

# Electronic medical records – why should you consider implementing an EMR?

**The 21st century health care system is using a 19th century paperwork system.**

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During his state of the nation address in 2005, the American President launched a campaign to institute a national system of electronic medical records (EMR). He did this because it is believed that EMR will save the US health care system an estimated \$336 billion, and significantly reduce the 100 000 preventable patient deaths that occur each year due to medical mistakes.

‘The vast majority of outcome data generated by the health system — information that could lead to far better understanding of treatment options, adverse drug events and outcomes — is lost within the system: disaggregated, unanalyzed and useless. The positive impact from broader, more effective collection and use of this data would be enormous.’<sup>1</sup>

There is overwhelming consensus that EMR benefit everyone involved in health care. However, despite this mountain of evidence, only 15% of American doctors (and fewer South African doctors) use EMR.

This article outlines some of the benefits and indicates why only the most progressive doctors have embraced electronic records. After discussing the experience of two doctors (in very different practice settings), an attempt is made to establish broad principles that might assist other physicians to make a painless transition from paper to the modern era.

**Table I. Reasons for launching EMR in the USA**

Quality of care is inadequate	Cost of care is excessive	Delivery of care is inconvenient
<ul style="list-style-type: none"> <li>Up to 98 000 hospitalised Americans die each year from preventable medical errors<sup>2</sup></li> <li>Patients received the recommended care only 54% of the time<sup>3</sup></li> <li>There are more than 7 000 deaths and more than 500 000 preventable injuries yearly from medication errors alone (both in and out of the hospital)<sup>2</sup></li> <li>Quality is getting worse in one-third of the areas where measures exist, and improving only slowly in the rest<sup>4</sup></li> </ul>	<ul style="list-style-type: none"> <li>One-third of the \$1.8 trillion in annual US health care spending is duplicative or inappropriate procedures<sup>5</sup></li> <li>Roughly 38% of health care costs go to administrative overhead<sup>6</sup></li> <li>As much as \$200 billion is lost to injuries resulting from medical error<sup>7</sup></li> <li>\$76.6 billion is lost to drug-related illness and death resulting primarily from patient noncompliance and inappropriate prescribing and/or monitoring by health care professionals<sup>8</sup></li> <li>At more than \$10 000 annually per doctor, transcription costs are excessive<sup>9</sup></li> <li>One-third of US hospitals lost money in 2004<sup>10</sup></li> </ul>	<ul style="list-style-type: none"> <li>Three of every 10 tests are reordered because results cannot be found</li> <li>Patient chart cannot be found on 30% of visits</li> <li>Providers need to fill out an average of 20 000 forms every year</li> <li>The average California emergency room patient waits 56 minutes before being seen</li> <li>Providers must manually fill out redundant reports for multiple payers and government agencies</li> </ul>

### Benefits of EMR

The biggest benefit is improved patient care. There is no question that electronic documentation of clinical encounters is the ideal.

EMR make it quicker to:

- **Compile clinical documents.** Whether using defaults (auto-fill), drop-down lists or voice recognition, a comprehensive record of the patient encounter is produced in the most time-efficient way possible. Time is probably the physician's most precious asset while a detailed record of the clinical encounter, in the present litigious environment, is invaluable.
- **Formulate patient summaries** (for referrals, letters and current medication print-outs).
- **Retrieve information.** No more hunting for the lost chart or waiting to answer a call while the receptionist searches for the lab result that she *knows* she filed yesterday! No more phoning the lab for a resend.
- **Audit diverse clinical information.** What is your complication rate, how many patients do you refer etc. One of the greatest impediments to medical progress is our inability to audit effectively whether our care is effective, simply because so much information is 'trapped' in paper in doctors' offices and inaccessible to scientific evaluation.

## There is overwhelming consensus that EMR benefit everyone involved in health care. However, despite this mountain of evidence, only 15% of American doctors (and fewer South African doctors) use EMR.

With EMR it is cheaper to:

- **Compile clinical documents.** In comparison to dictation, transcription, checking, printing and mailing, electronic solutions offer a better service at a fraction of the cost.
- **Store electronic documents.** Consider the cost implications of your filing system and the space occupied. Then consider the time taken to file each day.
- **Retrieve clinical documents.** Consider the time taken to find the folder and the time wasted looking for that elusive document.

An EMR system improves patient care and reduces exposure to litigation. Almost all users of EMR report better patient care for the following reasons:

- Information is accessible, legible and

better organised. Having all the clinical information available during the patient encounter enables better decision making.

