

Rapid Synthesis

Creating Rapid-learning Health Systems
in Canada

Appendix C2: Primary-care sector

10 December 2018



EVIDENCE >> INSIGHT >> ACTION

**Rapid Synthesis:
Creating Rapid-learning Health Systems in Canada
Appendix C2: Primary-care sector
90-day response**

Lavis JN, Gauvin F-P, Mattison CA, Moat KA, Waddell K, Wilson MG, Reid R. Appendix C2: Primary-care sector: Creating rapid-learning health systems in Canada. Hamilton, Canada: McMaster Health Forum, 10 December 2018.

Table 1: Assets and gaps related to the primary-care sector at the federal, national and/or pan-Canadian level

Characteristic	Examples	Health-system receptors and supports	Research-system supports
<p>Engaged patients: Systems are anchored on patient needs, perspectives and aspirations (at all levels) and focused on improving their care experiences and health at manageable per capita costs and with positive provider experiences</p>	<ol style="list-style-type: none"> 1) Set and regularly adjust patient-relevant targets for rapid learning and improvement (e.g., improvements to a particular type of patient experience or in a particular health outcome) 2) Engage patients, families and citizens in: <ol style="list-style-type: none"> a) their own health (e.g., goal setting; self-management and living well with conditions; access to personal health information, including test results) b) their own care (e.g., shared decision-making; use of patient decision aids) c) the organizations that deliver care (e.g., patient-experience surveys; co-design of programs and services; membership of quality-improvement committees and advisory councils) d) the organizations that oversee the professionals and other organizations in the system (e.g., professional regulatory bodies; quality-improvement bodies; ombudsman; and complaint processes) e) policymaking (e.g., committees making decisions about which services and drugs are covered; government advisory councils that set direction for (parts of) the system; patient storytelling to kick off key meetings; citizen panels to elicit citizen values) f) research (e.g., engaging patients as research partners; eliciting patients' input on research priorities) 3) Build patient/citizen capacity to engage in all of the above 	<ul style="list-style-type: none"> • None identified 	<ul style="list-style-type: none"> • None identified
<p>Digital capture, linkage and timely sharing of relevant data: Systems capture, link and share (with individuals at all levels) data (from real-life, not ideal conditions) about patient experiences (with services, transitions and longitudinally) and provider engagement alongside data about other process indicators (e.g., clinical encounters and costs) and outcome</p>	<ol style="list-style-type: none"> 1) Data infrastructure (e.g., interoperable electronic health records; immunization or condition-specific registries; privacy policies that enable data sharing) 2) Capacity to capture patient-reported experiences (for both services and transitions), clinical encounters, outcomes and costs 3) Capacity to capture longitudinal data across time and settings 4) Capacity to link data about health, healthcare, social care, and the social determinants of health 5) Capacity to analyze data (e.g., staff and resources) 6) Capacity to share 'local' data (alone and against relevant comparators) – in both patient- and provider-friendly formats and in a timely way – at the point of care, for providers and practices (e.g., audit and feedback), and through a centralized platform (to support patient 	<ul style="list-style-type: none"> • None identified 	<ul style="list-style-type: none"> • Canadian Primary Care Sentinel Surveillance Network collects and reports health information drawn from the electronic medical records of participating primary-care providers

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Characteristic	Examples	Health-system receptors and supports	Research-system supports
<p>indicators (e.g., health status)</p> <p>Timely production of research evidence: Systems produce, synthesize, curate and share (with individuals at all levels) research about problems, improvement options and implementation considerations</p>	<p>decision-making and provider, organization and system-wide rapid learning and improvement)</p> <ol style="list-style-type: none"> 1) Distributed capacity to produce and share research (including evaluations) in a timely way 2) Distributed research ethics infrastructure that can support rapid-cycle evaluations 3) Capacity to synthesize research evidence in a timely way 4) One-stop shops for local evaluations and pre-appraised syntheses 5) Capacity to access, adapt and apply research evidence 6) Incentives and requirements for research groups to collaborate with one another, with patients, and with decision-makers 	<ul style="list-style-type: none"> • None identified 	<ul style="list-style-type: none"> • Pan-Canadian SPOR Network in Primary and Integrated Health Care Innovations supports the development, evaluation and scale-up of new approaches to the delivery of integrated services • 12 <u>CIHR-funded innovation teams</u> study ways to access community-based primary care for vulnerable populations and chronic-disease prevention and management – for example, <u>FORGE AHEAD</u> is developing and evaluating community-driven primary healthcare delivery models that enhance chronic-disease management in First Nations communities in nine provinces • <u>Pathways Implementation Research Teams</u> study how to implement and scale up interventions that address Indigenous health inequities in suicide, diabetes/obesity, oral health, suicide and tuberculosis
<p>Appropriate decision supports: Systems support informed decision-making at all levels with appropriate data, evidence, and decision-making frameworks</p>	<ol style="list-style-type: none"> 1) Decision supports at all levels – self-management, clinical encounter, program, organization, regional health authority and government – such as <ol style="list-style-type: none"> a) patient-targeted evidence-based resources b) patient decision aids c) patient goal-setting supports d) clinical practice guidelines e) clinical decision support systems (including those embedded in electronic health records) f) quality standards g) care pathways h) health technology assessments i) descriptions of how the health system works 	<ul style="list-style-type: none"> • College of Family Physicians of Canada maintains ‘<u>The Patient’s Medical Home</u>’ website to support family physicians in self-assessing and improving their patients’ medical home, and it is developing a Canada-wide ‘Research Ready’ certification to encourage primary-care practices to participate in and support research 	<ul style="list-style-type: none"> • None identified
<p>Aligned governance, financial and delivery arrangements: Systems adjust who can make what decisions (e.g., about joint learning priorities), how money flows and how the systems are organized and aligned to support rapid learning and</p>	<ol style="list-style-type: none"> 1) Centralized coordination of efforts to adapt a rapid-learning health system approach, incrementally join up assets and fill gaps, and periodically update the status of assets and gaps 2) Mandates for preparing, sharing and reporting on quality-improvement plans 3) Mandates for accreditation 4) Funding and remuneration models that have the potential to incentivize rapid learning and improvement (e.g., focused on patient-reported outcome measures, some bundled-care funding models) 5) Value-based innovation-procurement model 	<ul style="list-style-type: none"> • <u>Canadian Foundation for Healthcare Improvement</u> has supported two learning collaboratives involving primary care, with one focused on elder-friendly models of care and another focused on access to specialist consultation • Gaps may include the lack of aligned arrangements to support five digital building blocks for primary care <ul style="list-style-type: none"> ○ Care-coordination platforms ○ Decision-support tools ○ Point-of-care diagnostics 	<ul style="list-style-type: none"> • None identified

Creating Rapid-learning Health Systems in Canada: Appendix C2 Primary-care sector

Characteristic	Examples	Health-system receptors and supports	Research-system supports
improvement at all levels	6) Funding and active support to spread effective practices across sites 7) Standards for provincial expert groups to involve patients, a methodologist, use existing data and evidence to inform and justify their recommendations 8) Mechanisms to jointly set rapid-learning and improvement priorities 9) Mechanisms to identify and share the 'reproducible building blocks' of a rapid-learning health system	<ul style="list-style-type: none"> ○ Remote monitoring ○ Virtual visits 	
Culture of rapid learning and improvement: Systems are stewarded at all levels by leaders committed to a culture of teamwork, collaboration and adaptability	1) Explicit mechanisms to develop a culture of teamwork, collaboration and adaptability in all operations, to develop and maintain trusted relationships with the full range of partners needed to support rapid learning and improvement, and to acknowledge, learn from and move on from 'failure'	<ul style="list-style-type: none"> • None identified 	<ul style="list-style-type: none"> • None identified
Competencies for rapid learning and improvement: Systems are rapidly improved by teams at all levels who have the competencies needed to identify and characterize problems, design data- and evidence-informed approaches (and learn from other comparable programs, organizations, regions, and sub-regional communities about proven approaches), implement these approaches, monitor their implementation, evaluate their impact, make further adjustments as needed, sustain proven approaches locally, and support their spread widely	1) Public reporting on rapid learning and improvement 2) Distributed competencies for rapid learning and improvement (e.g., data and research literacy, co-design, scaling up, leadership) 3) In-house capacity for supporting rapid learning and improvement 4) Centralized specialized expertise in supporting rapid learning and improvement 5) Rapid-learning infrastructure (e.g., learning collaboratives)	<ul style="list-style-type: none"> • Canadian Foundation for Healthcare Improvement supports learning, spread and scale collaboratives, including the INSPIRED spread collaborative (19 sites), and then INSPIRED scale collaborative to support hospital-to-home care for patients with late-stage chronic obstructive pulmonary disease 	<ul style="list-style-type: none"> • None identified

Table 2: Assets and gaps related to the primary-care sector in British Columbia’s health system

Characteristic	Examples	Health-system receptors and supports	Research-system supports
<p>Engaged patients: Systems are anchored on patient needs, perspectives and aspirations (at all levels) and focused on improving their care experiences and health at manageable per capita costs and with positive provider experiences</p>	<ol style="list-style-type: none"> 1) Set and regularly adjust patient-relevant targets for rapid learning and improvement (e.g., improvements to a particular type of patient experience or in a particular health outcome) 2) Engage patients, families and citizens in: <ol style="list-style-type: none"> a) their own health (e.g., goal setting; self-management and living well with conditions; access to personal health information, including test results) b) their own care (e.g., shared decision-making; use of patient decision aids) c) the organizations that deliver care (e.g., patient-experience surveys; co-design of programs and services; membership of quality-improvement committees and advisory councils) d) the organizations that oversee the professionals and other organizations in the system (e.g., professional regulatory bodies; quality-improvement bodies; ombudsman; and complaint processes) e) policymaking (e.g., committees making decisions about which services and drugs are covered; government advisory councils that set direction for (parts of) the system; patient storytelling to kick off key meetings; citizen panels to elicit citizen values) f) research (e.g., engaging patients as research partners; eliciting patients’ input on research priorities) 3) Build patient/citizen capacity to engage in all of the above 	<ul style="list-style-type: none"> • Several of the initiatives listed in the ‘health system as a whole’ table focused on engaging patients, families and citizens apply to primary care, including: <ul style="list-style-type: none"> ○ my_ehealth for lab results; ○ Patient access to electronic health records at several sites (BC Cancer Agency, BC Children’s and Women’s Hospital, Sunny Hill Health Centre for Children); ○ MyHealthPortal for access to personal health information for those in the Interior Health Region; ○ Self-management British Columbia (e.g., the Self-Management Health Coach Program for people with chronic conditions); ○ BC Prenatal Genetic Screening Program for decision aids; ○ Patient Partners Program which convenes Regional Engagement Tables on a range of topics, including “access to primary care, challenges and opportunities for rural and remote communities; urgent primary care centres and shared care plans; access to health for urban indigenous people; and person- and family-centred care” ○ Patient Voices Network through the BC Patient Safety and Quality Council for patient engagement in organizational decision-making and policymaking; ○ Patient Experience Council from the PHSA • The primary-care networks (which have been recently announced) are engaging patients in planning processes • The BC Rural Health Network engages rural community groups involved in health and wellness advocacy • Possible gaps <ul style="list-style-type: none"> ○ There are some local and regional initiatives setting and adjusting targets (e.g., blended funding model for specific diseases 	<ul style="list-style-type: none"> • The BC Primary Health Care Research Network (BC-PHCRN) is focused on supporting evidence-informed transformation of the delivery of primary and integrated healthcare and supports patient engagement in primary-care research (e.g., by supporting collaborations between government, health authorities, health professionals, patients and researchers, and by convening a patient advisory council to provide “input on research projects based on their personal experience as patients, share information with their networks, and support and advise the Advisory Committee and the BC-PHCRN leadership”. • The central goals of the PREFeR Project, which is part of the BC-PHCRN, are to “identify patient-generated priorities for primary care research in BC, and compare patient and clinician perspectives”.

Characteristic	Examples	Health-system receptors and supports	Research-system supports
		<p>in Fort St. John), but these are regional and not system wide</p> <ul style="list-style-type: none"> ○ The process of setting targets is important, but centrally setting targets is challenging given the need to be attentive to health equity ○ There seem to be few examples of capacity building for patients/citizens 	
<p>Digital capture, linkage and timely sharing of relevant data: Systems capture, link and share (with individuals at all levels) data (from real-life, not ideal conditions) about patient experiences (with services, transitions and longitudinally) and provider engagement alongside data about other process indicators (e.g., clinical encounters and costs) and outcome indicators (e.g., health status)</p>	<ol style="list-style-type: none"> 1) Data infrastructure (e.g., interoperable electronic health records; immunization or condition-specific registries; privacy policies that enable data sharing) 2) Capacity to capture patient-reported experiences (for both services and transitions), clinical encounters, outcomes and costs 3) Capacity to capture longitudinal data across time and settings 4) Capacity to link data about health, healthcare, social care, and the social determinants of health 5) Capacity to analyze data (e.g., staff and resources) 6) Capacity to share 'local' data (alone and against relevant comparators) – in both patient- and provider-friendly formats and in a timely way – at the point of care, for providers and practices (e.g., audit and feedback), and through a centralized platform (to support patient decision-making and provider, organization and system-wide rapid learning and improvement) 	<ul style="list-style-type: none"> • The Health Data Coalition is “physician-led data sharing platform that enables collaborative quality improvement in primary care” • Possible gaps <ul style="list-style-type: none"> ○ While efforts such as the Clinical Data Exchange and the General Practice Services committee provide support to look at EMR data, they are local in nature and are not joined up despite being funded centrally 	<ul style="list-style-type: none"> • The BC-PHCRN houses the British Columbia – Canadian Primary Care Sentinel Surveillance Network (BC-CPCSSN), an initiative focused on primary care, which is designed to enable secure collection and reporting of data from electronic health records to allow family physicians, other health professionals and decision-makers to analyze service use for patients who access primary care in the province, with the goal of providing timely feedback through quality-improvement tools (see the ‘national’ tables for more detail about the CPCSSN)
<p>Timely production of research evidence: Systems produce, synthesize, curate and share (with individuals at all levels) research about problems, improvement options and implementation considerations</p>	<ol style="list-style-type: none"> 1) Distributed capacity to produce and share research (including evaluations) in a timely way 2) Distributed research-ethics infrastructure that can support rapid-cycle evaluations 3) Capacity to synthesize research evidence in a timely way 4) One-stop shops for local evaluations and pre-appraised syntheses 5) Capacity to access, adapt and apply research evidence 6) Incentives and requirements for research groups to collaborate with one another, with patients, and with decision-makers 	<ul style="list-style-type: none"> • Doctors of BC set up regional nodes and fund research assistants to support locally-driven and clinically relevant research 	<ul style="list-style-type: none"> • The BC-PHCRN is the main hub for production of research evidence about primary care • The British Columbia Rural Scholars Program funds rural clinicians to develop skills in scholarship and leadership in discovery, integration, application/engagement and education • Gaps may include that the role of the BC-PHCRN in the timely production of research evidence is unclear beyond providing an incentive for collaboration between researchers, patients and decision-makers
<p>Appropriate decision supports: Systems support informed decision-making at all levels with appropriate</p>	<ol style="list-style-type: none"> 1) Decision supports at all levels – self-management, clinical encounter, program, organization, regional health authority and government – such as <ol style="list-style-type: none"> a) patient-targeted evidence-based resources b) patient decision aids 	<ul style="list-style-type: none"> • BC Divisions of Family Practice (which has 35 divisions representing 230 communities and over 90% of family physicians engaged in a division) has selected UpToDate as its clinical decision support system of choice, but the 	<ul style="list-style-type: none"> • BC Guidelines produces several practice guidelines relevant to primary care (e.g., diagnosis and management of opioid use disorder in primary care), and the British Columbia Centre for Excellence in HIV/AIDS

