list-style-type: none"> ● None identified
New Brunswick	<ul style="list-style-type: none"> ● Horizon Health Network’s Fredericton Primary Health Care Network supports primary care in the region.(10) ● The network includes two nurse practitioners, two social workers, one dietitian and one respiratory therapist.(10) 	<ul style="list-style-type: none"> ● Programs and services provided by the network include: <ul style="list-style-type: none"> ○ clinical sexual health services in high schools; ○ COPD screening; ○ group counselling in nutrition (e.g., low-cost healthy eating), mental health (e.g., anxiety and stress management) and system navigation for older adults; and ○ outreach services (e.g., diabetic clinic and healthy-aging clinic).(10)
Nova Scotia	<ul style="list-style-type: none"> ● Networked primary care was not found in Nova Scotia, however, the Nova Scotia Health Authority’s guiding document for primary-care delivery outlines a Health Home model.(5) 	<ul style="list-style-type: none"> ● The model for networked primary care outlined in the guiding document for primary-care delivery is adapted from the College of Family Physicians of Canada’s Patient’s Medical Home, which indicates that it will use a population-health approach to primary care, including wellness and chronic-disease management across a geographic framework.(5)
Prince Edward Island	<ul style="list-style-type: none"> ● There are five primary-care networks in the province, and each network includes family physicians, nurse practitioners, registered nurses, diabetes educators and licensed practical nurses with some also having dietitians and mental health workers.(33) 	<ul style="list-style-type: none"> ● None identified
Newfoundland and Labrador	<ul style="list-style-type: none"> ● None identified 	<ul style="list-style-type: none"> ● None identified
<i>Select comparator countries</i>		
Australia	<ul style="list-style-type: none"> ● The Australian Government established 31 Primary Health Networks to improve patient outcomes, with the following objectives: <ul style="list-style-type: none"> ○ increase the efficiency and effectiveness of medical services for patients, with a focus on those at higher risk; and ○ enhance coordination of care.(11) ● Primary Health Networks aim to achieve these objectives by: <ul style="list-style-type: none"> ○ evaluating health needs of communities; ○ providing support for general practitioners; ○ disseminating research and evidence of best practice; ○ supporting the use of electronic tools to maximize efficiency; and ○ collaborating with other funders and commissioning other services for high-risk patients.(11) 	<ul style="list-style-type: none"> ● No features of networked primary care related to health promotion and disease prevention were identified, however, Primary Health Networks have seven priority areas: <ul style="list-style-type: none"> ○ mental health; ○ Aboriginal and Torres Strait Islander health; ○ population health; ○ health workforce; ○ digital health; ○ aged care; and ○ alcohol and other drugs.(11) ● As example of an initiative with a health-promotion component, in 2015 methamphetamine use in the community was identified as a priority area and \$241.5 million was committed to support Primary Health Network interventions for it.(34) Interventions included use of evidence-based treatments, linkages with

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Jurisdiction	Description of networked primary care	Features of networked primary care related to health promotion and disease prevention
New Zealand	<ul style="list-style-type: none"> The New Zealand Government established 31 Primary Health Organizations to ensure the provision of primary care to patients and implementation of the Primary Health Care Strategy.(12) The main objective of Primary Health Organizations is to link general practitioners to other primary-health services to improve continuity of care and management of chronic conditions.(12) Funding is distributed from the government to District Health Boards, who contract for the Primary Health Organizations.(12) 	<p>broader health services, Indigenous-specific treatment services, and health professional support and training.(34)</p> <ul style="list-style-type: none"> Primary Health Organizations develop health plans unique to local needs. For example, each District Health Board receives a Māori Health Plan template to assist in the development of a unique plan for improved health outcomes amongst the Māori population.(13)
Sweden	<ul style="list-style-type: none"> The Health and Medical Services Act of 1982 distributes responsibility for population health to 20 county councils/regional councils and 290 municipalities.(14; 15) The counties and regions, which act as a network, are responsible for meeting the health and housing needs of their population. The state health-insurance system includes all members of the population, though a small percentage of the population has private health insurance.(14; 15) County councils are responsible for health of the population, including dental care (up to the age of 21).(35) Municipalities are responsible for supporting the delivery of home care for older adults, caring for physical disabilities or psychological disorders, transition supports from acute care to community care, and supporting health within schools.(35) 	<ul style="list-style-type: none"> None identified
U.K.	<ul style="list-style-type: none"> Clinical Commissioning Groups in England replaced Primary Care Trusts in 2013, with the objective to plan and commission the healthcare services most needed by the local population.(16) Clinical Commissioning Groups include all general practitioner groups in a given area, and administer two-thirds of the National Health Service’s budget and support quality improvement among most National Health Service-funded services.(16) <ul style="list-style-type: none"> General practitioners are legally obliged to join Clinical Commissioning Groups in order to increase involvement in meeting health needs.(16) Clinical Commissioning Groups are responsible for assessing population health needs and providing appropriate services, including mental health, emergency care, and community care.(16) Each Clinical Commissioning Group is responsible for the health of a population ranging from 100,000 to 900,000.(16) 	<ul style="list-style-type: none"> Clinical Commissioning Groups collect data to assess the health needs of the local population, and are assessed by improvements in outcomes.(17) A range of networked-care initiatives have addressed unique health needs in England, including: <ul style="list-style-type: none"> peer educators to improve cancer awareness; early diagnosis and prevention of HIV; prevention of hospital admission in people with COPD; and improved access to primary services such as flu vaccines.(17)
U.S.	<ul style="list-style-type: none"> Accountable Care Organizations are a core component of the Affordable Care Act, modelled to achieve health system ‘triple aims’ (improving patient experience, meeting population health needs and reducing per capita costs).(18) To control costs and improve experience, Accountable Care Organizations must develop a number of competencies: 	<ul style="list-style-type: none"> Affordable Care Organizations have the option to participate in the Medicare Shared Savings Program, which measures quality of care in four domains: 1) patient/caregiver experience; 2) care coordination/patient safety; 3) clinical care for at-risk population; and 4) preventive health.

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	<ul style="list-style-type: none"> ○ a formal legal structure and governance should facilitate collaboration and reward of providers for achieving quality and cost goals; ○ facilitate linkages between health professionals along the care continuum; ○ electronic tools to facilitate coordination, management and monitoring of quality and cost data; and ○ new contracts (e.g. diverse payment models with multiple payers) should be supported by structures.(18) ● Accountable Care Organizations build on the concepts and features of other forms of organization, including: <ul style="list-style-type: none"> ○ patient-centred medical home, coordinated patient-centred care across the continuum;(36) ○ Managed Care Organizations, a contracted service which aims to improve healthcare quality while lowering cost by incorporating patient insurance into the model; ○ pay-for-performance, a model that rewards providers for meeting certain quality benchmarks; and ○ medical neighbourhoods, which positions primary-care units as the coordinator of patient linkage to care.(37) 	<ul style="list-style-type: none"> ● The model focuses on health promotion and disease prevention by incentivizing the delivery of high-quality care to high-risk patients (e.g., diabetes, hypertension, ischemic valvular disease and depression).(38) ● The Veterans Health Administration is the largest integrated health system in the U.S. to implement the patient-centred medical home.(39) It provides primary care to more than five million veterans at 160 hospital-based primary-care facilities and 783 community-based outpatient clinics.(39) Factors such as comprehensive electronic medical records, improvement programs such as diabetes control and cancer screening, and performance measurement are incorporated into this model.(39)

What are the barriers and facilitators to networked primary-care providers in undertaking coordinated and comprehensive health promotion and disease-prevention services, including population health needs, equity assessments and community engagement in planning and service delivery?

We found one overview of reviews, 10 systematic reviews, three scoping reviews and 17 primary studies that related to the question above. Generally, findings from the included literature focused on: 1) the effects of networked primary care and the integration of public health; 2) effects of networked primary care on improving care among particular populations; 3) implementation considerations for networked primary care; and 4) facilitators and barriers to collaborations with primary care and public health. A short summary of these findings has been provided in the narrative below, with additional details provided in Table 2.

Patient-centred medical homes were the most frequently cited model of networked primary care in the literature that we identified and they typically include five key components: 1) team-based care; 2) care coordination; 3) patient-centred orientation; 4) enhanced access to care; and 5) quality improvement.(40) As highlighted in the jurisdictional scan, another model widely implemented across the U.S. are Accountable Care Organizations. However, given the Canadian context we have not included this literature in the summary below. If interested, the McMaster Health Forum previously published a rapid synthesis focused on the effects of Accountable Care Organizations on achieving the triple aim.(20)

Generally, the literature has found that the patient-centred medical home model is effective for improving access to care and disease status. Further, the reviews and primary studies found that these models of care improved care processes, included access to preventive services, and reduced the use of emergency services.(41-45) With regards to the integration of public health into networked primary care, one scoping review found improved chronic-disease management, communicable-disease control, and maternal and child health outcomes.(46) One primary study identified the following core components to collaboration between the two: leadership, communication, mutual awareness, formal processes, history, and values.(47)

In addition, the literature we identified highlighted the use of these models for providing care to diverse populations. For example, one recent medium-quality review found that primary-care models which included a population and public-health approach were better able to mitigate cultural barriers and provide social support and education for immigrant patients.(42) In addition, one primary study found that patient-centred medical homes were beneficial for addressing the needs of those living with HIV and those with little social support.(48) Another primary study found that patient-centred medical homes empowered clients in a housing program to engage with the health system and access services, and raised awareness about physical health issues.(49) However, two primary studies compared the effectiveness of the patient-centred medical model between those who were already attached to a primary-care provider and those who were unattached.(50; 51) The studies found that while the patient-centred medical home model significantly reduced the use of emergency departments, those who were unattached had less access to recommendations on preventive health or lifestyle habits compared to attached patients.(50; 51)

