Please leave your phone outside: policymakers and medical app providers are encouraging patient participation, but doctors in the consult room are not

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INTRODUCTION

Innovative medical apps are developing apace and being recommended to patients by clinicians,[1–4] yet patients' pre-existing and autonomous engagement with internet information is not widely accepted into the consultation. Mainstream medical practice has not yet adapted to the ubiquitous use of the internet by patients. In failing to embrace the internet-informed patient (IIP), the medical community fails to maximise the learning opportunities that accessible, high-quality information offers patients. It also fails to support doctors who are frustrated or overwhelmed by the IIP. Most critically, this means we fail to provide truly patient-centred care; the patient's decision to search for information, the types and amount of information obtained and choice to discuss this information with a doctor reveal a great deal about what matters to the patient.

DEFINITIONS

Information literacy (IL) is: 'an understanding and a set of abilities enabling individuals to recognise when information is needed and have the capacity to locate, evaluate, and use effectively the needed information'.[5]

The IIP is: a highly informed patient, possibly confused by the rich range of information available, and who may be dynamically interacting with the web around their problem, for example, undertaking self-assessment and seeking support and advice from internet communities. (Definition developed from integration of major elements from the evolving literature.)

There is an extensive body of research on doctors' reaction to IIP. Researchers have found that some doctors enjoy the challenge of an IIP and are positive about the potential for greater patient education and involvement generated by the internet.[6] Unfortunately, reports of negative reactions to IIP currently dominate, with the literature reporting doctors' reactions as frustration, irritation and even outright disgust. The online activities of an IIP are casually disparaged (eg, by sarcastic 'Dr Google' comments), or simply ignored. There is an urgent need to help medical students and junior doctors put aside their negative responses and instead learn how to add value to the healthcare experience of the contemporary IIP. Yet educational interventions designed to change attitudes and give medical students or doctors the skills to better work with IIP are currently lacking.[7] This may be because the most challenging aspect of an IIP is when they present information beyond a doctor's scope of knowledge and while junior doctors and general practitioners can expect to be challenged by an IIP, the more senior or subspecialist doctors usually will not. These experts, in designing medical curricula, may not be able to understand what a modern neophyte needs.

This article will first report on what is known about how doctors and IIPs interact. Second, we propose a set of practical, implementable teaching activities, using a theoretically grounded approach and informed by exploratory research.

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Table 1 Summary of research on the interaction between IIPs and doctors.

Method	Literature
Primary research	
Survey or semistructured interview of patients	17[8–24]
Survey or semistructured interview of doctors	13[25–37]
Survey or semistructured interview of doctors *and* patients	3[38–40]
Observational study (plus interviews)	2[6 41]
Novel methodology	2[42 43]
Literature review	7[29 44–49]
Opinion piece	5[50–54]

PATIENTS' USE OF THE INTERNET FOR HEALTH INFORMATION AND THE PATIENT–DOCTOR RELATIONSHIP

A search was undertaken using a snowballing strategy (appropriate in this field, which has a large variation in the nomenclature and field of publication) and continued until saturation was reached. Initial search terms included 'Internet Informed Patient', 'E-Patient', 'Patient-Doctor Communication', 'Internet', 'Health Information', 'Patient–Health Professional Relationship'. The search was limited to papers written in 2000–2016, in English, published in peer-reviewed journals, with a focus on how patients' use of the internet for health information impacts on the patient–doctor relationship. Table 1 provides a summary of the 41 original papers and 2 book chapters identified.

Researchers took a comprehensive observational approach in just two studies, interviewing patients preappointment and postappointment and also audio recording or observing the consultation.[6 41] Most research was attitudinal and two prominent themes emerged from the attitudinal literature: the negative reactions reported by patients and doctors' justifications for such reactions.

Patients report negative interactions

Surveys and interviews consistently find that some patients feel that their doctor responds coldly or defensively when internet-sourced information is mentioned.[8 11 16 27 32] This frustrates and humiliates patients, negatively impacts their relationship with their doctor and increases the chance that they will not share internet-sourced information in the future.[16 18 27 38 55]

Reasons why doctors respond negatively

The two major reasons why doctors respond negatively are shortage of time[16 25 26 30 34 38 56] and a sense of embarrassment and anxiety when patients bring accurate, highly specialised information outside of their area of expertise.[25 28]

CHANGING THE NEGATIVE RESPONSE

Informed by these data on why doctors may respond negatively, we used a theoretically grounded approach to formulate a plan for an educational intervention for medical students, to help them welcome the patient's digital self into the consultation room. The Theory of Planned Behaviour provides a framework to understand and predict adult behaviour.[57 58] It considers three domains to be important: subjective norms, attitude towards the behaviour and perceived power.

