

Informing the Attachment Process for Primary Care

*A better understanding of Albertans based on
the Patient-Provider Relationship*

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- Scott Oddie – Chair – Director, Applied Research & Evaluation Services (ARES)
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- Sherri Sterling – Senior Planner, Strategy Coordination & Specialized Operations
- Tanmay Patil – Senior Analyst, ARES
- Haifeng Zhu – Senior Analyst, ARES
- Patricia Marren – Administrative Assistant, ARES

IAP Data Working Group, ARES, PHC

- Tanmay Patil – Lead, Senior Analyst
- Alka Patel – Director
- Ceara Cunningham – Scientist
- Haifeng Zhu – Senior Analyst
- Lisa Cook – Scientist

IAP Environmental Scan and Literature Review Working Group

- Ceara Cunningham – (Lead, IAP Literature Review) Scientist, ARES
- Shawna McGhan – (Lead, IAP Environmental Scan) Senior Planner, SIS, PHC
- Saskia Sivananthan – Senior Planner, ARES
- Tanya Ewashko – Project Manager, ARES
- Ashlee McGuire – Senior Planner, Primary Care & Chronic Disease Management, Calgary Zone
- Bronwyn White – Clinical Nurse Specialist, Provincial Bariatric Resource Team, Innovation & Integration,
- Cheryl Andres – Director, Primary Care & Chronic Disease Management, South Zone
- Michele Lamont – Program Evaluation Facilitator, Primary Care & Chronic Disease Management, Central Zone
- Kerry McBrien – Physician, Family Medicine, AHS, University of Calgary
- Crispin Kontz – Manager, Support & Clinical Systems, Primary Care & Chronic Disease Management, Edmonton Zone
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For questions about this report, please contact:

Scott Oddie, Director, Measurement & Knowledge Integration,
Applied Research and Evaluation Services,
Scott.Oddie@ahs.ca or 587-876-1476

Executive Summary

Introduction and Purpose

The Office of the Auditor General report on Chronic Disease Management (OAG CDM) Services (2014) indicated there are currently no standardized, documented processes to identify patients with chronic diseases who do not have or cannot find a primary care physician (i.e. shortage of physicians, patient lives in a rural area, physician declines patient). These so-called “unattached” patients have no formal or informal agreement with a primary care physician in Alberta to provide them with ongoing care. The Alberta Health Services (AHS) Primary Health Care (PHC) Program focused on: 1) using administrative data to identify and determine characteristics of individuals who do not have or cannot find a primary care physician, with or without chronic disease and present to AHS services, primary care teams and clinics; 2) understanding processes that are currently in place across Alberta to identify, link, and support individuals who are not attached to primary care; and 3) assessing the literature and processes that lead to attachment for patients. The findings inform what is required to improve care and primary care linkage for unattached patients.

Findings from Health Data

Analysis of Alberta Physician Claims data identified Albertans with or without any contact with primary care physicians, and who were registered under the Alberta Health Care Insurance Plan between April 2013 and March 2016. During this 3 year time period, 547,679 (11.8%) of Albertans did not have a single visit to a primary care physician, with the majority (62.1%) of this population being male and 42.5% were between ages 18-39. The health risk status of the population was identified and it was found that 94.6% of the population appeared to be healthy or healthcare non-users. Patient-provider continuity was assessed to determine the degree of relational continuity, and was measured for patients with three or more visits to a primary care physician in three years. These Albertans on average visited the same physician 64.2% of the time. Within the population with no contact to primary care physicians, 10.1% had at least one emergency department (ED) visit, as compared to 51.2% of those who visited a physician at least once. Moreover, 9.4% of those with at least one physician visit was admitted to the hospital for an urgent/emergent condition, as compared to 0.7% for those with no physician contact. It should be noted that it is not possible to identify data on Indigenous population living on reserves using Alberta Practitioner Claims data, and therefore analysis for this population is missing.

Scan of AHS Attachment Initiatives

Representatives from the five zones in Alberta were surveyed to identify processes that are utilized to facilitate attachment, and were also followed with focus group interviews. It was found many efforts exist across the province that facilitate attaching patients to primary care, and a strong partnership between AHS and PCN teams support these processes. Processes varied across the province to fit the geographic, provider and population context. It was found that despite a concerted effort to link patients to primary care physicians, attachment does not always occur due to patient, provider or organizational barriers and patient choice. To overcome barriers, zone representatives identified opportunities such as redistribution of unattached patients to clinics with specific supports, attachment of patients to medical homes rather than to a single physician, and online resources for patients to find the ‘right’ provider.

Literature Review

A review of the literature was conducted to identify processes leading to attachment or better continuity of care for patients across healthcare settings focussing on primary care as the main population of interest. Findings from the literature demonstrated that the term attachment is not frequently used to describe an ongoing relationship with a regular family physician. Often intertwined with the concept of attachment, is continuity of care. Continuity as referred to in this document is primarily relational continuity. Results from the articles and reports included in the review indicated the unattached population were more likely to be younger, males, in life transitions, recent immigrants, and healthier in terms of the number of chronic conditions. To improve continuity of care for the younger population, studies identified youth-friendly qualities including: timely access, young age of the GP, different ways to contact youths (i.e. cellular phone), and high rate of interdisciplinary activity. In contrast, in order to meet different needs and expectations of older adults, clinicians need to refocus care from disease-based to patient priority-directed care. One study revealed that patients with lower socioeconomic status (SES) felt stigmatized by providers and described themselves as “undesirable” patients. A few studies also pointed out that chronic conditions can require more frequent care and timely access (outside of usual office hours), especially for those with acute exacerbations to their chronic conditions or those with psychiatric diagnoses. Structural and organizational factors showed that a team-based primary care approach improved patient perceptions in the areas of: access to after-hours care, quality of care, confidence in the system, overall coordination and patient centeredness.

Conclusion

The health data analysis demonstrated that the majority of those without any contact with primary care physicians *did not* have a chronic disease, and most belonged to the healthy or healthcare non-user status. Secondly, the environmental scan revealed although there are many collaborative initiatives facilitating attachment of patients to primary care, patients, providers and the system encounter barriers. These include difficulty accessing primary care (especially patients with complex needs), patient preferences (such as young males) and cultural norms including immigrant populations who may be accustomed to episodic care. Lastly, the literature review confirmed findings of the data analysis that the unattached are largely a healthier, younger, male population. It also identified factors that influence patient-provider attachment or continuity that include: patient perspectives, provider factors, characteristics of the unattached, and structural and organizational factors that can be used to better inform programs and services in their continuing work.

Recommendations

- Share findings of demographic, health status and health service use characteristics of Alberta population with service-providers, decision and policy-makers, and PHC stakeholders to more accurately describe the so-called “unattached” population;
- Further explore the low continuity group’s use of ED and moderate–high continuity group’s hospitalizations.
- Programs and services continue to monitor and evaluate their work and seek opportunities to scale and spread initiatives in AHS to enhance attachment;

- We recommend that programs and services continue to look to the continuity literature to access relevant evidence in the continuing development of programs, policies and processes aimed at enhancing attachment of Albertans to primary care.

Table of Contents

Acknowledgements	2
Executive Summary	3
Table of Contents	6
Introduction	7
Situational Context	8
Analysis of the Health Utilization Data	9
Methods.....	9
Findings.....	11
Limitations	16
Environmental Scan of AHS Attachment Initiatives	17
Methods.....	17
Findings.....	17
Opportunities Identified	19
Limitations	20
Literature Review	21
Main Research Questions	21
Methods.....	22
Data Collection and Extraction Procedure.....	22
Findings.....	22
Project Summary	26
Next Steps	26
Limitations of this Report	28
Appendix A.....	29
Appendix B.....	30
Appendix C.....	32
References	33

Introduction

The purpose of this report is to provide a summary of the activities and findings of three working groups that can be used to inform the development of an attachment process for Albertans with chronic disease – a recommendation from the Auditor General’s Report on Chronic Disease Management (2014). Specifically, the report recommended that “AHS should identify individuals with chronic disease who do not have a family physician and actively manage their care until they can be linked with a family physician” (pg. 18).

At the outset of this project, working groups noted that the term *attachment* (or “*linked*”) is not widely used by researchers and healthcare providers. Concepts that overlap with attachment are *access* and *continuity*. Gaining a greater understanding of these concepts was essential to guiding our project activities.

Attachment	Is the expression of a continuous and longitudinal relationship between individuals and their providers (Towards Optimized Practice, 2014). Alberta Health has developed a Provincial Attachment Policy which formalizes this relationship with a signed agreement (Alberta Health, 2014).
Access	Is a concept that includes factors that lead to the use of health services. Access can be described according to a behavioural model consisting of <i>predisposing</i> factors (e.g. age, health beliefs), <i>enabling</i> factors (e.g. transportation, information) and <i>need</i> (real or perceived) (Aday L and Andersen R, 1974). These factors can help to explain the behaviour of patients who may or may not attach to their primary care provider. Access can also be defined with regard to the following components: service availability & location; utilization; barriers to utilization; relevance & effectiveness; and, equity (Gulliford et.al., 2002). Access to primary care often focuses on timeliness, availability of providers, and proximity of services.
Continuity	Refers to the care that a patient experiences over time as coherent and linked resulting from <i>strong</i> interpersonal skills, <i>effective</i> information flow, and <i>ongoing</i> coordination of care. There are three types of continuity of care: Relational continuity – recognizes the ongoing relationship between patients and providers that connects care over time and bridges discontinuous events. Relational continuity is often used interchangeably with attachment. Informational continuity – refers to the health information on prior events that is used to give care that is appropriate to the patient’s situation. Management continuity - ensures that care received from different providers is connected in a coherent way; usually focused on specific, often chronic, health issues. (Reid R, et.al., 2002)

Situational Context

It is essential to understand the population and need for primary care services as a starting point. The current population of Alberta is 4.4 million, and most Albertans receive their primary care from clinics in the community setting. The majority of these clinics belongs to 42 Primary Care Networks (PCNs) and in partnership with Alberta Health Services (AHS), provide care to meet the primary care needs of about 3.2 million Albertans in local communities (Alberta Health, 2016).

