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# He@lth Information on the Internet

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## Current awareness services on the Internet

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The size of the Internet and the inherent problem this causes in finding relevant information has been the subject of numerous articles. Implicit in many of these pieces is the sense that trying to keep up-to-date with new Web sites, journal articles, postings to discussion lists and forums and the like, is a task of Herculean magnitude. Indeed, when one considers that the MEDLINE database indexes some 400,000 articles every year, that the number of pages on the Web increases by 20 million every month and some tens of thousands of postings are sent to discussion forums every day, the picture does look somewhat hopeless. However, only a small number of these new articles, sites and messages will be of interest to any one individual. The trick, of course, is to define strategies that will alert you to new, relevant material but at the same time shield you from the bulk of irrelevant dross. It is the purpose of this article to highlight practical ways in which you can achieve this.

### MEDLINE updates

The need to be aware of the latest peer-reviewed research is a requirement incumbent on all health professionals. One of the best ways to achieve this is to define a search strategy on the MEDLINE database that is automatically executed every time the database is updated. Any new citations that match your search are mailed directly to your desktop.

One company offering such a service, free of charge, is Infotrieve <<http://www3.infotrieve.com/medline/infotrieve>>. Using an intuitive Web form the user can define a highly sophisticated search using the full range of Boolean logic. Searches can be further refined by limits such as age groups, publication types and language. Once satisfied that the strategy is identifying highly relevant articles the search can be saved. Saved searches are automatically executed on a weekly basis.

Infotrieve also offer users the option to order the full-text of any

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required article, via their document delivery service. Though the costs of this are relatively high – a copyright and a delivery fee are levied – for those users who do not have ready access to a library, this is a highly useful feature. Moreover, recognising the fact that ordering needs to be easy, anyone who wishes to use this facility simply returns the email with the search results, indicating which articles they require.

## New Web resources

Using a similar process to the service described above, Northern Light <<http://www.northernlight.com/power.html>> offer a service which alerts users to new Web resources that match a defined search query.

For example, an oncologist carrying out research into prostate cancer may wish to be alerted to new Web sites that focus on this condition. Using the 'Power Search' option at Northern Light, a search can be defined that identifies new sites where the phrase 'prostate cancer' appears in the title of a Web page. The search can be further refined to include **only** those sites from specific domains – perhaps the .edu or .gov domains in this example. Limits by language and country are also possible.

No limits are set on the number of searches you can define and no fees are levied. As the database is updated – typically on a daily basis – defined searches are executed. Details of new sites that the Northern Light search engine identifies as being relevant to your alert are mailed to your desktop.

## Tracking your favourite sites

Using another free service, this time provided by MindIt <<http://mindit.netmind.com>> it is possible to be alerted by email when a site you are interested in has been updated or changed in some way. For example, if you were interested in research funding opportunities, MindIt could be used to automatically monitor the relevant funding pages on the Wellcome Trust, Medical Research Council, National Institutes of Health, etc. Web sites. As soon as one

Service	Service provider	URL
MEDLINE updates	Infotrieve	<a href="http://www3.infotrieve.com/medline/infotrieve">http://www3.infotrieve.com/medline/infotrieve</a>
New Web alerts	Northern Light	<a href="http://www.northernlight.com/power.html">http://www.northernlight.com/power.html</a>
Tracking sites	MindIt	<a href="http://mindit.netmind.com">http://mindit.netmind.com</a>
Monitoring discussions	Deja	<a href="http://www.deja.com/usenet">http://www.deja.com/usenet</a>
New book alerts	Amazon Alerts	<a href="http://www.amazon.com/alerts">http://www.amazon.com/alerts</a>

Table 1 Current awareness services – summary of key services

of these pages changes – perhaps to announce a new grants programme – details of this will arrive in your mailbox, with a hypertext link to the relevant site. The days of manually checking Web pages to see if something new has been added are gone forever.

MindIt can be configured to watch the whole Web page, parts of it, or even specific keywords or links. It can also be used as link checker, so that you are only informed if a site moves or dies. Under this configuration, all other changes to the Web page are ignored.

To receive email alerts it is necessary to register with MindIt. No fees are levied and there appears to be no limit to the number of sites MindIt will watch on your behalf.

## Monitoring discussion forums

Despite the hype, the Internet is far more than the World Wide Web. Tens of thousands of messages are sent every single day to numerous discussion forums. However, rather than subscribe to numerous groups, an attempt to keep up-to-date the 'Tracker Service' developed by Deja <<http://www.deja.com/usenet>> can be employed.

This service allows users to track a whole range of newsgroups, but only be notified of postings when they meet a defined search criterion. Searches can be set up to retrieve only new postings that appear in specific groups – perhaps the sci.med rather than the alt.support forums – or those that come from a specific author or group of authors. You can also specify how often you want be mailed with new postings – daily,

weekly or monthly – and when, if ever, you would like the search to expire.

## New books

One of the ironies of the Internet is the demand it has created for the printed word. Internet booksellers such as Amazon are household names and enjoy a share value most companies crave. Amazon's success is a reflection of the fact that they do things well. The site is easy to search, and once you have found what you want, ordering is equally painless. It is no surprise, therefore, to see that Amazon also provides a highly useful current awareness service, called Alerts <<http://www.amazon.com/alerts>>. Here, searches can be defined by author, title or by subject and subsequently saved. When new books that match your search query are added to the Amazon database, details of these are sent to your mailbox.

