CRISM AND ALBERTA HEALTH SERVICES
ADVANCEMENT OF ANALYTICS IN ADDICTION

STATUS REPORT

July 15, 2018 – Dec 31, 2020

Alberta Health Services

Contents

Executive summary

Program overview

Alberta Health Services (AHS, through the Alberta Addiction and Mental Health Research Hub) and the Canadian Research Initiative in Substance Misuse (CRISM), Prairie Node have partnered to develop and implement a program to promote innovation in data analytics related to substance use and health care utilization (see https://crismprairies.ca/2018/12/06/crism-ahs-analytics-program/). The program is intended to build regional capacity for addiction health services research and quality improvement, by supporting innovative projects that would ordinarily not be undertaken using existing AHS resources. The program accepts applications to access administrative health services data from members of CRISM | Prairies and AHS (Alberta Addiction and Mental Health Research Hub and the Addiction and Mental Health Strategic Clinical Network™ research community). Applications are reviewed for relevance by a joint AHS/CRISM governance committee and, if applicable, by an institutional review board for ethical compliance. Approved projects are processed by a dedicated analyst, cost-shared between CRISM and AHS.

Purpose of this document

Program development started in Fall 2016 and began accepting applications in July 2018. This document provides a synopsis of program activities and accomplishments for interested stakeholders.

Program activities and accomplishments

The program has executed 22 approved projects from July 15, 2018 – Dec 31, 2020, including 9 initiated by CRISM | Prairies members,4 initiated by AHS staff, and 9 initiated by urgent requests from AHS and/or Alberta Health. Highlights from this work include:

- Collection and analyses of pilot data from AHS services to support two successful external funding applications submitted by CRISM | Prairies investigators (CIHR, Health Canada; one project related to opioids, one project related to methamphetamines), valued at $676,591;
- A major report on cannabis-related presentations to addiction treatment services prior to legalization from 2012 – 2018 (project initiated by AHS);
- A major report on methamphetamine-related presentations to addiction treatment services from 2012 – 2018 (project initiated by AHS);
- Three projects supporting quality improvement for patients seeking treatment for opioid use disorders;
- Support for development of a consolidated analytic platform for addiction and mental health community data;
- Initiated a project to validate ICD codes for substance abuse in AHS administrative data;
- Using the 5 heath research indicator domains set out by the Canadian Academy of Health Sciences,[1] the program has supported work in the following domains: advancing knowledge (22 projects), building research capacity (8 projects), informing decision making (10 projects), broad economic and social impacts (14 projects), and health impacts (13 projects).

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[1] Panel on Return on Investment in Health Research, 2009. *Making an Impact: A Preferred Framework and Indicators to Measure Returns on Investment in Health Research*. Canadian Academy of Health Sciences, Ottawa, ON, Canada

Chronology of program activities

2018-2019

Program development

Initial discussions about this program were held in Fall 2016. To ensure a thoughtful development of the program, stakeholders and partners were consulted about:

- Structure and management of the analyst position.
- Program funding and governance.
- Logistics of project application, completion, and reporting.

CRISM analyst position

- The designated CRISM analyst started with AHS in July 2018.
- The analyst is continuing to gain knowledge into the structure, intent, functionality, and uses for the specialty addiction data collected by AHS. This progress is on-going, and allows better application and leveraging of this data in future projects.

Governance framework (Appendix 1)

- September 2018: Completed the purpose of governance, governance processes, governance structure, roles and responsibilities, timelines, and success criteria.
- Scheduled regular governance meetings with AHS (Addiction and Mental Health Strategic Clinical Network™ and Provincial Addiction and Mental Health Knowledge, Performance and Integrated Planning team) and CRISM Prairies Node.

Project proposal process and rating criteria (Appendix 2)

- October 2018: Completed the project proposal process, template, and rating criteria.
- Improved project processes as needed based on proposals received, including modifying the governance document flow chart and changing the program team

2019-2020

Annual general meeting

First AGM held on September 26, 2019.

CRISM analyst position

- The analyst completed Connect Care training to help the provincial AHS team and the CRISM-AHS program transition to Connect Care over the next several years.
- The analyst is working as the lead analytic platform developer and coordinating work related to on-going updates and maintenance of the consolidated addiction and mental health data warehouse. This work focuses on development of an integrated source of community addiction and mental health data from disparate systems across the province into a single standardized analytic tool known as a data cube.