Influencing 'subjective norms'

Hospital-based teaching means that students are not likely to feel that engaging with the IIP is 'normal'. This kind of hidden curriculum is powerful.[59] Students may be exposed to poor role-modelling as much of clinical teaching is led by specialists practising in tertiary referral settings. The information needs of most patients (who live independently and self-manage chronic conditions) are very different from the needs of those whom students encounter in hospital.

We suggest student reflection on communication practice around IIPs is encouraged, when learning in primary and community care. Over 50% of Australian general practitioners claim to use a trusted website as an 'ally' when managing IIP.[60] This may be referred to as an 'internet prescription' and can be associated with a high level of patient satisfaction.[61 62] Internet prescriptions only facilitate one-way communication between doctors and patients about health information on the internet, and do not challenge the historical patient–doctor power relationship. Nevertheless, this is a positive, early step towards a shared conversation between doctors and IIP. We suggest asking students: 'What do you see when sitting in a surgery?' and 'How would you judge the effectiveness of the patient–doctor interaction concerning internet health information?

Influencing attitude towards behaviour

A good start to influencing students' attitudes towards IIPs is to uncover your students' pre-existing attitudes and beliefs. We asked our first-year medical students questions as part of an evaluation of a new IL module. In 2013 and 2014, 225 and 202 students, respectively, completed the survey—a response rate of 74% and 68%. While 92% and 93% believed that doctors needed to be better than patients at finding health and medical information, only 53% and 60% thought doctors should guide their patients in how to research their conditions and treatments on the internet and only 62% and 60% thought it was appropriate for a doctor to look up health and medical information during the patient consultation. Results of this kind can be used to facilitate discussion with your students. Other possible questions include: 'What information literacy skills can be expected from patients?' and 'What can be learnt from the patients' choice to raise internet-sourced information in a consultation?'.

Once attitudes are uncovered, it is logical to integrate teaching on IIP into ethics or professionalism lectures that discuss patient-centred care. The patient's decision to search for information, the types and amount of information obtained and choice to discuss this information with a doctor reveal a great deal about what matters to the patient. However, for maximum influence on students' attitudes towards IIP, why not design an experience that makes IL personal? It is known that personal evaluation of behavioural outcomes heavily influences the 'attitude towards behaviour'.[57] An interprofessional role-play activity may allow students to personally experience the importance of practitioner response to IIP. Medical and physiotherapy students could be paired, the medical student given a complex set of musculoskeletal symptoms (beyond their knowledge base). Students would be instructed to treat the symptoms as if they were their own and attempt to research these prior to the 'consultation'. The exercise could then be repeated vice versa. These personal experiences as an IIP could have a profound impact on how students treat patients in the future.

Influencing students' perceived power (ability to engage with IIPs)

Skills in IL provide medical students with the self-confidence to manage the feelings of threat and anxiety that an IIP may provoke. An efficient and masterly search of the internet in front of a patient is a powerful (and efficient) way to manage disputation about veracity and accuracy of patient-sourced information. The time-poor doctor especially needs these skills. Ideally, this could be combined with a non-defensive, non-patronising statement, for example:

> Let's look it up together now to be sure we both have the most up-to-date information.

To start influencing students' perceived power to manage such interactions, we recommend formally assessing students' IL skills. Medical students tend to overestimate their own IL skills, which are often quite poor and there is minimal formal assessment of these skills in most medical programmes.[63–65] Many medical schools place IL tutorials early in the programme and focus on academic research skills (eg, the use of MEDLINE). We propose creating authentic learning environments for IL teaching, for example, time-limited, online tasks based on situations frequently encountered in primary care.[66] We suggest that IL experts be involved in such teaching.

