

Refereed papers

Pandora's electronic box: GPs reflect upon email communication with their patients

Felicity Goodyear-Smith MB ChB MGP FRNZCGP

Senior Lecturer, Department of General Practice and Primary Health Care, Faculty of Medical and Health Science

Andy Wearn MB ChB MMedSc MRCGP

Senior Lecturer and Director, Clinical Skills Resource Centre, Faculty of Medical and Health Sciences

Hans Everts MA DipClinPsych DipEdPsych PhD

Senior Lecturer, Counsellor Education, Faculty of Education

Peter Huggard MPH Med (Couns)

Senior Lecturer, Department of General Practice and Primary Health Care, Faculty of Medical and Health Science

Joan Halliwell BDS BSc

Research Associate, Department of General Practice and Primary Health Care, Faculty of Medical and Health Science

University of Auckland, Auckland, New Zealand

ABSTRACT

Background Global access to information technology has increased dramatically in the past decade, with electronic health care changing medical practice. One example for general practitioners (GPs) is communication with patients via electronic mail (email). GPs face issues regarding e-communication with patients, including how and when it should be used.

Objective The study aims were to assess the extent that GPs communicate with patients by email and explore their attitudes to this mode of communication.

Methods Design – telephone interview survey. Setting – primary care, largest urban and suburban area in New Zealand (NZ). Subjects – randomly selected GPs from the Auckland region. Main outcome measure – description of email use; analysis of issues by telephone survey. Data analysed using SPSS-12 and by thematic content analysis.

Results At data saturation, 80 GPs had been interviewed. The majority (68%) had not used email with patients. Only 4% used it regularly. However,

there was strong interest in this method. Perceived advantages were the ability to communicate at a distance and time convenient to both doctor and patient; communication where disability affected traditional methods; information-giving (for example, web links); passing on normal results. Identified problems involved inequity of access; linking of electronic data; security; unsuitability for some topics; medico-legal concerns; time; remuneration.

Conclusion Study sample closely mirrored current NZ GP population. Although few GPs emailed with patients, many might once barriers are addressed. GPs had a collective view of the appropriate boundaries for email communication, routine tasks and the transmission of information. GPs would encourage professional debate regarding guidelines for good practice, managing demand and remuneration.

Keywords: communication; electronic mail; family physicians

Introduction

With increasing global computerisation over the past decade, there has been a rapid rise in the development of electronic health care. This has the potential significantly to change the way that doctors practise medicine. There are many different components to electronic health (ehealth). For the general practitioner (GP), applications include electronic medical records and patient recall systems; electronic generation of prescriptions, referral forms and letters; receiving investigation results and letters from other healthcare providers electronically; accessing the internet to obtain evidence-based information; use of web-based tools and even remotely monitoring patients or receiving specialist assistance through telemedicine; as well as electronic mails (emails) between GPs, other health providers and patients.¹

New Zealand (NZ) has been a relatively early adopter of electronic technology. By 2001, there was internet access by 40% of NZ GPs in their practices and 37% of NZ households.^{2,3} In 2002, NZ ranked eighth in the Organisation for Economic Co-operation and Development (OECD) for internet user numbers. Analysis of 2001 NZ census data indicates some degree of digital divide, with the proportion of internet users increasing with total household income (72% where income exceeded NZ\$100 000 per annum – around £40 000) and with higher educational qualifications, although a relatively large proportion (27%) of households with a total annual income of less than NZ\$5000 had internet access.⁴

Use of email in clinical practice is a very recent phenomenon. 'Electronic mail' was only introduced as a Medical Subject Heading (MeSH) term in Medline in 2003. Suddenly GPs are facing the issue of whether they should use this form of communication with their patients, and if so, how it should be used and under what circumstances.

The aim of our study was to assess the extent to which GPs are communicating with patients by email, and to explore the possible benefits and disadvantages they identify with this activity.

Methods

Data regarding GPs' use and views on email communication with their patients was collected as part of a larger study surveying NZ GPs on the scope and nature of their communication training requirements. Interviews with key informants who represented organisations or specific groups of GPs informed the development of the survey questions.