## Conclusions

The volume of information accessible through the Internet is vast and continues to grow at an almost exponential rate. In recognition of this, however, a number of services – such as those described here – have been developed which aim to help all users to make best use of the Internet. Used effectively, these services can help tame the worst excesses of information overload, and give the user some sense that the Internet is a manageable resource.

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## View from the front line: Internet privacy

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*Today, the Internet has a reputation for being an open network, where anyone can post any information they choose. Contrast this with the original intention of the Internet – namely to be a private communications network for the US military. As the Internet has become more commercialised, however, issues of privacy are once again becoming more important. In this column, I will look at this issue as it impacts on health information as well as highlighting some simple practical measures users can take to protect their online identity.*

### Privacy

Many Web sites have the ability – sometimes without the user knowing – to collect and retain information about the user. At times this can be extremely useful, allowing users, for example, the opportunity to ‘customise’ Web sites so that they only see the information they are interested in. At other times, however, this personal information may be exploited and sold on to a third party.

There are many aspects to healthcare privacy and one I find particularly interesting concerns how much data we give away when online and the implications this can have. For example, let us assume a pharmaceutical company has set up an interesting Web site, which is open to healthcare professionals who complete an online registration form. Though in itself this form provides much useful background data, this information can be enhanced by an analysis of the pages you visit and the services you use. Armed with this information, representatives of the company could then call on the user and try to sell services based on the needs and interests that were disclosed online.

In an attempt to reassure users that any personal data that is acquired will be used responsibly, a number of Web sites publish a privacy policy on their sites.

However, can such policies be trusted and do the Webmasters really practice what they preach? A report published in January 2000 by the California Healthcare Foundation found that amongst a survey of 21 health sites (selected to represent a mix of the most trafficked consumer sites) there is an inconsistency between privacy policies and what is actually practised. In some cases personal data were transferred to a third party in ‘direct violation of stated privacy policy’. A copy of the full report (and an executive summary) can be found at:

[http://ehealth.chcf.org/priv\\_pol3/index\\_show.cfm?doc\\_id=33](http://ehealth.chcf.org/priv_pol3/index_show.cfm?doc_id=33)

Privacy issues will come even more to the fore when medical records start to become available

... there is an inconsistency between privacy policies and what is actually practised.

online. Though we may be a little way away from this happening in the UK, a good illustration of a commercial service that is taking the issue of security seriously is PersonalMD.com

<http://www.personalmd.com/>

### Protecting your identity

Many Internet users believe that unless information is actively disclosed – perhaps by completing an online registration form – then their identity remains hidden. Unfortunately, this is not the case. To demonstrate how easy and open your computer could be, point your browser at the ShieldsUP site from Gibson Research <http://www.grc.com>. When I accessed this site, the Gibson Research server successfully identified my Internet user name and my IP address. More worryingly, my computer accepted an anonymous connection from

another machine it knew nothing about! [This ShieldsUP! Web server was permitted to the NetBIOS File and Printer Sharing port (139)] There are, however, a number of steps you can take to protect your online identity. For example, using a service like the Anonymiser <http://www.anonymizer.com/3.0/services/index.shtml> you can appear completely anonymous to prying Webmasters. If you access Web pages via the Anonymiser site, no charges are incurred. However, if you want to be able to surf directly to sites and remain anonymous, the Anonymiser software can be purchased at a cost of \$240.00 pa.

More simply (and less costly), you can disable the cookie function in your browser. (Most browser’s

are set up with the cookie function activated.) A cookie is a file created on your computer by the Web site, which uses it to identify the computer and ultimately the user. More information about cookies, and how to disable them, was covered in a recent edition of *American Medical News*, available online at: [http://www.ama-assn.org/sci-pubs/amnews/pick\\_00/bira0327.htm](http://www.ama-assn.org/sci-pubs/amnews/pick_00/bira0327.htm)

However, unless you are going to go to the effort of using services like the Anonymiser, it is likely you will inadvertently disclose some information about yourself. Consequently, when you next consult your favourite health resources on the Web, check out their privacy policies and be cautious of revealing information about yourself unless you have no problem about that data becoming publicly available!

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## Current literature

An annotated bibliography of articles relevant to the study and use of the Internet in the healthcare environment produced by **Betsy Anagnostelis**, Librarian, Medical Library, Royal Free and University College Medical School of UCL, London. Betsy can be contacted at: [ucylbet@ucl.ac.uk](mailto:ucylbet@ucl.ac.uk)

### Fox NJ *et al.*

The WISDOM project: training primary care professionals in informatics in a collaborative 'virtual classroom'. *Med Educ* 1999; **33**(5): 365-70

The authors highlight the need for primary health professionals to develop knowledge and skills in information management and computer-mediated communication (CMC). The WISDOM project was funded by the NHS Executive with the objectives to create a 'virtual classroom' using an electronic mailing list and to deliver and evaluate a programme which met the learning needs of primary care professionals in informatics underpinned by the principles of evidence-based practice (EBP). Before and after comparisons indicated statistically significant increases in several informatics skills, other than use of Windows, databases and statistics. No significant changes were reported for EBP skills. The authors conclude that the WISDOM project was effective in delivering informatics' training to primary care professionals but identified the need for more research into effective mentoring and facilitating in virtual classroom environments. A Web site that provides a library of online resources, including seminar materials, is accessible at

<http://www.shef.ac.uk/uni/projects/wrp/index.html>

### Graber MA, Bergus GR, York C

Using the World Wide Web to answer clinical questions: how efficient are different methods of information retrieval? *J Fam Practice* 1999; **48**: 520-4

