



Care Plan Technology Approaches

An Environmental Scan and Summary of British Columbia and National Technology Approaches to Care Plan Initiatives

With the focus in British Columbia (BC) on Patient Medical Home (PMH) and Primary Care Networks (PCNs)¹, many groups and initiatives are focusing on enabling team-based care and the ability to share a patient's common care plan (also called a collaborative care plan or shared care plan) between providers.

This high level environmental scan² (see Appendix A) is an inventory of the many different technology approaches to creating a care plan, most of which are in development. It includes a summary of initiatives to enable partners to review current approaches underway and to align, leverage and share learnings where possible.

What is a Care Plan?

A care plan is a patient-centered health record designed to facilitate communication between members of the care team, including the patient and providers. Rather than relying on separate medical and behavioral health care (treatment) plans, a shared plan of care combines both aspects to encourage a team approach to care³. A care plan can be as simple as a document describing a patient's basic "plan of action" and is a means of communicating the agreed care approach in partnership with the patient and other care providers. Types of care plans can include a plan of care (provider specific), a treatment plan (condition specific) and a care plan (holistic and can include all providers and conditions). Care plans can be one comprehensive care plan or a combination of care plan components being pulled from various sources and pieced together by clinician(s), other allied health providers and often by patients themselves.

Health Level 7 International (see HL7 in Appendix A) has defined some care plan content standards, definitions and templates that can be utilized by care teams approaching shared care planning. Health Care Information Management Systems Society (HIMSS) has also created a continuity of care maturity model (see HIMSS in Appendix A) that sets the framework to guide continuity of care implementations and promote coordinated care across the continuum of care.

A plan can increase in complexity depending on a patient's set of conditions, the type of information shared, the number of care providers involved, the volume of transitions in care and the frequency of updates. As complexity of sharing and updating increases, teams look to leverage existing technology to help with integration and information sharing. While BC continues to explore strategies to achieve interoperable systems, transitional strategies are often explored by care teams to help communicate across providers and patients (as described in next section: Technology Approaches).

Basic Care Plan Components

Patient Demographics
Provider & Care Team
Clinical Summary
Alerts & Medications
Goals & Needs
Actions
Follow up

¹ The GPSC is working toward creating an integrated system of care that enables access to quality primary health care that effectively meets the needs of patients and populations in BC. Read more on the PCH and PCNs [here](#).

² This scan was undertaken at the request of the Information Management, Information Technology Clinical Advisory Working Group (IMIT CA WG) at the Doctors of BC (DoBC) supported by the Doctors Technology Office (DTO).

³ [Agency for Healthcare Research and Quality](#).

Technology Approaches

Technological complexity arises in trying to store, access, update, action, notify, transition, standardize, define, agree and share overarching and sometimes multiple unique and disparate care plans with patients and other care providers. There are many health technology systems in use from electronic medical records (EMRs) in physicians' offices to electronic health systems (EHRs) in hospitals, facility record systems and many different health authority portals (ex. CareConnect) with limited integration between systems. As an interim solution, teams will try and solve lack of integration with work-around solutions such as faxing, emailing or accessing portals and viewers to share information.

There are some system to system integration approaches gaining traction. Solutions such as the clinical data exchange (CDX - see table below) and/or application program interfaces (APIs) are being utilized to integrate disparate systems. As progress toward integrating technology systems continues to evolve in BC (and across Canada) teams have demonstrated successes in achieving transitional strategies (what can be done now) and leveraging existing technologies (what can be used now). Emerging solutions toward interoperability (integration models, standards, vendor engagement, legislation, privacy, security, funding, governance, etc.) will continue to evolve to support future functions needed for sharing care. The appendix that follows includes examples of specific current approaches.

Current Technology Approaches to Care Plans	
Peer to Peer Data Exchange	Leverage EMR & EHR existing functions to capture & share information and forward to other non integrated system (i.e. fax, secure email, etc.)
Access to Portals & Viewers	Access to health authority and provincial systems to consolidate information into viewable shared care plans (i.e. use of CareConnect (PHSA) or UCI (Fraser Health Authority))
Systems to System Exchange & Integration	Integrating systems to move and share information electronically (i.e. use of Clinical Data exchange (CDX).)

