Rapid Synthesis

Creating Rapid-learning Health Systems in Canada

Appendix B3: Alberta

10 December 2018

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EVIDENCE >> INSIGHT >> ACTION

Rapid Synthesis:
Creating Rapid-learning Health Systems in Canada
Appendix B3: Alberta
90-day response

Lavis JN, Gauvin F-P, Mattison CA, Moat KA, Waddell K, Wilson MG, Reid R. Appendix B3: Alberta. 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 Alberta'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 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	• Alberta Health Services (AHS) supports a number of advisory councils comprised of patients and family members o one Patient and Family Advisory Group that advises on strategic goals and initiatives o four provincial advisory councils that advise on province-wide programs and services (addictions and mental health, cancer, seniors and continuing care, and most recently LGBTQ2S+) o 12 health advisory councils that cover geographical areas o 1 Wisdom council comprised of Indigenous peoples o >100 advisory councils in programs and sites (e.g., in all long-term care and supportive living facilities) • AHS strategic clinical networks each have a 'core committee' that includes patients and family members, as well as a 'patient engagement reference group' • Health Quality Council of Alberta supports a Patient/Family Safety Advisory Council that includes patients and family members • Gaps may include less programmatic attention to supporting patient goal setting, self-management and shared decision-making, and less policy attention to systematically eliciting citizen values to guide decision-making	• Patient and Community Engagement Research (PaCER) provides training for patients who wish to become involved as patient researchers • O'Brien Institute for Public Health provides a distance-learning program in patient-oriented research, and strategic clinical networks can nominate patients for the program • Gaps may include less systematic engagement of patients, especially more vulnerable patients, in setting research priorities (e.g. using a James Lind Alliance-type approach)
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	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	• Connect Care (the province's clinical information system) will launch in Edmonton in 2020 and across the province in 2022 • Alberta Netcare supports and coordinates projects about the province's electronic health record • eCritical Alberta provides a repository of patient-specific critical-care information to support both	• Alberta SPOR data platform provides access to administrative data (except for physician billings) and related database, methods and statistical services • Provincial Health Analytics Network provides a single entry point to health data

Characteristic	Examples	Health-system receptors and supports	Research-system supports
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)	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)	decision-making at the bedside (MetaVision) and at the unit or system level (TRACER) • Alberta Bone and Joint Health Institute pioneered provider-targeted audit and feedback approaches that have now been widely taken up • Data Integration and Management Repository (DIMR) maintains a rich variety of data assets, analytic tools and dashboards that can be accessed by AHS employees (and seeks to acquire and link new data assets each year) • Gaps may include less programmatic attention to managing measurement burden (but a prioritization process is underway), capturing patient-reported experiences, ensuring that the number and distribution of analytical staff match the need, and accelerating learning and improvement processes (as well as Connect Care not including primary-care data in the near term)	• VSecondary Use Data Project facilitates the secondary use of patient care, financial, staffing and other administrative 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	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	• A pRoject Ethics Community Consensus Initiative (ARECCI) identifies and mitigates risks in program evaluations, quality-improvement projects and related areas • Strategic clinical networks work with AHS knowledge-management staff to synthesize data and evidence about clinical problems and options for improvement	• Alberta Innovates funds research and innovation in health • Alberta SPOR SUPPORT Unit supports patient-oriented research • Alberta Clinical Research Consortium supports clinical research • Alberta Partnership for Research and Innovation in the Health System supports research to improve health-system performance • Health Research Ethics Board of Alberta (HREBA) supports three committees (cancer, clinical trials and community health) that work together as one research-ethics board (albeit not with a single-entry model for province-wide research ethics board approval) and that forward approved requests for access to administrative data • Research ethics boards at the University of Alberta (Health Research Ethics Board) and University of Calgary (Conjoint Health Research Ethics Board) are working with HREBA to harmonize research-ethics processes across the province

