Health Networks and Integrated Health Care

Literature Review

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Executive Summary

Integrated care interventions can be used to develop effective teams that deliver high quality patient care as well as organize services across a continuum of care. A targeted literature review was conducted to understand how different health care systems have implemented integrated care and what aspects can potentially apply to the Saskatchewan Health Authority (SHA). Integrated care interventions can redirect the focus of health onto interdisciplinary care, health promotion, and intersectoral partnerships and can improve primary care access, practitioner availability, and local decision-making with a focus on community needs, potentially impacting acute care utilization.

Definitions, models, and characteristics of integrated care vary, but each interpretation has wide-ranging impacts on health care systems. Integration can happen at the narrower (team) or broader (system) level of care delivery, and care providers can link with services in a continuum of care. Integration can be structural through organizational changes that addresses interprofessional collaboration barriers or informal through care provider communication. Additionally, patient-centered care helps teams work on shared care goals that reflect patient needs, and can increase continuity of care and patient and provider satisfaction.

Just as theories of integrated care vary, examples of integrated care can also vary. The Nuka System of Care (Alaska, USA), New Zealand, Australia, Alberta, British Columbia, Nova Scotia, and Manitoba provide insights into aspects of integrated care interventions.

The Nuka system provides care at the convenience of patients (customer-owners) and shifts away from General Practitioner (GP)/ Family Physician (FP)-led care to form a genuinely collaborative team-based care approach, complete with Indigenous teachings and services. The Nuka System is an excellent example of how integrated care can successfully tailor to the needs of a community.

In New Zealand, integrated care networks incorporate essential planning, funding, and care delivery activities that support care coordination. Throughout New Zealand, alliance networks encourage care provider collaboration that spans across health systems to create collective decision-making capacity. Continuity of care is a critical component of primary care delivery and creating patient-provider relationships. While FP-led care models are prominent in New Zealand, innovations in primary care such as Nurse-led care are improving efficiency in care.

Primary health care organizations in Australia improve access to care through effective coordination and integration of service delivery, which, in turn, creates interdisciplinary workforces, improves linkages between services, and enables local decision-making. Teams use interprofessional education to help primary care workers work effectively and improve primary care quality. Integrated care interventions vary throughout Australia. While FPs remain case mangers for patients, collaborative care models use multidisciplinary case conferencing and social care coordination to support local health needs.

Primary Care Networks (PCN) in Alberta integrate and plan care health care delivery across a continuum based on population needs. PCNs align with all health services, including community services, and can be involved in Shared Care, where specialists work directly with primary care teams in care delivery. Patient-centered care in PCNs is essential to primary care as patients work together with

interdisciplinary teams on shared care goals that focus on lifestyle factors and social determinants of health. Community-based care in Alberta acknowledges local health needs through collective care delivery, which enhances collaboration between care providers and increases the effectiveness of consensus-based decision-making.

In British Columbia (BC), Integrated Health Networks (IHN) improve patient care through after-hours care coordination, continuity of care, and information sharing. Community agencies and physicians work together to create an integrated, community-based approach to care. IHNs focus on better community linkages, comprehensive medical care, and improved teamwork. In addition to FP-led care models, community health models reduce accessibility barriers with interdisciplinary teams and patient rostering. Indigenous-led care, a distinctive innovation in BC, helps interdisciplinary teams provide culturally appropriate care and navigate patients a continuum of care.

Nova Scotia implements a variety of collaborative care initiatives through its primary health care system, which encourages team building and trust development between team members. Nurse Practitioner (NP) role development, formalized evaluations of care, and care assessments through quality indicators enhance collaborative care in Nova Scotia. Community-based health networks are team-based initiatives that focus on patient engagement, partnerships with other services, and performance measurement. Shared inter-organizational networks use open-ended working relationships to develop formal peer-to-peer interdependence and centers around multi-level integration across organizations.

In Manitoba, primary care reform interventions focus on team collaboration and relationship building between care providers and between patients and care providers. Specialized care networks facilitate patient treatment by bridging resource gaps and reducing physician burden of care. Support networks aid families in effective care coordination within communities.

Facilitators of integrated care include a focus on patient-centred care and strong team dynamics. Each model focuses on building better provider-patient relationships, which leads to improved patient engagement in care and improved quality of care. Additionally, strong interpersonal relationships between care providers can positively impact the health of patients, employees, and organizations through increased trust, communication, and collaboration. Team dynamics that acknowledge existing power dynamics, have highly engaged staff, and strong interdisciplinary decision-making can contribute to effective team-based care. The removal of discipline-based hierarchies in teams allows all professionals involved in patient care to be considered equals while acknowledging that team members have different skills and training. Furthermore, community engagement and partnerships help to address gaps in service by using community perspectives of needs, barriers, and resources to inform care delivery.

Barriers to implementing integrated care include power hierarchies with power imbalances between physicians and non-physician care providers. The limited familiarity with non-physician roles and competencies in an interprofessional team can make it difficult to effectively transfer tasks to appropriate team members to reduce FP caseloads. Additionally, limited knowledge about community health services means that care providers are poorly equipped to address continuity and coordination of care. Inadequate coordination, communication gaps, or errors between primary care and specialty care providers across the continuum of care can lead to siloed care delivery and create duplications of care. Moreover, insufficient integrated information-sharing systems creates a lack of comprehensive patient data for all providers. Finally, limited funding primarily allocated to structural changes and investing in

expensive services such as chronic and long-term care can prevent additional hiring of FPs and an adequate number of skilled workers to support the system.

Outcomes of integrated care are tabled below:

	Outcome	Model
Measures of care	Improved clinical performance or measures	*Alberta, Australia, British Columbia, New Zealand, Nova Scotia, Nuka system*
	Improved access to care services	*Alberta, British Columbia, Nuka system*
	Improved disease management	*Alberta, Australia, Nuka system*
	Reduced costs of care	*Alberta, Australia, New Zealand, Nuka system*
	Strengthened working relationship with community partners	*Alberta, Australia, British Columbia, New Zealand, Nuka system*
	Reduced wait times	*British Columbia, New Zealand, Nuka system*
Emergency Care usage	Reduced hospital days	*Alberta, Australia, New Zealand, Nuka system*
	Reduced Emergency Room readmission rate	*Australia, British Columbia, New Zealand, Nuka system*
	Drop in Emergency Room visits	*Alberta, British Columbia, Nuka system*
Quality of care	Increased community engagement in decision-making	*British Columbia, Manitoba, Nuka system*
	Effective patient self-management	*Alberta, Australia, Nova Scotia, Nuka system*
	Whole-body wellness approach	*Nova Scotia, Nuka system*
	Improved patient knowledge of medical conditions	*Alberta, Manitoba, New Zealand, Nuka system*
	Patients value team-based care	*Alberta, British Columbia, New Zealand, Nuka system*
	Improved patient quality of life	*Alberta, British Columbia, Nuka system*
	Adjusted life expectancy	*Australia*
	Patient engagement in care	*Alberta, British Columbia, New Zealand, Nuka system*
Team dynamics	Strong interpersonal relationships between care providers	*Alberta, Australia, British Columbia, Manitoba, New Zealand, Nova Scotia, Nuka system*
	Reduced FP burden of care	*British Columbia, Manitoba, Nuka system*
	Reduced staff absenteeism	*Alberta*
	Reduced staff turnover	*Nuka System*
	FP job satisfaction	*Alberta, British Columbia, Manitoba, New Zealand*

Promising practices from different models include:

- *Engaging patient and their families in care planning*. Patients are considered members of their care team, which improves patient-provider relationships and reduces information barriers for patients in learning more about their health. Interprofessional teams work with patients on shared care goals, which emphasize the importance of social determinants of health.
- *Community-based care*. Community partners are included in care delivery. Extending care beyond the traditional clinic visit, which rural and remote communities may not be able to access, ensures that care is provided at the patient's convenience. Involving community organizations in evaluating and planning primary care strengthens interprofessional relationships and ensures local care needs are assessed.
- *Incorporating Indigenous approaches to care*. The system helps patients meet their physical, spiritual, and cultural needs, assisted by culturally competent care providers that build on existing culture. Indigenous approaches to health and wellness helps interdisciplinary care teams provide culturally appropriate care and helps individuals become owners of their health and create wellness through self-determination.
- *Burden of care shifts* from FPs to the team as collaborative/relational approaches to care allows for effective teamwork and shared care delivery. When individual team members are used at their maximum scope, they can reduce caseloads and administrative burdens for FPs.
- *Whole-person approach to patient care*. A whole-person approach applies a holistic view of patient care that can account for sociodemographic or lifestyle factors that disease-specific approaches lack.

The successful implementation of integrated primary care interventions depends on the presence of key facilitators and the mitigation of barriers to integrated care. This creates effective teams and improves quality of patient care, resulting in positive patient and system outcomes. The three models of the Nuka system, Te Whiringia Ora in New Zealand and British Columbia best capture the future of integrated primary care. Factors that build on relationships, enhance team-based care, and reduce care burdens can help successfully implement integrated care interventions. Overcoming barriers to intervention requires both structural and cultural changes. Promising practices from all reviewed models can be used to support integrated health care planning.

HEALTH NETWORKS AND INTEGRATED CARE LITERATURE REVIEW

Overview of Integrated Care

Integrated care has emerged in response to the increasing burden of aging populations, chronic conditions, and complex care needs. Overtaxed health systems cannot meet the service demand and are rife with structural barriers to effective coordination of care, with detrimental impacts on quality of care and health outcomes. Primary health care is increasingly understood to impact service utilization of acute care and other sectors of health. With this understanding, expectations of equity in access to primary care, consistent availability of practitioners, programs rooted in the community's needs, and patient participation in decision-making are driving discussions about the future of primary health care. Chronic and complex disease prevention and management serve to emphasize the importance of interdisciplinary care and appropriate linkages and utilization of specialists and diagnostic services (1).