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Characteristic	Examples	Health-system receptors and supports	Research-system supports
<p>data, evidence, and decision-making frameworks</p>	<ul style="list-style-type: none"> c) patient goal-setting supports d) clinical practice guidelines e) clinical decision support systems (including those embedded in electronic health records) f) quality standards g) care pathways h) health technology assessments i) descriptions of how the health system works 	<p>implementation and integration with other areas remains unclear</p> <ul style="list-style-type: none"> • The Practice Supports Program from the General Practice Service Committee provides educational services and practice-based supports to improve quality of care • Pathways (a web-based directory connecting family doctors and specialists to streamline referrals in Vancouver) and Perinatal Services BC (which provides pathways and toolkits supporting evidence-based recommendations for routine care during pregnancy and birth) are examples of care pathways relevant to primary care • The BC Emergency Medicine Network (and others) provide clinical resources, continuing professional development and real-time support • Possible gaps <ul style="list-style-type: none"> ○ The development and implementation of patient-targeted evidence-based resources, patient decisions aids and patient goal-setting supports is ad hoc ○ There is some quality feedback but only in key areas (e.g., pap smear rates and prescribing practices) and coordinated at a system level 	<p>has also published an HIV-focused practice guideline for primary care</p> <ul style="list-style-type: none"> • BC-PHCRN enables ‘sentinel’ physicians to explore their electronic medical record data to enhance services and practice operation through two tools: 1) InQUIRE, which provides web-based descriptive reports about a physician’s patient panel using information from electronic medical records; and 2) the Data Presentation Tool which is being developed to enable practice reflection, analysis, reporting and patient recall
<p>Aligned governance, financial and delivery arrangements: Systems adjust who can make what decisions (e.g., about joint learning priorities), how money flows and how the systems are organized and aligned to support rapid learning and improvement at all levels</p>	<ol style="list-style-type: none"> 1) Centralized coordination of efforts to adapt a rapid-learning health system approach, incrementally join up assets and fill gaps, and periodically update the status of assets and gaps 2) Mandates for preparing, sharing and reporting on quality-improvement plans 3) Mandates for accreditation 4) Funding and remuneration models that have the potential to incentivize rapid learning and improvement (e.g., focused on patient-reported outcome measures, some bundled-care funding models) 5) Value-based innovation-procurement model 6) Funding and active support to spread effective practices across sites 7) Standards for provincial expert groups to involve patients, a methodologist, use existing data and evidence to inform and justify their recommendations 8) Mechanisms to jointly set rapid-learning and improvement priorities 	<ul style="list-style-type: none"> • The primary-care strategy, which was recently announced (spring 2018), has the potential to contribute to the type of alignment between governance, financial and delivery arrangements needed to support a rapid-learning health system in primary care through its focus on enhancing team-based care and primary-care networks • The Joint Collaborative Committees included in Table 1 (particularly the Collaborative Services Committee) are emerging as a governance structure for the new primary-care networks • The Shared Care Committee supports family and specialist physicians to enhance the coordination of care from primary to specialist services 	<ul style="list-style-type: none"> • None identified

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Characteristic	Examples	Health-system receptors and supports	Research-system supports
<p>Culture of rapid learning and improvement: Systems are stewarded at all levels by leaders committed to a culture of teamwork, collaboration and adaptability</p>	<p>9) Mechanisms to identify and share the ‘reproducible building blocks’ of a rapid-learning health system</p> <p>1) Explicit mechanisms to develop a culture of teamwork, collaboration and adaptability in all operations, to develop and maintain trusted relationships with the full range of partners needed to support rapid learning and improvement, and to acknowledge, learn from and move on from ‘failure’</p>	<ul style="list-style-type: none"> The BC Divisions of Family Practice consists of groups of family physicians in communities throughout B.C. which collaborate towards achieving common goals in the health system, work collaboratively with partners in the community and other sectors, and are structured as non-profit groups that provide infrastructure to address priorities such as through the Collaborative Services Committee, which fosters collaboration between physicians and health-system stakeholders by engaging the divisions, regional health authorities, General Practice Service Committee and the B.C. MOH) 	<ul style="list-style-type: none"> None identified
<p>Competencies for rapid learning and improvement: Systems are rapidly improved by teams at all levels who have the competencies needed to identify and characterize problems, design data- and evidence-informed approaches (and learn from other comparable programs, organizations, regions, and sub-regional communities about proven approaches), implement these approaches, monitor their implementation, evaluate their impact, make further adjustments as needed, sustain proven approaches locally, and support their spread widely</p>	<ol style="list-style-type: none"> Public reporting on rapid learning and improvement Distributed competencies for rapid learning and improvement (e.g., data and research literacy, co-design, scaling up, leadership) In-house capacity for supporting rapid learning and improvement Centralized specialized expertise in supporting rapid learning and improvement Rapid-learning infrastructure (e.g., learning collaboratives) 	<ul style="list-style-type: none"> As outlined in the previous row, the BC Divisions of Family Practice is a key support for some of the activities for competencies for rapid learning and improvement (e.g., leadership, in-house capacity for supporting rapid learning, centralized expertise and infrastructure through an existing collaborative) 	<ul style="list-style-type: none"> None identified

Table 3: Assets and gaps related to the primary-care sector in Alberta’s health system

Characteristic	Examples	Health-system receptors and supports	Research-system supports
<p>Engaged patients: Systems are anchored on patient needs, perspectives and aspirations (at all levels) and focused on improving their care experiences and health at manageable per capita costs and with positive provider experiences</p>	<ol style="list-style-type: none"> 1) Set and regularly adjust patient-relevant targets for rapid learning and improvement (e.g., improvements to a particular type of patient experience or in a particular health outcome) 2) Engage patients, families and citizens in: <ol style="list-style-type: none"> a) their own health (e.g., goal setting; self-management and living well with conditions; access to personal health information, including test results) b) their own care (e.g., shared decision-making; use of patient decision aids) c) the organizations that deliver care (e.g., patient-experience surveys; co-design of programs and services; membership of quality-improvement committees and advisory councils) d) the organizations that oversee the professionals and other organizations in the system (e.g., professional regulatory bodies; quality-improvement bodies; ombudsman; and complaint processes) e) policymaking (e.g., committees making decisions about which services and drugs are covered; government advisory councils that set direction for (parts of) the system; patient storytelling to kick off key meetings; citizen panels to elicit citizen values) f) research (e.g., engaging patients as research partners; eliciting patients’ input on research priorities) 3) Build patient/citizen capacity to engage in all of the above 	<ul style="list-style-type: none"> • AHS’s strategic clinical network focused on primary care (called the Primary Health Care Integration Network) supports a ‘core committee’ (called a Coalition for Integration) that includes patients and family members • Alberta Health has commissioned IMAGINE (a citizen coalition) to provide input on health-system topics, with a particular focus on primary care • Albertans for Albertans is supporting the co-design of four modules of a ‘Healthcare 101’ course about the health system, navigation, shared decision-making, and patient rights • Gaps may include less attention to patient and family engagement in their own health and primary healthcare, and in the co-design of private primary-care practices 	<ul style="list-style-type: none"> • None identified
<p>Digital capture, linkage and timely sharing of relevant data: Systems capture, link and share (with individuals at all levels) data (from real-life, not ideal conditions) about patient experiences (with services, transitions and longitudinally) and provider engagement alongside data about other process indicators (e.g., clinical encounters and costs) and outcome indicators (e.g., health status)</p>	<ol style="list-style-type: none"> 1) Data infrastructure (e.g., interoperable electronic health records; immunization or condition-specific registries; privacy policies that enable data sharing) 2) Capacity to capture patient-reported experiences (for both services and transitions), clinical encounters, outcomes and costs 3) Capacity to capture longitudinal data across time and settings 4) Capacity to link data about health, healthcare, social care, and the social determinants of health 5) Capacity to analyze data (e.g., staff and resources) 6) Capacity to share ‘local’ data (alone and against relevant comparators) – in both patient- and provider-friendly formats and in a timely way – at the point of care, for providers and practices (e.g., audit and feedback), and through a centralized platform (to support patient 	<ul style="list-style-type: none"> • Health Quality Council of Alberta provides reports to private primary-care practices about the patients registered in their panel • Connect Care (clinical information system) and Data Integration and Management Repository (DIMR) provide (or will provide) data about the limited amount of primary care provided by AHS • Gaps may include limited access to much of the primary-care data collected through private primary-care practices 	<ul style="list-style-type: none"> • Northern Alberta Primary Care Research Network and Southern Alberta Primary Care Research Network contribute health information drawn from the electronic medical records of participating primary-care providers to the Canadian Primary Care Sentinel Surveillance Network (CPCSSN) and report this health information

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Characteristic	Examples	Health-system receptors and supports	Research-system supports
<p>Timely production of research evidence: Systems produce, synthesize, curate and share (with individuals at all levels) research about problems, improvement options and implementation considerations</p>	<p>decision-making and provider, organization and system-wide rapid learning and improvement)</p> <ol style="list-style-type: none"> 1) Distributed capacity to produce and share research (including evaluations) in a timely way 2) Distributed research-ethics infrastructure that can support rapid-cycle evaluations 3) Capacity to synthesize research evidence in a timely way 4) One-stop shops for local evaluations and pre-appraised syntheses 5) Capacity to access, adapt and apply research evidence 6) Incentives and requirements for research groups to collaborate with one another, with patients, and with decision-makers 	<ul style="list-style-type: none"> • Primary Health Care Integration Network (a strategic clinical network) works with AHS knowledge-management staff to synthesize data and evidence about clinical problems and options for improvement 	<ul style="list-style-type: none"> • Alberta SPOR Primary and Integrated Health Care Innovation Network supports the development, evaluation and scale-up of new approaches to the delivery of primary and integrated healthcare services • Gaps may include academic departments of family medicine typically focusing less on producing, synthesizing, curating and sharing primary-care research (and more on clinical and educational roles)
<p>Appropriate decision supports: Systems support informed decision-making at all levels with appropriate data, evidence, and decision-making frameworks</p>	<ol style="list-style-type: none"> 1) Decision supports at all levels – self-management, clinical encounter, program, organization, regional health authority and government – such as <ol style="list-style-type: none"> a) patient-targeted evidence-based resources b) patient decision aids c) patient goal-setting supports d) clinical practice guidelines e) clinical decision support systems (including those embedded in electronic health records) f) quality standards g) care pathways h) health technology assessments i) descriptions of how the health system works 	<ul style="list-style-type: none"> • Alberta Medical Association’s Towards Optimized Practice program develops clinical practice guidelines for family physicians and community-based specialists • Gaps may include less attention to working with vendors to include clinical decision supports systems in primary-care electronic health records 	<ul style="list-style-type: none"> • None identified
<p>Aligned governance, financial and delivery arrangements: Systems adjust who can make what decisions (e.g., about joint learning priorities), how money flows and how the systems are organized and aligned to support rapid learning and improvement at all levels</p>	<ol style="list-style-type: none"> 1) Centralized coordination of efforts to adapt a rapid-learning health system approach, incrementally join up assets and fill gaps, and periodically update the status of assets and gaps 2) Mandates for preparing, sharing and reporting on quality-improvement plans 3) Mandates for accreditation 4) Funding and remuneration models that have the potential to incentivize rapid learning and improvement (e.g., focused on patient-reported outcome measures, some bundled-care funding models) 5) Value-based innovation-procurement model 6) Funding and active support to spread effective practices across sites 7) Standards for provincial expert groups to involve patients, a methodologist, use existing data and evidence to inform and justify their recommendations 	<ul style="list-style-type: none"> • 41 Primary Care Networks with more than 3,800 (or more than 80% of) family physicians support interprofessional primary care and other practice enhancements through agreements between these joint-venture partnerships and Alberta Health (which include capitation payments to fund the enhancements) • Primary Care Networks Program Management Office supports: <ul style="list-style-type: none"> ○ primary-care networks, some of which have experimented with better aligning financial arrangements ○ PCN Evolution, which is laying the groundwork for every Albertan to have a ‘primary medical home’ • Primary Care Network Governance Framework will support the creation of a PCN provincial 	<ul style="list-style-type: none"> • None identified

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Characteristic	Examples	Health-system receptors and supports	Research-system supports
	8) Mechanisms to jointly set rapid learning and improvement priorities 9) Mechanisms to identify and share the ‘reproducible building blocks’ of a rapid-learning health system	committee and five zone PCN committees to support PCNs to undertake joint service planning within a provincial framework <ul style="list-style-type: none"> • Primary Care Alliance provides a unified voice for the Alberta Medical Association’s primary-care representative groups • AHS Provincial Primary Care Program supports province-wide primary-care programs and hosts the corresponding strategic clinical network (but doesn’t share its leader with it) • Gaps may include less alignment between AHS (which operates only a small number of primary-care providers) and private primary-care practices, which are independent of AHS in ways unlike the rest of the health system and most of which still operate within a fee-for-service model (that can be a barrier to interprofessional team-based care) 	
Culture of rapid learning and improvement: Systems are stewarded at all levels by leaders committed to a culture of teamwork, collaboration and adaptability	1) Explicit mechanisms to develop a culture of teamwork, collaboration and adaptability in all operations, to develop and maintain trusted relationships with the full range of partners needed to support rapid learning and improvement, and to acknowledge, learn from and move on from ‘failure’	<ul style="list-style-type: none"> • Primary care networks, ‘Enhancing Care in the Community’ and other complementary initiatives support a culture of teamwork within primary care and among primary care, home and community care, and social care 	<ul style="list-style-type: none"> • None identified
Competencies for rapid learning and improvement: Systems are rapidly improved by teams at all levels who have the competencies needed to identify and characterize problems, design data- and evidence-informed approaches (and learn from other comparable programs, organizations, regions, and sub-regional communities about proven approaches), implement these approaches, monitor their implementation, evaluate their impact, make further adjustments as needed, sustain proven approaches locally, and support their spread widely	1) Public reporting on rapid learning and improvement 2) Distributed competencies for rapid learning and improvement (e.g., data and research literacy, co-design, scaling up, leadership) 3) In-house capacity for supporting rapid learning and improvement 4) Centralized specialized expertise in supporting rapid learning and improvement 5) Rapid-learning infrastructure (e.g., learning collaboratives)	<ul style="list-style-type: none"> • Primary Health Care Integration Network (a strategic clinical network) supports learning and improvement in primary care • PCN Evolution (as noted above) supports transitions to a ‘primary medical home’ 	<ul style="list-style-type: none"> • None identified

