Rapid Synthesis

Supporting Population-health Management to Meet the Needs of Patients and Community Partners in Rural and Mixed Urban-rural Environments

12 December 2021

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EVIDENCE >> INSIGHT >> ACTION

Rapid Synthesis:
Supporting population-health management to meet the needs of patients and community partners in rural and mixed urban-rural environments
30-day response

12 December 2021

McMaster Health Forum

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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-business-day 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

- What implementation considerations have been built into or adopted as part of population-health management initiatives for rural populations?
- What implementation considerations have been built into or adopted to support under-served populations?

Why the issue is important

- At maturity, Ontario Health Teams (OHTs), a pillar of Ontario's current health system transformation, will be clinically and fiscally accountable for delivering a full and coordinated continuum of services based on population-health needs of their attributed populations.
- Rural communities face many long-standing challenges in delivering care, however they also present significant opportunities to advance the OHT model compared to their urban counterparts.

What we found

- We identified six initiatives with population-health-management initiatives similar to OHTs from Quebec (Canada), Finland, New Zealand, Scotland and two in the United States.
- We identified structural or procedural elements that were built into the initiatives or adapted as the initiatives evolved. These insights were often tangible elements touching all eight OHT building blocks that may help OHTs meet the needs of patient and community partners in mixed and rural communities, and include:
  - explicit and early inclusion of broader human services as part of in-scope services;
  - multiple and complementary innovations in care delivery to overcome long-standing challenges to accessing care (e.g., expanded roles, colocation of services, mobile clinics);
  - investments in digital care to address barriers in care coordination and integration;
  - leveraging multi-level governance arrangement and regional partnerships for shared services (e.g., quality improvement, data analysis);
  - technical assistance, coaching and investments specific to rural environments; and
  - pooled budgets and risk-sharing agreements enabled integration between independent organizations, while shared quality indicators supported shared accountability.
- We also identified factors that supported the implementation of these initiatives in rural communities, including:
  - investing in relationship-building and communication across organizations, providers and patients, families, and caregivers critical to building trust;
  - incorporating flexibility in implementation enabled adaptations specific to rural and mixed rural-urban environments;
  - building on existing infrastructure and strong relationships among organizations and providers in rural and more remote environments; and
  - ensuring adequate time for training and practice learning while building trust.
- Several initiatives adopted strategies to specifically meet the needs of underserved populations in rural communities, including synchronized and multi-pronged partnerships with broader human services, drawing on patient-centred holistic goals to define in-scope services, and formal mechanisms to build community leadership, including investing in staff with strong cultural competence and having performance be aligned with and account for parallel efficiency and community objectives within the same initiative.

QUESTIONS

1. What implementation considerations have been built into or adopted as part of population-health-management initiatives for rural communities?
2. What implementation considerations have been built into or adopted to support under-served populations?

WHY THE ISSUE IS IMPORTANT

Health and social service organizations in Ontario are in the process of implementing a transformative change that could one day be seen as a landmark development in Ontario's health system. The hallmark of this transformation is the development of Ontario Health Teams (OHTs). OHTs are groups of providers and organizations that, at maturity, will be clinically and fiscally accountable for delivering a full and coordinated continuum of care to a defined population. So far, 50 teams have been approved, which at maturity will cover over 92% of Ontarians. However, their adoption is occurring unevenly across the province, with the model spreading more quickly in urban settings than in rural ones.

There are long-recognized challenges of delivering care in rural communities, including geographic distance, limited population, and scarcity of resources that may test the adoption of the OHT model. However, rural communities also present significant opportunities to advance the OHT model compared to their urban counterparts. These include existing relationships among service providers, both health and social, as well as previous experience adapting and implementing innovative models of care, such as the Ontario Integrated Rural Health Hubs. (1)

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.

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

1) submission of a question from a policymaker or stakeholder;
2) identifying, selecting, appraising and synthesizing relevant research evidence about the question;
3) conducting key informant interviews;
4) drafting the rapid synthesis in such a way as to present concisely and in accessible language the research evidence; and
5) finalizing the rapid synthesis based on the input of at least one merit reviewer.

Ontario is not the first to contend with these challenges. Many other countries as well as provinces and territories in Canada have implemented integrated-care initiatives in rural communities. Though these examples are not direct parallels to the OHT model, they share many common features including being multi-sectoral, using a population-health-management approach, and including some degree of shared financing. By examining the experiences of other jurisdictions, we can learn about the supports put in place to meet the needs of patient and community partners. In turn, we can assess whether similar solutions would be right for Ontario, or how they may need to be adjusted prior to adoption.

This synthesis examines the experience across six initiatives, with the aim of identifying implementation considerations built into or adopted as part of population-health-management initiatives for rural populations, as well as explicitly examining those put in place to support under-served populations.

WHAT WE FOUND

For this rapid synthesis, we examined six initiatives similar to OHTs. Considerations for selecting initiatives included that it:

- took place at the level of the health system (e.g., was not a one-off model or program);
- is cross-sectoral and focuses on improved coordination or integration of care;
- includes a population-health-management component; and
- includes an element of shared fiscal accountability.

Initiatives were identified through a jurisdictional scan of comparator countries and other Canadian provinces and territories and were confirmed through conversations with integrated-care experts.

Once identified, we conducted five key informant interviews with stakeholders including policymakers, leaders from integrated-care initiatives and managers of healthcare organizations from the five initiatives that resembled OHTs. We also conducted targeted literature searches related to each of the specific initiatives and identified seven primary studies, six evaluations (one of which is not yet complete) and seven policy briefs.

Box 2: Identification, selection and synthesis of research evidence

We identified research evidence (systematic reviews and primary studies) by searching (in July 2021) Health Systems Evidence (www.healthsystemsevidence.org) and PubMed.

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.

Question 1: What implementation considerations have been built into or adopted as part of population-health-management initiatives for rural communities?