Characteristics of Integrated Care

As primary health care becomes more integrated, the health structures, team dynamics, and quality of care provided to patients will continue to change. Definitions, models, and interpretations of integrated care can vary, but recurring themes in literature paint a picture of the core tenets of an integrated health system. A jurisdictional scan conducted by the Saskatchewan Ministry of Health (2) found the following commonalities in the priorities of integrated care in British Columbia, Alberta, Saskatchewan, Manitoba, and Ontario:

- Access
- Attachment to a care provider (patient registration/rostering)
- Seamless care transitions/coordination and continuity of care
- Addressing complex needs
- Person-centered care

Other defining characteristics of integrated care highlight both the universal nature and customizability of such care models (3). These include (3–8):

- A focus on both health care and health promotion (wellness and prevention).
- Creation of intersectoral partnerships and action between health and non-health services within the community.
- Creation of interdisciplinary teams (role release and expansion).
- Contextually-bound models, that is, there is no one-size-fits-all approach. Structures and processes are tailored to the needs of the population across the continuum of care, with diverse development and implementation depending on the context.
- Teams are more responsive to complex cases/co-morbidities.
- There is a shared electronic patient information system.
- Team-based rather than physician-dominant model, with flexible leadership based on the health issue and care plan.

- Operation within a complex adaptive system, which is non-linear and unpredictable.
- Processes are implemented that optimize efficient performance of interdependent activities.

Integrated care can affect changes at the process, service outcome, and system impact level. The service outcome level often sees notable results following integration, including quality of care and staff satisfaction. The broader effects of integration are often found at the system impact level, for example, decreased use of hospital-based services, increased use of primary care and community services, overall levels of use of health care services, and cost of delivering health care (4).

Factors Influencing Implementation of Integrated Care

Key elements that influence integrated care include organizational and interpersonal factors. The presence or absence of various factors can be seen as either facilitators or barriers to implementing an integrated health network.

Organizational Factors

Commitment to Integrated Patient-Centred Care

The system is focused on a patient-centred model of integrated care, with integration implemented to benefit the population rather than as a cost-saving measure. **Health care teams work together to establish shared goals that reflect patient and family priorities and that can be clearly articulated, understood, and supported by all members.** Teams that are more patient-centered in their approach to care are associated with increased continuity of care, higher patient satisfaction, and increased provider satisfaction (9,10).

Service Delivery

Provincial goals and priorities are balanced with community needs. There is a formalised connection between the primary care practice and the patient to improve provider accountability and continuity of care as well as helping to contain costs. There may be a requirement than primary care practices provide patients with a comprehensive range of after-hour 24/7 primary care services. There are specific solutions for rural and remote areas. Focus is directed towards patient engagement and considerations of health equity and social determinants of health.

Structural Elements

Governance mechanisms at the community, regional, and provincial levels are explicitly directed towards implementation of integrated care (11). There is clear priority-setting and focus on integrated care, with a flexible framework that guides rather than prescribes actions and strategies (12). There is **long-term commitment and planning, with an adequate period of implementation to allow new processes to embed within the system and affect patient and system outcomes**. Coordination exists between information management, clinical management, and administration. Structural changes include greater physician accountability to patients and health systems (13).

Funding Structure

The provider payment arrangements are aligned with the health system goals (1) and facilitate financial and contracting mechanisms as well as accommodate the interactions of the interdisciplinary team. The integration process is adequately funded (14).

Technology

Investments are made in information communications technology to make this accessible to both patients and providers. **There is a shared information system that provides real-time communication and access to patient data and effectively supports patients and providers** (13). Patient-held records, such as the MyHealthNS initiative in Nova Scotia, enable patients to have direct access to their own information including lab tests and diagnostic images. These platforms can enable electronic communication between patients and health care team members (14). Technology also allows patients and physicians to be linked with clinicians from other disciplines who do not work in the same location or organization. In geographically remote areas, electronic communication is crucial for information sharing and even remote delivery of care to patients.

Effective communication and EMR integration are important determinants of interprofessional collaboration and effective team relationships. This seamless integration improves communication among providers, results in less conflicting advice from care providers, and facilitates the transfer of data between providers.

Evaluation/Quality Improvement

Data reporting and rigorous evaluation are essential to drive changes in practice. Traditional evaluation strategies are adapted to assess the complexities of integrated care. Agile environments allow teams to mobilize the resources they need to innovate, fail, adapt, and progress. There is a culture of continuous improvement, allowing the time necessary to build infrastructure necessary to support trusting team relationships and provider understanding of and commitment to the model (15).

Practices should define and track goals related to providing patient-centered, team-based care (14). Measurements can examine not only the quantitative efficiencies of a practice, but also the qualitative successes, for example, the quality of relationships among team members. Practices can get a patient-centred perspective by providing opportunities for patient feedback on their interactions with the team.

Personal and Team Factors

Leadership

Supportive, skilled, visible, and engaged leadership that guides direction, collaboration, and accountability facilitates the implementation and success of integrated care teams (14). **Integrated care teams are likely to be successful if leadership and staff have a shared vision, build on capacities, and create an effective communication structure** (16). Team and power dynamics are conducive to collaborative and coordinated care.

Teamwork

Teams depend on effective collaboration and coordination among primary care, secondary care/specialists, allied health services, and social services with consistent, transparent, effective, and efficient communication (11,14). Teams are enhanced by non-hierarchical management, governance, and accountability, as well as shared values, goals, and sense of purpose among the staff and organization. Co-location, clear roles and responsibilities for each member of the team, as well as shared accountability among team members fosters a sense of trust and team membership (16). The type and diversity of clinical expertise plays a role in improvements in organizational effectiveness and patient care (17). **Effective, trusting relationships between providers as well as between providers and patients are essential in establishing and maintaining successful integrated care teams** (14).

Staff Engagement

Staff engagement is enhanced through balancing (18):

- A bottom-up versus top-down approach
- Incremental versus "big bang" transformation
- Autonomy versus accountability
- Support versus sanctions
- Engagement versus command and control
- Intrinsic versus extrinsic motivation
- Workforce stability, i.e., staff adequacy and consistency

The literature on team functioning generally identified the following factors as essential to successful staff engagement (4,5,19):

- Opportunities for input
- Being informed/communication
- Employee empowerment
- Support and resources, especially training
- Job and role certainty
- Staff adequacy and consistency
- Time for and regularity of meetings/huddles

Characteristics of High-Performing Teams

While teamwork was included in the previous section due to its important role in change management, specific elements that have been found to contribute to successful teamwork are discussed in this section.

The College of Family Physicians of Canada (20) created a best advice guide on team-based health care. This recommends ensuring physician practices are ready to change the practice culture, the nature of provider-patient interactions, as well as education and training. Providers should have a clear understanding of team members' education background, scope of practice, and areas of strengths and limitations. The guide also emphasises the necessary role of nurse-led clinics, particularly in rural and remote communities, where fewer physicians may be available.

Team Size

There is no one-size-fits-all model for integrated care teams. Team composition depends on the professional competencies, skills, and experiences needed to address the health needs of the patient population. Team size is an important consideration as too many team members can reduce effectiveness, and create greater strains on effective communication. Conversely, smaller teams may reduce accessibility, continuity, and quality of care, and shift the burden to other parts of the health care system (e.g., acute care) (20).

Patient-Centredness

Integrated care teams should work together to establish shared goals that reflect patient and family priorities that are understood and supported by all members. **Teams that are more patient-centred in their approach to care are associated with increased continuity of care, higher patient satisfaction, and increased provider satisfaction** (20).

Team Relationships

A common vision is important for team success. Health professionals should work together with the goal that each patient receives the most comprehensive care possible. Team members work interdependently, while acknowledging the unique contributions of all members. A positive team dynamic encourages **trusting relationships that are collaborative, open, and inclusive**, which is an essential prerequisite for a positive practice culture, including open communication (20).

Communication is a key component to strengthening relationships between team members (20). Not only does it help relay team responsibilities, it also helps define a practice's culture and reduce unnecessary duplication of services. Having open and clear communication lines creates a community that is encouraging, trusting, transparent, and respecting. Team members that listen to each other and respect differences in views describe having more positive interactions. Scheduled team meetings or daily "team huddles" can be a productive way to enhance communication and bring the team together to discuss program delivery, care planning, care coordination, and any other patient care issues. Collaboration, conflict resolution, participation, and cohesion are most likely to influence staff satisfaction and perceived team effectiveness (17).

Education rounds, regular staff meetings or huddles, advanced use of technologies, and co-location of team members are all solutions to individual- and practice-level barriers to effective interprofessional **collaboration**. Meetings should be arranged without placing undue time burden on busy staff. The type of communication that works best may differ between teams and the unique needs or preferences of their members (20).

The literature on team functioning generally identified the following interpersonal factors as essential to successful teams:

- Openness
- Respect
- Honesty
- Trust
- Communication

- Psychological safety, or an emotionally safe climate that supports expression and resolution of conflict and builds trust and cohesion

Teamwork

Team effectiveness can be perceived differently by different groups. Patients may judge a team's effectiveness based on the services received, while team members may focus more on job satisfaction and achieving shared team objectives. At the practice level, team effectiveness may focus more on efficiency and financial performance. These competing perspectives stress the importance of having well-defined goals and indicators to measure team effectiveness (20).

Practices component should define and track goals related to providing patient-centered, team-based care. Measurements can examine not only the quantitative efficiencies of a practice, but also the qualitative successes, for example, the quality of relationships among team members. Practices can get a patient-centred perspective by providing opportunities for patient feedback on their interactions with the team (20).