Summary of Findings

There are a number of approaches to implementing a standard care plan. Some teams have spent considerable energy to consolidate content with several projects stalling while trying to achieve consensus. Other groups focused on partnerships, relationships, workflow and communication needs between care team members as their first step to ensure trust, acceptance and agreement of working as a team were solidified before content or technology. Some groups leveraged existing technologies as a transitional approach while focusing on enhancing team communication channels. Groups reporting the most success and least frustration focused first on how the care team would work together, next they agreed on approach, and then finally explored supporting technology by trialing smaller projects. As technology integration, standards and functionality continues to develop, the complexity and integration of sharing a care plan will also continue to evolve.

Appendix A: Care Plans - BC Environmental Scan and Summary of Technical Approaches

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For more information, guidance or support contact:

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Appendix A: Care Plans - Environmental Scan and Summary Technical Approaches

Area	Initiative	Contact	Status/Summary																		
Frameworks and Standards	Healthcare Information and Management Systems Society (HIMSS)	HIMSS is a nonprofit organization whose goal is to promote the best use of information technology and management systems in the health care industry.	<p><u>Continuity of Care Maturity Model (CCMM)</u>: A strategic framework to guide continuity of care implementation. HIMSS Analytics created the international oriented Continuity of Care Maturity Model (CCMM) to promote coordinated care across the continuum of care served by a health provider or the responsibility of a health authority. Eight stage model to measure and understand ability to provide continuity of care across types, settings and populations.</p> <table border="1" style="float: right; margin-top: 10px; border-collapse: collapse; text-align: center;"> <thead> <tr style="background-color: #d9ead3;"> <th style="font-size: 8px;">STAGE</th> <th style="font-size: 8px;">HIMSS Analytics CCMM Continuity of Care Maturity Model Cumulative Capabilities</th> </tr> </thead> <tbody> <tr style="background-color: #d9ead3;"> <td style="font-size: 8px;">7</td> <td style="font-size: 8px;">Knowledge driven engagement for a dynamic, multi-vendor, multi-organizational interconnected healthcare delivery model</td> </tr> <tr style="background-color: #d9ead3;"> <td style="font-size: 8px;">6</td> <td style="font-size: 8px;">Closed loop care coordination across care team members</td> </tr> <tr style="background-color: #d9ead3;"> <td style="font-size: 8px;">5</td> <td style="font-size: 8px;">Community wide patient records using applied information with patient engagement focus</td> </tr> <tr style="background-color: #d9ead3;"> <td style="font-size: 8px;">4</td> <td style="font-size: 8px;">Care coordination based on actionable data using a semantic interoperable patient record</td> </tr> <tr style="background-color: #d9ead3;"> <td style="font-size: 8px;">3</td> <td style="font-size: 8px;">Normalized patient record using structural interoperability</td> </tr> <tr style="background-color: #d9ead3;"> <td style="font-size: 8px;">2</td> <td style="font-size: 8px;">Patient centered clinical data using basic system-to-system exchange</td> </tr> <tr style="background-color: #d9ead3;"> <td style="font-size: 8px;">1</td> <td style="font-size: 8px;">Basic peer-to-peer data exchange</td> </tr> <tr style="background-color: #d9ead3;"> <td style="font-size: 8px;">0</td> <td style="font-size: 8px;">Limited or no e-communication</td> </tr> </tbody> </table>	STAGE	HIMSS Analytics CCMM Continuity of Care Maturity Model Cumulative Capabilities	7	Knowledge driven engagement for a dynamic, multi-vendor, multi-organizational interconnected healthcare delivery model	6	Closed loop care coordination across care team members	5	Community wide patient records using applied information with patient engagement focus	4	Care coordination based on actionable data using a semantic interoperable patient record	3	Normalized patient record using structural interoperability	2	Patient centered clinical data using basic system-to-system exchange	1	Basic peer-to-peer data exchange	0	Limited or no e-communication
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Health Level Seven International (HL7)	HL7 provides standards for interoperability that improve care delivery, optimize workflow, reduce ambiguity and enhance knowledge transfer among all of our stakeholders, including healthcare providers, government agencies, the vendor community, fellow SDOs and patients.	<p><u>Development of Care Plan Content Standards</u>: Defining requirements, information models, contextual storyboards and definitions of terms that collectively articulate the care planning processes and care plan structure. There is strong support from multiple stakeholders throughout the healthcare arena to define a domain analysis model (including the information model) for the care plan within HL7 as quickly as possible.</p> <ul style="list-style-type: none"> ▪ Provides an information model to consistently define elements included in Care Plans to promote interoperability between health care settings and providers. ▪ Describes and supports the need and use of static vs Dynamic Care Plans. ▪ Encompasses the contribution of multiple disciplines, agencies and nations towards the definition of Care Plans. <p><u>FHIR - Fast Healthcare Interoperability Resources</u> Next generation standards framework created by HL7. FHIR combines the best features of HL7's v2 HL7 v3 and CDA product lines while leveraging the latest web standards and applying a tight focus on implementability. <u>Resources for Care Plan Integration Standards</u> - Describes the intention of how one or more practitioners intend to deliver care for a particular patient, group or community for a period of time, possibly limited to care for a specific condition or set of conditions.</p> <p>Care Plans are used in many areas of healthcare with a variety of scopes. They can be as simple as a general practitioner keeping track of when their patient is next due for a tetanus immunization through to a detailed plan for an oncology patient covering diet, chemotherapy, radiation, lab work and counseling with detailed timing relationships, pre-conditions and goals.</p>																			
Integrating the Healthcare Enterprise - Technical Frameworks (IHE IT)	IHE is an initiative by healthcare professionals and industry to improve the way computer systems in healthcare share information.	<p><u>IHE Technical Frameworks</u> detailed reference documents that guide systems developers and integrators in implementing standards. They define specific implementations of established standards to achieve effective systems integration, facilitate appropriate sharing of medical information and support optimal patient care.</p> <p><u>Cross-Enterprise Document Workflow (XDW)</u>: Key foundational profile that enables use-case specific workflows to be managed across organizational boundaries. It sets forward a basic workflow 'token' by defining a workflow document which is profiled by combining OASIS WS-HumanTask, and HL7 CDA. The XDW profile does not define any workflows, but rather sets a framework that others will use to support Health Information Exchange (HIE) based workflows like Patient Transfer.</p>																			

