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Review

Leading article: Use of smartphones to pass on information about patients - what are the current issues?

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Abstract

Many doctors now use mobile devices such as smartphones to communicate with one another about their patients, and sometimes this is without the knowledge and approval of their employer. We know of little information about the use of texting and other web-based messaging services by doctors in hospitals, so we reviewed relevant published studies to assess the safety and usefulness of current methods of digital communication.

Keywords: Texting; communication; safety; patient; social media; SMS.

Introduction

Frequent and effective communication within and between specialties is vital for the management of patients, particularly since the European Working Time Directive reduced the number of hours doctors can work, but traditional systems such as bleeps, pagers, and the telephone have inherent problems. The sender, who cannot be sure that the correct number was dialled, has to wait for a response, and the responder has to locate an available phone, which interrupts the tasks being done by both parties. As oral and maxillofacial surgeons (OMFS) sometimes need to cover patients from distant hospitals, delays in communication can increase the problems associated with their handover, and lead to longer stays in hospital, and more importantly, to poor perioperative care.

Digital technology has increased the opportunities for communication, and some argue that information will soon be the currency of the future.[1] However, although we have adopted technological innovations in our surgical practice, we have been slow to implement new methods of communication in our medical practice despite the rapid advances in digital technology[2,3] since the first short message service (SMS) text was sent in 1992.[4] In 2013 about 152 billion texts were sent in the UK alone, but this figure may have peaked, as in 2014 the number had fallen by 7 billion. Forecasts suggest a further year-on-year reduction[5] as the younger population turns to smartphone web-based messaging (WBM) services such as WhatsApp (WhatsApp Inc, Mountain View, CA, USA), Viber (Rakuten Inc, Tokyo, Japan), and Snapchat (Snapchat Inc, Venice, CA, USA).[6] These have benefits over SMS, as secure groups can be created and a single message can be read by all the members. They also cost less, they send a receipt when the message has been read, and can be run on an institution's Wi-Fi and through a data connection.

In a survey in 2003 of a large group of American anesthesiologists attending their annual meeting (4018 surveys completed with a 51% response rate),[2] 65% preferred to use a pager and 17% a mobile phone, although almost half of

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the latter admitted that this was not permitted. The authors suggested that the use of mobile phones reduced the risk of errors that result from delays in communication.

What does the NHS recommend?

To protect patients' safety and privacy, guidance from the UK Department of Health (2009) advises against the use of cameras on mobile phones to record information about patients or data of any sort. An information governance update reminded doctors in the NHS of appropriate expectations,[7] and a further update stipulated that WhatsApp should never be used to pass on information about patients.[8] Each NHS Trust has the discretion to provide guidance for patients and staff on the use of mobile phones to make calls and to send and receive SMS messages. The blanket ban on their use on wards has been removed because of a better understanding of the interference they cause, and a safe distance of 2 m away from medical equipment such as infusion pumps and anaesthetic machines is recommended.[9]

Hospitals have been encouraged to adopt NHS and Trust-specific email accounts for the transfer of information on patients, but they are fraught with problems. Often they are not checked regularly and are therefore unfit for a rapid transfer of information, particularly when "on-the-go". Although not expressly encouraged by the NHS, SMS messages can be referred to later, whereas information that is passed on face-to-face or by telephone may be lost.[10,11]

In this review we highlight potential issues concerning the safety and security of using mobile phones to pass on information about patients, and look at what the future might hold.

Method

We searched the Ovid, Medline, and Embase databases for the terms "text" OR "message" OR "SMS" OR "MMS" OR "WhatsApp" AND "patient" AND "cell phone" OR "mobile phone" OR "smart phone" OR "smartphone" OR "wireless email" AND "confidential". We found 511 results, and after reviewing the abstracts (citations with no abstract and articles not in English were not included), we fully reviewed 19 papers. A search of their references suggested a further 8, so 27 were included altogether.

Discussion

We thought that we would find little information about the use of mobile phones to pass on information about patients, but publications about new web-based messaging technologies have increased in line with the recent mass uptake of smartphones.[3]

Smartphones give doctors access to textbooks and medical calculators both on the Web and through offline apps. A pilot study in the East Midlands, which included 257 medical students and 131 junior doctors, showed that medical students had more apps and used them more often in clinical settings than junior doctors. However, there was no mention about the sharing of information about patients or text messaging.[12] Medical students are avid users of smartphones, and need advice about the preservation of privacy when using them to communicate about patients.[13,14]

Most nurses and doctors (of various levels) in teaching hospitals in Toronto, Canada, and Stanford, USA, who tested secure systems to pass on information about patients, thought that their use improved productivity and workflow.[15,16] A previous mixed-methods study over 5 months at the Toronto unit showed that communication between members of the team and medical and nursing staff increased after the team had been given a smartphone, and they also thought that efficiency had improved.[17] However, interruptions to ward rounds increased, patients thought that their use was unprofessional, and there were disagreements between nurses and doctors about what was urgent.[18] A previous study by the same authors affirmed the usefulness of the team's smartphone, but the advantage to patients was not clear.[19] A recent study of a desktop-based system, which allowed interaction by smartphone through a secure web link, showed that a wide range of technologies was used, including SMS and email.[20] The authors suggested that new, integrated, improved systems with separate forums for urgent and more trivial messages would reduce unnecessary interruptions.

In a prospective, 8-week, randomised controlled cluster trial, Przybylo et al found that users were satisfied with a commercially-available, secure smartphone messaging system, and concluded that it improved communication within the hospital and maintained security.[16] Another study showed that text messaging in a range of medical applications had reduced the problems with pagers and bleep systems.[10] However, while SMS can be used to recall information that may be lost with a phone call, the authors recognised that it is not appropriate for urgent messages because it is impossible to tell whether a text has been read (some colleagues still use phones with no receipt facility) or even acted on, and the lack of security can compromise confidentiality. Their survey, which was completed by 73 cross-specialty surgical doctors of differing seniority, found that most of the texts concerned patients and conveyed routine information. For urgent matters they preferred the telephone. Senior members of staff were less likely to text, and consultants were more likely to use the telephone for routine matters. Junior doctors were more likely to be uncomfortable texting consultants, 73% of junior staff texted others of a similar grade, and 54.5% of junior doctors texted consultants about patients at least once a day. Twenty-eight per cent of respondents thought that texting was secure, 39% did not. About half of those surveyed responded by SMS to confirm receipt of the message.[10]

A recent survey of surgeons at three separate hospitals in Canada showed that SMS is more popular with junior than with senior staff, and is mostly used to pass on information