The literature on team functioning generally identified the following factors as essential to successful teams (4,5,11,14,16,19,21–23):

- Clear boundaries
- Clear roles and expectations
- Space configuration that facilitates frequent face-to-face interactions
- Ongoing role negotiation
- Collective identity
- Flexible leadership
- Role release and expansion
- Shared goals and sense of purpose
- Culture of learning and resilience through adversity
- Openness and commitment to change

Barriers to Building Teams

The College of Family Physicians of Canada (20) outline some common barriers to teamwork:

- **Funding and financial incentive models**: When one team member—often a physician—receives the funds for primary care services, there may be less incentive to share service provision or decision-making responsibilities with other team members.

- **Role clarity**: When some groups have overlapping or variations of similar competencies, it can result in ambiguous expectations of what a defined role is within a practice. During the planning and team development phases, roles should be clearly outlined.

- **Role relationships**: Team effectiveness and collaboration can be affected when team members perceive or project an artificial professional hierarchy. Developing and implementing a standard set of behaviour policies and procedures can create clear expectations between different members. Ensure the policies are consistent, universally applied, and do not show favouritism to specific roles. Encouraging informal or formal group interactions can also help enhance collaboration between perceived hierarchical roles, and break down any silos that may exist.

- **Communication inefficiencies**: Medical errors can occur if critical information is not being passed on, information is misinterpreted, next steps are unclear, or changes in a patient's status are overlooked.

Overview Conclusions

The effects of integration extend beyond primary care as effective interventions can have system-wide effects, such as movement towards community care activities, the influence of secondary care activities (usage), and associated cost reductions (4). Areas to target in the implementation of integrated care include:

- Focus on a patient centered-care model
- Creation of a common vision held by leadership, physicians, and staff, and engagement of all stakeholders in implementing integrated care
- Ensure shared values, beliefs, and priorities among teams
- Create trusting, respectful, and supportive relationships
- Ensure effective communication and collaboration

Models of Integrated Care

Introduction

To better understand the practical applications of integrated care in primary care settings and how it can apply to Saskatchewan, a targeted literature review of seven health care systems was conducted: New Zealand, Australia, Alberta, British Columbia (BC), Nova Scotia, and Manitoba and the Nuka System of Care in Alaska, USA. These specific Canadian provinces were included because of similarities to Saskatchewan.

Methods

Approximately 15-20 articles were included in the review of the New Zealand, Australia, and the Nuka health care systems. A total of 17 articles were included for Alberta, BC, Nova Scotia, and Manitoba: 3-7 articles for each province. Articles were not assessed for quality. Types of articles included literature reviews, systematic reviews, case studies, descriptive studies, observational studies, evaluation studies, and quasi-experimental studies. Grey literature and internal documents were also included.

Socio-geographic inclusion criteria were created to ensure relevance to the Saskatchewan health care system. These include locations with small urban, rural, and/or remote areas; a substantive indigenous population; a sparsely distributed population; and a similar system of health care (i.e., partially or fully publicly funded). An article met individual criteria if explicitly stated in the article. The most frequently met criteria were rural or remote location description, population considerations similar to Saskatchewan, and sparsely distributed populations. The substantive indigenous population criterion was uncommon. Each health care system included in this review described rural and remote care locations and indigenous care characteristics, but some articles specifically addressed these populations as the focus of their integrated care interventions. Overall, this assessment helped explain how aspects of integration in one system are relevant to Saskatchewan, despite minor differences.

Focus of data extraction

After identifying relevant articles, data regarding specific details of integration were extracted (please contact authors for detailed tables):

- *Article overview*. The study design, strengths, and weakness of the study, assessment of socio-geographical inclusion criteria, and details of integrated care examples.
- *Integrated care*. Description of each integrated care model, the type of integration, and continuity of care. Details included an overview of the model, how care is integrated, barriers to care, resources, model maturity, level of integration, the formality of integration, reasons for integration, transitions of care, and descriptions of communication and collaboration in care.

- *Health care provider role*. Insight into the structure of teams, who are involved in immediate primary or specialist care, how the team functions collectively, the impact of changing team dynamics, as well as changes in individual care provider roles.
- *Outcomes of integration*. This assessed the potential benefits and challenges of integration corresponding to healthcare delivery changes, team dynamics, and patient inclusion in care. Outcomes were divided into quantified outcomes such as cost or benefits to a health care system and non-quantified/non-specific outcomes. Non-quantified outcomes were further divided into patient outcomes, patient experience, 'staff experience, and other outcomes. Other outcomes ranged from impacts on the health care system to the effects of community engagement. Quantified outcomes were often lacking in articles.
- *Reasons for success*. This refers to the author's attribution of success to factors that enabled integration to be successfully implemented and maintained. These were sometimes not explicitly stated and thus had to be inferred. Success factors included trust and respect between team members, positive relationships, improved team-based culture, specific processes such as team huddles, informal team meetings or improved role clarity, or patient and community engagement in care.

Model Overviews

Details of integrated care were examined for each model to determine which factors facilitate successful intervention implementation. The Nuka system has adapted primary and secondary care to the needs of the community in a culturally appropriate manner. Health care services in New Zealand are linked to create an effective continuum of care. Geographic networks support community-based care in Australia. Primary care networks in Alberta connect health care services and provide patient-centered care. Integrated Health Networks in BC arrange services that allow for continuity of care. In Nova Scotia, inter-organizational networks use collaborative care to organize care between different services. Care networks in Manitoba support integrated care interventions that reduce gaps in patient care.

Nuka System, Alaska

The Nuka System of Care in Anchorage, Alaska, USA, crosses traditional care boundaries to provide services at the convenience of patients or 'customer-owners' (COs). Using a collaborative/relational-based approach to care, teams work with patients to promote physical, mental, emotional, and spiritual well-being (24). Fundamental aspects of the model are continuity of care, patient-centered care, CO-care provider relationships, relationships within teams, collaborative care, shared care responsibility, self-care, and self-management (24). The model aims to ensure that each CO has a dedicated family physician (FP) (25) and primary care team and shifts away from disease-specific clinics with generalist care (26). Protocols and best practices such as regular informal 'huddles', team meetings, feedback on team performance of clinical measures, collective patient progress discussions, and collaborative care (27) promote team engagement and shared care delivery (28–30). A primary care team in each primary care center is responsible for approximately 1,400 COs (26). Primary care centers work closely with the Alaska Native Medical Center, which provides inpatient, specialist, and tertiary services (27). Services

across the care spectrum include dentistry, behavioral health, pediatrics, obstetrics, complementary medicine, traditional healing, domiciliary services, and health education services (26).

Aspects of integration in the Nuka system include:

- ***Structural integration***: All services, including specialist care in hospitals, are integrated into one system, and specialists work in integrated primary care team as consultants
- ***Horizontal integration***: No longer an FP-led care model, care provisions are maximized by reducing physicians' and nurses' administrative load. Through collaborative teamwork, hierarchies break down, as all team members see each other as peers, with no division between disciplines
- ***Patient-focused***: COs are considered care team members and make decisions guided by their integrated care team.
- ***Community involvement***: Model governance, evaluation, and decision-making include community members in each step of the process.

Integrated primary care teams, consisting of FPs, mental health practitioners, case managers, medical assistants, and administrative support, along with health professionals and medical specialists who serve as advisory consultants, provide care to help COs transition to the community (30). Nurses act as case managers in primary care teams, supported by health care assistants and specialist nurses, retained when necessary. Specialist team members, including dieticians, pharmacists, midwives, and behavioral consultants, rotate throughout the primary care clinics with roles to support primary care teams (26).

Unlike traditional primary care models where FPs refer patients to specialists, the Nuka system uses a **generalist approach to care**. Specialists are brought into primary care teams (26,28) as consultants to create a multi-specialty care provider community, an expanded version of integrated primary care (25). Specialist nurses work with the integrated primary care team (31).

The Nuka system does not follow an FP-led care model. Care is provided by larger integrated care teams responsible for creating and implementing patient treatment plans with physician assistance (32). The team member who can do the work most appropriately and cost-effectively does so (27) and allows FPs to pass work to nurses, who can then pass it on to medical assistants and administrative staff (31). In this way, non-physician care providers can undertake greater care responsibilities, working to the top of their scope. Primary care nurses are responsible for case management (25), care coordination, chronic disease management, triaging, and providing information about lab and medical conditions (31). Nurse managers determine which team member or advisory consultant can best address CO needs or whether care can be provided over the phone (25). Through this process, nurse managers develop in-depth, long-term relationships with COs (28), helping them consider local prevention opportunities (33). Nurse-led care management addresses social, psychological, and emotional determinants of health (8). Nurses better understand COs needs by spending time in their homes (34). These relationships help care providers build on existing culture (35) and change health behaviors (36).

Traditional healers, labeled ‘Tribal Doctors’, are hired, trained, and accredited to provide culturally relevant skills (8) and work alongside medical professionals (27,31) in integrated care teams (33) and work on issues such as weaning people off pain medication (37). FPs only handle complex duties such as prescriptions, diagnosis, and bone fractures (32) while supporting integrated teams in clinical decision-making (28). Physician Assistants or Nurse Practitioners (NP)s lead a third of all integrated care teams

(32). All individuals involved in providing CO care are called ‘clinicians’, with no distinctions made between disciplines (38).

Integrated care teams in the Nuka system have an organizational attitude of embracing change, and team members are encouraged to take ‘ownership’ of the organization with their power in decision-making (39). Daily interdisciplinary team meetings (8,36) allow teams to share tracked information such as COs most in need, most-used medications (27), and patient contact frequency. This information is used for routine monitoring and preventative screening (8). Quality improvement is everyone’s responsibility (34), and CO feedback, which is crucial to maintaining this model, is acted on within 24 hours (26).