From the health data that was reviewed for this project (below), the population with *at least one visit* to a primary care physician from April 2012 – March 2015 was considered to be attached, and the rest were considered unattached. About **88%** (3.9 million) of Albertans have seen a primary care physician over this 3 year period, and in our analysis are considered attached, which means that **12%** (535,000) did not see a primary care physician. An analysis that examines the relational continuity of these Albertans with primary care physicians is presented below.

The concerns about attachment raised by the Auditor General's report are part of an increasing focus on *attachment* and *continuity* within the primary care community and were also reported by several Alberta organizations - Alberta's Primary Care Strategy (2014) and the PCN Evolution (Alberta Medical Association, 2013). Attachment and continuity are not only considered important to chronic disease management, they are significant components to the adoption of the Medical Home model in primary care (Canadian Medical Association, 2011).

Alongside these efforts to improve attachment of patients to primary care physicians in Alberta communities, AHS can play a significant role in improving the attachment of patients, especially those presenting to emergency departments and urgent care centres. In order to identify ways that AHS can facilitate attachment to a primary care provider, it is necessary to learn more about the characteristics of patients and their use of health services, and be aware of the attachment processes that are already in place.

To address the Auditor General's recommendation, the AHS Primary Health Care (PHC) program formed a PHC advisory committee and three working groups for the project called *Informing the Attachment Process* (IAP). The groups were focused on:

- 1) Analyzing the health utilization data for Alberta;
- 2) Conducting an environmental scan of AHS attachment initiatives; and,
- 3) Reviewing the literature to identify effective processes and barriers to attaching patients to primary care.

For this report, each group has provided a description of their activities, key findings, and limitations.

Analysis of the Health Utilization Data

The Alberta Health Practitioner Claims data was used to understand relational continuity of Albertans who had visited a primary care (family) physician between April 1, 2013 and March 31, 2016. Ideally, verified patient panels would be used for this analysis as this would allow for a true assessment of those considered attached to a physician. Unfortunately, there are currently very limited verified patient panels for physicians within Alberta.¹

For this reason, the relationship between patients and physicians was categorized according to health care utilization data. Practitioner Claims data was used to identify individuals with *at least one visit* to a primary care physician, and were compared against the Alberta Health Care Insurance Plan (AHCIP) Registry to identify those with no contact to primary care. We studied the characteristics of patients who accessed primary care clinics, emergency departments (ED), and hospitals. The health risk status of the population was characterized by Clinical Risk Groupers (CRGs).

A variety of data sources were used to obtain information regarding physician visits, demographics, ED visits, hospital admissions, and CRGs. This project used administrative data including: Alberta Health Care Insurance Plan (AHCIP) Registry, Alberta Health Practitioner Claims, National Ambulatory Care Reporting System (NACRS), Discharge Abstract Database (DAD), and CRGs (3M Health Information Systems, 2016).

Methods

The following steps were taken to capture and analyze the data, and are depicted in **Figure 1**:

- **Visits to the primary care physician** - were calculated using Alberta Practitioner Claims data for all individuals who were registered under AHCIP and who had visited a physician between April 1, 2013 and March 31, 2016. Patients with *at least one visit* to a primary care physician were identified, and were compared with the registry population to identify those with no visits to a primary care physician. Physician visits included visits happening to general practice (GP): in the practitioner's office; ambulatory care visits in the clinic setting; and, in-patient visits in the long-term care setting.
- **Usual Provider Continuity (UPC) index** - was used as a proxy measure for relational continuity, and was calculated for individuals who had at least three visits to a primary care physician between April 1, 2013 and March 31, 2016. Visits by the same patient on the same day with the same physician were considered a single visit. A UPC index was not calculated for patients with less than 3 visits to a physician over the three year study period. As per a recent Canadian Institute for Healthcare Information (CIHI) report (2014), low UPC index scores ranged from 0.0 to <0.40, moderate UPC index scores ranged from 0.40 to <0.80, and high UPC index scores ranged from 0.80 to 1.00.
- **Visits to the Emergency Department (ED)** – happening in Advanced Ambulatory Care Centre, Emergency and Urgent Care were examined using NACRS for the three patient groupings: individuals with 3 or more visits to the physician, those with less than 3 visits to the physician, as well as for those with no contact with primary care.

¹ Note: Although a patient can be attached to more than one service provider, i.e. the GP and the CDM nurse, ideally each patient is paneled to a single provider for a given service.

- **Hospital Admissions** – for urgent/emergent admissions were examined using DAD for the three patient groupings: individuals with 3 or more visits to the physician, those with less than 3 visits to the physician, as well as for those with no contact with primary care. Hospital admissions for Ambulatory Care Sensitive Conditions (ACSCs) were also identified using CIHI methodology (2016).
- **People with chronic disease** - were defined according to a three year roll-up (2013-16) of the Method 2 CRG health risk status for each patient. The nine CRG categories include: 1-Healthy/Health care non-users; 2-History of Significant Acute Diseases; 3-Single Minor Chronic Diseases; 4-Minor Chronic Disease in Multiple Organ Systems; 5-Single Dominant or Moderate Chronic Disease; 6-Significant Chronic diseases in Multiple Organ Systems; 7-Dominant Chronic Diseases in Three or More Organ Systems; 8-Dominant, 8-Metastatic & Complicated Malignancies; and 9-Catastrophic Conditions. (3M Health Information Systems, 2016). Individuals that belonged to CRG level 5-9 were considered to have chronic disease(s).
- **Maps** - for different population groups were created using Esri (Environmental Research Institute) GIS software. An online version of the map that includes information on demographics, patient-provider continuity, and health care utilization at the Local Geographic Area (LGA) level along with interactive features is available at <http://arcg.is/OzDKvm>
- The following five population groups were examined using 2013-16 fiscal years data:
 - Individuals with no physician visits – Individuals with no visits to a primary care physician.
 - Individuals with less than 3 physician visits – Individuals with less than 3 visits to a primary care physician.
 - Individuals with Low Continuity – Individuals with at least 3 visits to a primary care physician and UPC index between 0 and 0.39.
 - Individuals with Moderate Continuity – Individuals with at least 3 visits to a primary care physician and UPC index between 0.40 and 0.79
 - Individuals with High Continuity – Individuals with at least 3 visits to a primary care physician and UPC index between 0.80 and 1

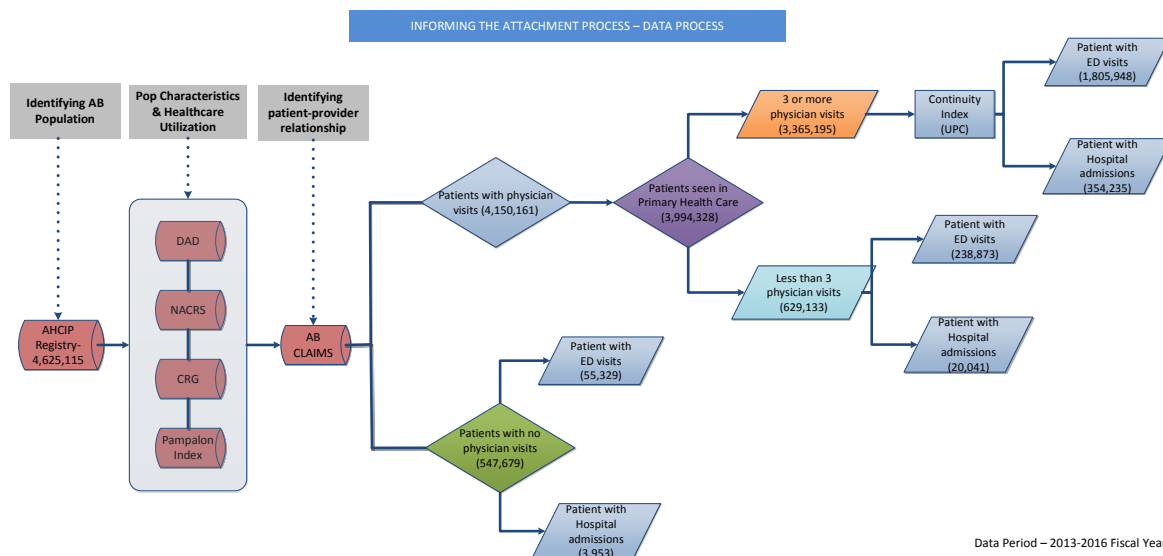


Figure 1: Data process to examine patient-provider relationship

Findings

Demographics

Between April 1, 2013 and March 31, 2016, **3,994,328** Albertans had at least one visit to a primary care physician, while **547,679** individuals had no visits (see Table 1). Those with at least one physician visit consisted of people of all ages, with an equal distribution between the two sexes. The majority of those without a physician visit were men (62.1%), and about 42.5% were aged 18-39 years. The CRGs identified 94.6% of this population as “healthy/healthcare non-user”.² Although there was an initial belief that many patients who do not have or cannot find a primary care physician had a chronic disease (Auditor General’s Report, 2014), the data showed the contrary: the majority of those with no physician visits *did not* have a chronic disease according to the CRGs.