Table 4: Assets and gaps related to the primary-care sector in Saskatchewan’s health system

Characteristic	Examples	Health-system receptors and supports	Research-system supports
<p>Engaged patients: Systems are anchored on patient needs, perspectives and aspirations (at all levels) and focused on improving their care experiences and health at manageable per capita costs and with positive provider experiences</p>	<ol style="list-style-type: none"> 1) Set and regularly adjust patient-relevant targets for rapid learning and improvement (e.g., improvements to a particular type of patient experience or in a particular health outcome) 2) Engage patients, families and citizens in: <ol style="list-style-type: none"> a) their own health (e.g., goal setting; self-management and living well with conditions; access to personal health information, including test results) b) their own care (e.g., shared decision-making; use of patient decision aids) c) the organizations that deliver care (e.g., patient-experience surveys; co-design of programs and services; membership of quality-improvement committees and advisory councils) d) the organizations that oversee the professionals and other organizations in the system (e.g., professional regulatory bodies; quality-improvement bodies; ombudsman; and complaint processes) e) policymaking (e.g., committees making decisions about which services and drugs are covered; , government advisory councils that set direction for (parts of) the system; patient storytelling to kick off key meetings; citizen panels to elicit citizen values) f) research (e.g., engaging patients as research partners; eliciting patients’ input on research priorities) 3) Build patient/citizen capacity to engage in all of the above 	<ul style="list-style-type: none"> • <u>Saskatchewan Health Quality Council is involved in the co-design of primary healthcare survey for patients in primary-care practices, primary healthcare sites, public-health sites, or chronic-disease management programs</u> • <u>Community developers</u> work with community groups to improve primary care 	<ul style="list-style-type: none"> • <u>Saskatchewan Strategy for Patient Oriented Research (SPOR) in Primary and Integrated Health Care Innovations (PIHCI) network</u> is one of 11 networks in Canada and brings together patients, researchers and policymakers to improve research, accountability and accessibility in primary healthcare
<p>Digital capture, linkage and timely sharing of relevant data: Systems capture, link and share (with individuals at all levels) data (from real-life, not ideal conditions) about patient experiences (with services, transitions and longitudinally) and provider engagement alongside data about other process indicators (e.g., clinical encounters and costs) and outcome indicators (e.g., health status)</p>	<ol style="list-style-type: none"> 1) Data infrastructure (e.g., interoperable electronic health records; immunization or condition-specific registries; privacy policies that enable data sharing) 2) Capacity to capture patient-reported experiences (for both services and transitions), clinical encounters, outcomes and costs 3) Capacity to capture longitudinal data across time and settings 4) Capacity to link data about health, healthcare, social care, and the social determinants of health 5) Capacity to analyze data (e.g., staff and resources) 6) Capacity to share ‘local’ data (alone and against relevant comparators) – in both patient- and provider-friendly formats and in a timely way – at the point of care, for providers and practices (e.g., audit and feedback), and through a centralized platform (to support patient 	<ul style="list-style-type: none"> • Through partnership with Alberta Health Quality Council, <u>BestPractice</u> panel reports have been created to generate knowledge for family physicians about their patient population • <u>Chronic Disease Management - Quality Improvement Program</u> is a partnership between the Ministry of Health, Saskatchewan Medical Association and eHealth Saskatchewan, <u>and provides dedicated funding to support physicians to provide continuity of care to their patients with chronic conditions</u> 	<ul style="list-style-type: none"> • Saskatchewan <u>SPOR PIHCI</u> network is one of 11 networks in Canada, designed to use patient-centred research to improve the delivery of primary and integrated healthcare

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Characteristic	Examples	Health-system receptors and supports	Research-system supports
<p>Timely production of research evidence: Systems produce, synthesize, curate and share (with individuals at all levels) research about problems, improvement options and implementation considerations</p>	<p>decision-making and provider, organization and system-wide rapid learning and improvement)</p> <ol style="list-style-type: none"> 1) Distributed capacity to produce and share research (including evaluations) in a timely way 2) Distributed research ethics infrastructure that can support rapid-cycle evaluations 3) Capacity to synthesize research evidence in a timely way 4) One-stop shops for local evaluations and pre-appraised syntheses 5) Capacity to access, adapt and apply research evidence 6) Incentives and requirements for research groups to collaborate with one another, with patients, and with decision-makers 	<ul style="list-style-type: none"> • None identified 	<ul style="list-style-type: none"> • None identified
<p>Appropriate decision supports: Systems support informed decision-making at all levels with appropriate data, evidence, and decision-making frameworks</p>	<ol style="list-style-type: none"> 1) Decision supports at all levels – self-management, clinical encounter, program, organization, regional health authority and government – such as <ol style="list-style-type: none"> a) patient-targeted evidence-based resources b) patient decision aids c) patient goal-setting supports d) clinical practice guidelines e) clinical decision support systems (including those embedded in electronic health records) f) quality standards g) care pathways h) health technology assessments i) descriptions of how the health system works 	<ul style="list-style-type: none"> • None identified 	<ul style="list-style-type: none"> • None identified
<p>Aligned governance, financial and delivery arrangements: Systems adjust who can make what decisions (e.g., about joint learning priorities), how money flows and how the systems are organized and aligned to support rapid learning and improvement at all levels</p>	<ol style="list-style-type: none"> 1) Centralized coordination of efforts to adapt a rapid-learning health system approach, incrementally join up assets and fill gaps, and periodically update the status of assets and gaps 2) Mandates for preparing, sharing and reporting on quality-improvement plans 3) Mandates for accreditation 4) Funding and remuneration models that have the potential to incentivize rapid learning and improvement (e.g., focused on patient-reported outcome measures, some bundled-care funding models) 5) Value-based innovation-procurement model 6) Funding and active support to spread effective practices across sites 7) Standards for provincial expert groups to involve patients, a methodologist, use existing data and evidence to inform and justify their recommendations 8) Mechanisms to jointly set rapid-learning and improvement priorities 	<ul style="list-style-type: none"> • There is a demonstration project of a <u>new healthcare delivery model</u> in Prince Albert and Shellbrook, which was created by patients and family advisors, physicians, and health system leaders to improve care and the experience for Prince Albert and area citizens while improving the work experience of health professionals <ul style="list-style-type: none"> ○ The model will be attentive to governance and relationships, physician leadership, quality-improvement capabilities, and compensation models that align with health-system priorities ○ A multi-year plan to improve quality of care and care experience for citizens and the experience for providers 	<ul style="list-style-type: none"> • None identified

Creating Rapid-learning Health Systems in Canada: Appendix C2 Primary-care sector

Characteristic	Examples	Health-system receptors and supports	Research-system supports
	9) Mechanisms to identify and share the ‘reproducible building blocks’ of a rapid-learning health system		
<p>Culture of rapid learning and improvement: Systems are stewarded at all levels by leaders committed to a culture of teamwork, collaboration and adaptability</p>	1) Explicit mechanisms to develop a culture of teamwork, collaboration and adaptability in all operations, to develop and maintain trusted relationships with the full range of partners needed to support rapid learning and improvement, and to acknowledge, learn from and move on from ‘failure’	<ul style="list-style-type: none"> • There are examples of <u>primary care teams</u> working collaboratively with patients to improve care (e.g., Meadow Lake, Cudworth, Tisdale and Rural West) 	
<p>Competencies for rapid learning and improvement: Systems are rapidly improved by teams at all levels who have the competencies needed to identify and characterize problems, design data- and evidence-informed approaches (and learn from other comparable programs, organizations, regions, and sub-regional communities about proven approaches), implement these approaches, monitor their implementation, evaluate their impact, make further adjustments as needed, sustain proven approaches locally, and support their spread widely</p>	<ol style="list-style-type: none"> 1) Public reporting on rapid learning and improvement 2) Distributed competencies for rapid learning and improvement (e.g., data and research literacy, co-design, scaling up, leadership) 3) In-house capacity for supporting rapid learning and improvement 4) Centralized specialized expertise in supporting rapid learning and improvement 5) Rapid-learning infrastructure (e.g., learning collaboratives) 	<ul style="list-style-type: none"> • None identified 	<ul style="list-style-type: none"> • None identified

Table 5: Assets and gaps related to the primary-care sector in Manitoba’s health system

Characteristic	Examples	Health-system receptors and supports	Research-system supports
<p>Engaged patients: Systems are anchored on patient needs, perspectives and aspirations (at all levels) and focused on improving their care experiences and health at manageable per capita costs and with positive provider experiences</p>	<ol style="list-style-type: none"> 1) Set and regularly adjust patient-relevant targets for rapid learning and improvement (e.g., improvements to a particular type of patient experience or in a particular health outcome) 2) Engage patients, families and citizens in: <ol style="list-style-type: none"> a) their own health (e.g., goal setting; self-management and living well with conditions; access to personal health information, including test results) b) their own care (e.g., shared decision-making; use of patient decision aids) c) the organizations that deliver care (e.g., patient-experience surveys; co-design of programs and services; membership of quality-improvement committees and advisory councils) d) the organizations that oversee the professionals and other organizations in the system (e.g., professional regulatory bodies; quality-improvement bodies; ombudsman; and complaint processes) e) policymaking (e.g., committees making decisions about which services and drugs are covered; government advisory councils that set direction for (parts of) the system; patient storytelling to kick off key meetings; citizen panels to elicit citizen values) f) research (e.g., engaging patients as research partners; eliciting patients’ input on research priorities) 3) Build patient/citizen capacity to engage in all of the above 	<ul style="list-style-type: none"> • <u>My Health Teams</u> offer interprofessional primary-care services using evidence-informed strategies to provide: after-hours care; <u>QuickCare</u>; mobile and outreach services; health promotion and wellness; chronic-disease management; group sessions; and mental health, public health and home-care services <ul style="list-style-type: none"> ○ Health professionals work together to deliver services to a geographic area (e.g., northern Manitobans), specific community (e.g., newcomers) or population (e.g., marginally housed) ○ <u>My Health Teams</u> also coordinate care transitions across regions and levels of care • Patients have the opportunity to be engaged in self-management in primary care through: <ul style="list-style-type: none"> ○ <u>TeleCARE-TéléSOINS</u> Manitoba for heart failure or Type 2 diabetes; and ○ <u>Dial-a-Dietician</u> a direct line with a registered dietitian • <u>Home Clinic</u> (for patients to coordinate primary care and manage their health records) • Co-design is used within primary-care networks 	<ul style="list-style-type: none"> • Manitoba’s <u>SPOR Network in Primary and Integrated Health Care Innovations (PIHCI)</u> supports patient-oriented research in primary care
<p>Digital capture, linkage and timely sharing of relevant data: Systems capture, link and share (with individuals at all levels) data (from real-life, not ideal conditions) about patient experiences (with services, transitions and longitudinally) and provider engagement alongside data about other process indicators (e.g., clinical encounters and costs) and outcome indicators (e.g., health status)</p>	<ol style="list-style-type: none"> 1) Data infrastructure (e.g., interoperable electronic health records; immunization or condition-specific registries; privacy policies that enable data sharing) 2) Capacity to capture patient-reported experiences (for both services and transitions), clinical encounters, outcomes and costs 3) Capacity to capture longitudinal data across time and settings 4) Capacity to link data about health, healthcare, social care, and the social determinants of health 5) Capacity to analyze data (e.g., staff and resources) 6) Capacity to share ‘local’ data (alone and against relevant comparators) – in both patient- and provider-friendly formats and in a timely way – at the point of care, for providers and practices (e.g., audit and feedback), and through a centralized platform (to support patient 	<ul style="list-style-type: none"> • The <u>Primary Care/Community Information Systems Office</u> supports the adoption of electronic medical records including: <ul style="list-style-type: none"> ○ <u>eChart Manitoba</u>’s secure access to healthcare information for health professionals (e.g., prescriptions, lab results, immunizations and X-ray reports) • Two types of monthly reports are available to registered <u>Home Clinics</u>: <ul style="list-style-type: none"> ○ operational (e.g., provider and client enrolment and enrolled details) ○ analytic, which combines enrolment data with other sources (e.g., medical claims and primary-care quality indicators) 	<ul style="list-style-type: none"> • None identified

Characteristic	Examples	Health-system receptors and supports	Research-system supports
<p>Timely production of research evidence: Systems produce, synthesize, curate and share (with individuals at all levels) research about problems, improvement options and implementation considerations</p>	<p>decision-making and provider, organization and system-wide rapid learning and improvement)</p> <ol style="list-style-type: none"> 1) Distributed capacity to produce and share research (including evaluations) in a timely way 2) Distributed research ethics infrastructure that can support rapid-cycle evaluations 3) Capacity to synthesize research evidence in a timely way 4) One-stop shops for local evaluations and pre-appraised syntheses 5) Capacity to access, adapt and apply research evidence 6) Incentives and requirements for research groups to collaborate with one another, with patients, and with decision-makers 	<ul style="list-style-type: none"> • None identified 	<ul style="list-style-type: none"> • Seven Oaks General Hospital's Chronic Disease Innovation Centre is building clinical datasets to allow real-time access to retrospective data
<p>Appropriate decision supports: Systems support informed decision-making at all levels with appropriate data, evidence, and decision-making frameworks</p>	<ol style="list-style-type: none"> 1) Decision supports at all levels – self-management, clinical encounter, program, organization, regional health authority and government – such as <ol style="list-style-type: none"> a) patient-targeted evidence-based resources b) patient decision aids c) patient goal-setting supports d) clinical practice guidelines e) clinical decision support systems (including those embedded in electronic health records) f) quality standards g) care pathways h) health technology assessments i) descriptions of how the health system works 	<ul style="list-style-type: none"> • None identified 	<ul style="list-style-type: none"> • None identified
<p>Aligned governance, financial and delivery arrangements: Systems adjust who can make what decisions (e.g., about joint learning priorities), how money flows and how the systems are organized and aligned to support rapid learning and improvement at all levels</p>	<ol style="list-style-type: none"> 1) Centralized coordination of efforts to adapt a rapid-learning health system approach, incrementally join up assets and fill gaps, and periodically update the status of assets and gaps 2) Mandates for preparing, sharing and reporting on quality-improvement plans 3) Mandates for accreditation 4) Funding and remuneration models that have the potential to incentivize rapid learning and improvement (e.g., focused on patient-reported outcome measures, some bundled-care funding models) 5) Value-based innovation-procurement model 6) Funding and active support to spread effective practices across sites 7) Standards for provincial expert groups to involve patients, a methodologist, use existing data and evidence to inform and justify their recommendations 8) Mechanisms to jointly set rapid-learning and improvement priorities 	<ul style="list-style-type: none"> • None identified 	<ul style="list-style-type: none"> • None identified