The sample comprised 80 GPs in the greater Auckland area. GPs were selected using a computer-generated random number list from an up-to-date GP database. Doctors were deemed ineligible if they were not currently practising as a GP in the Auckland area or were no longer able to be contacted at the listed address. The Auckland region houses a third of NZ's population and is diverse with respect to its ethnic make-up (especially NZ European, Māori, Pacific Island people, Asian immigrants and a number of refugee populations) and its wide spread of socio-economic status.

The questionnaire was designed for delivery by telephone interview with simultaneous data entry into a computer-based spreadsheet. Data collected included demographics, communication skills training experience, personal communication issues relating to practice, specific areas of communication difficulty and use of email to communicate with patients. Initial contact was made by faxed or posted letter, including the participant information sheet. The research assistant conducted a telephone follow-up inviting the GP to participate in a telephone interview of approximately 20 minutes' duration, conducted at a time of their choosing. An honorarium was offered to GPs as a contribution towards their time.

All interviews were audio-taped with the GPs' consent, providing a means of auditing the electronically entered data. Interviews were not transcribed verbatim. The interviewer followed the standard set of questions in the questionnaire plus optional prompts.

Quantitative data were entered into the SPSS-12 statistical package. Descriptive statistics were produced and comparisons made using non-parametric tests of significance. Open qualitative data were analysed using a general inductive approach. Using thematic content analysis, individual text responses were coded according to emergent themes. The data were then collated to produce a series of major and sub-themes through ongoing discussions and re-reading of the data until consensus was reached among the researchers. The data were independently coded by researchers as a consistency check with discrepancies resolved by adjudication. Themes were determined and combined through discussions among the researchers until consensus was reached.

Results

In terms of the broad demographical characteristics of the 80 GP respondents, 53% were male; 58% NZ born and 49% aged in their forties. Sixty-eight percent received their basic medical training in NZ with 76% graduating since 1980. The vast majority (83%) were

either Members or Fellows of the Royal New Zealand College of General Practitioners (RNZCGP). The response rate to the overall communication skills survey was approximately 60%. All 80 participants surveyed responded to the questions regarding email use with patients. All but two GPs (98%) had email addresses, although five reported that they seldom checked or answered their email.

Table 1 Frequency of email use with patients ($n=80$)

Use email with patient	Frequency	%
No	54	67
Occasional	23	29
Yes	3	4
Total	80	100

In answer to the question: 'Do you communicate with patients by email?' 68% said 'No', and only 4% had done this more than occasionally (see Table 1). GPs were also asked: 'What do you see are the uses and problems with this?'. In response, two-thirds noted only problems, one-third noted both uses and problems, and nobody saw email as totally useful without also having some inherent pitfalls (see Table 2).

Table 2 Uses and problems in use of email with patients ($n=80$)

Usefulness	Frequency	%
Only useful	0	0
Mixed	27	34
Only problem	53	66
Total	80	100

Advantages

One potential benefit to emerge was that email provides easy communication with patients at a distance, for example when they are overseas:

'Had patients who've been overseas who've emailed me back with questions about their own health.'

Other GPs found it useful for selected patients with specific conditions, such as deafness or those who are housebound:

'Useful for a deaf patient.'

'Particularly those with disability; for example, I have a quadriplegic, and we sometimes communicate that way.'

'Large retirement area, a good way of getting in touch with us, one man graphs all his own results, so likes to get results each week, quite likes having fun with technology. Receptionist knows that and just runs it by us and emails him directly.'

A number of GPs identified email as a rapid and convenient form of communication, and saw its value in recalling patients, receiving requests for repeat prescriptions, or informing them of investigation results:

'You can make your communication at a convenient time.'

'Sometimes very quick and easy form of communication for short things.'

'Useful for patients to contact doctor with regard to prescriptions.'

'Using it to communicate normal results.'

A further benefit perceived by some GPs was an efficient way to disseminate evidence-based information:

'What I tend to do is give a lot of website addresses to patients – using pre-formatted letters with window envelopes – cut-and-paste website into letter. Better than printing out four pages. Good for giving authoritative websites.'