A variety of small-scale innovations have allowed for improved care delivery. Care planning tools accessible to all care providers allow for effective teamwork and collaboration, breaking down traditional hierarchies (26). Video conferencing and telemedicine linking help teams communicate effectively, especially teams in rural villages (29,31,40). Same-day access to in-person and virtual appointments (30) removes waitlists and bottlenecks of FP-led care. The physical design of shared team lounges in primary care clinics removes discipline-based divisions between FPs and non-physician care providers (24,32,41). Same-day hiring practices reduces delay in recruitment (27). The automation of routine tasks (26) and the creation of innovations such as a ‘vending machine’ of the 100 most common drugs used (38) maximize care.

The Nuka system has adopted ‘Patient-centered care’ to fit their community (30) and focuses on customer-driven (40) relationship-based care (24,27,42) with a population-based approach (40). COs can choose their integrated care teams, and the type of care provided (27) or are matched (31,33,40) by a case manager. Guided by integrated care teams, COs have ultimate decision-making power about their health (26,34). Care teams provide COs with direct phone lines for ease of use (27), and they are encouraged to phone, text, or email (8). Patient needs drive collaboration between primary care and other services (28) along a care continuum. A collaborative effort by local, regional, and national partners identifies service gaps and advise solutions (25). Primary care is fully integrated with the community (27,41) and other health services, focusing on the whole-patient wellbeing (8). Improving service integration allows for effective continuity of care and primary care organization (33). The CO community is closely involved in the Nuka system's governance and planning (39) and are offered educational programs and learning opportunities (26,39).

New Zealand

In New Zealand, primary care functions independently (43) and is customarily delivered by FPs, who operate private businesses and set fees for their consultation. However, primary care is increasingly provided by primary health organizations through team-based primary care with lower patient fees (44). Integrated care in New Zealand commonly refers to care coordination, where key planning, funding, and service delivery activities link together to support coordination (45). In order to address fragmentation between primary care and an existing integrated services model that lacked a seamless care transition, the current New Zealand care model was developed (45). Integration sought to reduce fragmentation between levels of care and different care provider disciplines. Service integration between district health boards and primary health care organizations created alliance-based clinical networks (46), which

supports complex patient care in primary care settings (47). Care pathways between primary and secondary care for patients with specific conditions help FPs become familiar with the necessary steps taken at each level of care (48). Alliance-based networks enable care provider collaboration (47) and encourage intersectoral work between all healthcare providers; however, team-based integration is not formally mandated (45,49). These networks benefit from clinical leadership, spanning across the health system, and creates the capacity for care providers to contribute to decision-making (47). Adopting a whole-system approach to care planning and decision-making removes intersectoral interests by assisting one another (47).

Centralized payment systems are the infrastructure of integrated care models (43,45,48,50) and can also incentivize collaboration and teamwork (51). Integrated care servers, electronic referral systems (46,48,49,52), and record sharing also contribute to integrated care. Integrated care in New Zealand is commonly understood as patient-focused interprofessional networks (53), which connect services (45,47). Greater awareness of who to contact and improved coordination of care strengthens relationships between the 'micro', 'meso,' and 'macro' levels of care (43,51):

- *Micro*-level: care providers work together through activities that promote integration, creating a better link between primary and secondary care (45)
- *Meso* level: workforce capacity, leadership, and other variables that impact organizational readiness determine the level of integration (51)
- *Macro*-level: care providers work together to promote organizational collaboration (45) through cooperation, multidisciplinary teamwork, and information sharing (51), supported by funding and policy (45)

As the balance of care in New Zealand moves away from hospitals to communities (43), primary care teams can effectively address health issues and reduce the episodic use of emergency rooms. Team-based care includes front line providers and professionals from different fields who work together on coordinated tasks across traditional care (54). In some locations, general managers of primary care are free to implement organizational arrangements across a health system as they see fit (55), which may mean variations in care delivery.

In team-based care, FPs share their role with other health professionals, and nurses pass time-consuming tasks to less trained professionals to focus on patient care and patient care planning, which allows for multidisciplinary collaboration in clinic staff (55). In some cases, FPs are not involved in care planning but provide support continuity and access to care, while case managers and support workers provide and plan direct patient care (44). After identifying cases, case managers work in teams to coach and assist patients in implementing their care plans (56). Integrated care can also be adapted to traditional FP-led care models by providing interdisciplinary training for health students, expanding nursing roles, dividing chronic care between FPs, and adopting the role of practice nurses, NGOs, and hospital outreach (49).

While some clinics may still adopt traditional FP-led care, other clinics rely on nurse-led care (57). Nursing leadership allows integrated care decision-making to be role-modeled at the senior level (58). The creation of a 'Director of Nursing' role and a focus on generalist-based care by nurses helps reduce silos of care (58). By moving away from FP-led care, service managers in larger clinics can be either doctors or nurses, serving as medical advisors to general managers, which subsequently eliminates

boundaries between clinical and administrative work (59). Nurse-led care and shared caseloads among nurses improves efficiency, making it possible to adopt integrated care to different settings (43).

Depending on planned outcomes, some primary care settings adopt integrated care interventions, while others retain an FP-led care model. For example, the Canterbury Clinical Networks uses a partnership-based approach to health care, which devolves decision-making, funding, and systems planning with care provider involvement (48). In this network, decision-making includes nursing leadership, which creates a collective leadership and trust culture (58). Alternatively, the Christchurch health care system integrates primary, community, secondary, and tertiary care services (58). Other local models re-integrate hospital services into community services, creating macro-level networks (59). Localized decision-making that involves primary care providers ensures that patients are central to each decision (43), and community-governed models allow local community partners to work closely with secondary care. Service management allows for the reduction in care fragmentation by simplifying management into a single stream, removing divisions between medical, nursing, or administrative staff (55). Lastly, the Te Whiringa Ora community-based program facilitates interdisciplinary care through a 'web of care', spanning across general practices, hospitals, and community service providers to ensure coordinated and seamless delivery of services while incorporating Maori health principles (56). A web of care addresses long-term needs through self-management and integrated primary care (56). It focuses on patient goal setting (44,56) to provide care to indigenous communities by putting patients and their 'whānau' (patient family) at the center of decision-making while involving community members (kaitautoko) in their care (56). Kaitautoko and case managers work as a team, sharing caseloads to deliver care (56).

A few clinics in New Zealand have vertically integrated successfully with little distinction between primary and secondary care (60) in providing seamless, non-fragmented care. Continuity of care is critical to providing effective primary care and improving the relationship between patients and care providers, focusing on patients' care outcomes (61). Expanding the range of primary care services can reduce the episodic use of emergency care through services such as direct access to diagnostic testing by practitioners, increasing surgical training to conduct more procedures without hospital referrals, and taking responsibility for after-hours care (48).

Australia

Health care in Australia is a mix of federal and state control, with subsidized access to primary health care (PHC) and private specialist care. FPs are gatekeepers to specialist care (62). 'Meso-level' primary health care organizations (PHCO) are intermediate structures between government and local PHC providers. A PHCO improves care access and coordination and integrates service delivery through vertical integration. This integration creates a multidisciplinary workforce, enhances clinical data sharing, integrates governance of services, improves linkages between services, and enables local decision-making (62). PHCOs, commonly called Divisions of General Practice, encourage local networking between general practices and integrated general practices in the broader health care system (62). PHCOs also address access to care through core programs, prevention/early intervention, and the support of multidisciplinary care integration (62). Geographically-based networks work together to deliver specialized hospital services, working closely to plan and deliver care. Effective governance in this model requires multiple care providers across social and health sectors to create, support, and

maintain the quality of care delivery (63). Primary care in Australia focuses on shared clinical priorities, joint planning between care providers, change management approaches, and effective information communication technology (63).

While FPs remain the case managers for patients in Australia (64), some may lead multidisciplinary care teams (65). Team-based care models have emerged in response to fragmented care challenges and increasing patient demands of accessing primary care (66). Team-based care can use interprofessional education to help primary care providers work effectively within teams and support systems (66). Primary care teams are evolving from solo FP-led care models to team-based care, which includes FPs, practice nurses, and allied health professionals (66). When expanding primary care teams, additional care providers can support changes in workforce roles and relationships within primary care. Primary care teams can be enhanced by health system facilitators, care coordination, generalist rehabilitation assistants, physician assistants, NPs, pharmacists, and paramedics (66). These expanded teams contribute to a primary care workforce with a multidisciplinary skill mix, enhance patient access to a range of primary care providers, and improve the quality of primary care (66).

Care providers involved in collaborative care models or integrated care initiatives can use multidisciplinary case conferencing, care navigation, and social care coordination to support local health needs (65). Centralized databases used by different care providers share information about care provisions, clinical indicators, and patient monitoring reminders that can facilitate care provider collaboration (64). Integrated care pathways can guide the development of multidisciplinary care and incorporate health care providers in different health care settings (67). Practice nurses (PN) have a diverse role in clinical-based activities in Australia. PNs can support care teams by providing patient education, self-management advice, network integration activities, organizational activities such as clinical data entry, procedural activities such as taking blood, monitoring clinical progress, and assessing and enhancing treatment adherence (68).

The adoption of integrated care interventions varies throughout Australia. For example, New South Wales (NSW) has transformed care delivery by focusing on organizing care to meet patient and caregiver needs. NSW primary care is designed to better-connect care while meeting local needs, improving information flow, developing collaboration pathways with government, and providing better access to community-based care (69). Another example is integrated place-based care in rural communities, which adopts health solutions to local contexts and enables collaborative care models that focus on local resources, skills, and knowledge (70). Alternative models of care can be used for specific conditions, such as the National Service Improvement Framework for Diabetes, which utilizes PNs in management processes and information systems to better manage care (53).