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Characteristic	Examples	Health-system receptors and supports	Research-system supports
	9) Mechanisms to identify and share the ‘reproducible building blocks’ of a rapid-learning health system		
<p>Culture of rapid learning and improvement: Systems are stewarded at all levels by leaders committed to a culture of teamwork, collaboration and adaptability</p>	1) Explicit mechanisms to develop a culture of teamwork, collaboration and adaptability in all operations, to develop and maintain trusted relationships with the full range of partners needed to support rapid learning and improvement, and to acknowledge, learn from and move on from ‘failure’	<ul style="list-style-type: none"> • Practice improvement initiative of the College of Family Physicians of Canada to improve front-line care by using quality improvement, data and research 	<ul style="list-style-type: none"> • Manitoba Primary Care Research Network is focused on primary-care providers to improve practice through collaborative practice-based research
<p>Competencies for rapid learning and improvement: Systems are rapidly improved by teams at all levels who have the competencies needed to identify and characterize problems, design data- and evidence-informed approaches (and learn from other comparable programs, organizations, regions, and sub-regional communities about proven approaches), implement these approaches, monitor their implementation, evaluate their impact, make further adjustments as needed, sustain proven approaches locally, and support their spread widely</p>	<ol style="list-style-type: none"> 1) Public reporting on rapid learning and improvement 2) Distributed competencies for rapid learning and improvement (e.g., data and research literacy, co-design, scaling up, leadership) 3) In-house capacity for supporting rapid learning and improvement 4) Centralized specialized expertise in supporting rapid learning and improvement 5) Rapid-learning infrastructure (e.g., learning collaboratives) 	<ul style="list-style-type: none"> • None identified 	<ul style="list-style-type: none"> • None identified

Table 6: Assets and gaps related to the primary-care sector in Ontario’s health system

Characteristic	Examples	Health-system receptors and supports	Research-system supports
<p>Engaged patients: Systems are anchored on patient needs, perspectives and aspirations (at all levels) and focused on improving their care experiences and health at manageable per capita costs and with positive provider experiences</p>	<ol style="list-style-type: none"> 1) Set and regularly adjust patient-relevant targets for rapid learning and improvement (e.g., improvements to a particular type of patient experience or in a particular health outcome) 2) Engage patients, families and citizens in: <ol style="list-style-type: none"> a) their own health (e.g., goal setting; self-management and living well with conditions; access to personal health information, including test results) b) their own care (e.g., shared decision-making; use of patient decision aids) c) the organizations that deliver care (e.g., patient-experience surveys; co-design of programs and services; membership of quality-improvement committees and advisory councils) d) the organizations that oversee the professionals and other organizations in the system (e.g., professional regulatory bodies; quality-improvement bodies; ombudsman; and complaint processes) e) policymaking (e.g., committees making decisions about which services and drugs are covered; government advisory councils that set direction for (parts of) the system; patient storytelling to kick off key meetings; citizen panels to elicit citizen values) f) research (e.g., engaging patients as research partners; eliciting patients’ input on research priorities) 3) Build patient/citizen capacity to engage in all of the above 	<ul style="list-style-type: none"> • Patient and Family Advisory Councils (PFACs) help to set direction for community-governed primary-care teams • HQO, the Association of Family Health Teams of Ontario and the Alliance for Healthier Communities provide resources to support primary-care organizations in patient engagement • Gaps may include: 1) the limited supports for self-management and living well in primary care; 2) the limited supports and incentives for shared decision-making in primary care; 3) the lack of mandate for PFACs, or reporting about patient-experience data in quality-improvement plans, in primary care outside interprofessional team models 	<ul style="list-style-type: none"> • None identified
<p>Digital capture, linkage and timely sharing of relevant data: Systems capture, link and share (with individuals at all levels) data (from real-life, not ideal conditions) about patient experiences (with services, transitions and longitudinally) and provider engagement alongside data about other process indicators (e.g., clinical encounters and costs) and outcome indicators (e.g., health status)</p>	<ol style="list-style-type: none"> 1) Data infrastructure (e.g., interoperable electronic health records; immunization or condition-specific registries; privacy policies that enable data sharing) 2) Capacity to capture patient-reported experiences (for both services and transitions), clinical encounters, outcomes and costs 3) Capacity to capture longitudinal data across time and settings 4) Capacity to link data about health, healthcare, social care, and the social determinants of health 5) Capacity to analyze data (e.g., staff and resources) 6) Capacity to share ‘local’ data (alone and against relevant comparators) – in both patient- and provider-friendly formats and in a timely way – at the point of care, for providers and practices (e.g., audit and feedback), and through a centralized platform (to support patient 	<ul style="list-style-type: none"> • Some primary-care organizations collect patient experience data (e.g., using a survey developed by the Association of Family Health Teams of Ontario) • Health Care Experiences Survey (formerly the Primary Care Access Survey) is commissioned annually by the ministry, and the Commonwealth Fund’s annual survey sometimes addresses primary care • HQO’s MyPractice reports provide practice-level performance data for primary-care providers • Electronic Medical Record Administrative Data Linked Database (EMRALD) provides clinically relevant information derived from electronic health records maintained by family physicians 	<ul style="list-style-type: none"> • None identified

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Characteristic	Examples	Health-system receptors and supports	Research-system supports
	decision-making and provider, organization and system-wide rapid learning and improvement)	practising in Ontario, which can be linked to administrative databases held at ICES <ul style="list-style-type: none"> Gaps may include: 1) few primary-care organizations outside interprofessional team models have the staff and infrastructure to collect, analyze and present locally contextualized data to support learning and improvement; and 2) HQO's MyPractice reports are only sent to those who subscribe to them, and the reports don't yet provide comparators that reflect comparable patient populations or focus on indicators that have been prioritized by patients and primary-care providers 	
Timely production of research evidence: Systems produce, synthesize, curate and share (with individuals at all levels) research about problems, improvement options and implementation considerations	<ol style="list-style-type: none"> Distributed capacity to produce and share research (including evaluations) in a timely way Distributed research ethics infrastructure that can support rapid-cycle evaluations Capacity to synthesize research evidence in a timely way One-stop shops for local evaluations and pre-appraised syntheses Capacity to access, adapt and apply research evidence Incentives and requirements for research groups to collaborate with one another, with patients, and with decision-makers 	<ul style="list-style-type: none"> None identified 	<ul style="list-style-type: none"> INSPIRE (Innovations Strengthening Primary Healthcare through Research) and BeACCoN (Better Access and Care for Complex Needs), both funded by the ministry, conduct research in primary care and use 25% of their funds to respond to emerging research requests by decision-makers (called Applied Health Research Questions) Primary Health Care Patient Engagement Resource Centre provides tools and resources to support patient engagement in primary-care research
Appropriate decision supports: Systems support informed decision-making at all levels with appropriate data, evidence, and decision-making frameworks	<ol style="list-style-type: none"> Decision supports at all levels – self-management, clinical encounter, program, organization, regional health authority and government – such as <ol style="list-style-type: none"> patient-targeted evidence-based resources patient decision aids patient goal-setting supports clinical practice guidelines clinical decision support systems (including those embedded in electronic health records) quality standards care pathways health technology assessments descriptions of how the health system works 	<ul style="list-style-type: none"> Health Quality Ontario and other groups make recommendations to providers about optimal primary care Gaps may include the lack of awareness among many primary-care teams of existing decision supports 	<ul style="list-style-type: none"> Centre for Effective Practice provides support for electronic health record integration and evidence use
Aligned governance, financial and delivery arrangements: Systems adjust who can make what decisions (e.g., about joint learning priorities), how money flows and how the systems are	<ol style="list-style-type: none"> Centralized coordination of efforts to adapt a rapid-learning health system approach, incrementally join up assets and fill gaps, and periodically update the status of assets and gaps Mandates for preparing, sharing and reporting on quality-improvement plans Mandates for accreditation 	<ul style="list-style-type: none"> Interprofessional team-based primary-care organizations are now required to prepare, share and report on quality-improvement plans LHIN sub-regions, and primary-care networks within them, will provide the basis for community-driven decisions about rapid-learning and improvement priorities, approaches, etc. (if 	<ul style="list-style-type: none"> UWO's Centre for Studies in Family Medicine is working with the Alliance for Healthier Communities to support its use of a rapid-learning health system as the organizing framework for much of its work with community-governed primary-care organizations

Creating Rapid-learning Health Systems in Canada: Appendix C2 Primary-care sector

Characteristic	Examples	Health-system receptors and supports	Research-system supports
<p>organized and aligned to support rapid learning and improvement at all levels</p>	<ol style="list-style-type: none"> 4) Funding and remuneration models that have the potential to incentivize rapid learning and improvement (e.g., focused on patient-reported outcome measures, some bundled-care funding models) 5) Value-based innovation-procurement model 6) Funding and active support to spread effective practices across sites 7) Standards for provincial expert groups to involve patients, a methodologist, use existing data and evidence to inform and justify their recommendations 8) Mechanisms to jointly set rapid-learning and improvement priorities 9) Mechanisms to identify and share the ‘reproducible building blocks’ of a rapid-learning health system 	<p>the new governing party does not change this plan)</p> <ul style="list-style-type: none"> • Gaps may include the lack of requirements for other types of primary-care organizations to prepare, share and report on quality-improvement plans, and the lack of incentives or supports for primary-care providers to enter data appropriately 	
<p>Culture of rapid learning and improvement: Systems are stewarded at all levels by leaders committed to a culture of teamwork, collaboration and adaptability</p>	<ol style="list-style-type: none"> 1) Explicit mechanisms to develop a culture of teamwork, collaboration and adaptability in all operations, to develop and maintain trusted relationships with the full range of partners needed to support rapid learning and improvement, and to acknowledge, learn from and move on from ‘failure’ 	<ul style="list-style-type: none"> • <u>Primary-care funding models</u> have supported the emergence of more team-based primary care • Many community-care governed primary-care organizations are explicitly developing a culture of rapid learning and improvement • Gaps may include the limited focus of other types of primary-care organizations on developing a culture of rapid learning and improvement 	<ul style="list-style-type: none"> • None identified
<p>Competencies for rapid learning and improvement: Systems are rapidly improved by teams at all levels who have the competencies needed to identify and characterize problems, design data- and evidence-informed approaches (and learn from other comparable programs, organizations, regions, and sub-regional communities about proven approaches), implement these approaches, monitor their implementation, evaluate their impact, make further adjustments as needed, sustain proven approaches locally, and support their spread widely</p>	<ol style="list-style-type: none"> 1) Public reporting on rapid learning and improvement 2) Distributed competencies for rapid learning and improvement (e.g., data and research literacy, co-design, scaling up, leadership) 3) In-house capacity for supporting rapid learning and improvement 4) Centralized specialized expertise in supporting rapid learning and improvement 5) Rapid-learning infrastructure (e.g., learning collaboratives) 	<ul style="list-style-type: none"> • Ontario College of Family Physicians has supported communities of practice and mentorship networks focused on opioid management and medical assistance in dying 	<ul style="list-style-type: none"> • Gaps may include the lack of a distributed model of data and research supports across primary care

Table 7: Assets and gaps related to the primary-care sector in Quebec’s health system

Characteristic	Examples	Health-system receptors and supports	Research-system supports
<p>Engaged patients: Systems are anchored on patient needs, perspectives and aspirations (at all levels) and focused on improving their care experiences and health at manageable per capita costs and with positive provider experiences</p>	<ol style="list-style-type: none"> 1) Set and regularly adjust patient-relevant targets for rapid learning and improvement (e.g., improvements to a particular type of patient experience or in a particular health outcome) 2) Engage patients, families and citizens in: <ol style="list-style-type: none"> a. their own health (e.g., goal setting; self-management and living well with conditions; access to personal health information, including test results) b. their own care (e.g., shared decision-making; use of patient decision aids) c. the organizations that deliver care (e.g., patient-experience surveys; co-design of programs and services; membership of quality-improvement committees and advisory councils) d. the organizations that oversee the professionals and other organizations in the system (e.g., professional regulatory bodies; quality-improvement bodies; ombudsman; and complaint processes) e. policymaking (e.g., committees making decisions about which services and drugs are covered; government advisory councils that set direction for (parts of) the system; patient storytelling to kick off key meetings; citizen panels to elicit citizen values) f. research (e.g., engaging patients as research partners; eliciting patients’ input on research priorities) 3) Build patient/citizen capacity to engage in all of the above 	<ul style="list-style-type: none"> • Institut universitaire de première ligne en santé et services sociaux supports the engagement of users, family members, citizens and communities in quality-improvement initiatives • Groupes de médecine de famille universitaire (GMF-U) across the province increasingly engage patient partners in their governance structures and processes 	<ul style="list-style-type: none"> • Unité SOUTIEN SRAP Québec, which is focused on primary care, provides training and support for patient-oriented research and patient partnership in research • Réseau-1 Québec (R1Q) engages patients, clinicians, managers in its governance and strategic working groups, in setting research priorities; supports the inclusion of partners in front-line practice-based research networks (PRPPLs); and supports a forum of patient and clinician partners
<p>Digital capture, linkage and timely sharing of relevant data: Systems capture, link and share (with individuals at all levels) data (from real-life, not ideal conditions) about patient experiences (with services, transitions and longitudinally) and provider engagement alongside data about other process indicators (e.g., clinical encounters and costs) and outcome indicators (e.g., health status)</p>	<ol style="list-style-type: none"> 1) Data infrastructure (e.g., interoperable electronic health records; immunization or condition-specific registries; privacy policies that enable data sharing) 2) Capacity to capture patient-reported experiences (for both services and transitions), clinical encounters, outcomes and costs 3) Capacity to capture longitudinal data across time and settings 4) Capacity to link data about health, healthcare, social care, and the social determinants of health 5) Capacity to analyze data (e.g., staff and resources) 6) Capacity to share ‘local’ data (alone and against relevant comparators) – in both patient- and provider-friendly formats and in a timely way – at the point of care, for providers and practices (e.g., audit and feedback), and through a centralized platform (to support patient 	<ul style="list-style-type: none"> • Régie de l'assurance maladie du Québec (RAMQ) and MSSS share quarterly data on the primary-care sector, including: <ul style="list-style-type: none"> ○ percentage of people registered with a family doctor ○ average attendance rate of all family physicians with regard to their clientele ○ number of people enrolled in each family medicine group ○ attendance rate of physicians in each family medicine group ○ total number of visits to the emergency department of a health and social services institution with a triage priority of level 4 or 5 ○ proportion of this number compared to all visits to the emergency department 	<ul style="list-style-type: none"> • INESSS and Unité SOUTIEN SRAP Québec (in collaboration with Réseau-1 Québec and other key stakeholders) produced recommendations about the use of clinical data from electronic health records to conduct research and continuously improve the quality of primary-care services (in the context of a rapid-learning health system) • Unité SOUTIEN SRAP Québec is aiming to establish national and international collaborations on infrastructure projects or secondary data analysis focused on primary care

Creating Rapid-learning Health Systems in Canada: Appendix C2 Primary-care sector

