Research

Rod Sampson, Rosaline Barbour and Philip Wilson

Email communication at the medical primary–secondary care interface:

a qualitative exploration

Abstract

Background
There is little published research into the influence of email communication between primary and secondary care clinicians on patient care.

Aim
To explore the use of email communication between clinicians across the primary–secondary care interface, and how this may relate to patient care.

Design and setting
A qualitative study involving primary and secondary care services in the NHS Highland Health Board area, Scotland. Ten GPs and 12 hospital consultants were purposively sampled to reflect diversity.

Method
Eligible clinicians were invited to take part in a semi-structured interview. Data were analysed using a thematic analysis approach.

Results
Key themes that emerged for clinicians included general perceptions of email; using email in practice (managing workload, impact on patient journeys, and 'quick answers'); system issues (variability and governance); relational aspects; and email skills.

Conclusion
Email communication between primary and secondary care clinicians generally has a positive impact on patient access to specialist expertise. Governance issues around the use of clinical email need to be defined. There may currently be a two-tier health service for those patients (and their GPs) requiring 'quick answers'.

Keywords
email; interface; patient care; primary health care; relationship; secondary care.

INTRODUCTION

Extensive use of email began in the early 1990s and has spread, with most doctors in the developed world now having access to email at work.[1–3] Email usage extends internationally to aid communication between health professionals.[3]

The 'asynchronous' but instantaneous nature of email can be more efficient than traditional communication modalities, and potentially reduces cost by preventing unnecessary referral of patients to distant centres.[4] Email may not convey subtle communication cues, however,[1,5] and lack of computer knowledge (and/or limited typing skills) intensifies the difficulties of use.[5–7] Concerns exist about confidentiality,[5,8] information security,[6] workload implications,[6] and the need for dedicated time to deal with emails within working hours.[3,4,9–11]

Emails are used as a research tool,[12] to create networks of healthcare professionals,[13] and to transmit digital data for timely 'e-diagnosis'.[4] Despite the existence of research on health technology, email communication between professionals and its link with patient care has not attracted much attention.[14]

The data presented here are drawn from a wider study addressing relationships between clinicians across the primary–secondary care interface; an unanticipated volume of data on email communication was offered, which merited analysis in its own right.

METHOD

The study was conducted in NHS Highland (the largest and most sparsely populated health board in Scotland, UK) between August and December 2014.[15]

A purposive sample of clinicians, selected to reflect the diversity of the population being studied, was interviewed.[16–18] Age and ethnic group characteristics were not sought as specific responder details may have compromised confidentiality in this small cohort.

Clinicians meeting the eligibility criteria (GP partners and hospital consultants in NHS Highland and active in roles at the time the study began [full details available from authors on request] $n = 561$ [NHS Highland, unpublished data, 2013]),[19] were provisionally entered into a sampling pool and allocated a sequential number. A sampling grid was developed that separated clinicians with regard to key characteristics (sex, primary or secondary care based, urban or rural). Clinicians from each cell were selected sequentially using the Excel® random number generator, and were invited to take part. This sampling procedure continued until 'a point of diminishing returns' was reached (approaching 'data saturation', and resulting in between two and five clinicians per cell).[20] Clinicians were given the option of either a telephone or face-to-face interview and consented using a standard form. In total 22 interviews were carried out.

The interview schedule was developed in collaboration with two GPs and three

R Sampson, FRCGP, GP partner, Cairn Medical Practice, Inverness. **R Barbour**, MA, PhD, emerita professor, the Open University, Milton Keynes. **P Wilson**, MA, DPhil, FRCGP, MRCPCH, DCH, professor of primary care and rural health, Centre for Rural Health, University of Aberdeen, the Centre for Health Science, Inverness, Aberdeen.
Address for correspondence
Rod Sampson, Cairn Medical Practice, 15

How this fits in

There is little published research into the influence of email communication between primary and secondary care clinicians on patient care. Use of email communication between primary and secondary care clinicians generally has a positive impact on patient access to specialist expertise. Governance issues around the appropriate storage, processing, and lines of responsibility of clinical email need to be defined. There may currently be a two-tier health service for those patients requiring 'quick answers', with some patients benefiting from their clinicians being more 'email active'.

hospital specialists, and then piloted for further refinement (full details available from authors on request). Interviews were audiotaped, transcribed, and then entered into NVivo software (version 10.0) in preparation for analysis.