The included literature highlighted both implementation considerations that apply generally to the patient-centred medical-home model (and could be extrapolated to apply to networked primary care more generally), and specifically to the integration of public health with primary care. With regards to more general implementation considerations for patient-centred medical homes, three systematic reviews (two older medium quality and one older high quality) and one primary study noted the following barriers to implementation:

- misinformation and a lack of clear objectives among networked health professionals and organizations;
- lack of visibility of select networked professionals and organizations; and
- challenges reimbursing professionals for services outside of their remit (e.g., program evaluation; interdisciplinary-care strategy development).(52)

In addition, the literature noted the following facilitators to implementing the patient-centred medical-home model:

- long-term commitment from those involved;
- local variation and adaptability of the chosen model of care;
- a focus on patient centredness;
- available resources to support change management; and
- the development of formal learning collaboratives and collaborative program planning.(52; 53)

One older high-quality review used information communication technology to facilitate the integration of mental health services with primary care. Specifically, information communication technology was used to improve communication, share decision supports and clinical guidelines, and provide education tools.(54) Within care for select populations, one primary study examined the delivery of primary-care clinical services within a population-health approach for Indigenous peoples in Alberta.(55) Stakeholders highlighted incorporating Indigenous knowledge systems and cultural protocols, adopting holistic approaches, and the need for dedicated infrastructure within communities.(55)

With regards to the integration of public health within primary care, one primary study examined perceptions on collaboration between the two sectors in Canada and identified three types of collaborators:

- 1) system driven collaborators (e.g., a clear mandate is needed from the government to enable public health, primary care and the rest of the health system to effectively work together);
- 2) cautious collaborators (e.g., support the idea of the benefits of a collaborative approach between public health and primary care); and
- 3) competent isolationists (e.g., firm belief in the clear separation between roles and difference between sectors).(56)

One systematic review, three scoping reviews and three primary studies highlighted facilitators and barriers specific to the integration of public health with primary care.(42; 46; 57-61) Specific barriers included:

- differing agendas of primary care and public health;
- lack of a common vision;
- loss of public-health expertise in primary care;
- uncertainty regarding leadership during the process of integration;
- distribution of funds that are targeted towards treatment rather than prevention activities;
- physician remuneration models, particularly fee-for-service;
- limited time, capacity and resources to forge collaborations;
- conflicts regarding differences in ownership of responsibilities based on traditional primary-care and public-health roles and lack of structural support;
- limited knowledge and lack of education in public health among family physicians;
- lack of communication, limitations in data sharing and established referral pathways; and
- a reluctance to change established ways of practising.(42; 46; 57-61)

Finally, one overview of reviews two scoping reviews and two primary studies identified the following facilitators:

- governmental and regulatory policies and mandates for collaboration, whose goals are to reduce health disparities;
- health-service structures that promote collaboration;
- availability of adequate financial resources, investments and diverse funding streams;
- harmonized information and communication infrastructure;
- community-based collaboration;
- similar values and beliefs in teamwork, population health, health promotion and health protection;
- flexibility of skill mix, interdisciplinary training and education programs;

- team-based approaches to care that engage patients, family members and/or caregivers
- formal systems leaders as collaborative champions;
- the geographic location and proximity of networks to facilitate communication, share data and establish trust between providers; and
- supportive evidence and data driven practices (e.g., positive effects, applicability and relevance to patients and providers and cost-effectiveness).(46; 57; 60-62)

Table 2. Key findings from systematic reviews and primary studies on networked primary care

Key findings from systematic reviews and primary studies
<p><i>Key findings on the effects of networked primary care</i></p> <ul style="list-style-type: none"> • One recent scoping review found that patient-centred medical homes that are integrated with mental health and other community services are able to lower costs and utilization of emergency service while improving access to care and disease status among diverse patient populations.(41) • One recent medium-quality review found that models of primary care that include public and population-health approaches were more effective in delivering health promotion and disease-prevention interventions compared to traditional primary-care practices.(42) • Two older medium-quality reviews, one older high-quality review and one primary study found that patient-centred medical homes may improve care processes, especially for preventive services, and resulted in a reduction in the use of emergency services.(43-45) <ul style="list-style-type: none"> ○ However one of the reviews was unable to assess the effects of biophysical markers, patient-reported health status and mortality., while another found that the model did not influence patient or family.(43) ○ The primary study also found a significant decrease in staff burnout from the implementation of the medical-home model of care.(45) • One older medium-quality review found mixed effects from patient-centred medical home on processes of care, costs, as well as patient and caregiver experience. <ul style="list-style-type: none"> ○ However, the review did find a significant reduction in the number of hospitalizations reported among patients registered with the patient-centred medical-home model.(63) • One scoping review found collaboration between primary care and public health improved chronic-disease management, communicable-disease control, and maternal and child health outcomes. <ul style="list-style-type: none"> ○ However, some negative outcomes were reported around differing agendas of primary and public health, loss of public-health expertise to primary care, and uncertainty regarding leadership.(46) • One primary study examined collaborations in practice-based research networks between public health and primary care and identified the following core components to collaboration: leadership; communication; mutual awareness; formal processes; history; and values.(47) • One primary study found that the inclusion of mental health professionals in networked primary care for geriatric patients was relatively rare.(64) • One primary study found the integration of pharmacists as part of the patient-centred medical home improved the quality of care and patient outcomes.(65) <p><i>Key findings on the effects of networked primary care on specific populations</i></p> <ul style="list-style-type: none"> • One recent medium-quality systematic review found that while relatively few included studies (four of 32) included all six components of a patient-centred medical home, these models generally had a positive effect on health outcomes among low-income patients, including better clinical outcomes, higher adherence to medication and lower utilization of emergency rooms. However, some variation in the levels of the effectiveness across included studies was reported. <ul style="list-style-type: none"> ○ The review also found improved management of chronic diseases and in one included study an increase in the uptake of preventive health behaviours among diabetic patients.(40) • One recent medium-quality review found that primary care which included public and population-health approaches was more consistent in mitigating cultural barriers and in providing social support and educational programs to immigrant patients.(42) • One scoping review found the patient-centred medical-home model improved the use of appropriate services by children and adults. <ul style="list-style-type: none"> ○ The review found that patients were satisfied with care and reported positive results, however there were lower levels of satisfaction reported for the coordination of referrals, wait times and cultural sensitivity.(43) • One primary study examined a collaboration between patient-centred medical homes and essential public-health services, which included embedding a family physician into a housing program and found the collaboration empowered clients to engage with the health system and access services.(49) • One primary study examined the effectiveness of patient-centred medical homes for treating low-income and low-education individuals and found that these individuals had less access to public-health recommendations on preventive health or lifestyle habits as compared with those individuals who were already attached to the medical home.

Key findings from systematic reviews and primary studies

- However, the study did find a reduction in the use of emergency rooms among those who had no usual source of care.(50)
- A second primary study also confirmed these findings among adults living with mental illness.(51)
- One primary study found that the use of text messages to remind marginalized patients of disease-prevention activities or treatment to be acceptable when they related to appointment attendance or prescription refills, but were less accepted when related to promoting healthy lifestyle changes (e.g., substance use cessation).(66)
- One primary study found the use of the patient-centred medical home was beneficial to address the needs of people living with HIV and those with little to no social supports.
 - The study found that a limitation of this model was the need to provide additional training for those working in the patient-centred medical home about how to provide HIV-related care and how to work with marginalized or stigmatized populations.(48)

Key findings on implementation considerations for networked primary care

- One older medium-quality review found that the implementation of patient-centred medical homes required extensive changes to professionals' routine practice, which may act as a critical barrier to the effective implementation of this model.
 - Given the extensive change required, the review found the following key requirements for successful implementation: long-term commitment, local variation and adaptability, a focus on patient centredness, support for reform from the larger system, and available resources.
 - Misinformation and a lack of clear objectives for the implementation were also identified as barriers.(52)
- One older high-quality review focused on the integration of mental health and primary care and found the remuneration of health professionals and the need for resources dedicated to change management as barriers to integration.
 - The review also suggested that the use of information communication technology was a facilitator for the integration of mental health into primary care as it was used to put in place decision supports for the broader primary-care team, enforce guideline recommendations and suggest education tools, which in turn improved the communication between providers and increased primary-care providers' understanding of mental health considerations.(54)
- One older medium-quality review examined approaches for the implementation of the patient's medical home model, and found that successful implementation strategies included: formal learning collaboratives, and collaborative program planning for individuals to learn about the aspects of patient-centred medical home.(53)
- One primary study examined perceptions on collaboration between primary care and public health in Canada and identified three types of collaborators: 1) system-driven collaborators - a clear mandate is needed to enable public health, primary care and the rest of the health system to effectively work together; 2) cautious collaborators – support the idea that collaborations are feasible and beneficial; and 3) competent isolationists – clear separation between roles and sectors.(56)
- One primary study found key challenges for the integration of mental health professionals with networked primary care include a lack of visibility compared to the rest of the team, and challenges in reimbursing consultations that are not typically part of a psychologist's mandate such as program evaluation and interdisciplinary-care strategy development.(67)
- One primary study conducted in Alberta focused on the delivery of primary-care clinical services within a population-health approach for Indigenous peoples and stakeholders highlights incorporating Indigenous knowledge systems and cultural protocols, adopting holistic approaches in communities. and the need for dedicated infrastructure.(55)

Key findings on the facilitators and barriers to collaborations with primary care and public health

- One recent overview of reviews identified facilitators to the implementation of complex interventions in primary care across the levels of the health system.(62)
- External context facilitators focused on supportive national and local policies and appropriate legislative mechanisms.
- Organizational-level facilitators included: the presence of a positive culture which was accepting of change and valued innovation; strong and reliable internal and external leadership; organizational readiness; absence of a hierarchical structure; the presence of appropriate resources; an intervention that fits with existing workflow; flexibility of skill mix incorporating an interdisciplinary approach; and involvement and support from inter-professional team members and management.

