Strengthening Health Analytics in Alberta: Current State and Future Opportunities

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Outline

- 1. Strengthening Health Analytics Introduction
- 2. Health Analytic Landscape
- 3. Alberta Health Analytic Infrastructure
- 4. Enabling Data Access
- 5. Strengthening Analytics Through Partnerships
- 6. Final Remarks



Strengthening Health Analytics Introduction

How can we make the most of our data?



Data is an:





Background

- There is an increasing focus on working cross ministry to create efficiencies in policy and program development
- Opportunities exist to reduce duplication and red tape associated with data access
- Private and public sector stakeholders have commented on difficulties accessing data
- Three main outcomes:
 - Better cross ministry data sharing (creating efficiencies)
 - Enable stronger access for academia (supporting innovation)
 - Commercialization of data (creating opportunities for Albertans)



Strengthening Health Analytics – Objectives

• In June 2020, Alberta Health engaged EY to support their goal of strengthening Health Analytics in the province.

The project will strive to fully maximize the benefit of Alberta's health data assets by developing a provincial data and analytics strategy and associated implementation plans. Four deliverables will be developed over the two phases of work:

Health Analytics Strategy

Build on Alberta Health and AHS knowledge to shape a vision that drives innovation and a strategic plan that opens up new ways to use data while removing legacy barriers Data Access Safe Haven Implementation Plan

Use insights from leading practice around the world to develop implementation plans for a data safe haven that is tailored to Alberta's unique context

Innovation and Economic
Growth Plan

Develop implementation plans to leverage Alberta Health's data as an asset, creating sustainability in the long term Analytic Capacity Development Plan

Identify opportunities to build additional internal capabilities and work with the universities to create a pipeline of skilled analytics graduates

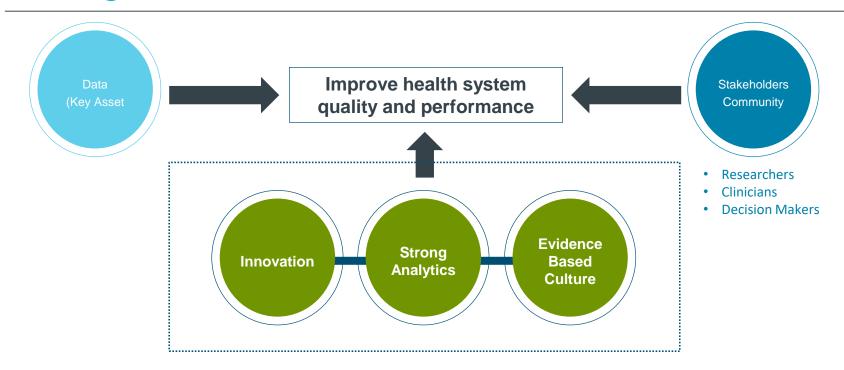


Health Analytic Landscape

Alberta Health Focus

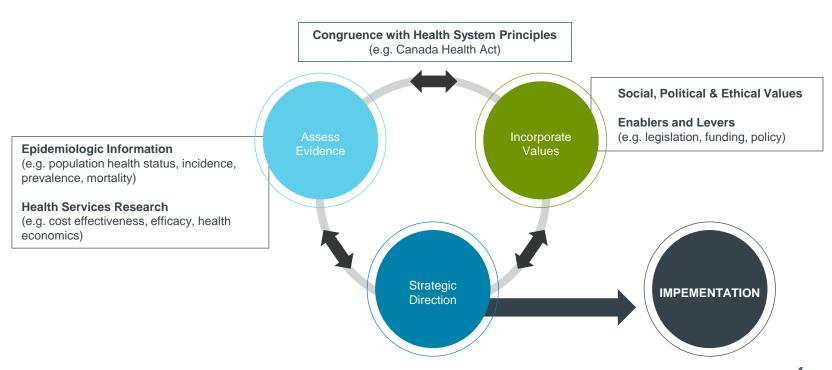


Background





Setting the Context





Health System Context – Alberta

Health Equity

SOCIAL DETERMINANTS OF HEALTH OUALITY DIMENSIONS IMPROVED HEALTH SYSTEM OUTCOMES

Income & Social Status

Social Support Networks

Education & Literacy

Employment/Working Conditions

Social Environments

Physical Environments

Personal Health Practices & Coping Skills

Healthy Child Development

Gender

Culture

Access to Health Services

Evidence-informed services provided in an efficient and safe manner, leading to the best possible outcome

Safety

Risks are mitigated to avoid unintended or harmful results

Acceptability

Services are responsive and respect a person's needs, preferences, and expectations

Accesibility

Individuals are able to obtain services within a reasonable time and distance

Efficiency

Resources are used optimally to achieve the desired outcome(s)

Effectiveness

Services, based on scientific knowledge, achieve the desired outcome(s)