'You can hold a dialogue with people with a lot of short queries and responses – you can provide them with information such as web links or pasted text to help your argument one way or another.'

An advantage over telephone conversations, in that a record can be saved, was also noted:

'Is saved, know who said what.'

Disadvantages

However, far more disadvantages were expressed than benefits. For some, it was not yet an issue, because they did not have access to email in their practices. Others did not like using computers, were a 'slow typist', or lacked 'fast internet access'. Many expressed concerns about risks associated with being online:

'Junk mail, spam, viruses and computer downtime.'

'Potential for hacking.'

There was frustration that email communications could not be easily integrated into patients' medical records via the practice management system (PMS):

'Problem of getting content of email into clinical record.'

Another major concern about email contact with patients was that it was an unsatisfactory form of communication, and should not substitute for face-to-face consultations:

'Don't have interpersonal cues that I get with face-to-face communication. Do sometimes use telephone but wary about that.'

'Much prefer to talk to them one-on-one. You sometimes uncover things when you are talking to someone that are vital to know. Might not pick that up in an email.'

'Problematic to try and explain something more complex to them by email; if they had questions they'd have to email back, so back and forth. They could misinterpret things.'

'Loath to give advice by email; response is often that better come in.'

'Fraught because non-present communication; you often don't get the full sense of the story as you would if they were answering in the office.'

There is also uncertainty about whether an email has been received:

'Variability in timing because you can't be sure when the person or I will get the message; may not be that day.'

Issues around confidentiality, privacy and security of email were the chief cause of disquiet for many GPs:

'Need for security. I personally prefer face-to-face communication – do talk to people on the phone for convenience. Some of information we deal with is so personal, I wouldn't want any chance of it going out to a third party.'

'Concerns about privacy. A lot of people share their email addresses.'

'Security, privacy. Need to be confident that system isn't accessed by hackers.'

Related to this were anxieties about medico-legal responsibilities once an email communication is embarked upon:

'If it's written, you have to respond medico-legally.'

'Fearful of getting into consulting by email and you probably could be liable if you give the wrong advice.'

One GP had partly addressed this by setting up a system of patients giving written consent to receive emails:

'We are starting to. Got patients to sign that it is OK for us to email them; in its infancy.'

Many GPs were worried about emails being a further demand on their time:

'No way, I've got so much work here, so they would bombard me with emails, so my colleagues and I decided that we would have no communication with patients by email for a while. Normally I come to work at 8.30 and I have three, four, five urgent calls to make, but I talked to one doctor who came in the morning with 50 emails that were all urgent. So we decided not to do it in the practice.'

'Too time-consuming. Did start it, but got flooded. Now use answerphone messages. Limiting it is an issue. Practice nurse was fielding it and it was going to take all her time.'

'Email is a minefield, if open will be answering emails all night – no life for you; as it is there are lots of phone calls during day and nurse screens them.'

'Deliberately don't because of workload that it would generate.'

Associated with this was the fact that GPs did not charge for email communication and it was one more unpaid job, and gave patients the opportunity for free consultations:

'If it was set up so patients paid for this then we'd do that. But patients are only used to paying when they see the doctor.'

'The problem is patients using it and increasing the workload, by free consultations.'

'I don't like it because it's an unpaid service and you can spend a lot of time doing it.'

Some GPs were aware of the digital divide, that while patients in middle-class practices might want to email their GPs, many in lower socio-economic areas did not have internet access:

'Area is lower income area, so most patients don't have easy access to email.'

'The majority don't have email; many don't have phones, but in more affluent area may be an option.'

Discussion

Our GP sample is likely to be representative of NZ GPs as a whole. The demographic details of members of the RNZCGP are available for 1996 and 2000.^{5,6} In 1996, 55% of NZ GPs were 40 years or older and in 2000 this had risen to 70%. In our 2004 sample, 76% were in this age bracket, which is consistent with the reported ageing membership. Similarly, the proportion of male GPs is declining steadily over time. The GP workforce was 64% male in 2000. Our sample was 47.5% male, in line with the increasing proportion of women in the

profession. In 2000, 65% of GPs with recorded place of graduation had trained in NZ. Our sample matched this closely, with 68% training in NZ. In 2000, 67% of College membership were Fellows (fully vocationally registered) or Members (completed an approved training programme and passed the PRIMEX examination). In our sample, 86% were either Fellows or Members. College membership has moved from a voluntary status to a Medical Council requirement unless a doctor chooses to practise under oversight. The past four years has seen a large increase in GPs sitting and passing PRIMEX.