The authors identified the 10 most frequently asked questions from a database of queries posed by primary care clinicians. Using medical search engines, generic search engines, medical directories and one commercial site, authoritative answers were sought to the ten questions, in order to assess the suitability of the Web as a source of clinical information. Search

terms were standardised in advance, and the same strategy adopted with each search tool. The first five Web pages were examined and up to five links were followed (or up to 10, where a medical directory did not provide a search capacity). The performance of the search tools was assessed with regard to the number of questions answered, the accuracy of the information, search efficiency (the number of links followed to find an answer), and the extent to which pages containing an answer met the Health On the Net code of conduct <http://www.hon.ch/HONcode/Conduct.html>

The authors concluded that medical search engines were not as successful as generic search engines. Directory services, however, such as Hardin MD <http://www.lib.uiowa.edu/hardin/md/> and MD Consult

<http://www.mdconsult.com/> were singled out as sources that produced the greater number of answers and that met the greater number of HON criteria. The authors recommend relying on peer reviewed materials that have been reviewed by a commercial site as a means of avoiding incorrect information on the Internet.

### Gray JAM, de Lusignan S

National electronic Library for Health (NeLH). *BMJ* 1999; **319**(7223): 1476-9 <http://www.bmj.com/cgi/content/full/319/7223/1476>

The National electronic Library for Health (NeLH) is described as an attempt to solve the information paradox for healthcare professionals: overwhelmed with information, but unable to find particular information when and where they need it. By harnessing Internet technologies, NeLH will potentially provide access to timely, current and high quality information. The authors present and describe the metaphorical architecture of the NeLH, which will consist of the following: an atrium with help desks

(to assist specific groups of users or to support specific information tools) and virtual libraries (for example, clinical branch libraries will relate to specialist subjects in medicine); know how with access to guidelines and audit information; a knowledge platform based on best current evidence; NHS Direct Online providing information for patients; and knowledge management to support the development of skills to produce, distribute, find, appraise and use knowledge. The NeLH will aim to provide access to information within a range of circumstances, from 15 seconds access to the clinical bottom line during a patient consultation, to remote access to key knowledge resources from home.

### Pandolfini C, Impicciatore P, Bonati M

Parents on the Web: risks for quality management of cough in children. *Pediatrics* 2000; **105**: e1

<http://www.pediatrics.org/cgi/content/full/105/1/e1>

The authors assess the quality of information readily available on the Internet relating to the management of coughs in children and examine the applicability of a checklist strategy for the appraisal of Web pages based on their technical aspects. Simple key word searches were submitted to six search engines and the pages returned were screened for pertinence. Nineteen pages were identified that were pertinent to the question. Three different checklists were created to allow the Web pages to be appraised based on technical aspect, content completeness and quality of information presented. Few pages matched a majority of the criteria for technical aspects or content completeness and only one page received a score that was higher than 50% of the total possible score for quality. Significantly, the researchers were unable to find a relationship between technical aspect, content completeness and quality of information.



## Bookmarks: information for health managers

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One of the greatest strengths of the Internet must be the opportunity to pull together a wide range of resources relating to any subject area, particularly those not well served by traditional sources such as the MEDLINE database. One such area is health management information. This column highlights a number of useful sites and resources that are currently available within this area.

An obvious starting point is the Department of Health Web site <http://www.doh.gov.uk/> where a wide range of documents and other resources are disseminated. For example, POINT, or Publications on the Internet <http://www.doh.gov.uk/pointh.htm> is a bibliographic database containing details of Department of Health publications from 1996, with links to the full text of publications where available (in PDF format). COIN, or Circulars on the Internet

<http://www.doh.gov.uk/coinh.htm> provides access to the bibliographic details and the full text of all Department of Health circulars from 1997. Also available is the NHS Finance Manual <http://www.doh.gov.uk/finman.htm> and an executive summary of the NHS white paper, *The New NHS: modern and dependable* <http://www.open.gov.uk/doh/newnhs.htm>. The full-text can also be accessed online at

<http://www.official-documents.co.uk/document/doh/newnhs/newnhs.htm>

There are many other sites of interest. For example, the Institute of Healthcare Management <http://www.ihm.org.uk/> is the 'the largest UK professional body for managers working in health', and the site is aimed specifically at this group. It includes information about the organisation itself (with an application form to join) and the services it provides. The site is also currently advertising that it will soon include a searchable database of training courses, a searchable archive

of articles from its journal *Health Management*, and an online vacancies information service.

The Health Services Research Unit (HSRU), [http://www.abdn.ac.uk/public\\_health/hsru/index.hti](http://www.abdn.ac.uk/public_health/hsru/index.hti) site is another resource health managers need to be aware of. Though currently under construction, this site does have information about the Unit, its current research programmes and a good practice guide to producing health information. The home page for the Nuffield Institute for Health <http://www.leeds.ac.uk/nuffield/> also provides facts about the organisation, the courses it offers as part of Leeds University, and its research and development work. In addition, the resource guide is a useful selection of links to other Web-based materials of interest to those involved in health care provision.

Journals available online within this area include the *Health Service Journal* <http://www.hsj.co.uk/> and the *British Journal of Health Care Management* <http://www.markallengroup.com/publish/medical/bjhcm/index.htm>

The *Health Service Journal* requires a subscription to view the full journal, but some of the contents are available for free, including articles on the following topics: motivation and morale; waiting lists and waiting times; buildings and estate management; and recruitment and retention. The 'question of the week' facility allows users to vote on a topical issue and view the results – at the time of writing, the question was 'Should the government scrap prescription charges altogether at a cost of £350m?'. Previous questions have included 'Would you take early retirement if it was on offer?' (there was an overwhelming 'yes' to this question with 287 votes compared to 53). You can also register for free to access:

- a searchable database of health management jobs
- details of courses and conferences
- details of tenders within the NHS

- profiles of healthcare employers, and
- careers information and advice.