Alberta

Primary Care Networks (PCN)s were developed in Alberta to integrate health care delivery across a continuum of care and establish formal relationships between physicians and health regions, who collaboratively plan and deliver services based on population needs (71). Family physicians (FP) lead PCNs with a team of multidisciplinary health care providers who link patients with community services provided by health regions (72). PCNs have seen significant family physician participation, and as of 2009, PCNs provided 60% of primary care across the province (72). A PCN must provide better access to a primary care physician, manage access to services 24 hours/7days a week, improve care through health promotion and prevention, improve care for complex/chronic health needs, and effectively coordinate with other health services (72). PCNs coordinate and align with all health services provided by regional health authorities, including community services, which has helped primary care physicians feel more connected to the health care system as a whole (72). PCNs are also involved in three Shared Care projects: specialized care programs for mental health, chronic disease, and geriatrics, which allow specialists to align with some PCNs (72) and provide care alongside primary care teams.

Primary care teams led by FPs can collaborate to share care delivery (73), with a shared responsibility of care, collective decision-making, and carry out care plans as a collective unit (74). Shared care delivery allows care providers to deliver care in sequence with other care providers (75), ensuring no redundancies in treatment or overstepping professional hierarchies or boundaries. Community-based care allows FPs to work collectively in delivering care while addressing local needs and rural culture (72). Acknowledging local health care needs through collective care delivery creates the foundation for enhanced collaboration. Collaboration between primary care physicians, continuing care services, and other service providers in the community increase the effectiveness of care and consensus in decision-making (76). In addition to primary care teams, the responsibility for care delivery can span across community settings, generalist primary care teams, and interprofessional teams.

The level of team-based care in a care team can determine how involved various care providers are in care delivery. Flexibility in applying an integrated care intervention allows each interdisciplinary care team to prioritize service delivery (76). Aspects of team-based care, even if limited, may be present in FP-led care models where physicians are seen as ‘leaders’ or partners in care, overseeing the system of care, and working with other professionals to problem solve (77). In solo FP-led care models, other care providers, such as NPs, floor/team nurses, and specialty clinic nurses, all have specific aspects of patient care (77). For example, in the Calgary Rural PCN, nursing care is reorganized into smaller teams or ‘hubs’ for specific patient care components, where nurses work to coordinate care teams and monitor the patient status (71). When nurses are responsible for care planning, delivery, coordination, and monitoring, they can function at their full capacity and act as load balancers for FPs (77).

Despite being cared for by primary care teams, patients may prefer to be treated by an FP as they are familiar with their primary care role and may see other professionals merely as ‘collaborators’ (74). Informal professional hierarchies can also have a limiting influence on team care. For example, in an Edmonton hospital, any member of a consulting team was able to initiate patient consultations while collectively working to bridge acute patient care with community-based care (78). Giving other care providers greater patient responsibility can be useful for specialized care, such as chronic disease management. In the Taber clinic, nurse clinicians act as consultants to staff, inside and outside the clinic, and undertake care planning, evaluation, and patient home visits (74).

Patient-centered care is essential to primary care, and patient engagements affect care. At the Taber Clinic, at least two care providers from an interprofessional team work with patients on shared care goals for coordinated, high-quality care (74). Working with patients on their care goals shifts the focus away from solely clinical indicators to lifestyle factors and social determinants of health in patient care (79). The importance of relationship-based care is seen in both the Taber Clinic and Crowfoot Village Family Practice through patient 'rostering' and 'paneling'. Patients are seen by the same care team that monitors them throughout the year (77) and provides community-based care with a full range of services (72,75) in one location. Patients seeing the same care team develop continuity of care, which builds a lasting patient-provider relationship (77). Care planning with patients in mind improves interprofessional relationships and cohesion within a care team and priority setting to effectively reduce service gaps (72).

In managing patient care, primary care providers help patients access a continuum of services by coordinating community services (78) and self-management supports, which can be aligned through a continuum of care (73). Ensuring effective care transition is an essential step in discharging or referring primary care patients to other services. Care transitions can be used as a monitoring mechanism and help patients navigate appropriate secondary or community services (80). In some Edmonton family medicine teaching clinics, interprofessional teams collectively discuss patient care goals, care plans, discharge of patients (71,78), and barriers to discharge during patient rounds (71). Helping patients navigate to other services is crucial to improving primary care and interprofessional relationships with services across a continuum of care.

British Columbia

Five regional Health Authorities (HA) in British Columbia (BC) and the Provincial Health Service Authority (PHSA), which plans and coordinates province-wide services, collectively identify regional health needs and plan and deliver programs or services within the region (81). Each regional HA has Integrated Health Networks (IHN), which are virtual networks that connect primary care physicians in different locations. IHNs improve patient care through after-hours care coordination, continuity of care with the same care team, and information sharing (81). IHNs link physicians with community agencies to create an integrated and community-based approach to providing care (72). IHNs and primary health care in BC focus on effective resource use through improved teamwork, better community linkages, and comprehensive medical care, including preventative services, health education, and population-based health approaches (72).

Primary care in BC encompasses three types of models: fee for service (FFS) FP-led care models, community health models, and 'demonstrations' of primary care service delivery models (81). The predominant care model is the 'professional'/'primary medical care model', in which FPs deliver comprehensive services in solo or group practices (81). The status-quo of FP-led care teams reinforces this practice (81). Community health models aim to reduce accessibility barriers, with care delivered through interdisciplinary teams and patients rostered with care providers/clinics. Non-physician primary care providers include public health nurses, social workers, dental health workers, and nutritionists (81). Demonstrations of primary care service delivery models are projects specific to each HA, and while some may have limited sustainability, others have been adopted province-wide, such as community collaboratives. Community collaboratives are implemented across practice support networks to create

opportunities for shared care. This collaborative approach allows family physicians to work more closely with specialists and other health care providers, including nurses, social workers, midwives, or allied health professionals such as doulas (81). IHNs use collaborative care models to help organizations close service gaps (72). Fraser Health, one of the five HAs, has created a collaborative structure to strengthen primary care and integration of community services by placing primary, acute, and community care under one leader to encourage collaboration (75).

Shared care allows for collaborative practices, which ensures equal distribution in the burden of care (82). Organized care through effective interprofessional collaboration does not limit care to clinical environments as care can be delivered in more accessible locations or within communities (82). Reducing barriers to collaboration works to mitigate communication errors and redundancy of care. Family physicians and community-based home health case managers provide patient-centered care by treating traditionally siloed care needs (83). Indigenous led-care helps multidisciplinary care teams provide indigenous patients with culturally appropriate care (83) and helps them navigate care across a continuum (84). Indigenous approaches to health and wellness are led by the First Nations Health Authority (FNHA) and incorporate traditional BC First Nations teachings such as upholding governance and self-determination, individual ownership of health, building leadership, and reconciliation and partnership (83). The FNHA reclaims their community's wellness by revisiting an indigenous paradigm (83) of care.

Although some BC clinics may be more integrated than others, it is common for non-physician care providers to work alongside physicians and other professionals. These other professionals can help develop team capacity for prevention, education, and advocacy in care (76). Some non-physician care providers in care delivery, such as NPs, reduce FP patient caseloads, which allows them to take on more professional development opportunities. NPs provide effective primary care through case management and act as the bridge between clinic staff and physicians (82). The inclusion of nurses in care delivery is crucial for effective primary care. In a Fraser Health HA pilot program, nurses partnered with family doctors, individually provide in-home patient care assessments, and work to plan, monitor, and coordinate care while promoting self-management (75). Nurses also smooth transitions between sites, educate and support caregivers, and facilitate access to community resources (75).

Nova Scotia

Regional HAs deliver care through the Nova Scotia's Primary Health Care (PHC) System (85) using a fee-for-service (FFS) model. The PHC System has implemented initiatives to enhance collaborative care through role development of Nurse Practitioners (NP)s, care mission statements, formalized evaluation activities, and patient care assessment through quality indicators (76). Nova Scotia's PHC emphasizes collaborative practice within interdisciplinary teams, and between NPs and physicians (85). Team building activities are incorporated into the PHC system to build trust and respect between team members and other health care providers (76). Collaboration is facilitated through employment arrangements for NPs and remuneration for family physicians. These arrangements result in greater team accountability by organizing care providers' provisions that best use available resources to meet local needs (85).

Integrated care in Nova Scotia allows for shared care with collaborative teamwork (86), a strengthened referral network between levels of care (87), and a team-based, non-disease specific approach with the support of specialist care workers (88). A shared inter-organizational network has collective activities, and open-ended working relationships integrated into a formal peer-peer interdependence, allowing for the distribution of tasks requiring feedback or input (86). This network centers around multi-level integration where network members retain their own organizational identity but develop partnerships that crosscut social issues and can even act as a 'grey zone' between governments and community organizations (86). While there is no assurance that network members will choose to participate in their shared inter-organizational network, as members learn more about their capacity to care, they can be more responsive to network needs (86). Population-specific integrated care, such as providing routine care for chronic disease patients, can address population-specific needs with integrated and coordinated care modules (86) and provide integrated services across a continuum of care (89). NPs play a prominent role in the PHC system and work in collaborative practices with one or more family physicians, taking on increasing care responsibilities due to difficulty recruiting FPs and accessing other primary health care providers (85).

The Improving Cardiovascular Outcomes in Nova Scotia (ICONS) is an example of a community-based collaborative health network in the PHC system that is team-based and focuses on patient engagement. ICONS creates partnerships among health and related services to focus on performance measurement and quality improvement/innovation in primary care (90). ICONS multidisciplinary teams consist of primary care physicians, nurses, pharmacists, and medical specialists (91). These teams provide community leadership by sustaining inter-professional and institutional community networks, facilitating patient enrollment, and knowledge translation among patients, professionals, and patient caregivers (91). The ICONS network focuses on repeated communication of clinical practices and outcomes between network members, with regular care providers, and constant patient communication through newsletters, a website, or workshops, etc. (91). The ICONS network acknowledges other aspects of care with the inclusion of a pharmacy-based compliance program in care delivery. Overall, Nova Scotia has seen a shift towards collaborative practices and collaboration among health disciplines and community organizations in evaluating and planning primary care changes, which is essential for the success of primary care (85).