- Better documentation of past encounters assists current decision making.
- There are automated reminders to order crucial tests, immunisations, etc. Allergy alerts are very helpful when 'writing' a script.
- Decision support. Some EMR assist clinical decision making. This may take the form of pre-programmed algorithms or facilitating communication between the doctor and a range of experts.
- Patient support. Production of information sheets (with your practice letterhead) is effortless. Clinical parameters shown graphically over time are very useful in helping patients understand their disease and improving compliance. This is particularly helpful when the disease is asymptomatic.

### Why has adoption been slow when there are so many benefits?

There are two main reasons:

- It requires a significant change in the way doctors work and the learning curve is quite steep. In short, for many doctors, it requires a courageous jump into the unknown – perhaps a tall order for a conservative profession. It is an accepted fact that incentives are needed if one hopes for mass buy in.

- Cost – in the South African context, the cost of the EMR *per se* is not a factor (e.g. send an e-mail to [cost@bluebird.co.za](mailto:cost@bluebird.co.za) for current pricing). Locally, EMR are very inexpensive (probably because, at least until recently, they have been subsidised by pathologists). However, one must be aware of hidden costs – for example, during the learning curve, you will see fewer patients.

The experience of doctors in two different practice settings is perhaps educational and is related below.

### Academic practice – Trevor Gerntholtz, consultant nephrologist

In May 2005 the Renal Department at the Chris Hani Baragwanath Hospital went live with an in-house designed EMR (BART). Specifically tailored to public sector needs, it has revolutionised the way we manage patients. Perhaps the most important benefit is our ability to minimise health care encounters where practitioners are uninformed about a patient's history or recent treatment. Prior to the introduction of BART, one of our greatest frustrations was the 'lost patient file'.

In our practice, we deal with many types of renal and cardiovascular disease, and are heavily involved in research. BART enables us to deal very efficiently with the analysis of various subgroups of patients. This is a major advance when compared with traditional documentation. It has meant that we can perform detailed research, without clawing through hard copy 'stored' in different locations. Our EMR system forces a minimum standard for documentation of the clinical encounter, which means that the clinical note is detailed enough to facilitate research and probably lessen litigation risk.

The fact that we now have all patient details available in one place means that we can perform up-to-the-minute audits. This includes detailed analysis of clinical markers of disease progression as well as our ability to meet internationally recognised treatment guidelines. For example, it came as something of a shock to us when we performed our initial analyses and found that we only achieve target BPs in roughly a third of our clinic patients! Once we realised this, we were able to concentrate on stricter control, with resulting improvement. This cycle of audit, institution of improvements and subsequent re-audit is an important component of good clinical governance. This is vital to the practice of medicine and has been facilitated by our EMR.

As electronic communication standards are adopted in South Africa, another benefit becomes possible: national disease registries. This would be an important source of clinical information to all involved in health care.

The biggest obstacle to overcome was the change in culture required of our physicians and nurses. Initially, many people found it difficult to part with paper-based systems and found electronic data entry alien and time consuming. However, with patience and plenty of support from the designers, most physicians now find the system indispensable.

## It is essential that the many benefits inherent in having accessible and readily analysable data be made clear to those who remain reluctant to change.

Until one becomes accustomed to the computer, it can be time consuming to enter data. This is particularly true in the state sector where lab results have to be entered manually (in private practice this has been addressed and all results are channelled through an independent third party electronic gateway).

It is also important to stress that your electronic notes need to be secured and backed up.

After a year and a half, it is fair to say that BART has revolutionised the way we practice medicine. The doctor-patient relationship is enhanced because both parties are fully informed and missing information is a thing of the past. Up-to-date research and audit of clinical care mean that concepts of clinical governance are now an integral part of our unit's daily practice. We are convinced that electronic documentation of the patient encounter is the future of medicine.

### *Private practice – Marcus van Heerden, gynaecologist*

One of the most difficult important decisions one faces when entering private practice is choosing practice software. Does one just buy an accounting package or should one choose a more sophisticated system that combines accounting, practice management (expenses, VAT etc.) and clinical modules?

When I began practice, only accounting software was available. This didn't seem problematic as I had loads of free time between patients to write notes, dictate letters, and correct the typed transcript.

As the practice grew busier I needed to take progressively more work home and costs began to soar (my typist account started looking like a monthly salary). The problem really hit home when my son asked me if I was ever again going to spend time with him (as we did when I first opened practice). It was at this stage that I realised I had to find a more efficient way of managing my professional life.

I initially looked at voice recognition software but found it impractical and difficult to master. At a congress, I found the system I was looking for. While the software was generic (designed for all specialties, including general practice) the primary developer was a gynaecologist and had already configured OBGYN templates. What a lucky break!

This system was installed in November 1999 and I have never looked back.