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National	<p>Canada Health Infoway (CHI)</p> <p>Coordination of Care Community</p>	<p>Finnie Flores, Program Lead, Architecture & Standards, CIHI.</p> <p>Diane Gutiw, Director, Consulting, CGI.</p>	<p>On line open community established for purpose of sharing. Facilitates discussion and supports efforts to develop and implement effective clinical interoperability solutions to improve the coordination of care including consult, referral, case and transfer management. Approximately 180 members (MoH, HA, Academic, Infoway representatives, etc.).</p> <p>Next Steps & Objectives: Formed a Care Plan Working Group to share progress, workflows and examples of work in other areas and to collaboratively develop a Care Plan Template to be leveraged by jurisdictions beginning the process. The objective is to develop a pan-Canadian template for care plan data sharing between physician EMRs. Approach is to solicit examples of existing care plans and meet monthly to review projects, scope, data elements, standards mapping, etc. Any final templates will be published in community for sharing across jurisdictions.</p> <p>Benefits of participating include keep up to date with jurisdictional/pan-Canadian initiatives, knowledge sharing including lessons learned and network with colleagues.</p>
	<p>Alberta</p>	<p>Alberta Health Services (AHS)</p> <p>Presentation to CHI Coordination of Care meeting on May 22 2018.</p>	<p>AHS Collaborative Care and the Integrated Care Suite: Review of work to date in AHS through the CoACT Collaborative Care program which aimed to reduce redundancy in clinical documentation; promote the inclusion of the patient and family in care planning; enhance and support collaboration between and across the different disciplines on the care team; improve information transfer at transition.</p> <p>The PaCT Care Plan Template: The Patients Collaborating with Teams care plan template in Alberta aims to broaden the definition of a complex patient, and to put the patients' needs and wishes at the center of the care planning process. Innovation Hubs across the province are currently testing this new tool in Patient's Medical Home environments.</p>
	<p>Ontario</p>	<p>Health Quality Ontario</p>	<p>Patient Care Plan Refresh project: The goal of this project was to complete a review and refresh of the current Coordinated Care Plan (CCP) template (in consultation with various system partners, including patients). One of the key outputs is the development of a Coordinated Care Plan (CCP), "a coordinated care plan is a written or electronic plan that is created and maintained by the patient or his or her family, the health care team including physician consultants where appropriate, and when necessary, community services. It outlines the patient's short and long-term needs, recovery goals, and coordination requirements, and it identifies who is responsible for each part of the plan."</p> <p>Resource(s): Coordinated Care Plan V2</p>