Keystroke tracking software could enable formative assessment of students. While students with erratic search strategies may find correct information eventually, this is inefficient and also disempowering. Keystroke tracking enables students to accurately revisit their internet search journey (often based on heuristics and otherwise quickly forgotten). Small group discussion may allow students to share their knowledge of 'shortcuts' and explain their reasoning (or lack thereof) at different stages in the search. Alternatively, 'real-time' information searches by students, on a projected screen in front of their peers, would be similarly effective, if followed by group discussion and critique. The appearance of a logical strategy will enable patients to feel confident in the internet information sourced by their practitioner. This is particularly important if the practitioner shares their screen with the patient. This may become commonplace in the future, even in hospitals—double-sided iPads are being trialled in Finland, to increase patient engagement on ward visits. Patients can observe what the doctor is doing on the second display on the back side of the iPad.[67]

Students will need communicative strategies, as well as advanced IL skills, to manage IIP. Students should feel comfortable admitting when they do not know. We suggest developing phrasing to help manage such awkwardness, for example:

> That is very interesting. I have not read that particular paper. [insert fact eg, "did you know that the pace of new knowledge generation is such that if you were to spend 24 hours a day reading every new medical paper published, you would never stop reading"]

Finally, we need to help students put attitudes, communication strategies and IL skills together. There are multiple steps in any communicative exchange with an IIP, including appraisal of information that is presented, communication of this appraisal, negotiation of expectations and differences in opinions with patients and self-awareness of challenge to expertise. An OSCE could test several or all of the engagement steps shown in figure 1.

CONCLUSION

Technology-based clinical innovations are being created at an enormous rate, but we are not yet taking advantage of existing innovations in doctor–patient interactions. There may be a remedy—if student attitudes are modified, if students develop good IL skills and complementary communication skills, then the care they offer to patients will be better and the quality of the doctor–patient relationship enhanced. We suggest that teaching focuses on changing attitudes, as doctors' prevailing attitudes to IIP are negative and this may be passed on to students through the hidden curriculum. Indeed, our own exploratory research indicates that some students have negative attitudes to interacting with IIP. Students also need to learn the IL and communication skills required to manage IIP. They should be encouraged to translate these into practice, regardless of what doctors around them currently do. With a shift in attitudes, new skills and assessed practice, future doctors will be better

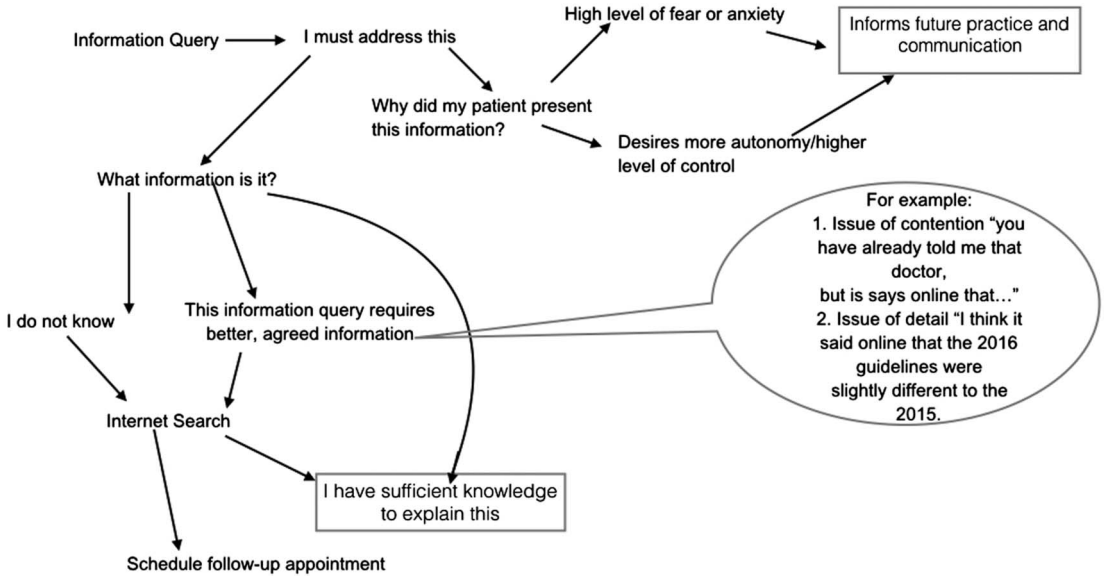

Figure 1 An OSCE could test several or all of the engagement steps shown in the diagram.

equipped to partner with patients on the next stages of the digital revolution in healthcare.

Contributors CJ conceived the topic of the paper and organised the research involving medical students in her faculty. LR drafted the paper and conceived the educational strategies in the paper.

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