Table 1: Demographic Characteristics of Albertans Registered under AHCIP (April 1, 2013 - March 31, 2016)

	Individuals with at least one physician visit		Individuals with no physician visit	
	N =	%	N =	%
Overall	3,994,328		547,678	
Age (years)				
0-17	843,174	21.1	131,982	24.1
18-24	653,309	16.4	121,866	22.3
25-34	642,041	16.1	110,710	20.2
35-44	544,282	13.6	73,171	13.4
45-54	554,381	13.9	57,199	10.4
55-64	401,695	10.1	32,085	5.9
65+	355,446	8.9	20,664	3.8
Sex				
Female	2,045,458	51.2	207,811	37.9
Male	1,948,870	48.8	339,868	62.1
Individuals with Chronic Disease(s)*	1,469,853	36.8	13,871	2.5

*Individuals with CRG status 5-9

A quintile classification was used to categorize the data into 5 classes at the Local Geographic Area (LGA) level. Figure 2 shows that the distribution of those without any physician visits population varies across Alberta ranges from 5.6% to 25.9% within an LGA. The map shows that the highest proportion (13.3% to 25.9%) of individuals with no activity in primary care generally live within LGAs in rural and remote areas

² It is possible that the population categorized with a healthy status might include individuals with chronic diseases who either a) did not access their GP during the 3 year study period or b) did not meet the internal CRG edit criteria for the Episodic Disease category and Primary Chronic Disease category.

(Alberta Health Services, 2017). This could be due to accessibility issues or the relatively larger proportion of younger population in these areas. The lowest proportions (5.6% to 8.6%) of this population lives in sections of the South, Central, and North Zone, while metro and urban areas generally have a higher proportion. The maps show that Calgary, Edmonton and Red Deer central areas have high proportions of those with no physician visits.

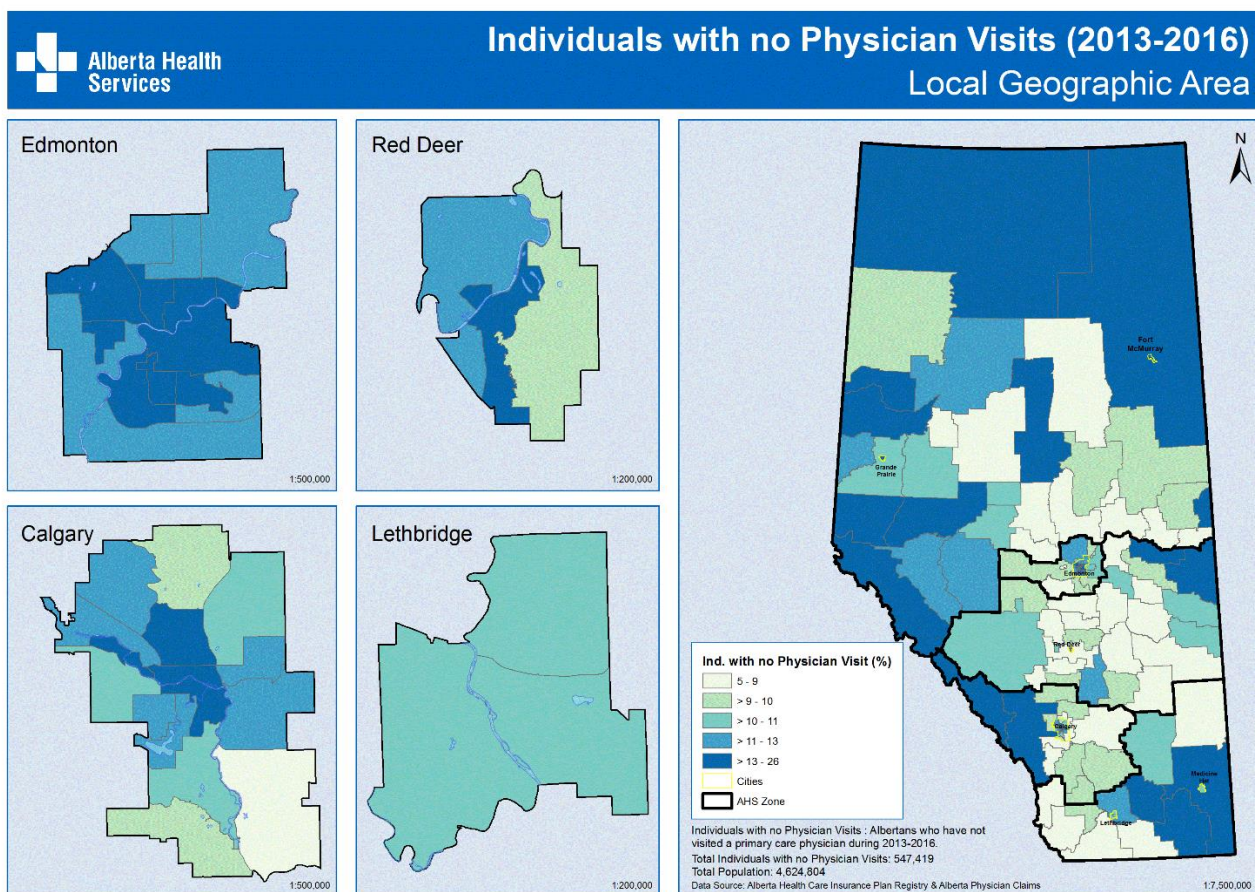


Figure 2. Distribution of the individuals with no physician visits during 2013-2016 across Alberta by Local Geographic Area and Zone.

Continuity of Care

The Usual Provider Continuity or UPC index score was calculated for 3,365,195 Albertans who had at least three visits to a primary care physician in three years. On average, Albertans visited the same physician 64.2% of the time. The UPC was around 55-60% for ages 18-39 years, and increased consistently to 75.5% with increasing age up to 70 years and older. As the UPC score increased, the proportion of healthy individuals decreased, while the proportion of individuals with chronic diseases increased. For the three years of data reviewed, the average number of physician visits increased with age. During the three year period, women visited a primary care physician more often than men (15 versus 12 average visits). Both men and women visited an average of 3-4 different physician. The UPC index score was not calculated for 629,133 individuals who had less than three visits.

Individuals with less than 3 physician visits were mostly young (18-39 years - 39%), males (63.1%) and belonged to healthy/healthcare non-user (81.0%) CRG category. The distribution for this group can be seen in Appendix A, Figure 1, and it shows that this population is concentrated in rural portion of Alberta and mainly in the North and Central Zones (Alberta Health Services, 2017). Moreover, urban areas had lower proportion of population with just three physician visits in a three year period. In case of individuals with low-continuity (UPC Index between 0-0.39), they about 58% were 18-49 years old and had close distribution of males and females. According to CRGs, 42.6% of this group were healthy and healthcare non-users while 30.5% had chronic diseases. The distribution of the population low continuity can be seen in Figure 3 (Alberta Health Services, 2017). These maps show that low continuity varies from 17.6 to 43.8 % within an LGA with higher trends in the north and a few concentrated areas in central portion of Alberta. Specifically, Red Deer has a higher proportion of low continuity population as compared to other urban areas. The South Zone has lower proportions of low continuity populations.

