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Posts

Clinical User-Centred Design: Part 2

29th March 2019 [Jay Mehta \(http://blog.jaymehta.co.uk/author/jaymehta/\)](http://blog.jaymehta.co.uk/author/jaymehta/) [Leave a comment \(http://blog.jaymehta.co.uk/2019/03/clinical-user-centred-design-part-2/#respond\)](http://blog.jaymehta.co.uk/2019/03/clinical-user-centred-design-part-2/#respond)

In [Part 1 \(http://blog.jaymehta.co.uk/2019/03/clinical-user-centred-design-part-1/\)](http://blog.jaymehta.co.uk/2019/03/clinical-user-centred-design-part-1/) of this two-part post, I explored why I think digital technology in healthcare has had a negative effect on clinicians' ability to work effectively. We left things by asking why this is the case, and whether this trend can be reversed.

I've been working or studying in the NHS since 2010, so I've been lucky enough to watch the introduction of digital systems from paper. It used to be that an Emergency Department doctor could scribble their thoughts, plans, orders and anything else they

wanted on a piece of paper whilst taking to a patient. But now I have to grab a computer and settle in as I type out all of that same information.

Don't get me wrong, I love how many problems the electronic health record (EHR) solves – I no longer have to hunt for lost paperwork, I no longer have to be in the same building to check on my patient, I can share my thoughts and records with a colleague miles away, I can see what my predecessors did the last time the patient was here, and a million other benefits.

So why does the technology increase burnout?

I think it's because clinicians don't train and grow up expecting to be glorified data entry clerks.

I enjoy seeing patients. I enjoy listening to them. I enjoy the challenge of adding up their clues to develop a differential diagnosis. I enjoy using my clinical reasoning skills to decide on an investigation and management strategy.

I don't enjoy typing all those thoughts into a computer.

To be honest, I never really enjoyed scribbling all those thoughts onto paper either, but at least with paper I could do it by the patient's side and didn't have to bother with coding my thoughts or creating machine-understandable documentation.

Now, I have to meticulously remember everything that I heard from the patient, as well as all the physical clues I picked up, login to a PC and navigate complicated software, then type them in a machine-legible coded format. Not to brag, but I can scribble faster than I can type, it's rare that I forget how to navigate paper, and I don't have to login to my pen.

Why do we need to document at all?

But whilst we're thinking about the increased difficulties of clinical documentation on a computer, take a step back – why do we bother to document anything?

Talking to senior clinicians, I often hear “back in the good old days...we never wrote so much!”. There’s a non-techie truth to this – as the practice of medicine has evolved to become less paternalistic and more patient-centred over the years, the NHS has seen a corresponding jump in litigation. In the 1940s, GPs’ indemnity fees to the Medical Defence Union cost £1, as opposed to £5500 in 2010, and in 2011-12 the NHS bill for damages and legal costs in clinical negligence cases breached £1 billion ([BMJ 2013;346:f978 \(https://www.bmj.com/bmj/section-pdf/187753?path=/bmj/346/7896/Feature.full.pdf\)](https://www.bmj.com/bmj/section-pdf/187753?path=/bmj/346/7896/Feature.full.pdf)).

If you’re involved in such a case, which may not take place for years after the incident, your best defence is your clinical documentation from the time of the event. We’re always told “if it isn’t documented, it didn’t happen”.

As a result, there’s a defensive obsession around clinical documentation, to the extent that doctors will explicitly state lots of symptoms and signs that their patient does NOT have, and we’ll even copy things like the vital signs from another document into our document – even though this makes zero difference to the patient’s clinical care.

To be sure, litigation is not the only reason we document our findings. As a method of communication between different staff encountering the patient in different spaces and at different times – the written record is irreplaceable. However I think it’s fair to say that the ever present fear of litigation is the main reason we’re compelled to document everything we possibly can, instead of simply documenting the key salient points.

These problems existed on paper, and we tacitly accepted them, but the introduction of an electronic health record gives us the opportunity to re-visit the discussion on our bad inefficient habits.

How can we fix the problem?

So EHRs are associated with increased burnout, which I personally think is due to the fact that staff don’t want to be spending time coding and documenting copious amounts of notes into a computer. Admittedly most of these problems were present with paper too, but EHRs may have exacerbated them.

Is there a fix?

I think the answer lies in the design of our digital systems. Most people assume design is the simple graphical layout of the thing on the screen/paper, but in reality it's much more than this. Digital design encompasses the entire interaction between human and software, including facets such as ease of use, intuitiveness, layout, colour scheme, and even friendliness (see below for some examples from Apple, as reported in the biography Steve Jobs, by Walter Isaacson ([https://en.wikipedia.org/wiki/Steve_Jobs_\(book\)\)](https://en.wikipedia.org/wiki/Steve_Jobs_(book)))).



Steve Jobs reportedly was adamant that the first iMac say "Hello", to engender friendliness.



Steve Jobs was also reportedly very keen that the first iMac have a handle, to invite new users to pick it up.

Design is something that historically in software was an afterthought – developers spent every waking minute crafting beautiful data architectures, before quickly sticking a graphical user interface (GUI) on top. Over time the phrase user-centred design evolved to signify a product where the GUI and the users' interactions with it were the primary consideration instead. This is something that Apple and Bauhaus design schools have preached for years, and now it's rearing its head in clinical healthcare.

The idea that user-centred design in clinical systems might improve staff satisfaction and efficiency used to be just a theory – but no longer. The Arch Collaborative from Klas (<https://klasresearch.com/archcollaborative>) has reported that allowing increased EHR personalisation (<https://klasresearch.com/report/improving-the-ehr-experience-through-personalization/1503>) increased users' satisfaction with their EHR. Moreover, Mazur et al has shown that increased usability of an EHR results in increased cognitive workload and increased performance (JAMA Netw Open. 2019;2(4):e191709. doi:10.1001/jamanetworkopen.2019.1709

(<https://jamanetwork.com/journals/jamanetworkopen/fullarticle/2729805>). Admittedly neither of these looked to see whether the long term rate of burnout was reduced, but it seems to be a move in the right direction.

So to conclude this two-part post, electronic health records offer a wealth of benefits but have a significant drawback of being associated with increased clinician burnout.

I believe that clinical user-centred design has a huge role to play in alleviating, and hopefully even reversing this correlation.

This is something I am passionate for, and have been doing my best to learn in my spare time. Hopefully this post has given you an insight into why I consider this to be so important, and next time instead of rambling on, I'll actually give this clinical user-centred design a go!

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