Program development

- Refined process to efficiently support program projects. Project Descriptions

2018-2019
The program completed seven projects (one for clinical care program quality improvement (QI), two research projects and four AHS ad hoc projects):
- Enhanced Multidisciplinary Care for Inner City Patients with High Acute Care Use (AHS QI);
- Cannabis in Alberta: Pre-legalization Treatment Rates and Description (AHS research);
- Amphetamine Use in Alberta: Characterizing Patient Demographics and Service Utilization (AHS research);
- Detoxification and Residential Addiction Service Statistics to Support Harm Reduction Quality Improvement Project: Prepared data and a table of detoxification and addiction residential service statistics for contracted and AHS-operated facilities (ad hoc);
- HoNOS/HoNOSCA results for Provincial Mental Health Diversion Program (PMHDP): Annual updates for program and presentation to the PMHDP Operations Committee in 2018 (ad hoc);
- HoNOS/HoNOSCA results for Provincial Mental Health Diversion Program (PMHDP): Annual updates for program and presentation to the PMHDP Operations Committee in 2019 (ad hoc);
- Test case for E-Mental Health grant application: Prepared service utilization statistics on youth mental health in Airdrie from different service settings (ad hoc)

2019-2020
The program received 15 project applications (one to inform a community program development, one AHS program evaluation, five research projects, and five AHS ad hoc requests):
- Examination of rural cannabis use for Alberta Rural Development Network Rural Cannabis Education program development (ARDN program development, completed);
- Substance Abuse ICD Coding Validation (AHS research, in progress);
- Prevalence and Patterns of Fatal and Non-Fatal Opioid Overdoses Among Alberta Youth (UCalgary research, in progress);
- Predictive Model for Treatment Outcomes for Amphetamine Users in Residential and Detox Programs (AHS, in progress);
- Responding to Opioid Overdose and Opioid Use Disorder in the Emergency Department: Prior to and during COVID-19 pandemic (UAlberta research, in progress);
- The Association of Cannabis Use with Adverse Cardiovascular Outcomes in Alberta, Canada: A Population-based Retrospective Cohort Study (UCalgary research, in progress);
- Alberta Government pre/post cannabis analysis (same day urgent response provided) (ad hoc);
- iOAT pre/post analysis: Provided analytic support for an investigation into Discharge Abstract Database (DAD) & National Ambulatory Care Reporting System (NACRS) data one-year pre-injectable opioid agonist treatment (iOAT) admission with a (six-month follow-up investigating changes in healthcare utilization (ad hoc);
- Addiction & Mental Health (AMH) Strategic Clinical Network (SCN) Population Estimates: Provided aggregate numbers to support AMH SCN with population estimates for ages 6-19 by Zone and Rurality (ad hoc);

- Connect to Care (C2C) Data Linkage: To link main fact events table to list of personal health numbers (PHNs) for one year pre/post engagement date (ad hoc);
- Out-of-zone AMH youth inpatient visits for South Zone: Provided number of inpatient visits experienced by South Zone youth (ages 0-18) with a primary AMH diagnosis who had an event at a hospital outside South Zone for calendar years 2018-2020 (ad hoc)

Within these projects, the program provided rapid data analysis for three grant applications:
- Canadian Institutes of Health Research (CIHR) Substance Use and Addictions Program (SUAP) application for contingency management intervention for methamphetamine use treatment (UCalgary research; funded $480,225);
- CIHR proposal looking at the impact of COVID-19 on opioid-related ED presentations in Alberta (UAlberta research; funded $196,366);
- PRIHS application looking at cost savings of providing contingency management to support treatment attendance for amphetamine patients (UCalgary research, unsuccessful)

Table: Approved Projects (organized by start date)