The *British Journal of Health Care Management* is a refereed journal aimed at managers within both the health service and the independent sector, as well as clinicians interested in management issues. Much less information is available for free here, although a small selection of articles can be accessed, as well as job adverts and details on subscribing to the journal.

Though these journals will provide a good overview of current health management issues, if you wish to undertake research on a specific topic a database will be your best starting point. With regard to health management, the HealthSTAR database is probably the best freely available tool. Produced by the National Library of Medicine (NLM), HealthSTAR is an online bibliographic database providing access to the published literature of health services technology, administration, and research. This resource can be accessed free of charge from the NLM's Internet Grateful Med site <http://igm.nlm.nih.gov/>. Although this database has a definite US-bias, there is much material of UK interest. For example, a search for 'clinical governance' – excluding those references indexed in MEDLINE – identified 30 relevant items, from journals such as the *Health Service Journal* and the *International Journal of Health Care and Quality Assurance*.

Lastly, 'health-care-management' <http://www.mailbase.ac.uk/lists/health-care-management/> is a Mailbase mailing list established for 'sharing and discussing the implications of developments in the management of healthcare'. Although a quiet list (averaging approximately three messages per month), it is a useful place for details about relevant conferences and training. The Mailbase page includes information on how to subscribe to the list. You can also browse or search the archives for the past 18 months.

## A guide to pharmacy resources on the Internet

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*At the present time, the role the Internet plays in providing drug information is under great scrutiny. In the main, this debate centres on whether or not the UK ban on the advertising of licensed prescription drugs to the general public can continue in the face of the global nature of the Internet. This problem is exacerbated by the fact that providing factual information about prescription medicines – ‘authorised by competent authorities’ – is allowed in the European Union<sup>1</sup>. Differing national laws regarding the sales of medicines direct to the general public further complicate this issue. In The Netherlands, for example, patients can buy drugs by mail order<sup>2</sup> whilst in the US there are online pharmacies that have been known to supply patients with any medicine without a prescription<sup>3</sup>.*

The breaking down of national borders has other implications for those who seek drug information as drug names, generic as well as proprietary, can vary from country to country. For example, paracetamol is referred to as acetaminophen in the US. Moreover, what is licensed for use in one country might not be in another. Arguably the most highly publicised example of this was sildenafil (Viagra) which was licensed in the US some 6 months earlier than in the UK<sup>4</sup>.

Despite very valid concerns regarding the quality of information on the Internet and whether the Internet is an appropriate medium for selling medicines, there is a great deal of useful pharmaceutical material available on the Internet for all levels of user<sup>5</sup>. This article highlights some of the most useful pharmacy resources on the ‘Net’, trying where possible, to highlight UK resources.

### Pharmacy directories

The first structured pharmaceutical information server was PharmWeb, established in 1994 by Dr AD Emauele at the University of Manchester <<http://www.pharmweb.net>>. It not only indexes Web pages, but

also creates and manages Web sites for a range of organisations. It is designed mainly for professionals, with directories of newsgroups, mailing lists, companies, societies, government bodies, conferences and a list of vacancies. There are also lists of pharmacy schools and information on educational resources. Although based in the UK, it is mirrored in six countries and deals with information from around the globe.

The London and South Eastern Drug Information Service provides DrugInfoZone

<<http://www.druginfozone.org>>, another service aimed at health professionals. It has a useful drug news section, full-text of recent issues of current awareness bulletins and provides monthly bibliographic citations (derived from the PharmLine database) on 44 key topics.

Most pharmacy gateways are from the US, but one that has a UK mirror and lists UK resources, is the Virtual Library Pharmacy section <<http://www.cpb.uokhsc.edu/pharmacy/pharmint.html>>

Note, however, that the list of government Web servers in this directory makes no mention of the NHS!

The US marketing company Mediconsult.com manages the Pharmaceutical Information

Network, PharmInfo <<http://www.pharminfo.com>>. This service provides brief descriptions of a number of resources and has a drug database (DrugDB) that links to a number of full-text resources. This database can also be browsed using generic and/or trade names, though the US focus of this product means it has to be used with care in the UK.

There are two major UK gateways for those interested in the pharmaceutical industry PharmiWeb and InPharm. PharmiWeb

<<http://www.pharmiweb.com>> provides news, employment opportunities and company information, whilst InPharm.com

<<http://www.inpharm.com>> has been set up to demonstrate to pharmaceutical and healthcare executives what the Internet can provide and thus encourage the creation of commercial sites. InPharm includes directories of organisations, companies and freelancers in medical communications as well as vacancies and industry news. The site also publishes regular Internet ‘tours’ that highlight sites relevant to a specific subject. Subjects covered recently include alcoholism, genomics and R&D advances.

## Regulatory bodies and professional societies

At present most UK government and society sites only provide details of their roles, structure and coming events. They do not, as yet, provide indexes of drugs. Government bodies include the Medicines Control Agency

<<http://www.open.gov.uk/mca/mcahome.htm>>

the Committee on the Safety of Medicines

<<http://www.open.gov.uk/mca/csmhome.htm>>

and the Prescription Pricing Authority

<<http://www.ppa.org.uk>>.

The professional and governing body for UK pharmacy is the Royal Pharmaceutical Society of Great Britain. Its Web site

<<http://www.rpsgb.org.uk>>

has a news section and useful list of links.