To answer this question, we drew on the experiences of six initiatives from Quebec (Canada), Finland, New Zealand, Scotland (United Kingdom) and two from the United States, respectively. A description of each of these initiatives is provided in Table 1.

In undertaking key informant interviews and reviewing the literature for each of these initiatives, we found two types of insights. The first type of insight focused largely on structural or procedural elements that were built into the initiatives or were adapted as the initiative evolved. The second type of insight focused on factors that supported the implementation of these initiatives in rural communities.

The structural and procedural elements identified are tangible elements that may support OHTs to meet the needs of patient and community partners in mixed and rural communities. Common findings across initiative building blocks (referred to as BB# below and further specified in Table 2) include:

- all initiatives but one have defined geographic patient populations *(BB #1);*
- many of the initiatives include broader human services in addition to health within their in-scope services *(BB #2);*
- several initiatives engaged patients, families, caregivers and community members in service design and at governance levels *(BB #3);*
- initiatives used a variety of approaches to improve access to services in rural areas, including skills expansion for select health professionals such as nurse practitioners and physician assistants, co-location of health and social services, mobile clinics, and use of alternative-care sites such as libraries, community centres, senior centres and schools *(BB #4);*
- all initiatives made investments in digital health to improve connectivity between partners as well as to overcome rural barriers to integration, particularly around accessing specialist care *(BB #5);*

- three of the initiatives used multi-level governance arrangements and regional partnerships to target areas better addressed at a higher level of governance, and to ensure the full continuum of services were available to patients (*BB #6);*
- two of the initiatives expanded who was able to act in leadership positions, including in the U.S., allowing rural health centres to form independent accountable care organizations (ACOs), and supporting nurse practitioners and physician assistants to take on primary leadership roles (*BB #6);*
- three of the initiatives implemented rural-focused technical assistance and other rural-specific implementation supports to ensure readiness and enable them to go further, faster (BB #6);
- three initiatives were provided with upfront capital to build readiness, make collective investments, and adapt models to rural communities (*BB #7*);
- all five initiatives put in place innovative funding models such as pooled budgets across municipalities or health and social-care partners, activity-based funding, and risk-sharing agreements (*BB #7)*; and
- three initiatives had collectively developed quality indicators to ensure they were making progress on improving health outcomes *(BB #8).*

Tables 2 and 3 below provide additional details about these structural and procedural insights, separated by initiative and OHT building block (Table 2), and the four steps of population-health management (Table 3).

The second type of insight are reflections from key informants and from the literature on success factors that supported the implementation of these initiatives in rural communities. These insights can be used both by approved and in development OHTs when considering areas where they may wish to focus their efforts in the early stages of development, as well as by provincial decision-makers when considering the types of factors that could lead to success when supporting partner organizations to come together as an OHT. These include:

- prior collaboration experience such as through informal provider networks that may already be well-developed in rural areas where collaboration and inter-dependence have been a necessity;
- investments in relationship-building and communication through early stages of implementation, especially between service providers who are not used to working together;
- approaches to reduce risk carried by participating organizations, such as single-sided risk sharing, may allow partners to test out new approaches to value-based care without significant concern about financial loss;
- flexibility in the initiative such that it can be tailored to the needs of individual rural communities;
- meaningful engagement of patients, families and communities in program design and gaining trust for new service models requires on-going outreach and dedicated resources;
- a focus on filling gaps rather than re-creating everything new, building on existing relationships and lessons learnt;
- investments in compatibility and integration across digital health systems enables use of shared-care platforms;
- a focus on the needs of local populations rather than on organizational boundaries;
- creativity in meeting workforce requirements to identify new ways of working, training, or upskilling, and whether new roles are necessary; and
- full-time leadership to adapt the model to local needs, structures and cultures, including an on-going investment in relationship building.

Table 1: Description of included initiatives

Initiative	Population	Sectors and settings	Description of the model
Program of Research to Integrate the Services for the Maintenance of Autonomy (PRISMA) (2;3)	*Country/region:* Canada (Quebec) *Population:* Elderly people with chronic conditions in three areas of the Estrie region [Sherbrooke (urban), Granit (semi-rural) and Coaticook (rural)] of Quebec	• Specialized and acute care • Primary care (e.g., individual primary-care providers) • Home and community care • Social services (e.g., social services for older adults; specialty services for the disabled)	*Objectives:* • To introduce and test an Integrated Service Delivery Network to address a lack of continuity in the care experienced by elderly people with chronic conditions *Scope:* • Offered service coordination, single entry point, case management, individualized service plan, a single functional assessment tool and a shared information system • Aims to better meet the needs of frail older people and to change health and social-service utilization without increasing caregiver burden • Centered around coordination and case management, where participating agencies share responsibility for clients. but did not require merger of providers *Outcomes:* • Significant reductions in the prevalence and incidence of functional decline, fewer unmet needs and reduced emergency-room visits • Increased client satisfaction and empowerment with no significant increase in the cost of services • Implemented across Quebec through the Réseaux de services intégrés pour les personnes adultes (RSIPA) program supported by the Ministry of Health and Social Services
Eskote (4)	*Country/region:* Finland *Population:* Residents of nine rural and remote municipalities in South Karelia	• Specialty care (e.g., mental health and substance use) • Home and community care • Primary care (e.g., individual primary-care providers) • Rehabilitation • Social services (e.g., social services for older adults; specialty	*Objectives* • To establish a management organization that would help to reduce fragmentation in the region by having providers collectively provide care to all adults in the region • Delivery of care overseen by an administrative board and a managing director which report to the regional council *Scope:* • Contract of service with each district according to the specific need of the local population • Financing provided by pooling the health and social budgets of the nine municipalities, with bundled payments used to reimburse organizations and care providers based on clinically defined episodes of care *Outcomes:*

