APRIL 22-23, 2020

EFFERVESCENCE

Competition in Digital Health and
Artificial Intelligence

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NOVARTIS   MONTRÉAL INVIVO   FRQ   Université de Montréal

EFFERVESCENCE 2020

Competition between finalist projects in digital health and artificial intelligence aimed at solving a significant health challenge

Call for proposals

In connection with the **EFFERVESCENCE 2020** event, to be held in Montréal on April 22-23, Canadian businesses are invited to participate in the *Competition between finalist projects in digital health and artificial intelligence aimed at solving a significant health challenge,* presented by Novartis Canada*.*

Participants will have the opportunity to propose compelling solutions to address one of the three (3) health challenges while having a positive impact on the efficiency of Québec's health care system.

The three (3) to six (6) selected finalists will be invited to present their proposal before a jury on April 23, from 10:15-11:30 a.m., in the *Competition between finalist projects in digital health and artificial intelligence aimed at solving a significant health challenge* session.

Incidentally, **EFFERVESCENCE** is the scientific and business event designed for you and where you can discover new trends in the research community, find investment opportunities, speak with project owners, and establish business partnerships with key players in the community. The possibilities are endless! https://effervescencemtl.com/

Health challenges:

1. Asthma:

In Canada, it is estimated that 3.8 million people are living with asthma[1]. In order to obtain a better clinical result, digital technologies and artificial intelligence could improve the rather complex management of asthma, which involves several elements, including:

- Facilitating the assessment of symptoms (shortness of breath, chest tightness, wheezing, coughing), history and triggering factors (tobacco smoke, irritants) in primary health care
- Improving access to diagnostic tests and their corresponding interpretation: the lung function test (Spirometry) and allergy tests; differential diagnosis (e.g.: asthma vs. COPD), as well as help in the pharmacological decision associated with the diagnosis.
- Improving therapeutic treatment adherence: simplify treatment, measure the regularity by which medication is taken, ensure periodic follow-up
- Gamify/promote patient education: Preventive measures, inhalation technique, etc...

2. The sequencing of gene mutations in oncology:

Several technological tools allow for the full sequencing of the genome or exomes, or even targeted areas, of the proteome. The new generation sequencing technologies are now more accessible. These omic technologies identify disease-susceptibility genes, specify a diagnosis or a pronosis, and optimize the pharmacotherapy based on the genetic profile of an individual or of an individual's tumour, etc. Detection of genetic, proteomic or metabolic anomalies highlight the biomarkers that have a strong diagnostic or prognostic value.

Nevertheless, Québec's health care system is facing a critical challenge, which is the complexity associated with the multiple biomarkers (often different biomarkers for one same pathology, depending on the manufacturer) in clinical pathology for the identification

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[1] Government of Canada, Asthma and Chronic Obstructive Pulmonary Disease (COPD) in Canada, 2018

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of gene mutations in oncology, and the identification and quantification of circulating biomarkers. In addition, omic technologies generate massive amounts of information-rich data, but often complex to interpret. Digital solutions could **facilitate** the identification and analysis of these mutations and, consequently, improve the prevention, screening, diagnosis or clinical decision-making, as well as access to these tests at the best cost.

3. Pharmaceutical stock outs:

Drug shortages have an impact on patients' health, health care professionals and the health care system. Between 2012 and 2017, close to 4,000 drugs were affected by a shortage and between March 2012 and December 2016, only 1% of these shortages were announced in advance by the manufacturer or the distributor[2].

More effective forward planning of the needs of health care system users (hospitals, community pharmacies, etc.) and of the distribution (pharmacy wholesalers) and production capabilities (pharmaceutical industries) should limit these stock outs. Digital solutions would optimize supply chain management, for example, by automating recurring operational tasks, evaluating inventories in real time to anticipate problematic situations.

The prizes:

The winner will have the opportunity to do an internship at **MILA – Quebec Artificial Intelligence Institute,** at Novartis, and will benefit from the sound advice of Novartis' (global) digital technology and artificial intelligence research group to advance its project.

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[2] C.D.Howe Institute, Assessing Canada's Drug Shortage Problem, June 2018

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How to participate:

To participate in the Novartis competition, please send a PPT presentation of a maximum of 20 slides, detailing the following points:

1. Health challenge chosen from among the three (3) proposed
2. Presentation of the solution: description, technologies used, degree of maturity (advancement) of this solution and degree of differentiation in relation to the competition
3. Description of the solution's feasibility: description of the implementation strategy (summarized development plan)
4. Description of the strategy for integrating the solution into Québec's health care system
5. Description of the impact (expected results) of the solution on Québec's health care system
6. Presentation of the team, expertise, experience, key positions (roles) for this project

Eligibility criteria:

- Be a startup company or academic research team based in Canada
- Bring an innovative solution with strong value-added
- The solution must fit into one of the three (3) proposed health challenges

Selection criteria:

- Ability to address the needs (the challenges)
- The innovative nature of the solution
- The degree of risk in developing the solution and its market potential
- Relevance of the technologie(s) used
- The project's value-added: how the project benefits Québec's health care system
- The ability to integrate the solution into Québec's health care system
- The quality of the team

Deadline for submission: midnight, March 27, 2020.