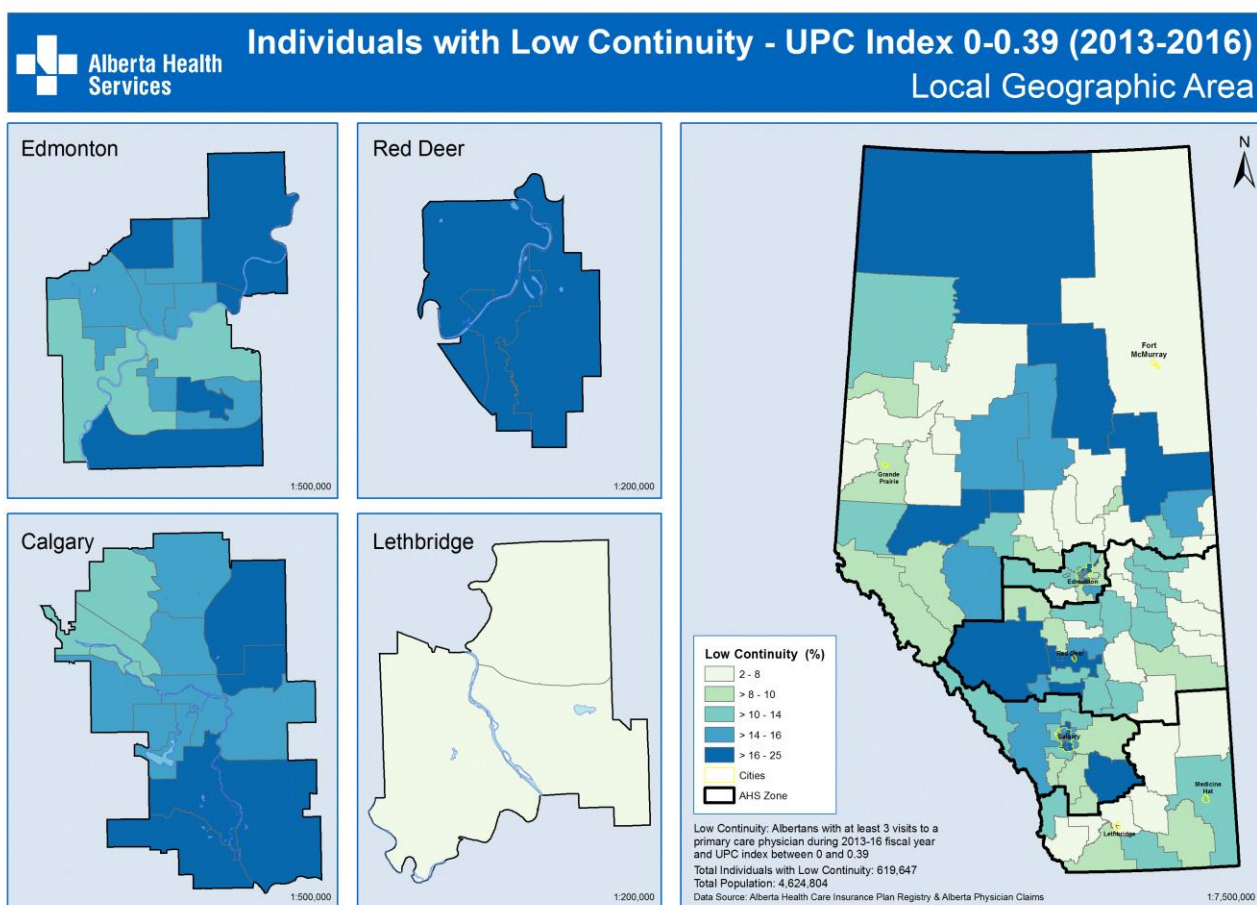


Figure 3. Distribution of the Low Continuity population across Alberta by Local Geographic Area and Zone

Visits to the Emergency Department

It is expected that individuals who do not have a regular family physician, access the ED for their primary care needs. The data analysis showed that there were several key differences between those with and without any contact with primary care physicians (see Table 2).

Table 2: Visits to the Emergency Departments by Albertans with varying degree or patient-provider relationship (April 1, 2013 – March 31, 2016)

	No physician visits	At least one physician visit	At least one physician visit			
			<3 physician visits	Low UPC	Mod UPC	High UPC
Total N	547,679	3,994,328	629,133	619,650	1,683,430	1,062,115
Patients with ED visits	55,329 (10.1%)	2,044,321 (51.2%)	238,373 (37.9%)	371,578 (60.0%)	926,763 (55.1%)	507,607 (47.8%)
ED Rate for 3 years	0.2	1.6	0.9	2.1	1.7	1.4
% with 1 ED visit	38,009 6.9%	846,666 21.2%	123,474 19.6%	134,502 21.7%	366,657 21.8%	222,033 20.9%
% with 2 ED visits	10,140 1.9%	442,842 11.1%	52,613 8.4%	79,817 12.9%	200,607 11.9%	109,805 10.3%
% with 3 ED visits	3,664 0.7%	249,937 6.3%	25,058 4.0%	47,785 7.7%	116,880 6.9%	60,214 5.7%
% with 4 ED visits	1,654 0.3%	151,844 3.8%	13,765 2.2%	30,824 5.0%	71,764 4.3%	35,491 3.3%
% with 5 ED visits	779 0.1%	96,857 2.4%	7,767 1.2%	20,193 3.3%	46,294 2.7%	22,603 2.1%
% with >5 ED visits	1,083 0.2%	256,175 6.4%	15,696 2.5%	58,457 9.4%	124,561 7.4%	57,461 5.4%

Note: % ED visits represent the proportion of population with respective number of ED visits out of the Total N.

The proportion of the population using the ED was higher for individuals with at least one visits with a physician (2,044,321 – 51.2%) compared to those with no visits (55,329 – 10.1%). In general, as relational continuity increased (as determined by the UPC index score), the proportion of individuals visiting the ED decreased as well their average number of ED visits in the three year period examined. The population with a high UPC index score included a higher proportion of individuals with chronic diseases which were more complex, as compared to those with moderate or low UPC scores. Of those individuals *who had at least 3 visits* to a physician, 46.3% (1,559,247 patients) had no visits to the emergency department, and 35.2% of this group had chronic disease(s). For patients *with fewer than 3 visits* to a primary care physician, 62.1% (390,760) had no visits to the ED, and the majority of the population was healthy/healthcare non-user (85.9%). Only 6.2% of this group had chronic disease(s).

A large proportion of individuals with no physician visits was young, and the majority of these individuals had only 1 visit to the ED. More men visited the ED compared to women in the unattached group. The proportion of both men and women visiting the ED decreased with age. The CRGs identified that 79.8% of

individuals with no physician visits and visited an ED belonged to the healthy/healthcare non-user category, and 9.7% of that population had chronic disease(s). And finally, 492,350 (89.9%) of the population did not have any visits to the ED, and the majority of this group (96.3%) fell into the healthy/healthcare non-user CRG category.

Hospital Admissions

Individuals who cannot receive the care they require in the primary care setting or in the emergency department get admitted to a hospital for the illness. Of those who had at least one physician visit, 374,276 individuals were admitted to the hospital for an urgent/emergent condition during 2013-2016, which represents 9.4% of that population. On the other hand only 0.7% (3,953) of those with no physician visits was hospitalized. Health data analysis provides more details on Ambulatory Care Sensitive Conditions (ACSC) that may be prevented or managed by appropriate primary health care and the degree and type of chronic disease progression in patients.

Table 3: Hospitalizations (urgent/emergent) and ACSC visits for Albertans with varying degree or patient-provider relationship (April 1, 2013 – March 31, 2016)

	No Physician Visits	At least One Physician Visit	At least One Physician Visit			
			<3 physician visits	Low UPC	Mod UPC	High UPC
Total N	547,679	3,994,328	629,133	619,650	1,683,430	1,062,115
Hospitalizations	3,953 (0.7%)	374,276 (9.4%)	20,041 (3.2%)	56,905 (9.2%)	178,992 (10.6%)	118,338 (11.1%)
ACSCs	163 (<0.1%)	23,370 (0.6%)	915 (0.1%)	3,149 (0.5%)	11,223 (0.7%)	8,083 (0.8%)
Conditions						
Angina	5 (3.1%)	2,659 (11.4%)	36 (3.9%)	246 (7.8%)	1,314 (11.7%)	1,063 (13.2%)
Asthma	47 (28.8%)	2,866 (12.3%)	233 (25.5%)	705 (22.4%)	1,351 (12.0%)	577 (7.1%)
COPD	12 (7.4%)	7,224 (30.9%)	127 (13.9%)	726 (23.1%)	3,430 (30.6%)	2,941 (36.4%)
Diabetes	33 (20.2%)	4,326 (18.5%)	228 (24.9%)	748 (23.8%)	2,105 (18.8%)	1,245 (15.4%)
Grand mal status & other epileptic convulsions	43 (26.4%)	2,259 (9.7%)	179 (19.6%)	394 (12.5%)	1,076 (9.6%)	610 (7.5%)
Heart failure & pulmonary edema	15 (9.2%)	3,800 (16.3%)	79 (8.6%)	303 (9.6%)	1,847 (16.5%)	1,571 (19.4%)
Hypertension	10 (6.1%)	1,231 (5.3%)	41 (4.5%)	138 (4.4%)	604 (5.4%)	448 (5.5%)

Note: % Conditions represent the proportion of population with respective condition out of the population with ACSC visits.

A larger proportion of those with at least one physician visits and who were hospitalized demonstrated moderate and higher levels of continuity. These patients were typically 60 years of age or older and showed a diverse array of chronic disease(s) (see Table 3). Similar trends were seen for moderate and high continuity individuals who were admitted to the hospital for ACSCs. Those demonstrating lower continuity or who had less than 3 physician visits that were hospitalized were typically under the age of 50. For patients *with less than 3 visits* to a physician and were hospitalized, CRGs identified that 6,858 (34.2%) belonged to the healthy/healthcare non-user category, 9,200 (45.9%) had chronic disease(s). Moreover, for this group of individuals who were admitted to the hospital for ACSCs, 905 (98.9%) had chronic disease(s). For hospitalized patients with *low continuity*, CRGs identified that 7,419 (13.0%) belonged to the healthy/healthcare non-user category, and 38,534 (67.7%) had chronic disease(s). Furthermore, for patients with low continuity and were hospitalized for ACSCs, 3,144 (99.8%) had chronic disease(s).

Out of 3,953 individuals with no physician visits and who were hospitalized, majority (2,179; 55.1%) were under the age of 18 and most were males (2,489; 63.0%). CRGs identified that 1,413 (35.7%) of the hospitalized individuals belonged to the healthy/healthcare non-user CRG category and 1,803 (45.6%) had chronic disease(s). Finally, only 163 individuals visited the hospital for an ACSC, most were children and had illnesses related to Asthma and Grand mal status & other epileptic convulsions as identified in Table 3.