Initiative	Population	Sectors and settings	Description of the model
		services for the disabled)	• New models of care implemented to support a population-health-management approach, including establishing well-being centres that co-locate health and social services, low-threshold mental health services, mobile primary health services including preventive care, and 24/7 e-services for disabled clients • The initiative has led to savings across management, financial systems and in personnel, and has also led to the establishment of a single electronic record enabling new telehealth solutions for the rural area
Te Whiringa Ora (5; 6)	*Country/region:* Eastern Bay of Plenty, New Zealand *Population:* 50,000 residents within a largely rural electorate region	• Specialty and acute care • Home and community care • Primary care (e.g., individual primary-care providers) • Rehabilitation • Social services (e.g., social services for older adults; specialty services for the disabled)	*Objectives:* • To provide responsive, coordinated and seamless community-based care for people with complex chronic illness(es) • Support self-determination of communities, self-management, and reduce hospitalizations and emergency-room visits *Scope:* • Initial focus was on high users of in-hospital services for people living with chronic obstructive pulmonary disease (COPD), later expanded to include people living with two or more long-term conditions, and who require intensive management of at least one of their conditions • Grounded in Māori principles of Whānau Ora that support the self-determination of individuals and communities • Partner clinical care coordinators with culturally competent community supports together with primary-care providers *Outcomes:* Reduced total hospitalization days due to COPD by 40% within first year and reduced overall hospitalization days by 12%, projected to result in a savings of NZ$6.8 million over a five-year period
Lead Agency model (7; 8)	*Country/region:* United Kingdom (Scotland) *Population:* Residents of nine rural and remote municipalities in the Scottish Highlands (population of 220,000	• Primary care (e.g., individual primary-care providers) • Home and community care • Social services (e.g., social services for older adults; specialty	*Objectives*: • To improve the quality and reduce the cost of services through the creation of organizational arrangements designed to streamline service delivery to improve population health outcomes • The Public Bodies (Joint Working) Act of 2014 required the integration of health and social care • Between 2011 and 2015, 1% of Scotland's annual healthcare and social-care budget for older people was earmarked to support care transformation; the Highlands was the first

Initiative	Population	Sectors and settings	Description of the model
	and land area of just over 25,000 km^2)	services for the disabled)	area to advance care reform through a Lead Agency model (the other model, adopted throughout the rest of Scotland, is through a Body Corporate model) • A joint board was created to support integration, while a legal partnership agreement detailed leadership, governance and shared performance-management frameworks *Scope:* • NHS Highland assumes responsibility for the delivery of adult health and social-care services, including management of 15 care homes, care-at-home service, daycare services, telecare services and a wide range of contracts with the third and independent sectors • Highland Council was responsible for children's health and social-care services *Outcomes:* • Resulted in reduced burden on nursing staff, improved access to services including reducing the waiting time for occupation-therapy assessment and emergency care, and decreased the average length of hospital stay by 16% • Supported greater resource sharing between health and social government departments
Medicare Shared Savings Program and Advance Payment Accountable Care Organizations (9; 10; 11)	*Country/region:* United States *Population:* Geographic and insurance-based population with a minimum of 5,000 beneficiaries for rural setting	• Specialty care (e.g., hospital, hospice care) • Primary care (e.g., individual primary-care providers and physician groups) • Home and community care (e.g., community-care organizations and rural health clinics)	*Objectives:* • Provide high-quality clinical care and positive patient experience at a reduced cost • Use population-health-management approaches and a shared savings program with Medicare to achieve the Triple Aim • Generally led by hospitals and/or physicians, contracts with Medicare *Scope:* • Four models of public ACOs (e.g., contract with Medicare), two of which are most relevant to this rapid synthesis as they had the highest uptake in mixed urban-rural environments and predominantly rural environments: 1) Medicare Shared Savings Program (MSSP), which began in 2012 and is ongoing, and consists of groups of providers working under an MSSP shared savings and losses model with the Centre for Medicare up to a maximum of 50% if select quality criteria are met 2) Advance Saving/Payment Model, which began in 2012 and ran until 2015, and consists of upfront payments to invest in resources to improve care delivery, if ACOs met one of two criteria, either 1) not having any inpatient facilities and having less than $50 million in total annual revenue, or 2) only having inpatient facilities that

Initiative	Population	Sectors and settings	Description of the model
			are critical-access hospitals or low-volume rural hospitals and have less than $80 million in annual revenue. *Outcomes:* • Resulted in similar quality of care to non-ACO-assigned beneficiaries and had mixed results for total spending, however these findings were expected given the significant transformation activities that would be needed to catch up to other ACOs • Advance Payment ACOs demonstrated commitment to the model, with two-thirds of the 36 ACOs (a larger percentage than other models), extending their commitment beyond the initial performance period and continue to operate
Program of All Inclusive Care for the Elderly (PACE) (12; 13)	*Country/region:* United States *Population:* Fourteen rural communities across the United States	• Specialty and acute care • Primary care • Long-term and home and community care	*Objectives:* • To develop an effective care model supporting rural frail elders' desire to remain at home • Three-way partnership between Centre for Medicare, a Medicaid program, and a for-profit or not-for-profit PACE organization • Fully capitated as a managed care program and can involve an integrated network of providers, typically housed within an adult day centre, which acts as a medical home for the participant *Scope:* • Comprehensive array of medical supervision, physical and occupational therapies, nutrition, transportation, respite care, socialization, and other needed services by using homecare and an adult day setting *Outcomes:* Enrollees were less likely over time to be admitted to a nursing home for long-term care, had lower rates of hospitalization and were more likely to receive preventive care • Mortality rates were similar or lower to similar populations living in nursing homes • As of 2019, there were 126 PACE organizations in 31 states serving more than 45,000 participants, with 20 or more of them operating in rural areas