Using an approach based on grounded theory, thematic analysis of individual transcripts commenced as the interviews progressed, with open coding generating an initial coding framework, refined as new data were generated.[21] Confirming and discordant cases were sought to test emerging themes. The iterative analysis process allowed the researcher, once alerted to the importance of the topic of email communication, to seek out further specific data on email communication and their influence on patient care. Discrepancies in coding were resolved by discussion among the authors, and the coding framework was revised accordingly.

Paying attention to patterning in the data, and, in particular, identifying those aspects of practice in which problems are likely to be experienced, provided a basis from which to begin to address the transferability of findings to other geographical and clinical settings in which interface issues arise.

RESULTS

Of 41 clinicians invited, 22 accepted and subsequently completed an interview (Box 1).

Findings are discussed in relation to general perceptions of email, using email in practice (managing workload, impact on patient journeys, and 'quick answers'), system issues (variability and governance), relational aspects, and email skills (a summary of the themes is given in Box 2).

Identifiers for the sample quotes given in each section are as follows: setting, geography, sex, and participant number. So, for example, GPUF3 indicates a female GP in an urban setting, participant number 3; HRM4 indicates a male hospital specialist in a rural setting, participant number 4.

General perceptions of email
Asynchronous job patterns and the lack of a 'universal pause' in the working day led to mismatches in clinician availability; obstacles in terms of telephone access and reduced efficiency in relation to passing on of messages resulted.

Email was employed by some clinicians to overcome such accessibility barriers:

'I'm very aware that 98% of the time I won't get hold of the GP that I want to at that point, then I've got to remember to phone him back later which to be honest is quite bizarre.' (HRF47)

Although clinicians on both sides of the interface acknowledged each other's busyness, repeated instances of having to call each other back was portrayed as being both frustrating and inefficient, described by one GP (GPUF6) as 'telephone ping pong'.

Email, as a method of overcoming accessibility barriers, was especially important for those clinicians working part-time, or for specialists 'inaccessible' because of timetabled clinical commitments.

Emails were used to communicate formally (in the context of patient transition across the interface) and less formally, when exploring more nuanced aspects of patient care (for example, the GP requiring specific guidance).

Email was identified as facilitating accurate communication, as, despite its immediacy, it nevertheless afforded clinicians some time

Box 1. Numbers and characteristics of those agreeing to interview, and those not responding to invitation

Those responding and agreeing to being interviewed[a]

Sex	Primary care (380)[b]		Secondary care (181)[c]	
	Urban (61)	Rural (319)	Urban (141)	Rural (40)
Male (309)	3 (24)	2 (155)	5 (102)	3 (28)
Female (252)	3 (37)	2 (164)	2 (39)	2 (12)

Those not responding to invite

Sex	Primary care		Secondary care	
	Urban	Rural	Urban	Rural
Male	–	4	1	3
Female	–	4	4	3

[a]No invited clinicians responded to say they would not like to be interviewed. [b]Numbers in brackets throughout denote potential pool. [c]Specialties represented included emergency medicine, general medicine, general surgery, neurology, ophthalmology, paediatrics, and psychiatry. Of the 22 clinician interviews, 13 were telephone interviews and nine were face-to-face. The average duration of each interview was 27 minutes and 32 seconds.

Box 2. Key themes and summary of findings

Primary category	Secondary category	Summary of findings
General perceptions of email		• Overcomes accessibility barriers • Limitations: email can be lost or ignored, lack of personal interaction, loss of subtle nuances of communication
Using email in practice	Managing workload	• Some clinicians responded rapidly to manage workload; others intentionally responded slowly
	Impact on patient journeys	• Email may help avoid unnecessary referral of, and travel by, patients
	'Quick answers'	• Communication of timely, simple, but important, messages about patient care at the interface
System issues	Variability	• Lack of a consistent approach to responding to clinical email
	Governance	• Lack of a consistent approach to storage of patient-specific clinical email communication across the interface
Relational aspects		• Some interface relationships formed via email contact, whereas for others email was not felt to be a firm basis to develop relationships • Knowing each other may encourage email communication; for others this was not felt necessary
Email skills		• Typing skills and age are both factors that may influence willingness to engage with email communication

to formulate their messages:

'*I prefer asynchronous contact cause it gives me a chance to think about answers so email is actually quite a good way of communicating and usually will try and give considered answers to emails. Phone calls sometimes you don't have all the facts.*' (HUM38)

Others were less enthusiastic about email, expressing concerns that an email could simply be 'lost' or ignored, and those on the receiving end acknowledged that it could 'slip down off the bottom of the screen' and be forgotten. Limitations also included the perceived lack of personal interaction, and the loss of subtle nuances considered important (for example, in a complex clinical scenario). One GP suggested that other variants of online communication could be explored.

'*... if you talk to your granny in Auckland* (via Skype) *I don't see why you can't talk to an orthopaedic surgeon in* [local hospital] *because that at least gets you the subtlety of facial expression of the finer points of communication.*' (GPUM2)

Using email in practice

Managing workload. Hospital specialists had varied responses to the email communication from GPs. Some viewed rapid response to email as affording direct patient benefit or as reducing potentially unnecessary referrals to secondary care. Thus, specialists acknowledged that timely and efficient use of email could reduce their workload. Although some hospital specialists reported that their GP colleagues appreciated their engagement with email, other specialists were wary of creating such expectations in case they generated more work. In practice, the issues may not be quite so clearly delineated, and one specialist suggested that some colleagues tended to take a short-term view:

'*I think people are slightly afraid sometimes because if they are too friendly and too approachable they'll get more work and actually I don't think that's the case, I think often nipping things in the bud early is actually more efficient in the long run.*' (HUF17)

Impact on patient journeys. In addition to saving work for clinicians, email communication between GP and specialist could help patients avoid unnecessary travel to hospital, sometimes involving significant distances. Active engagement of specialists in responding to emails from GPs could directly benefit patients by saving '*an enormous number of unnecessary referrals*'.

Some emails were used to convey important clinical information or advice, but at other times they merely provided reassurance:

'*I've just had an email from a GP this morning about a patient that we care for jointly who lives a very very long way away and he is elderly and he has a sight-threatening condition for which we are treating him with steroids ... he is someone who we would normally have brought up very regularly to hospital for ophthalmology and neurology assessment but because he found travelling so difficult, partly because he is elderly, partly because he is sight impaired, partly because he lives very rurally* [we] *relied quite heavily on the GP monitoring him and communicating with me and my colleague in ophthalmology by email and I think it's worked really well so I think we have treated him effectively with a lot less hospital visits than we might have done.*' (HUF17)

Several rural practices made novel use of email communication with secondary

care by transmitting digital images of wounds and skin lesions, X-rays, and electrocardiograms, allowing subsequent management to be informed by specialist advice, the specialist having been reassured that the GP had *'tried everything under the sun'* before any referral.

'Quick answers.' GPs liked being able to obtain 'quick answers' by email in relation to patient care, and compared this favourably with experience of delays in obtaining the same answer by more 'conventional' means (for example, a dictated letter). This was appreciated especially when less common conditions were involved, where GPs lacked the necessary expertise.

Email was considered an efficient method of response when communicating simple, but important, messages to primary care (for example, in relation to medication changes):

'... the email came in, I was able to address it within an hour of it landed in the box, response back from GP saying thanks very much that's great and that was you know, it saved having to dictate a letter, letter coming through, building in delays basically so I think it's a good way to cut through and streamline the process.' (HUM15)

GPs also felt that emailing for 'quick answers' was likely to be perceived by specialists as being less intrusive than a phone call. Nevertheless, when 'quick answers' were not obtained, this led to increased GP frustration and workload, with delay for the patient.

Some of the factors obstructing positive outcomes are concerned with 'system issues', which are explored below.

System issues
Variability. GPs highlighted the lack of a consistent approach to email, within and between specialty departments. They were uncertain as to which of their secondary care colleagues were 'email friendly', which led to some irritation, and GPs expressed concerns that communicated messages may not be received by their intended recipients:

'Each consultant or each consultant team at [local hospital] *in the secondary care seems to have a different way that they want you to contact them in those kind of semi-urgent problems. You know if it's an urgent problem it's not difficult you just send the person in, if it's a routine problem it's fine — it's that grey area that's important but not immediately urgent that's the most*

challenging for communication ... there is no uniform system for contacting secondary care when you've got a problem.' (GPRF34)

Although some GPs liked the informality of email communication, they also, at times, were frustrated by the lack of clear guidance when deciding what information to provide and how to convey this.