Key findings from systematic reviews and primary studies

- Professional-level facilitators included: professionalism (using professional judgment to apply scientific and experiential knowledge and dealing with ambiguity); peer influence; sense of self-efficacy; and authority/influence.
- Intervention-level facilitators included: evidence of positive effects; applicability and relevance to patients and providers; cost-effectiveness; clarity; practicality and utility; and customization of intervention and information technology compatibility with the current system.(62)
- One recent review highlighted six organizations that have effectively integrated mental health and primary care and identified six broad facilitators: 1) focus on vulnerable populations; 2) use of data-driven practices; 3) community-wide collaboration; 4) presence of a person or persons with institutional vision; 5) a team-based approach to care that engaged patients, family members and/or caregivers; and 6) diverse funding streams.(61)
- One recent scoping review found community-based collaboration, stakeholder engagement and alignment of objectives and goals to improve public health across levels of government were all facilitators to the implementation of health-promotion policies and programs.(57)
- One scoping review identified barriers and facilitators to the integration of primary care and public health.
 - Facilitators included: government interest and policy initiatives whose goals are to reduce health disparities; availability of adequate financial resources and investments; similar values and beliefs in teamwork, population health, health promotion and health protection, interdisciplinary training and education programs; adequate administrative support; and location and geography of networks to facilitate communication, share data and establish trust between providers.
 - Barriers included: distribution of funds being targeted towards treatment rather than prevention activities; physician remuneration models (specifically fee-for-service); conflicts regarding philosophical differences in care such as ownership of responsibilities based on traditional primary-care and public-health roles; absence of organizational support; and lack of a common vision.(46)
- One primary study conducted in British Columbia, Ontario and Nova Scotia identified seven health-system level factors for collaboration between primary-care and public-health sectors: 1) health-service structures that promote collaboration; 2) funding models and financial incentives supporting collaboration; 3) governmental and regulatory policies and mandates for collaboration; 4) power relations; 5) harmonized information and communication infrastructure; 6) targeted professional education; and 7) formal systems leaders as collaborative champions.(60)
- One primary study found three key barriers to collaboration between public health and primary care: institutional barriers (e.g., stressful work environment, lack of structural support and demanding environments); process-related barriers (e.g., inconsistent communication and lack of effective data sharing); and resource-related barriers (e.g., limited time, capacity and resources to forge collaborations).(59)
- One primary study found three key barriers to the integration of public health and primary care, including: limited knowledge and lack of education in public health among family physicians; lack of communication and established referral pathways between primary care and public health; and a reluctance to change established ways of practising.(58)

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APPENDICES

The following tables provide detailed information about the systematic reviews and primary studies identified in the rapid synthesis. The ensuing information was extracted from the following sources:

- systematic reviews - the focus of the review, key findings, last year the literature was searched, and the proportion of studies conducted in Canada; and
- primary studies - the focus of the study, methods used, study sample, jurisdiction studied, key features of the intervention and the study findings (based on the outcomes reported in the study).

For the appendix table providing details about the systematic reviews, the fourth column presents a rating of the overall quality of each review. The quality of each review has been assessed using AMSTAR (A MeaSurement Tool to Assess Reviews), which rates overall quality on a scale of 0 to 11, where 11/11 represents a review of the highest quality. It is important to note that the AMSTAR tool was developed to assess reviews focused on clinical interventions, so not all criteria apply to systematic reviews pertaining to delivery, financial or governance arrangements within health systems. Where the denominator is not 11, an aspect of the tool was considered not relevant by the raters. In comparing ratings, it is therefore important to keep both parts of the score (i.e., the numerator and denominator) in mind. For example, a review that scores 8/8 is generally of comparable quality to a review scoring 11/11; both ratings are considered “high scores.” A high score signals that readers of the review can have a high level of confidence in its findings. A low score, on the other hand, does not mean that the review should be discarded, merely that less confidence can be placed in its findings and that the review needs to be examined closely to identify its limitations. (Lewin S, Oxman AD, Lavis JN, Fretheim A. SUPPORT Tools for evidence-informed health Policymaking (STP): 8. Deciding how much confidence to place in a systematic review. *Health Research Policy and Systems* 2009; 7 (Suppl1):S8).

All of the information provided in the appendix tables was taken into account by the authors in describing the findings in the rapid synthesis.

Appendix 1: Summary of findings from overviews of systematic reviews about networked primary care

Type of review	Focus of systematic review	Key findings	Year of last search/publication date	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada
Overview of reviews	Synthesizing literature on the causes of the evidence to practice gap for complex interventions in primary care (62)	<p>This overview of reviews included 77 reviews that summarized literature on the causes of the evidence to practice gap, referred to as reasons why and how complex interventions fail to be implemented in clinical practice, in the primary-care setting. Several primary themes and secondary themes emerged from the data and were classified into the four levels of external context, organization, professionals and intervention.</p> <p>In terms of external context, the existence of supportive national and local policies which were compulsory, as well as appropriate legislative mechanisms, often functioned as important facilitators and promoted implementation of clinical guidelines, telemedicine and new professional roles (e.g., nurse practitioners). Secondary themes related to policy and legislation included: 1) alignment with local or national agenda, which promotes adoption of change in primary care; 2) lack of stated goals and objectives reflecting priorities, which could act as a barrier; 3) a regulatory framework, which was found to impede implementation; 4) presence of codes of practice, which were shown to support implementation; 5) the existence of clear incentive structures, which was shown to enable adoption (e.g., non-financial incentives such as public recognition and financial incentives such as governmental incentives); 6) influential professional organizations, such as those producing national guidance, which can have an impact on the credibility and enactment of dominant paradigms (which refer to the presence of a commonly held set of values in a society); 7) buy-in by internal or external stakeholders at different levels, which supported implementation; 8) lack of infrastructure support for implementation, which was found to impede implementation; 9) technological advancements in healthcare (e.g., electronic patient records and telemedicine), which have been shown to promote implementation; 10) economics and financing (e.g., government funding allocation), which were shown to affect guideline implementation and novel professional roles; and 11) public awareness, which could increase pressure to adopt a new intervention.</p> <p>Regarding the organizational level, the following concepts were viewed as important for implementation: 1) the presence of a positive culture which was accepting of change and valued innovation; 2) strong and reliable internal and external leadership (e.g., influential champions who were respected and trusted by staff); 3) organizational readiness; 4) absence of a hierarchical structure; 5) the presence of appropriate resources, including time, funding, staff and technical support; 6) an intervention that fits with existing workflow and is well-integrated with current working processes and systems; positive and trusting inter-professional and patient-provider relationships; 7) flexibility of skill mix incorporating an interdisciplinary approach; and 8) involvement and support from interprofessional team members and management, as well as a collaborative drive towards a shared vision.</p> <p>In terms of the professional level, themes included perceptions of what it meant to be a professional – professionalism (using professional judgment to apply scientific and experiential knowledge and</p>	2015	No rating tool available for this type of document	n/a

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		<p>dealing with ambiguity), peer influence (e.g., negative beliefs of colleagues towards information and communication technology were perceived as barriers), sense of self-efficacy (a lack of confidence in one's ability was found to impede implementation), and authority/influence (feeling of not having enough authority to drive change precluded implementation efforts). Furthermore, personal style, including the extent to which the intervention and the preferred style of clinical practice (e.g., clinicians' communication style, personality and opposition to the intervention) was found to influence implementation. Additionally, patient values and preferences and concerns about whether new systems would affect clinician-patient relationships impeded implementation. Moreover, attitudes to change (e.g., resistance to change), previous experiences in clinical practice that might affect professional attitudes towards a new intervention, motivations and priorities (e.g., competing priorities or lack of motivation), familiarity and awareness of the intervention, and perception of time and workload associated with the intervention were all reported to influence implementation. Lastly, competencies, such as sufficient training, were shown to facilitate implementation processes.</p> <p>The nature and features of the intervention, including its complexity, evidence of positive effects, applicability and relevance to patients and providers, cost-effectiveness, clarity, practicality and utility, and customization of intervention and information technology compatibility with the current system, were reported as important components to be considered during implementation processes. Furthermore, under the theme of implementation, the following ideas were explored: 1) complexity of implementation process, with highly complex implementation plans being less likely to succeed; 2) benefit and harm as a result of implementation, with adoption of a new intervention or process potentially bringing benefit or harm to other components of care; and 3) resources required for implementation, with effective implementation requiring adequate funding and resources to support its conception and sustainability. Finally, safety and data privacy were perceived to be essential for implementation.</p> <p>This systematic review of reviews identified several causes, explanations and influences that contribute to the evidence-practice gap, relating to the implementation of complex interventions in primary care. However, the authors noted several limitations to this paper, including the absence of formal quality-assessment procedures.</p>			
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Appendix 2: Summary of findings from systematic reviews about networked primary care

