Social media and the future of medicine

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EDITORIAL

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Introduction

Good health is not only the absence of disease or disability. As well as leading healthy lives, we expect a good quality of life. With our shift in demographics (e.g., people living longer than previous generations, disability no longer being perceived to define a quality of life) and individuals' access to information, there is a need to change how we think about delivering healthcare to the community.

This editorial discusses the insights of both a medical practitioner and an industrial design practitioner who are committed to challenging the status quo of how healthcare is conceived, developed, and delivered. Industrial designers are engaged with the experience of the individual from the moment they wake up to the moment they fall asleep (e.g., toilets, watches, car interiors, and such like). Traditional designers were considered stylists, but current designers are engaging with consumers' needs beyond the functional. Empathic design outcomes can satisfy both functional and emotional needs. Technology and services need to fit seamlessly into a person's lifestyle. This is what the current consumer requires, and more importantly what the future consumer will require. What the design profession has acknowledged is the role of empathy within the conception and delivery of products and especially the emerging need of health-related devices.

Historical influencers on medicine

From the time humans became aware of "being" they would have developed a sense of "wellbeing". With no real evidence or scientific methods to test hypotheses, the restoration of wellbeing or "healing" was originally more of an art form consisting largely of exploration and trial and error. In many cultures "healing" became intertwined with religious faith and the "art" developed an empathic and compassionate nature. The establishment of scientific enquiry allowed for rigorous methods of research and investigation and the opportunity to practise medicine based on reproducible results.

These three influencers, medicine as an art, medicine as a science, and medicine as a faith have helped shape medicine to be the "empathic and caring profession" that acknowledges the physical, emotional, and spiritual needs of those in the need of medical care. However, global economic volatility has brought an economic issue to the healthcare system and put these influencers under considerable pressure to engage in "cost containment".

The here and now

Over the last few years the pace of health transformation has increased in Australia as a consequence of budgetary pressures. In 2013 Daley[1] analysed the budgets of the Australian Commonwealth government and the three largest state governments. He investigated trends over the next decade, and revealed serious pressures that put Australia's national prosperity at risk. The greatest risks come from sustained increases in spending, especially health, which rose by nearly AUD $42 billion in real terms over the last decade. Daley[1] states that the greatest health rises are not in aged care, but rather come from all ages seeing doctors more often, having more tests, more operations, and taking more prescription medications.

The Australian healthcare system is now under immense pressure to transform to achieve sustainability by reducing total healthcare costs. Irrespective of the path

we take, health transformation will require us to change the way we think about the delivery of healthcare. Part of this transformation is to move towards patient-centric care. Motivating and empowering the community to be proactive in their own health outcomes should reduce costs and improve patient outcomes. But patient-centric care is a new paradigm in health. It creates an environment where community is not only the patients but also the workforce. Every business knows that efficiency, quality, and productivity are enhanced with an engaged and motivated workforce and the business of health will be very dependent upon workforce and user engagement.

Social media and medicine share common threads in how they develop systems. Both use information development and co-creation techniques to add value to previous knowledge. What differentiate them are the mechanisms of evolution. Medicine is advanced using well-defined, evidence-based research methods and culturally reinforced attitudes such as peer review processes. Social media operates with open collaboration and the attitude of "not fond of rules and no respect for the status quo". These conflicting ideologies can present significant roadblocks to cooperation between the two sectors or they can present an opportunity to co-create shared platforms and develop novel business models.

Social media as an enabling technology

The original vision of the Web was "humanity connected by technology".[2] Social media, or Web 2.0, is not a discrete entity; rather, it is part of the continuum of Internet-based applications. There are more than 200 social media sites listed on Wikipedia.[3] The common feature of social media is a highly interactive and often intuitive platform that becomes a virtual extension of the user's normal mechanisms of social interaction. Social media creates a world without walls and a world without restrictions of connection. "Friends" are not limited to the people a person has physically met. "Networks and community groups" are not restricted by geographical area a person can travel to, and "work" is not something restricted to a place a person physically enters to generate income.

The commonly used social media platforms are all technology based. Technology is a "tool" that a person or organisation can use. It is an enabler and never a "complete solution" in its own right. Technology is neither inherently good nor bad; it just "enables" people and organisations to do good or bad things with it. The outcome of the use of technology depends on the experience and intention of the people or organisations using the "tool". Social media is a very ubiquitous tool. Facebook alone has about 1.317 billion users

each month.[4] The ability to link personal accounts between social media sites adds diversity to the information sharing capability.

One example of the use of social media in medicine is the FOAM (Free Open Access Meducation) movement in medical education. FOAM has spontaneously emerged from the collection of constantly evolving, collaborative, and interactive open access medical education resources being distributed on the web. Although FOAM is independent of platform or media—it includes social media platforms including blogs, podcasts, tweets, Google hangouts, online videos, text documents, photographs and Facebook groups. FOAM is a globally accessible crowd-sourced educational adjunct providing inline (contextual) and offline (asynchronous) content to augment traditional educational principles.[5] FOAM has access to everything from peer review articles to unrestricted and unregulated user-generated content. The FOAM movement has demonstrated that our medical educators and students, the future of our profession, have developed ways to overcome the roadblocks and find co-creation methods to access social media for both educational and social purposes.