Status	Project*	Primary Applicant	Start Date	End Date	Project Purpose	Technical Report Released
Full Projects						
Complete	Cannabis in Alberta: Pre-legalization Treatment Rates and Description	Kay Rittenbach (AHS SCN)	Sept 27, 2018	Feb 27, 2020	Research/ Publication	Complete
Complete	Amphetamine Use in Alberta: Characterizing Patient Demographics and Service Utilization	Carla McLean, Josh Hathaway (AHS)	Oct 16, 2018	Sept 12, 2019	Research/ Publication	Complete
Complete	Enhanced Multidisciplinary Care for Inner City Patients with High Acute Care Use	Ginetta Salvalaggio (AHS)	Oct 22, 2018	Mar 25, 2019	Internal/ QI	Complete
Complete	ARDN Rural Cannabis Education Project	Julia Juco (ARDN)	Aug 12, 2019	Nov 29, 2019	Internal	Complete
In Progress	Substance Abuse ICD Coding Validation	Shelly Vik, Josh Hathaway (AHS)	Aug 12, 2019		Internal/ QI/ Research/ Publication	
In Progress	Predictive Model for Treatment Outcomes for Amphetamine Users in Residential and Detox Programs	Carla McLean, Josh Hathaway (AHS)	Sept 12, 2019		Internal/ QI/ Research	

In Progress	Prevalence and Patterns of Fatal and Non-Fatal Opioid Overdoses Among Alberta Youth	Marian Coret (UofC)	Dec 5, 2019		Research/ Publication	
In Progress	Responding to Opioid Overdose and Opioid Use Disorder in the Emergency Department: Prior to and During the COVID-19 Pandemic	Elaine Hyshka (UofA)	Sept 24, 2020		Research/ Publication	
Complete	System Level Outcomes for the Addiction Recovery and Community Health (ARCH) Team Model of Care (Part 1: Short Term Objectives)	Kathryn Dong (AHS)	Oct 22, 2020	Nov 10, 2020	Internal/ QI	Complete
In Progress	(Part 2: Medium-Long Term Objectives)		Oct 22, 2020			
In Progress	The Association of Cannabis Use with Adverse Cardiovascular Outcomes in Alberta, Canada: A Retrospective Cohort Study	Anees Bahji (UofC)	Oct 22, 2020		Research/ Publication	
Rapid Grant Application Support						
Complete	SUAP Addiction & Mental Health (AMH) SCN Application Support: Amphetamine Data	Jane Yi, David Hodgins (UofC)	Sept 18, 2019	Sept 25, 2019	Grant application	NA
Complete	PRIHS Addiction & Mental Health (AMH) SCN Application Support: Amphetamine Data	Jane Yi, David Hodgins (UofC)	Jan 23, 2020	Feb 18, 2020	Grant Application	NA
Complete	CIHR Proposal Support – COVIDs Impact on Opioid Related ED Presentations	Elaine Hyshka (UofA)	June 23, 2020	July 6, 2020	Grant Application	NA
AHS Ad Hoc Projects						
Complete	Detoxification and Residential Addiction Service Statistics to Support Harm Reduction Quality Improvement Project	Carla Mclean	July 16, 2018	July 20, 2018	Internal	NA
Complete	Test case for E-Mental Health grant application	Carla Mclean	Oct 15, 2018	Oct 26, 2018	Internal	NA
Complete	HoNOS/HoNOSCA results for Provincial Mental Health Diversion Program 2018	Carla Mclean, Jesse	Oct 2, 2018	Oct 22, 2018	Internal	NA

	(PMHDP)	Jahrig, Komali Naidoo				
Complete	HoNOS/HoNOSCA results for Provincial Mental Health Diversion Program 2019(PMHDP)	Jesse Jahrig	July 2, 2019	July 9, 2019	Internal	NA
Complete	Urgent Alberta Government Pre-Post Cannabis	Shelly Vik	Oct 10, 2019	Oct 10, 2019	Internal	NA
Complete	iOAT Pre/Post Analysis	Rachel Carr	Jan 13, 2020	Feb 3, 2020	Internal	NA
Complete	Addiction & Mental Health (AMH) SCN Population Estimates	Daniel Grigat	Apr 22, 2020	Apr 22, 2020	Internal	NA
Complete	C2C Data Linkage	Kim Rondeau	July 27, 2020	Aug 20, 2020	Internal	NA
Complete	Out of zone AMH youth inpatient visits for south zone	Tysen Heller	Oct 7, 2020	Oct 7, 2020	Internal	NA