Governance. Patient-specific clinical email communication was not stored uniformly on either side of the interface. In some cases patient-specific email communication did not translate into the electronic health record (EHR); in other cases emails were printed out and then placed in the paper health record, or 'copy and pasted' electronically into the EHR. The significance of this was acknowledged given the importance of sharing important information with colleagues:

'I know loads of people use it [email] *but then it doesn't have interface with Vision* [primary care EHR software] *... you may have a running commentary going on in email about a patient but then trying to translate that back in to the notes is quite difficult ... I'm not sure if I'm not tech enough to do that properly or maybe there isn't a really good way doing that, maybe that's my ignorance, and that's quite difficult or maybe I'm doing the running commentary on my email and I'm not including all my partners.'* (GPRF10)

Specialists also speculated as to how best to use email in terms of providing a 'paper trail', but were hampered by their lack of knowledge as to how their primary care colleagues used such communications.

'Yes if I'm writing email to a family or there is an email trail that is going to be helpful I will print it off and put it in the case notes. If it's advice then ... I'm not actually seeing that patient; I imagine primary care will print that off as evidence of what they did next ...' (HUM38)

Thus, clinicians on both sides acknowledged potential shortcomings of email exchanges in terms of the documenting process. Whether email communication was deemed to be helpful or problematic depended to a degree on relationships at the primary–secondary interface.

Relational aspects
Relationships were shaped over years of communication (by whatever means), perhaps with the two clinicians never having

met or spoken. Judgements were made about colleagues based on the content and nature of interaction.

Clinicians described working relationships with interface colleagues that had been formed via email contact:

'... there are some GPs that I have got to know, I know them by email by quite well either because we have had a patient that has been difficult to manage and we have discussed them and I suspect those GPs would perhaps email me more readily and contact me more readily in an informal way rather than perhaps sending in a formal referral every time.' (HUF17)

For others, email communication was not a firm basis for establishing and building relationships:

'I haven't had time to sit down and talk to them or meet them face-to-face but a lot of things and working relationships that happened between both of us has been kind of paper based really if you know, or emails so I think it is very difficult for me to form any strong feelings or emotional bonds about that sort of relationship.' (HUM13)

For some GPs, an already established relationship was essential before initiating email communication:

'... yes greatly it's often the individual secondary care clinicians who I will know from outpatient clinics that they do in the health centre so I'm much more likely to do it if it's somebody I've communicated with previously or met with face-to-face and I'm much less likely and I don't think I've ever emailed anyone blindly, possibly but much more likely if I have a personal relationship with them.' (GPRM32)

For others, this was not a necessary factor:

'... a perception that you can only do that if you know people but I don't believe that's the case at all.' (HUF17)

The capacity to use emails as a mechanism for forging relationships, however, is not an inherent property of the mode of communication; it depends rather on what could be described as 'email skills'.

Email skills
Clinician skills had an impact on use of email communication. Some clinicians modified the length of email response because of limited typing skills, and for some this meant they were less likely to use email at all:

'I definitely curtail what I put on an email because I'm useless at typing.' (HUM14)

Older clinicians were less likely to use email, and more likely to express limitations in using newer technologies:

'I do use it a lot but I'm in my mid-50s, not a teenager, so I guess I'm not as well educated in IT possibilities so that might have an effect.' (HRF24)

DISCUSSION
Summary
Clinicians saw email as a way of overcoming access barriers. Those preferring email highlighted efficient transfer of information, whereas others expressed limitations in conveying nuances. Asynchronous e-communication allowed for a more considered response, and some flexibility in managing workload. There was no ring-fenced time for clinicians dealing with perceived increasing clinical electronic communication, leading to them tackling clinical queries 'from home'. Some specialists delayed response to email lest they become known as 'fast responders' with potential increase in workload, whereas others saw the advantage of timely response.