Manitoba

Regional HAs In Manitoba are responsible for the delivery of health services, divided between the provincial capital, Winnipeg, and four smaller rural areas (92). Physician Integrated Networks are used to encourage individual clinic improvements and to build an integrated primary care system across types of remuneration models and care providers (92). The Primary Health Care (PHC) system in Manitoba mobilizes health promotion services, prevention, care for common illnesses, and chronic conditions management. FPs and nurses assess, manage, diagnose, and treat these chronic conditions (93). Care providers' role and collaboration level may vary between solo FP-led care and team-based care models. When serving a specific population, physicians, NPs, and primary care nurses, who receive referrals from local services, undertake patient history assessment, manage care in interdisciplinary teams (88).

In reforming Manitoba's PHC system, the province has implemented several linked primary care reform initiatives, with some promoting specific observable behaviors (92). 'My Health Teams' (MHT), 'Family

Doctor Finder', and 'Shared Care' are examples of such initiatives. MHT is a collaboration between FFS physician clinics and regional health authorities in a geographic area to jointly plan and deliver care that meets local needs (92). 'Family Doctor Finder' is a centralized service that matches unattached patients to a primary care provider and relies on regional staff's intensive efforts to build trusting relationships with FPs. Shared Mental Health Care involves psychologists and psychiatrists who consult at different primary care sites (94). Shared Care is viewed as facilitating patient treatment, which bridges resources, and aims to reduce physician burden through treatment collaboration (94).

Like shared care, formal physician's networks facilitate patient treatment with the colocation of other care providers and involve them in care decisions (79). Support networks help families in care coordination through telehealth services, which serves as a vehicle for clinical care and community support, and allows communities an opportunity for capacity building and knowledge sharing (94). Support networks include care 'hub' teams and provincial network supports, which link existing services, allowing for the continuous flow of information between families and communities (94).

Facilitators of Integrated Care

Successful implementation of an integrated care intervention in primary care settings can be facilitated through key factors that impact patient care delivery. 'Patient-centered care' is seen in each reviewed model and is a central tenet of integrated care. A theme of shifting ownership of care to patients is seen in the Nuka system and BC. Patients become owners of their health who can choose their integrated care team and are directly invested in their care planning and delivery, as well as the broader health system (27,83). Customer-owners in BC serve dual roles in governing and accessing programs, which supports First Nation community ownership and control of health services (83). Acknowledging patient needs in care treatment, family involvement in care (88), and ensuring that decision-makers are comfortable and knowledgeable about existing resources (74) can improve **patient engagement in care.** Redesigning care with patients in mind empowers them to share responsibility in care delivery (27). By leading their care, patients and communities can create more sustainable health systems tailored to community needs (95).

Relationships are central to patient-centered care and can be used to improve patient-care provider communication, team collaboration, and service linkage. Building better relationships between care providers and patients is foremost in each reviewed model and leads to improved patient engagement in care as well as improved quality of care, as seen in the Nuka system (27), New Zealand (61), and BC (83). Spending more time with patients (73), making them part of the care team (78), and considering the patient experiences of care in priority setting decisions (74) is essential to patient-centered care and helps facilitate effective and collaborative patient-care provider relationships. Through team-based care, a patient connects with multiple care providers to develop team-patient relationships (28), which remove care bottlenecks because physicians are not present at each appointment (34). When patients see the same care team per visit, it develops continuity of care and a foundation of trust for long-term patient-care provider relationships (27). Patients make informed treatment decisions (27) through open communication between patients and care providers (96) and patient involvement in shared decision-making regarding their health and system governance (8). Long-lasting patient-provider relationships help care providers better understand patient issues (26,38) and what factors may be impacting their

health, which, in turn, helps create a high level of trust (38). The Nuka system successfully adopted relationship-based care through care delivery at the convenience of customer-owners (7). High cultural competencies among care providers (8), patient interactions with all members of an integrated care team (33), and relatable care providers who share their own experiences (38) each contribute to effective relationship-based care in a care model.

Improving patient-provider relationships and including patients in care planning and delivery makes patients more engaged and invested in the broader health system (38). As more patients become involved in their health, the greater community is collectively able to voice concerns and actively contribute to the management, governance, and feedback structures through formal processes such as advisory boards in the Nuka system or informal patient feedback surveys (35). Engaging the community in strategic care model planning (26,97) and governance creates a sustainable integrated care system tailored to the needs of the community (38). Increasing care accessibility for patients across a continuum of care and, community-engagement has led to effective integrated care in New Zealand, Alberta, and the Nuka system. **Community engagement and partnerships** are an excellent way to address gaps in service by using community perspectives of needs, barriers, and community resources to inform future care delivery (79). Building a health care system based on community needs and providing necessary resources can help communities build knowledge and capacity of care (87). Continual community engagement in care can improve health outcomes and increase patient satisfaction in their care delivery (95).

Changes to primary care such as expanded office hours, same-day appointments (31,32), and staying in contact with care providers (31) improves care accessibility and creates **continuity of care.** Ensuring each patient has a dedicated physician and integrated care team, with scheduled follow-ups (27), as seen in the Nuka system, reduces gaps of service and fragmentation of care delivery. A goal-based approach to continuity of care allows care providers to improve patient self-management of care (56). With this approach, 24-hour care reduces waitlists and the number of patients seeking hospital care (48).

The colocation of teams improves continuity of care and care coordination (25) through increased collaboration and staff satisfaction. This enhances patient experiences with same-day care access, quicker response to patient questions, and continuity of seeing the same team who know the patient story well (26). Effective **coordination of care and communication** can enhance interprofessional networks, as seen in Nova Scotia (89), Manitoba (87,94), and New Zealand (53). Levels of integration in New Zealand at the micro, meso, and macro-level allow for increased collaboration and better links between levels of care, organizational collaboration, and multidisciplinary teamwork at each level, respectively. Inter-organizational care networks in Nova Scotia allow for collaboration across various organizations and levels of care. Developing new professional relationships in networks allows trust to support cross-sectional partnerships with positive peer influences (89). Community partnerships and positive relationships between local zones, primary care, and community can create multiple entry points into a continuum of care (79). In Australia, these partnerships can function across agencies to navigate levels of care. Primary health care in Australia takes a holistic and comprehensive view of factors contributing to health. It recognizes the broader determinants of health, which includes coordinating, integrating, and expanding systems/services (63). Shared care planning tools support multidisciplinary care teams, and team case conferencing, used by various care providers to discuss

patient status (65), which can strengthen the connection between all care providers in a community at different levels of care.

Along with patient-provider relationships, **strong interpersonal relationships between care providers** are vital to quality care (38). Improved relationships between team members can positively impact the health of patients, employees, and organizations through effective communication, trust, and having services built around patients' lives (29). Within teams, various interpersonal and organizational factors can enhance **team-based care.** These include improved role clarity (78), the scope of practice, team huddles, team rounding (73), multilingual and multicultural interprofessional teams (79), regular team meetings, information sharing, connecting with other levels of care, and collaborative planning (71). In Australian care teams, joint decision-making, shared objectives of members, and team leadership's impact on outcomes create a systematic approach to team-based care (66).

Team dynamics that acknowledge existing power dynamics (43), have highly engaged staff (58), strong multidisciplinary decision-making (56), and include nurses in large-scale decision-making (58) can contribute to effective team-based care. Transitioning care to communities has reduced episodic acute care use in New Zealand and allows primary care teams to address health issues effectively in teams (53). Alberta, BC, Nova Scotia, and Manitoba have also moved towards team-based primary care models. These models are facilitated by creating space for types of care providers not typically seen in primary care (82), accepting the role of care providers in making timely referrals (84), trusting and acknowledging the clinical competence of other care providers (98), physician attitude towards team-based care (77) and prioritizing health team engagement (80). Strengthened team dynamics and the relationship between care providers is an essential facilitator of team-based care in each model**.**

Shared care delivery, a central tenet of team-based care, reduces redundancies in care (27) as FPs and other health professionals work collaboratively and assume complementary roles to share the responsibility of problem-solving, making decisions, and carrying out patient care plans (78). Interprofessional collaboration increases awareness of the competencies of other team members, which leads to better decision-making. Interdisciplinary primary care teams, supported by specialists who work as consultants for complex cases (94), can collectively work to reduce care gaps. The Nuka system uses clinical integration (see Part One), which allows for shared delivery, care planning, and decision-making in team-based care. Primary care teams have undergone significant staffing changes to support a collective care process, seen in each model through team-based care. **Home-based care,** common in Alberta, BC, and the Nuka system, allows care providers the opportunity to understand a patient's lifestyle in order to better plan their care (27,72,77). Strong health care leadership grounded in **First Nations teachings** can create productive relationships in care planning (83).