Type of review	Focus of systematic review	Key findings	Year of last search/publication date	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada
Systematic review	Determining if and how patient-centred medical homes improve health behaviours and outcomes among low-income patients (40)	<p>Patient-centered medical homes (PCMHs) are primary-care models in which patient care is coordinated by family physicians to ensure patients receive appropriate treatment and in a way that is understandable. PCMHs consist of five recommended components: team-based care, care coordination, patient-centered orientation, enhanced access to care, and quality improvement. This study investigated the effectiveness of PCMHs in Alabama, Arkansas, California, Colorado, Delaware, District of Columbia, Florida, Idaho, Illinois, Indiana, Iowa, Louisiana, Maine, Maryland, Massachusetts, Michigan, Minnesota, Missouri, Mississippi, Nebraska, New York, North Carolina, Oklahoma, Oregon, Pennsylvania, Rhode Island, Texas, Virginia, Washington, and West Virginia.</p> <p>It was found that only four studies described all six PCMH components, and that 63% of PCMH settings evaluated used only five of six recommended components of the PCMH framework. Overall, PCMHs had a positive effect on health outcomes in low-income patients, however, there was substantial variability in the data. PCMH patients on average had better clinical outcomes, higher adherence to medications, and lower utilization of emergency rooms. HgbA1c levels, a marker for diabetic patients, were found to be lower overall in PCMHs. Of the studies which examined follow-up and adherence to medications, results from primary studies more strongly indicated that PCMHs improved health outcomes compared to randomized control trials. In one primary study, it was even found that PCMHs were associated with increased preventive health behaviours in diabetic patients. Five of seven studies which assessed cost savings found that PCMHs showed lower costs. As well, patients and providers involved in a PCMH intervention were found to be more satisfied than control groups. Overall, providers also regarded the interventions as “successful.”</p>	2016	4/11 (AMSTAR rating from McMaster Health Forum)	0/32
Secondary analysis	Understanding the structure, function and outcomes of patient-centred medical homes (41)	<p>This review sought to examine six outcome measures (cost reductions, decreased emergency department utilization, improved quality, improved care access, increased preventive services and improved patient satisfaction) using the data from 59 PCMHs from the Patient-Centered Primary Care Collaborative 2012-2013 Annual Review. Each PCMH was categorized as either add-on, renovated, hybrid or integrated. Add-ons were defined as having case management, phone care management and electronic medical record registries. Renovated PCMHs featured team-based care, innovative access solutions and electronic medical record changes. Hybrid models expanded on this by allowing for targeted and improved care within different patient populations. Finally, integrated models featured integration within the broader community and a medical network.</p> <p>Overall, add-on clinics significantly improved emergency-service utilization and improved cost and disease-related outcomes. However, these PCMHs were not associated with any improvement for measures like access or prevention. Renovated clinics showed significant improvements in cost, utilization, and access compared with the add-on clinics alone, but failed to demonstrate improvements in patient satisfaction compared to add-on clinics. Hybrid clinics, a mixture of both add-on and renovation-type PCMHs, largely reflected the effects of renovated clinics, but to a lesser</p>	2016	No rating tool available for this type of document	0/59

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		<p>extent. Integrated clinics demonstrated the best, most balanced outcomes and showed improvements in all six measures of PCMHs (cost, utilization, access, quality disease metrics, prevention, and patient satisfaction). Overall, these findings suggest that PCMHs integrated within mental health or other community agencies or supports are able to lower costs and emergency-service utilization while improving access, disease status among diverse patient populations, and improving patient satisfaction.</p>			
Systematic review	Identifying the barriers to implementing patient-centred medical homes in Australia (52)	<p>This review sought to elucidate the challenges and barriers to implementing and adopting patient-centred medical-home (PCMH) models, specifically within Australian primary-care reform efforts.</p> <p>Among 28 included studies, six major overlapping challenges and barriers were identified. Transforming primary care practices to accommodate PCMH models was found to require extensive changes to routine operational practices. The key requirements identified in this process were: long-term commitment, local variation, a focus on patient-centredness, and support through reform of the larger delivery system to integrate primary care within it. Although external payment reform may appear to be an incentive for care providers to adopt PCMH models, primary-care practices still require extensive external support, such as consulting, and substantial resource investment. Misinformation and a lack of clear, definitive understanding of PCMH objectives were also identified as barriers to PCMH implementation.</p> <p>Electronic health records (EHRs) also have the potential to pose challenges due to the difficulties associated with population-level data management and the populating of disease registries. As well, funding and payment models for the transition between standard primary-care practices and PCMHs were also identified as a barrier, with many studies recommending incentives for practices and providers to support PCMH implementation. Insufficient resources – specifically in terms of training resources and equipment) – as well as inadequate or inconsistent performance measures and accreditation standards were also identified as barriers to uptake. Overall, the review identifies these challenges being not specific to only Australia, and strongly emphasizes the importance of long-term change-management strategies, with a focus on team-based care, to effectively overcome transition periods and improve the implementation process of PCMHs.</p>	2012	4/11 (AMSTAR rating from McMaster Health Forum)	0/28
Systematic review	Understanding how primary healthcare models address health equity concerns for immigrant populations (42)	<p>This review sought to examine primary-care models used to care for immigrant populations. It categorized the available literature into Primary Medical Care (PMC), which refers to the clinical interactions between doctor and patient, and Primary Health Care (PHC), which describes health provisions to serve larger populations and communities.</p> <p>Among the 22 studies which examined PHCs, 20 identified cultural and religious barriers which influenced PHC effectiveness. Promoting culturally appropriate care practices and involving ethno-cultural community leaders was identified as a common theme in mitigating this barrier. Education and health literacy among immigrant patients were also identified as major barriers in PHCs as compared to PMCs. However, PHCs were found to be more effective in health promotion and primary-care prevention compared to PMCs. Among PMC models analyzed, the top strategy identified was the organization of services through a multidisciplinary, coordinated-care model. Improving access to insurance and tackling economic barriers were also identified. All of the PHC studies included strategies for health promotion and disease prevention, however, this was only discussed in 71% of the PMC studies. Regarding strategies to address barriers to care, PHC models were found to be more consistent than PMC models in mitigating cultural barriers and in providing social support and educational programs to immigrant patients.</p>	2013	5/11 (AMSTAR rating from McMaster Health Forum)	3/39

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		Overall, PHC models were better able to implement strategies to address contextual factors and structural mechanisms such as social position, education and income, than PMC models, which may contribute to reducing immigrant health inequities. PHC models were also found to be more effective in altering “intermediate factors” such as materials and resources (e.g., housing, financial capacity among patients).			
Scoping review	Understanding the factors affecting the development and implementation of health-promoting policies and programs (57)	<p>This study sought to review the literature on local policy development and health-promoting program implementation at the municipality level or smaller, including municipality-level policy to school-based interventions. Community-based collaboration was consistently identified among the searched literature as a facilitator in achieving care objectives across a variety of care settings. A key part of collaboration was found to be an alignment of objectives and goals to improve public health across levels of government and care institutions; individual-level interventions at very local settings were often found to not take these social and political factors into account. Action-oriented program implementation was found to depend substantially on local stakeholder engagement. Effectively engaging stakeholders included not only planning for action to be context-specific, but also empowering stakeholders to build local capacity and take on leadership positions for initiatives early and for long periods of time.</p> <p>Leadership and using established relationships in program development and implementation were also found to be valuable across 16 articles. The review also determined that sharing financial capital and equitably distributing resources such as equipment was also a valuable strategy in ensuring the long-term sustainability of programs and policies.</p>	2014	No rating tool available for this type of document	5/53
Systematic review	Exploring the roles that family physicians play in mediating childhood obesity interventions (68)	<p>This review sought to understand and describe the components of childhood obesity-targeted interventions and the respective role of family physicians in these interventions.</p> <p>It was determined that obesity-targeted interventions among children largely led to positive changes in body mass index, healthier lifestyles and increased patient satisfaction. It was also determined that family physicians were largely involved in screening and diagnosing patients for programs, referring them to other care workers and interventions, providing counselling for nutrition and lifestyle changes, and promoting physical activity. Family physicians were also sometimes trained in some interventions to perform their roles; these roles included goal-setting to promote healthy behaviours and delivering weight- and health-related information to external interventions and programs.</p> <p>Referred interventions largely consisted of behavioural, technological, and educational approaches. Behavioural components were found to promote lifestyle changes, whereas technological interventions involved using technology at some stage. Educational components of interventions largely focused on educating parents and children, with some studies employing more than one intervention component. Overall, three of the nine studies found significant decreases in body mass index, two studies found significant percentage decreases in intervention groups compared to controls, and two studies did not find any significant changes in body mass index through the various interventions assessed.</p>	2014	4/10 (AMSTAR rating from McMaster Health Forum)	0/9
Systematic review	Models of integrated care for mental health services into primary care (54)	This review sought to describe models of integrated care in the U.S., assess how integration of mental health services into primary care or integration of primary healthcare into specialty outpatient settings influences patient outcomes while describing barriers to sustainable programs, the use of	2007	9/10 (AMSTAR rating from	0/33

