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## PROGRAM GUIDE:

# Accelerating Innovations into CarE (AICE) – Concepts

## PROGRAM OVERVIEW

### Background

Health care expenditures in Alberta are increasingly unsustainable, with about \$2.4M spent hourly<sup>1</sup> and consuming approximately 40% of the provincial budget.<sup>2</sup> A growing and aging population, a higher prevalence of chronic disease, a higher demand for multidisciplinary care, and the complex and expensive process suggests the rising trend in healthcare costs is not slowing down. Alberta needs to unlock the full potential of its health research capacity and accelerate the pace of commercialization. The intent is to convert health research into new interventions for improved health outcomes and contribute to a robust and globally competitive innovation economy in Alberta.

Alberta and other global innovators<sup>3,4</sup> are applying precision health approaches widely to optimize clinical decisions and maximize health benefits for individuals<sup>5</sup> across the care continuum.<sup>6</sup> Early approaches examined the relationship between a single clinical marker and a disease for an individual. Though this reductive approach has proven to be effective in some cases, it is increasingly limited due to complex biological, social, and environmental factors influencing individual health needs. The rapid emergence and application of computational tools has enabled precision health research to overcome the limits of a reductionist approach. Computational tools are creating novel opportunities to advance precision health research, accelerate the pace of commercialization, and expand to system level approaches. Network medicine or network-based approaches is a leading example of system level precision health that interrogates interaction networks using computational tools.<sup>7-9</sup>

The Accelerating Innovations into CarE – Concepts Program serves to advance early-stage health research that demonstrates high commercialization potential. This call advances the application of computational technologies or techniques to realize personalized health benefits in two priority areas: disease prevention and diagnosis. More details can be found in the section below.

## Program Details

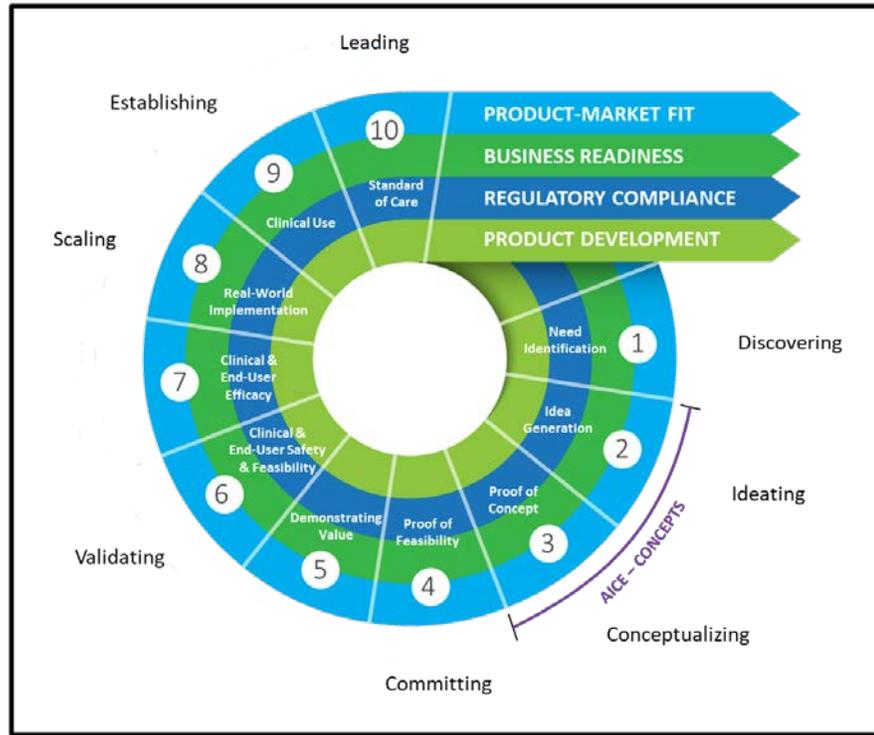
The Accelerating Innovations into CarE (AICE) – Concepts Program (the “Program”) enables *early-stage* innovators to accelerate their journey across four domains of commercialization (i.e., product market fit, business readiness, regulatory compliance, and product development), as shown in Figure 1.

Alberta Innovates will contribute up to \$600,000 CAD per project for a maximum of 36 months to support successful Applicants. The Program will be delivered in a series of closed-call streams that are designed to support early-stage innovation in emerging fields of health that are highly relevant to Alberta.

This call seeks to **apply computational technologies or techniques [e.g., artificial intelligence, *in silico* modelling, Design of Experiments,<sup>10-13</sup> regression statistics]** to realize personalized health benefits in the following priority areas:

- **Prevention**
  - Address *selective prevention* (e.g., social determinants of health) or *indicated prevention* (i.e., at-risk) populations, shown in Figure 2.
  