Characteristic	Examples	Health-system receptors and supports	Research-system supports
	decision-making and provider, organization and system-wide rapid learning and improvement)	<ul style="list-style-type: none"> • <u>INCESS</u> defined quality indicators for professionals and managers in primary-care sector (focus on cardiovascular diseases, Type 1 and 2 diabetes in adults, dyslipidemia, and respiratory diseases) • Gaps may include the challenge of accessing electronic medical record data due to the diversity of existing systems, the complexity of the extraction process and the heterogeneity of the data 	
Timely production of research evidence: Systems produce, synthesize, curate and share (with individuals at all levels) research about problems, improvement options and implementation considerations	<ol style="list-style-type: none"> 1) Distributed capacity to produce and share research (including evaluations) in a timely way 2) Distributed research ethics infrastructure that can support rapid-cycle evaluations 3) Capacity to synthesize research evidence in a timely way 4) One-stop shops for local evaluations and pre-appraised syntheses 5) Capacity to access, adapt and apply research evidence 6) Incentives and requirements for research groups to collaborate with one another, with patients, and with decision-makers 	<ul style="list-style-type: none"> • None identified 	<ul style="list-style-type: none"> • <u>Unité SOUTIEN SRAP Québec</u> provides strategic consultation and support to primary-care researchers, and is leading work to facilitate and support the conduct of clinical and evaluative studies in real settings, including support in conducting pragmatic trials • <u>Réseau-1 Québec</u> (R1Q) is a knowledge network focused on producing and disseminating research evidence on integrated primary-care services; its work rests on two founding values (i.e., patient-oriented research 3.0 and practice-based research network approach) which aims to support rapid-learning health systems
Appropriate decision supports: Systems support informed decision-making at all levels with appropriate data, evidence, and decision-making frameworks	<ol style="list-style-type: none"> 1) Decision supports at all levels – self-management, clinical encounter, program, organization, regional health authority and government – such as <ol style="list-style-type: none"> a. patient-targeted evidence-based resources b. patient decision aids c. patient goal-setting supports d. clinical practice guidelines e. clinical decision support systems (including those embedded in electronic health records) f. quality standards g. care pathways h. health technology assessments i. descriptions of how the health system works 	<ul style="list-style-type: none"> • <u>Concerto</u> produces and supports the implementation of computerized care pathways designed for interdisciplinary practice in family medicine 	<ul style="list-style-type: none"> • None identified
Aligned governance, financial and delivery arrangements: Systems adjust who can make what decisions (e.g., about joint learning priorities), how money flows and how the systems are	<ol style="list-style-type: none"> 1) Centralized coordination of efforts to adapt a rapid-learning health system approach, incrementally join up assets and fill gaps, and periodically update the status of assets and gaps 2) Mandates for preparing, sharing and reporting on quality-improvement plans 3) Mandates for accreditation 	<ul style="list-style-type: none"> • MSSS is providing guidance to interprofessional team-based primary-care organizations to produce and share quality-improvement plans (and to incorporate equity considerations in these plans) 	<ul style="list-style-type: none"> • None identified

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Characteristic	Examples	Health-system receptors and supports	Research-system supports
<p>organized and aligned to support rapid learning and improvement at all levels</p>	<ol style="list-style-type: none"> 4) Funding and remuneration models that have the potential to incentivize rapid learning and improvement (e.g., focused on patient-reported outcome measures, some bundled-care funding models) 5) Value-based innovation-procurement model 6) Funding and active support to spread effective practices across sites 7) Standards for provincial expert groups to involve patients, a methodologist, use existing data and evidence to inform and justify their recommendations 8) Mechanisms to jointly set rapid-learning and improvement priorities 9) Mechanisms to identify and share the ‘reproducible building blocks’ of a rapid-learning health system 		
<p>Culture of rapid learning and improvement: Systems are stewarded at all levels by leaders committed to a culture of teamwork, collaboration and adaptability</p>	<ol style="list-style-type: none"> 1) Explicit mechanisms to develop a culture of teamwork, collaboration and adaptability in all operations, to develop and maintain trusted relationships with the full range of partners needed to support rapid learning and improvement, and to acknowledge, learn from and move on from ‘failure’ 	<ul style="list-style-type: none"> • A Quality Improvement Advisor and Continuous Quality Improvement Officers are in place as part of the Management Framework for University Family Medicine Groups (GMF-U). • The creation of Family Medicine Groups fostered distributed leadership in primary care, which could be leveraged to stimulate and support a rapid-learning health system 	<ul style="list-style-type: none"> • None identified
<p>Competencies for rapid learning and improvement: Systems are rapidly improved by teams at all levels who have the competencies needed to identify and characterize problems, design data- and evidence-informed approaches (and learn from other comparable programs, organizations, regions, and sub-regional communities about proven approaches), implement these approaches, monitor their implementation, evaluate their impact, make further adjustments as needed, sustain proven approaches locally, and support their spread widely</p>	<ol style="list-style-type: none"> 1) Public reporting on rapid learning and improvement 2) Distributed competencies for rapid learning and improvement (e.g., data and research literacy, co-design, scaling up, leadership) 3) In-house capacity for supporting rapid learning and improvement 4) Centralized specialized expertise in supporting rapid learning and improvement 5) Rapid-learning infrastructure (e.g., learning collaboratives) 	<ul style="list-style-type: none"> • INSPQ offers ad hoc support to public-health professionals to better assess the relevance and understand the implications of establishing communities of practice • INSPQ has implemented a continuing-education program (which includes the Journées annuelles de santé publique and a virtual campus) 	<ul style="list-style-type: none"> • Réseau-1 Québec (R1Q) evaluates the capacity-building needs of its members; supports the development of skills by members in 3.0 patient-oriented research; promotes the development of a stimulating learning network and the dynamic exchange between the different members of the network; supports mentoring of members with respect to their research projects, training needs and career; strengthens the leadership of members in research; creates partnerships (e.g., SPOR SUPPORT Units, TUTOR-PHC); and collaborates with other pan-Canadian SPOR networks to share and leverage resources and tools, and create a shared vision for capacity building. • International Research Community on Multimorbidity (hosted at the Université de Sherbrooke) is a virtual community bringing together researchers and healthcare professionals to contribute to new understandings and approaches to address multimorbidity in primary care

Table 8: Assets and gaps related to the primary-care sector in New Brunswick’s health system

Characteristic	Examples	Health-system receptors and supports	Research-system supports
<p>Engaged patients: Systems are anchored on patient needs, perspectives and aspirations (at all levels) and focused on improving their care experiences and health at manageable per capita costs and with positive provider experiences</p>	<ol style="list-style-type: none"> 1) Set and regularly adjust patient-relevant targets for rapid learning and improvement (e.g., improvements to a particular type of patient experience or in a particular health outcome) 2) Engage patients, families and citizens in: <ol style="list-style-type: none"> a) their own health (e.g., goal setting; self-management and living well with conditions; access to personal health information, including test results) b) their own care (e.g., shared decision-making; use of patient decision aids) c) the organizations that deliver care (e.g., patient-experience surveys; co-design of programs and services; membership of quality-improvement committees and advisory councils) d) the organizations that oversee the professionals and other organizations in the system (e.g., professional regulatory bodies; quality-improvement bodies; ombudsman; and complaint processes) e) policymaking (e.g., committees making decisions about which services and drugs are covered; government advisory councils that set direction for (parts of) the system; patient storytelling to kick off key meetings; citizen panels to elicit citizen values) f) research (e.g., engaging patients as research partners; eliciting patients’ input on research priorities) 3) Build patient/citizen capacity to engage in all of the above 	<ul style="list-style-type: none"> • Gaps may include the lack of a clear accountability framework for primary care with clear performance indicators 	<ul style="list-style-type: none"> • New Brunswick SPOR Network in Primary and Integrated Health Care Innovations hosted its inaugural Patients' Den, during which researchers had to pitch their projects to a panel of judges made up of patient advisors
<p>Digital capture, linkage and timely sharing of relevant data: Systems capture, link and share (with individuals at all levels) data (from real-life, not ideal conditions) about patient experiences (with services, transitions and longitudinally) and provider engagement alongside data about other process indicators (e.g., clinical encounters and costs) and outcome indicators (e.g., health status)</p>	<ol style="list-style-type: none"> 1) Data infrastructure (e.g., interoperable electronic health records; immunization or condition-specific registries; privacy policies that enable data sharing) 2) Capacity to capture patient-reported experiences (for both services and transitions), clinical encounters, outcomes and costs 3) Capacity to capture longitudinal data across time and settings 4) Capacity to link data about health, healthcare, social care, and the social determinants of health 5) Capacity to analyze data (e.g., staff and resources) 6) Capacity to share 'local' data (alone and against relevant comparators) – in both patient- and provider-friendly formats and in a timely way – at the point of care, for providers and practices (e.g., audit and feedback), and through a centralized platform (to support patient 	<ul style="list-style-type: none"> • New Brunswick Health Council's primary health survey aims to understand and report on New Brunswickers' experiences with primary health services, more specifically at the community level 	<ul style="list-style-type: none"> • None identified

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Characteristic	Examples	Health-system receptors and supports	Research-system supports
<p>Timely production of research evidence: Systems produce, synthesize, curate and share (with individuals at all levels) research about problems, improvement options and implementation considerations</p>	<p>decision-making and provider, organization and system-wide rapid learning and improvement)</p> <ol style="list-style-type: none"> 1) Distributed capacity to produce and share research (including evaluations) in a timely way 2) Distributed research ethics infrastructure that can support rapid-cycle evaluations 3) Capacity to synthesize research evidence in a timely way 4) One-stop shops for local evaluations and pre-appraised syntheses 5) Capacity to access, adapt and apply research evidence 6) Incentives and requirements for research groups to collaborate with one another, with patients, and with decision-makers 	<ul style="list-style-type: none"> • None identified 	<ul style="list-style-type: none"> • New Brunswick SPOR Network in Primary and Integrated Health Care Innovations focuses on “patients with complex needs across the life span”, capacity building of expertise in the province, and knowledge-translation strategies
<p>Appropriate decision supports: Systems support informed decision-making at all levels with appropriate data, evidence, and decision-making frameworks</p>	<ol style="list-style-type: none"> 1) Decision supports at all levels – self-management, clinical encounter, program, organization, regional health authority and government – such as <ol style="list-style-type: none"> a) patient-targeted evidence-based resources b) patient decision aids c) patient goal-setting supports d) clinical practice guidelines e) clinical decision support systems (including those embedded in electronic health records) f) quality standards g) care pathways h) health technology assessments i) descriptions of how the health system works 	<ul style="list-style-type: none"> • None identified 	<ul style="list-style-type: none"> • None identified
<p>Aligned governance, financial and delivery arrangements: Systems adjust who can make what decisions (e.g., about joint learning priorities), how money flows and how the systems are organized and aligned to support rapid learning and improvement at all levels</p>	<ol style="list-style-type: none"> 1) Centralized coordination of efforts to adapt a rapid-learning health system approach, incrementally join up assets and fill gaps, and periodically update the status of assets and gaps 2) Mandates for preparing, sharing and reporting on quality-improvement plans 3) Mandates for accreditation 4) Funding and remuneration models that have the potential to incentivize rapid learning and improvement (e.g., focused on patient-reported outcome measures, some bundled-care funding models) 5) Value-based innovation-procurement model 6) Funding and active support to spread effective practices across sites 7) Standards for provincial expert groups to involve patients, a methodologist, use existing data and evidence to inform and justify their recommendations 8) Mechanisms to jointly set rapid-learning and improvement priorities 	<ul style="list-style-type: none"> • Vitalité Health Network wants to shift toward primary care with major emphasis on ambulatory and community care as well as home care 	<ul style="list-style-type: none"> • None identified

Characteristic	Examples	Health-system receptors and supports	Research-system supports
	9) Mechanisms to identify and share the ‘reproducible building blocks’ of a rapid-learning health system		
<p>Culture of rapid learning and improvement: Systems are stewarded at all levels by leaders committed to a culture of teamwork, collaboration and adaptability</p>	1) Explicit mechanisms to develop a culture of teamwork, collaboration and adaptability in all operations, to develop and maintain trusted relationships with the full range of partners needed to support rapid learning and improvement, and to acknowledge, learn from and move on from ‘failure’	<ul style="list-style-type: none"> • None identified 	<ul style="list-style-type: none"> • None identified
<p>Competencies for rapid learning and improvement: Systems are rapidly improved by teams at all levels who have the competencies needed to identify and characterize problems, design data- and evidence-informed approaches (and learn from other comparable programs, organizations, regions, and sub-regional communities about proven approaches), implement these approaches, monitor their implementation, evaluate their impact, make further adjustments as needed, sustain proven approaches locally, and support their spread widely</p>	<ol style="list-style-type: none"> 1) Public reporting on rapid learning and improvement 2) Distributed competencies for rapid learning and improvement (e.g., data and research literacy, co-design, scaling up, leadership) 3) In-house capacity for supporting rapid learning and improvement 4) Centralized specialized expertise in supporting rapid learning and improvement 5) Rapid-learning infrastructure (e.g., learning collaboratives) 	<ul style="list-style-type: none"> • None identified 	<ul style="list-style-type: none"> • None identified

Table 9: Assets and gaps related to the primary-care sector in Nova Scotia’s health system

Characteristic	Examples	Health-system receptors and supports	Research-system supports
<p>Engaged patients: Systems are anchored on patient needs, perspectives and aspirations (at all levels) and focused on improving their care experiences and health at manageable per capita costs and with positive provider experiences</p>	<ol style="list-style-type: none"> 1) Set and regularly adjust patient-relevant targets for rapid learning and improvement (e.g., improvements to a particular type of patient experience or in a particular health outcome) 2) Engage patients, families and citizens in: <ol style="list-style-type: none"> a) their own health (e.g., goal setting; self-management and living well with conditions; access to personal health information, including test results) b) their own care (e.g., shared decision-making; use of patient decision aids) c) the organizations that deliver care (e.g., patient-experience surveys; co-design of programs and services; membership of quality-improvement committees and advisory councils) d) the organizations that oversee the professionals and other organizations in the system (e.g., professional regulatory bodies; quality-improvement bodies; ombudsman; and complaint processes) e) policymaking (e.g., committees making decisions about which services and drugs are covered; government advisory councils that set direction for (parts of) the system; patient storytelling to kick off key meetings; citizen panels to elicit citizen values) f) research (e.g., engaging patients as research partners; eliciting patients’ input on research priorities) 3) Build patient/citizen capacity to engage in all of the above 	<ul style="list-style-type: none"> • MyHealthNS enables patient access to laboratory results and other key health information about primary care • You’re in Charge program is a chronic-disease prevention and management program run out of the primary-care sector designed to help teens manage their own conditions • Your Way to Wellness is a community-based program for those living with chronic disease and supports them in managing their own conditions • Some primary-care providers use patient decision aids or more informal approaches to support shared decision-making on an ad hoc basis • Gaps include lack of widespread engagement of patients in the primary-care sector beyond the work occurring at the systems level, and a lack of patient-engagement activities in organizations and policymaking specific to the primary-care sector 	<ul style="list-style-type: none"> • Many of the initiatives identified in the systems table run by the Maritime SPOR SUPPORT Unit touch on primary-care topics though are not specific to the sector