Characteristic	Examples	Health-system receptors and supports	Research-system supports
			• PolicyWise for Children and Families conducts research to improve practices and policies that affect children and families • W21C (ward of the 21st century) provides a testing site for medical technologies, hospital design, healthcare delivery approaches, and human-factors research • Gaps may include less attention to incentives and requirements for research groups to collaborate with one another, with patients, and with decision-makers
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	• MyHealth.Alberta.ca provides online health information for patients • Health Link provides health advice 24/7 by telephone (811), health information (see above), and information about how to access healthcare • College of Physicians and Surgeons of Alberta provides a webpage to find a physician • Alberta Wait Times Reporting Website provides wait times by procedure and service area (and Alberta Health Services provides emergency-department wait times) • Alberta Health Advocates helps to connect patients to services and address complaints (both in general, as provided for in the Alberta Health Charter, and for mental health specifically, as provided for in the Mental Health Act) • Strategic clinical networks include clinicians with strong connections to guideline-producing national professional societies • Connect Care (provincial clinical information system) will incorporate clinical decision support to providers • AHS supports quality-management frameworks at multiple levels and has initiatives such as 'Improving Health Outcomes Together' to improve care in measurable ways • AHS strategic clinical networks are developing a standardized approach to care pathways • AHS supports many groups – Innovation, Evidence and Impact team, Evidence Decision Support Program, and Health Systems Evaluation and Evidence team – to support decision-making	• Institute of Health Economics prepared health technology assessments, decision analytic modelling and health economics research • Research groups at the University of Alberta and University of Calgary also conduct health technology assessments • Book about how the Alberta health system works is being prepared by John Church

Characteristic	Examples	Health-system receptors and supports	Research-system supports
		• Alberta Health's Health Evidence and Policy Unit conducts health technology assessments (called Alberta Health Evidence Reviews) to determine which technologies, services and models of care to adopt across the health system • Gaps may include less attention to patient decision aids and patient goal-setting supports	
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	• AHS o delivers most home and community care, specialty care, rehabilitation care and long-term care (with Covenant Health, a Catholic healthcare provider, delivering the rest) o is investing in home- and community-care infrastructure (through 'Enhancing Care in the Community') o administers four provincial programs, two of which share their leader with the corresponding strategic clinical network (seniors and mental health and addictions), one of which will do so in future (population, public and Indigenous health), and one of which does not (primary care) o 'owns and operates' the strategic clinical networks that can scale up effective approaches to prioritized problems at the provincial level • A pan-strategic clinical networks 'transformational road map' was released in December 2017 and will support efforts to improve collaboration (e.g., with operational leads, academic partners and others through core committees), communications (e.g., across networks), and evaluation • Gaps may include the lack of alignment with primary-care arrangements, most of which are beyond the purview of AHS	• Alberta Academic Health Network, Alberta Clinical Research Consortium and master affiliation agreements between AHS and the University of Alberta and University of Calgary support alignments between health-system and academic institutions
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'	• AHS supports team-based care through o eSim program, which provides simulation-based training o CoAct program, which supports a more collaborate model of care (involving patients, families and providers) for (now) half of all patients admitted to AHS hospitals o 'just culture' principles, which support everyone to feel safe, encouraged and enabled to discuss quality and safety concerns	• None identified

Characteristic	Examples	Health-system receptors and supports	Research-system supports
		• Gaps may include the lack of similarly explicit supports to culture at higher levels	
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)	• 16 strategic clinical networks bring together communities of interest among front-line providers (many of whom have strong connections to academic departments, the Alberta Medical Association, and national professional societies, among others) and support improvement o for select sectors (primary care; emergency and critical care parts of specialty care), although it has taken longer for the primary care network to launch fully since primary care largely sits outside of AHS's operational responsibilities o for select categories of conditions (addictions and mental health; bone and joint conditions; cancer; cardiovascular disease and stroke; diabetes and obesity (and nutrition); digestive conditions; kidney disease; neurosciences, rehabilitation and vision conditions; and respiratory conditions) o for select categories of treatment (surgery) o for select populations (Indigenous peoples as part of population, public and Indigenous health; pregnant women, newborns, children and youth; seniors) • Alberta Bone and Joint Health Institute supports service improvements for bone and joint conditions • AHS Improvement Way provides continuing professional development to support rapid learning and improvement • Alberta Medical Association's Physician Learning Program supports and advises physicians in all stages of improvement projects • Health Quality Council of Alberta monitors and publicly reports on healthcare quality (as an independent voice in the health system) and supports front-line rapid learning and improvement • Auditor General also publicly reports on health-system topics (e.g., primary-care networks in October 2017) but not with an explicit rapid-learning and improvement lens	• None identified