- **Diagnosis**
  - E.g., medical imaging, omics-based informatics, epigenetics, microbiome, brain, or mental health; predictive, companion, or prognostic biosensors; wearables

**Figure 1.** Stages of Alberta Innovates’ client journey tracked to a health innovation cycle comprised of key commercialization activities (adapted).<sup>14</sup> The blue and green coloured tracks corresponds to commercialization domains, which are sectioned into 10 milestones. Detailed activities within each milestone can be found [here](#) in the online Health Innovation checklist.



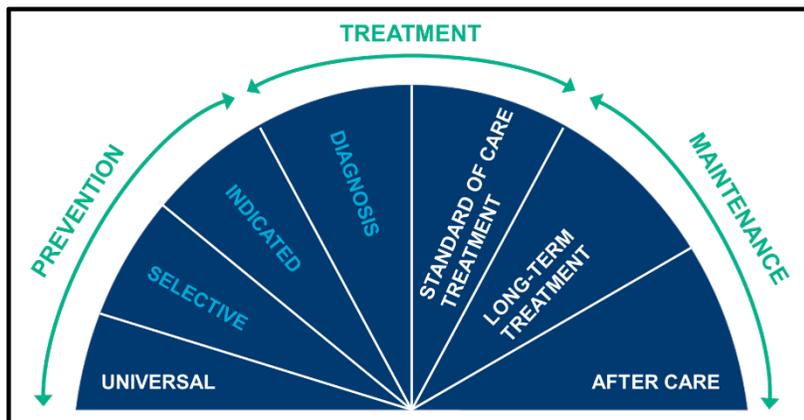
This Program supports activities within the idea generation and proof of concept milestones of the health innovation cycle. These milestones correspond to the ideating and conceptualizing stages of the Alberta Innovates client journey. A description of the milestones is listed below.

1. **Idea generation** – Potential solutions to unmet need described, evaluated, and selected.
2. **Proof of concept** – Key component concepts validated in models and value proposition tested.

*Funded projects will be expected to demonstrate progression across all four domains within the cycle.*

## 2021 / 2022 Priority Area: Towards clinical application of network-based precision health approaches

Background continued



**Figure 2.** Continuum of care framework (adapted).<sup>6</sup> The AICE-Concepts Program addresses early categories of care (i.e., selective prevention, indicated prevention, and diagnosis, shown in light blue).

Describing personalized care often starts with the patient and the physician interaction<sup>15</sup> and then proceeds to diagnosis, treatment, and monitoring considering an individual’s biological, environmental, and social history.<sup>5</sup> However, personalized care can begin prior to any physician interaction. This type of care can be described as prevention in the care continuum<sup>6</sup> and is often referred to as health wellness (Figure 2). Personalized prevention measures corresponding to the continuum are *selective* (e.g., social determinants of health) and *indicated* (e.g., at risk) (Figure 2). Universal prevention measures are not considered to be personalized, thus are excluded from this call.

As described above, precision health approaches can range from a single biological, social, or environment factor to multiple factors interacting that are relevant to an individual. Network medicine is a new network-based precision health approach considers a system level view in addressing health needs and maximizing benefits. Recent examples of applying a network-based approach range from cardiac disease,<sup>16</sup> cancer,<sup>17</sup> lung disease,<sup>18</sup> genetic predictions,<sup>19</sup> drug discovery and repurposing,<sup>20,21</sup> and how diet affects health.<sup>22</sup> For more details about Network Medicine, [view a webinar](#)<sup>23</sup> delivered by Alberta Innovates’ invited speaker Dr. Joseph Loscalzo (Harvard) talk recorded on 17 February 2021 at [Inventure\\$ Unbound](#).<sup>24</sup> Also, explore the range of topics delivered at two international conferences on network medicine in September 2019<sup>9,25</sup> and in April 2021,<sup>26</sup> gathering more than 200 global attendees. A couple common themes observed enabling the field of network-based precision health is the rapidly scaling volume of health data and computational tools nowadays. To this end, the fundamental goal of health care and wellness is to maximize individual health benefits by relying on a robust body of knowledge and a range of approaches.

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*The AICE- Concepts Program serves to advance early-stage health research that demonstrates high commercialization potential.*

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## How the Program Works

### Eligibility

**(a) Applicant Eligibility Criteria** - To qualify as an Applicant, an entity must be:

- led by an Alberta-based post-secondary institution or government health entity; **AND**
- be in good financial standing with Alberta Innovates and its subsidiaries InnoTech Alberta and C-FER Technologies.