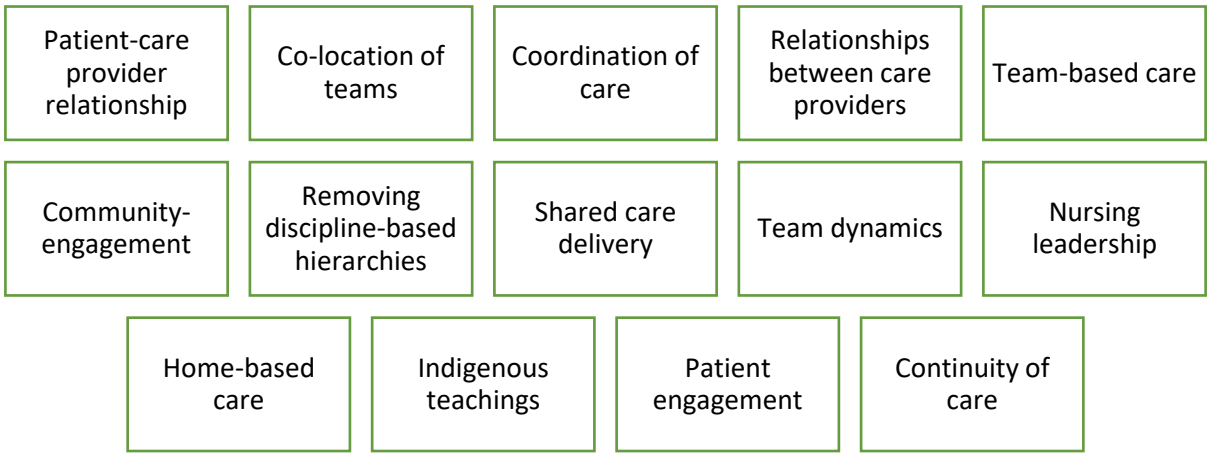
The removal of discipline-based hierarchies in teams allows all professionals involved in patient care to be considered equals while acknowledging that all team members have different skills and training (37). In the Nuka system, it is a priority to hire individuals of Alaskan heritage (sometimes from the community) to provide care and administer the program (29,30). Additionally, giving front-desk staff knowledge training (27) and replacing FFS payment with salaried pay (32) ensures all team members are well versed in how the system functions. These features allow customer-owners to feel represented by care providers and removes traditional divisions in the work environment.

Nursing leadership allows for reduced care gaps and silos of care. In BC, coordinating tasks across traditional boundaries of care allow for care coordination led by nurses, shifting the burden of care from

physicians. This version of nurse-led care in BC enables Nurse Practitioners (NP) to provide effective primary care. In Alberta, FP-led care models allow nurse clinicians to act as consultants to staff within and outside immediate primary care teams.

Team provision of care is central to providing comprehensive primary care; this shift is evident in each reviewed model. Changes in team attitudes**,** such as positive relationships and trust between members, can help teams properly function as a cohesive unit, encourage collaboration across power hierarchies and relationship-based care (82).

Figure 1: Common Facilitators of Integrated care



Barriers to Integrated Care

Balancing health needs with health resources can make it difficult to successfully implement integrated care interventions in primary care.

In FP-led care models, physicians remain the sole decision-makers or care planners in a care setting, which can create **power hierarchies** with power imbalances between the FP and non-physician care providers (82). This hierarchy can impact care provider relationships and collaborative efforts across the continuum of care. Non-physician care providers, such as case managers, may resist integrated care implementation because of hierarchical relationships with physicians and increased administrative burden (83). Each reviewed model shows that hierarchical relationships between care providers can interfere with genuinely collaborative delivery of care.

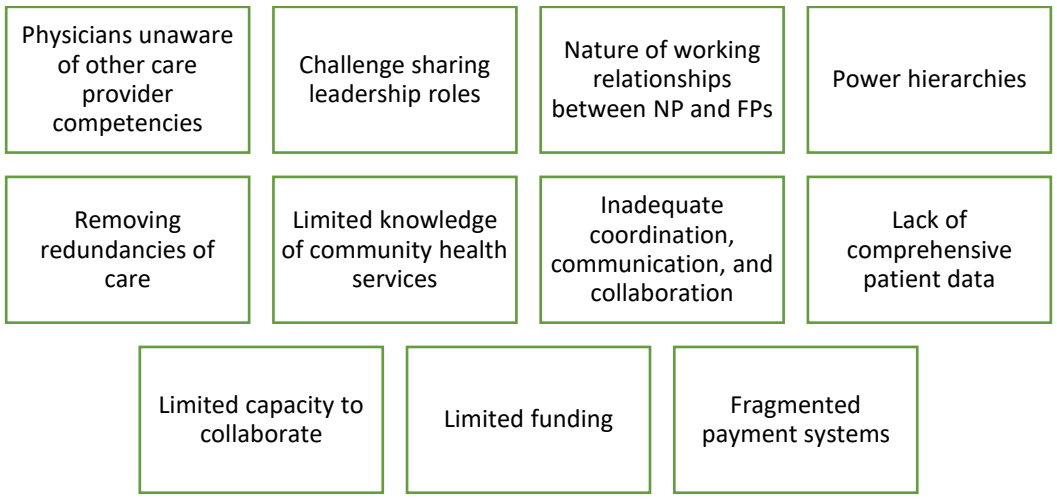
The **limited familiarity of non-physician roles and competencies** in an interprofessional team can make it difficult to effectively transfer tasks to appropriate team members to reduce FP caseloads (31). When family practices embrace an FP-led care model with solo FP or team-based care delivery, FPs will see themselves as team leaders, which can, in turn, makes it **challenging to share leadership roles** with other care providers (78). With a greater proportion of care shifting to NPs in team-based care models, a poor **working relationship between an NP and FP** can be a significant barrier to NP role implementation and integrated care (82).

Limited knowledge about community health services means that acute care providers are poorly equipped to address community care accessibility issues, which can prevent effective continuity and coordination of care (78). **Inadequate coordination, communication gaps, or errors** between primary care and specialty care providers across the continuum of care (80,98) can lead to siloed care delivery (77) and create duplications of care (80,98). In other instances, changing structure of teams and **removing redundancies of care** can be a source of tension for specialists team members (96) if specialists are consulted on a as-needed basis.

Insufficient integrated information-sharing systems creates a **lack of comprehensive patient data** for all providers which can make it challenging to involve team members in patient care and decision-making (68). **Limited capacity to collaborate** with other communities and social services (70) can mean that transferability of services between sites is poorly coordinated (65).

Limited funding primarily allocated to structural changes and investing in expensive services such as chronic and long-term care can prevent additional hiring of FPs (32) and an adequate number of skilled workers to support the system (27). Fragmentation of funding with different systems for primary and secondary care can make it challenging to adopt a formal integrated care model. **Fragmentation through payment systems**, such as FFS become a barrier to primary care teamwork because it reinforces professional autonomy and independence rather than collaboration and is not appropriate for patients with chronic and complex conditions who require more than one care provider (66). FFS compensation models for physicians can lead to volume-driven care based on the number of patients seen, rather than value-driven care, based on the quality of care provided (77). When payment incentives prioritize care providers' benefits, care delivery may not align with primary care goals of providing quality, comprehensive patient care (77). While payment models were not the focus of this report, each model highlighted how compensation models could benefit or hinder patient care quality.

Figure 2: Common Barriers of Integrated care



Outcomes of Integrated Care

Integrated care interventions in primary care have led to improved patient, provider, and system-level outcomes. Improved efficiencies have led to reduced costs of care (32,36,43,68,78), cost-effective practices (64), improved interactions between patients and team, more time spent with patients per visit by NPs, and more informed assessment of patient issues (75). This shift has allowed for reduced home health episodes and improved patient quality of care.

Some form of acute/emergency care use reduction is seen in each model, such as a **drop in emergency room (ER) visits** (24,31–33,75,79), **reduction in hospital days** (35,43,44,46,49,55), decreased number of referrals to the ER (26,48,79), decrease in length of stay (73), and **reduced ER readmission rates** (42,48,67,75).

Increased value placed on team-based care by physicians and increased satisfaction by health care managers can **reduce staff absenteeism** (60) and **reduce staff turnover** (40). This creates more organized and efficient care and effective resource allocation decisions (74). A shift in care delivery from FPs to NPs and shared care can **reduce FP burden of care** through collaboration on treatment (26,94,98). Despite having reduced presence in patient care, a shift in patient caseload can lead to increased **FP job satisfaction** (49,71,94,98)**.** FP satisfaction is essential for effective disease management in primary care (94), which positively impacts FP retention. Partnerships between NPs and FPs also results in better care planning, which reduces the need for more appointments.

Effective relationship-based care delivery can lead to **improved clinical performance** (32,43,64,68,72,78,79,84)**,** and **reduced staff turnover** (30,40,42). Integrating nursing specialists into care teams has helped improve care for chronic conditions (31). Interdisciplinary teams can work with FPs to better manage care and address patient symptoms through a **whole-body wellness approach**, rather than focusing on a specific disease (29,32,86).

Implementing community health models and integrated care interventions has **improved access to care services** (29,78,98) and **patient health status** (64), with outcomes such as reducing the risk of further patient complication, improved disease management (29,68,79), improved patient quality of life (34,71,79), improved patient health outcomes, enhanced patient problem-solving (82), reduced patient isolation (82), and adjusted life expectancy (64). Contributors to improving quality of care and access to care are improved patient knowledge of medical conditions and care (27,52,78,87), team decision-making, increased FP availability, FP awareness of community services, patient engagement in care (56,78,95,98), and improved screening (77). Same-day access to appointments can eliminate waitlists (34) and reduce wait times (29,31,48,58,98). Fewer secondary care referrals (26,35) with shorter wait times for specialist care (26) can improve patient outcomes (30).

When **patients value team-based care** (34,57,75,78)and understand the benefits of different health care providers (78), they no longer expect physicians to be present at every visit (34). Patients who feel that health providers respect their culture and tradition feel respected and heard (38). Improved knowledge about medical conditions helps patients make more informed decisions and tend to choose less aggressive treatments (27). Effective patient self-management (8,68,79,86), referrals between care providers (57), and providing supports to patients that do not require hospital interventions (58) improves efficiency of primary care and across care continuums.

As care increasingly centers around wellness, it allows for effective community development, primary prevention, **strengthened working relationships with community partners or services** (43,62,71,83,95), and **increased community engagement in decision making** (8,83,87). Improved coordination of care (43), enhanced cooperation between providers (45), effective communication, collaboration channels (53), and **strong interpersonal relationships between care providers** (27,58,66,71,88,89,98) all help reduce gaps of care.