<p>Digital capture, linkage and timely sharing of relevant data: Systems capture, link and share (with individuals at all levels) data (from real-life, not ideal conditions) about patient experiences (with services, transitions and longitudinally) and provider engagement alongside data about other process indicators (e.g., clinical encounters and costs) and outcome indicators (e.g., health status)</p>	<ol style="list-style-type: none"> 1) Data infrastructure (e.g., interoperable electronic health records; immunization or condition-specific registries; privacy policies that enable data sharing) 2) Capacity to capture patient-reported experiences (for both services and transitions), clinical encounters, outcomes and costs 3) Capacity to capture longitudinal data across time and settings 4) Capacity to link data about health, healthcare, social care, and the social determinants of health 5) Capacity to analyze data (e.g., staff and resources) 6) Capacity to share 'local' data (alone and against relevant comparators) – in both patient- and provider-friendly formats and in a timely way – at the point of care, for providers and practices (e.g., audit and feedback), and through a centralized platform (to support patient decision-making and provider, organization and system-wide rapid learning and improvement) 	<ul style="list-style-type: none"> • Primary Healthcare Information Management Program supports the use of electronic medical records to manage patient information and allows the receipt of relevant information from hospitals including imaging results, lab tests and hospital reports • Privacy policies are in place to support sharing of data between health professionals and also permit patients to see who has viewed their information, however the extent to which primary-care patients find the information provided useful remains in question 	<ul style="list-style-type: none"> • Select projects undertaken by the Building Research for Integrated Primary Healthcare in Nova Scotia network have piloted approaches to link data and research findings about health and social care as well as the social determinants of health (see 'timely production of research evidence' for more information)
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<p>Timely production of research evidence: Systems produce, synthesize, curate and share (with individuals at all levels) research about problems, improvement options and implementation considerations</p>	<ol style="list-style-type: none"> 1) Distributed capacity to produce and share research (including evaluations) in a timely way 2) Distributed research ethics infrastructure that can support rapid-cycle evaluations 3) Capacity to synthesize research evidence in a timely way 4) One-stop shops for local evaluations and pre-appraised syntheses 5) Capacity to access, adapt and apply research evidence 6) Incentives and requirements for research groups to collaborate with one another, with patients, and with decision-makers 	<ul style="list-style-type: none"> • None identified 	<ul style="list-style-type: none"> • <u>Building Research for Integrated Primary Healthcare</u> is a Nova Scotia-based research network that examines ways to improve access to care for those with complex healthcare needs, including through: <ul style="list-style-type: none"> ○ the development of specific pilot programs for complex health needs, including trials for case management, screening for poverty and related social determinants, and improving medication use among older adults ○ the production of knowledge syntheses related to priority issues in primary care and care for those with complex health needs ○ comparative program and policy reports that examine select frameworks from other jurisdictions and their potential application to the Nova Scotian health system • <u>Collaborative Research in Primary Health Care</u> brings together cross-faculty researchers to create and synthesize existing knowledge on effectiveness of new approaches to primary healthcare • Gaps may include incentives and requirements for research groups to collaborate with one another, with patients and with decision-makers
<p>Appropriate decision supports: Systems support informed decision-making at all levels with appropriate data, evidence, and decision-making frameworks</p>	<ol style="list-style-type: none"> 1) Decision supports at all levels – self-management, clinical encounter, program, organization, regional health authority and government – such as <ol style="list-style-type: none"> a) patient-targeted evidence-based resources b) patient decision aids c) patient goal-setting supports d) clinical practice guidelines e) clinical decision support systems (including those embedded in electronic health records) f) quality standards g) care pathways h) health technology assessments i) descriptions of how the health system works 	<ul style="list-style-type: none"> • <u>Building a Better Tomorrow Together</u> program provides continuing medical education for primary health providers on team development and collaboration, including on understanding primary healthcare, chronic disease self-management support and introductions into culture competence • Some family physicians use patient decision aids to support individuals and their families to make care decisions • Professional colleges (e.g., College of Physicians and Surgeons and College of Registered Nurses of Nova Scotia) produce clinical practice guidelines related to the delivery of primary care 	<ul style="list-style-type: none"> • None identified

<p>Aligned governance, financial and delivery arrangements: Systems adjust who can make what decisions (e.g., about joint learning priorities), how money flows and how the systems are organized and aligned to support rapid learning and improvement at all levels</p>	<ol style="list-style-type: none"> 1) Centralized coordination of efforts to adapt a rapid-learning health system approach, incrementally join up assets and fill gaps, and periodically update the status of assets and gaps 2) Mandates for preparing, sharing and reporting on quality-improvement plans 3) Mandates for accreditation 4) Funding and remuneration models that have the potential to incentivize rapid learning and improvement (e.g., focused on patient-reported outcome measures, some bundled-care funding models) 5) Value-based innovation-procurement model 6) Funding and active support to spread effective practices across sites 7) Standards for provincial expert groups to involve patients, a methodologist, use existing data and evidence to inform and justify their recommendations 8) Mechanisms to jointly set rapid-learning and improvement priorities 9) Mechanisms to identify and share the ‘reproducible building blocks’ of a rapid-learning health system 	<ul style="list-style-type: none"> • Approximately 50 collaborative practice teams have been established in the province that include doctors, nurses, social workers, mental health professionals and others • A \$12,000 stipend is available for family physicians who enrol their patients in MyHealthNS • Alternative payments have been put in place to incentivize telephone visits in primary care • \$2.4 million investment has been earmarked for the creation of 20 new spaces for family-practice residents in the province • Gaps include a lack of centralized mechanism to jointly set rapid-learning and improvement priorities or to identify reproducible building blocks 	<ul style="list-style-type: none"> • Building Research for Integrated Primary Healthcare network funds a wide range of research projects related to primary care and complex patients
<p>Culture of rapid learning and improvement: Systems are stewarded at all levels by leaders committed to a culture of teamwork, collaboration and adaptability</p>	<ol style="list-style-type: none"> 1) Explicit mechanisms to develop a culture of teamwork, collaboration and adaptability in all operations, to develop and maintain trusted relationships with the full range of partners needed to support rapid learning and improvement, and to acknowledge, learn from and move on from ‘failure’ 	<ul style="list-style-type: none"> • Changes to the models of care and their funding arrangements have supported the emergence of 50 collaborative family-practice teams 	<ul style="list-style-type: none"> • Building Research for Integrated Primary Healthcare network aims to build capacity for research and create partnerships between primary care and other health-system sectors, as well as looking beyond the health system to connections with social services that are critical for those with complex needs such as education, housing and social services • Long-term goals of the Collaborative Research in Primary Health Care is to create interdisciplinary collaborative research by partnering with internal and external groups, however this effort is ongoing

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<p>Competencies for rapid learning and improvement: Systems are rapidly improved by teams at all levels who have the competencies needed to identify and characterize problems, design data- and evidence-informed approaches (and learn from other comparable programs, organizations, regions, and sub-regional communities about proven approaches), implement these approaches, monitor their implementation, evaluate their impact, make further adjustments as needed, sustain proven approaches locally, and support their spread widely</p>	<ol style="list-style-type: none"> 1) Public reporting on rapid learning and improvement 2) Distributed competencies for rapid learning and improvement (e.g., data and research literacy, co-design, scaling up, leadership) 3) In-house capacity for supporting rapid learning and improvement 4) Centralized specialized expertise in supporting rapid learning and improvement 5) Rapid-learning infrastructure (e.g., learning collaboratives) 	<ul style="list-style-type: none"> • None identified 	<ul style="list-style-type: none"> • None identified
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Table 10: Assets and gaps related to the primary-care sector in Prince Edward Island’s health system

Characteristic	Examples	Health-system receptors and supports	Research-system supports
<p>Engaged patients: Systems are anchored on patient needs, perspectives and aspirations (at all levels) and focused on improving their care experiences and health at manageable per capita costs and with positive provider experiences</p>	<ul style="list-style-type: none"> • Set and regularly adjust patient-relevant targets for rapid learning and improvement (e.g., improvements to a particular type of patient experience or in a particular health outcome) • Engage patients, families and citizens in: <ul style="list-style-type: none"> ○ their own health (e.g., goal setting; self-management and living well with conditions; access to personal health information, including test results) ○ their own care (e.g., shared decision-making; use of patient decision aids) ○ the organizations that deliver care (e.g., patient-experience surveys; co-design of programs and services; membership of quality-improvement committees and advisory councils) ○ the organizations that oversee the professionals and other organizations in the system (e.g., professional regulatory bodies; quality-improvement bodies; ombudsman; and complaint processes) ○ policymaking (e.g., committees making decisions about which services and drugs are covered; government advisory councils that set direction for (parts of) the system; patient storytelling to kick off key meetings; citizen panels to elicit citizen values) ○ research (e.g., engaging patients as research partners; eliciting patients’ input on research priorities) • Build patient/citizen capacity to engage in all of the above 	<ul style="list-style-type: none"> • One-off <u>public survey</u> in 2013 was used to facilitate discussions and identify priorities on how to appropriately address gaps in access to primary-care services 	<ul style="list-style-type: none"> • Patient advisors have been established for SPOR Network in Primary and Integrated Health Care Innovation Project focused on primary care
<p>Digital capture, linkage and timely sharing of relevant data: Systems capture, link and share (with individuals at all levels) data (from real-life, not ideal conditions) about patient experiences (with services, transitions and longitudinally) and provider engagement alongside data about other process indicators (e.g., clinical encounters and costs) and outcome indicators (e.g., health status)</p>	<ul style="list-style-type: none"> • Data infrastructure (e.g., interoperable electronic health records; immunization or condition-specific registries; privacy policies that enable data sharing) • Capacity to capture patient-reported experiences (for both services and transitions), clinical encounters, outcomes and costs • Capacity to capture longitudinal data across time and settings • Capacity to link data about health, healthcare, social care, and the social determinants of health • Capacity to analyze data (e.g., staff and resources) • Capacity to share ‘local’ data (alone and against relevant comparators) – in both patient- and provider-friendly formats and in a timely way – at the point of care, for providers and practices (e.g., audit and feedback), and through a centralized platform (to support patient 	<ul style="list-style-type: none"> • None identified 	<ul style="list-style-type: none"> • None identified

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Characteristic	Examples	Health-system receptors and supports	Research-system supports
<p>Timely production of research evidence: Systems produce, synthesize, curate and share (with individuals at all levels) research about problems, improvement options and implementation considerations</p>	<p>decision-making and provider, organization and system-wide rapid learning and improvement)</p> <ul style="list-style-type: none"> • Distributed capacity to produce and share research (including evaluations) in a timely way • Distributed research ethics infrastructure that can support rapid-cycle evaluations • Capacity to synthesize research evidence in a timely way • One-stop shops for local evaluations and pre-appraised syntheses • Capacity to access, adapt and apply research evidence • Incentives and requirements for research groups to collaborate with one another, with patients, and with decision-makers 	<ul style="list-style-type: none"> • None identified 	<ul style="list-style-type: none"> • None identified
<p>Appropriate decision supports: Systems support informed decision-making at all levels with appropriate data, evidence, and decision-making frameworks</p>	<ul style="list-style-type: none"> • Decision supports at all levels – self-management, clinical encounter, program, organization, regional health authority and government – such as <ul style="list-style-type: none"> ○ patient-targeted evidence-based resources ○ patient decision aids ○ patient goal-setting supports ○ clinical practice guidelines ○ clinical decision support systems (including those embedded in electronic health records) ○ quality standards ○ care pathways ○ health technology assessments ○ descriptions of how the health system works 	<ul style="list-style-type: none"> • None identified 	<ul style="list-style-type: none"> • None identified
<p>Aligned governance, financial and delivery arrangements: Systems adjust who can make what decisions (e.g., about joint learning priorities), how money flows and how the systems are organized and aligned to support rapid learning and improvement at all levels</p>	<ul style="list-style-type: none"> • Centralized coordination of efforts to adapt a rapid-learning health system approach, incrementally join up assets and fill gaps, and periodically update the status of assets and gaps • Mandates for preparing, sharing and reporting on quality-improvement plans • Mandates for accreditation • Funding and remuneration models that have the potential to incentivize rapid learning and improvement (e.g., focused on patient-reported outcome measures, some bundled-care funding models) • Value-based innovation-procurement model • Funding and active support to spread effective practices across sites • Standards for provincial expert groups to involve patients, a methodologist, use existing data and evidence to inform and justify their recommendations 	<ul style="list-style-type: none"> • Established 25 Collaborative Models of Care that support health professionals working in new models, for example, having registered nurses delivering care to more complex patients and allowing licensed practical nurses to perform health assessments and administer medications 	<ul style="list-style-type: none"> • None identified

Characteristic	Examples	Health-system receptors and supports	Research-system supports
	<ul style="list-style-type: none"> • Mechanisms to jointly set rapid-learning and improvement priorities • Mechanisms to identify and share the ‘reproducible building blocks’ of a rapid-learning health system 		
<p>Culture of rapid learning and improvement: Systems are stewarded at all levels by leaders committed to a culture of teamwork, collaboration and adaptability</p>	<ul style="list-style-type: none"> • Explicit mechanisms to develop a culture of teamwork, collaboration and adaptability in all operations, to develop and maintain trusted relationships with the full range of partners needed to support rapid learning and improvement, and to acknowledge, learn from and move on from ‘failure’ 	<ul style="list-style-type: none"> • None identified 	<ul style="list-style-type: none"> • None identified
<p>Competencies for rapid learning and improvement: Systems are rapidly improved by teams at all levels who have the competencies needed to identify and characterize problems, design data- and evidence-informed approaches (and learn from other comparable programs, organizations, regions, and sub-regional communities about proven approaches), implement these approaches, monitor their implementation, evaluate their impact, make further adjustments as needed, sustain proven approaches locally, and support their spread widely</p>	<ul style="list-style-type: none"> • Public reporting on rapid learning and improvement • Distributed competencies for rapid learning and improvement (e.g., data and research literacy, co-design, scaling up, leadership) • In-house capacity for supporting rapid learning and improvement • Centralized specialized expertise in supporting rapid learning and improvement • Rapid-learning infrastructure (e.g., learning collaboratives) 	<ul style="list-style-type: none"> • None identified 	<ul style="list-style-type: none"> • None identified

Table 11: Assets and gaps related to the primary-care sector in Newfoundland and Labrador’s health system