**(b) Project Eligibility Criteria** - To qualify for funding all projects must:

- apply a computational technology or technique to address at least one clearly defined clinical problem that is relevant to the precision health priority areas of this call, as stated in the previous section. Network-based precision health approaches will be prioritized.; **AND**
- address at least two health innovation domains within the health innovation cycle;
- include key measurable milestones with deliverables, stepped with critical “go / no-go” decision points;
- submit to other criteria that Alberta Innovates may develop from time to time.

## Program Objectives and Performance Measurement

The Program aims to realize health, social, and economic benefits for Alberta. The Program provides resources to enable projects that center on precision health to drive clinical decision optimization and maximum health benefits.

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*Over the life of a Project, Alberta Innovates employs an active project management philosophy, regularly monitoring performance and supporting the Applicant to reach their objectives. Funding is tied to outcomes and achievement of results. For this reason, Alberta Innovates funds on a milestone completion basis. This means the Applicant is expected to submit a Progress Report before Alberta Innovates advances the next tranche of funds.*

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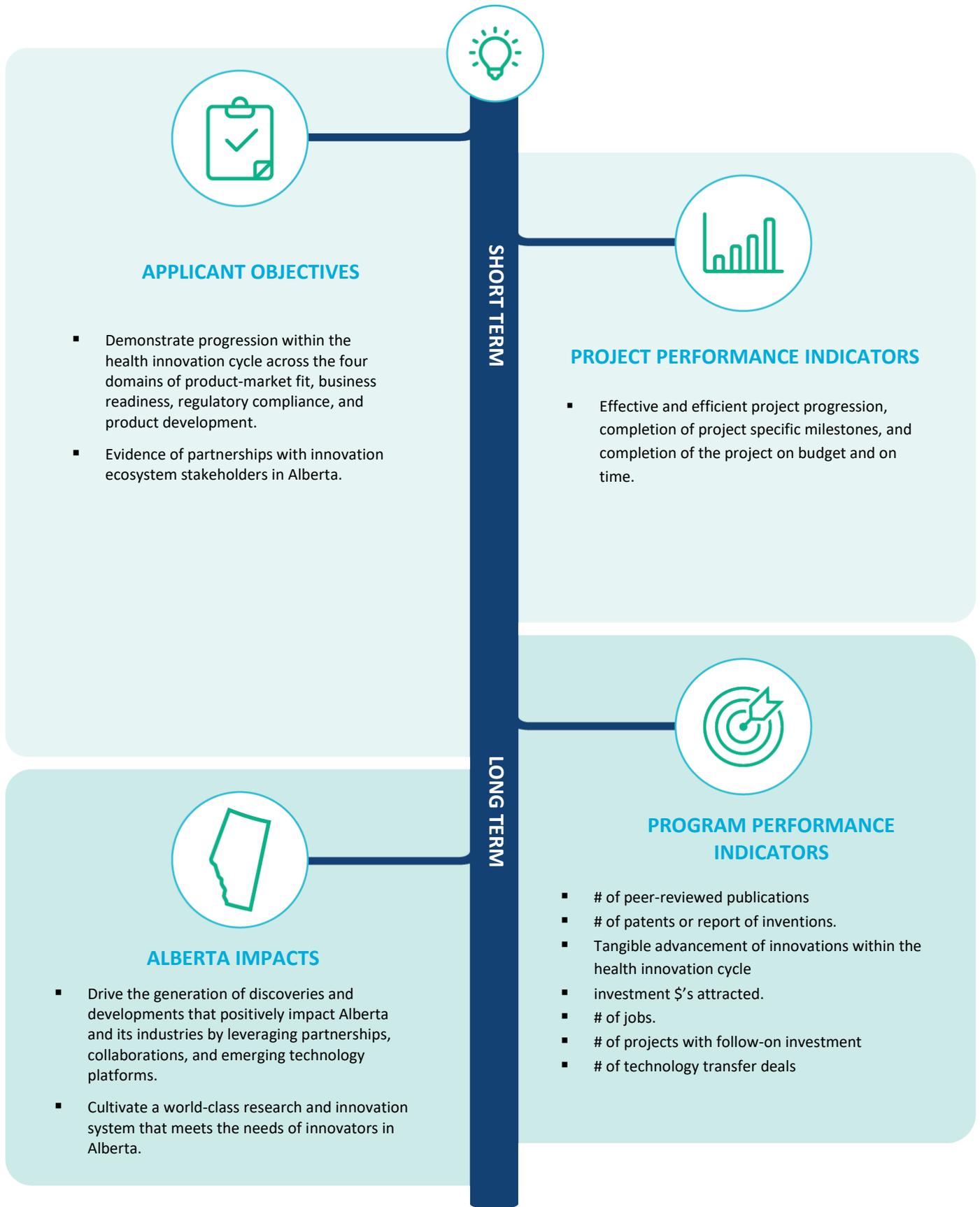
Once Projects are completed, Alberta Innovates continues to monitor performance for five (5) years to accurately evaluate the economic, social, and health benefits realized for the province.

