Rapid Synthesis

Creating Rapid-learning Health Systems in Canada

Appendix B11: Newfoundland and Labrador

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EVIDENCE >> INSIGHT >> ACTION

Rapid Synthesis:
Creating Rapid-learning Health Systems in Canada
Appendix B11: Newfoundland and Labrador
90-day response

Lavis JN, Gauvin F-P, Mattison CA, Moat KA, Waddell K, Wilson MG, Reid R. Appendix B11: Newfoundland and Labrador. In Rapid synthesis: Creating rapid-learning health systems in Canada. Hamilton, Canada: McMaster Health Forum, 10 December 2018.

Table 1. Assets and gaps at the level of Newfoundland and Labrador's health system

Characteristic	Examples	Health-system receptors and supports	Research-system supports
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	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: 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	• Department of Health and Community Services supports a number of self-management initiatives, including: o Improving Health: My Way, which is a chronic disease self-management program to help individuals with challenges of living with chronic conditions o The Better Project which is a cross-provincial pilot program to support patients to engage in self-care for chronic conditions • Quality of Care Newfoundland develops messaging for the general public to empower patients to become more active decision-makers in their own healthcare • *Mental Health and Treatment Act* has established rights advisors to offer advice and assistance to patients and their representatives • The province operates a number of different initiatives to allow patient complaints to be aired, including: o Office of the Citizen's Representative o Department of Health and Community Services also maintains a formal complaints system for patients, records for which are all held electronically and distributed to the relevant regional health authorities when received o Client relations offices within each of the four regional health authorities o Professional colleges have all established formal complaint mechanisms for patients • Quality of Care Newfoundland has a patient panels program which engages patients four times a year on specific health-system questions • Regional health authorities support a number of advisory committees comprised of patient and family members: o Regional health authorities host patient and family-centred advisory committees that advise on strategic goals and initiatives	• Newfoundland and Labrador (N.L.) SPOR SUPPORT Unit has supported training on conducting and using patient-oriented research as well as on smaller patient-engagement projects • NL SPOR SUPPORT Unit has implemented an inclusive priority-setting approach by soliciting citizen views about their priorities for health research and translating these into funding calls for applications • NL SPOR SUPPORT Unit peer review processes for research grant application in 2016 included methodological support for implementing patient engagement after submitting an expression of interest • Research exchange groups hosted by the Centre for Applied Health Research have citizen and patient members that meet regularly to discuss research projects, health services, initiate collaborative partnerships and to discover potential funding and partnership opportunities • Gaps include limited capacity for researchers to engage patients in research

Characteristic	Examples	Health-system receptors and supports	Research-system supports
	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	○ quality and safety committees regularly invite patients to board meetings to share their stories ○ many of the major programs at each of the regional health authorities host their own advisory councils to advise on clinical initiatives • Gaps include less programmatic attention to supporting patient goal-setting, decision-making and access to their own health information, and system-wide attention to building patient/citizen capacity to engage in advisory roles	
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)	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	• The *Access to Information and Protection of Privacy Act and the Personal health Information Act* are in place to respect the privacy of personal health information while also permitting sharing among relevant providers • HEALTHe NL is the provincial electronic health record which once fully implemented has been designed to support data collection and sharing of this data across the system to facilitate decision-making • Client registry is used to accurately identify individuals registering at hospitals, community health centres and connected pharmacies • LABS, a component of the HEALTHe initiative allows clinicians to view laboratory results regardless of where providers or patients are located • The Pharmacy Network gives health professionals access to patient medication profiles to prevent harmful drug interactions • Centre for Health Information provides a wide variety of analytic services including data extraction, linkages and analysis to be used in academic research as well as by the Department of Health and Community Services and Regional Health Authorities • Newfoundland and Labrador's Centre for Health Information hosts health analytics and evaluation services to provide meaningful information to the Department of Health and Community Services and regional Health Authorities, for the purposes of program development and performance monitoring and to support provincial health-policy planning	• The Centre for Health Informatics and Analytics (CHIA) has been established to provide researchers in the province with fast, accurate linkages and analysis of patient data sets • Data Lab is in the process of being established by the Centre for Health Information, which provides access to de-identified patient data from across regional health authorities, and supports researchers and innovators to evaluate ongoing programs and services in the province