Challenges and responses

Challenge	Response
AHS in-kind support for analytic projects due to competing demands.	AHS senior staff assigned responsible for oversight and/or conducting specific CRISM activities (e.g., administrative data validation)
Steep learning curve for learning expansive data sets and complexities of data collected from multiple systems	Provide opportunities for CRISM analyst to participate in development of consolidated AMH data source (now leading analytic platform work)
Projects delayed due to research ethics approval and/or AHS research administration processes.	Increase follow-up with Research Ethics Board and/or AHS Research Administration.
Competing demands within AHS and across CRISM projects, particularly during the COVID-19 pandemic.	Ensure work is segregated with dedicated time to support CRISM initiatives.

Appendices

Appendix 1: Program governance document

Appendix 2: Program application form

CRISM AND ALBERTA HEALTH SERVICES
ADVANCEMENT OF ANALYTICS IN ADDICTION

Governance Framework

1.0   PURPOSE OF GOVERNANCE

The overarching purpose of the partnership between Alberta Health Services (Alberta Addiction and Mental Health Research Partnership Program and the Addiction and Mental Health Strategic Clinical Network™) and the Prairie Node of the Canadian Research Initiative in Substance Misuse (CRISM) is to identify and address mutually agreed upon and mutually beneficial research, evaluation, quality improvement, and measurement questions. The partnership is positioned to support CRISM | Prairies and is intended to support planning for Alberta Health Services (AHS) and CRISM to collaborate in an analytics and research environment.

The goal of this governance framework is to define decisions and actions in accordance with the funding and research grant agreement between AHS and the University of Alberta. The governance structure is based on the values of transparency and accountability.

The purpose of this governance framework is to address the following:
- Governance processes
- Governance structure
- Roles and responsibilities
- Timelines and success criteria

2.0   GOVERNANCE PROCESSES

AHS and the CRISM jointly provide the governance function for this initiative which entails providing broad oversight over the partnership while also providing an open venue for the question identification and assignment of key areas (or questions) of interest across all partners. As a result of the funding source originating from the CRISM Prairie Node, there is intended to be direct alignment to and focus on CRISM-related questions and activities. Other non-CRISM focused activities and projects may be undertaken at the direction of the Operational Executive Leads (AHS and CRISM).

- AHS and CRISM will serve as the pivot point and will serve as the central governance body.
- The analyst's day-to-day reporting and operations falls under AHS.
- The analyst will primarily be housed at AHS.
- Investigators requesting analytic support must complete a project proposal with declared deliverables (see attached project proposal).
- The Operational Executive Leads will be responsible for final decision making with regard to projects.
- The work of the analyst must be mutually agreed upon by the Operational Executive Leads.
- The role and participation of the analyst on committees must be agreed upon by the Operational Executive Leads.

