

## LETTERS

### Interoperability of electronic medical records requires more than just technical understanding

The recent *CMAJ* commentary by Dr. Nav Persaud<sup>1</sup> has generated thoughtful debate about the best means of achieving interoperability of health information in Canada. This is welcome, as patient-centric informational integrity is foundational to the delivery of quality care.

The notion of a single-enterprise electronic medical record (EMR) as a means of solving the issue of interoperability of health information is not a theoretical premise in Canada. Just look north.

The Northwest Territories lead Canada as the most integrated health information system in the nation.<sup>2</sup> This was accomplished by deploying a single EMR on a single database through all services and all communities; it unites not only primary health care providers, but also specialists and allied health care service providers. And it works.

The constraints faced in deploying the solution were much the same as those found in larger jurisdictions: fractured governance, software limitations, legacy systems, funding shortfalls, disparate workflow, strategic vacuity, antiquated policy and transcendent obstruction arising from an opaque organizational culture. The Northwest Territories faced unique constraints, too: a suboptimal network with limited bandwidth patched together with fibre optic lines and satellites; a health service that relies heavily on locum providers (nurses, physicians and allied providers), necessitating continuous training (often virtually, in remote locations) of new or transient staff; limited funding; and the fact that the north is a university-free zone and suffers from a lack of research and academic capacity and support.

Adapting a single platform to meet the needs of an orthopedic surgeon in Yellowknife, a physiotherapist in Hay River and a nurse practitioner in Ulukhaktok was not a simple proposition. The project required a measure of collective compromise and adaptation for the greater good of patient care. It took 17 years to complete, and at a minimal cost.

A shared patient-centred charting system solves many problems. There is but 1 system

to pay for, maintain and upgrade, and learn to use. Support can be centralized and digitally distributed. The chaos and cost of managing interoperability on a technical and personnel level is avoided. Intrinsic within-system e-referral is implicit and straightforward, and a single clinical database conjoins population health to point-of-care service and promotes closed-loop analytics. Secure, patient-centric messaging can occur across the scope of care. Redundant testing is reduced, as all results are visible on a need-to-know basis.

However, handing over administration of all health information to 1 vendor, untested by competition, confers great power upon the vendor to dictate how information is managed, and to set fees. The corporatization of information, an insidious byproduct of the digital revolution, should give pause to all of us in the health industry; corporatization conjoined with a monopoly is more concerning.

Dr. Persaud suggests circumventing this concern by engaging open-source solutions, but this has limitations, too. Virtually all currently marketed EMRs, including that used in the Northwest Territories, have poorly designed databases that do not support robust analytics and were not made to function on an enterprise level, having evolved (or not) as products for the independent primary-care clinic market. Customization of the software for shared use by the broad cross-section of users can be challenging and costly, more so now than 18 years ago, when the Northwest Territories project began. Further, capacity for data interoperability has now evolved, and with the advent of Fast Health Interoperability Resources (Health Level 7 International: [www.hl7.org/](http://www.hl7.org/)), there is optimism that functional interoperability will become easier to achieve.

It took me years to recognize fully that the principal effort in achieving a measure of interoperability in the Northwest Territories was anthropological and sociological in nature, not technical; this is lost in the current discourse about the best software architecture to embrace. Almost to a person, virtually no health care worker in the Northwest Territories (nurses, physicians, allied health care workers, administrators, deputy ministers), at least in the early years,

wanted to share a chart across services. Everyone wanted their own, tailored to their own service and their own perceived needs. Not only did this feat require an endorsement of functional interoperability by providers, but also oversight interoperability by multiple levels of territorial health governance (authorities, department of health, funding agencies, professional groups, etc.), all with vested interests reflected in opaque policies. It was agonizingly slow work. It took 17 years to complete the project and change the culture of care.

There are various technical paths to interoperability of health information in Canada: a single EMR, a ubiquitous and universally shared middle-ware platform, or initiatives to integrate discrete systems between existing resources. There is only 1 functional path: to behave “interoperably.” Interoperability is a way of being — and not a way of being that seems to come naturally to the health care industry or governance in Canada — that is essential. Without it, regardless of whether we have a single platform, interoperability will not be achieved. We will remain mired in a fractured health information dystopia, littered with shiny technology, broken promises, compromised patient outcomes, and a disaffected health workforce that has learned to distrust the real promise of health information technology.

#### Ewan Affleck CM MDCM

Senior medical adviser, health informatics, College of Physicians and Surgeons of Alberta, Edmonton, Alta.

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1. Persaud N. A national electronic health record for primary care. *CMAJ* 2019;191:E28-9.
2. Webster P. Northwest Territories leads Canada in electronic medical record coverage. *CMAJ* 2017;189:E1469.

**Competing interests:** Past chief medical informatics officer of the Northwest Territories.