The Association of the British Pharmaceutical Industry (ABPI) at <<http://www.abpi.org.uk>>

provides a site that lists all its members, around a hundred companies producing prescription medicines in the UK and links to their Web sites where available. Publications published by the Association include booklets concerned with treatments for specific conditions. Although it is not possible to view the full text of these documents, ordering information is given.

Finally, both the United Kingdom Drug Information Pharmacists Group <<http://www.ukdipg.org.uk>>

and the Association of Information Officers in the Pharmaceutical Industry <<http://www.aiopi.org.uk>> have lists of useful links.

## Journals and books

The most recent issues of the *Pharmaceutical Journal* are available in full-text, without charge, at

<<http://www.pharmj.com>>. All of the classified advertisements – which include employment vacancies – can be searched by job function and/or geographical area. As the official journal of the Royal Pharmaceutical

The Internet can complement the patient–pharmacist relationship and can be used to encourage greater contact with the general public . . .

Society of Great Britain this is a valuable resource with news, views and original research papers.

For details of other online pharmacy journals the Virtual Pharmacy Library and PharmWeb, discussed above, are highly recommended. The Virtual Pharmacy, for example, currently provides links to over 50 specialised pharmacy titles.

Another rich source of information is the electronic Medicines Compendium

<<http://www.emc.vhn.net>>

This resource contains all the information that is included in the ABPI Compendium of Data Sheets and Summaries of Product Characteristics. In total, this compendium contains details of more than 2500 medicines licensed in the UK. Searching by both the generic and product name is supported. The site is divided into professional, general public and industry sections for which registration (no fee) is required.

The UK Pharmacopoeia also has a Web site

<<http://www.pharmacopoeia.co.uk>>

but access to the monographs is restricted to subscribers to the printed or CD-ROM Pharmacopoeia products.

## Patient information

Drug information aimed specifically for UK patients is thin on the ground, especially when compared to what is available in the US. The electronic Medicines Compendium (discussed above) is certainly the most comprehensive source.

Patient UK <<http://www.patient.co.uk>>, set up by two GPs in Newcastle, has a Medicines and Drugs section <<http://www.patient.co.uk/drugs.htm>>, which helpfully provides a list of UK Web sites. There is also a directory of non-UK sites but the author highlights the problems UK patients may experience in using these resources.

The National Pharmaceutical Association has an 'Ask Your Pharmacist Site'

<<http://www.askyourpharmacist.co.uk>>

which provides a directory of pharmacies and has a page of basic information on choosing, using and storing medicines. Unusually, this site has a children's page, with cartoon pictures that can be printed out and coloured in, which emphasises important facts about medicines.

PharmWeb also has a section for patients. This gives information on topics such as how to use medicines and how to treat common ailments such as coughs and colds. Though these pages are still 'under development' what is available is both good and authoritative.

Perhaps one of the best sites for patients is IntelliHealth

<<http://www.intelihealth.com>>

produced by the John Hopkins University Hospital and Aetna US Healthcare. At this site, information about drugs can be found by using brand or generic names. It is also possible to browse medication specific to certain conditions. Once a drug has been identified a link is provided to the US Pharmacopoeia database where additional information – such as adverse effects, contra-indications, *etc.* – can be found. There is also a section on new drugs recently approved by the US Food and Drug Administration and a news section that details warnings and recalls by the FDA. Although IntelliHealth aims to 'consumerise' health information, there is much of interest to the professional on this site including a 'Professional Network' section. The FDA's own Web site <<http://www.fda.gov>> has patient as well as professional sections.

Similarly, PharmInfo has a large section aimed at patients. The 'Disease Center' section. For example, <[http://www.pharminfo.com/disease/disdb\\_mnu.html](http://www.pharminfo.com/disease/disdb_mnu.html)> provides links organised by disease. These

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links then provide general information, drug information, news, articles and lists of other relevant sources. Inevitably there is a strong US bias. For example, no UK patient support groups were listed under Breast Cancer.

## Newsgroups and discussion lists

One of the longest running pharmacy discussion lists is the Pharmacy Mail Exchange <<http://www.dmu.ac.uk/in/pme>> at De Montfort University. This list is moderated and only open to pharmacists and health care professionals. Another restricted-access list is the Private-Rx service <<http://www.private-rx.net>>. This service provides various discussion lists for UK registered pharmacists.

For a more general discussion about issues relevant to pharmacy the Usenet newsgroup [uk.sci.med.pharmacy](mailto:uk.sci.med.pharmacy) is worth consulting. Not only is this resource open to everyone, but the archive of previous postings can be found online at

<<http://www.deja.com/group/uk.sci.med.pharmacy>>

An exhaustive list of other pharmacy related newsgroups and discussion lists can be found on the PharmWeb server.

## Conclusions

There is much for pharmaceutical professionals and their patients to gain from the Internet in terms of information retrieval and dissemination. The debate as to whether or not UK pharmacists should provide services over the Internet stepped up a gear in September 1999 when the UK's first Internet pharmacy opened

<<http://www.pharmacy2u.co.uk>>.

In January 2000, the Council of the Royal Pharmaceutical Society of Great Britain announced standards for pharmacists providing services over the Internet<sup>6</sup>.

Although the Internet cannot replace the patient-pharmacist relationship, it can complement it and can be used to encourage greater contact with the general public<sup>7</sup>. Already an increasing number of pharmaceutical professionals have been developing high quality Web sites and undertaking training to help realise this goal<sup>8</sup>.