A limitation of this study is that it asked GPs about their use of email with patients rather than directly measuring their activity. However, it is likely that the GPs accurately reported whether or not they were using this form of communication with their patients. A rich qualitative dataset was obtained, identifying the benefits of email use and outlining the barriers and disincentives to its use.

A third of the GPs recognised potential benefits of email communications with patients, and some were doing so, although generally only with selected patients. For most GPs though, dealing with this issue is only a matter of time, as the world becomes progressively more digitised and emailing via computers, personal digital assistants, mobile phones and digital televisions becomes increasingly commonplace.⁷ A study of 94 family physicians in the United States (US) found that 75% did use email with patients, but the vast majority did so with only 1–5% of those patients.⁸ However, many more patients would email their doctors if they were given the opportunity to do so. One patient writes that a key reason for choosing his physician was because he routinely used email with his patients.⁹

Obstacles such as security, time, money and erosion of the doctor–patient relationship recognised by our GPs have been identified in recent literature.^{1,8}

A study of online American adults found that 37% would be prepared to pay for email communications with their doctor.¹⁰ While traditionally GPs do not charge for telephone or email contacts, there is no reason why this could not be set up, and it is currently under trial by some US health insurance companies.¹¹

While GPs might fear the time burden of emails, there is evidence to suggest that many patient requests formerly made by telephone can be handled more efficiently via email.¹² One physician reports that many of his telephone conversations with a patient have been replaced by email, and can save him time.¹³ Emails can give both GPs and patients time to think and to respond at a convenient time.¹⁴

With the current state of technology, email communications do not appear suitable for replacing face-to-face consultations in many circumstances, such as where a diagnosis needs to be established. A randomised controlled trial in primary care comparing the use of

email and telephone in patient triage did not show that email triage improved the efficiency of clinical care.¹⁵

However, email might have a role in reporting investigation results, especially when these are normal; monitoring of established care plans (for example, adjustment of warfarin dose in response to international normalised ratio results on prothrombin clotting time or following up patients under treatment for depression); answering simple queries; patient recalls; appointment rescheduling and dissemination of relevant evidence-based information.⁷

Concerns about security need to be addressed. At the technological level this could include use of encryption software, anti-virus protection and electronic authentication of the recipient (patient) to serve as a dated receipt.^{16–18} It could also include a policy of only emailing non-sensitive information, such as ‘your test results are fine’.⁹

GPs express legitimate concerns about possible delays in accessing patients’ emails, or with patients receiving them. It would seem sensible for GPs to have established consent that a patient wishes to communicate by email and does check email on a regular basis. Furthermore, email might not be appropriate for urgent communications.¹⁴ GPs can set up autoreplies informing patients on appropriate uses of email.¹⁹ They could warn that there could be a certain lag in response time (for example, two working days), tell patients to telephone the practice for urgent enquiries, and receive an automatic confirmation when the email has been received by the patient.

Medico-legal issues need to be clarified. A United Kingdom outpatient clinic reports that emailing test results might be considered a breach of the Data Protection Act unless there is prior written consent from a patient.²⁰ This could address GPs’ fears of the implications of an email to a patient being read by a third party. Where a patient has not established a therapeutic relationship with a GP, it is unlikely that the GP would be held liable for non-response to an unsolicited email from a potential patient.²¹ However, email could hold some medico-legal advantage over telephone consultations. Email leaves an intrinsic record, and systems could be designed to incorporate this into a practice’s charging system.^{22,23}

The ‘digital divide’ between patients with email access and those without, and with those who are not computer-literate, will remain a reality, at least in the short term. However, steps can be taken to ensure that email systems are designed to be user-friendly and culturally sensitive.⁸ Email can allow exchange in multiple languages through electronic translation to assist communication between a GP and patient who do not speak the same language.