While there is a short learning curve, and you must be prepared to temporarily reduce your

patient load, you very quickly become much more efficient as well as master of your own destiny.

When the patient leaves my examining room, the invoice is waiting at reception; the letter to the GP is already printed (or sent through the practice management system) and the lab/imaging forms are complete. When I close the door to my practice at night, 99% of the administration has been completed. I really do work smarter, not harder! I only wish I had started using an EMR system sooner.

### *Lessons learnt*

Do not begin the process unless you have commitment from your partners and staff. Studies (by the Californian Healthcare Foundation) show that the characteristics of health care workers and their commitment to an electronic record are more important than the technology itself.

Uncommitted staff or those that do not fully understand why change is required will make a successful transition difficult. Understanding and support for those who are less IT-literate is required. It is essential that the many benefits inherent in having accessible and readily analysable data be made clear to those who remain reluctant to change. Principles of good clinical governance, research and accurate patient care, all made possible by the EMR, need to be emphasised to those who remain skeptical.

Come to terms with a transient drop in patient load (and earnings!). If you do not take the time to learn the system properly you will never get the full benefit. Attend the training classes, watch the teaching videos – there are no shortcuts – you get out what you put in.

Expect to feel insecure for a short period, because there is a learning curve, but the more computer literate you are, the more gentle the curve. Ability to type is not required, but will be an asset.

### **Choose a champion**

Implementation of IT solutions into an established practice needs at least one committed leader who will not only undertake

to use the system him/herself but also help with the training and support of those who may be more reluctant to change paper-based habits.

### **Maximise automation**

The time spent entering patient data can be minimised if the EMR system is integrated with other databases. This is exemplified particularly with pathology laboratories. Our renal software programme was made much easier to use once we had integrated our patients' clinical details together with lab results from all major private laboratories, via the practice management service. To ensure speed and accuracy of clinical decision making, laboratory/EMR information transfer needs to take place. Electronic data transfer between the EMR and billing packages also facilitates ease of operation.

### **Stepwise implementation**

When adopting an EMR system, it may be advisable to have it installed in an incremental fashion. For example, it may be better to start by using a simple laboratory results package that allows the incorporation of a clinical module over time. This allows health care workers to progress in terms of IT sophistication and to become gradually more familiar with increasingly complex systems.

### **Comprehensive support**

Full-time professional support is essential. Great software is often let down by poor support. It is a good idea to load demonstration software onto your laptop and call the helpline a few times to gauge their professionalism before committing to an EMR system. Impressive marketing does not always translate into professional support. If international products are used, the extent of local support should be ascertained at an early stage.

### *Summary*

In spite of the avalanche of evidence favouring electronic documentation of the clinical encounter, uptake by physicians has been frighteningly slow. This is probably explained by the conservative nature of the profession, by older physicians' anxiety regarding computers and the mantra 'if it isn't broke, don't fix it'. The problem, unfortunately, is that our health system is badly broken and desperately in need of fixing.

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## Electronic medical records

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## In a nutshell

EMR systems do the following tasks cheaply and faster, resulting in improved patient care:

- Compile clinical documents. Whether using defaults (auto-fill), drop-down lists or voice recognition, a comprehensive record of the patient encounter is produced in the most time-efficient way possible. Time is probably the physician's most precious asset while a detailed record of the clinical encounter, in the present litigious environment, is invaluable.
- Formulate patient summaries (for referrals, letters and current medication print-outs).
- Retrieve information. No more hunting for the lost chart or waiting to answer a call while the receptionist searches for the lab result that she knows she filed yesterday! No more phoning the lab for a resend.
- Audit diverse clinical information. What is your complication rate, how many patients do you refer, etc.? One of the greatest impediments to medical progress is our inability to audit effectively whether our care is effective, simply because so much information is 'trapped' in paper in doctors' offices and inaccessible to scientific evaluation.

## single suture

*Live a long, healthy life*

Forty years of research on 5 820 healthy, middle-aged Japanese American men, recruited between 1965 and 1968, showed that 42% lived until they were at least 85, but only 11% lived at least that long and stayed healthy. This small group were called exceptional survivors – no chronic illnesses, disabilities or dementia. What distinguished these survivors? They were thinner, fitter and better educated when they were middle-aged. They also smoked less, drank less and had fewer cardiovascular risk factors such as hypertension, hyperglycaemia or hypertriglyceridaemia. Marriage, interestingly enough, is associated with a long life, but not with lasting good health. Being overweight was weakly associated with death before the age of 85, but more powerfully associated with ill health in old age. These findings confirm that a long and healthy life is not simply dependent on luck. Men with no risk factors at all in middle age had a 55% chance of living and staying well beyond 85 years.

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