Table 1: Categorized outcomes across models

	Outcome	Model
Measures of care	Improved clinical performance or measures	*Alberta, Australia, British Columbia, New Zealand, Nova Scotia, Nuka system*
	Improved access to care services	*Alberta, British Columbia, Nuka system*
	Improved disease management	*Alberta, Australia, Nuka system*
	Reduced costs of care	*Alberta, Australia, New Zealand, Nuka system*
	Strengthened working relationship with community partners	*Alberta, Australia, British Columbia, New Zealand, Nuka system*
	Reduced wait times	*British Columbia, New Zealand, Nuka system*
Emergency Care usage	Reduced hospital days	*Alberta, Australia, New Zealand, Nuka system*
	Reduced ER (Emergency Room) readmission rate	*Australia, British Columbia, New Zealand, Nuka system*
	Drop in ER visits	*Alberta, British Columbia, Nuka system*
Quality of care	Increased community engagement in decision-making	*British Columbia, Manitoba, Nuka system*
	Effective patient self-management	*Alberta, Australia, Nova Scotia, Nuka system*
	Whole-body wellness approach	*Nova Scotia, Nuka system*
	Improved patient knowledge of medical conditions	*Alberta, Manitoba, New Zealand, Nuka system,*
	Patients value team-based care	*Alberta, British Columbia, New Zealand, Nuka system*
	Improved patient quality of life	*Alberta, British Columbia, Nuka system*

	Outcome	Model
Measures of care	Improved clinical performance or measures	*Alberta, Australia, British Columbia, New Zealand, Nova Scotia, Nuka system*
	Improved access to care services	*Alberta, British Columbia, Nuka system*
	Improved disease management	*Alberta, Australia, Nuka system*
	Reduced costs of care	*Alberta, Australia, New Zealand, Nuka system*
	Strengthened working relationship with community partners	*Alberta, Australia, British Columbia, New Zealand, Nuka system*
	Reduced wait times	*British Columbia, New Zealand, Nuka system*
	Adjusted life expectancy	*Australia*
	Patient engagement in care	*Alberta, British Columbia, New Zealand, Nuka system*
Team dynamics	Strong interpersonal relationships between care providers	*Alberta, Australia, British Columbia, Manitoba, New Zealand, Nova Scotia, Nuka system*
	Reduced FP burden of care	*British Columbia, Manitoba, Nuka system*
	Reduced staff absenteeism	*Alberta*
	Reduced staff turnover	*Nuka System*
	FP job satisfaction	*Alberta, British Columbia, Manitoba, New Zealand*

Promising Practices

Each model included in this review provides unique insight into how integrated care interventions can improve primary care. Promising practices from different models include:

- **Community-based care**
- **Engaging patient and their families in care planning**
- **Indigenous approaches to care**
- **Burden of care shift**
- **Whole-person approach to patient care**

Innovations of **community-based care** are seen in New Zealand, Australia, Alberta, BC, and Nova Scotia. A key takeaway of Te Whiringa Ora model in New Zealand is that community members, called

kaitautoko, are included in care delivery. These individuals have experiences with health or mental health services in the community and can provide cultural support and lifestyle coaching to patients and their whānau (family) in achieving their goals (56). The inclusion of these kaitautoko in patient care can create a support network that care providers may not be able to provide. Primary care in New South Wales (NSW), Australia, provides better access to community-based care by focusing on local needs and meeting patients and caregivers where they are. Similar to community-based care, place-based care in rural Australian communities focuses on local resources and adopts health solutions to local contexts. Both NSW primary care and rural place-based care in Australia highlight the need for local community involvement in developing care goals and using existing interprofessional relationships across a continuum of care.

In Alberta, the Taber Clinic provides community-based care through a variety of services provided in one location and allows FPs to work together in delivering care that addresses local needs and acknowledges local culture. Organized care in BC does not limit care to clinical environments as care is offered in accessible locations within communities. Extending care beyond the traditional clinic visit, which rural and remote communities may not be able to access, ensures that care is provided at the patient's convenience. In Nova Scotia, the ICONS community-based health network allows for collaborative practices with community organizations in evaluating primary care changes. Involving community organizations in evaluating and planning primary care strengthens interprofessional relationships and ensures local care needs are assessed.

Engaging patients and their families in care planning enhances patient-centered care and can be seen in the Nuka system, New Zealand, and Alberta. In the Nuka system, customer-owners, alongside their families, control their health and can choose their care team, who guides them while they make decisions about their health. This feature's benefit is that customer-owners are informed about their health, which helps them make less aggressive treatment choices. Customer-owners are also considered members of their care team, which improves patient-provider relationships and reduces information barriers for customer-owners in learning more about their health.

Similarly, in New Zealand's Te Whiringa Ora program, patients and their whānau (family) are at the center of decision-making and are engaged in self-management processes and patient goal setting. Helping patients set care goals, and better manage their care, requires an understanding of how lifestyle-based factors impact their health. In Alberta, interprofessional teams work with patients on shared care goals, which emphasize the importance of social determinants of health. Where applicable, social care needs to be involved in the delivery of primary care as disease management is only one aspect of health.

Incorporating **indigenous approaches to care** into primary care is seen in the Nuka system, New Zealand, and BC. As the Nuka system primarily serves and was designed for the indigenous communities in Anchorage, Alaska, it incorporates indigenous values and teachings into their care model. The system helps patients meet their physical, spiritual, and cultural needs and are assisted by culturally competent care providers that build on existing culture. Hiring practices showcase a preference for indigenous care providers, especially those from within the community. Tribal doctors are accredited professionals incorporated into medical care and care teams. These factors ensure that indigenous care is at the forefront of primary care and the importance of existing culture and traditions have a place in medical care.

The Te Whiringa Ora program in New Zealand incorporates Maori values into care delivery, which results in a care model ensuring Maori participation, building whānau capacity, and removing barriers to access (56). Incorporating these values can change how care is planned, provided, and evaluated. Lastly, in BC, Indigenous approaches to health and wellness help individuals become owners of their health and create wellness through self-determination. Indigenous-led care helps interdisciplinary care teams provide culturally appropriate care and help patients navigate care across a continuum. Without appropriate referrals, patients can experience service gaps when they are referred from a model that incorporates indigenous values to a model that does not.

As primary care shifts from FP-led care to team-based care, **the burden of care shifts** among care providers, seen in the Nuka system, BC, Nova Scotia, and Manitoba. In the Nuka system, the burden of care shifts from FPs to larger integrated care teams as collaborative/relational approaches to care allows for effective teamwork and shared care delivery. When individual team members are used at their maximum scope, they can reduce caseloads for FPs and administrative burdens. In BC, shared care ensures equal distribution in the burden of care. A transition from FP to NP-led care improves provider-patient relationships while reducing the need for additional patient appointments. Each team member can contribute to patient care through a collective approach for reducing caseloads or wait times, especially in NP-led care models. In Manitoba, shared care aims to reduce FP care burden through treatment collaboration. Having effective, well-coordinated teams connected through resources across a continuum can reduce patient caseloads.

Patient care approaches are shifting from disease-specific to **whole-person approaches to care**. A whole-person approach applies a holistic view of patient care that can account for sociodemographic or lifestyle factors that disease-specific approaches lack. The Nuka system and Nova Scotia both address whole-body wellness. The Nuka system ensures that specialists focus on listening to patients and treating them as whole persons rather than just their specific conditions. Similarly, in Nova Scotia, team-settings and interdisciplinary teams work to address patient symptoms through a whole-body wellness approach as compared to a disease-specific approach. The team approach to care is through a holistic lens, ensuring that care is not limited to specific diseases or conditions.

Concluding Thoughts

The successful implementation of integrated primary care interventions depends on the presence of key facilitators and the mitigation of barriers to integrated care. This creates effective teams and improves quality of patient care, resulting in positive patient and system outcomes. Characteristics of integrated care such as the types, degrees, processes, and links, identify the structured and informal ways care providers, teams, and systems can work collectively to improve care delivery.

Across all models with promising practices, the *Nuka system* is the most comprehensive, fully integrated model and is a leader in various aspects of integrated care, including community-based care, patient engagement, indigenous approaches to care, the burden of care shift, whole-person care. The Nuka system stands out in relation to the other reviewed models with its focus on truly collaborative primary care teams that incorporate specialists and even patients in care decision-making. The Te Whiringa Ora program in *New Zealand* is unique in its inclusion of kaitautoko, community members who have similar care experiences, directly into patient care. While the importance of community engagement is

emphasized in the remaining reviewed models, the Te Whiringia Ora program directly states how this happens and how community members can impact care. Placed-based care in the New South Wales primary care system shows that adopting health systems to local contexts is necessary to have effective community-based care. This model is also worth noting because it applies Maori values into care planning and evaluation.

Indigenous-led care *British Columbia* addresses the need for organized services in indigenous communities that provide culturally appropriate care that incorporates indigenous values. Integrated Health Networks in British Columbia improve patient care by filling gaps in care delivery; the three primary care models and Indigenous-led care demonstrate the merits of different integrated care interventions. In Alberta, the Taber Clinic utilizes patient rostering and paneling to develop long-term relationships between care providers and patients to provide quality care. Network-based integrated care in Nova Scotia helps build interprofessional relationships in teams and across services. Manitoba has experienced primary care reforms, which have helped develop team collaboration and relationships. Alberta, Nova Scotia, Manitoba, and Australia all provide insight into how primary care can implement integrated care interventions. However, the three models of the Nuka system, Te Whiringia Ora in New Zealand and British Columbia best capture the future of integrated primary care. Factors that build on relationships, enhance team-based care, and reduce care burdens can help successfully implement integrated care interventions. Overcoming barriers to intervention, such as payment systems and hierarchical relationships, requires both structural and cultural changes. Promising practices from all reviewed models can be used to support integrated health care planning.

Limitations

Integrated care is a broad topic of scholarly research, and due to limited time, not all aspects of integration in the reviewed country models could be explored. We were further unable to assess article quality, which may have been helpful.

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