Debate is appearing in the medical literature as to whether or not doctors should respond to this patient-led demand.^{24,25} It would seem prudent to develop a

protocol with respect to circumstances when it is appropriate to email patients, and the technological requirements for this to be an effective form of patient–doctor communication.

There was a sense that the GPs in this study were keen to move forward if supported by sensible guidelines and a funding structure. Where other studies have worried about erosion of the core relationship, our study indicates that GPs saw email as supplementary or complementary – doing something new or differently whilst maintaining the core face-to-face relationship.

Subsequent to this study, the New Zealand Medical Council has issued a brief statement regarding email communication between doctors and patients.²⁶ This asserts that:

‘In communication with patients by email, doctors must be acutely aware of issues of privacy, security and sensitivity of health information’;

and

‘Email between doctors and patients must be regarded as no different from written or other communication. Before transmitting sensitive health information by electronic means doctors should obtain consent from the patient.’

The Council identifies the dangers. What is needed is guidance to negotiate these obstacles. Box 1 summarises the main concerns of GPs regarding email communication use, and possible solutions to them.

Such protocols need to be established quickly before we move on to the brave new age of routine cellphone texting between GP and patient; GP–patient videoconferencing and messaging; electronic transmission of home-based diagnostic technology from patients to GPs; and electronic accessing of medical records by multiple providers and by patients themselves.

Box 1 Identified barriers to email use and possible solutions

GP concerns	Possible solution
Privacy	<ul style="list-style-type: none"> • Obtain informed consent from patient before initiating email communication
Security	<ul style="list-style-type: none"> • Use encryption for sensitive information
Inappropriate delay before patient receives communication	<ul style="list-style-type: none"> • Set limits around use for urgent communication • Set up autoreplies informing patients on appropriate uses of email, including telephoning the practice for urgent enquiries • Warn patients of potential lag in response time (for example, two working days)
Uncertainty whether patient has received communication	<ul style="list-style-type: none"> • Automatic confirmation when the email has been received by the patient
Email read by third party	<ul style="list-style-type: none"> • Electronic authentication of recipients
Email not part of clinical record	<ul style="list-style-type: none"> • Design practice management system to incorporate email communications into the patient’s clinical record
No substitute for face-to-face consultations	<ul style="list-style-type: none"> • Establish protocols for use • Set limits for use: for example, relaying test results; requests for repeat prescriptions; providing internet link to useful sources of information
Junk mail, spam, viruses	<ul style="list-style-type: none"> • Install anti-virus software and spam filters with live updates
Too slow	<ul style="list-style-type: none"> • Upgrade to broadband/rapid internet access
Time burden	<ul style="list-style-type: none"> • Replacing telephone conversations with email allows response at a convenient time
Free service	<ul style="list-style-type: none"> • Establish appropriate charge for all email communications • Set up automatic electronic billing system
Patient’s first language is not that of the GP	<ul style="list-style-type: none"> • Use electronic translation via email to allow exchange in multiple languages

Conclusion

In conclusion, email communication between GPs and patients is an inevitable development, and it is time for guidelines to standardise its use. Criteria on appropriate circumstances and with which patients to use it should be determined. Practices will need to establish consent from patients; provide protocols of use; and use secure encrypted systems with automated replies and electronic authentication of recipients. PMS systems are constantly undergoing upgrades, and a feature to integrate email contacts into the patient's clinical records needs to be addressed. Consideration needs to be given to charging for email communication.

ETHICAL APPROVAL

Ethics approval was obtained from the University of Auckland Human Participants Ethics Committee (UAHSEC ref. 2004/051).

ACKNOWLEDGEMENTS

This study was funded by the Campbell MacLaurin and Phil Barham Fund for the Support of Research and Development in Continuing Medical Education in General Practice and by the Charitable Trust of the Auckland Faculty of the Royal New Zealand College of General Practitioners. Thanks to the stakeholder and GP respondents for their participation.