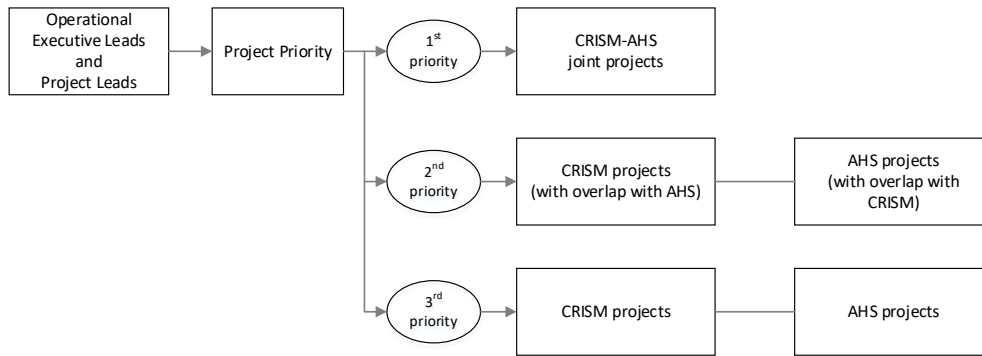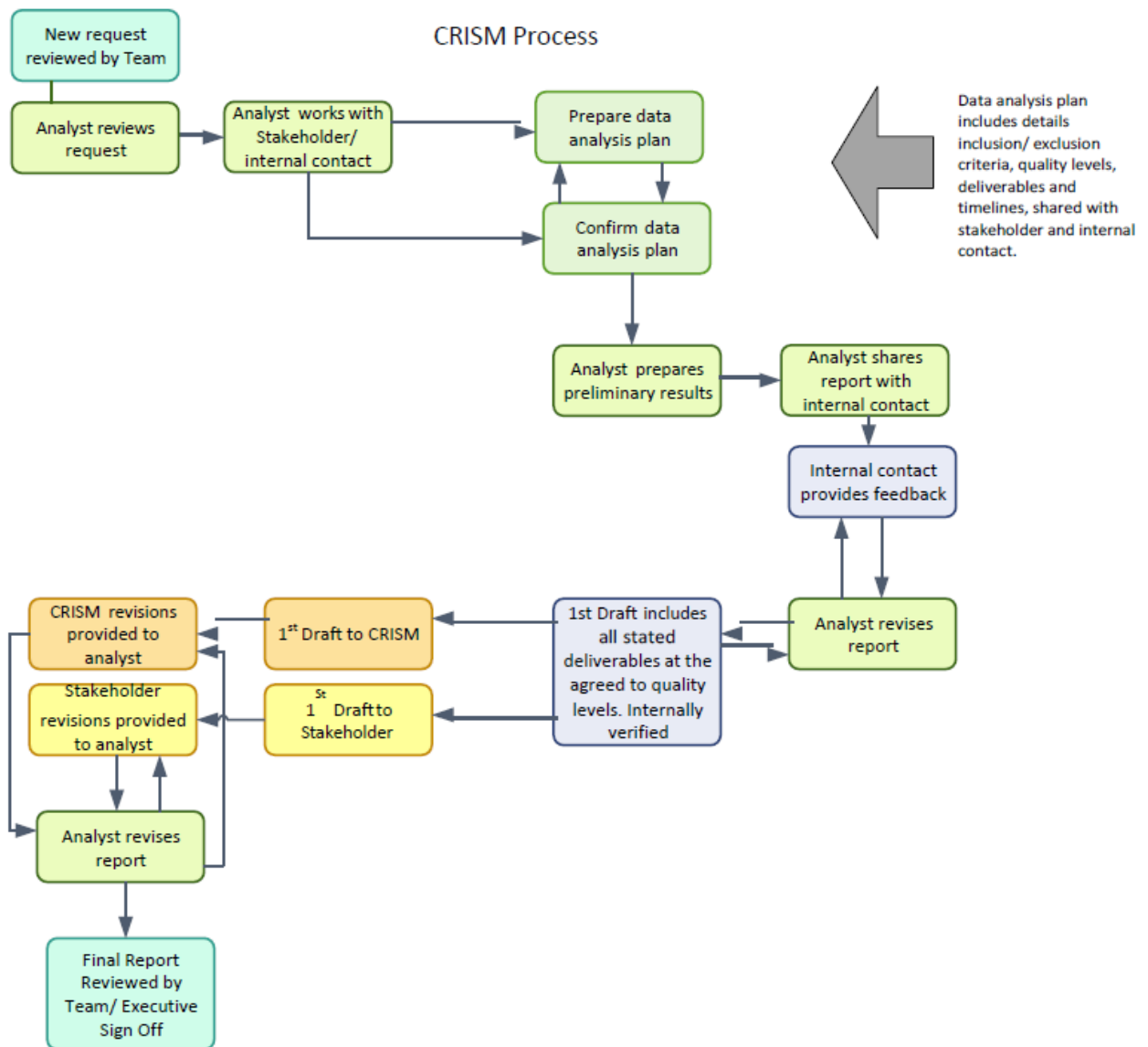