Limitations

Some of the limitations of this health data analysis include:

- The CRGs assign a health risk score based on the history of health services, and are mainly used for long-term planning to predict cost of health services. Because of the limitations of administrative data (e.g. physician billing) this report likely underestimates the actual cases of chronic conditions within Alberta.
- It is not possible to identify data for Indigenous population living on reserves using Alberta Practitioner Claims data, and therefore analysis for this population is missing. There is a need for collaboration with the Aboriginal Data Governance Group to acquire access to this data and to investigate the attachment/continuity in this population.
- It is difficult to completely capture health information for the homeless and refugee populations who do not have a permanent Alberta address or Alberta Health Care Insurance Plan Registry number. Therefore, these groups are not well represented in this analysis.
- Although it is possible to consider patient attachment to physicians in a clinic or even a primary care team, the UPC index is linked to the individual physician. As a result, the UPC index may be under representing continuity in some cases.
- In-migration and out-migration has not been considered in this analysis. The data contains individuals who have recently immigrated to Alberta and are under AHCIP, but have not used the health care system. There would also be data for registered Albertans who have left the province without cancelling their AHCIP status which may increase our estimates of the unattached population.
- 30-day readmission rates for hospital admissions were not calculated as our extract showed much missing data. The working group continues to examine this indicator and its relationship to continuity.

Environmental Scan of AHS Attachment Initiatives

The environmental scan aimed to understand the processes that are currently in place across Alberta to identify, link, and support individuals who are not attached to primary care clinics. The scan gathered a range of processes used to link unattached patients who present to AHS programs/service areas, and also identified ways that interim support is offered to these patients.

Methods

The environmental scan was comprised of two stages: 1) a survey to identify attachment processes in Alberta, and 2) follow up discussions through focus groups or interviews, or written communication with survey respondents and others.

This IAP Working Group included representatives from the five AHS zones who distributed an email in November 2015 with a survey link to service areas that may be using attachment processes. Each zone representative also connected with their networks to ensure that there was strong participation. Respondents were asked to describe the processes that are utilized to facilitate attachment for patients who are not linked to a primary care physician.

A subsequent invitation was circulated in January 2016 to those who had responded to the initial survey and agreed to share more information via follow-up interviews. These individuals were offered a choice of attending one of two online focus groups, a one-to-one phone meeting, or responding to questions via email. The interview guide included the following questions to elicit an understanding of the current attachment processes, barriers and facilitators of attachment, and potential opportunities:

1. What have you learned about identifying people who are unattached?
2. What is working well and/or what are the challenges you have encountered in identifying people who are unattached?
3. What have you learned about successfully linking people to a provider?
4. How do you measure a successful link?
5. What challenges have you encountered in identifying people who are unattached?
6. What types of tools/supports/processes have helped with attachment?
7. What opportunities do you see to improve attachment for Albertans?

Findings

Forty four (44) individuals responded to the survey, representing teams in all five zones of AHS from a range of rural and urban settings. Respondents represented the following areas: emergency departments (19), primary health care organizations (14) and urgent care (7). The attachment processes provided in the survey were grouped as follows:

- 1) Identifying unattached patients (n=20)
- 2) Linking unattached patients to primary care (n=34)
- 3) Facilitating care for unattached patients (n=22)

Identifying unattached patients is a usual part of the registration process in many health centre settings. Unfortunately, information is not always easy to obtain from patients. It can be difficult to verify if the physician provided was a family physician and when and if they saw the physician.

Linking patients with a family physician included a range of approaches, and were categorized according to **active** (n=19) and **passive** (n=15) processes:

- **Active processes** included: established referral processes with local primary care clinics; scheduled follow-up appointments with physician/team; consistent after-hours access; and, designated navigators/coordinators that facilitate attachment and care.
- **Passive approaches** included: providing the patient with information handouts that listed local clinics, clinics accepting new patients, or find a doctor websites; and/or providing messages about the importance of continuity as part of patient education programs. A few respondents identified needs-based population health programs, strategies related to developing the medical home model, and quality improvement practices (AIM Alberta and Triple Aim) used to strengthen continuity.

Facilitating care included specific, individualized arrangements for:

- Specialized care team and a navigator who facilitated the linkage to primary care for individuals with complex needs (e.g., combinations of physical, mental, social and financial challenges).
- Urgent appointments (same week) that were made with the local physician to provide follow-up.
- A nurse practitioner to connect high risk clients (i.e. from the reserve) to primary care providers, and then assisted with arranging appointments.

The survey and discussions with respondents revealed many efforts and initiatives around the province that facilitate attaching patients to primary care (See Appendix B: *Inventory of Processes and Projects*). A strong partnership between AHS programs and PCN teams supported many of these processes. It was determined that despite a concerted effort to link patients to primary care, attachment does not always occur due to patient, provider or organizational barriers and choice (Table 4).

Table 4: Summary of Challenges and Barriers to Attachment

Organizational factors	Patient factors	Physician/Clinic factors
Unable to find a provider	Does not see the need or believe in going to the doctor	Unable to manage addiction and mental health issues
Lack of available provider (real or perceived)	Does not trust doctor	Issues with missed or late appointments
Limited office hours	Wants a particular gender	Charges a late penalty
Lack of timely appointments (real or perceived)	Prefers walk-in clinics	Patient too complex/too many complex patients already
Rural - staff turnover	Young transient male	Lack team and resources
Location of clinic (access)	No phone or transportation	Full patient panel (closed practice)
Language (not) spoken	Challenge with communication or language	Lack comfort or confidence with some conditions
Unable to accommodate entire family	Cultural differences	Refusing patient(s)
Transition from another province/country	Social determinants of health: housing, financial issues etc.	Not connected to community services

Continuity is important for the patient-provider relationship and flow of information. Not everyone can see a physician on weekdays but would still benefit from seeing a provider who is their regular source of care. One focus group member stated, “How can we offer convenience and extended hours with informational continuity... at least from the same primary care team?” Another member commented that, “Sometimes patients choose not to be attached and we need to consider alternative ways of trying to ensure continuity.... such as the electronic health record.” One group discussion questioned the practicality of attachment for all Albertans:

We shouldn't focus on attaching EVERY patient because some people will never want to attach regardless of how many resources we provide... we need to focus on the patients with chronic disease and complex patients who actually need and want the continuity of care - the ones that have the greatest opportunity.

Several participants reported that some providers and clinics are not accepting patients who present with complex chronic diseases, mental health challenges, or issues related to the social determinants of health.

Family physicians feel their primary care services are 'under-teamed' to manage such complexity... they are trying to provide comprehensive care for their patients without the resources and support they need.

The challenge of linking some complex patients was also reported by HealthLink and confirmed by the literature review findings.

Finally, it should be noted that Accreditation Canada has standards to address the importance of primary care, the need to align acute and tertiary care with primary care providers, and the significance of integrating services across the continuum of care (Accreditation Canada, 2015). At this time there is no specific standard related to attachment in primary care.

Opportunities Identified

Many participants noted that there are opportunities to educate providers about the supports available for complex and high needs patients. One innovative solution for linking patients involved bringing PCNs together to coordinate processes that introduce unattached patients to clinics that can offer specific supports better able to address their health/life challenges. In some cases, this meant moving services to specific areas of need such as inner city and homeless shelters. This is an opportunity to align the needs of the patient with the capacity of the clinic.

Some respondents suggested that instead of attaching patients to the physician, attachment should be to the medical home. This change could increase access in terms of timely service and access to other providers. Another consideration relates to linking patients to a clinic close to home. While this is a promising idea, it was noted that “matching” patients with a PCN based on postal code may not be realistic in an urban environment where patients work and live in different locations and may want a medical/ health home near their place of work rather than their residence.

Many participants felt that successful attachment should not only be measured by improved health and reduced urgent health care, but should consider the right ‘fit’ for the patient. This has been described as relational continuity. Factors include: the gender of the provider, quality of care, personality of provider,

access, location, services, etc. This means that patients are able to establish a relationship with their provider that works for them. Using tools like the “find a doctor website” may be a helpful resource for understanding which factors can lead to successful attachment.

Limitations

- The landscape of primary care in Alberta is diverse, and the information gathered from the environmental scan provided many examples of attachment, but findings were not representative of all clinics and service areas in the province.
- The perspectives gathered from this scan are mainly from AHS staff and partners. The scan did not involve gathering the patients’ perspectives or include a review of the organizational structures that could influence attachment.

Literature Review

The objective of this review was to assess the literature in a systematic way and identify processes that lead to attachment of patients to a primary healthcare setting. We broadened the concept of attachment to include continuity of care across the continuum (specialized and acute care services), and were especially interested in examples that could be applicable to AHS.

Main Research Questions

A discussion with AHS zone representatives and the Working Group resulted in several possible questions to guide the literature search. The search was based on the following key questions:

1. How is attachment defined or captured in the literature?
2. How are unattached patients identified and what processes exist to link them with a primary health care provider?
 - a. For patients with chronic disease
 - b. For all patients (including those who are healthy or may have other conditions, as well as those with chronic disease)
3. What are the barriers and enablers to attachment?