REFERENCES

- Podichetty V and Penn D. The progressive roles of electronic medicine: benefits, concerns, and costs. *American Journal of the Medical Sciences* 2004;328:94–9.
- Kerse N, Arroll B, Lloyd T, Young J and Ward J. Evidence databases, the Internet, and general practitioners: the New Zealand story. *New Zealand Medical Journal* 2001; 114:89–91.
- Social Statistics Division. Household access to the internet. *Key Statistics, Statistics New Zealand* 2004; April:9–14.
- Statistics New Zealand. *The Digital Divide*. Wellington: Statistics New Zealand, 2004.
- Kljakovic M. *A Profile of New Zealand General Practice*. Wellington: Royal New Zealand College of General Practitioners, 1998.
- Wilkinson M and Flegg K. Who are the GPs of New Zealand? *New Zealand Family Physician* 2001;28:260–3.
- Car J and Sheikh A. Email consultations in health care: 1 – scope and effectiveness. *British Medical Journal* 2004; 329:435–8.
- Hobbs J, Wald J, Jagannath YS *et al*. Opportunities to enhance patient and physician email contact. *International Journal of Medical Informatics* 2003;70:1–9.
- Siwicki B. Doctor, doctor, gimme the news ... preferably by email. *Health Data Management* 2004;12:10.
- Harris Interactive. Patient/physician online communication: many patients want it, would pay for it, and it would influence their choice of doctors and health plans. *Health Care News* 2002;2:1–3.
- Weiss N. Email consultation: clinical, financial, legal, and ethical implications. *Surgical Neurology* 2004;61: 455–9.
- Sittig DF. Results of a content analysis of electronic messages (email) sent between patients and their physicians. *BMC Medical Informatics and Decision Making* 2003;3:11.
- Slack WV. A 67-year-old man who emails his physician. *Journal of the American Medical Association* 2004;292: 2255–61.
- Delbanco T and Sands DZ. Electrons in flight – email between doctors and patients. *New England Journal of Medicine* 2004;350:1705–7.
- Katz SJ, Moyer CA, Cox DT and Stern DT. Effect of a triage-based email system on clinic resource use and patient and physician satisfaction in primary care: a randomized controlled trial. *Journal of General Internal Medicine* 2003;18:736–44.
- Hersh W. Health care information technology: progress and barriers. *Journal of the American Medical Association* 2004;292:2273–4.
- Scherger JE. Communicating with your patients online. *Family Practice Management* 2004;11:93–4.
- Waldren SE and Kibbe DC. Email in clinical care. *British Medical Journal* 2004;329:E325–7.
- White CB, Moyer CA, Stern DT and Katz SJ. A content analysis of email communication between patients and their providers: patients get the message. *Journal of the American Medical Informatics Association* 2004;11:260–7.
- Gordon C and Krimholtz M. Email and patients: a medico-legal minefield. *The Lancet* 2003;362:1768.
- Luria Spiotta V. Legal concerns surrounding email use in a medical practice. *JONA's Healthcare Law, Ethics, and Regulation* 2003;5:53–7; quiz 58–9.
- Car J and Sheikh A. Email consultations in health care: 2 – acceptability and safe application. *British Medical Journal* 2004;329:439–42.
- Sands DZ. Help for physicians contemplating use of email with patients. *Journal of the American Medical Informatics Association* 2004;11:268–9.
- Wong G. Email consultations in health care: set your autoreply to 'no'. *British Medical Journal* 2004;329:1046.
- Charnock J. Email consultations in health care: patients need to be given a choice. *British Medical Journal* 2004; 329:1046.
- Medical Council of New Zealand. *Statement on Use of the Internet*. Wellington: Medical Council of New Zealand, November 2004.

CONFLICTS OF INTEREST

None.

ADDRESS FOR CORRESPONDENCE

Dr Felicity Goodyear-Smith
Department of General Practice and Primary
Health Care
School of Population Health
Faculty of Medical and Health Science
University of Auckland
PB 92019 Auckland
New Zealand
Tel: +64 9 373 7599 ext 82357
Fax: +64 9 373 7624
Email: f.goodyear-smith@auckland.ac.nz

Accepted June 2005