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		<p>health information technology (IT), and reimbursement structures of American integrated-care programs.</p> <p>The review only included depressive disorders in its analysis. All analyzed care models included psychiatrists or clinical psychologists, with some models using assigned mental health therapists in hospitals, as well as clinical nurses with behavioural health training and experience, and/or social workers. Many models incorporated care managers who were often a link for communication between primary-care providers and specialty mental health professionals. Shared medical records and increased provider communication were found to provide an information base to improve the level of integration; however, studies including specific information on shared medical records were rare.</p> <p>Cognitive behavioural therapy was found to be the most frequently used form of evidence-based psychotherapy, with problem-solving therapy used only in three studies, and with only one study reporting using interpersonal therapy. One study relied only on the potentially therapeutic relationship, with a telehealth nurse providing emotional support but not counselling. Systematic follow-up was a strong component of the integrated care models with 23 studies reporting monitoring clinical outcomes of patients and 29 studies reporting monitoring patient adherence. Insufficient evidence was found regarding the effects of integrated-care approaches for patients of different racial or cultural backgrounds, however, integrated approaches appeared to improve patient outcomes across all ages. Among anxiety disorders, as with depression, there was no observed correlation between patient outcomes and provider integration or processes of care. Some of the identified barriers to successful provider integration and sustainability included financial barriers of integrating mental health resources into primary care. As well, organizational barriers such as the resources required for change-management and the time requested for physicians to care for patients' mental health in primary-care settings, were consistently identified.</p> <p>Health IT was found to be most readily applicable for systematic screening and case identification among primary-care patients with mental health conditions. IT also acted as a communication link between primary-care providers, psychiatrists and other therapists in hospital settings; thus, IT was also found to help as decision supports, educational tools and guideline recommendation tools for primary-care providers. IT was also determined to be highly effective in monitoring the clinical status of mental health patients across primary- and specialized-care services as well as patients' adherence to medications. However, little evidence was found regarding the utility of health IT for supporting treatment delivery options, which currently involve mostly telemedicine strategies. There was also little evidence found regarding the uptake of health IT, with financial considerations of IT integration and systems-level concerns such as reimbursement structures, largely not found in the literature.</p> <p>The identified barriers related to primary-care settings included restrictions on payments for same-day billing, a lack of reimbursement for collaborative care and case management related to mental health services, and for care provided by non-physicians. Reimbursement rates in rural and urban settings were also found to be problematic, as were the lack of reimbursement incentives for screening and providing preventive mental health services in primary care regardless of jurisdiction.</p>		<p>McMaster Health Forum)</p>	
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		Naturally, increased reimbursement rates in urban and rural settings and improved incentives for screening and prevention were identified as opportunities to promote integration. Overall, although most integrated care interventions were found to be effective in either primary-care settings – largely with minor depressive patients – or in specialty care with severely mentally ill patients. There was no effect found on integration level, processes of care, or combination on patient outcomes in primary mental healthcare.			
Literature review	Effectiveness of the patient-centred medical-home model on patient-related outcomes (43)	<p>The patient-centred medical-home (PCMH) model is a holistic, team-based model of primary care that seeks to address the difficulty of coordinating and integrating care for patients with chronic conditions. In this model, the patient’s personal physician is responsible for providing all the healthcare needs across the entire life course of the patient, or arranging care with other qualified professionals. This model intends to improve value, access, timeliness, equity and efficiency of care.</p> <p>This review examined the effectiveness of the PCMH model. Sixty-one studies were identified. There were four types of study outcomes.</p> <p>Eighteen studies examined access to PCMH for different population groups. These studies mainly focused on children with special healthcare needs, and found that approximately 50% of these children had access to the medical home. Uninsured children, children from lower-income households, children with more severe conditions, and children of a minority background were less likely to have access to a medical home.</p> <p>Twenty-three studies examined the service utilization of those enrolled in a PCMH model; once again, most of these studies focused on children. All but three studies found greater use of appropriate services and decreased use of inappropriate services by pediatric and adult PCMH patients compared to the comparison group. Exceptions included immunization rates among children and emergency-room visits among adults for one study.</p> <p>Three studies looked at patient satisfaction with the PCMH model. Overall, both adult patients and parents of child patients were satisfied and reported positive healthcare interactions. There were lower levels of satisfaction reported for the coordination of referrals, wait times and cultural sensitivity. Those with a greater severity of illness as well as parents of older children also had lower levels of satisfaction.</p> <p>Seven studies examined the effect of the PCMH model on quality and lifestyle-related outcomes. The results were mixed, with half of the studies finding positive improvements, and the other half finding no significant associations.</p> <p>Lastly, 11 studies examined multiple outcomes, which included patient satisfaction, quality of care, access and service utilization. PCMH was associated with improved outcomes for patient satisfaction, quality of life, appropriate service utilization, and access to care.</p> <p>There were multiple limitations. Most of the studies employed a cross-sectional design that collected self-reported responses. Additionally, there is no universal framework of the PCMH model, resulting in significant variation in how PCMH components are defined and operationalized. Further research should examine individual components of the PCMH model to determine how it works.</p>	n/a	No rating tool available for this type of document	n/a

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<p>Systematic review</p>	<p>Approaches for implementation of the patient’s medical-home model and its effects on patient and staff experiences, process of care, and clinical and economic outcomes (53)</p>	<p>This review examined 31 studies that described different strategies for patient-centred medical-home implementation and summarized evidence for effects on patient and staff experiences, process of care, and clinical and economic outcomes.</p> <p>Overall, 51 different strategies were identified from the 31 included studies. Most of these strategies addressed chronic illness, preventive-care needs, and acute-care needs, employed multidisciplinary teams that included a primary-care provider and well-defined roles, and coordinated transfer-of-care efforts. The majority of these approaches also used strategies to increase service access, including home or telephone visits. Identifying high-risk patients, using evidence-based clinical guidelines, performance monitoring, and electronic health records were the most commonly used approaches to improving patient quality and safety.</p> <p>Of the 31 included studies, 13 outlined components of their financial model. These studies described a variety of methods to fund patient-centred medical-home implementation, including receipt of external study funding, capitation payments, enhanced fee-for-service, or a hybrid approach.</p> <p>Several organizational learning and implementation strategies were applied across the included studies. The most commonly reported organizational learning strategy, applied in 19 of 24 studies highlighting information related to learning strategies, was a formal learning collaborative or collaborative program-planning forums for team members to learn about the aspects of a patient-centred medical home. In terms of implementation strategies, information was reported on audit and feedback accompanied by quality-improvement efforts, as well as facilitation involving practice change facilitators.</p> <p>In terms of the effects of patient-centred medical homes on patient and staff experiences, moderate-strength evidence suggested that patient-centred medical-home interventions were associated with small improvements in measures of patient satisfaction and patient-perceived level of care coordination. Low-strength evidence supported the hypothesis that primary-care staff may be more satisfied in patient-centred medical-home practices.</p> <p>In terms of clinical quality, findings suggested that patient-centred medical homes may improve care processes, especially for preventive services. However, insufficient evidence was available to delineate the effects of patient-centred medical-home interventions on clinical outcomes such as biophysical markers, patient-reported health status and mortality.</p> <p>With respect to economic outcomes, there was low strength of evidence that patient-centred medical homes do not lead to lower rates of inpatient and emergency department utilization. Furthermore, total costs were not consistently reduced across the included studies.</p> <p>Although the patient-centred medical-home model may hold promise for improving patient and staff experiences and care processes, current evidence is insufficient to delineate its effects on clinical and economic outcomes.</p>	<p>2012</p>	<p>7/11 (AMSTAR rating from McMaster Health Forum)</p>	<p>1/19</p>
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Systematic review	Current evidence about the patient-centred medical-home model (44)	<p>This review included 58 studies that sought to identify completed and ongoing evaluations of the comprehensive patient-centred medical home, summarize current evidence for this model, and identify gaps in research.</p> <p>Of the 58 studies, 17 examined the effects of the patient-centred medical-home model, with older adults being the most commonly studied population. The patient-centred medical-home model was found to have a small positive impact on patient experiences, and small to moderate positive effects on preventive-care services and staff experiences. There was insufficient evidence to estimate effects on clinical or most economic outcomes.</p> <p>Twenty-one studies outlined strategies that incorporated all seven key patient-centred medical-home approaches including: 1) team-based care; 2) sustained partnership; 3) reorganized care or structural changes to care; 4) enhanced access; 5) coordinated care; 6) comprehensive care; and 7) a systems-based approach to quality.</p> <p>Twenty-two studies included information on financial systems used to implement patient-centred medical-home interventions, implementation strategies, and/or organizational learning strategies to facilitate implementation processes.</p> <p>Finally, 31 studies were identified in the horizontal scan of ongoing patient-centred medical-home studies. These studies were generally representative of the U.S. healthcare system both in terms of geography and in the complexity of private and public healthcare payers and delivery models.</p> <p>The patient-centred medical home may serve as a promising model for improving patient and staff experiences and care processes. Ongoing studies identified in the horizontal scan may greatly expand the current state of evidence relating to patient-centred medical homes.</p>	2011	9/10 (AMSTAR rating from McMaster Health Forum)	1/27
Systematic review	Review of recent research about the patient-centred medical home (45)	<p>This review of 21 studies sought to review published evaluations of patient-centred medical-home care from 2007 to 2010.</p> <p>In terms of the variation between how patient-centred medical-home interventions are implemented and studied, this review revealed: 1) how differently both practitioners and researchers conceptualized the patient-centred medical-home model at present; 2) the kinds of outcomes patient-centred medical-home care should impact; and 3) how this model's success should be evaluated. Although such variation is expected, it also serves as a barrier to assessing patient-centred medical-home care delivery, comparing the quality of care across settings, and promoting a comprehensive and unified definition of patient-centred medicalhome care.</p> <p>With respect to the effectiveness of different aspects of the patient-centred medical-home model, evidence suggested that this delivery model was positively associated with several healthcare outcomes (e.g., improvements in specific components of care quality, most notably enhanced prevention and chronic-disease management). Furthermore, the provision of medical-home care was also found to be associated with decreased emergency-department use. However, the findings examining what impact medical-home interventions had on hospital utilization were inconclusive.</p> <p>Across the few studies that examined provider experiences as outcomes of medical -home interventions, it was found that some aspects of medical-home care may improve primary-care</p>	2010	7/10 (AMSTAR rating from McMaster Health Forum)	1/21

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		<p>providers' daily work experience. However, patient and family experiences with medical-home interventions were mixed, with the majority of findings indicating that medical-home care does not influence the patient or family experience.</p> <p>Although the findings of this review suggested that different aspects of the medical-home model may be valuable, the authors noted that the field of research requires greater standardization of evaluative designs and data so as to ensure comparability.</p>			
Systematic review	Review of early evaluations of medical-home models (63)	<p>This review included 14 evaluations of 12 different interventions that presented evidence on the patient-centred medical-home model.</p> <p>The evidence on the effectiveness of patient-centred medical-home precursors, which are interventions most often cited to support the medical home, produced some favourable effects on all triple aim outcomes (cost, quality and patient experience), a few unfavourable effects on cost specifically, and several inconclusive results.</p> <p>Of the three evaluations that reported on processes of care, only one found favourable effects, while the other evaluations did not present statistically significant findings. Furthermore, none of the evaluations found significant findings related to mortality.</p> <p>Of the four rigorous evaluations that reported on costs, one found evidence of cost savings. Another evaluation identified increased costs, and the remaining two evaluations produced inconclusive findings. In terms of hospital use, only one of the five evaluations on hospital utilization significantly reduced the number of hospitalizations. With respect to emergency-department use, only one of three evaluations found some favourable effects.</p> <p>Finally, of the three evaluations that presented evidence on patient and/or caregiver experiences, two identified positive effects. In terms of healthcare professional experiences, the lone evaluation to provide evidence on this topic was inconclusive due to issues-related statistical insignificance or uncertainty.</p> <p>The patient-centred medical-home intervention is a promising model of care delivery. However, the authors acknowledged that more rigorous evaluations and comprehensive implementation analyses are required to evaluate effectiveness and further refine the model.</p>	2010	5/10 (AMSTAR rating from McMaster Health Forum)	0/12
Scoping review	A review of the current literature on primary-care and public-health collaboration (46)	<p>The purpose of this scoping review was to determine the processes and structures needed for the successful collaboration and health outcomes between public health and primary healthcare. A total of 114 studies were identified with most describing local level collaborative arrangements within the U.K. and the U.S.</p> <p>The two most commonly reported collaboration models were models applying a population perspective to primary care to improve cost effectiveness and quality of care, and models that used primary clinical practice to conduct community health assessments.</p> <p>This study identified three high-level factors - systemic, organizational, and interactional - that facilitated or acted as barriers to collaboration.</p>	2011/2012	No rating tool available for this type of document	18/114