Table 2: Implementation considerations by Ontario Health Team building block

Initiative	BB#1: Defined patient population	BB#2: In-scope services	BB#3: Patient partnership and community engagement	BB#4: Patient care and experience	BB#5: Digital health	BB#6: Leadership, accountability and governance	BB#7: Financing and incentive structure	BB#8: Performance measurement, quality improvement and continuous learning
Canada								
Quebec PRISMA (2; 3; 14)	None identified	None identified	None identified	• Build relationships and coordination capacity with regional specialized care • Recognition of how geography shapes case management capacity (both in terms of complexity and time required)	• Sustained learning and adaptation to enable uptake of digital supports	• Flexibility in process and timing of implementation • Cross-network coordination facilitated by regional bodies; care coordinated by local organizations • Tailored coaching and technical supports for rural context	None identified	None identified
Finland								
Eksote (4)	• Residents of nine municipalities that make up South Karelia	• In-scope services focus on outpatient health and social care	• Emphasis on enabling self-management, particularly among 65+ • Citizen engagement fostered through regular meetings of citizen, patient and family volunteers	• Co-location of health and social services in well-being centres • Mobile primary-care and preventive services provided within individual homes and at community gatherings • Skill expansion for select roles including nurse prescribing for	• Collective investment in information and communication technology systems that crosses both health and social-service organizations and includes: • Interoperable and patient-accessible	• Professional guidance and mentoring for management and leadership at all levels • Group Decision Support System developed to gather executive and middle management insights to structure feedback and learning sessions	• Upfront project funding to cover initial start-up costs • Grant funding from the European Commission to support purchasing and implementation of information technology • Pooled financing across nine rural municipalities • Bundled payments with reimbursement based on clinically	• Business Intelligence Model facilitated management of regional indicators to monitor service use and quality

Initiative	BB#1: Defined patient population	BB#2: In-scope services	BB#3: Patient partnership and community engagement	BB#4: Patient care and experience	BB#5: Digital health	BB#6: Leadership, accountability and governance	BB#7: Financing and incentive structure	BB#8: Performance measurement, quality improvement and continuous learning
				select chronic conditions and treatments	electronic health record • Electronic social service client system		defined episodes of care or services	
New Zealand								
Te Whiringa Ora (5; 6)	• Initial focus (high-needs COPD population) expanded early on to increase enrolment	• Services oriented around patient-defined goals with objective of supporting greater self-determination, encompassing social determinants of health • Support provided by clinical case manager in partnership with a community-based and culturally rooted support person	• Extended family and community-based web of care involved as partners in care	• None identified	• At-home telehealth monitoring unit supported self-management, with data accessible to clinical staff to identify emergent needs • Developed mechanisms to e-tag eligible patients within electronic record across primary-care and hospital records	• Trust and commitment to initiative strengthened through on-going and individualized feedback from community-based care management supports to primary-care team • Invested in staff with strong cultural competence, partnered with clinical staff • Built value proposition for community-based initiative with strong service network and cultural support	• Flexible financing mechanisms allowed pooled financing across primary-care organizations	• Built credibility and buy-in by sharing early successes, including patient narratives • Staged performance measures account for lead up to implementation • Performance measures needed at both individual and system levels • Measurement aligned with and account for parallel objectives within same initiative (e.g., efficiency in health resource utilization versus advancing self-determination)

Initiative	BB#1: Defined patient population	BB#2: In-scope services	BB#3: Patient partnership and community engagement	BB#4: Patient care and experience	BB#5: Digital health	BB#6: Leadership, accountability and governance	BB#7: Financing and incentive structure	BB#8: Performance measurement, quality improvement and continuous learning
Scotland								
Lead Agency Model (7; 8 15)	• None identified	• District-level multi-disciplinary care teams, with care coordinator across health and social needs; community geriatricians as critical • Integrated transport plans as part of care design • Allowed flexible use of care home beds to support end-of-life care	• Leveraged national policy requiring local authorities to offer citizens choice with respect to assessment and care delivery, including where budget is spent	• Streamlining services released nursing time, improved access and decreased length of hospital stay	• None identified	• Supported local capacity development, particularly for social care	• Provided incentives to provider organizations to offer living wage for independent home-care workers	• None identified
United States								
Medicare Shared Savings Program and Advance payment ACOs (9; 10; 16-19)	• Minimum number of beneficiaries was reduced to 5,000 people (or for 15,000 in MSSP ACO) • Collaborative ACOs shared governance	None identified	• Local citizen advisors engaged as governing member of ACOs	• Leveraged annual wellness visits to deliver preventive services and develop preventive care plans	• Used start-up funds to implement integrated health information technologies	• Implemented a rural exception to the antitrust safety zone to encourage collaboration • Centre For Medicare Services recognized both federally qualified health centres and rural health clinics to	• Fixed and variable advance payments were used to reduce upfront costs to develop and implement the ACO model • Innovative financing models (such as single-sided risk models where	• Quality indicators for each ACO type were predefined by the Centre for Medicare Services • Pooled performance measures across small ACOs to

Initiative	BB#1: Defined patient population	BB#2: In-scope services	BB#3: Patient partnership and community engagement	BB#4: Patient care and experience	BB#5: Digital health	BB#6: Leadership, accountability and governance	BB#7: Financing and incentive structure	BB#8: Performance measurement, quality improvement and continuous learning
	and accountability of clinical programs					form independent ACOs (and recognized service codes from each) • Provided planning grants and supports to seek out organizations with previous collaboration experience and incentivized shared-savings contracts • Supported physicians and advance practice nurses to take on leadership and operational roles, including tailored training • Regional partnerships facilitated coordination of shared services, such as quality improvement, data analysis and health information technology • Developed rural-specific ACO support network	participants are not penalized for overages) reduced the risks associated with implementing new model of care	avoid spurious results due to analysis among small populations • Used scorecards and leading indicators to demonstrate change within each organization, while also tied to overall success of ACO