Characteristic	Examples	Health-system receptors and supports	Research-system supports
<p>Engaged patients: Systems are anchored on patient needs, perspectives and aspirations (at all levels) and focused on improving their care experiences and health at manageable per capita costs and with positive provider experiences</p>	<ol style="list-style-type: none"> 1) Set and regularly adjust patient-relevant targets for rapid learning and improvement (e.g., improvements to a particular type of patient experience or in a particular health outcome) 2) Engage patients, families and citizens in: <ol style="list-style-type: none"> a) their own health (e.g., goal setting; self-management and living well with conditions; access to personal health information, including test results) b) their own care (e.g., shared decision-making; use of patient decision aids) c) the organizations that deliver care (e.g., patient-experience surveys; co-design of programs and services; membership of quality-improvement committees and advisory councils) d) the organizations that oversee the professionals and other organizations in the system (e.g., professional regulatory bodies; quality-improvement bodies; ombudsman; and complaint processes) e) policymaking (e.g., committees making decisions about which services and drugs are covered; government advisory councils that set direction for (parts of) the system; patient storytelling to kick off key meetings; citizen panels to elicit citizen values) f) research (e.g., engaging patients as research partners; eliciting patients’ input on research priorities) 3) Build patient/citizen capacity to engage in all of the above 	<ul style="list-style-type: none"> • Department of Health and Community Services has adopted a co-design process for the development of new primary-care models and pathways <ul style="list-style-type: none"> ○ This is being done in part with the help of community advisory committees across the province which: <ul style="list-style-type: none"> ▪ advise on the location of new primary care sites ▪ undertake community health assessments ▪ advise on the development of new care pathways in primary care • Gaps may include less attention to patient and family engagement in their own health and primary healthcare 	<ul style="list-style-type: none"> • Atlantic Practice Based Research Network supports the engagement of patients as co-investigators on research projects
<p>Digital capture, linkage and timely sharing of relevant data: Systems capture, link and share (with individuals at all levels) data (from real-life, not ideal conditions) about patient experiences (with services, transitions and longitudinally) and provider engagement alongside data about other process indicators (e.g., clinical encounters and costs) and outcome indicators (e.g., health status)</p>	<ol style="list-style-type: none"> 1) Data infrastructure (e.g., interoperable electronic health records; immunization or condition-specific registries; privacy policies that enable data sharing) 2) Capacity to capture patient-reported experiences (for both services and transitions), clinical encounters, outcomes and costs 3) Capacity to capture longitudinal data across time and settings 4) Capacity to link data about health, healthcare, social care, and the social determinants of health 5) Capacity to analyze data (e.g., staff and resources) 6) Capacity to share ‘local’ data (alone and against relevant comparators) – in both patient- and provider-friendly formats and in a timely way – at the point of care, for providers and practices (e.g., audit and feedback), and through a centralized platform (to support patient 	<ul style="list-style-type: none"> • HEALTHe records are being implemented among primary-care providers and in some cases linking them with allied health professionals • Gaps include limited access to much of the primary-care data collected through private primary-care practices and limited capacity to link it to other data in the health or social systems 	<ul style="list-style-type: none"> • Atlantic Practice Based Research Network collaborates with the Canadian Primary Care Sentinel Surveillance Network which includes family physicians and nurse practitioners using EHR who share de-identified patient data on a quarterly basis

Characteristic	Examples	Health-system receptors and supports	Research-system supports
<p>Timely production of research evidence: Systems produce, synthesize, curate and share (with individuals at all levels) research about problems, improvement options and implementation considerations</p>	<p>decision-making and provider, organization and system-wide rapid learning and improvement)</p> <ol style="list-style-type: none"> 1) Distributed capacity to produce and share research (including evaluations) in a timely way 2) Distributed research ethics infrastructure that can support rapid-cycle evaluations 3) Capacity to synthesize research evidence in a timely way 4) One-stop shops for local evaluations and pre-appraised syntheses 5) Capacity to access, adapt and apply research evidence 6) Incentives and requirements for research groups to collaborate with one another, with patients, and with decision-makers 	<ul style="list-style-type: none"> • 73 family physicians from the Atlantic Practice Based Research Network are actively involved with projects conducted at the Primary Healthcare Research Unit at Memorial University • Participation in The Better Program required researchers to collaborate with policymakers and led to the adoption of the approach to chronic-disease prevention and screening at a provincial level • Family Practice Renewal Program includes both Quality of Care Newfoundland and Memorial University integrating researchers and academics into policy discussions as well as supporting the initiative with ongoing evaluations • Gaps include limited analytic capacity to produce and share research evidence in a timely way 	<ul style="list-style-type: none"> • Primary Care Research Unit was developed to serve as a resource for issues related to primary care and to build capacity to conduct primary-care research, and facilitates collaborations in research between academic family medicine, community-based family physicians and other primary healthcare-related disciplines • Annual Primary Report features research and evaluation activities from the past year in primary care • Primary Healthcare Research and Integration to Improve Health System Efficiency is a network of a provincial team of researchers, healthcare professionals, patients and policymakers from multiple health disciplines and sectors dedicated to conducting primary healthcare research • PRIIME Research snapshots are short visual summaries that focus on key points about ongoing research both locally and nationally about primary care
<p>Appropriate decision supports: Systems support informed decision-making at all levels with appropriate data, evidence, and decision-making frameworks</p>	<ol style="list-style-type: none"> 1) Decision supports at all levels – self-management, clinical encounter, program, organization, regional health authority and government – such as <ol style="list-style-type: none"> a) patient-targeted evidence-based resources b) patient decision aids c) patient goal-setting supports d) clinical practice guidelines e) clinical decision support systems (including those embedded in electronic health records) f) quality standards g) care pathways h) health technology assessments i) descriptions of how the health system works 	<ul style="list-style-type: none"> • Location standards have been put in place to support the decision-making of where primary care and other services, such as community-based mental health and addictions care, should be located • Clinical decision support systems are being implemented by the College of Physicians and Surgeons of Newfoundland and Labrador and Department of Health, including the development of COPD management and diabetes collaborative flowsheets and care • Gaps include less programmatic attention to patient-targeted evidence-based resources and patient goal-setting supports for primary care 	<ul style="list-style-type: none"> • None identified
<p>Aligned governance, financial and delivery arrangements: Systems adjust who can make what decisions (e.g., about joint learning priorities), how money flows</p>	<ol style="list-style-type: none"> 1) Centralized coordination of efforts to adapt a rapid-learning health system approach, incrementally join up assets and fill gaps, and periodically update the status of assets and gaps 2) Mandates for preparing, sharing and reporting on quality-improvement plans 	<ul style="list-style-type: none"> • Family Practice Renewal Program is an agreement between the Newfoundland and Labrador Medical Association and the Department of Health and Community Services including three key initiatives: 	<ul style="list-style-type: none"> • None identified

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Characteristic	Examples	Health-system receptors and supports	Research-system supports
<p>and how the systems are organized and aligned to support rapid learning and improvement at all levels</p>	<ol style="list-style-type: none"> 3) Mandates for accreditation 4) Funding and remuneration models that have the potential to incentivize rapid learning and improvement (e.g., focused on patient-reported outcome measures, some bundled-care funding models) 5) Value-based innovation-procurement model 6) Funding and active support to spread effective practices across sites 7) Standards for provincial expert groups to involve patients, a methodologist, use existing data and evidence to inform and justify their recommendations 8) Mechanisms to jointly set rapid-learning and improvement priorities 9) Mechanisms to identify and share the ‘reproducible building blocks’ of a rapid-learning health system 	<ul style="list-style-type: none"> ○ Family Practice Networks, through Collaborative Service Committees, provide a structure and mechanism through which physician groups have the opportunity to discuss common practice needs and local population health needs in collaboration with regional health authorities ○ Fee code program, which compensates physicians for collaborative, team-based care as well as activities such as conferencing with other professionals regarding a patient’s care, or providing care to a patient by telephone ○ Practice improvement program which will provide physician practices with education and support to improve clinical and workflow issues ● Development of new fee codes to align with new patient flowsheets for COPD and diabetes 	
<p>Culture of rapid learning and improvement: Systems are stewarded at all levels by leaders committed to a culture of teamwork, collaboration and adaptability</p>	<ol style="list-style-type: none"> 1) Explicit mechanisms to develop a culture of teamwork, collaboration and adaptability in all operations, to develop and maintain trusted relationships with the full range of partners needed to support rapid learning and improvement, and to acknowledge, learn from and move on from ‘failure’ 	<ul style="list-style-type: none"> ● Family Practice Networks provide a mechanism through which physicians can address common practice and patient needs, have a collective voice on issues facing family practice, and address local population health needs in coordination with the Regional Health Authority ● Primary Health Care Framework promotes community champions, regional coalitions, community partnerships, partnerships with the private sector and community-based research ● Ongoing implementation of the Healthful Model of Care and Patient Centred Medical Home has created a significant culture change moving away from top-down redesign towards patient and citizen co-design that is increasingly happening organically rather than having been forced onto primary-care leadership 	<ul style="list-style-type: none"> ● None identified
<p>Competencies for rapid learning and improvement: Systems are rapidly improved by teams at all levels who have the competencies needed to identify and characterize problems, design data- and evidence-informed approaches (and learn from other comparable programs, organizations, regions, and</p>	<ol style="list-style-type: none"> 1) Public reporting on rapid learning and improvement 2) Distributed competencies for rapid learning and improvement (e.g., data and research literacy, co-design, scaling up, leadership) 3) In-house capacity for supporting rapid learning and improvement 4) Centralized specialized expertise in supporting rapid learning and improvement 5) Rapid-learning infrastructure (e.g., learning collaboratives) 	<ul style="list-style-type: none"> ● Annual evaluation of Family Practice Renewal Program to inform decisions related to program design, plans for sustainability, decisions regarding spread of the innovation, programs and concepts that are working, and to demonstrate accountability for achieving intended outcomes ● Department of Health and Wellness is putting in place formal education approaches about working within new models of primary care and engaging Quality of Care Newfoundland to be monitoring and evaluating this approach 	<ul style="list-style-type: none"> ● None identified

Creating Rapid-learning Health Systems in Canada: Appendix C2 Primary-care sector

Characteristic	Examples	Health-system receptors and supports	Research-system supports
sub-regional communities about proven approaches), implement these approaches, monitor their implementation, evaluate their impact, make further adjustments as needed, sustain proven approaches locally, and support their spread widely			

Table 12: Assets and gaps related to the primary-care sector in Yukon’ health system

Characteristic	Examples	Health-system receptors and supports	Research-system supports
<p>Engaged patients: Systems are anchored on patient needs, perspectives and aspirations (at all levels) and focused on improving their care experiences and health at manageable per capita costs and with positive provider experiences</p>	<ol style="list-style-type: none"> 1) Set and regularly adjust patient-relevant targets for rapid learning and improvement (e.g., improvements to a particular type of patient experience or in a particular health outcome) 2) Engage patients, families and citizens in: <ol style="list-style-type: none"> a) their own health (e.g., goal setting; self-management and living well with conditions; access to personal health information, including test results) b) their own care (e.g., shared decision-making; use of patient decision aids) c) the organizations that deliver care (e.g., patient-experience surveys; co-design of programs and services; membership of quality-improvement committees and advisory councils) d) the organizations that oversee the professionals and other organizations in the system (e.g., professional regulatory bodies; quality-improvement bodies; ombudsman; and complaint processes) e) policymaking (e.g., committees making decisions about which services and drugs are covered; government advisory councils that set direction for (parts of) the system; patient storytelling to kick off key meetings; citizen panels to elicit citizen values) f) research (e.g., engaging patients as research partners; eliciting patients’ input on research priorities) 3) Build patient/citizen capacity to engage in all of the above 	<ul style="list-style-type: none"> • The Diabetes Collaborative in Whitehorse is identified as an example of a patient-centred medical home model, which prioritizes many of the activities from the adjacent column 	<ul style="list-style-type: none"> • None identified
<p>Digital capture, linkage and timely sharing of relevant data: Systems capture, link and share (with individuals at all levels) data (from real-life, not ideal conditions) about patient experiences (with services, transitions and longitudinally) and provider engagement alongside data about other process indicators (e.g., clinical encounters and costs) and outcome indicators (e.g., health status)</p>	<ol style="list-style-type: none"> 1) Data infrastructure (e.g., interoperable electronic health records; immunization or condition-specific registries; privacy policies that enable data sharing) 2) Capacity to capture patient-reported experiences (for both services and transitions), clinical encounters, outcomes and costs 3) Capacity to capture longitudinal data across time and settings 4) Capacity to link data about health, healthcare, social care, and the social determinants of health 5) Capacity to analyze data (e.g., staff and resources) 6) Capacity to share ‘local’ data (alone and against relevant comparators) – in both patient- and provider-friendly formats and in a timely way – at the point of care, for providers and practices (e.g., audit and feedback), and through a centralized platform (to support patient 	<ul style="list-style-type: none"> • None identified 	<ul style="list-style-type: none"> • None identified

Characteristic	Examples	Health-system receptors and supports	Research-system supports
<p>Timely production of research evidence: Systems produce, synthesize, curate and share (with individuals at all levels) research about problems, improvement options and implementation considerations</p>	<p>decision-making and provider, organization and system-wide rapid learning and improvement)</p> <ol style="list-style-type: none"> 1) Distributed capacity to produce and share research (including evaluations) in a timely way 2) Distributed research ethics infrastructure that can support rapid-cycle evaluations 3) Capacity to synthesize research evidence in a timely way 4) One-stop shops for local evaluations and pre-appraised syntheses 5) Capacity to access, adapt and apply research evidence 6) Incentives and requirements for research groups to collaborate with one another, with patients, and with decision-makers 	<ul style="list-style-type: none"> • None identified 	<ul style="list-style-type: none"> • None identified
<p>Appropriate decision supports: Systems support informed decision-making at all levels with appropriate data, evidence, and decision-making frameworks</p>	<ol style="list-style-type: none"> 1) Decision supports at all levels – self-management, clinical encounter, program, organization, regional health authority and government – such as <ol style="list-style-type: none"> a) patient-targeted evidence-based resources b) patient decision aids c) patient goal-setting supports d) clinical practice guidelines e) clinical decision support systems (including those embedded in electronic health records) f) quality standards g) care pathways h) health technology assessments i) descriptions of how the health system works 	<ul style="list-style-type: none"> • None identified 	<ul style="list-style-type: none"> • None identified
<p>Aligned governance, financial and delivery arrangements: Systems adjust who can make what decisions (e.g., about joint learning priorities), how money flows and how the systems are organized and aligned to support rapid learning and improvement at all levels</p>	<ol style="list-style-type: none"> 1) Centralized coordination of efforts to adapt a rapid-learning health system approach, incrementally join up assets and fill gaps, and periodically update the status of assets and gaps 2) Mandates for preparing, sharing and reporting on quality-improvement plans 3) Mandates for accreditation 4) Funding and remuneration models that have the potential to incentivize rapid learning and improvement (e.g., focused on patient-reported outcome measures, some bundled-care funding models) 5) Value-based innovation-procurement model 6) Funding and active support to spread effective practices across sites 7) Standards for provincial expert groups to involve patients, a methodologist, use existing data and evidence to inform and justify their recommendations 8) Mechanisms to jointly set rapid learning and improvement priorities 	<ul style="list-style-type: none"> • None identified 	<ul style="list-style-type: none"> • None identified

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Characteristic	Examples	Health-system receptors and supports	Research-system supports
	9) Mechanisms to identify and share the ‘reproducible building blocks’ of a rapid-learning health system		
Culture of rapid learning and improvement: Systems are stewarded at all levels by leaders committed to a culture of teamwork, collaboration and adaptability	1) Explicit mechanisms to develop a culture of teamwork, collaboration and adaptability in all operations, to develop and maintain trusted relationships with the full range of partners needed to support rapid learning and improvement, and to acknowledge, learn from and move on from ‘failure’	<ul style="list-style-type: none"> The Clinical Services Plan for Yukon Territory, which provides long-term planning for the evolution of health and social services, has made collaborative-care models a system-wide priority 	<ul style="list-style-type: none"> None identified
Competencies for rapid learning and improvement: Systems are rapidly improved by teams at all levels who have the competencies needed to identify and characterize problems, design data- and evidence-informed approaches (and learn from other comparable programs, organizations, regions, and sub-regional communities about proven approaches), implement these approaches, monitor their implementation, evaluate their impact, make further adjustments as needed, sustain proven approaches locally, and support their spread widely	<ol style="list-style-type: none"> Public reporting on rapid learning and improvement Distributed competencies for rapid learning and improvement (e.g., data and research literacy, co-design, scaling up, leadership) In-house capacity for supporting rapid learning and improvement Centralized specialized expertise in supporting rapid learning and improvement Rapid-learning infrastructure (e.g., learning collaboratives) 	<ul style="list-style-type: none"> None identified 	<ul style="list-style-type: none"> None identified

