

## **Finding A Doctor – Getting the Best Fit**

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My days of doing data management, real-time process control of industrial processes, data analytics, etc. are far behind me now. At that time, we generally collected data and stored it in unconnected local repositories. It did not have the wide exposure to the potential threat of fraudulent or unethical access and use that is possible today.

In one of the KEI Network's recent webinars, several presenters spoke on topics of "Precision Medicine" and "Personalized Healthcare". In the introduction to that webinar, the host stated that "*healthcare is rapidly moving towards more and more precise personal treatment*". This, combined with AI and related technologies, allows researchers, physicians, and health-care workers to comb through vast amounts of health data to pinpoint customized treatments that work best for each individual patient.

Let me back up for a moment to a slightly different application of personalized healthcare and continue to build on this "vast amount of data" theme.

Canada is home to about 38 million people and, from sources such as Statistics Canada, there are just over 90,000 physicians in the country. Half are Family Practice physicians, and the others are specialists. In July 2019, about 16.8% or 6.2 million of the population did not have a regular family doctor. Provincially, the percentage of people without a regular Family Doctor ranges from a low of 9.2% (71,500 people) in NB to a high of 27.8% (2.4 million) in Quebec. Alberta's number was 19.5% (4.4 million people).

Most people, perhaps like two I know who retired and moved from Ontario to PEI three years ago, added their names to a waiting list. Of the 17K people without a doctor in that province, they may have a long wait to have one assigned.

They, like others who do not have a Family Doctor could go to a walk-in clinic, but they may not see a doctor when they need one. Access to medical history is important information for a doctor to have but most practices use their own paper or local electronic records system. There is no common system that medical professionals can reference for their patients' records. Like my friends who moved to PEI, the best they can do is to get a copy of their records from their

former doctor and take these records with them any time they need to see a doctor.

Doctors in private practice may receive the results of some tests they may have requisitioned for you by fax to be entered into their system, but if you move away, those electronic records are not always made available to your new doctor when you get one.

Providing medically related information to other parties who need it may make the data available for possible fraudulent use. The recent media story about the Flames Covid Proof-of-Vaccine QR code App being a potential means of a third-party acquiring health and related personal data which could lead to identity theft is one example.

In Alberta, we can sign up for a *My Health* account supported by the Ministry of Service Alberta. This is a repository of a person's personal health data and includes information on Immunizations, Medications, Lab Results, etc. as well as optional user-entered information on tracking BP, Pulse, Blood Sugar, Insulin use, Blood Oxygen, Allergies, Medical Conditions, Procedures, Family History, Appointments, etc. I can see the results of lab work before I visit my doctor. That said, there is benefit from its use, acknowledging there could be unauthorized use of such a collection of data.

We may ask, "What can an accessible medical records database do for a person looking for a doctor?". The current systems generally assign a new patient to a doctor when that person's name reaches the top of the list for the nearest location to the patient. It does not perform any ordering of names on the list based on which person on the list may need a doctor more urgently than another. Although providing benefit to the patient and medical practitioner, this may come with possible additional risk of exposure if the data is not securely managed.

That said, two years ago I attended a presentation by the McCaig Institute in Calgary, a multidisciplinary team of scientists, clinicians and engineers working together to improve the prevention, diagnosis and treatment of bone and joint conditions. During an intermission, I met one of the speakers, a neurosurgeon who specialized in the treatment of back and neck issues. He mentioned research in the application of AI and one possible use could be to "triage" patients on a waiting list. In brief, a person with back pain could get an account on a secure

system and respond to questions guided by an AI agent that customized the questions based upon how the individual responded to them. An appointment would be made for an assessment and further information would be entered by a clinician or specialist. The patient could be put on a waiting list and, through their account, enter any additional information for further follow-up. This information could be reviewed by an AI application that could make recommendations to the assigned neurologist for further review. The AI would be trained from multiple case data on all patients, their presented symptoms, diagnostics and diagnosis, remedial procedures, medical action taken and results of similar cases. The information that may be available from the AI could be used to manage or triage the waiting list to address those patients who most urgently need help. Simply stated, a patient would bubble up to the top of the list to be next in line unless a more urgent case is flagged, allowing some patients to move up the list as their condition grows worse.

This could contribute to better overall diagnostics and timely treatment for the patient, as well as a reduction in health costs.

One question that may come from all of this is how we “evaluate” data and measure the “risk” for unethical or potentially fraudulent use of the data. What would an insurance company do if someone with a bad back or bad knees applied for insurance or made a claim for an injury?

That is another story.