Initiative	BB#1: Defined patient population	BB#2: In-scope services	BB#3: Patient partnership and community engagement	BB#4: Patient care and experience	BB#5: Digital health	BB#6: Leadership, accountability and governance	BB#7: Financing and incentive structure	BB#8: Performance measurement, quality improvement and continuous learning
						• Collaborative structure defined by shared governance and mutual commitment to measurable clinical outcomes, without requirement to share patients or align with municipal (or other) boundaries		
Program of All Inclusive Care for the Elderly (PACE) (12; 13)	None identified	• Investments in transportation and tailored routes supported greater access to a diversity of services	None identified	• Maintained and built upon pre-existing relationships with primary-care provider • Used alternative care sites to support greater access to services • Expanded community partnerships to provide essential service collaborations around housing, home-delivered meals, transportation, and other services	• Invested in health information technology and training to overcome barriers to integration in rural settings, particularly around accessing specialist care	• Hub-and-spoke models offered greater administrative capacity and infrastructure support • Expanded role of nurses and physician assistants as primary-care leads • Rural-focused technical assistance program promoted awareness among rural providers, adapted model to meet rural needs, and supported rural providers in building implementation readiness	• Investments in shared services lowered implementation costs • Flexible staff models and benefit designs sought to sustain workforce capacity • Incentivized additional effort associated with integrating care in rural context • Developed alternative contracting with community-based primary-care physicians to build on pre-existing relationships with population • Provided dedicated grants to build readiness and adapt implementation	None identified

Initiative	BB#1: Defined patient population	BB#2: In-scope services	BB#3: Patient partnership and community engagement	BB#4: Patient care and experience	BB#5: Digital health	BB#6: Leadership, accountability and governance	BB#7: Financing and incentive structure	BB#8: Performance measurement, quality improvement and continuous learning
							models to rural settings	

Table 3: Implementation considerations by population-health-management step

Country where initiative was implemented	Segmenting for needs, risk, and barriers	Co-designing care pathways and service mix	Implementing and increasing reach	Monitoring and evaluation
Canada (Quebec) (2; 3; 14)	None identified	• Case management capacity shaped by geography (both in terms of complexity and time available) (Raiche 2008)	• Sustained learning and adaptation to local context • Flexibility in process and timing of implementation	None identified
Finland (4)	• Prioritized those 65 and older based on demographic data	• Developed co-located health and social services as part of wellness centres • Mobile services established to provide care within the home and at local community gathering points (e.g., community centres, schools, libraries)	None identified	• Group Decision Support System developed to gather executive and middle management insights to structure feedback and learning sessions • Business Intelligence Model facilitated regional management of indicators to monitor service use and quality
New Zealand (5; 6)	• Initial focus (high-needs COPD population) expanded early on to support sustainability	• Trust and ownership supported by matching case managers and cultural supports to specific primary-care practices • Goals-based care design built around supporting cultural, spiritual, relational, health, environmental and economic well-being (rooted in Māori principles of Whānau Ore, but applied equally in working with non-Maori population)	• Built credibility and buy-in by sharing early successes, including patient narratives • Staged performance measures account for lead-up to implementation	• Performance measures describe influence on health-system efficiency as well as objectives around empowerment and self-determination
United Kingdom (Scotland) (7; 8)	None identified	• Integrated transport plans as part of care design	• None identified	None identified

Country where initiative was implemented	Segmenting for needs, risk, and barriers	Co-designing care pathways and service mix	Implementing and increasing reach	Monitoring and evaluation
		• Supported local capacity development, particularly for social care		
United States (9; 13; 16; 18)	• Use of claims data and EHRs to risk adjust patients and identify those who could benefit from care coordination services • Rural areas may have larger proportions of attributed population with shared needs (e.g., older adults with complex care needs)	• 'Wrap-around' models focus on filling gaps in care coordination • Use of annual wellness visits to provide in-reach and out-reach services • Gaining administrative capacity and infrastructure support through 'hub-and-spoke' type models • Expanded community partnerships to provide essential service collaboration (e.g., housing, home-delivered meals) • Investments in transportation and tailored routes supported greater access to a diversity of services •	• Rural-specific implementation coaching and resources • Investments and training in health information systems • Expanded roles of physicians and advance practice nurses • Regional partnerships facilitated coordination of shared services, such as quality-improvement, data analysis and health information technology • Rural-focused technical assistance program promoted awareness among rural providers, adapted model to meet rural needs and supported rural providers in building implementation readiness	• Used scorecards and leading indicators to demonstrate change within each organization, while also tied to overall success of ACO

Question 2: What implementation considerations have been built into or adopted to support under-served populations?

While rural populations themselves are often considered underserved and in need of a more equitable distribution of health and social services, our focus in answering this question was to examine how population-based initiatives may have adopted tailored approaches to better meet the health and well-being needs of underserved people and communities within their attributed rural populations. While we did not identify tailored approaches across all the initiatives, we describe considerations identified in our original literature search or highlighted by key informants. We also conducted an additional literature search focused on equity considerations within population-based integrated care initiatives for rural populations. This search identified studies describing organizational and health-system-level factors that support population-based integration of services for rural populations in Australia, despite not being implemented as part of a discrete and population-based initiative to support population-health management. Considerations identified in the six initiatives described in answering question one are outlined below, followed by those identified through our additional literature search.