The research questions were developed using PICO (**P**eople, **I**ntervention, **C**omparison & **O**utcomes) methodology:

Table 5: PICO Methodology for Literature Review

PICO	Key Words
People/Population <i>- individual or groups not attached to a primary care physician</i>	Diverse, vulnerable populations, low socioeconomic status chronic diseases, chronic conditions, complex cases Unattached, low relational continuity, no formal attachment, low contact, no responsible provider, no regular source of care, no usual provider
Intervention <i>- processes used to identify or provide linkage</i>	referral, inquiry, question, registry, consultation, follow-up, intake, assessment, triage, website/web environment, information, processes, programs
Comparison/Context <i>- programs/departments within the healthcare system that support attachment</i>	HealthLink, urgent care, community health centre, mental health clinic, walk in clinics, emergency departments, inner city, harm reduction, outreach, primary care
Outcome <i>- attached to a primary care physician</i>	continuity of care, attachment

Methods

In consultation with two librarians from the AHS Knowledge Management Department, a search strategy was developed with the parameters identified. Two phases of searching were conducted. Phase 1 focused on the literature related to unattached patients with chronic disease. Based on preliminary feedback, a second phase was conducted that expanded the search to include the broad population of unattached patients, meaning that in addition to chronic disease groups, we considered a number of factors, including those who may be healthy. Inclusion and exclusion criteria are summarized below:

Table 6: Inclusion and Exclusion Criteria for Literature Review

Inclusion Criteria	Exclusion Criteria
English language studies	Non-English studies
Articles published 2000 or later	Before 2000
Peer-reviewed, published and grey literature	Conference abstracts, editorials, commentaries, letters
Healthcare systems to Canada, those who are similar	Developing countries, countries with different health systems

The following electronic resources were examined: Cochrane Database of Systematic Reviews, Cochrane Database of Controlled Trials, Medline, CINAHL, Science Direct, Psych INFO and EMBASE. For the grey literature, a well-crafted search was conducted in Google and Google Scholar using combinations of keywords and subject terms that describe population groups and interventions, with intentions to capture key references from organizational reports, frameworks, guidelines, programs and recommendations. The key words generated for the research questions were then combined with search limits for language (English only) and publications (2000 and onward).

Data Collection and Extraction Procedure

Search results were screened by title or potential inclusion by a reviewer with extensive experience in literature searches. All studies that met inclusion criteria by title were included for abstract review. Once the initial set of abstracts was reviewed, the final abstract review was conducted independently by a second member of the project team.

Key concepts were identified and mapped from the reviewed abstracts. For those relevant articles meeting the inclusion criteria, full-text articles were obtained. Approximately 7500 articles were identified and screened. A total of 66 articles were included (see Appendix C: *Flowchart of Literature Review Results*).

Findings

From an extensive collection of articles, results were mapped into five categories or themes (Figure 4). The themes are not intended to be discrete as some articles speak to more than one theme. Embedded in each theme are the enablers and barriers to attachment.

1. **Data Analytics, Methods and Tools:** include the quantitative and qualitative approaches that measure attachment and continuity. Examples: coded health datasets like administrative data

(Physician claims, inpatient, outpatient, emergency room); health care surveys (i.e. Canadian Community Health Survey); and tailored questionnaires for providers and patients.

2. **Patient Perspectives:** include factors associated with patient experience and the perception of attachment, particularly with the primary care physician.
3. **Provider Factors:** include coordination with others, team based care, roles of team members, and personal qualities of providers.
4. **Characteristics of the Unattached:** describes attachment according to specific groups by age, gender, socioeconomic status, and diagnostic condition(s).
5. **Structures and Organizational Factors:** involves themes that include targeted programs (such as chronic disease management), service delivery models, office workflow processes, and information management.

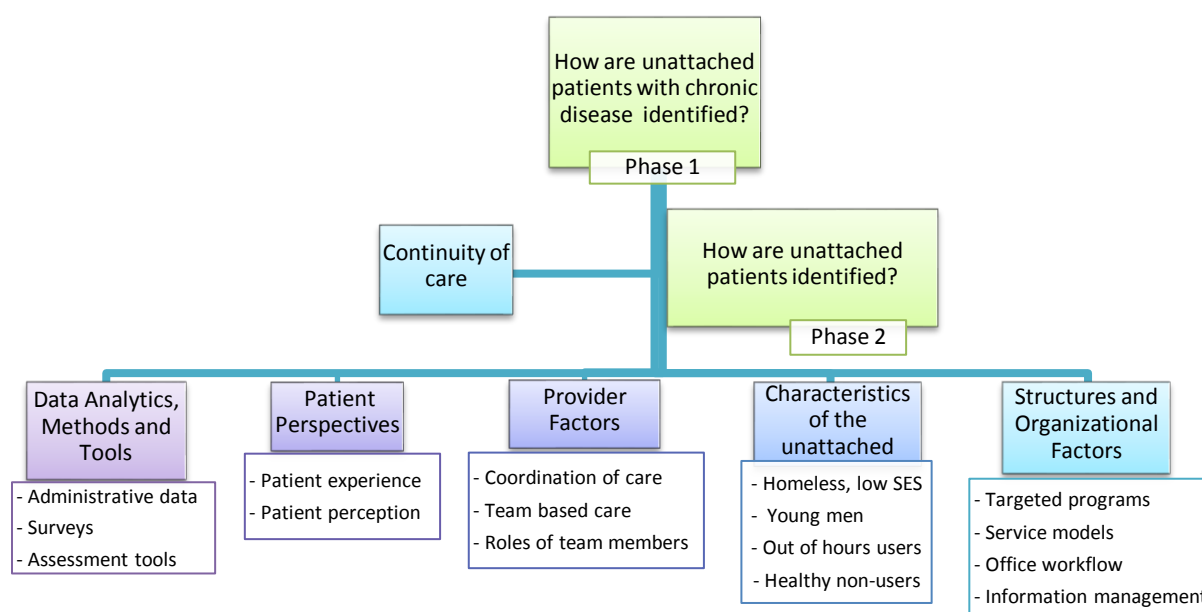


Figure 4: Concept Map of the Literature Review Results on Patient Attachment

From these five categories we focused on the findings most pertinent to the AHS programs and services involved in primary care delivery. We were particularly interested in two categories: characteristics of the unattached; and, structures and organizational factors.

Characteristics of the Unattached Population

Given the Alberta population data analyzed in the previous section, it was helpful to compare findings with an Ontario population survey that focused on the unattached population. The survey revealed that the unattached were: more likely to be male, younger, recent immigrants, and healthier in terms of the number of chronic conditions (Ontario Ministry of Health & Long Term Care, 2010). According to the IAP Data Analysis Working Group, these characteristics are similar for the Alberta population.

Age considerations

The expectations and needs of a young population differ from other groups using primary care. A review of health care utilization in Norway identified youth-friendly qualities that increase visits to primary care: timely access, young age of the physician, high rate of interdisciplinary activity by the physician, and low educational level of the youth population. Another study showed that attachment in young adults improved after they were sent an information letter about health problems and health rights (protection of privacy) with encouragement to contact primary care (Aarseth et. al, 2014). In contrast, older adults have different needs and expectations. With increasing age, patients present with more comorbidities and greater complexity. They need more time and help to navigate the system and access community services and supports. The patient-provider relationship is just part of the broader need for continuity of care (Worrall and Knight, 2006). A recent study by Tinetti (2016) proposed that clinicians refocus care from treating individual diseases in isolation, to addressing the patients' specific health priorities; that is, a move from disease-based to patient priority-directed care. This would align well with improved attachment and the Medical Home model.

Socioeconomic factors

The evidence has shown that people living in poverty have the greatest needs and face considerable challenges in getting the care they require. Studies in Canada have revealed that patients with low SES feel stigmatized by healthcare professionals (Loignon et. al, 2010). In one qualitative study, people with complex health and socioeconomic issues felt their lack of a regular doctor was likely because they were considered "undesirable" patients (Crooks et. al, 2012). Similar comments were reported by service area respondents in our environmental scan. Although this opinion aligns with the patient perspective identified in the literature, it is important to note that our environmental scan did not directly seek to capture patient perspectives.

Chronic and complex needs

Chronic conditions can require more frequent care and timely access, and attachment to primary care is essential for effective disease management (Saultz and Lochner, 2005). Flarup and his colleagues (2014) highlighted the need for accessing care outside of usual office hours as an important factor in providing continuity for two patient groups: those with acute exacerbations of their chronic conditions, and others with psychiatric diagnoses. Two studies pointed to life transitions as a root cause for people with chronic disease who do not have a family doctor. (Crooks et.al, 2012 and Randall et.al, 2012). These studies suggested that multiple factors were at play: finding and linking with a doctor (relational continuity), maintaining a relationship with a team of providers (longitudinal continuity) and coordinating care with information management systems through these transitions.

Structural and Organization Factors

Many studies have shown that walk-in clinics and emergency departments are frequently used by patients without a regular source of care. While these services can provide more timely access to primary care type services, they are not structured to provide attachment, nor continuity of care, particularly for chronically ill patients. Healthy patients may not be impacted by this episodic care arrangement; however, the lack of coordination can impact the quality of care and outcomes for people with chronic diseases (Katz et.al, 2012).

Attachment can be negatively affected by newer models of primary care. For instance, changes in family practice that encourage multi-physician clinics have meant that informational continuity of care has become crucial because it is likely that a patient will not always see the same doctor. This can have a negative impact on relational continuity and management of chronic illness (Alazri et al., 2007).

Low continuity can be explained by a lack of access to primary care providers. Team-based primary care improves patient perception of process and outcome indicators specifically in the areas of: access to after-hours care, quality of care, confidence in the system, overall coordination and patient centeredness (Jesmin et.al, 2012). Innovative models using nurse practitioners play a key role in enhancing access to primary care in B.C. and Ontario (DiCenso et.al, 2010).

