

The exceptional potential of the Internet? Perceptions about the management of another set of communications: a qualitative study

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The integration of information technology into the health care system is central to the UK government's strategy to improve the delivery of health care. There remains uncertainty about how this new technology is being used by practitioners, and the impact it is having in their everyday work and relationships with patients. The objectives of this study were to identify experiences and attitudes of general practitioners (GPs) about the use of the Internet as an information resource for themselves and for their patients, and their perceptions of the obstacles to using it, and to describe how GPs view the potential and limitations of the use of electronic communication with both fellow professionals and patients, and to explore the perceived impact on the GPs' roles and relationships. A qualitative study design involving interviews with 24 GPs in North West England was used. The methods involved semi-structured interviews with a purposive sample of GPs to explore their views on the use of the Internet in their day-to-day work. Interviews were recorded and transcribed verbatim. Data was analysed with the interview schedules being modified in the light of emerging themes. There were two main themes: the Internet as an information source for GPs and their patients, and the use of email as a form of communication between themselves and patients, and between health professionals in primary and secondary care. Whilst GPs appreciate that the Internet could offer an exceptional quantity of information that could be used within the consultation and which might improve patient management, they cite many barriers to the effective acquisition and use of such a resource. Similarly, GPs reported limiting their use of the Internet to assist communication between the GP and the patient, and were concerned about the Internet duplicating work rather than reducing it. GPs seemed reluctant to grasp the potential that they perceived that the Internet might offer. The current configuration of primary care, and the role of the GP within it, is likely to limit the uptake and use of the Internet as a means of extending opportunities for patient care.

Key words: consultation; Internet; primary care; www

Introduction

Health related web sites are amongst the most frequently accessed with current estimates of more

than 100 000 sites offering health related information (Eysenbach *et al.*, 1999).

The Internet is viewed by policy makers as potentially meeting need in a way which reduces demand on higher level care (through e-consultations and the National Health Services (NHS) Direct online health guide) and providing information and means of support which, in the longer term, may contribute to a changing culture in patterns of illness

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management and utilization of health care resources (May *et al.*, 2001).

The rise of this phenomenon presents several challenges to health care delivery, in particular to the organization of primary care and patient-professional relationships. One of these challenges is to use the World Wide Web (www), which is a store for vast amounts of medical information and which should be easily accessible, as a provider of quality and relevant information to medical professionals and patients. Another major challenge is to recognize the potential use of electronic communication within medical practice and to integrate this form of communication into the health care system.

The Department of Health is encouraging all practices to become paperless (Department of Health, 1998; Secretary of State for Health, 2000) and computers are already used widely within general practices for a number of applications including holding clinical records, prescription recording and printing, and aspects of practice management (Watkins *et al.*, 1999).

Continuing medical education encourages the use of evidence-based medicine for patient management. There is a requirement for medical professionals to access vast amounts information and numerous, up to date guidelines within their working lives. Within General Practice 90% of patients are managed by general practitioners (GPs) without referral (Hibble *et al.*, 1998) and studies in primary care settings consistently find that GPs have a need for information on a daily basis (Ely *et al.*, 1992; Dee and Blazek, 1993; Chambliss and Greensboro, 1996) in order to manage patients effectively. Although the use of guidelines have been shown to improve patient outcome (Grimshaw and Russell, 1993) there is feeling among GPs that they are being flooded with guidelines and one of the restrictions to using evidence-based medicine is having accessible up to date information available to them (Ford *et al.*, 2002). The unmanageable mass of paper of guidelines amassed in general practice was quantified by Hibble *et al.* (1998) who suggested that the issue of making information available and usable in clinical practice may be addressed by using an electronic medium, which is well suited to being searched, updated and copied. Since these studies were published, the Internet and its digital library technology have begun achieving widespread use and may have the potential to

solve the predicament of having vast amounts of information in a manageable accessible form.

Medicine is increasingly encouraged to adopt 'patient-centred' ways of working, and there is a move towards increasing patient involvement which is driven by the concern to respect patient autonomy. The web could be used by patients to access quality medical information relevant to themselves which would allow them to have a more informed role in their health care (Kalichman *et al.*, 2002). Although patients are increasingly using the Internet to access health information, a number of barriers remain before the potential of the web for increasing patient empowerment can be realized. These include equitable access and motivation of the patient to access information (Mead *et al.*, 2003). There are concerns that current patterns of Internet use reflect an 'inverse information law' where those with greatest health care need are least able to access resources (Eng *et al.*, 1998) and therefore the Internet may increase the gap between the information poor and information rich. A recent study described how motivational factors influence patients' interest in using the Internet as a health resource (Rogers and Mead, 2004). Additionally, primary care patients' accounts of their expectations of utilizing information sharing in encounters with health care professionals indicate that established relationships in the consultation, and attitudes towards the way in which people perceived their encounters with the primary health care system are relevant to whether or not Internet information is accessed in a way which is likely to facilitate shared decision making and desired health outcomes for individual patients (Henwood *et al.*, 2003). It is therefore important to take these factors into account when encouraging the more widespread use of digital information and not to deal with access issues alone (Rogers and Mead, 2004).