The Te Whiringa Ora initiative in New Zealand was designed to operate as a no-cost or very-low cost service, as the target population experienced high levels of unemployment, low incomes and poor educational outcomes. Recognizing that an individual's health may come at a lower priority than food, housing or other basic needs, this initiative sought to remove all possible barriers to care. Te Whiringa Ora also invested heavily in staff with cultural and social competence, as roughly half of the population identified as Māori.(5) This initiative prioritized holistic, person-centred goals, expanding care coordination from a strictly clinical role. This required culturally competent staff and Te Whiringa Ora provided ongoing training to those in community-based and culturally oriented positions.(5)

A key informant also highlighted Cherokee Elder Care as a Program for All-Inclusive Care for the Elderly (PACE) program adapted to the needs of Indigenous populations in the U.S. state of Oklahoma. Cherokee Elder Care is governed by the Cherokee Nation Comprehensive Care Agency (CNCCA) board and is the first PACE program to be sponsored by an Indigenous nation. Included in its mandate is to also serve non-Indigenous elders within their attributed population and geography. (20)

Aboriginal Community Controlled Health Services (ACCHS), funded through the Australian Department of Health's Indigenous and Rural Health Division, provide services in parallel and coordinated with mainstream services, as well as dedicated pharmacare, outreach, and preventive-health programs to Aboriginal Peoples in Australia. Evaluations of these programs is limited, however, some evidence suggests that partnerships between ACCHS and mainstream service providers, may help improve access to care and outcomes for Aboriginal people.(21) Included under this service is the provision of health and social services to several rural and remote communities, many of which struggle to sustain integrated population-based care initiatives due to challenges around both capacity and continuity of care.(24) To address many of these challenges, the Australian state of Queensland adopted a regional model of governance to allow pooling of resources and sharing of administrative burdens while supporting 29 community-controlled health organizations focused on governance and delivery of health and social services at the local level. Each community-controlled health organization is governed by a health action team (HAT) focused on improving governing structures and supporting community control in how services and programs are delivered, while building capacity for smaller communities to take control of and be responsible for their own health. Many HATs serve as mechanisms to support Indigenous control over service delivery, identify priority needs and monitor service delivery, however HATs also serve non-Indigenous communities in more remote settings.(24) Each HAT is supported by a regional health council to build local capacity for communities to have more control over decisions that

influence their lives and that will contribute towards a broader health-reform process, coordinated at the regional level. Members from each HAT are represented at regional levels within a state-level health council as well as alongside external expert advisors and regional government representatives. As each HAT is often the only group responsible for health in many remote communities and that many members engage as volunteers, realistic expectations on their scope of activities are critical to sustaining involvement. (22)

Table 4 summarizes mechanisms or considerations to better meet the needs of underserved populations within rural populations identified through literature searches and key informant interviews.

Table 4: Implementation considerations focused on meeting the needs of underserved populations in population-based integrated care initiatives for rural populations

	BB#1: Defined patient population	BB#2: In-scope services	BB#3: Patient partnership and community engagement	BB#4: Patient care and experience	BB#5: Digital health	BB#6: Leadership, accountability and governance	BB#7: Financing and incentive structure	BB#8: Performance measurement, quality improvement and continuous learning
Australia (22; 24)	• None identified	• Synchronized multi-pronged approach with broader human services (e.g., housing, sport and recreation, and community councils)	• Formal mechanisms (such as community-led councils) to support the identification of local health priorities, development of implementation strategies and monitoring and improvement plans	• None identified	• None identified	• Leadership representative of target communities and populations • Equity focus integrated within health promotion and advocacy delivered directly to communities, while also integrated within structures and policies at local and regional levels	• None identified	• None identified
Canada (Quebec) (3)	• Recognize differential needs and preferences shaped by linguistic or cultural factors (e.g., communication, hospital versus community-based care)	• None identified	• None identified	• None identified	• None identified	• None identified	• None identified	• None identified
New Zealand (5; 6)	• None identified	• Person-centered goals-based care	• None identified	• Adequate staff and resources to deliver culturally safe	• None identified	• Invest in staff with strong cultural competence, partnering them with staff with clinical credibility	• None identified	• Outcomes focused on community development, participation,

	BB#1: Defined patient population	**BB#2: In-scope services**	**BB#3: Patient partnership and community engagement**	**BB#4: Patient care and experience**	**BB#5: Digital health**	**BB#6: Leadership, accountability and governance**	**BB#7: Financing and incentive structure**	**BB#8: Performance measurement, quality improvement and continuous learning**
		• Care coordination includes cultural and social teachings together with clinical care		integrated care that may involve clinical and non-clinical services		•		and ownership in addition to those based on clinical accountability (Coombe) • Measurement aligned with and account for parallel objectives within same initiative (e.g., efficiency in health resource utilization versus advancing self-determination)
United Kingdom (Scotland) (15)	• None identified	• Data on community-level well-being used to identify where people experience disadvantage to target resources to local areas with greatest need	• None identified	• None identified	• None identified	• None identified	• None identified	• None identified
United States (20)	• None identified	• None identified	• None identified	• None identified	• None identified	• Indigenous-led governance and accountability structures	• None identified	• None identified

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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.

McMaster Health Forum Rapid Response Program
Summary Table of Relevant Literature

Appendix 1: Summary of findings from evidence reviews about supporting population-health management to meet the needs of patients and community partners in rural and mixed urban-rural environments

Question addressed	Focus of study	Study characteristics	Sample description	Key features of the intervention(s)	Key findings
What implementation considerations have been built into or adopted to support under-served populations? (Question 2)	Evaluation of Aboriginal Controlled Health Services	*Publication date:* 2014 *Jurisdiction* studied: Australia *Methods used:* Rapid review	Assessment of effectiveness of Aboriginal Controlled Health Services to mainstream services	No intervention	This review highlighted a dearth of Evidence on the relative effectiveness of Aboriginal Controlled Health Services (ACHS) compared with mainstream health services. Several studies indicate that ACHS are preferred by Aboriginal clients, while some evidence suggests that innovative partnerships between ACHS and mainstream services may lead to improved outcomes. (21)
	Strategies to support integration at the meso or organizational level	*Publication date:* 2013 *Jurisdiction* studied: Australia, New Zealand, United Kingdom, United States *Methods used:* Rapid review	Technical and financial support programs to support integration at the health systems and organizational levels	No intervention	This review highlighted organizational integration in several rural areas of Australia. It highlighted factors that impact on delivery of good quality, well-integrated and culturally appropriate health care for Indigenous populations living in remote and rural areas of Australia, including availability of services, efforts required to coordinate care, the need for multidisciplinary teams, and the adequacy of resources and health human resources. This report also presented examples of the organization of shared regional services in the Australian Northern Territories as well as he creation of Health Action Teams to support leadership in health service planning in more remote communities. (23)