Appropriateness

Evidence-based services are provided that are relevant to a person's needs

People Centred Focus

Patient Reported Outcomes/Experience

Health Workforce Experience

Population Health

Focus on Appropriateness

Sustainability

····· HEALTH SYSTEM CONTEXT AND FOUNDATION ·····

Demographics

Community Resources

Governance

Fundina

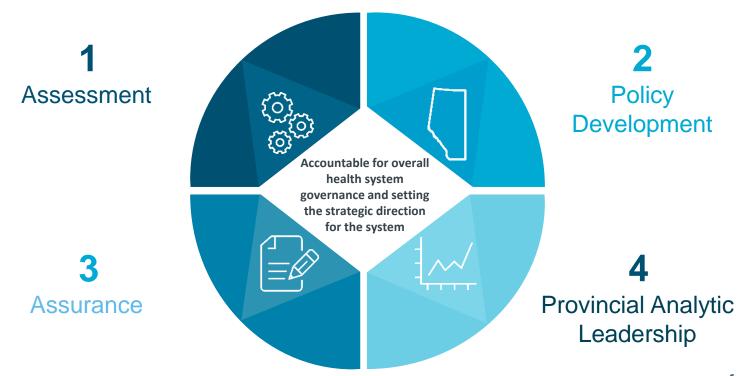
Workforce

Infrastructure

Health Information



Alberta Health



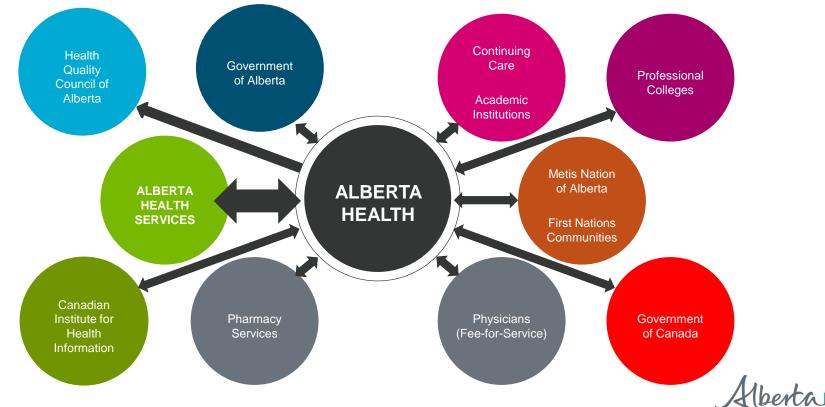


Alberta Health Analytic Infrastructure

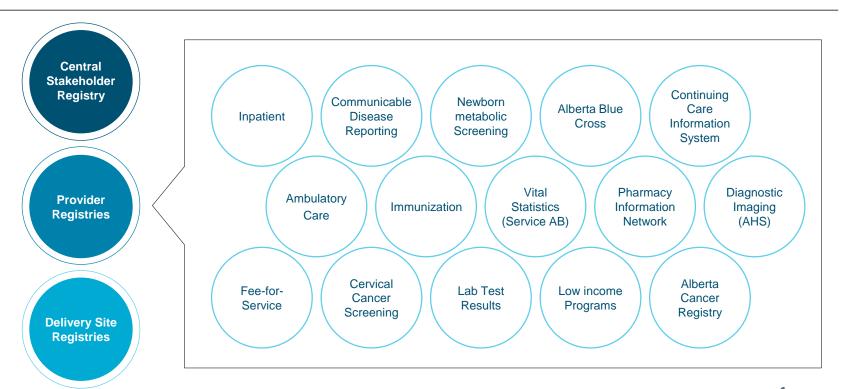
What does this look like in real life?



High Level Data Flows – Alberta Health Lens



Selected Health Data Sources – Alberta Health





AB Healthcare Analytics Platform - Today

Trusted External Users



SECURE PROXY / LIMITED DATA ACCESS

Alberta Healthcare Analytics Platform

ANALYTICS TOOLKIT

Programming (SAS)

Visualization

Data Wrangling

Data Mining

| IMPORTED/REPLICATED HEALTHCARE DATA | | |
|-------------------------------------|-----------------|--|
| AB Health | HQCA | |
| AB Blue Cross | PIN | |
| AB Health Services | Vital Stats | |
| AB Cancer Registry | Many, many more | |
| | | |

Governance (Analytic Asset Management, Continuous Assessment, Lineage)

Security (Authentication, Authorization, Auditing)



AB Healthcare Analytics Platform – Target State



Trusted External Users



SECURE PROXY / LIMITED DATA ACCESS

Alberta Healthcare Analytics Platform

| ANALYTICS TOOLKIT | | |
|------------------------------|------------------------|--|
| Programming (SAS, R, Python) | Predictive Analytics | |
| Visualization | Text Analytics (NLP/U) | |
| Data Wrangling | Optimization | |
| Data Mining | Machine learning & AI | |
| | | |

FEATURED HEALTHCARE DATA

AB Health
AB Health Services

HQCA

Future

IMPORTED/REPLICATED HEALTHCARE DATA

AB Blue Cross

AB Cancer Registry

PIN

Many, many more ...