All Investment Agreements outline performance indicators tracked over the course of the Project and the responsibilities of the Applicant to report on outcomes subsequent to the completion of the Project.

Alberta Innovates has a common set of performance metrics it monitors, both at the individual Project level and for the aggregate Program. These are highlighted on the next page.



# Objectives and Performance Metrics



## How Funding Works

### **(a) Project Funding**

Alberta Innovates' Investment to a successful Applicant is up to \$600,000 CAD per Project for a term not to exceed 36 months. The funds are provided to cover Eligible Expenses only. Industry partnerships are encouraged. Funded projects will be required to provide a graphical abstract.

A reasonable fraction of the project budget will be required to address activities outside of product development. This requirement aims to address the three other health innovation domains (i.e., product market fit, business readiness, and regulatory compliance).

Disbursement of Alberta Innovates' Investment is determined on a case by case basis depending on the risks and needs of each successful Project, but funds will only be disbursed upon approval of required Progress and Final Reports.

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*Alberta Innovates will contribute up to \$600,000 CAD to support approved Projects over a maximum term of 36 months.*

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### **(b) Eligible and Ineligible Expenses**

Alberta Innovates only funds reasonable costs incurred after the Effective Date on an Investment Agreement with you. Any costs incurred prior to the Effective Date in the Investment Agreement, or costs greater than market prices are deemed ineligible. Please refer to our standard Investment Agreement found on our [website](#) to gain an in-depth understanding of eligible and ineligible costs.

## HOW TO APPLY



### STEP 1 Registration

**Deadline: June 30, 2021 at 4:00 PM MST**

**All interested Applicants must register their intent to apply.** This step is important so that Alberta Innovates can recruit appropriate reviewers.

To register, access the Application form for this Program on the Online application portal and **complete the non-confidential summary tab** and **save a draft** by the deadline.

**Important:** Any drafts without a completed non-confidential summary section by the registration deadline will be removed and unable to apply.



### STEP 2 Application Submission

**Deadline: September 1, 2021 at 4:00 PM MST**

Applications will be reviewed by an expert panel of reviewers by mid November. Funding decision and announcement expected by mid December.



### STEP 3 Project Implementation and Evaluation

All successful Applicants must sign an Alberta Innovates Investment Agreement by January 31, 2022.

After agreement execution, the Applicant will work with Alberta Innovates to regularly monitor and report on milestone progress and achievement.

## EVALUATION PROCESS

During the different phases of the program, Alberta Innovates leverages internal staff and external expert reviewers to evaluate the Applications submitted. Alberta Innovates evaluates promising projects based on criteria related to the relevance to the Program and associated priority areas, market need being addressed, scientific merits of the project, strength of the team, potential impacts, and return on investment to Alberta.

Alberta Innovates retains sole right to determine the evaluation process and does not disclose the names of its external reviewers to ensure their objectivity and impartiality. All external parties are subject to both confidentiality and conflict of interest policies set by Alberta Innovates.

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*The assessment criteria and all investment decisions are at the sole discretion of Alberta Innovates.*

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## TERMS AND CONDITIONS

This Program Guide is intended as a high-level overview of the Program. It provides interested applicants with a roadmap of what to expect over the lifecycle of an AICE-Concept Project, from the announcement of the Program, through the Application stage, during the Project and post-completion. Should you have any questions about this guide or what is expected, please contact Alberta Innovates. Please be aware Alberta Innovates may modify this guide from time to time in keeping with any changes to the program.

Alberta Innovates will only correspond in writing and provide copies of the Application to the persons named in the application form as the one authorized to speak for the Applicant.

Once we have evaluated and approved an Application for funding, Alberta Innovates will require the Applicant to sign our standard form Investment Agreement which can be found on our [website](#). The Investment Agreement sets out in detail the roles, responsibilities and obligations of the various Parties to ensure a successful Project. Alberta Innovates will not provide any funding until the Investment Agreement has been signed by all Parties.

Alberta Innovates will only fund Applicants who have satisfied all eligibility criteria. Meeting the eligibility criteria does not guarantee access to funding, and all funding decisions will be made by Alberta Innovates at its sole discretion.

## EQUITY, DIVERSITY AND INCLUSION (EDI)

Alberta Innovates believes the Research and Innovation ecosystem is stronger and more sustainable when it is broadly reflective of the overall diversity of our community and therefore embraces the principles of Equity, Diversity and Inclusivity.

## CONTACT INFORMATION

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Stream 2 – 3 June 2021

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