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Accessing scientific information

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Practising evidence based medicine is recognised as essential to ensure that patients receive the best possible treatment. For health professionals to be able to practice evidence based medicine, they need to be able to access scientific information. Unfortunately, many important scientific articles are not freely available. Scientific articles are published in journals owned by large publishers, who for financial reasons, ensure that access is restricted to institutions or individuals that have paid for the right to read the scientific evidence [1, 2].

This recognition that scientific evidence should be available to all resulted in the formation of open access journals [3]. Open Access allows individuals anywhere in the world to access the full article. This is of major benefit to researchers in low income countries (LIC) and lower-middle income countries (LMIC). However, many of the large publishers have offered authors the option of publishing their articles open access but only after paying a significant fee. The cost of publishing open access varies significantly and ranges from no charge to several thousand pounds. These costs make Open Access especially difficult for researchers from LIC and LMIC. They often have limited resources and are unable to pay the costs involved for publishing their articles. Researchers from such countries need to be offered financial waivers. Clearly there is a cost involved in ensuring that scientific information is available. Type-setting, indexing and maintaining server space all require income [3]. Wikipedia relies on donations to ensure that its information is freely available. Many publishers however charge high fees simply to maintain large profits.

Until all scientific information is open access, how do researchers and health professionals in LIC and LMIC read scientific articles? Some practical possibilities are listed below.

1. Access a national network/database. Many countries have negotiated and established a national information network/ database that allows access to certain publishers. For example, Cuba has the Infomed national network (www.sld.cu). Infomed contains the Virtual Health Library [Biblioteca Virtual en Salud de Cuba (bvscuba.sld.cu)]. This allows access to

several databases including Biomed Central, Cochrane, PubMed Central and Scielo.

2. The HINARI Initiative. This is an agreement whereby many major publishers will allow access to their journals from LIC and LMIC [4-6]. The HINARI Initiative was launched in January 2002 following an agreement between WHO and six major biomedical publishers [6]. It initially involved almost 1500 journals and now involves over 8000 electronic journals. It offers access to scientific articles to institutions from LIC and LMIC that have registered with the HINARI Initiative. It is a welcome development. A major weakness of the HINARI Initiative, however, is that it penalises countries with a high Human Development Index (HDI). The HDI is determined by an individual country's investment in health and education. It is ironic that countries who invest in health and education and have obtained a high HDI are excluded from the HINARI list. Cuba is one of the countries that has been excluded. Others have criticised HINARI for its exclusion of certain LMICs and its restriction to institutions, i.e. individual health workers operating outside of universities in LIC, cannot access articles [3].
3. Email the author. Authors usually receive an electronic form of their paper from the publisher. They are usually happy to send this electronically to authors overseas.
4. Search the institutional repository of the author. For example, the University of Nottingham has a digital archive (e-Prints, <http://eprints.nottingham.ac.uk>) [7]. Nottingham e-Prints is a part of a world-wide network of open access archives that can be searched using specialist services such as BASE (<http://www.base-search.net>) [8]. BASE is operated by Bielefeld University Library. It is a registered open archives initiative service provider. This archive contains a copy of the published paper. It is not in an identical format to that produced by the publisher but contains the same scientific information which is what the researcher requires. Some publishers impose a 6-12 month time embargo on the article being deposited. Repositories are a new innovation and will only be successful if authors deposit items in the repository and researcher overseas make use of them.
5. Ask a colleague from an academic institution in a high income country (HIC) to obtain a copy for you and send it to you electronically. Most researchers in HIC are happy to help colleagues overseas. Institutions in HIC are more likely to have access to subscription journals.
6. Use professional social media websites such as LinkedIn or Researchgate, or professional websites such as Academia and Google Scholar; which allow authors to deposit articles in the website [9]. These websites are all free to join. Authors are encouraged to deposit their articles on the website, although copyrighted articles should be deposited in a format similar to that in institutional repositories, i.e. not the pdf produced by the publisher.
7. Use the website (www.sci-hub.cc/). This is a website which has specifically been opened in order to provide mass and public access to research papers [10]. It is a pirate website which currently has more than 47 million research papers. It functions by anonymised researchers donating research publications that they can access through their own institutions. This Sci-

Hub project started running in September 2011 but faces constant legal complaints by large publishers alleging copyright infringement. It is likely that the website for Sci-Hub will change constantly as they are threatened with legal action. It is also likely, however, that they will continue to provide researchers with information [10].

All of the information listed above is dependant on the researcher having access to a computer/laptop/tablet and being able to access the internet. Such access is usually available within a library, either in the hospital or an academic institution for those individuals who do not have their own laptop/computer or internet access. The list above is not comprehensive but we do hope it is useful for researchers who wish to access scientific information.

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