Table 2: Assets and gaps in the primary-care sector in Alberta

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	• 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	• 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	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	• 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	• 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

Characteristic	Examples	Health-system receptors and supports	Research-system supports
longitudinally) and provider engagement alongside data about other process indicators (e.g., clinical encounters and costs) and outcome indicators (e.g., health status)	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)	• Gaps may include limited access to much of the primary-care data collected through private primary-care practices	
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	• 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	• 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)
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	• 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	• None identified

Characteristic	Examples	Health-system receptors and supports	Research-system supports
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	• 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: o primary-care networks, some of which have experimented with better aligning financial arrangements o 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 committee and five zone PCN committees to support PCNs to undertake joint service planning within a provincial framework • 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)	• 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'	• 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	• None identified

Characteristic	Examples	Health-system receptors and supports	Research-system supports
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)	• 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'	• None identified

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

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	• AHS supports a provincial advisory council for 'seniors and continuing care' that includes patients and family members • AHS's strategic clinical network on seniors health supports a 'core committee' that includes patients and family members • AHS's provincial 'seniors health' program supports the Continuing Care Quality Council and its working groups, each of which includes patients and family members • AHS's provincial 'seniors health' program supports patient goal setting as part of its advance care planning work	• AHS's strategic clinical network on seniors health will soon release a list of research priorities in seniors health that was prepared using a James Lind Alliance approach (and a list of research priorities specific to dementia is now being prepared)
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	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	• Health Quality Council of Alberta conducts client and family 'satisfaction and experience' surveys in all continuing-care sectors • Path to Care program measures a variety of types of wait times and shares the data widely • Continuing Care Quality program measures quality in all long-term care homes and shares site-specific data with residents, families and staff (and these data will	• None identified

Characteristic	Examples	Health-system receptors and supports	Research-system supports
engagement alongside data about other process indicators (e.g., clinical encounters and costs) and outcome indicators (e.g., health status)	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)	soon be available alongside all other long-term care data through a single website)	
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	• AHS's provincial 'seniors health' program and its strategic clinical network addressing seniors health work with AHS knowledge-management staff to synthesize data and evidence about clinical problems and options for improvement	• Translating Research in Elder Care (TREC) undertakes research about front-line care provision in long-term care homes • AHS's provincial 'seniors health' program and its strategic clinical network addressing seniors work with many provincial research groups (e.g., those supporting Alberta's dementia research framework) and national research groups (e.g., Canadian Frailty Network)
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	• AHS's provincial 'seniors health' program and its strategic clinical network addressing seniors health provide care pathways and other decision supports for palliative care and for medical assistance in dying • AHS's provincial 'seniors health' program supports the preparation of 'clinical knowledge topics' and their incorporation into clinical information systems • AHS's provincial 'seniors health' program is working with Alberta Health's Health Evidence and Policy Unit and others to conduct a health technology assessment to inform community-based models of palliative care	• 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	• AHS delivers most of the home and community care, specialty care, rehabilitation care and long-term care accessible to seniors and, through 'Enhancing Care in the Community,' is investing in home and community-care infrastructure (to improve health promotion and disease prevention, intervene in community settings to avoid hospitalizations, and support continued living in the community)	• None identified

Characteristic	Examples	Health-system receptors and supports	Research-system supports
learning and improvement at all levels	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	• AHS's provincial 'seniors health' program and its strategic clinical network addressing seniors health have a shared medical leader • AHS's provincial 'seniors health' program has a mandate for standardization across the zones (e.g., home-care services and transitions into continuing care and across zones) and directs both operational connections to the zones and policy connections with a dedicated branch in Alberta Health (in ways that a strategic clinical network alone doesn't typically have)	
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'	• AHS's provincial 'seniors health' program supported the development and implementation of an integrated cross-sector approach to medical assistance in dying, which is a model for other cross-sector initiatives	• 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)	• A strategic clinical network supports improvement for seniors • AHS's provincial 'seniors health' program successfully scaled up medical assistance in dying, among other approaches to care • Gaps may include the limited number of staff to support the work of the provincial program and strategic clinical network	• None identified

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