In a large study of primary care models in Quebec, the investigators identified that despite its limitations, the model of solo practice fosters a positive personal patient-physician relationship and a better experience of care. They recognized that while this model does not represent a viable option for reform in terms of other aspects of performance (improved access, multidisciplinary care), it highlights the importance of relational continuity (Pineault R et.al, 2009).

Examples of Attachment Programs in Canada

While reviewing the literature, processes for improving attachment were identified in other provinces. Since the details were not readily available, it may be helpful to follow up and explore this work in future.

A GP for Me – is an initiative developed in British Columbia which has been reported as improving patient attachment to primary care. The approach was piloted in 3 regions and resulted in attaching more than 9000 patients with family doctors. As a result of its success, the government supported implementation of the program across the province in 2013. An evaluation was undertaken however findings are not yet available.

Health Care Connects – is programs supported by the Ontario government that helps residents who are unattached find healthcare providers. A nurse - called a Care Connector - is assigned to assist with finding a health care provider. Eligible registrants are prioritized for attachment, and physicians receive incentives to roster new patients. No evaluation findings have been published.

Project Summary

The *Informing the Attachment Process (IAP)* project examined Albertans' visits with family physicians in a three year period to assess their degree of relational continuity and health status. This was done at the Auditor General's request given a common perception that there is a significant proportion of Albertans that are not "attached" to a family physician and not accessing appropriate care for their chronic disease(s). The analysis conducted here did not confirm this perception. It was shown that individuals without any contact to primary care physicians are typically under 39 years of age, healthy (or healthcare non-users), and have a distinctly different distribution and lower incidence of chronic disease (where seizures and asthma were more predominant). This notion was validated by the articles included in the literature review that indicated the unattached population was more likely to be younger, males, in life transitions, recent immigrants, and healthier in terms of the number of chronic conditions. In contrast, Albertans showing moderate to high attachment with their physician were typically over 40 years of age, less healthy and were most commonly diagnosed with hypertension. Similar to a recent CIHI report (2014) the analysis here confirmed that as the degree of attachment increased, Albertans' visits to ED decreased. The analysis did indicate that we should shift our focus to the low continuity group's use of the ED and the moderate–high continuity group's hospitalizations.

An additional objective of the IAP project was to better understand processes that are currently in place across Alberta to identify, link, and support individuals who are not attached to primary care. It was determined through discussions with service providers that there are a surprising number of initiatives that build on the enablers to attachment identified in the literature review. It is suggested that AHS not focus on developing new processes, but rather align, coordinate, support and evaluate these ongoing initiatives. However, this report also determined that despite concerted efforts to implement evidence-based approaches to link patients to primary care physicians in Alberta, attachment does not always occur. This is due to a number of patient, provider and/or organizational barriers. This includes difficulty accessing primary care (especially complex patients), patient preferences (such as young males) and cultural norms including immigrant populations who may be accustomed to episodic care. The barriers identified through discussions with those implementing these initiatives were validated by evidence identified in the literature review. To overcome these barriers, AHS zones have identified and are implementing evidence-based strategies such as redistribution of unattached patients to clinics with specific supports, attachment of patients to medical home rather than to a single physician, and online resources for patients to find the 'right' provider. Evidence identified in this report is currently being shared with those implementing these initiatives to better inform their strategies and opportunities. Collectively, these evidence-informed initiatives will serve to improve AHS' ability to link and attach Albertans to primary care services and enhance health outcomes.

Next Steps

AHS analysts and scientists on our team continue to refine and validate the data and analyses that enhance our ability to understand this complex continuity of care issue. Indicators that better assess the outcomes of linking and attachment initiatives are being developed. Given that the reliability and validity of these indicators is largely dependent on a physician and medical home's ability to implement a panel identification and maintenance process, supports in this area are advised. A physician's panel consists of a list of unique patients who agree the physician is the most responsible provider for their primary care needs. Although

this can be a resource intense process, once established it allows a physician to balance provider supply with patient demand, establish disease registries, and form the appropriate multi-disciplinary team to serve the panel's needs. Paneling is the foundational element for not only improving the outcomes of the patient population, but can lead to advancements as to how care is delivered to those patients, such as patient self-management strategies taught by the a clinical educator, and improved access and relational continuity by adjusting clinic hours to meet the needs of the patients. More importantly, a health system that has access to confirmed/validated physician panels would have a clear understanding of not only how many unattached patients exist in the health region, but also would know where those patients reside and how they are currently using the system. A health care system with this type of knowledge would be able to make informed decisions regarding service delivery and planning, and physician recruitment.

Based on the findings of the environmental scan and literature review, we need to continue to offer patients opportunities to attach to primary care providers and facilitate sharing and building on existing regional work and evidence-informed strategies. We also need to continue sharing the findings reported here with physicians and teams, other AHS programs, PCNs, Alberta Health and key stakeholder groups working to improve attachment. To improve continuity of care for the younger population, studies identified youth-friendly qualities including: timely access, young age of the GP, different ways to contact youths (i.e. cellular phone), and greater use of team based care. In contrast, in order to meet different needs and expectation of older adults', clinicians need to refocus care from disease-based to patient priority-directed care.

It will be important to provide supports for the assessment of initiatives identified here and then determine how to spread and adapt effective attachment processes. This needs to include improving the factors that impact not only relational, but also informational continuity. This will be enhanced by the development of an effective communication mechanism among providers and patients that highlight the importance of attachment and improve continuity. It should be noted that findings from the literature review demonstrated that the term attachment is inadequate in describing the ongoing relationship Albertans have with a family physician. The term relational continuity is more specific and better identifies the necessary concepts that enable, or prevent this important aspect of care continuity.

Our efforts to build, collect, and analyze existing evidence on attachment and apply it to the Alberta situation points to some specific work for AHS, the PHC program, Zones and partners:

1. Link with AHS teams and external partners, such as AMA, TOP, and Alberta Health, to improve paneling and attachment processes.
2. Given that the largest proportion of individuals with no activity in primary care is comprised of young men who appear to be healthy, identify the most appropriate processes for attachment and what contextual factors and social determinants of health are important in relation to the unattached Albertans.
3. Engage with Albertans who are not attached to understand their viewpoint.
4. Many ideas and innovative approaches for addressing attachment to primary care in Alberta exist. Before developing new processes, support the activities and evaluation of existing promising practice(s).

For the purposes of our project, it was useful to distinguish attachment from the components of continuity but in reality, these components overlap significantly. The issues of continuity are important to understand in order to improve attachment to primary care in Alberta.

Limitations of this Report

The evidence we have gathered and analyzed from these three Working Groups has provided a greater understanding about patient attachment in Alberta; however, there are a number of considerations to interpreting the evidence:

- The topic and issue of attachment is part of a much broader discussion on *continuity of care*. Since it was not possible to address attachment across all of primary care, we focused on the findings that are most relevant to the AHS context.
- In the absence of verified patient panels, we relied on physician claims data to build our understanding of the unattached. Despite careful methodology, there are limitations related to the accuracy of the data, and thus, the interpretation of patient attachment.
- The research literature has offered many valuable insights; unfortunately, there were few large studies on the unattached population groups leaving continued gaps in our knowledge.