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## Quackery on the Web

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*It seems almost impossible to write about health and the Internet without some reference to the dangers of finding uncritical, biased and dangerous information. Indeed, even a recent supplement to the popular Internet Magazine offered guidelines on how to filter out the reliable information from quackery and recommended that all users spend some time evaluating the quality of any medical site they visit<sup>1</sup>.*

Consequently, if we are becoming more Net savvy, has the scope for selling quackery products over the Internet had its day? Unfortunately the answer is 'not yet'. As this brief column will show, medical quackery is alive and well on the World Wide Web.

### Miracle cures

There is no shortage of Web sites offering all sorts of magical cures for all types of diseases including cancer, AIDS and arthritis.

The Dr Clarke Research Association <<http://www.drclark.ch/>>, for example, advocates the view that 'all cancers are caused by a single parasite', and once the parasite has been killed the cancer is cured. These parasites can be killed by a 'zapper', which can be purchased over the Internet for \$59.00. [See <<http://www.ess-in.com/index.htm>>] Dr Clarke also promotes the view that AIDS is caused by a parasite:

*'This parasite typically lives in the intestine where it might do little harm, causing only colitis, Crohn's disease, or irritable bowel syndrome, or perhaps nothing at all. If it establishes itself in the thymus, it causes HIV/AIDS!'*  
<[http://www.drclark.ch/hiv/hiv\\_frame.htm](http://www.drclark.ch/hiv/hiv_frame.htm)>

Another 'therapy' that can apparently rid people of cancer is the Gerson therapy. At the Gerson Institute Web site <<http://www.gerson.com/>>, there are a number of testimonies to the effectiveness of this therapy in curing various cancers. One testimony speaks of a child with a brain tumour:

*'At the end of her intensive therapy, she had another check-up with her neurosurgeon. He took some pictures, studied them, was puzzled, hesitated, took some more pictures – and finally said that he couldn't see any more tumor, just a shadow which he felt was a scar. Nora's mother asked what Nora's prognosis was. The surgeon said that she would never have a problem again!'*

An article published in *JAMA* in 1992<sup>2</sup> that looked at alternative cancer therapies (including Gerson) concluded that there was no scientific evidence to support the claims that coffee enemas (one of the key components of the Gerson therapy) are effective in treating cancer patients.

One other 'cancer cure' that has received a lot of attention is shark cartilage. For example, at the Oasis of Hope Hospital Web site <<http://www.contrerashospital.com/shark.htm>> shark cartilage is 'recommended for cancer patients'. Evidence to support this claim is a trial conducted by Dr Contreras (the site owner) which apparently showed that 'tumors frequently experience significant reduction in size within one to three months of the initial treatment.' A search of CancerLit, however, finds a number of papers that contradict this view, including one published as long ago as 1997, which concluded 'shark cartilage was inactive in patients with advanced stage cancer, and specially in patients with breast, colon and lung cancer'<sup>3</sup>. Despite the fact that 3 years have elapsed since the publishing of this paper, shark cartilage is still being promoted on the Web as an effective therapy for cancer patients.

Arthritis sufferers are also offered a number of 'cures'. The Cure Arthritis Web site <<http://www.cure-arthritis.com/>>, for example, offers cetyl myristoleate analogues (CMO) capsules as a cure. 'Once the error in your immune system is corrected by CMO, the attacks on your joints stop and the pain and inflammation should be relieved forever'. A search of various databases, however, fails to find any evidence about the effectiveness of this nutritional supplement in managing arthritis.

### Wishful thinking?

Medical quackery is a business that sells false hope. Not all of this business, however, is aimed at the chronically ill. Many sites prey on the wishful thinking of those who want shortcuts to weight loss and improvements in their personal appearance.

One good example of this are the Web sites that sell slimming soaps. At the Organix site, <<http://www.organix.net/organix/soap2.htm>> potential customers are encouraged to 'just lather up' and watch the pounds melt off.

*'The application of the soap for weight loss is simple. No diets or exercise are required. Simply lather up and massage the part of the body with extra fat while taking the shower every day. It is important to keep in mind, however, one must keep using the soap 2-3 bars as a course of treatment, although the effect can be appreciated after using 1 bar.'*

The slimming soap phenomenon was highlighted as a scam by the Office of Fair Trading back in 1998 <<http://www.oft.gov.uk/html/rsearch/press-no/pn38-98.htm>>. Despite this there are still many sites on the Internet selling soap that claim to wash away excess fat. A search of Altavista, using the phrase 'slimming soap' identified over 40 sites where this product could be purchased.

People experiencing hair loss are another group who may find sites with outlandish claims. For example, the Sheng Chi Regenerative Herbal Shampoo <<http://www.4rhythm.com/sham.html>> claims to 'promote re-growth of lost hair for all hair types male and female'.

## Further information

A number of sites have been set up to help monitor health frauds and quackery. To keep up-to-date with this topic try the sites detailed below.