It has been suggested that GPs have positive attitudes to the use of the computer within the consultation, with expectations of improved links between primary and secondary care and improved documentation of the content of the consultation and chronic disease monitoring (see Tai *et al.*, 2000). Negative effects on the consultation process and the doctor-patient relationship have been reported due to the computer on the GPs desk, and calls for increased training for GPs to counteract these effects have been made (Greatbatch *et al.*, 1995; Mitchell and Sullivan, 2001). Little work, however,

has reported the attitudes of health professionals to the Internet and how it impacts on their everyday work.

This paper examines the views of GPs about the use of the Internet as an information resource for themselves and for their patients, and their perceptions of the benefits and obstacles to using it. We will also describe how GPs view the potential and limitations of the use of electronic communication with both fellow professionals and patients.

Methods

A sample of GPs in Greater Manchester were contacted by letter (over 2002–2003) inviting them to participate in an interview about the use of the Internet in their work. The GPs were sampled in two phases: the first as part of a larger study (Mead *et al.*, 2003) in which GPs in two practices piloting an Internet resource for their patients were interviewed (nine GPs, response rate 100%). For the second phase a purposive sample of GPs were invited to participate in the study. The sampling ensured inclusion of GPs in single-handed practices and larger practices, inner city and urban practices, and a range of ages and experiences of the GPs. We attempted to include GPs who were enthusiasts and had embraced IT within their practices as well as those GPs who initially declined to be interviewed ‘because they had no interest’, but agreed to give this point of view in the interview. Twenty GPs were invited to participate in the second phase of interviews. A total of 24 GPs were interviewed in their place of work.

Subjects consented to take part in a semi-structured interview lasting around 30–45 minutes. Interviews were conducted by all authors. The schedule focused on the GPs’ views on the use of the Internet in their clinical work and their views on how the Internet might impact on their practice.

The interview topic guide included asking GPs to describe scenarios of patients bringing material from the web, systems of electronic communication in their practices and views on the use of electronic communication with both patients and colleagues.

The interviews were audiotaped with consent and were transcribed verbatim.

Transcripts formed the material subject to formal ‘constant comparative analysis’ (Strauss, 1986)

in which thematic categories were identified in subjects’ accounts. The themes were pursued on a developmental basis through the course of the study, with the interview schedule being modified in the light of emerging themes. In particular, attempts were made to identify deviant cases, and the interviewer discussed with the respondent the emerging themes to test out the emergent data. Interpretation and coding of the data were undertaken by all authors: the transcripts were coded by all authors individually, then through discussion to achieve agreement on the interpretation of the data and emergent themes.

Results and discussion

Our analysis focused on the ways that the respondents conceptualized the use of the Internet as a resource in their work.

There were two main themes with a number of sub-categories: views on the use of the Internet as an information source and limitations to the use of email as a form of communication in health care.

The use of the Internet as an information source for GPs

The majority of the GPs reported that they made use of the Internet to obtain clinical information approximately two to three times a week. They generally reported accessing the Internet for the latest clinical guidelines, political health news and research papers. Although the web stores vast amounts of information, the majority of GPs did not see the Internet as a replacement for paper-based sources of information, rather they saw it as an *additional* source of information. One of the reasons for this was the perceived technical inefficiency of the Internet in providing and identifying ‘just in time’ information:

There are some days where you give up, you know, you’re in a consultation or just before calling a patient you think you’ll just check something, you’ll actually have to give up because it’s just too slow.

(Respondent 1)

It was apparent that although the majority of GPs were positive about the use of the Internet as an

information source, they felt that its use was limited by slow connection time, too much duplication of information and their own lack of experience.

GPs felt that these restrictions meant that the use of the Internet as an information source within their working day wasn't feasible, and did not fit the way in which their practice operated:

... Well in theory I could, but no, I just have not got time in the surgery to do that sort of thing, I mean I can read a piece of information if it is necessary to find out there and then but I leave the Internet till I get home.