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BC Provincial	Health Information Standards Standing Committee (HISSC)	Dr. Bill Clifford CMIO for Northern Health and HISSC member.	<p>BC' Standards Committee: Oversees the establishment, and promotes the adoption of health information standards and specifications to enable the interoperability of IM/IT solutions and information assets. HISSC receives its mandate and authority from, and is a Standing Committee of, the IM/IT Standing Committee (IMITSC), which in turn receives its mandate from the BC Health Leadership Council.</p> <p>Resource(s): HISSC terms of reference (approved by IMITSC February 2015 and endorsed by HISSC without changes June 2016) (PDF, 481KB)</p>
	Practice Support Program (PSP) GPSC	<p>Delrae Fawcett, Project Manager, Practice Support Program.</p> <p>Dr. Bruce Hobson, GP and consultant to PSP.</p> <p>The Practice Support Program (PSP) is a quality improvement-focused initiative that provides a suite of evidence-based educational services and in-practice supports to improve patient care and doctor experience.</p>	<p>Defining Content and Standard Approach: Committee formed to look at what content would be needed for a shared care plan. A draft list of categories was produced and focus was on validation and addition of standard nomenclature around the categories. Content, challenges and successes were identified and integration options, roles definitions, and leverage of existing initiatives are the focus.</p> <p>Next steps: The committee would like to explore alignment opportunities with other projects/programs and initiatives. Alignment could include leveraging the existing EMR integration process that was undertaken with the PSP (i.e. integration of modules into EMR) and other work to support an integrated shared care plan workflow with the vendors. This committee is also interested in leveraging prior module work with EMR vendors to develop a generic blue print for requirements and workflow including resources and working with vendors to set up requirements for integrating care plan functionality into EMR.</p> <p>Resource(s): PSP General Website</p>
	Shared Care Committee (SCC) GPSC	<p>Margret English, Director, Shared Care Committee.</p> <p>SCC Main Website</p>	<p>The Shared Care Committee (SCC) is one of the 3 Joint Clinical Committees mandated within the Physician Master Agreement as a collaborative partnership of government and the Doctors of BC to engage Specialist Physicians, GPs (including GPs with Focused Practice) and other health professionals to develop collaborative models of care, and improve the experience of patients as they move between health care providers and care settings. SCC initiatives are GP/Specialist co-led QI that can be provincial, regional or local in scope. Successful Shared Care initiatives are supported to spread across the province, using a number of different evidence-informed spread strategies. Shared Care Committee also provides administrative and coordinating oversight for the shared commitments of the Joint Committees.</p> <p>Examples of Shared Care Initiatives include: Rapid Access to Consultative Expertise (RACE) – Polypharmacy Risk Reduction – Child & Youth MHSU Collaborative – eNotification of Hospital Admission/Discharge – GP/Specialist Referral and Communications – Teledermatology – Group Medical Visit Models for specific patient needs (ADHD, MHSU, Anxiety/Depression) – Adverse Childhood Events (ACE's) Summit – Maternity Care Needs Assessment</p>
	Networking/ Sharing Provincial Shared Care Collaborative Networking Community	<p>Current Co-chairs:</p> <p>Naomi Monaster Clinical Lead, PHSA.</p> <p>Parvinder Dharnia Clinical Program Lead, (Fraser).</p> <p>Julie Harrison Program Manager, (Fraser).</p>	<p>Informal networking community for Shared Care Plans: Informal provincial level networking meeting attended by leaders from PHSA, FHA, IHA, NHA, Island, VCH interested in discussing collaborative care plan work underway in BC (care plan tools, education, technology).</p> <p>Group meets via teleconference every two months. Anyone interested in this topic is welcome to join by contacting the chair(s).</p>