### Quackwatch

<http://www.quackwatch.com>

### National Council Against Health Fraud

<http://www.ncahf.org/>

Finally, if you have come across any sites with fantastic (and unbelievable) health claims and would like to share them with other readers, please mail the details to:

[r.kiley@wellcome.ac.uk](mailto:r.kiley@wellcome.ac.uk)

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## News items

### Medicine, law & the Internet

A major conference, organised by the RCP of Edinburgh and the Society for Computers and Law, will consider the impact the Internet will have on the medico-legal landscape. This will take place in Edinburgh on the 27 June 2000. Further details, along with booking information can be found at:

<http://www.orthopaedic.ed.ac.uk/law.htm>

### Doctors and the Internet

A new survey from Harris Interactive shows that doctors spend relatively little time conducting clinical research on the Internet. Figures from Harris show that the average physician spends 6 hours a week surfing the Internet but only 15% of that time is spent looking at clinical information. For more information see:

<http://www.harrisinteractive.com/news/index.asp>

# The new PubMed: an updated free MEDLINE from the National Library of Medicine

## Tony McCulloch

Medical Information Officer, British Library

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*PubMed, the free MEDLINE service from the National Library of Medicine (NLM), is one of the most popular sites on the Internet for health professionals and consumers. Indeed, figures from Alexa <<http://www.alexa.com>> indicate that this site is in the top 250 most visited sites on the Internet.*

*To meet the growing calls for more powerful search options and the ability to save searches and citations, the NLM has recently released a new enhanced version of PubMed MEDLINE. This article, by **Tony McCulloch**, a recognized MEDLINE expert, reviews some of the improved features now available.*

## Introduction

PubMed <<http://www.ncbi.nlm.nih.gov/PubMed/>> was developed by the National Center for Biotechnology Information, in conjunction with the publishers of biomedical literature, as a tool to search and retrieve citations and, in some instances, to provide a link to the full text article. Although no registration or subscription is needed to access PubMed, access to some full-text titles is limited to registered users.

PubMed, in its original format, has been available through the Internet since 1997. And, except for some minor alterations to the services and databases offered, it has remained largely unchanged. The new PubMed offers the same features as the original format, but with enhancements to make the system user-friendly and to provide links to related datasets. Discussed below are some of the key enhancements made to the new PubMed service.

## Search interface

The new PubMed provides a single search interface with pull-down menus that allows the searcher to:

- specify limits before a search is carried out
- search the index
- view your search history
- add articles to clipboard.

It is still possible to carry out simple subject searches by typing in a word or phrase into the query box. For example, the query 'asthma drug therapy children' will retrieve around 100 good papers relevant to this topic.

Along the top of the query box, links are provided to a number of related biotechnology datasets including the Nucleotide Database, Protein Database, Genome Database and the Structure Database. Searches can be run in these databases by clicking on the name of the database before carrying out the search. Alternatively, the search can be run first in PubMed and then re-executed on the database of choice by clicking on the relevant database.

## Limits

Limits enable the user to refine a search to articles that meet a defined criterion. The key limits supported by PubMed are:

- by publication type – this is useful when you want to restrict a search to, say, randomized controlled trials (RCT) or practice guidelines
- by age group – all MEDLINE records that include the tag 'human' are assigned at least one age category, such as newborn, infant child etc.
- by subsets, such as the AIDS, dental or nursing subsets. Typically, these subsets contain citations from databases in

addition to those indexed by MEDLINE

- by species – the user can select human or animal or both
- by date, language, and gender.

Limits remain in force until the user either changes them or switches them off.

## Index

Using the *Index* option the searcher can specify – by use of a pull-down menu – which specific MEDLINE fields are to be searched. Once defined, the user enters the search concept and selects the *ViewIndex* option to see the index term. At this point, the term can be added to the query box. Additional search terms can be added using the same process. Once all the relevant terms have been added, the search is initiated by clicking the *Go* button.

The advantage of using the *Index* option is that you can see at a glance how many times your search term has been indexed and it can show you all the subheadings that are available for any given subject. For example, looking in the MeSH Major topic index for the term asthma, the user can see that over 40,000 articles have been indexed with this term, whilst just 29 articles have been assigned the subheading diet therapy. Furthermore, if you are an experienced MEDLINE searcher the *Index* option allows you to construct a complex search, complete with Boolean operators, with relative ease.

## History

The *History* option is a new and very useful feature of the new PubMed. *History* enables the user to review the searches carried during the search session and, if necessary, amend the search by combining search statements together.

Search statements are combined using the Boolean operators AND, NOT, and OR. Note, however, these operators must always be entered in upper case. Search statements on PubMed are preceded with a # which must be included when combining search results. Thus, to combine the search statements 1 AND 2 from the search history, type #1 AND #2.

## Clipboard

The *Clipboard* feature enables the searcher to carry out a search, review the results and copy selected references to the *Clipboard* for download or printout later in the search session. To add an item to the *Clipboard*, the searcher simply checks the box alongside each citation and clicks on the *Add to Clipboard* button. To help users see at a glance which items have been added to the *Clipboard*, selected citation numbers turn green. A maximum of 500 references can be added to *Clipboard* and the *Clipboard* is automatically cleared after one hour of inactivity.

## Saving a search

This is yet another new feature that allows the user to save a defined search. Once saved, the user can re-run this search, as and when required, to find any new citations relevant to that search. The steps detailed below show how such a search can be set-up:

1. Formulate and run the search as usual
2. From the results page click on the *Details* button. This displays, in a box, the search formulation run by PubMed. Below the box are two buttons, *Search*, and *URL*
3. To save the search, select the *URL* button. PubMed returns to the search screen and translates the search strategy displayed in the query box and includes it as part of the *URL*
4. The new *URL* can now be saved using the *Bookmarks* or *Favorites* feature. The Web browser's edit feature can be used to rename the *Bookmark/Favorite*, to one more easily remembered
5. When you want to run the search simply open up your browser and select the search from the *Bookmark/Favorite* list
6. To limit the search to citations that have been added since the search was last executed use the *Entrez-date* pull-down menu.