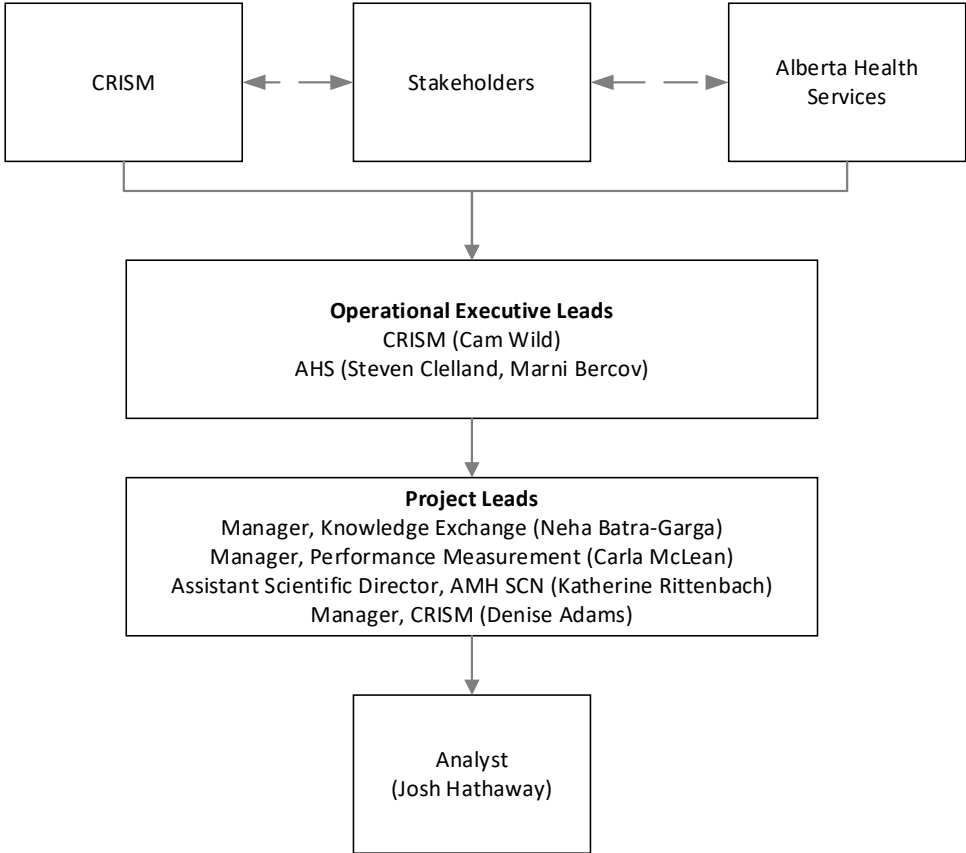**Figure 1: Flow Chart of Analyst Workplace Scenarios**

