

BIOQUÉBEC

Le réseau québécois des bio-industries et des sciences de la vie
The Quebec Bio-Industries and Life Sciences Business Network

How Would Medical Data Help Quebec Companies? Here Are Five Examples:

IMMUNE BIOSOLUTIONS

Immune Biosolutions is an innovative company that uses cutting-edge technologies to produce, engineer, and customize high-quality antibodies for the development of diagnostic and therapeutic processes. While the company is somewhat distanced from RAMQ data, it still must provide a summary of the number of patients affected annually by a targeted disease for each of its projects. It must also make selections for its clinical studies. Having access to RAMQ data would provide it with confirmation that it can conduct clinical studies in Quebec and the ability to choose the best hospitals. The company could also use the data to select a type of cancer for which standard treatments have not shown any positive effects.

Here is another example of the importance of anonymized data. During the SILS 2015 summit, Immune Biosolutions' president attended a presentation by a university researcher specializing in data science; the presentation focused on the results of his research, which took raw data from a particular hospital's various analyses without necessarily taking the physician's diagnosis into account. Using this data, he was able to identify a third group of diabetic patients (type 1, type 2, and the new group). This new group had a high probability of developing cancer. Subsequently, the hospital implemented a special screening program for this third group. This is a tangible impact resulting from having access to data.

medicago

Access to confidential data could make it possible to conduct Phase IV, real-world evidence studies on the efficacy and safety of vaccines given to Quebecers. These studies could lead to improving public health authorities' management abilities and to developing a more appropriate vaccine strategy. For example, the data could be used to create messages and communication campaigns adapted to target populations by age group or geographic distribution.



This company has developed a scientific innovation (the Feldan Shuttle) that enables the direct delivery of therapeutic compounds inside cells. This invention serves to transport, directly into targeted cells, various molecules that interact with intracellular proteins to either prevent them from acting or to deliver missing proteins. This type of discovery is called a "platform," meaning that it could become the core component of several drugs aiming to treat a wide variety of diseases such as cancer, inflammation or genetic disorders. In this context, Feldan must be very effective in identifying the medical indications it needs to pursue so that it can both launch a clinical trial on a drug that meets a clear therapeutic need and be attractive to investors.

Feldan would like to have access to an anonymized data bank so that it could accurately identify the diseases that affect Quebec patients and learn more about the different phases of these diseases. It could then develop and market drugs aligned with the community's actual therapeutic needs. This alignment between drugs and needs would not only benefit Quebecers but would also allow Feldan to attract capital from outside the country, which would contribute to the growth of Quebec's biotechnology industry.



DIEX Research is a privately-owned clinical research organization. Based in Sherbrooke, the company has several sites throughout the province at which it conducts Phase I to Phase IV trials. An essential component of clinical research is the ability to conduct a Phase II or Phase III clinical research project in a particular region. For example, can a project targeting patients with rheumatoid arthritis who are already taking a particular medication be conducted? If a search of RAMQ data shows that 100 patients with this profile live in the Montreal area and 50 are in the Québec City area, then it may be possible to conduct this project here in Quebec, depending on the number of patients needed. The search sites do not have information on the identity of these patients, but the data would indicate whether there are patients with the required profile here. While this won't apply to all projects or indications, it would allow clinical research projects to better target the projects that should be conducted in Quebec; above all, the data will help to attract clinical research to Quebec.



MIMM helps local and international pharmaceutical and biotech companies to identify new therapeutic targets in stratified patient populations. This means that it combines available data with data from their patients' clinical trials to classify patient populations into groups based on the mechanisms leading to the development of the symptoms of a disease (which are different for each of these groups), the more or less acute manifestations of that disease, or both. These various groups of patients will not respond the same way to different treatments. It is therefore vital, before investing billions of dollars into developing a drug, to know whether the protein/gene/process being targeted by that drug is suitable for at least one patient group, and to identify that group's size. Furthermore, knowing whether this treatment is actually targeting the patient group with the most acute symptoms will help ensure that the right population is being targeted. Currently, using this type of approach is complicated by the lack of access to anonymized data. MIMM relies on publicly-available data from large databases such as the American NIH, the EMBL, and the UK biobank, among others.

The possibility of using RAMQ data to complement major sequencing projects that are starting in Canada will allow us to integrate our population's biological characteristics into the treatments

being developed (whether by large pharmas or local biotechs) so that they are made for us and that they maximize the impact on OUR population. All this will be done while fully protecting privacy. Privacy rules are stringent, yet full compliance is possible while still allowing these approaches to be developed.

The residents of Quebec must ask themselves whether or not the treatments used to help their children should take into account Quebecers' biological characteristics.