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		<p>Important facilitators to collaboration were: 1) government interest and policy initiatives whose goals were to reduce health disparities and meet the needs of vulnerable populations; 2) adequate financial resources and investments; 3) similar values and beliefs in teamwork, population health, health promotion, and health protection; 4) interdisciplinary training and education programs; 5) adequate administrative support; and 6) location and geography of networks were important to facilitate communication, share data, and establish trust between providers.</p> <p>Important barriers to collaboration were: 1) general distribution of funds being geared towards treatment rather than prevention activities; 2) physician remuneration models, specifically fee-for-service models, impeded ability to delegate tasks or provide community-based care; 3) conflicts regarding philosophical differences in care, such as ownership of responsibilities based on traditional primary care and public-health practices, and primary care devaluing aspects of core public-health activities (e.g., population needs assessments, prevention, and community development); and 4) absence of organizational support, lack of a common vision and competing priorities..</p> <p>Few studies identified markers of successful collaborative relationships between primary care and public health, however positive and negative outcomes of collaboration were reported. At the individual and population level, chronic-disease management, communicable-disease control, and maternal and child health outcomes were improved. Health service delivery was strengthened and saw improved access and quality of care including reduction in duplication of services. Negative outcomes reported centred around the differing agendas of primary care and public health, loss of public-health expertise to primary care and uncertainty regarding leadership and application of public-health skills in primary-care settings.</p>			
Systematic review	Identifying characteristics of organizations that have successfully integrated mental health and primary care (61)	<p>This review highlighted six organizations that have effectively integrated mental health and primary care to identify six broad facilitating factors: 1) focus on vulnerable populations; 2) use of data-driven practices; 3) community-wide collaboration; 4) presence of a person or persons with institutional vision; 5) a team-based approach to care that engaged patients, family members and/or caregivers; and 6) diverse funding streams.</p> <p>Successful organizations often prioritized underserved vulnerable populations and identified these individuals as being in need of additional services. For example, Behavioural Health and Recovery Services of San Mateo County focused on delivery of services to homeless families, while the Interagency Behavioural Health Purchasing Collaborative’s Veterans and Family Support Services initiative focused on military personnel, veterans, and their family members. Several models, such as Denver Health, also targeted incarcerated populations.</p> <p>Using data-driven best practices to direct organizational strategy was a shared characteristic across models that have successfully integrated mental health and primary care. For example, Intermountain employed clinical, patient-satisfaction, and cost-outcomes data to evaluate, test, and modify the Mental Health Integration program, and performed needs assessments to determine where increased partnerships were needed.</p> <p>The forms of community-wide collaboration were unique to each successful organization; however, all six organizations relied heavily on support from other units, as well as the community at large. For instance, Maine’s Community Caring Collaborative engaged 37 member organizations, including</p>	Not reported in detail	No rating tool available for this type of document	Not reported in detail

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		<p>medical centres and hospitals, early education programs, post-secondary institutions, and multiple non-profits and local and state agencies.</p> <p>Several successful organizations were supported by influential leaders and established institutions. For example, the development and implementation of Behavioural Health and Recovery Services of San Mateo County was directed by a group of high-level leaders from the San Mateo County Health System, the San Mateo County Human Services Agency, and the California Mental Health Service Division.</p> <p>The six successful organizations examined in this analysis all utilized a team-based strategy and engaged the patient and their family as critical members of the care team. For instance, Intermountain's Mental Health Integration teams were comprehensive and interdisciplinary, engaging the patient, the patient's family, a care manager, physician, psychologist, other mental health provider, and clinic administrator.</p> <p>Finally, although each successful organization had a unique funding structure, all were diversified to varying extents. To illustrate, many organizations received partial funding from Medicaid. However, Denver Health received a large part of its funding through disproportionate share hospital payments, whereas several other organizations received funds directly from state Medicaid programs. Furthermore, state general fund dollars, grant funding and in-kind funding were also essential elements of several organizations' funding structures. Notably, as an integrated system with a health plan, Intermountain was able to isolate the effects of integrated behavioural health and primary-care services on the cost of care. This organization found that Mental Health Integration reduced Intermountain's costs through decreasing emergency-department utilization, psychiatric admissions, and inpatient length of stay.</p> <p>The six organizations examined in this analysis have succeeded in integrating behavioural health and primary care. Thus, in spite of the potential lack of generalizability of the included case studies, the results of this paper suggest that health organizations are capable of effectively integrating mental health and primary-care services.</p>			
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Appendix 3: Summary of findings from primary studies about networked primary care

Focus of study	Study characteristics	Sample description	Key features of the intervention(s)	Key findings
Understanding the evidence and roles of psychologists in patient-centred medical homes as well as the opportunities and challenges of expanding their roles in these settings (67)	<p><i>Publication date:</i> January 2017</p> <p><i>Jurisdiction studied:</i> U.S.</p> <p><i>Methods used:</i> Theoretical</p>	n/a	n/a	<p>Beyond providing direct clinical assessment and interventions as clinicians, psychologists in PCMHs can fulfil roles including serving as consultants to primary-care teams, developing programs and assessing interventions, leading multidisciplinary teams, teaching and supervising psychology and non-psychology trainees, and leaders in research studies. Psychologists possess various competencies in clinical practice, team management, leadership and research expertise which can enable them to adapt to various needs within PCMHs. Within pediatric populations, psychologists are trained to work with various health providers to address the behavioural aspects of care, including adherence to treatment, pain management and improving quality of life using a range of evidence-based treatments. They also help address parental concerns about children’s health across racial and ethnic groups regarding childhood stress, attention-deficit disorder, anxiety and depression, childhood obesity, substance use, bullying and even community/school violence.</p> <p>In geriatric populations, psychologists provide evidence-based services to those with long-term cognitive or behavioural deficits. Given that elderly citizens are at a greater risk for suicide and self-harm, especially when under certain psychoactive medications, psychologists can provide behavioural health services through culturally sensitive means. Psychologists also have valuable roles in veterans’ care centres and in PCMHs located within underserved, marginalized communities.</p> <p>Key challenges for psychologists in PCMHs identified in this article include being less integrated and less visible compared to other members of primary-care teams. As well, reimbursements for psychologists’ services has proven to be challenging, particularly in service delivery, where models such as fee-for-service do not account for the various non-reimbursable activities that psychologists participate in, such as team-based consultation, program evaluation, research and interdisciplinary-care strategy development. Solutions proposed within this article include developing competency standards for psychologists which recognize their increasing integration within PCMHs, as well as developing an evidence-based case for psychologists’ financial relevance in modern PCMH settings.</p>
Implementing evidence-based health-promotion programs into primary care (58)	<p><i>Publication date:</i> January 2018</p> <p><i>Jurisdiction studied:</i> U.S.</p> <p><i>Methods used:</i> Mixed-methods interview/survey analysis</p>	15 and 190 primary-care clinicians and 15 and 88 non-clinician stakeholders were interviewed and surveyed, respectively	An evaluation of an 11-county region within Southeast Minnesota, informed by the Predisposing, Reinforcing, and Enabling Constructs in Environmental Diagnosis and Evaluation (PRECEDE) implementation planning model, was conducted to	This study found that certain evidence-based health-promotion programs to improve primary care were not being implemented due to a variety of reasons. Some of the barriers to evidence-based health-promotion programs’ implementation in primary care were predisposing factors, such as a lack of clinician education and awareness about evidence-based health-promotion programs, which evidence-based services were provided by certain health workers, and a lack of trust among physicians of community programs. Other “enabling factors” such as a lack of communication or referral pathways as well as administrative challenges, such as communities lacking the capacity to scale-up evidence-based care programs, were also found to emerge from clinician and stakeholder interviews.