Appendix 2: Summary of findings from primary studies about supporting population-health management to meet the needs of patients and community partners in rural and mixed urban-rural environments

Question addressed	Focus of study	Study characteristics	Sample description	Key features of the intervention(s)	Key findings
These studies addressed both questions	Implementation of health and social care integration	*Publication date:* 2021 *Jurisdiction* studied: Scotland *Methods used:* Document review and interviews	Describes the country-wide experience of integration of health and social care		This article describes enablers, barriers and impacts of a national shift towards integrating health and social care in Scotland. Particularly relevant to implementation in rural areas are the importance of culture, trust, and relationships between professionals from different teams, care settings and sectors. Several coaching and collaborative action learning programs were critical to addressing these key areas. Community well-being was supported by several innovative asset-based initiatives, including community links practitioners, strength-based collaborative care and support planning, national and local support for self-management and social prescribing. This article also describes the need for investment in local analytical expertise and population health management data and tools to continue supporting strategic planning and commissioning to better meet the needs of local populations. It also highlights the need for more local governance with broader community partners to meaningfully address stubborn inequities This article describes the importance of engaging local communities and community organizations in designing sustainable solutions and investing in improvement capacity and building local capability to test, spread and scale up new ways. (15)
	Description of person-centred and integrated care in rural and majority-Indigenous communities	*Publication date:* 2015 *Jurisdiction* studied: Eastern Bay of Plenty (New Zealand) *Methods used:* Document review and interviews	Interdisciplinary care for people with complex, long-term health needs and who are high users of hospital services	Initial focus on high users of in-hospital services for people living with chronic obstructive pulmonary disease (COPD), later expanded to include people living with two or more long-term conditions, and require intensive management of	This case study outlines the implementation processes, and lessons learnt after three years since the star of the Te Whiringa Ora initiative. Critical to launching the initiative was the engagement and support of both hospital-based staff, family physicians and staff with cultural and community-based expertise. This case study highlights four main challenges to implementation as being a perceived duplication of existing services, patient engagement, practice engagement and planning challenges. This case study also outlines several organizational implementation challenges, including making explicit and supporting staff to

Question addressed	Focus of study	Study characteristics	Sample description	Key features of the intervention(s)	Key findings
				at least one of their conditions	drive the initiative to be patient-centered, developing a shared care platform that complements and does not duplicate existing systems, and an at-home telehealth monitoring unit to support at-home management while providing clinicians with early warning signs of risks to patient health. This program also had dedicated care coordinators paired with cultural and social support worker, who were both paired with an individual physician. (5)
What implementation considerations have been built into or adopted as part of population-health management initiatives for rural communities? (Question 1)	Examining the effects of rural Medicare Accountable Care Organizations (ACOs)	*Publication date:* February 2021 *Jurisdiction studied:* U.S. *Methods used:* Qualitative review	Four high-performing rural Medicare ACOs were included for semi structured interviews with leadership.	Accountable care organizations of varying models implemented in rural areas of the U.S.	Six success factors were identified among the four rural ACOs, including: prior collaboration experience, volume-to-value transformation strategic focus, clinician championship, shared governance, care coordination services, data access and analysis. Many of these findings also aligned with success factors of urban ACOs. (10)
	Participation of rural hospitals in Medicare ACOs	*Publication date:* April 2020 *Jurisdiction studied:* U.S. *Methods used:* Quantitative survey	Used the 2016 CMS SSP Provider-Level Research Identifiable File to identify rural hospitals participating in ACOs.	Compared participation rates of rural hospitals to urban hospitals in different census regions and with different levels of rurality.	The study identified 743 hospitals that participated in 192 Medicare Shared Savings ACOs ion 2016. Though Metropolitan hospitals had a higher participation rate than rural hospitals, the two showed similar patterns in how participation rates varied by most hospital attributes and risk experiences. Rural hospitals that have fully implemented health electronic record systems, have established medical home programs, or having prior risk0bearing contract experience were more likely to participate in the ACOs. (16)
	Facilitating the formation of ACOs in rural areas	*Publication date:* July 2014 *Jurisdiction studied:* U.S. *Methods used:* Qualitative interviews	Four high-performing rural Medicare ACOs were included for semi structured interviews with leadership.	No intervention.	All four ACOs included providers with previous organizational integration experience, with three included providers with experience in risk-sharing arrangements. In addition, providers in each of the four ACOs share the same electronic health record system and all had established partnerships in their local and regional communities. (17)
	Evaluating advance payment ACOs	*Publication date:* 25 November 2016 *Jurisdiction studied:* U.S. *Methods used:* Difference in difference evaluation	All Advance Payment ACOs in the U.S.	Thirty-six Medicare Shared Savings ACOs provided with additional upfront funding and delayed risk sharing	In general, the evaluation found that advance payment ACOs implemented in rural areas were largely not statistically distinguishable from comparison beneficiaries over three years. Advance Payment ACOs had non-significant lower-than-expected total spending 2012 and 2013 and statistically significant higher-than-expected total spending in 2014 of an addition $20.80 per beneficiary per month. This spending was not evenly split across settings.