Collaboration (Sharing, Publishing, Crowd-sourcing)

Governance (Analytic Asset Management, Continuous Assessment, Lineage)

Security (Authentication, Authorization, Auditing)

Alberta

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Enabling Data Access

Empowering Our Stakeholders



Vision and Value



Vision

Mobilization of health and non-health data to create knowledge that drives change, research and innovation for improved health system performance, leading to improved health and quality of life outcomes for Albertans.



Value

- Improved care and health outcomes for patients
- Improved health policy and priority setting
- Foster industry investments and partnerships
- Support research that continuously improves the quality of health services



Strategic Themes





Data Safe Haven Defined

- A Data Safe Haven is a trusted place for holding and analyzing data, with clear governance and controls in place to minimize privacy risks, while maximizing value to stakeholders
- Health will be expanding access to its data warehouse to better support GOA Ministries, professional associations and colleges, academic institutions, non-governmental organizations, and private sector companies

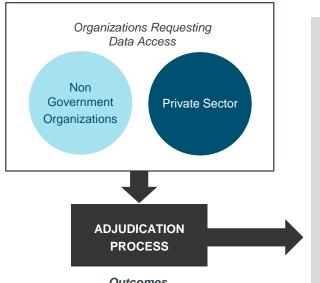


Rationale for a Data Access Safe Haven

- Improved access to data, both health and non-health, provides better evidence to support coordinated cross-government policy and program development
- The Office of the Information and Privacy Commissioner (OIPC) has a preference for the use of data safe havens to improve access, while protecting individual privacy
- The AH data warehouse is a highly secure environment that can be leveraged to meet the goal of improving access and contributing to the overall success of the GOA
- A single, federated approach can meet the access demands efficiently
- Approach reduces resource requirements and ensures legislative and privacy requirements are met



Establishing the Alberta Health Corporate Data Warehouse as a Data Access Safe Haven



Outcomes

- Approved for Non-Identifying Data
- Approved for Identifiable Data
- Approved for Summary Results
- Not Approved

Statistician, Methodologists Programmers,

Alberta Health Data Repository

NON-IDENTIFYING DATA

University of Calgary University of Alberta **Professional Associations** Other Academic

Provincially Funded Agencies

Government of Alberta Ministries

IDENTIFIABLE DATA

Health Care Delivery Organizations

Government of Alberta – Health

Alberta Health Services

Health Quality Council of Alberta

Regulatory Colleges**

Academic Research***



^{**} Limited direct access to data to support Legislated regulatory role only.

^{***} Limited access to studies requiring identifiable, and approved by ethics board.

Strengthening Analytics Through Partnerships

Innovation and Economic Growth Plan



Shifting Organizational Cultures

- Consistent messaging on roles and responsibilities
- Sharing data is the default setting
- A high performing health system, must have high performing components
- Open information sharing a key to driving cultural change and improved collaboration



Fostering Partnerships Focused on:



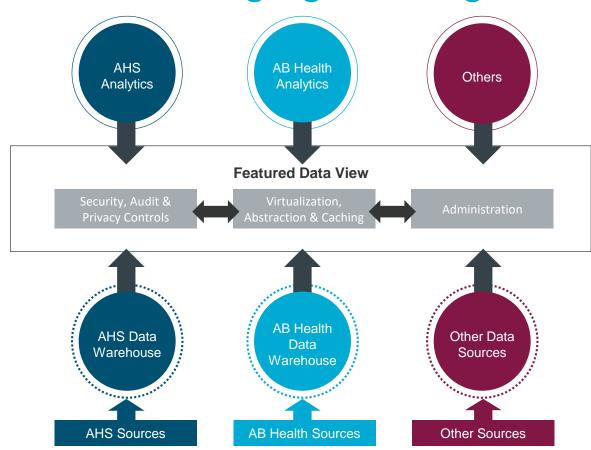
Creating an stakeholder partnerships

Assisting the developing a single provincial analytic infrastructure

Establishing Alberta as a Health Analytics Innovation Centre of Excellence



Leveraging Existing Investments



Advantages

- ✓ Timely access to crossorganization data
- Reduced data duplication / redundancy
- ✓ Analytical views
- ✓ Inbuilt controls to manage security and privacy



Final Remarks



Concluding Thoughts



Focus on values



Analytics is foundational to improved Decision Making



Enabling access and use of data is key



Analytics is about driving better decisions to improve the health system, ultimately improving health status and quality of life.