Focus of study	Study characteristics	Sample description	Key features of the intervention(s)	Key findings
			<p>understand challenges and opportunities related to integrating evidence-based health-promotion programs into primary care in the U.S.</p>	<p>Key themes included a mentality of “seeing is believing,” in that clinicians are trained to practise in environments that are not accustomed to rapid uptake of evidence-based health-promotion programs, and that they are unlikely to engage with evidence-based health-promotion programs until they see some effects on their own patients. As well, a theme of “not my job,” whereby physicians may be reluctant to change practices unless they are mandated within their scope of practice or there are changes in remuneration structures which require them to participate in evidence-based health-promotion programs, were also identified. Finally, a “two systems, two worlds” theme was also emergent, signifying that healthcare and community-based care are mutually exclusive, and that these systems are not designed to work together, making evidence-based health-promotion programs inaccessible.</p> <p>Some key opportunities which emerged from this included integrating didactic and experimental evidence-based health-promotion program training into clinician training, as well as incorporating them into clinical practice guidelines.</p>
<p>Assessing the association between patient-centred medical homes, quality and equity (50)</p>	<p><i>Publication date:</i> 2016</p> <p><i>Jurisdiction studied:</i> U.S.</p> <p><i>Methods used:</i> Used cross-sectional data from survey and interview responses</p> <p>Medical-care homes were defined as a usual source of care with a centralized care delivery model through primary-care provider and network with the following characteristics: accessibility, comprehensiveness, coordination, and patient-centredness</p>	<p>Empirical study that used yearly self-reported survey data from 2010 Medical Expenditure Panel Survey interviews (N = 21,717)</p> <p>Respondents assigned to one of three groups</p> <p>Groups assigned as those with: a) usual source of care with high medical-care-home characteristics; b) usual source of care with some medical-care-home characteristics; and c) no usual source of care</p>	<p>This study examined the association between medical-home characteristics (based on self-reported assessments), and quality of care relating to: receipt of recommended preventive services, advice regarding lifestyle habits (smoking and weight-related), and non-urgent visits to emergency departments, and equity between various socio-economic groups.</p>	<p>Of the sampled individuals, 24% reported having no usual source of care, 55% had a usual source of care with no medical-home characteristics, and 21% had a usual source of care with medical-home characteristics.</p> <p>Medical-care homes strongly associated with only one preventive care measure (flu shots), all counselling on health habits, coordination (of colonoscopies specifically), and lower use of emergency departments.</p> <p>Individuals with no usual source of care, mainly in low-income and low-education groups, had limited access to recommendations or advice on preventive health or lifestyle habits, but were less likely to visit emergency departments within the previous 12 months. Overall, medical-care homes did not change issues of equity or disparities in care between socio-economic groups.</p> <p>The study confirmed that comprehensiveness was important to patient-centredness and ensured individuals received all recommended preventive services and lifestyle advice.</p> <p>Success factors and barriers were characteristics of usual sources of care: comprehensive services, coordination between practitioners, accessibility, and patient-centredness.</p>
<p>Integrating mental health professional in</p>	<p><i>Publication date:</i> 2018</p>	<p>44 lead physicians in Geriatric Patient-</p>	<p>Researchers were interested in the frequency and role of</p>	<p>Less than 50 percent of teams had either a psychiatrist or psychologist as part of the site’s core or extended team.</p>

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Focus of study	Study characteristics	Sample description	Key features of the intervention(s)	Key findings
geriatric patient-aligned care teams to inform geriatric mental health policy (64)	<p><i>Jurisdiction studied:</i> U.S.</p> <p><i>Methods used:</i> An observational study of Geriatric Patient-aligned Care Teams was conducted with surveys, interviews and site visits</p>	<p>aligned Care Team programs participated in an online survey</p> <p>A two-day site visit was conducted at eight high-adherence sites</p> <p>24 semi-structured interviews with medical providers were conducted with physicians or nurse practitioners</p>	<p>psychiatrist or psychologist as mental health providers in integrated primary healthcare settings.</p> <p>The treated conditions and areas of expertise were analyzed between sites.</p>	<p>Mental health providers who were part of core or extended teams were reported to have more expertise in cognitive disorders and psychosocial disorders, and endorse management of cognitive disorders, psychosocial issues and depression.</p> <p>Barriers to referral included: lack and/or loss of mental health care experts on teams and therefore lack of expertise; limited time with patients and scope of practice; some sites' refusal to see persons with diagnosis of mental health issues; and different models of care (e.g., mental health treatment versus behavioural health treatment).</p> <p>Overall this study suggests the importance and benefits of integrating primary care with mental health care for older adults.</p>
An update on the cost savings, quality of care and provider burnout in group health medical homes at year two (69)	<p><i>Publication date:</i> 2010</p> <p><i>Jurisdiction studied:</i> U.S.</p> <p><i>Methods used:</i> Before and after evaluation</p>	<p>6,187 adults 21-85 years old were randomly sampled, at years one and two, at one patient-centred medical-home clinic and two control clinics</p>	<p>This study is an update on a pilot project on group medical homes compared to two control clinics.</p>	<p>Positive improvements were reported in clinical quality from primary-care providers, provider burnout and patient experience after two years.</p> <p>In the medical-home clinic, emergency-room visits and hospitalizations were reduced by 29% and 6% respectively, however patients tended to contact their family physician and use in-clinic specialty care more than those at control clinics.</p> <p>A significant decrease in staff burnout after one year was reported, however the authors acknowledge that participant bias may have influenced reporting by staff.</p> <p>The authors found that group health medical homes saved \$10.30 per month per patient after two years due to decline in emergency-department visits.</p>
Pharmacists role in quality-improvement huddles in the patient-centred medical homes (65)	<p><i>Publication date:</i> 2018</p> <p><i>Jurisdiction studied:</i> U.S.</p> <p><i>Methods used:</i> Multi-site case study</p>	<p>Two patient-centred medical clinics</p>	<p>Clinical pharmacists at two primary-care patient-centred medical clinics led 15- to 20-minute weekly team meetings on areas related to quality improvement</p>	<p>This study found that pharmacist-led team huddles led to better communication and coordination within patient-centred medical teams.</p> <p>Interdisciplinary team meetings ensured that staff were well-informed and involved in all aspects of clinic and patient decision-making. A positive increase in quality improvement and patient outcomes was observed.</p> <p>Overall this study suggests that regular team meetings in patient-centred medical groups with clearly defined objectives may result in improved quality and patient outcomes, and lead to cost-savings.</p>
HIV patient views on receiving text messages from their patient-centred medical home (66)	<p><i>Publication date:</i> 2018</p> <p><i>Jurisdiction studied:</i> Wisconsin, U.S.</p>	<p>Participants aged 18 and older (N = 180) were recruited to conduct paper surveys in three</p>	<p>Researchers measured the acceptability of incorporating short message services into clinical care plans for people undergoing</p>	<p>Short message services can be an acceptable and timely communication tool for patient-centred medical homes. Respondents did not report privacy as being a major concern.</p>

Focus of study	Study characteristics	Sample description	Key features of the intervention(s)	Key findings
	<p><i>Methods used:</i> Cross-sectional analysis of survey</p>	<p>AIDS Resource Center of Wisconsin clinics.</p>	<p>HIV treatment or prevention services to assess retention and treatment adherence rates</p> <p>Researchers were interested in participant acceptability scores of receiving specific SMS and privacy concerns</p>	<p>Short message service reminders related to appointment attendance and prescription refills were generally rated as acceptable, while other health promotion and healthy lifestyle habits (e.g., substance abuse and cessation, condom use, etc.) were rated less favourably.</p>
<p>Addressing stigma and trust in patient-centred medical homes (48)</p>	<p><i>Publication date:</i> 2018</p> <p><i>Jurisdiction studied:</i> California, U.S.</p> <p><i>Methods used:</i> Cross-site evaluation and qualitative interviews</p>	<p>Researchers examined the components of five patient-centred medical homes dedicated to people living with HIV</p> <p>113 interviews with participants 18 years old and older, were conducted with clinical staff and care providers (key informants, N=60), and patients (N=53)</p> <p>Patients were sampled and recruited through provider and staff referrals and approached in waiting rooms</p> <p>Clinical staff and care providers were asked about barriers and facilitators to implementation of the local patient-centred medical-home project and how their roles had changed</p>	<p>Evaluation of patient-care medical-home models applied to HIV-care clinics</p> <p>Each site (N=5) implemented different patient-centred medical-home components: two sites restructured their provider teams (by integrating case management and delivery of services targeting HIV and older populations); two sites used enhanced information technology systems to integrate and share data among other support and speciality services one site developed a patient portal and information website that included monitoring and alerts</p>	<p>This study aimed to examine the perspectives of care providers, clinical staff and patients living with HIV before and after the implementation of PCMH project in HIV care settings and identify how sites could be tailored to meet the needs of the population.</p> <p>Overall, patient-centred medical homes were found to be useful and beneficial to address the needs of people living with HIV and those with little to no social support systems, as well as address HIV workforce shortage.</p> <p>Several key informants endorsed the position of a dedicated care coordinator whose role it was to monitor and direct clients to referred services, however, other respondents expressed caution about the potential for over-reliance on clinical staff as case managers, particularly for large populations and patients who are not health-literate.</p> <p>Facilitators to networked primary-care providers were the increased lines of communication between providers, which promoted collaboration and the sharing of responsibilities.</p> <p>Barriers to providing coordinated care are with respect to providers requiring training to work with marginalized or stigmatized populations that were informative and supportive. Patients expressed a lack of trust and fear of stigmatization from providers particularly if they had little to no social supports.</p> <p>The limitations of this study include self-report and self-selection bias.</p>