## Full text

An increasing number of the journals included in PubMed are available in full text format, either free, or by the searcher paying a subscription fee to the publisher. (As of April 6, 2000, some 757 journals

are available in full-text via PubMed. A list of these titles is available at: <[http://www.ncbi.nlm.nih.gov/entrez/journals/loftext\\_noprov.html](http://www.ncbi.nlm.nih.gov/entrez/journals/loftext_noprov.html)>)

To see if a citation has a link to a full text article it is necessary to change the display option from the default *Summary* view to the *MEDLINE* or *Abstract* view. Those citations that have online full-text articles are indicated by the *LinkOut* option. Following the *Linkout* option will take you from MEDLINE directly to the publisher's Web site and, if the service is free or you have an online subscription, to the relevant article.

## More than just MEDLINE

The current version of PubMed provides access to an additional set of NLM databases that include HealthStar (a health management database) and some specialist AIDS databases. These databases are searched automatically without the user having to specify them.

PubMed is also a subset of a larger database called PubRef. The PubRef service includes citations not found in MEDLINE. For example, journals such as *Science* and *Nature* are only selectively indexed for MEDLINE. Using PubRef, however, every article included in these titles – irrespective of its subject – will be retrieved. The user can specify a PubRef search by using the *Limits* menu and selecting PubRef from the *Subsets* pull-down menu.

## Conclusions

The new PubMed service offers a more user-friendly interface and superior search facilities than its predecessor. Comprehensive searches, involving large numbers of search terms and search statements can now be undertaken with relative ease. Similarly, the new features such as the clipboard option and the ability to save a search as a URL are welcome developments, and ones which the National Library of Medicine can be proud of.

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# He@lth Information on the Internet



## What's new?

Newly announced Web sites, documents, mailing lists and other resources, selected by OMNI. Visit <http://omni.ac.uk/> for more details. All resources in this list have been selected according to the OMNI Guidelines for Resource Evaluation. For details see: <http://omni.ac.uk/agec/evalguid.html>



### SurgeryDoor

<http://www.surgerydoor.co.uk/>

SurgeryDoor is a gateway to health information on the Internet aimed at the UK general public. Launched in February 2000, the site's editorial team is led by Dr Mark Porter, a practising General Practitioner. The site includes information for consumers on current health news, conditions, support groups, the NHS and healthy living. There is also a collection of useful Web sites aimed at health professionals, selected by the medical advisors of SurgeryDoor.

### Health research

<http://www.shef.ac.uk/~scharr/triage/>

A new gateway to Internet resources for health services research, health economics and evidence-based practice has been developed as an initiative by the Trent Institute for Health Services Research. TRIAGE (Trent Research Information Access Gateway) provides links to Web-based teaching materials, tutorials, articles and other research tools. TRIAGE is funded by the Trent NHS Executive R&D, and hosted by the School of Health and Related Research (SchARR) at the University of Sheffield.

### Clinical trials

<http://clinicaltrials.gov/ct/gui>

ClinicalTrials.gov is a database of clinical trial information from the US National Institutes of Health, through the National Library of Medicine. It aims to provide information to health professionals, patients and the public on clinical research studies. Most of the clinical studies included in the database are sponsored primarily by the National Institutes of Health, with trials funded by other Federal agencies and the pharmaceutical industry to be included over the coming year.

### Highwire Press

<http://highwire.stanford.edu/lists/freeart.dtl>

Stanford University Library's HighWire Press is currently offering free, searchable, online full text articles, from journals that are published online with the assistance of HighWire Press. HighWire support journals that focus on science, technology and medicine and, as of April 2000, they are assisting in the online publication of 145, 963 free full-text articles. Articles can be browsed by journal title, or searched across journals.

### PATSy (Patient Assessment Training System)

<http://patsy.cogsci.ed.ac.uk/>

PATSy is a multimedia interactive system for teaching patient assessment skills, and for consultation by researchers and clinicians. Users can access the system at a number of different levels including student or researcher/clinician. All levels of access are password protected. A listing of patient cases are provided, with information provided according to the user access. For example, the researcher/clinician access will provide information on the patients condition, whereas student access will prompt the user to come to their own assessment. The services is sponsored by the Nuffield Foundation, and hosted by the University of Edinburgh.

### Teaching and learning resources for EBP

<http://www.mdx.ac.uk/www/rctsh/ebp/main.htm>

This site has a collection of materials that have been produced to support the teaching and learning of Evidence-Based Practice. EBP tools available include a detailed teaching plan, how to ask EBP questions, how to find the evidence and how to use the evidence. This site is hosted

by Middlesex University. Documents are available in PDF and RTF formats.

N.B. PDF documents require Adobe Acrobat Reader, which can be downloaded from:

<http://www.adobe.co.uk/products/acrobat/download/readstep.html>

### Tuith Online

<http://www.dundee.ac.uk/tuith/>

Tuith Online is the online journal of the Scottish Dental Practice Based Research Network (SDPN). It aims to assist communication amongst dentists and provide information to promote evidence-based dentistry in Scotland. The journal includes peer-reviewed papers, letters, reviews and discussion groups.

### National electronic Library for Rare Diseases

<http://www.nhs.uk/rarediseases/>

This is the building site for the National electronic Library for Rare Diseases (NeLRARE), which forms part of a virtual branch library within the National electronic Library for Health (NeLH).

### Public Health Observatories (PHO)

<http://www.pho.org.uk/>

The Government White Paper, *Saving Lives: Our Healthier Nation* aims to improve the health of the population as a whole, and to improve the health of those that are worst off. To support this, a Public Health Observatory will be set up in each of the eight NHS Regions. These eight Public Health Observatories (PHO) will be 'linked together to form a national network of knowledge, information and surveillance in public health'. This is the national umbrella Web site for all the Public Health Observatories, and will provide a gateway to each of the Observatories and other national data resources.