The recent introduction of wearable technology such as Fitbit Activity and Sleep Wristband and Jawbone UP Activity Tracker allows the Internet and social media to seamlessly integrate user-generated content that involves real-time data collection, storage, analysis, and feedback. This creates an environment of seamless engagement between the wearer and the outside world. "Always-on" wearable devices automatically and seamlessly gathering and integrating data about physiology, behaviours, and habits can create an environment of empowerment and enhanced personal decision making. Social media could allow for a shift away from professionally controlled, centralised, and complex documents, to a personalised, real-time story of our lives. This story will be ours to share—or not—as we see fit. Herein lies one of the great powers of social media. It empowers individuals to choose what information is gathered, what is stored, who to share it with, and in what format. People have ownership of their health "story". This represents a great opportunity for the medical community to initiate a patient-centric "shared care" platform. Perhaps empowering individuals to connect, engage, and share via social media will be a catalyst to encourage members of the community to take control of their own health and in so doing reduce total healthcare costs.

Active patient participation involving monitoring, recording, and interpretation of medical data is not new. Patients have been recording blood sugar levels and blood pressure reading for years and diabetics alter insulin dose depending on the information they generate themselves. The use of social media and wearable technology does not change this model. Social media and wearable technology are just the enablers that can make self-assessment more accessible and possibly more engaging for the patient population.

But there are negative aspects to social media. Current concerns centre around issues of privacy, security, and reliability of information. There are legitimate concerns regarding what personal data will be collected, where will it be stored, and who has the right to access it and for what purpose. Allegations that organisations such as Facebook sold personal details[6] and manipulate feedback to study the emotions of users without their consent[7] are extremely concerning. The thought that a business or even government department could access sensitive and confidential information for unauthorised use is disempowering, dehumanising, and could strip people of their dignity.

Social media is a powerful tool for engagement. But if used inappropriately it will cause distrust that can result in patients and caregivers feeling disenfranchised, disempowered, and disengaged.

Healthcare transformation

Healthcare systems across the globe are experiencing significant pressure to change the models of care to deliver improved patient outcomes with a reduction in total healthcare costs. This pressure is resulting in the industrialisation of work practices in health service delivery mirroring those that began in other industries a century ago. This industrialisation process has resulted in challenges such as workforce issue, task substitution, rise of a managerial superstructure, and the corporatisation of health.

At the turn of the previous century, skilled workers typically performed many (if not all) of the steps in the process of making a product and often were able to determine the manner and pace of their work, relying on experience and handed-down knowledge. Medicine has traditionally been the domain of independent physicians who acquired their position and prestige through a long and arduous apprenticeship, much like the skilled craftsperson of the turn of the century.[8]

Frederick Winslow Taylor is credited with spearheading a revolution in organisational work. His approach can be summarised as two steps. The first is to break down a complicated job into relatively simple tasks, and the second is analysing each task and finding the one best way of performing that component.

The widespread adoption of Taylor's ideas had three main consequences: increased productivity, the rise of a managerial class to organise and supervise, and the degradation or de-skilling of work. The efficiency, quality, and productivity of industrialisation have endured for more than a century.[8]

As technology evolved the work required became simpler. Since one of the objectives of healthcare is to be patient-centric and involve the patient as an active member of the healthcare process, industrialisation and the subsequent use of technology to reduce the skill required managing care is valid. The risk is that by inserting more technology, degrading skills, and installing managerial supervisors, there is disengagement by the caregiver and/or the patient. Widespread disengagement would probably fail to reduce health costs.

What's next?

Social media has the ability to creatively disrupt the mechanisms of information gathering, storage, use, and dissemination in medicine. But can medicine and social media converge to provide a health system that is fair, effective, caring, and sustainable? Can we deliver improved patient outcomes, decreased total costs and enhanced user experience?

The medical profession has been one of the custodians of the healthcare system for more than 100 years. But the healthcare system is not economically sustainable and the system must change.[1] As one of the custodians of the system it is our obligation to ensure the system is economically sustainable.

Technologies like social media are only enablers. The outcomes they produce depend on the morality, skill, and intentions of the operator. Social media is only a decade old and was not specifically designed as a healthcare tool. The social media industry needs time, resources, and encouragement to develop into medical applications of security, reliability, and credibility. Apple, Samsung, and Google are using social media to create and drive healthcare delivery platforms in existing global markets. It is not a question of "if" social media will become a major medical application but "when" and "how".

The medical profession must constructively engage social media as a collaborative medium, a place where we can all meet and read, write, and work. The medical industry is poorly equipped to combat the economic rationalism that is driving the industrialisation and commodisation of healthcare. As a profession we spend a lot of time thinking about the ways that prestige, resources, and belonging to elite institutions make us better off. We do not spend enough time thinking about the ways in which those kinds of material advantages limit our options[9] and make us vulnerable to external pressures and changes.

Conclusion

Social media creates a world without walls. A convergence of medicine and social media could co-create a healthcare system that is fair, effective, caring, and efficient.

The ultimate solutions will involve rethinking the role of medicine in society and how the experience of engaging the system can be satisfying for patient and caregiver alike. We must empower the community, clinicians, and other stakeholders to be the pioneers of the processes that transform our fragmented and multi-siloed healthcare system into a seamlessly integrated solution that is fair, effective, caring, and sustainable.

Social media can provide everybody with the opportunity to change the healthcare system for the better. As a profession we need to choose to be involved and make a positive difference.

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PEER REVIEW

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CONFLICTS OF INTEREST

The authors declare that they have no competing interests.