ABC of health informatics
Communication and navigation around the healthcare system

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However good a doctor's clinical skills, record keeping abilities, and mastery of evidence, before they can start work they need directory information. This is the information patients and professionals use to find their way around the healthcare system. Different grades of staff have different demands for this information, and all staff are often interrupted by colleagues' requests for this information.

> **This is the 11th in a series of 12 articles**
> **A glossary of terms is available at**
> **http://bmj.bmjjournals.com/cgi/content/full/**
> **331/7516/566/DC1**

> **You are a general practice locum and need to fix an outpatient assessment for Mrs Smith's bronchitis. The receptionist mentions that before you organise the assessment you need to book certain tests that vary according to which chest physician you refer Mrs Smith to. The receptionist does not know the names of local chest physicians nor their investigation preferences. You spend 15 minutes trying to call the chest clinic in the nearest hospital before discovering it moved six weeks ago to another site 15 miles (24 km) away. Your phone is not cleared for long distance calls, and the practice manager is not around, so you wait to use a colleague's phone. Mrs Smith takes umbrage at the delay and walks out while shouting across the waiting room, "Call yourself a doctor. You don't even know what goes on in the hospitals round here."**

A hospital switchboard in 1995—shows the operators' directory and temporary notes. With permission from Martin Loach

Directory information

Directory information includes information about local services, how to book them, contact details, and specialists' preferences for tests that they need patients to have had done before they see them. Variations in stationery, laboratory and therapeutic services, and how those services are organised (including what type of bottle specimens should go in) mean that most expert clinicians cannot work properly when they are moved from their base 100 km in any direction.

Initiatives from the national programme for information technology (NPfIT), such as "Choose and book" with its electronic directories of specialists and their preferences for which tests should be done before a patient is referred, should provide a few types of directory information.

Communication

Directory information has always been needed. In the past, doctors could rely on informal networks built up over years, and there were fewer subspecialists to swell clinical teams. Now, health systems change more often, members of staff are more mobile, and the scope of health has widened so that doctors regularly communicate with local authorities, expert patients, carers, a variety of hospitals, and voluntary agencies. Also, the number of staff in each health centre has increased.

Although new technologies may reduce the need for doctors to memorise information, they raise new problems—for example, access to a directory is needed to check qualifications of remote telecarers and identify them reliably so that doctors can hand over responsibilities and information to them.

Little is known about the patterns of communication within and beyond clinical teams, although interesting results have

Directory information used to support primary care tasks

Primary care task	Directory information	Source
Routine surgical referral	List of surgeons with interests and waiting times at local hospitals	Colleagues, human resources department at local acute trust, trust website, Dr Foster
Urgent psychiatric referral	Telephone number of local mental health trust, person on duty and their mobile number	*Hospital and Health Services Yearbook*, local mental health trust
Therapy referral	List of therapists by location, days they work, and their contact details	Local primary care trust
Test ordering	Type of specimen, tube needed, suggested indications	Local laboratory handbook
Test interpretation	Reference range, who to call for advice	Local laboratory handbook
Advice to patients	For example, details of local diabetes self help group, or details of an Asperger's self help group	Primary care trust, Diabetes UK website, Contact-a-Family website
Inquiry about new general practice contract	List of local primary care priorities	Primary care trust headquarters
Writing job description for practice manager	Salary scales	BMA regional adviser

emerged from a small study of hospital communication and a study of emails sent between primary care centres and trusts. The best evidence for taking a proactive approach to managing communication comes from the field of mental health.

Studies of case workers show the benefit of a formal approach to exchanging information when dealing with a complex chronic disease that has a relapsing and remitting time course. To understand what happens during communication between different parts of a health system, reflect on the main elements of any communication. It requires at least two parties (sender and receiver) who share some similar understanding of the world (common ground). Communication also needs a message, which may be short and simple, or complex (such as a drug formulary), and a channel over which the message can travel. Communication channels can vary in important ways. Some channels require the simultaneous attention of both parties (for example, face to face conversations), other channels automatically provide a permanent record of the message (for example, faxes or emails). In any communication, the person whom the message is for, and the nature of the message must be established. In some situations, such as the scenario in the box on page 1325, assembling and using reliable directory information is difficult.

Collecting and using directory information

Collecting and using such information can be difficult for several reasons. Clinicians rely heavily on printed lists and handbooks. This hard copy often needs to be corrected or annotated, and then photocopied because some staff cannot access the original electronic copy. Another reason for there being problems with collecting and using directory information is that clinicians often rely on their fallible memories. Fragmentation of information sources can also cause difficulties. Sometimes work related contact numbers are stored in diaries or mobile phones, and either could be lost or stolen. Also, if stored in a phone or diary, this information is not automatically available to others in the healthcare team or beyond.

NHS HealthSpace (www.healthspace.nhs.uk) allows patients to record these data. Patients can store their own information in the section called "Health Tracker," and will have access to their electronic health records.

External agencies often manage directory information better than the NHS. For example, Binley's directory provides information from contact details for NHS trusts, departments, and health centres, to pharmacy opening times. Private healthcare organisations also manage information better than the NHS because they realise that there is a business need and that benefits will accrue if their clients have easy access to information on how to use their services.

Assembling, maintaining, and accessing directory information

One of the reasons that any clinician could face a situation like the one described in the scenario is because the people and organisations in healthcare services change fast. In the future they will change even faster, making directory information more important, but more difficult to assemble.

