Dr. Robot at your service: artificial intelligence in healthcare

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Artificial intelligence technologies are extremely promising in healthcare.[1] By examining, cross-referencing and comparing a phenomenal amount of data,[2] AI lets researchers work more quickly at a lower cost[3] and facilitates doctors' decision-making with regard to diagnosis, treatment and choice of prescription.

The integration of AI into the healthcare field can take various forms:[4]

- Management of electronic medical records (e.g., Omnimed)
- Direct patient care to improve decision-making with regard to diagnosis, prognosis and choice of treatment method
- Integration in the area of monitoring and medication (e.g., Dispill)
- The performance of robotic exams and surgeries
- Indirect patient care functions, such as:
  - Optimization of workflow
  - Better management of hospital inventory
- Home care applications, where portable devices and sensors would be used to assess and predict patient needs.

Working to protect innovators, their clients and the public

No matter what form AI takes when it is implemented into the healthcare field in Quebec, as with any innovation, we must adapt and work to protect the public, innovators and their clients.

What is an innovator? An innovator is a developer, provider or distributor who is involved in the development and marketing of products that use artificial intelligence.

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1 - Innovator protection

As the future of healthcare lies in an increased integration of AI, innovators must be properly supported and protected, which means that they must be equipped with all of the appropriate tools for protecting their rights, especially intellectual property rights.

> **At the time of product development:** they must make sure that they obtain the necessary guarantees and commitments from their partners in order to be able to assert their rights in the event that their technology is appropriated by a third party.
>
> **At the time of product marketing:** having taken care to properly protect their rights, they will avoid prosecution or claims, whether for patent infringement or otherwise.

In addition, if the proposed technological solution implies that the data collected, transmitted or analyzed is stored and pooled or that it is shared with other stakeholders, innovators must ensure in particular that the patients' personal information is protected in accordance with the applicable laws and regulations[5] and that this data is not used for commercial purposes. If not, an innovator could be the target of a claim by professional organizations or by patient groups and, when certification is required, **that certification could be withdrawn** by the Ministère de la Santé et des Services sociaux [health and human services ministry].

To learn more about innovator protection, we invite you to read the following article: *Artificial intelligence: contractual obligations beyond the buzzwords*.

2 - Protection of clients (buyers of artificial intelligence solutions)

Artificial intelligence operations have several intrinsic limits, including the prioritization of quantity over quality of the data collected; systematic errors that are reproduced or amplified;[6] and even human error in the entry of the data relied on by professionals and researchers.

Accordingly, innovators must ensure that they properly warn their clients of the limits and risks tied to the use of their products in order to protect themselves against potential claims.

> They must therefore be objective in the way that they represent their products. For example, terms like "intelligent database" should be used rather than "diagnostic systems." This word choice will avoid both potential civil liability claims and the possibility of being reprimanded for violating the *Medical Act* for performing functions reserved only for doctors.[7]

The innovator will also be required to enter into a contract with the client that is clear and detailed with regard to the use, access and sharing of data collected in electronic medical records (EMR).

3 - Protection of the public (Collège des médecins du Québec ["Quebec college of physicians"] regulation)

All products using AI technology must allow doctors to respect their obligations with regard to creating and maintaining EMR. These obligations are included in Section 9 of the Collège des médecins draft regulation, which is expected to come into force in the near future and will make the use of EMR mandatory.

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The Collège also intends to specify in this regulation that collected data may not be used [TRANSLATION] "*for any purpose other than to monitor and treat patients.*"[8] The Inquiries Division of the Collège has also recently cautioned its members that the technological tools that they use [TRANSLATION] "*must be used exclusively within the context of their duties, meaning the administration of care*."[9]

The current position of the Collège des médecins and the Ministère de la Santé is that the marketing of data contained in EMR is prohibited even if the data is anonymous. Furthermore, according to Dr. Yves Robert, Secretary of the Collège, even if the shared data is anonymous, it may not be used either to promote a product, such as a less expensive medication in the case of an insurance company, or to influence a doctor's choice when making a decision. [10]

The Inquiries Division has also reminded members of their ethical obligation to "disregard any intervention by a third party which could influence the performance of their professional duties to the detriment of their patient, a group of individuals or a population.[11]"

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1. The use of *Big Data* would create more than $300 billion USD in value, with two-thirds of that amount coming from reduced expenditures. *Big Data Analytics in Healthcare*, BioMed Research International, vol. 2015, Article ID 370194; see also *Top health industry issues of 2018,* PwC Health Research Institute, p. 29.
2. The American consortium Kaiser Permanente holds around 30 petabytes of data, or 30 million gigabytes, and collects 2 terabytes daily.
3. *Mining Electronic Records for Revealing Health Data*, New York Times, January 14, 2013.
4. For examples of the integration of AI in healthcare in Canada, see *Challenge Ahead: Integrating Robotics, Artificial Intelligence and 3D Printing Technologies into Canada's Healthcare Systems* , October 2017.
5. See in particular S. 20 of the *Code of ethics of physicians*, CQLR c. M-9, r. 17 and the *Act respecting the protection of personal information in the private sector*, CQLR c P-39.
6. See *When artificial intelligence is discriminatory*.
7. *Medical Act*, CQLR c. M-9, s. 31.
8. *Id.,* S. 9, par. 9.
9. *L'accès au dossier médical électronique : exclusivement pour un usage professionnel ["Access to medical records: exclusively for professional use"]*, Inquiries Division of the Collège des médecins du Québec, February 13, 2018.
10. Marie-Claude Malboeuf, "Dossiers médicaux à vendre " ["Medical records for sale"], *La Presse.ca*, March 2, 2018.
11. *Accès au dossier médical électronique par les fournisseurs ["Access to electronic medical records* by providers"*]*, Inquiries Division of the Collège des médecins du Québec, May 29, 2017, citing section 64 of the *Code of Ethics of Physicians*, *supra*, note 12.

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