Question addressed	Focus of study	Study characteristics	Sample description	Key features of the intervention(s)	Key findings
					Lower than expected spending took place for in-patient care but higher than expected spending on physician services in all years. This increase may be the result of ACOs reported engagement in activities that could potentially promote the use of physician services in efforts to address wellness, care gaps and post-discharge quality. (11)
		Publication date: 2014 *Jurisdiction studied:* Rural areas in the United States *Methods used:* Document review	Medicaid-funded programs in rural areas that involve coordination or integration with acute care	No intervention	This report highlights four critical issues for population-based health initiatives in rural areas based on lessons from 4 integrated care programs: physician-led models, long-term services and supports (LTSS), rural program of All Inclusive Care for the Elderly (PACE), and Managed Long-term services and supports (MLTSS). The report provides in-depth examples from each of the programs and distills the following lessons across them: 1) An integrated care model cannot be imported to a rural community without adaptation 2) Wraparound integrated care models can support rather than displace the local rural delivery system. 3) Gaps in the continuum of care in rural communities will limit the success of models aimed at integrating care This report also highlights the need to align and adapt financing options to the rural context, including incenting and supporting the development of shared care management support for providers. (12)
	Report on innovation in health and social care in Europe	*Publication date:* 2015 *Jurisdiction studied:* Countries in the European Union *Methods used:* Qualitative case studies	Social innovations recently implemented in countries of the European Union	No intervention	In addition to providing specific details related to numerous initiatives, including Eskote in Finland, the report also highlighted key challenges to the emergence and spread of innovation including: managing the acceptance of risk and potential failure, negotiating public expectations and demands, measuring costs and benefits, difficulties for new entrants and ability to break through entrenched cultures, and a bias towards developing new innovations rather than engaging in the complex work of implementing existing innovation. With respect to the case study on South Karelia, Finland, the report described the integration of care across nine municipalities each of which commissioned services from

Question addressed	Focus of study	Study characteristics	Sample description	Key features of the intervention(s)	Key findings
					Eskote based on their population needs. The move towards integration was driven by a desire to improve services and the potential for financial savings. Key aspects of the transformation included the implementation of a common electronic health record, new mobile and outreach services, and new styles of welfare centres which take place in non-traditional settings (e.g., community centres and libraries). The initial results from evaluations have found significant cost savings and improvements in health outcomes, as well as reduction in wait times for mental health and substance use services. (4)
	Examining innovations in organization of health and social care	*Publication date:* 2017 *Jurisdiction* studied: Scotland *Methods used:* Document review and interviews	Shared governance, finance and accountability structures across health and social care in northern Scotland	No intervention	This report describes the implementation of a Lead Agency to provide comprehensive health and social care across nine rural communities in northern Scotland. It describes the influence of this model on health outcomes (e.g., 98% of patients wait less than 4 hours from arrival to admission, discharge or transfer for accident and emergency treatment, which has been sustained 3 years after integration; a one-year pilot on medicines management demonstrated that the new service made medicines safer and more effective for care home residents). This report also highlights factors critical to the success of his service integration including incentivizing the provision of living wages to support service personnel, greater citizen control over health spending, rurally-focused health and social human resource capacity building initiatives, and developing integrated transportation plan as part of health planning. (8)
	Implementation of health and social care integration	*Publication date:* 2014 *Jurisdiction* studied: Scotland *Methods used:* Document review and interviews			This article offers early insights from the implementation of health and social care integration in northern Scotland. This article highlights how streamlining services released nursing time, improved access to services including reducing the waiting time for occupation therapy assessment from seven days to two days and decreased the average length of hospital stay by 16%. (7)
	Testing of integrated service delivery network	*Publication date:* 2015	Testing and implementation of integrated service	Service coordination, single entry point, case management,	This article describes how the PRISMA model produced significant reductions in the prevalence and incidence of functional decline, lowered unmet needs and reduced

Question addressed	Focus of study	Study characteristics	Sample description	Key features of the intervention(s)	Key findings
	to support elder care	*Jurisdiction* studied: Quebec (Canada) *Methods used:* Document review and interviews	delivery network to support the care of elderly living with multiple chronic conditions	individualized service plan, a single functional assessment tool and a shared information system. Participating agencies shared responsibility for coordination and case management but did not require merger of any providers	emergency room visits. It also reported a significant increase in client satisfaction and empowerment. This article also reported that it took longer to implement this model in rural areas than urban and semi-rural areas. Implementation was flexible to adapt model to needs to rural communities. (3)
	Evaluation of integrated service delivery network for health and social care for elderly people living with chronic conditions	*Publication date:* 2008 *Jurisdiction* studied: Quebec (Canada) *Methods used:* Document review and interviews	Testing and implementation of integrated service delivery network to support the care of elderly living with multiple chronic conditions	Service coordination, single entry point, case management, individualized service plan, a single functional assessment tool and a shared information system. Participating agencies shared responsibility for coordination and case management but did not require merger of any providers	This report highlighted several findings specific to PRISMA's rural settings. These include the familiarity of rural senior managers with the needs of the elderly and other patients with impaired independence, the additional time and specific expertise required of care coordination in rural areas (which resulted in adjusted caseloads depending on geography and complexity of needs). This report also assessed the cost of the intervention, suggesting that when the same degrees of implementation are considered, the annual differential costs incurred through his initiative amounted to $52 per person aged 65 or older in urban areas (in 2002 dollars). The costs range from $41 to $49 in rural areas. (2)
What implementation considerations have been built into or adopted to support under-served populations? (Question 2)	Assessment of Long-term care in American Indian communities	*Publication date:* 2018 *Jurisdiction* studied: United States of America *Methods used:* Document review	Overview of models of long-term care for Indigenous populations	No intervention	The report provides an overview of long-term care services for and with Indigenous communities across the United States. This report includes a description of the first innovative PACE program to be sponsored by an Indigenous nation. (20)

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