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BC Regional	Vancouver Coastal Health (VCH)	Naomi Monaster , Clinical Lead, PHSA Brian Lefebvre , Sr. Project Mgr, PHSA	<p>VCH's Community Shared EMR: Vancouver Coastal Health (VCH) has approached shared care planning by enabling access to a shared community EMR (Profile EMR used by the health authority (HA)) to HA employed physicians and allied health to allow communal charting on a shared plan form. VCH also utilizes portals such as CareConnect, a provincial systems viewer, to share patient information. Physicians who do not have access to the community EMR do have access to the CareConnect portal. Project Goals include increase the sharing of information between GPs (including private GPs), acute care, specialists, and community care. The project will also identify and develop the EMR technical enablers for private practice physicians to share clinical data electronically with other clinicians involved with the patient, as well as provide access to relevant information from their chart including:</p> <ul style="list-style-type: none"> • Develop a Profile EMR Interdisciplinary Care Plan • Share Profile EMR and Paris Care Plans via CareConnect • Update CareConnect Clinical Summaries – Profile EMR and PARIS (the HA's Community Services EHR) • Solution for sharing with private practice physicians via CareConnect <p>Future Project Work include creation of 'quick view' functionality to support information sharing by VCH owned and operated clinics using Profile EMR and VCH Community Services using PARIS and development of EMR to EMR connectivity to support information sharing and e-consultation.</p>
	Northern Health Authority (NHA)	Dori Pears Regional Manager, Primary & Community Care	<p>NHA's Community Shared EMR: NHA is planning to expand the rollout of a health authority owned EMR that many Northern Health contracted providers from GPs, NPs, community health and allied health providers can access and chart in (Community MOIS EMR). This facilitates sharing of information between health authority providers. Clinical Data Exchange (CDX*) is also being planning to be leveraged to move information bi-directionally between providers and systems (a few EMR vendors have started building this functionality). For providers and private practice physicians not on the "NHA community EMR" fax, paper/PDF care plan forms, portals and other channels of sharing information are utilized until CDX solution is fully developed & deployed.</p> <p>*CDX – CDX is a clinical document distribution service. Northern Health and Interior Health have collaborated to facilitate the sharing of Health Authority clinical documents to EMR systems using this service. This system also allows EMR to EMR eXchange. Several vendors have or are exploring this functionality.</p>
	Island Health (IH)	Shaun Lorhan , VIHA	<p>Project focused on a standardized care plan, collaborative practice education and enabling technology to support shared care of clients within primary and community care. Work is ongoing with collaborative practice education and technology enablement. My Health Plan is the current care plan in use within Community Health Services.</p>
	Fraser Health Authority (FHA)	Parvinder Dharnia , Clinical Program Lead, PCC - Health Informatics Enablement Program (Fraser)	<p>Focus on Care Planning Process: Principals and Content: Working on validating a high-level inter-disciplinary care planning process and core component content (i.e. definitions, inclusive content and guiding principles). A care plan "form" or prototyping between care providers would be explored after process and workflow needs are complete. Progress includes a comprehensive literature review completed that focused on facilitating factors and barriers/challenges for the development and implementation of an inter-professional care plan within an integrated primary and community care area.</p> <p>Next steps within FH is the development of primary and community care practice standards and solutioning options for future-state.</p>

Area	Initiative	Contact	Status/Summary
BC Regional	Interior Health Authority (IHA)	<p>Shane Wells, Project Manager, Primary Care Clinical Information Systems</p> <p>Jeanna Schraeder, Regional Manager IMIT - Clinical Information Systems (Primary Care)</p>	<p>Specialty Community Services: Develop team-based documents, including intake assessment, care plan and discharge summaries within the Profile EMR and Meditech systems. These documents are intended for use by all care providers. Continued improvement and development of Profile workflow tools to support this model of care. Increase reporting capabilities from the Profile EMR system. This includes:</p> <ul style="list-style-type: none"> • Moving Profile data into operational data store • Moving a subset of data into Profile EMR warehouse • Use of business intelligence tools to create advanced reporting from site using the Profile EMR • Map Profile community reporting requirements (MRR) within Profile and move this data to the appropriate warehouse for Home Health, Allied Health and Mental Health. <p>Interoperability:</p> <ul style="list-style-type: none"> • Profile to Meditech document interface • Continued work with CDX interface to improve use for results delivery. • Expand work with CDX to include eReferrals • Investigate Profile to CareConnect applications. <p>IH Primary Care Networks EMR Optimization: Continued Profile EMR standardization and optimization work. Profile users site visit – rotating travel schedule for all sites to provide additional training, workflow optimization and introduce new tools.</p>
BC Local Level	Vancouver Division of Family Practice (VDoFP)	<p>Dr. Terry Chang, Chair, IT Committee, Vancouver DoFP</p>	<p>Utilize & Leverage EMR Functionality: Leveraging existing functions of private practicing physicians’ EMRs (MedAccess/Wolf/Intrahealth/OSCAR) to compile digital and text data that constitute a shared care plan on a demand basis.</p> <p>Focused on what needs to be captured in the moment and what has or is already captured in the EMR to then share information via fax (with expectation of fully digital form later) with other care team providers. Focused on the existing and needed communication channels and information needs of the team for efficient coordinated non-redundant delivery of care.</p>