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Operational
Executive Leads          Project Priority    ┌── 1st ──┐    CRISM-AHS
and                                           │ priority│    joint projects
Project Leads

                                              ┌── 2nd ──┐    CRISM projects          AHS projects
                                              │ priority│    (with overlap with AHS)  (with overlap with
                                                                                       CRISM)

                                              ┌── 3rd ──┐    CRISM projects          AHS projects
                                              │ priority│
```

Figure 2: Flow chart of Project Process

CRISM Process

```
New request
reviewed by Team

Analyst reviews        Analyst works with        Prepare data
request                Stakeholder/              analysis plan
                       internal contact
                                                 Confirm data
                                                 analysis plan

                                                 Analyst prepares       Analyst shares
                                                 preliminary results    report with
                                                                        internal contact

                                                                        Internal contact
                                                                        provides feedback

CRISM revisions     1st Draft to CRISM    1st Draft includes    Analyst revises
provided to                                all stated            report
analyst                                    deliverables at the
                                           agreed to quality
Stakeholder         1st Draft to           levels. Internally
revisions provided  Stakeholder            verified
to analyst

Analyst revises
report

Final Report
Reviewed by
Team/ Executive
Sign Off
```

Data analysis plan includes details inclusion/ exclusion criteria, quality levels, deliverables and timelines, shared with stakeholder and internal contact.

Meeting Schedule			
Meeting	**Purpose**	**Frequency**	**Attendees**
Project Approval Meeting	Approve project requests	As required	Operational Executive Leads, AHS
Update Meeting	Communicate status updates, review activities in progress and address any concerns	Bi-weekly (till end of September 2018) and then monthly or as required	Operational Executive Leads
Analyst Check-in	Meet with analyst to discuss progress and address any concerns	Quarterly or as required	Operational Executive Leads and analyst
One on ones	Meet with analyst to discuss progress and address any concerns	Bi-weekly	AHS Manager and analyst

3.0 GOVERNANCE STRUCTURE

Figure 3: Governance Structure

Roles and Responsibilities

Knowledge, Performance and Integrated Planning (Steven Clelland, Neha Batra-Garga, Sandy Patterson) will:
- Support recruitment/appointment of Analytics individual.
- Provide the administrative function of billing and invoicing.
- Provide contracting and procurement support.
- Manage work related to day-to-day activities of the analyst, including procurement of technologies and relevant software.
- Work collaboratively and act as the liaison between with the lead stakeholders from AHS to define the scope and overarching statement of work (such as framework, methodologies, analysis plan and tools) for key areas of investigation.
- Work with CRISM to complete project ethics submission and compliance with relevant organizational and provincial policies.
- Provide access to administrative data, as required by the project.
- Pull forward other staff and analytic resources to the project, as required to support the completion of data analysis and reporting.
- Provide governance leadership and assist with analytic planning support including question formulation, approach, scope, expectations, requirements, appropriate strategies, and so on.
- Work collaboratively to identify and document the benefits of participating in this arrangement.
- Provide $10, 000 toward the partnership and staffing of the project

CRISM (Cam Wild, Denise Adams) will:
- Work collaboratively with AHS.
- Work collaboratively and act as the liaison between with the lead stakeholders from CRISM to define the scope and overarching statement of work (such as framework, methodologies, analysis plan and tools) for key areas of investigation.
- Participate in governance meetings and assist with analytic planning support including question formulation, approach, scope, expectations, requirements, appropriate strategies, and so on.
- Work with AHS to identify reporting requirements (frequency, report type, content, and so on) and confirm reporting timelines as needed.
- Support recruitment/appointment of Analytics individual.
- Work with AHS to complete project ethics submission and compliance with relevant organizational and provincial policies.
- Work collaboratively to identify and document the benefits of participating in this arrangement.
- Provide funding for the project, notwithstanding the funding contributions made by AHS, to be completed as a fund transfer between CRISM and AHS.
- Provide governance leadership and assist with analytic planning support including question formulation, approach, scope, expectations, requirements, appropriate strategies, and so on.

The AMH Strategic Clinical Network (Kay Rittenbach) will:
- Participate in governance meetings and assist with analytic planning support including question formulation, approach, scope, expectations, requirements, appropriate strategies, and so on.
- Bring forward relevant activities (e.g., governance, planning, reporting) to and from the SCN.

- Work with CRISM stakeholders to complete project ethics submission and compliance with relevant organizational and provincial policies for conducting research within AHS.
- Work collaboratively to identify and document the benefits of participating in this arrangement.
- Be the link to the SCN core committee for input and direction.
- Provide governance leadership and assist with analytic planning support including question formulation, approach, scope, expectations, requirements, appropriate strategies, and so on.