Table 13: Assets and gaps related to the primary-care sector in Northwest Territories’ health system

Characteristic	Examples	Health-system receptors and supports	Research-system supports
<p>Engaged patients: Systems are anchored on patient needs, perspectives and aspirations (at all levels) and focused on improving their care experiences and health at manageable per capita costs and with positive provider experiences</p>	<ol style="list-style-type: none"> 1) Set and regularly adjust patient-relevant targets for rapid learning and improvement (e.g., improvements to a particular type of patient experience or in a particular health outcome) 2) Engage patients, families and citizens in: <ol style="list-style-type: none"> a) their own health (e.g., goal setting; self-management and living well with conditions; access to personal health information, including test results) b) their own care (e.g., shared decision-making; use of patient decision aids) c) the organizations that deliver care (e.g., patient-experience surveys; co-design of programs and services; membership of quality-improvement committees and advisory councils) d) the organizations that oversee the professionals and other organizations in the system (e.g., professional regulatory bodies; quality-improvement bodies; ombudsman; and complaint processes) e) policymaking (e.g., committees making decisions about which services and drugs are covered; government advisory councils that set direction for (parts of) the system; patient storytelling to kick off key meetings; citizen panels to elicit citizen values) f) research (e.g., engaging patients as research partners; eliciting patients’ input on research priorities) 3) Build patient/citizen capacity to engage in all of the above 	<ul style="list-style-type: none"> • NWT Chronic Disease Management Strategy has established some support through targeted pilot projects to build capacity among primary-care teams for supporting patient self-management 	<ul style="list-style-type: none"> • None identified
<p>Digital capture, linkage and timely sharing of relevant data: Systems capture, link and share (with individuals at all levels) data (from real-life, not ideal conditions) about patient experiences (with services, transitions and longitudinally) and provider engagement alongside data about other process indicators (e.g., clinical encounters and costs) and outcome indicators (e.g., health status)</p>	<ol style="list-style-type: none"> 1) Data infrastructure (e.g., interoperable electronic health records; immunization or condition-specific registries; privacy policies that enable data sharing) 2) Capacity to capture patient-reported experiences (for both services and transitions), clinical encounters, outcomes and costs 3) Capacity to capture longitudinal data across time and settings 4) Capacity to link data about health, healthcare, social care, and the social determinants of health 5) Capacity to analyze data (e.g., staff and resources) 6) Capacity to share ‘local’ data (alone and against relevant comparators) – in both patient- and provider-friendly formats and in a timely way – at the point of care, for providers and practices (e.g., audit and feedback), and through a centralized platform (to support patient 	<ul style="list-style-type: none"> • None identified 	<ul style="list-style-type: none"> • None identified

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Characteristic	Examples	Health-system receptors and supports	Research-system supports
<p>Timely production of research evidence: Systems produce, synthesize, curate and share (with individuals at all levels) research about problems, improvement options and implementation considerations</p>	<p>decision-making and provider, organization and system-wide rapid learning and improvement)</p> <ol style="list-style-type: none"> 1) Distributed capacity to produce and share research (including evaluations) in a timely way 2) Distributed research ethics infrastructure that can support rapid-cycle evaluations 3) Capacity to synthesize research evidence in a timely way 4) One-stop shops for local evaluations and pre-appraised syntheses 5) Capacity to access, adapt and apply research evidence 6) Incentives and requirements for research groups to collaborate with one another, with patients, and with decision-makers 	<ul style="list-style-type: none"> • None identified 	<ul style="list-style-type: none"> • None identified
<p>Appropriate decision supports: Systems support informed decision-making at all levels with appropriate data, evidence, and decision-making frameworks</p>	<ol style="list-style-type: none"> 1) Decision supports at all levels – self-management, clinical encounter, program, organization, regional health authority and government – such as <ol style="list-style-type: none"> a) patient-targeted evidence-based resources b) patient decision aids c) patient goal-setting supports d) clinical practice guidelines e) clinical decision support systems (including those embedded in electronic health records) f) quality standards g) care pathways h) health technology assessments i) descriptions of how the health system works... 	<ul style="list-style-type: none"> • Algorithm for primary-care decision support of early-stage renal-disease detection and management one of very few isolated examples in the sector 	<ul style="list-style-type: none"> • None identified
<p>Aligned governance, financial and delivery arrangements: Systems adjust who can make what decisions (e.g., about joint learning priorities), how money flows and how the systems are organized and aligned to support rapid learning and improvement at all levels</p>	<ol style="list-style-type: none"> 1) Centralized coordination of efforts to adapt a rapid-learning health system approach, incrementally join up assets and fill gaps, and periodically update the status of assets and gaps 2) Mandates for preparing, sharing and reporting on quality-improvement plans 3) Mandates for accreditation 4) Funding and remuneration models that have the potential to incentivize rapid learning and improvement (e.g., focused on patient-reported outcome measures, some bundled-care funding models) 5) Value-based innovation-procurement model 6) Funding and active support to spread effective practices across sites 7) Standards for provincial expert groups to involve patients, a methodologist, use existing data and evidence to inform and justify their recommendations 8) Mechanisms to jointly set rapid-learning and improvement priorities 	<ul style="list-style-type: none"> • None identified 	<ul style="list-style-type: none"> • None identified

Characteristic	Examples	Health-system receptors and supports	Research-system supports
	9) Mechanisms to identify and share the ‘reproducible building blocks’ of a rapid-learning health system		
<p>Culture of rapid learning and improvement: Systems are stewarded at all levels by leaders committed to a culture of teamwork, collaboration and adaptability</p>	1) Explicit mechanisms to develop a culture of teamwork, collaboration and adaptability in all operations, to develop and maintain trusted relationships with the full range of partners needed to support rapid learning and improvement, and to acknowledge, learn from and move on from ‘failure’	<ul style="list-style-type: none"> • None identified 	<ul style="list-style-type: none"> • None identified
<p>Competencies for rapid learning and improvement: Systems are rapidly improved by teams at all levels who have the competencies needed to identify and characterize problems, design data- and evidence-informed approaches (and learn from other comparable programs, organizations, regions, and sub-regional communities about proven approaches), implement these approaches, monitor their implementation, evaluate their impact, make further adjustments as needed, sustain proven approaches locally, and support their spread widely</p>	<ol style="list-style-type: none"> 1) Public reporting on rapid learning and improvement 2) Distributed competencies for rapid learning and improvement (e.g., data and research literacy, co-design, scaling up, leadership) 3) In-house capacity for supporting rapid learning and improvement 4) Centralized specialized expertise in supporting rapid learning and improvement 5) Rapid-learning infrastructure (e.g., learning collaboratives) 	<ul style="list-style-type: none"> • None identified 	<ul style="list-style-type: none"> • None identified

Table 14: Assets and gaps related to the primary-care sector in Nunavut’s health system

Characteristic	Examples	Health-system receptors and supports	Research-system supports
<p>Engaged patients: Systems are anchored on patient needs, perspectives and aspirations (at all levels) and focused on improving their care experiences and health at manageable per capita costs and with positive provider experiences</p>	<ol style="list-style-type: none"> 1) Set and regularly adjust patient-relevant targets for rapid learning and improvement (e.g., improvements to a particular type of patient experience or in a particular health outcome) 2) Engage patients, families and citizens in: <ol style="list-style-type: none"> a) their own health (e.g., goal setting; self-management and living well with conditions; access to personal health information, including test results) b) their own care (e.g., shared decision-making; use of patient decision aids) c) the organizations that deliver care (e.g., patient-experience surveys; co-design of programs and services; membership of quality-improvement committees and advisory councils) d) the organizations that oversee the professionals and other organizations in the system (e.g., professional regulatory bodies; quality-improvement bodies; ombudsman; and complaint processes) e) policymaking (e.g., committees making decisions about which services and drugs are covered; government advisory councils that set direction for (parts of) the system; patient storytelling to kick off key meetings; citizen panels to elicit citizen values) f) research (e.g., engaging patients as research partners; eliciting patients’ input on research priorities) 3) Build patient/citizen capacity to engage in all of the above 	<ul style="list-style-type: none"> • Few assets identified related directly to primary care • Gaps may include similar areas as those identified in the table about the’ health system as a whole’ 	<ul style="list-style-type: none"> • Few assets identified related directly to primary care • Gaps may include similar areas as those identified in the table about the’ health system as a whole’
<p>Digital capture, linkage and timely sharing of relevant data: Systems capture, link and share (with individuals at all levels) data (from real-life, not ideal conditions) about patient experiences (with services, transitions and longitudinally) and provider engagement alongside data about other process indicators (e.g., clinical encounters and costs) and outcome indicators (e.g., health status)</p>	<ol style="list-style-type: none"> 1) Data infrastructure (e.g., interoperable electronic health records; immunization or condition-specific registries; privacy policies that enable data sharing) 2) Capacity to capture patient-reported experiences (for both services and transitions), clinical encounters, outcomes and costs 3) Capacity to capture longitudinal data across time and settings 4) Capacity to link data about health, healthcare, social care, and the social determinants of health 5) Capacity to analyze data (e.g., staff and resources) 6) Capacity to share ‘local’ data (alone and against relevant comparators) – in both patient- and provider-friendly formats and in a timely way – at the point of care, for providers and practices (e.g., audit and feedback), and through a centralized platform (to support patient 	<ul style="list-style-type: none"> • Few assets identified related directly to primary care • Gaps may include similar areas as those identified in the table about the’ health system as a whole’ 	<ul style="list-style-type: none"> • Few assets identified related directly to primary care • Gaps may include similar areas as those identified in the table about the’ health system as a whole’

Characteristic	Examples	Health-system receptors and supports	Research-system supports
<p>Timely production of research evidence: Systems produce, synthesize, curate and share (with individuals at all levels) research about problems, improvement options and implementation considerations</p>	<p>decision-making and provider, organization and system-wide rapid learning and improvement)</p> <ol style="list-style-type: none"> 1) Distributed capacity to produce and share research (including evaluations) in a timely way 2) Distributed research ethics infrastructure that can support rapid-cycle evaluations 3) Capacity to synthesize research evidence in a timely way 4) One-stop shops for local evaluations and pre-appraised syntheses 5) Capacity to access, adapt and apply research evidence 6) Incentives and requirements for research groups to collaborate with one another, with patients, and with decision-makers 	<ul style="list-style-type: none"> • Few assets identified related directly to primary care • Gaps may include similar areas as those identified in the table about the 'health system as a whole' 	<ul style="list-style-type: none"> • Few assets identified related directly to primary care • Gaps may include similar areas as those identified in the table about the 'health system as a whole'
<p>Appropriate decision supports: Systems support informed decision-making at all levels with appropriate data, evidence, and decision-making frameworks</p>	<ol style="list-style-type: none"> 1) Decision supports at all levels – self-management, clinical encounter, program, organization, regional health authority and government – such as <ol style="list-style-type: none"> a) patient-targeted evidence-based resources b) patient decision aids c) patient goal-setting supports d) clinical practice guidelines e) clinical decision support systems (including those embedded in electronic health records) f) quality standards g) care pathways h) health technology assessments i) descriptions of how the health system works... 	<ul style="list-style-type: none"> • Few assets identified related directly to primary care • Gaps may include similar areas as those identified in the table about the 'health system as a whole' 	<ul style="list-style-type: none"> • Few assets identified related directly to primary care • Gaps may include similar areas as those identified in the table about the 'health system as a whole'
<p>Aligned governance, financial and delivery arrangements: Systems adjust who can make what decisions (e.g., about joint learning priorities), how money flows and how the systems are organized and aligned to support rapid learning and improvement at all levels</p>	<ol style="list-style-type: none"> 1) Centralized coordination of efforts to adapt a rapid-learning health system approach, incrementally join up assets and fill gaps, and periodically update the status of assets and gaps 2) Mandates for preparing, sharing and reporting on quality-improvement plans 3) Mandates for accreditation 4) Funding and remuneration models that have the potential to incentivize rapid learning and improvement (e.g., focused on patient-reported outcome measures, some bundled-care funding models) 5) Value-based innovation-procurement model 6) Funding and active support to spread effective practices across sites 7) Standards for provincial expert groups to involve patients, a methodologist, use existing data and evidence to inform and justify their recommendations 8) Mechanisms to jointly set rapid-learning and improvement priorities 	<ul style="list-style-type: none"> • Few assets identified related directly to primary care • Gaps may include similar areas as those identified in the table about the 'health system as a whole' 	<ul style="list-style-type: none"> • Few assets identified related directly to primary care • Gaps may include similar areas as those identified in the table about the 'health system as a whole'

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Characteristic	Examples	Health-system receptors and supports	Research-system supports
<p>Culture of rapid learning and improvement: Systems are stewarded at all levels by leaders committed to a culture of teamwork, collaboration and adaptability</p>	<p>9) Mechanisms to identify and share the ‘reproducible building blocks’ of a rapid-learning health system</p> <p>1) Explicit mechanisms to develop a culture of teamwork, collaboration and adaptability in all operations, to develop and maintain trusted relationships with the full range of partners needed to support rapid learning and improvement, and to acknowledge, learn from and move on from ‘failure’</p>	<ul style="list-style-type: none"> • Few assets identified related directly to primary care • Gaps may include similar areas as those identified in the table about the’ health system as a whole’ 	<ul style="list-style-type: none"> • Few assets identified related directly to primary care • Gaps may include similar areas of progress as those identified in Table 1
<p>Competencies for rapid learning and improvement: Systems are rapidly improved by teams at all levels who have the competencies needed to identify and characterize problems, design data- and evidence-informed approaches (and learn from other comparable programs, organizations, regions, and sub-regional communities about proven approaches), implement these approaches, monitor their implementation, evaluate their impact, make further adjustments as needed, sustain proven approaches locally, and support their spread widely</p>	<ol style="list-style-type: none"> 1) Public reporting on rapid learning and improvement 2) Distributed competencies for rapid learning and improvement (e.g., data and research literacy, co-design, scaling up, leadership) 3) In-house capacity for supporting rapid learning and improvement 4) Centralized specialized expertise in supporting rapid learning and improvement 5) Rapid-learning infrastructure (e.g., learning collaboratives) 	<ul style="list-style-type: none"> • Few assets identified related directly to primary care • Gaps may include similar areas as those identified in the table about the’ health system as a whole’ 	<ul style="list-style-type: none"> • Few assets identified related directly to primary care • Gaps may include similar areas as those identified in the table about the’ health system as a whole’



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