Characteristic	Examples	Health-system receptors and supports	Research-system supports
	system-wide rapid learning and improvement)	• Centre for Health Information has a long-term vision to take over responsibility for all information in the province, which would better enable the sharing of data across all government programs and services • Disease reports are produced by Department of Health and Community Services annually on notifiable diseases to advance the promotion and protection of individuals in the province • Gaps include limited provincial capacity to capture patient-reported experiences, and limited capacity to share local data in a timely way that would support system-wide rapid learning and improvement	
Timely production of research evidence: Systems produce, synthesize, curate and share (with individuals at all levels) research about problems, improvement options and implementation considerations	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	• Research exchange groups hosted by Newfoundland and Labrador Centre for Applied Health Research where researchers, health professionals, decision-makers, community groups and members of the public are brought together to contribute towards a shared topic • Benefits evaluations are produced by the Centre for Health Information on information systems and government policy/program evaluation to support various provincial and national initiatives • Eastern Health is the only Regional Health Authority that hosts a research unit to enable some internal capacity for clinical trials and program evaluation • Gaps include little analytic capacity within the Department of Health and Community Services and in three of the four Regional Health Authorities to produce and share research in a timely way, or to synthesize existing research, as well as missing incentives and requirements for research groups to collaborate with one another and with patients	• Newfoundland SPOR Support Unit provides research training for the following six functions: data platforms and services; methods support and services; applied health-systems research, knowledge translation and implementation; real-world clinical trials; career development and training in methods and health-systems research; and consultation and research services • Health Research Ethics Authority of Newfoundland is a central body for ethics approval, and while it does not have distributed capacity, it does have representation from Regional Health Authorities, Memorial University, Department of Health and Community Services, and a member of the public • Centre for Applied Health Research was developed to help build capacity and organizational resources to undertake and support high-quality applied health research and to facilitate the more effective and efficient use of research evidence in the province's health and community services system • Contextualized Health Research Synthesis Program run by the Centre for Applied Health

Characteristic	Examples	Health-system receptors and supports	Research-system supports
			Research synthesizes and contextualizes research evidence on health-system topics prioritized by executives at the Department of Health and Community Services, Department of Children, Seniors and Social Development and the four Regional Health Authorities
Appropriate decision supports: Systems support informed decision-making at all levels with appropriate data, evidence, and decision-making frameworks	1) Decision supports at all levels – self-management, clinical encounter, program, organization, regional health authority and government – such as 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	• Patient information resources are produced by Quality of Care Newfoundland on blocked leg arteries, stroke prevention and antibiotic use • Professional resources and practice points are produced by Quality of Care Newfoundland for physicians and nurse practitioners to provide information on best practices and tools to enable conversations between patients and providers on a wide variety of clinical topics • National and provincial standards for electronic health records, management information systems, and clinical care are disseminated by the Centre for Health Information • Overview of health services available in each of the Regional Health Authorities is produced by the Department of Health and Community Services • Rapid reports and snapshots produced by the Centre for Applied Health Research are used by decision-makers to inform policy development • Gaps include limited progress towards widespread use of patient aids and patient goal-setting supports and few system-level decision supports	• Newfoundland SPOR SUPPORT unit funds several research projects to provide research supports in the areas of health systems, knowledge translation, patient engagement, and implementation
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	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	• Regular meetings between executives in the four regional health authorities, Centre for Health Information and senior leadership in the Department of Health and Community Services provide an opportunity for policy discussions and consider opportunities for rapid learning • Quality objectives and performance indicators are developed by each Regional Health Authority as part of its operational planning • The *Public Procurement Act* was recently passed to modernize procurement by provincial public bodies	• Ongoing discussions about the development of an academic health sciences network, which would provide a more formal effort to connect researchers with clinical leadership • Annual priority planning is undertaken for Contextualized Health Research Synthesis Program with executives from the Department of Health and Community Services, Department for Children, Seniors and Social Development, and each of the four Regional Health Authorities, which provides a

Characteristic	Examples	Health-system receptors and supports	Research-system supports
improvement at all levels	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	and includes new rules regarding open call for bid thresholds, group purchasing, and value-based purchases • Gaps include no centralized coordination of efforts to adapt a rapid-learning health system approach and incrementally join up assets, limited use of funding and remuneration models to incentivize rapid learning and improvement, and share reproducible building blocks of a rapid-learning health system	mechanism to consider opportunities for rapid-learning and improvement priorities
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'	• Development and gradual implementation of Eastern Health's Innovation strategy is acting as an opportunity to unite stakeholders and work towards improvement. • Clinical Leaders program at Quality of Care NL works with providers to act as spokespeople for quality improvement, host clinical sessions to review the latest evidence-based research results and outcomes, and encourage physicians to use best practices for healthcare • Gaps include no explicit supports throughout the health system to develop a culture to support rapid learning and improvement	• Alignment between the SPOR SUPPORT Unit and the Government of Newfoundland and Labrador to refocus healthcare providers and researchers on realizing outcomes and incorporating input from system users, supports a culture of rapid learning and improvement, however most research groups (with the Centre for Applied Health Research being a notable exception) do not actively engage decision-makers at all levels to support rapid learning and improvement
Competencies for rapid learning and	1) Public reporting on rapid learning and improvement	• Some public reporting on select health-system priorities (e.g., wait times for priority conditions)	