Communication channels used in healthcare

Channel	Sender and receiver needed at same time	Type and longevity of record	Comment
Face to face conversation	Yes	Usually none, but can be partial or full	Can make notes later, tape record whole encounter
Telephone conversation	Yes	Usually none, but can be partial or full	Can make notes during or after, or record in full for permanent record (for example, NHSDirect)
Voicemail	No	None or temporary	Can delete or save for 28 days
Text messages	No	None or temporary, or can be full	Can archive text messages permanently
Email	No	Permanent	Can forward to others and attach pictures
Instant messaging	Nearly, reply needed within a minute	Permanent	Can save chat to disk
Ward round	Yes	Partial	Record findings and decisions in case notes
Meeting	Yes (even if done by telephone or video)	Partial	Minutes of meeting
Telemedicine using store and forward	No	Permanent	Similar to email
Telemedicine using video link	Yes	Usually none, but can be partial or full	Like a ward round. Record results and decisions in case notes, or video record the session
Interactive digital television	Yes	No	Slow with poor functionality, but will improve
Exchange of letters or fax	No	Yes	Older technologies that have a continuing role
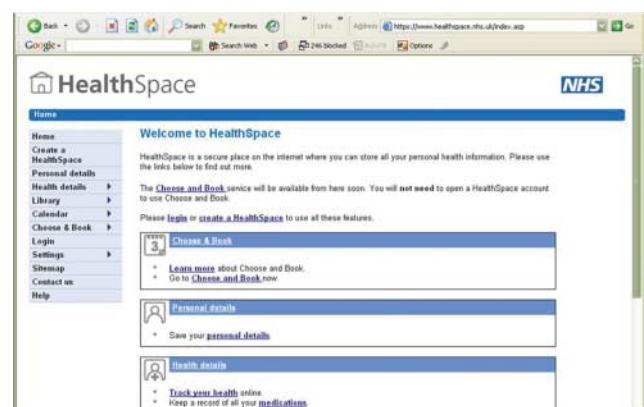
NHS HealthSpace website allows patients to store information and will allow them to private access to their personal electronic health records

Summary

Directory information is vital for people to navigate healthcare services and to allow clinicians to do their work, but in many healthcare organisations directory information is under-rated, or even non-existent.

Directory information changes quickly, and originates locally. It also needs to be accurate, up to date, and available nationally to support greater use of eHealth. Some of the information can be distilled from local sources of data, and one approach might be to expect it to be everyone's business to ensure that these sources are kept up to date—just as clinicians maintain a patient's record.

Unfortunately, this idea leads to a "collusion of anonymity" where "everyone agreed that someone should do it, but no one did." A solution might be to have a designated person for each organisation—for example, a laboratory or primary care centre—whose job it is to maintain this information. Maintaining directory information can be seen as "organisational governance." It is an intrinsic part of being a team member and central to being a responsible employee.

It seems ironic that when accurate, comprehensive, up to date contact information is needed by NHS organisations, they pay for directories and databases published by external organisations—for example, Binleys directory, NHS Confederation, and Medical Directory. Perhaps the NHS should outsource this activity and set up central service level agreements with these organisations for less money than NHS Trusts currently spend on paper directories. Pressure from an external contracted organisation might persuade organisations that are funded by the state to provide the necessary data in a timely way, which has often defeated internal efforts to capture these data in the past. In future, pre-referral investigation protocols for each consultant might be readily available and potential Mrs Smiths need not be so disappointed.

Collecting and using directory information

Problem	Solution
Source of directory information is often obscure	Identify key data and most accurate source
It is nobody's job to maintain the source	Include directory information in information governance role
Too many sources, no coherent map	Map and reduce the number of sources
No single format for directory information	Develop a national standard data format for all relevant kinds of directory information
Cannot rely on peers or traditional networks in view of shorter working week, rapid staff changes	Use electronic media
Directory information changes fast—for example, contacts, laboratory tests, opening hours of pharmacy	Someone must keep it up to date on a central site; discourage print outs
Maintaining accurate, up to date contact information takes a lot of work	Reward those who succeed by including it in their job description
Most directories are designed for local users in a local context, but data increasingly needed at national level	Ensure national standard format, context seen as national not local
Local NHS regularly reorganised	Include directory information management as a function in every new organisation; anticipate and manage risks of disruption
Plurality of NHS service provision—private sector, overseas, other providers	Encourage all service providers to use and contribute to NHS directory information
Disruption to work caused by use of synchronous communication channels	Encourage use of asynchronous channels instead by providing email or voicemail details
Loss of key directory information caused by use of transient channels, such as mobile phones, Post It notes	Use permanent channels
Print outs of electronic copy get out of date, and corrections are rarely propagated	Do not print out
Data in diary or handheld computer is hidden from other team members and can get lost	Download data, never modify it on handheld computer
Variable quality of NHS directory information	Raise awareness of importance of directory information; use it; allow users to improve it; outsource capture and provision of other providers

Further reading

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- Ziguras SJ, Stuart GW, Jackson AC. Assessing the evidence on case management. *Br J Psychiatry* 2002;181:17-21
- Coulter A. When I'm 64: Health choices. *Health Expect* 2004;7:95-7

The series will be published as a book by Blackwell Publishing in spring 2006.

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