

Editorial

Banking and the electronic health record: what lessons can be learned?

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Giokas' laudable article on interoperability called for common architecture, standards, clinical terminology and conformance testing in the development of electronic health records (EHRs).¹ However, Giokas also made a statement that bears much closer examination. He said that it is 'no longer acceptable that while banks can share financial information between Mumbai and Burnaby, B.C, we cannot share health information across University Ave. in Toronto.'¹ Giokas is not alone in this belief. Health care is often criticised for lagging behind other industries in its utilisation of information technologies (IT).² EHRs are frequently compared to IT services available through banking, namely cash machines (ATMs).^{3,4} It is true that ATMs and EHRs share similar security and interoperability needs; however, the comparisons and lessons to be learned go far beyond this simple linkage.

First, we would do well to remember that health data is unlike all other personal data. It is exceptionally complex. It is longitudinal and should be held over a lifetime, if not longer. We need to be able to take retrospective snapshots at any point in time (medico-legal requirements) as well as to view multiple trends over time. We need to include data on other people in an individual's record (for example, family history data) but be able to exclude it on request (third party data). We need to be able to hold some data as more confidential than others, at personal discretion, while allowing for changes over time and under different circumstances.

Second, not only is health data more complex but so are the processes needed to support EHRs. If we consider an ATM, it is a simple process to access our money. A similar concept in health care would be the ability to view a summary of our health record. The first issue is one of language: given the fact that banking has not been able to convert an account balance between different currencies, the chances are that our medical summary would not be translated, with semantic integrity, to the current provider's preferred language. Secondly, in banking there is specific terminology that differs between organisations and countries. For example, a current account in Europe is

known as a checking account in North America. Therefore, the end-user has to adapt and translate between terminologies and languages. In health care, relying on patients and providers to do this at the point of care could be fatal. If you consider this scenario further you will realise that you cannot add, delete or amend data within your summary whilst away from home. This could also be a fatal problem in health care.

Third, consider decision making. Even large, well-run, internet-focused banks take a minimum of one hour to make any decision that is more complex than an ATM transaction. Fast decisions are usually only possible when you are a 'standard applicant' and fit a certain profile. Exceptions to this profile cause delays. Unfortunately, in health care there is no such thing as a 'normal patient'. Instant decisions are needed frequently, and there are often times when they must be made in the absence of all available data. Decision support systems are increasingly popular in health care as a result. However, these systems only work if implemented and used at the point of care/decision making, and they depend on very high-quality data being present in the record. A system that provides information on a potentially fatal drug allergy is useless if the physician prescribes the medication and the patient departs before the new prescription is added to the EHR. Consequently, decision support in EHR systems needs to be a great deal more flexible and requires a cultural change in the manner in which it is used.

Fourth, one argument for EHRs is to reduce the need for patients repeatedly to provide the same information. Observation suggests that repeatedly being asked the same questions about their health issues reveals a far greater depth of information than being asked just once. We therefore need to differentiate between demographic data and clinical data. We need to ensure data accuracy and retention: it is extremely frustrating to go to the trouble of correcting a record to find that the organisation has not ensured that all copies of the data are updated. In banking, if data are lost, we can resubmit the information. In health care, data may not be available again or may involve complex, painful, expensive tests to be repeated.

Fifth, although banking has moved away from the notion of personal bankers in the last decade and has encouraged electronic transactions, more recently most banking institutions have reverted to offering a choice of communication methods that include the internet, telephone banking and personal contact. In health care, patients frequently choose to see the same physician even when given choice.⁵ Continuity of information does not necessarily equate to continuity of care. People are usually healthy when dealing with their financial affairs: they are able to make reasoned (if not always informed) decisions. This is not the case in health care, where people often need an advocate with whom they have developed a personal, trusting relationship to act on their behalf when they are ill. Additionally, it is worth remembering that banking started to invest in technology in the 1970s. Thirty-five years on, the industry has reached the position where people are comfortable dealing with some aspects of their finances in electronic formats. However, there is a continuum, and people move backwards and forwards along it in different circumstances and at different stages in their life. Sometimes we need more or less personal contact in finance. It would be logical to assume that this would also be true in health care.

Sixth, financial organisations have invested heavily in retraining their staff in electronic systems. They also spend extensively on disseminating changes in service provision to their customers. If we want patients to be more active in their own care, we need to be proactive in providing their health data to them. Users are quick to tell banks when their data are inaccurate. Patients should expect to do the same with their health data, resulting in a need for a mechanism for health care to respond quickly and appropriately to these requests and notifications. Furthermore, although many financial organisations' websites do not conform to disability requirements, by their very nature, EHRs must be able to deal with all aspects of disability, functionality and language requirements.

Seventh, there is not yet international consensus on how an EHR should be constructed. Most discussion is concentrated on whether an EHR should be a way of viewing all available data on patients held in multiple electronic medical records (EMRs) or a summary of specified data on patients held in multiple EMRs. In this case the EHR system compiles data 'on-the-fly' from multiple sources. In either case, the pieces of the record are linked by a common patient identifier and pulled into a dynamic display. This perspective is known as a federated record or diffused approach. An alternate approach is one where the EHR system is designed so that the patient record has one specific location and the information components are pushed to a patient-centred repository from the multiple EMRs. This perspective is known as a consolidated system or a circumscribed approach.⁶ The advantages and disadvantages of each

approach are beyond the scope of this editorial. However, it is interesting to note that banking organisations have not simply moved to one system.

In conclusion, Brailer claims that the 'United States is building a point-of-care health information system to rival the worldwide network of electronic banking.'⁷ It is evident that interoperability has become the new buzzword in healthcare IT. Ignagni notes that the Council for Affordable Quality Healthcare (CAQH) created a program designed to bring 'together multiple industry stakeholders to create and, ultimately, disseminate and maintain operating rules to facilitate real-time, comprehensive, secure transfer of patient eligibility and benefits information.'⁸ According to Ignagni, this initiative was launched because 'the private sector recognised the need for an interoperable solution for communicating member data to physician practices ... The CAQH program is modelled on the strict information-exchange rules that make possible direct deposits and ATMs in banking.'⁸ As stated by Walker *et al*, 'banking offers important parallels to health care.'⁹ Furthermore, Walker supports the idea that we should invite banking leaders to advise us on how to proceed as we approach interoperability. But she cautions us: 'against being overly optimistic about the value of interoperability, given [America's] spotty experience with EMRs and related tools.'⁹

Banking has a lot to offer EHR development – not as a gold standard for what we need to achieve but more for identification and clarification of the areas to which we need to pay specific attention. EHRs need to be able to represent complex longitudinal (lifetime) data. They need to be able to show trends for a variety of data in combination or isolation. It is essential that we can view not only our entire record (filtered by our roles and responsibilities) but also be able to amend, archive, or add new data in our EHR from anywhere. So whilst banking offers a lot of lessons for us in the field of EHRs, it also leaves us with a great deal to think about!

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