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Focus of study	Study characteristics	Sample description	Key features of the intervention(s)	Key findings
Integrating community-based patient perspectives into primary-care practice (70)	<p><i>Publication date:</i> 2017</p> <p><i>Jurisdiction studied:</i> U.S.</p> <p><i>Methods used:</i> none</p>	n/a	No interventions, this is a theoretical paper	<p>This discussion article critiqued the idea of community-based preferences and culture as not being considered at the centre of primary-care models or patient-centred medical homes.</p> <p>Physicians within patient-centred medical homes were not focused on integrating individual or community preferences, and reliant on medical technologies.</p> <p>In order for patient-centred care and medical homes to be successful, family physicians and health providers must be inviting and willing to understand the community and social realities within which the clinic is placed.</p>
An analysis on the quality of preventive care and patient-centred medical homes for adults living with mental illness (51)	<p><i>Publication date:</i> 2016</p> <p><i>Jurisdiction studied:</i> U.S.</p> <p><i>Methods used:</i> Cross-sectional study design of Medical Expenditure Panel Survey - Household and Medical Provider survey data</p>	<p>Survey data collected from five Medical Expenditure Panel Survey Household and Medical Provider data files from 2007 through 2012</p> <p>The study sample consisted of 6,908 adults, aged 18-64 years old living with mental illness</p> <p>Participants in survey were classified into three provider-type groups: received care in patient-centred medical home, had a non-patient-centred medical home usual source of care, or no usual-source-of-care</p>	<p>Usual sources of care were defined as places that participants normally went to when sick and were not emergency rooms</p> <p>Measures of quality and preventive care measures included provision of cancer screenings (cervical, breast, colorectal), smoking assessment and cessation advice, flu shots, diabetes care, and follow-up after an emergency-room visit due to mental illness</p>	<p>Researchers studied the association between patient-centred medical homes, preventive care recommendations and quality of healthcare for adults living with mental illness.</p> <p>At least 75% of participants had a usual source of care while 25% did not in at least one year of the study. Adults with no usual source of care were less likely to receive preventive health services or health-promotion advice than adults with a usual source of care or in a patient-centred medical home across all measures.</p> <p>Patients who received patient-centred medical homes consistent care were the most likely to receive preventive health services or health-promotion advice among the three care groups.</p>
Examining the potential to reduce health disparities in medically underserved populations through psychologists in patient-centred	<p><i>Publication date:</i> 2017</p> <p><i>Jurisdiction studied:</i> n/a</p>	n/a	No interventions, this is a theoretical paper	Psychologists working within patient-centred medical homes have the potential to address issues of fragmentation of care for vulnerable and medically underserved populations. Psychologists have the opportunity to provide mental health screenings, evidence-based interventions, and ensure continuity of care through linkages to other specialty mental health practices as part of routine medical care.

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Focus of study	Study characteristics	Sample description	Key features of the intervention(s)	Key findings
medical-care homes (71)	<i>Methods used:</i> Theoretical paper			<p>Care coordination may be best served by behavioural health experts, including psychologists, who possess the competencies.</p> <p>Integrating behavioural and preventive interventions with medical care requires basic foundational knowledge of core competencies including patient-centred, population-based and evidence-based care across all health disciplines.</p> <p>Understanding and showing awareness to the influence of culture on patient health behaviours and beliefs encourages communication and education between patient and provider.</p>
Examining collaborations between public health and primary care in the U.S. (47)	<p><i>Publication date:</i> 2017</p> <p><i>Jurisdiction studied:</i> U.S.</p> <p><i>Methods used:</i> Key informant interviews</p>	Key informants from the fields of primary care and public health in four states	Key informant interviews among research networks in Colorado, Minnesota, Washington and Wisconsin	<p>This study examined collaborations between public health and primary care by interviewing practice-based research networks from four states. Two main themes emerged: “foundational aspects of partnerships” and “energizing aspects of partnerships.”</p> <p>Core components of collaboration were identified as leadership, communication, mutual awareness, formal processes, history, and values. These processes were described as key to the building of relationships, but did not necessarily predict active collaboration.</p> <p>Energizing aspects of collaboration were described as processes that built towards a shared strategic vision and opportunity. Collaborations that were described as energizing were more likely to have engaged in active work together.</p>
Examining barriers to collaboration between public health and primary care in the U.S. (59)	<p><i>Publication date:</i> 2018</p> <p><i>Jurisdiction studied:</i> U.S.</p> <p><i>Methods used:</i> Key informant interviews</p>	Key informants from Practice-Based Research Networks in four states	Key informant interviews among 40 participants working in public health and primary care in Colorado, Minnesota, Washington State and Wisconsin	<p>Collaboration between the fields of primary care and public health has been identified as a method of improving population health. This study examined barriers to collaboration by interviewing 40 key informants from these fields in the U.S. The main barriers were identified as institutional barriers, process-related barriers, and resource-related barriers.</p> <p>Institutional barriers included the stressful work environment of primary-care clinics, where there was high demand and heavy workload. Lack of structural support, demanding environments and health reform posed barriers to effective collaboration in these settings. Overall, key informants indicated that structural reform and support were essential to create opportunities for collaboration, as the public-health and primary-care systems often clashed.</p> <p>Process barriers included lack of shared knowledge between primary care and public health. Inconsistent communication made further collaboration difficult, and a lack of effective data sharing complicated this process.</p> <p>In terms of resource-related barriers, participants in both fields cited limited time, capacity and resources to forge collaborations. In the field of public health, reliance on external grants compromised the sustainability of partnerships. When groups did</p>

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Focus of study	Study characteristics	Sample description	Key features of the intervention(s)	Key findings
				not engage in shared planning, competing priorities existed in terms of resource allocation. Both groups cited a limited capacity to collaborate.
Examining the collaboration between a primary-care provider and a housing and treatment organization in the U.S. (49)	<p><i>Publication date:</i> 2013</p> <p><i>Jurisdiction:</i> U.S</p> <p><i>Methods used:</i> Assessment of collaboration using the framework of the patient-centred medical home and the “10 Essential Public Health Services”</p>	A partnership between the Jefferson Department of Family and Community Medicine and a Housing First agency	An assessment of the collaboration between primary care and a housing and treatment model, using the models of patient-centred medical homes and the essential public-health services	<p>Health disparities are profound among people with histories of mental illness and homelessness. Primary care and patient-centred medical homes can address gaps in health needs. The current study examined a collaboration between a patient home in the Thomas Jefferson University Department of Family and Community Medicine. and Pathways to Housing-PA, a non-profit Housing First program.</p> <p>A component of this intervention involved embedding a family physician into the housing program, to provide care and assess needs. Preliminary evaluation of this program found that the partnership is growing as an integrated care home and is effectively raising awareness about physical health issues. Specifically, the monitoring of health status has pointed to high rates of chronic disease among this population, and the program has empowered clients to engage with the system and advocate for health needs.</p> <p>While this program has achieved success, the authors indicate challenges such as sustainability of funding and workforce development.</p>
Examining the systematic factors that contribute to collaboration between primary-care and public-health sectors (60)	<p><i>Publication date:</i> 2017</p> <p><i>Jurisdiction studied:</i> British Columbia, Ontario, Nova Scotia</p> <p><i>Methods used:</i> Interpretive descriptive study</p>	<p>74 primary-care or public-health workers from British Columbia, Ontario and Nova Scotia participated in the study</p> <p>Participant roles included direct service providers, senior program managers, executive officers and middle managers</p>	Researchers conducted 70 in-depth interviews with 74 study participants to elucidate the systemic factors that contribute to collaboration between primary care and public health sectors. Data were organized into codes and thematic analysis was completed using NVivo. The frequency of "sources" (individual transcripts), "references" (quotes), and matrix queries were used to identify potential relationships between factors.	Seven systemic factors for collaboration were identified: 1) health-service structures that promote collaboration; 2) funding models and financial incentives supporting collaboration; 3) governmental and regulatory policies and mandates for collaboration; 4) power relations; 5) harmonized information and communication infrastructure; 6) targeted professional education; and 7) formal systems leaders as collaborative champions.
Examining viewpoints about collaboration between primary care and public health in Canada (56)	<p><i>Publication date:</i> 2013</p> <p><i>Jurisdiction studied:</i> Canada</p>	25 multidisciplinary individuals including researchers, policy-makers, directors, managers, and practitioners (e.g., nurses, family	In Phase 1, a Q-sample, a Q-sort table, and a short demographic questionnaire were developed to be used in Phase 2 for data collection. The Q-sorts were then analysed to identify the	Three viewpoints emerged from the data analysis: a) System Driven Collaborators, b) Cautious Collaborators, and c) Competent Isolationists. System Driven Collaborators strongly believed that a clear mandate from the top is needed to enable public health, primary care and the rest of the health system to effectively work together. Cautious Collaborators strongly supported the idea of having better consciousness-raising about what collaborations might be possible and beneficial. The Competent Isolationists strongly believed that it is necessary for the primary-care and public-

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Focus of study	Study characteristics	Sample description	Key features of the intervention(s)	Key findings
	<i>Methods used:</i> Q-methodology to identify common viewpoints held by participants who attended a national meeting	physicians, dietitians) participated in the study	salient factors and consensus statements.	health sectors to spend time to ensure that both parties clearly understand the differences between their roles. They believe that physicians, nurses, and social workers will not see the value in collaboration because they lack interprofessional educational programs.
Examining ways to advance Indigenous primary healthcare policy in Alberta, Canada (55)	<i>Publication date:</i> 2018 <i>Jurisdiction studied:</i> Alberta <i>Methods used:</i> Stakeholder meeting	The “Innovating Indigenous Primary Care in Alberta” meeting brought together 65 Indigenous leaders, provincial health system leaders, PHC practitioners (i.e., physicians and nurses), and scholars to discuss Indigenous primary care in the province	The meeting consisted of presentations from numerous stakeholder groups, each discussing their perspectives on how to improve Indigenous primary healthcare policy in Alberta. The presentations were then summarized to the wider group by expert facilitators, followed by a high-level synthesis of observations by the former Chief Public Health Officer of Canada, Dr. David Butler-Jones.	Stakeholders highlighted commonalities across the models of primary healthcare shared, including the value of incorporating Indigenous knowledge systems and cultural protocols, and of adopting holistic approaches to PHC delivery for Indigenous communities. Stakeholders also identified that dedicated infrastructure is crucial to reform, such as a centre of excellence committed to Indigenous PHC that could strategically frame clinical services within a population-health approach. The stakeholder discussions additionally highlighted possibilities for lateral collaborations to improve organization, planning and delivery of PHC through meaningful dialogue between Indigenous community leadership, service providers, administrators and patients. Each of the cases under consideration emphasized flexible policies, programs, and services, as well as opportunistic approaches to funding PHC innovations. One overarching challenge identified was that PHC in Indigenous contexts in Alberta lacks a sustained approach that allows resourcing to implement, evaluate, and eventually innovate models. While lack of service coordination is one consequence, so too is limited community engagement in shaping services moving forward.



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