Lower confidence with information technology may link to increasing age, with limitations in typing skills influencing willingness to use email, message detail, and length.

Clinicians gave specific examples in which email communication had helped avoid outpatient referral (of particular benefit for rural patients given the potential significant travel distances involved, for example, travel by boat or plane from a remote island). 'Quick answers' sometimes meant that GPs and/or patients had a response to a clinical query within hours, compared with longer delays using more traditional communication.

GPs bemoaned inconsistent approaches taken by hospital specialists and specialties in terms of rules of communication engagement, and willingness to answer email communications.

There were differences in how patient-specific clinical e-communication made its way into the patient record (because of uncertainties around best practice, and a lack of skills in transferring information into the EHR).

Email communication was more likely where an already established working relationship existed between clinicians working across the interface.

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Strengths and limitations

This study aimed at covering maximum diversity, but at the cost of representativeness. Given that one of the investigators is an urban GP working in the study area, this may well have had some influence on individuals' decisions to take part, and the nature of their responses.[22] It is possible that non-principal GPs (not included in study) may have a different perspective in relation to emails (as was the case in one study for GPs occupying different roles).[23]

Comparison with existing literature

Previous studies have highlighted limitations of email in communicating subtle nuances with consequent misinterpretation;[1,5] however, the asynchronous nature of email allows clinicians the flexibility to respond at a convenient time, affording time and cost efficiency, and minimised disruption.[4,14,24,25]

Concern has been raised elsewhere that clinicians may be overwhelmed by the volume and length of emails, leading to potential stress and burden on their time.[1,6,9,11] Given limited clinician time resource during working hours, coping strategies were evident; elsewhere some prioritise the way they respond to messages by scanning the names of the senders.[14,26]

The present study resonates with others highlighting lack of computer knowledge, limited typing skills, and variations in reading speeds as compounding the difficulties of using email.[5–7,27] Emails, in common with other documents, are not inert, but, to be effective, rely on the skills and judgement of writers.[28]

Rural GPs were especially able to benefit patients (relating to timely management and avoiding unnecessary travel over distance) by using email to share digital images with urban secondary care colleagues; this has also been of value in diverse parts of the world.[29–34]

Differing approaches to the integration and sharing of patient-specific email communication were in evidence, as reported elsewhere.[6] Waldren and colleagues called for such communication to be 'seamlessly interfaced' with EHR software systems to maintain the integrity of the record, avoid potential for transcription errors, and to increase quality of care and patient safety.[24] Email could hold some medicolegal advantage over telephone consultations as it leaves a record.[6,35]

Car and Sheikh, when discussing patient–clinician electronic communication, felt the *'need to ensure that those* (patients) *without email access to care are not unduly disadvantaged'*.[1] Presently, it is possible that patients without email access to specialist expertise via their GP are similarly disadvantaged; those patients for whom their clinicians are 'email active' may have easier access to specialist information, and less likelihood of having to travel unnecessarily compared with those for whom their clinicians prefer not to use email.

Implications for research and practice

Clear pathways exist for urgent and outpatient referral, but no clear system exists for important 'middle ground' queries, which require 'quick answers' for GPs and patients. Email can play an important role in such situations. Initiatives helping clinicians to know who to contact (and what expectations to have in terms of a timely response) include the introduction of departmental and corresponding generic practice email addresses. Interface clinicians working with system managers may together usefully develop guidance for application and usage.[36] This may also help with the anxiety highlighted of emails 'slipping down off the bottom of the screen'.

None of the practices or specialist departments represented had an email policy, although national guidance does exist centred on the safe sharing and storing of patient information (all study participants used secure NHSnet exclusively for patient-specific email communication).[37–40] Given the diverse expressions of clinical email storage in the present study, further research may usefully explore governance issues around email usage, to help inform more specific national clinical email policy (which at present does not exist). Developed policy also needs to provide medicolegal clarity over lines of responsibility with regard to unanswered emails, and the role of 'out-of-office'.

Should health services aspire to increased use of electronic clinical messaging, key considerations are the availability of appropriate training and support.[35] Specialty colleges could also consider the inclusion in curricula of described competencies in electronic communication.[27] This exploratory study suggests that there may be scope for more research (perhaps larger scale) focusing specifically on email communication.

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