(Respondent 3)

GPs reported that they had either very rarely or never used the Internet within a consultation. They cited lack of time or not a '*useful or productive use of time*' (Respondent 15) in the consultation, and that it didn't fit into the current structure of the consultation:

No. I'd say, I'd say pretty much never, I have on one occasion but it's too time consuming in the consultation. In a general practice consultation every second has to be used productively and looking at a computer is not productive use, you know, so I never use it in a consultation, no.

(Respondent 4)

... there is nothing worse than watching someone word process, so as a sort of social thing I don't think it is a great thing.

(Respondent 12)

Other GPs reported lack of experience in using the Internet and inadequate knowledge of the appropriate and relevant sites to access:

So actually to use the Internet in a consultation is still very difficult because you could spend several minutes finding what you want, even if you know exactly what it is you want, and heaven help you if you don't really know what you want, it could take you a long time.

(Respondent 1)

In summary, whilst all of the GPs interviewed made use of the Internet to obtain clinical information for use in their work, obstacles to using the Internet were frequently reported and the majority

of GPs felt that the potential of the Internet as an information source for themselves had not yet been maximized. All respondents expressed reservations about the use of the Internet within the consultation due to limitations of the technology available and their lack of experience in using the Internet and the time available. In addition, GPs reported that it was not feasible to use the Internet as an information source within the consultation due to the complicated social interaction that is taking place.

The Internet as an information source for patients

All of the GPs interviewed were positive about their patients using the Internet as an information source for medical information and saw the potential for their patients to be more active in their health care:

It was very, very useful because she, she'd done a very, very good literature search on the subject and she brought me a sheaf of stuff in about the modern management of polycystic ovaries and the treatment options which are available ...

(Respondent 19)

This GP worked in a more affluent area and suggested that such empowered patients may actually have a positive effect on the GP in making them aware of the breadth of information available:

... and it sort of brought me up to speed with some of the modern advances in PCO. So it helped me advise other patients better.

(Respondent 19)

Despite anecdotal references to patients who present reams of print-offs from the Internet, the majority of GPs we interviewed reported that they had not experienced many of their patients using the Internet as health information source. One of the reasons given by respondents who practised in deprived areas was that their patients did not have home access to the Internet:

... they do occasionally, yes, but most of our patients don't have computer access.

(Respondent 9)

GPs also explained that the Internet requires the user to be motivated and view their health as a high priority and within their control:

One of the biggest frustrations that we have at this practice is a sense that our patients have their health as a pretty low priority in a lot of ways and certainly don't have much of a sense that they can do much about their health (...) so it's actually quite refreshing to meet a patient who has a sufficient sense of ownership over their health and motivation to go looking for information.

(Respondent 1)

The general opinion was that the Internet would be increasingly used by those people who could readily access the Internet, particularly home access, and by those patients with a high locus of control over their health. The following GP practised in a more affluent area:

I have three or four people a week who do this ... they'll look up their symptoms or they'll look up a drug. ... But it's just the same as cutting it out of Women's Own or the Guardian. That's the advantage or disadvantage (*laughs*) of working in this affluent area.

(Respondent 13)

One GP viewed information use as intrinsically linked into patients' preferred way of accessing primary care, that is, immediately:

... people in lower socio-economic groups want immediate gratification. ... The Internet doesn't give them the immediacy they want ... the stuff isn't *Sun* standard reading level, it's not simplistic enough.

(Respondent 23)

Many GPs were concerned that, even if their patients had overcome the obstacles to actually use the Internet for health information, there were limitations to patients obtaining *useful* health information off the Internet. GPs suggested that information patients obtained was too complex and they cited patients' naivety when looking at sites and felt that their patients needed help interpreting the information they had obtained and

often required to put the information in context for them:

So I think people often get terribly bad information or terribly irrelevant information. I think people also are very, surprising really, (utterly?) naive at distinguishing about commercial sites. So I've had people who've come along saying, 'Here's a new cure for bad breath,' and when you look at it it's some guy is marketing something that costs £200 a month and he's living in Florida off the proceeds ...

(Respondent 4)

There was also a feeling that unreliable information could impact negatively on the outcome of a consultation:

I had somebody who had looked up his symptoms on the Internet and he had decided that he had 'lymphangitis' and I mean his self diagnosis was completely wrong but there was no shifting him, the outcome was that I had to compromise and do something which I knew was inappropriate but that's where I had to go in order to sort of get him beyond that.

(Respondent 10)

Thus, GPs generally saw the Internet as another source of information that patients could make use of to participate in their health care and they saw this as mostly positive. They highlighted several barriers that patients have to overcome in order to actually use the Internet for their health management. The GPs felt these barriers explained why only some groups of patients brought to consultations information that they had downloaded from the Internet. The use of information from the Internet by patients was viewed by GPs as being connected to existing preferences in managing health and illness.