Characteristic	Examples	Health-system receptors and supports	Research-system supports
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	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)	• Eastern Health (one Regional Health Authority) has brought in LEAN methodology experts to support learning and process improvement • Regional Health Authorities each maintain a performance improvement unit and quality and patient safety department which focus on supporting on-going learning • Regional Health Authorities take part in both Atlantic specific and national learning collaboratives including one around psychological health and safety through the Mental Health Commission of Canada and the Canadian Patient Safety Institute's Atlantic collaboration for patient safety	

Table 2. Assets and gaps in the primary-care sector in Newfoundland and Labrador

Characteristic	Examples	Health-system receptors and supports	Research-system supports
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	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: 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	• Department of Health and Community Services has adopted a co-design process for the development of new primary-care models and pathways o This is being done in part with the help of community advisory committees across the province which: ▪ 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	• Atlantic Practice Based Research Network supports the engagement of patients as co-investigators on research projects
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.,	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	• 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	• 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
clinical encounters and costs) and outcome indicators (e.g., health status)	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)		
Timely production of research evidence: Systems produce, synthesize, curate and share (with individuals at all levels) research about problems, improvement options and implementation considerations	• 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	• 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	• 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
Appropriate decision supports: Systems support informed decision-making at all levels with appropriate data, evidence, and decision-making frameworks	1) Decision supports at all levels – self-management, clinical encounter, program, organization, regional health authority and government – such as 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	• 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	• None identified

Characteristic	Examples	Health-system receptors and supports	Research-system supports
	i) descriptions of how the health system works	• Gaps include less programmatic attention to patient-targeted evidence-based resources and patient goal-setting supports for primary care	
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	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	• 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: o 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 o 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 o 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	• None identified
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'	• 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	• None identified
Competencies for rapid learning and improvement: Systems are rapidly improved by	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)	• 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	• None identified

Characteristic	Examples	Health-system receptors and supports	Research-system supports
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	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)	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	

Table 3. Assets and gaps in the area of aging (or for the elderly population or a relevant 'problem focus,' such as frailty) in Newfoundland and Labrador

Characteristic	Examples	Health-system receptors and supports	Research-system supports
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	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: 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	• Public-awareness campaigns been developed and co-produced with older adults to support heightened levels of respect for older persons to ensure greater social inclusion • Provincial advisory council on aging and seniors brings different perspectives including citizens' and patients' together to advise the government on issues related to aging and seniors • Development of Adult Protection Act and violence-protection initiative included representation from Indigenous seniors on the steering committee • Public-engagement activities are also run by the Seniors' Advocate and aim to bring seniors together to discuss systemic issues and explore solutions to bring about change	• None identified
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	• 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)	• The Senior's Profile on the Community Accounts webpage provides data about those 55 years of age and older living in the province	• None identified

Characteristic	Examples	Health-system receptors and supports	Research-system supports
process indicators (e.g., clinical encounters and costs) and outcome indicators (e.g., health status)	• 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)		
Timely production of research evidence: Systems produce, synthesize, curate and share (with individuals at all levels) research about problems, improvement options and implementation considerations	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	• None identified	• Health Research Exchange focused on aging, which exchanges knowledge, reviews research in progress, finds funding opportunities, and collaborates on research projects related to aging and seniors • Forum provided by the Health Research Exchange where students, researchers, policymakers and the general public can meet to discuss issues related to healthy aging in Newfoundland and Labrador • Healthy Aging Research Program developed to support research in the area of aging and seniors
Appropriate decision supports: Systems support informed decision-making at all levels with appropriate data, evidence, and decision-making frameworks	1) Decision supports at all levels – self-management, clinical encounter, program, organization, regional health authority and government – such as 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	• Caregivers Out of Isolation NL is a program developed to support caregivers of all ages who care for family members and friends of any age through an information line, newsletter and caregiving guide	• 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 organized and aligned to support rapid	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	• Office of the Senior's Advocate is an independent office to identify, review and analyze systemic issues related to seniors • Development of Access. Inclusion. Equality. A strategy for the inclusion of persons with disabilities, including frail adults and disabled elderly, which is aligned with the United Nations Convention on the Rights of Persons with Disabilities and provides a framework for	• None identified

Characteristic	Examples	Health-system receptors and supports	Research-system supports
learning and improvement at all levels	(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	a sustainable approach to achieving a fully inclusive province • Universal design approaches have been implemented to increase accessibility and inclusion throughout society • Significant financial investment in Close to Home: A Strategy for Lon-Term Care and Community Support Services to support the transformation of long-term care in Newfoundland and Labrador	
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'	• None identified	• 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)	• None identified	• None identified

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