Most Regrettable Business Decisions

ERRORS - MISSED OPPORTUNITIES - PITFALLS - TAKEAWAYS

Avoiding Costly Mistakes: The Importance of Learning from International Experiences in EMR Implementation

Implementing electronic medical records (EMRs) across various countries highlights significant potential benefits but also reveals numerous challenges and pitfalls. This highlights the importance of learning from international experiences to avoid costly mistakes and inefficiencies.

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key points

- Transformative yet Challenging: EMRs have revolutionized healthcare but come with significant implementation challenges.
- England's Early Adoption: England's experience shows the need for strategic planning and phased implementation in expanding EMRs beyond primary care.
- Australia's Lessons: Australia's difficulties highlight the importance of learning from other countries' experiences in healthcare IT.
- Canada's Doctor-Patient Study: EMRs did not harm doctor-patient relationships, but chronic disease registers introduced new trust issues.
- Critical Implementation Lessons: Successful EMR systems need semantic integrity, structured data, GIS integration, and effective vendor management.

The integration of electronic medical records (EMRs) in healthcare has been a transformative yet challenging journey across different countries. This narrative explores my personal and professional experiences with EMRs in England, Australia (Kidd M, 1997), and Canada (Protti D, 2003), highlighting the lessons learned and the pitfalls encountered. By examining these varied experiences, it becomes clear that while EMRs offer significant potential benefits, their implementation must be approached with caution and careful consideration of the lessons from other nations.

EMRs in England: Early Adoption and Challenges

Having grown up, been educated, and begun my career in England, I was accustomed to the widespread use of EMRs by family physicians. By the late 1990s, EMRs were ubiquitous in primary care, yet their adoption in other healthcare sectors lagged. Despite the familiarity and perceived benefits, challenges remained, especially in achieving comprehensive integration across all areas of healthcare. The reluctance to expand EMRs beyond primary care highlighted the complexities and resistance within the healthcare system, underscoring the need for strategic planning and phased implementation.

Australia's National Strategy: Lessons from the UK

In 1998, my time in Australia involved evaluating the first National Strategy for Primary Care Computerisation by the then General Practice Computing Group (GPCG)(More D G, 1999). My report emphasised the pitfalls that could be avoided by learning from the UK's experiences (Ellis N T, 2000). Despite these insights, Australia's implementation faced significant hurdles, reflecting a broader

trend where countries often overlook valuable lessons from predecessors. The reluctance to fully embrace these insights led to slower adoption rates and highlighted the necessity for international collaboration and knowledge sharing in healthcare IT initiatives.

Canada's Study: Doctor-Patient Relationship and EMRs

After working with dozens of primary care clinics in chronic disease management and meeting key indicators envisioned as indicative of professional care, I moved to Canada in 2003. My move was primarily because computerisation in primary care was still uncommon and I was interested in the impact of the change in information management methods during a consultation on the doctor-patient relationship. At that time, I was informed that the NHS would be implementing electronic health records (EHRs) and that there was no need for evaluation as it was axiomatic that they would be beneficial as they had been in other industries (Burns H, 2004), such as banking. However, the lessons that could be learned from banking (Shaw N T, 2006) were ignored.

In Canada, I was funded by CIHR to undertake a study of 30 primary care clinics across British Columbia. I matched the clinics by size and type of location in groups of three. One group was already computerised, and the other two were using paper-based charts. I provided information management training to one of the two using paper-based charts and to the computerised clinic every six months for three years. At the same time interviews and surveys of the patients and doctors were conducted in all clinics. We knew by then that the use of a computer in the consultation added minutes to the time for the encounter, which was later disproved (Hayward J, 2015) but what we didn't know was whether that improved the doctor-patient relationship or not.

Interestingly, the results showed that the relationship between the doctor and patient was good when the doctor made eye contact and included the patient in charting the consultation. It made no difference whether or not they used paper-based charts or computerised ones (Shaw N, 2004). However, the concurrent introduction of chronic disease registers adversely impacted the doctor-patient relationship. For example, diabetic patients who had been stable but not within the new requirements were suddenly expected to be tested more frequently. This led to frustrated patients and a new distrust in their doctor. The patients felt that if the doctor hadn't been concerned before, there must have been something wrong if they now needed more tests. Explaining that it was simply a mechanism of ensuring that the doctor was paid for the care they provided did not help the situation (Shaw N T, 2002).

Ultimate Lesson in Implementing Electronic Medical Records

Governments should have learned from other countries that installing medical billing systems and expecting clinicians to use them instead of paper charts is a fundamental mistake. Over 30 years later, governments are still grappling with this basic understanding. Medical billing systems and paper charts serve different purposes, and substituting one for the other without addressing their inherent differences leads to inefficiencies and errors.

Globally, people & organisational issues, alongside evaluation (Kaplan & Shaw, 2004), must be addressed and are critical to a successful EMR implementation. Unfortunately, these aspects are often forgotten or ignored (Gagnon et al., 2009).

Ensuring Semantic Integrity and Overcoming Free Text Challenges

A critical lesson is that records should only be shared when semantic integrity can be ensured. This means that when Doctor X diagnoses a patient with Diabetes, Doctor Y should see the same diagnosis in the record without having to infer it from prescribed medications. Free text entries in computerised records have historically been problematic. Until recently, artificial intelligence and natural language processing have struggled to accurately extract medical diagnoses from narrative entries (Zweigenbaum P, 1995), (Wieland-Jorna Y, 2024), (Lorenzoni G, 2024) such as "Saw patient in clinic today, tests show that they do not have diabetes. Will investigate further". In the past, this would have resulted in a false diagnosis of diabetes being added to the record, whereas the exact opposite is true (Zweigenbaum P, 1995). This issue underscores the importance of structured data in medical records.

The Reality of Universal Patient Records and Vendor Challenges

Despite trillions of dollars invested (Kidd M R, 2002), (Sidorov J, 2006) in computerised medical records worldwide, the concept of a universal patient record accessible globally remains elusive (McGuire M R, 2006). Major companies such as Google™ have attempted to penetrate the market (Brodwin E, 2021) and have soon regretted their decision and got out of the industry with little fanfare and into hosting environments instead (Arana C, 2023). Geographical

Information Systems (GIS), which are commonplace in tools like Google™ Maps, have yet to be effectively integrated into electronic medical records, despite their potential to highlight diagnostic insights based on patients' geographical histories and increases and decreases in risk factors (Davenhall B,2009).

By now many healthcare organisations are on their second, third, or higher vendor. Each change in vendor has caused a degradation of data transferred from one system to the next. In most cases, it would be better to pay medical students to abstract the computerised medical record into an agreed summary of diagnoses, current treatment and prescriptions and start fresh with the new system. Just like we did with a paper chart, beginning a new page as needed with a summary kept at the front of the record.

The Fragmented Nature of 'Universal' Records

Computerised 'universal' records do exist, but in the form of several different systems. I can access my medical images from one system, my surgeries from another, part of my diagnostic record is available from a third system, my prescriptions are managed by my pharmacist, and vaccinations by my local public health agency. But

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one thing keeps being overlooked: the diagnosis of my deafness. Despite making several requests and authorising the use of email or text messages with me on many occasions, providers fail to properly register my deafness and act on it appropriately.

Conclusion

Countries should proceed with implementing electronic medical/health records only if they first learn and apply lessons from other countries' experiences. They must address these critical issues to avoid making one of the most expensive and regrettable decisions in healthcare history. Ensuring semantic integrity, overcoming the challenges of free text, effectively integrating GIS, and managing vendor transitions are crucial steps towards creating a truly functional and universal electronic health record system.

Conflict of Interest

None

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