4.0   TIMELINES AND SUCCESS CRITERIA

Timelines and Milestones
- Appointment of inaugural project analyst   July 9, 2018
- Agreement on overarching governance structure   August 2018
- Delivery of draft of mid-year report(s)   February 2019
- Delivery of financial report   April 2019
- Delivery of first annual report   July 2019
- Delivery of analytic reporting on project(s)   Ongoing

Success criteria
- Number of applications received.
- Timely completion of feedback process.
- Timely completion of analysis project.
- Products created.

CRISM AND ALBERTA HEALTH SERVICES
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PROJECT PROPOSAL

FOR

[PROJECT TITLE]

[Investigators' Names]

MM/DD/YYYY

**Please contact amh.researchhub@ahs.ca for further inquiries
or to submit completed project work plans**

1.0 GENERAL INFORMATION

This call for proposals is open to all CRISM members and Alberta Health Services (Alberta Addiction and Mental Health Research Hub members and the Addiction and Mental Health Strategic Clinical Network^{TM} research community members).

Alberta Health Services (Alberta Addiction and Mental Health Research Hub and the Addiction and Mental Health Strategic Clinical Network^{TM}) and the Canadian Research Initiative in Substance Misuse (CRISM) have partnered to promote innovation in analytics related to substance use and health care utilization. The long-term goal of this partnership is to support access to substance use and mental health (AMH) client data from relevant health care services and programs in Alberta Health Services (AHS) for researchers and to promote innovative analytic projects.

Guiding Principles
1. Little or no new primary data collection will be undertaken under this arrangement. The majority of work under this arrangement will use pre-existing administrative and survey data available to AHS.
2. Analytic activity and tasks will be
   - Approved projects as per AHS policies and directives relating to approval of research within AHS;
   - Analytics relating to questions posed and approved by the Operational Executive Leads in charge of review and approval of analytic projects.
3. Priority will be given to projects in the following order
   - Projects of joint interest to CRISM and AHS;
   - Projects of interest to CRISM with some overlap with AHS interests or projects of interest to AHS with some overlap with CRISM interests;
   - Projects of interest to CRISM only or projects of interest to AHS only.
4. Projects that align with CRISM's objectives of:
   - Identify and/or develop the most appropriate clinical and community-based interventions for substance use disorders
   - Provide evidence to support the enhancement of prevention and treatment services regarding substance use to decision makers and service providers;
   - Support improvement in the quality of care and quality of life for Canadians living with substance use.
5. Projects that align with AHS priorities of:
   - The effectiveness of Mental Health Services and the System – making sure the system works to improve the mental health of all Albertans and provide care to those who need it;
   - Child and Adolescent Mental Health – ensuring the mental health of the next generation;
   - Addiction and Mental Health in the Workplace – ensuring a prosperous economy by addressing addiction and mental health issues in the workplace;
   - Mental Illness and Addictions – addressing the growing problem of this 'dual diagnosis' in our society;
   - Indigenous and Multicultural Populations;
   - Suicide Prevention;
   - Knowledge Translation;
   - The capacity of information systems to support research;
   - Innovations in care and funding models;
   - Integration, care transitions, continuity of care.

Note: The research priority themes for AHS and CRISM are under review and may evolve over time.

Is this a:
- ☐ **consultation around question development (please complete the form to the best of your ability)**
- ☐ **analysis of the fully formed question**

Is human research ethics approval required?
- ☐ **Yes**
- ☐ **No**

If human research ethics approval required, has it been obtained?
- ☐ **Yes**
- ☐ **No**

If no, please contact the appropriate research ethics board for approval before submitting your proposal

PROJECT CONTACT/POINT PERSON

Adherence to project timelines is dependent on timely communication between the project point person and the analyst. Undue response times will result in project delays and in extreme cases, termination.

[Name, Title, Affiliation, Email Address, Phone Number]

2.0 PROJECT TEAM IDENTIFICATION

2.1   PRINCIPAL INVESTIGATOR

[Name, Title]

[Department]

[Institution]

[Address]   [City, Province, Postal Code]

[Phone number]   [Email address]

2.2 CO-INVESTIGATORS

[Name, Affiliation, Email Address]

2.3   COLLABORATORS

[Name, Affiliation, Email Address]

2.4   STAKEHOLDERS

[Name, Affiliation, Email Address]

PLEASE LIMIT SECTIONS 3.0-9.0 TO A MAXIMUM OF FIVE PAGES TOTAL

3.0 BACKGROUND AND SIGNIFICANCE OF WORK

Please describe the background of the problem being addressed, the gaps in knowledge, and the potential significance of this project to improve client care.

4.0 PROJECT BENEFITS, OUTCOMES AND IMPACT

Please describe alignment with CRISM's objectives and/or AHS priorities. Please describe how the project will be beneficial to CRISM and/or AHS. Please describe the anticipated outcomes or deliverables (short, medium, and long-term) and any anticipated impact on the target population.

5.0 PROJECT OBJECTIVES AND METHODS

Please describe the research question.

Please describe the specific objectives of the project.

Please describe data sources, variables, and analytic methods needed to address these objectives.

6.0 TARGET POPULATION

Please provide an outline of the target population or group(s) of interest as well as population characteristics or data variables of interest.

7.0 KNOWLEDGE TRANSLATION

Please describe any knowledge products or activities to be developed or conducted as part of this project OR
Describe how this work will be built upon?

Please contact **amh.researchhub@ahs.ca** for knowledge translation support.

8.0 PROJECT TIMELINES

Please describe any project timelines and justification for the timelines.