The use of email as a form of communication between medical professionals

All of the GPs interviewed had access to an email system; most practices had an Intranet system within their practice, which enabled them to contact

fellow health professionals within their practice and the majority found this form of communication useful and an effective way of reducing their workload. The main advantages of email described were speed, a reliable and convenient way of transferring information to large groups of people, and one GP mentioned that it was particularly useful to part time GPs as it helped them keep in touch with fellow practitioners:

I think it is great. Email is brilliant, particularly when you lead a busy life, when you are in surgery and out on visits and things, if you have got email on your desk top you can email somebody and you don't have to wait for the phone to stop ringing or if it is engaged, and you tend to get ... erm ... people answering emails when it is convenient for them either between patients or ... erm ... between surgeries and you tend to get a much quicker reply and better reply from email.

(Respondent 11)

The majority of GPs did use email as a form of communication, with only two respondents reporting that they rarely used email to communicate with fellow professionals in their practice:

... Yes but I never use it. I would rather go and see somebody or talk to them on the phone. Our manager does, she tends to use it to communicate to people.

(Respondent 3)

Most of the respondents had little experience of communicating with secondary care via email. The majority were very keen to develop electronic communication with secondary care as they felt this would bring advantages such as speed of transfer of information, more legible information and generally a more convenient way to communicate:

We suffer quite a lot from the time lags in getting letters and things from the hospital, and we also suffered from the legibility issues of discharge (...) only yesterday afternoon, you know, I couldn't manage a patient because their discharge summary from last week was completely illegible, hadn't the faintest idea what they'd gone in for and what had been done. So to have that, to have

it typed would be the real, the real sort of killer application of email.

(Respondent 1)

Oh absolutely, it would be wonderful if we could receive information from hospitals electronically, and that's going to happen, eventually.

(Respondent 3)

Most GPs, however, felt that the necessary systems are not currently in place to manage such a huge shift to another form of communication between primary and secondary care. Some GPs expressed concern that currently email could not replace other forms of communications with secondary care but rather adds to them and that this would increase their workload:

Yeah, well between medical professionals I think there's lots of opportunities. The problem is how you manage another set of communications, 'cos at the moment I have a load of mail that comes on paper, I have a load of mail that comes through Lab-links, I have a load of mail that comes through internal email just from my colleagues in the practice, I have some mail that comes on the NHS email and I have my own personal email, that's five in-boxes already, right. Yeah, and nobody's thinking about that, you know, everybody's thinking about how do we get this information into that place, nobody's saying, 'Well how do we access it? How do we use it? How do we pass it on?'

(Respondent 4)

It was clear that the majority of the GPs interviewed did use email frequently to contact other health professionals and found this application on the whole very useful, but the realization of the full potential was felt to be limited by a lack of infrastructure and support available within their practices.

Use of email as a means of communication between patients and doctors

Although many of the GPs interviewed had little or no experience in using email to communicate with their patients, the majority saw the potential of using it for patient initiated nonurgent requests, such as repeat prescriptions, simple exchange of

information, such as travel advice and for requests that did not require a doctors' input but could be managed by the other staff at the practice:

... I think for transmitting information about appointments and asking patients to make an appointment for a review, not confidential information. Or patients giving us information and asking for advice.

(Respondent 3)

Yeah I mean it is not something I have really thought of but sort of thinking on the hoof I am thinking that the sort of things that could be dealt with via email consultations doesn't need a doctor.

(Respondent 10)

A few GPs also saw the potential for doctor-initiated communication to remind patients of appointments and review dates:

Well the potentials are great, particularly for, I think for standard things like your blood results or standard things like, 'Please come in and have your diabetic check.'

(Respondent 4)

Although most of the GPs were positive about the use of email to respond to patient initiated requests of simple information, like travel advice, they were wary of patients being able to initiate consultations via email. The main reservations expressed were the loss of face-to-face contact and lack of verbal cues which they felt were essential to achieve an effective consultation. The majority thought email consultations would not be as effective even as telephone consultations because of the loss of verbal cues.

Well you can't begin to compare the richness of a one-to-one communication. You know, when you get an email you don't get tone of voice, you don't, you know, you don't get any of that and it's so difficult to know what people are like from written communications isn't it?

(Respondent 4)

Because at least with a telephone consult you have the feel of a voice behind it ... email is very ... there is no tone there is nothing in it, there is no clues. It may have a place but

I think it would be very limited even more limiting than telephone consultations.