Appendix A: SUPPORTING DATA

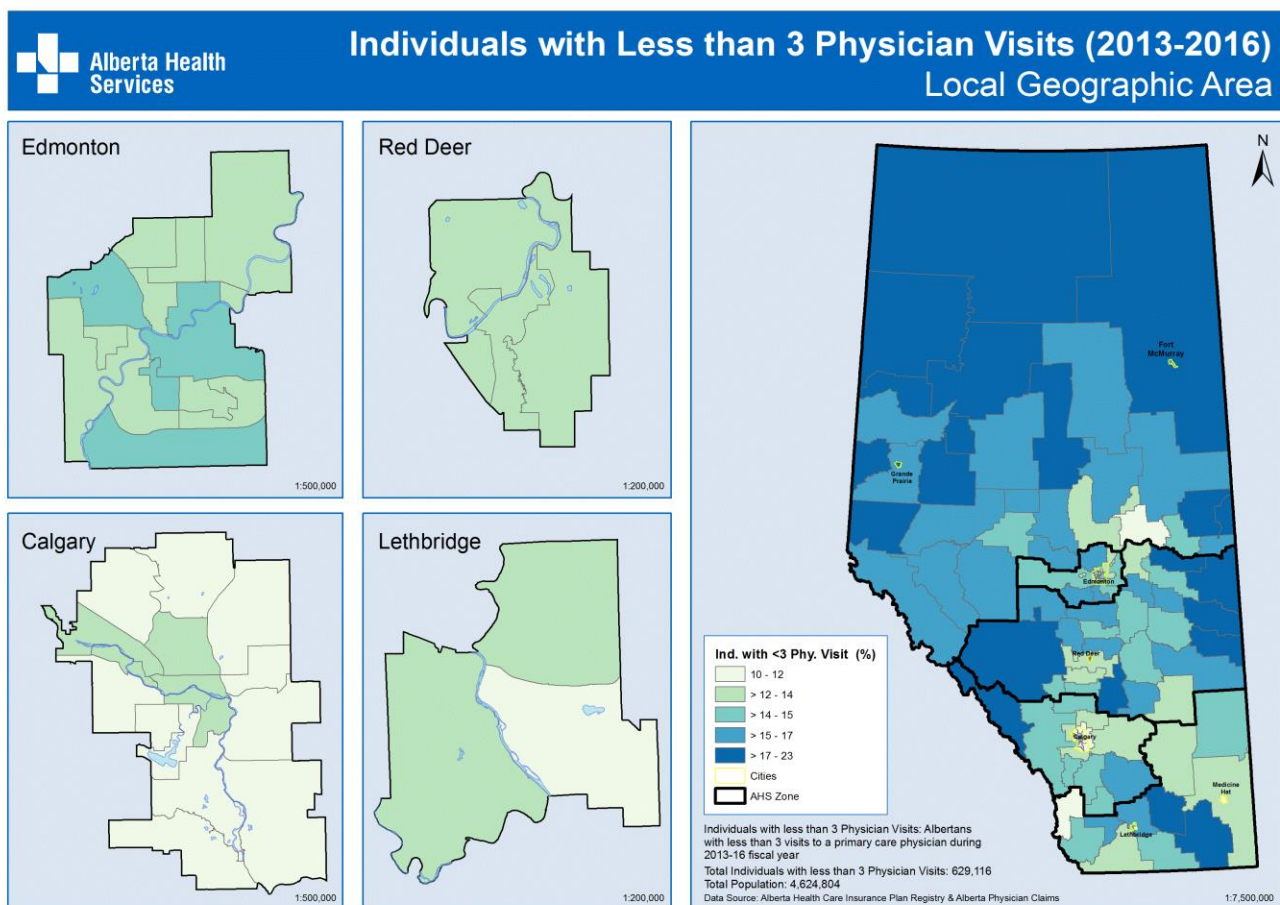


Figure 1. Distribution of the Individuals with less than 3 physician visits across Alberta by Local Geographic Area and Zone

Appendix B: INVENTORY OF INNOVATIVE PROCESSES AND PROJECTS THAT FACILITATE ATTACHMENT TO PRIMARY CARE IN ALBERTA

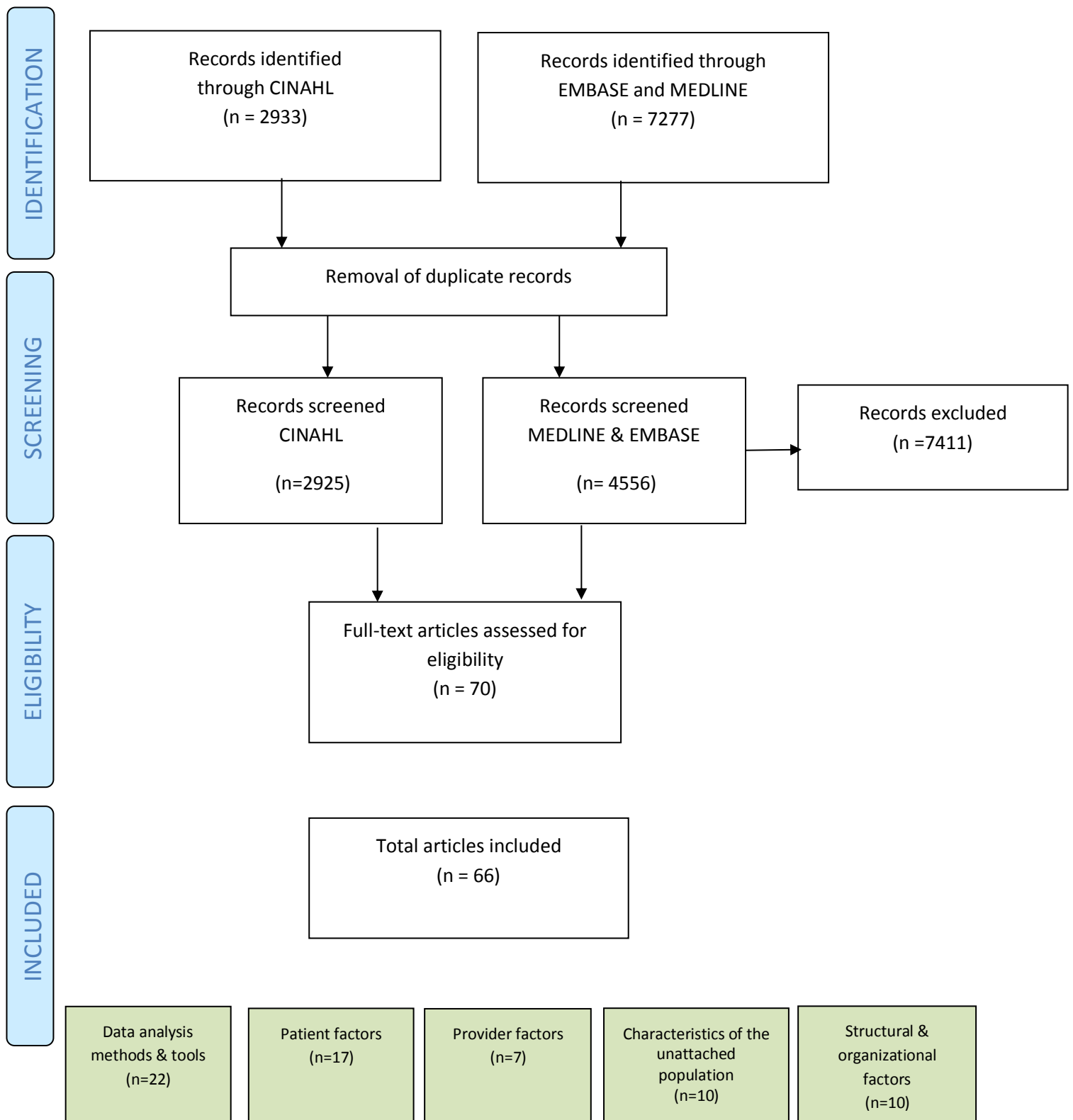
These processes are being used across the AHS Zones in Alberta. Some processes are focused on initiating attachment while some address overall continuity and coordination of care. More detailed information will be provided in a follow-up Environmental Scan Final Report.

Name of Process/Project	Description	Key Stakeholders
Attachment of complex, high needs patients	ED Nurse connects complex high needs patients with an Family Care clinic or PCN	ED, FCC, PCN
Attachment of refugee population	Based on cultural differences, patients may not perceive the need for attachment. PCN partners with community organizations to provide primary care.	Calgary Zone community organizations, PCN
Attachment of urban homeless population	ED and inner city EMS collaborate on addressing issues for homeless patients, i.e. mental health and addictions problems as well as social determinants of health, and facilitate linkages with the urban center primary care clinics	Edmonton Zone, EMS, designated PC clinics
First Nations community collaborative for chronic disease	AHS rural health services collaborate with the PCN and local First Nation communities on women's health and diabetes management	AHS, First Nations, PCN
Antenatal care for First Nations women	Midwife services and antenatal care are offered through a network of stakeholders for First Nations women	AHS, First Nations & Inuit Health (FNIH), PCN
Attachment/continuity for First Nations patients	ED Transition Coordinators connect to PHC team and nurse practitioners in First Nations communities	AHS, FNIH, PHC
Transitioning youth with complex needs	A patient navigator helps with the transition from pediatrician to primary care physician for youth with complex needs	AHS, Pediatrician, PCN
PCN Geriatrics call roster	Unattached geriatric patients are assigned to geriatrics call roster when transferred from acute care to community supportive living/extended care	AHS, PCN
PCN after-hours clinic referral to primary care physician	Many young men (age 20-30) do not want to be attached to a physician and prefer the after-hours clinic. The clinic staff initiates a referral to a physician (of choice) for continuity and attachment.	PCN
Follow up with PCN specialty clinic	Unattached ED patients are referred to PCN "specialty" clinics: orthopedics, asthma, et.al.	ED, PCN

ED Clinical Associate facilitates continuity	ED Clinical Associates support the follow up and connection to a PCN	ED, PCN
Nurse practitioner as primary provider	To ensure attachment and continuity for geriatric patients, the NP acts as their primary provider. Home care teams also connect with the PCN for specific healthcare needs.	Homecare, PCN
ED - PCN linkage in rural setting	Staff in the rural ED work with local PCN to link patients providing more timely and efficient access	Rural ED, PCN
Access 365	Rather than providing care in the ED, the triage nurse refers and schedules patients with family practice sensitive conditions, to the after-hours PCN clinic	ED, PCN
Partners for Better Health	A partnership between AHS Calgary Zone and Mosaic Primary Care Network that involves a nurse who links patients with complex needs to primary care based on a path-to-home algorithm	AHS Calgary Zone, Mosaic PCN
Assignment of a primary care physician	FCC staff identifies and verifies whether the patient is attached. If not, a most responsible primary care physician may be assigned using set criteria.	FCC
Continuity for priority patients	A navigator organizes follow-up appointments with a primary care provider for priority patients who are discharged from acute care, ED, or the outpatient dept.	Inpatient Unit, ED, outpatient dept., PCN
Continuity/attachment from ED for non-urgent issues	PCN accepts referrals from ED triage for patients with non-urgent issues once discharged, and assumes care for the unattached patients. This is an opportunity to educate patients about the importance of a regular care provider.	ED, PCN

Abbreviations: ED = emergency department
EMS = Emergency Medical Services
FCC = Family Care Centre
LTC = long term care
NP = nurse practitioner
PCP = primary care provider
PCN = primary care network

Appendix C: FLOWCHART OF THE LITERATURE REVIEW RESULTS



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