(Respondent 10)

... I might jump to a conclusion based on the words when in fact how they look or how they say it tells me more, and that's where the art of general practice or diagnosing comes in you know not always believing the words but looking around how it's said or, so I think I would be worried about losing that dimension ...

(Respondent 12)

Due to the limitations of plain text on-line consultations mentioned above the GPs felt that email consultations couldn't replace telephone or face-to-face consultations, however one GP believed that using email may be another skill that could be learnt and used effectively in certain situations:

It is not an issue for me so as far as I am concerned ... there will be limitations to email consultations, but at the end of the day, I think we will get used to it and I think people's concerns about confidentiality will get worked out.

(Respondent 8)

Respondents also expressed concerns that if patients had the option to contact their GP via email, this would make the GP more accessible and would increase workload as potential patients might have a lower threshold for seeking help:

Well I don't have a problem with it in principle and in fact one patient did, must have found my email address, and emailed me some information, but because I don't use my email regularly I discouraged him from contacting me in that way again and I actually went back to him through the post. Because at the moment I just don't feel, it's just another form of communication and until that replaces letters I would rather not use it for that yet.

(Respondent 3)

It also concerns me because I do obviously as a GP one always worries about the barriers between me and the great unwashed, you know I mean I could sit here and consult 24 hours a day if the public got really what

they wanted so that does worry me, but again I think it will happen, that email will be the way that we communicate. I have communicated once or twice by email with patients and it has just ended up you know with a complete round robin of questions that haven't served any purpose and I have seen them in surgery as well so that is a concern, that my work load might go up answering questions that don't benefit their health care.

(Respondent 12)

Thus, GPs were receptive to using email to communicate with patients but only for simple patient requests rather than on-line consultations, and they described limitations with email consultations such as the loss of verbal cues which would jeopardize the GPs' ability to consult effectively and safely. There was also concern that an extra mode of communication would just serve to increase their workload.

Conclusions

The study reported here describes both the possibilities and barriers that GPs are faced with in engaging with the Internet as a potential extra resource in patient care.

The study was carried out in one geographical area of England and, whilst purposively sampling from affluent and deprived areas, and from GPs professing to be IT enthusiasts, and those with no expressed interest in IT developments, the data may not necessarily be generalizable to the UK as a whole. The conclusions, however, are broad and should aid primary care trusts attempting to roll out their IT strategy.

GPs appreciate that the web offers an exceptional quantity of information that could be used within the consultation and which might improve patient management, and to enable improved communication with other health professionals. In some cases the accounts suggest the prospect of re-negotiated relationships between professionals and patients based on information and learning. GPs, however, cited many barriers to the effective acquisition and use of such a resource, and expressed concern about the effect of searching the Internet within a consultation has on that interaction. At times patients were described as interpreting and

using information which presents dilemmas for decision making within the consultation, and with the preferred ways in which people are seen and utilize primary care.

This study indicates a need not just for investment in the equipment, but also for investment in education and training of GPs, thus improving their confidence and competence in using the information available through the Internet. There is a need for appraisal of information by respected third parties to direct both patients and their GPs to appropriate, reliable sites containing quality information.

This study has highlighted several perceived obstacles and limitations such as time constraints, lack of perceived self-efficacy, uncertainty over quality assurance of information and security which seems to reduce the motivation of GP users of the Internet. GPs were concerned about the Internet duplicating work rather than reducing it. A key strategy has been for GPs to restrict their use of the Internet within the consultation.

The potential development of email consultations was not something that GPs in this study appreciated, again citing reasons, described in other work (Car and Sheikh, 2004), of time and maintaining safety and managing risk and were particularly wary about lack of visual and aural cues if email consultations were to be used. GPs did not anticipate that email communication with patients could help achieve what the Institute of Medicine (2001) considers a crucial element of primary care 'a sustained partnership between patients and clinicians'. Using email for doctor-patient communication would increase patient choice in the way health care is delivered and received, but GPs in this study were not yet ready to adopt this system. GPs did, however, see the value of email communication between colleagues in their own practice and in secondary care, and if the enthusiasm for this could be harnessed and the potential achieved, GPs may be ready to move to offer patients the opportunity to communicate with them by email.

Thus developing and facilitating the future use of the Internet in primary care needs to take adequate account of both the demands and structure of everyday practice and the variety of ways in which patients choose to access and use primary care and the preferences they have for relating to health care professionals. There is a need for an administrative infrastructure to be in place to support the future developments of IT in primary

care, so that the GPs' fears of increased and duplicated work-load are not confirmed. This suggests that integrating the technology into everyday working practice of GPs will demand more than simply putting a computer on the desk of every GP in the UK.

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