

Open Educational resources for Health Science Professionals

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Introduction:

Health science libraries depend on the sources because the hospital and the allied health department are working with the biological aspects. We have resources available through different kinds. Modern technology has given rapid review to our profession. These kind of wide resources where some of them are paid articles and some are freely available journals. Paid journals access is very restricted and is not available in time. Health science library has big platform service station. It is well known clearing house to all kinds of users, whether undergraduate, post graduate, physicians, research scholars and so on.

Nowadays Open source of article has vital role in many fields. User can access to their own field without paying, in any time. These articles are at most helpful to all kind of users.

Some of open sources cover specific subject, for example BCampusOpenEdHealth/Medical in general, Home support/Resident care, Pharmacy/Pharmacology, Psychiatric/Mental health and so on. Some Open textbooks are more useful on subjects like Active healthy lifestyles, Anatomy and physiology, Contemporary health issues, Diversity and difference in communication; Drug, Brains and Behavior; Emergency and Risk management case studies etc.

Open Education Resources and reviews:

OER stands for Open Educational Resources. OER has been defined as "freely accessible, openly licensed documents and media that are useful for teaching, learning and assessing as well as for research purposes." These include formats such as syllabi and courseware, databases and journals, scientific communities, repositories, streaming videos, podcasts, multimedia, books, maps, software and any other educational resources openly accessible without a license agreement (Butcher, 2011). In 2002 the term 'open educational resources' was adopted by UNESCO, an organization that has done much to promote OER as driver for educational change across the globe. These are helpful throughout the world.

In 2012 an historic declaration by UNESCO, following a world-wide survey, called on all governments to make all educational materials freely available. There is no single definition of what OER is. There are different ways of conceptualizing the underlying models of management, pedagogy and scale involved. However, central to the idea of OER is openness in the creation, sharing and reuse of learning and teaching materials with barriers of cost or access for the student or end-user reduced as much as possible. They are at the heart of the idea of open education. One useful definition from Open Commons is: Open Educational Resources (OER) are teaching and learning materials that are freely available online for anyone to use, whether you are an instructor, student, or self-learner. OER can exist as smaller, stand-alone resources that can be mixed and combined to form larger pieces of content, or as larger course modules or full courses. This definition locates OER online, but it is arguable that any resource used for teaching and learning that can be freely accessed is an OER. It is usually safe to assume, however, OER refers to online materials in most contexts. They can range from single file resources (reading lists, image files, video clips), through meaningfully structured collections as single units (sometimes called 'learning objects') to textbooks and whole courses. These last two types of resource, open textbooks and whole courses have their own advocates and models for application. They also include software tools and repositories. Open education in higher education is academic practice that stresses a philosophy of sharing freely and openly the ideas, knowledge, methods, platforms, tools, approaches and materials used in learning and teaching. Through shared improvements in resources and techniques, quality can be enhanced to a measurable degree. Open education can also be referred to as 'open educational practice' or simply 'open practice'.

The benefits of open education to learning and teaching are discussed elsewhere in this toolkit, because they are dependent on the model of delivery used. However, thinking about the quality of OERs themselves raises two separate issues. The first is that an entirely open approach to teaching resources leaves open the possibility that low-grade materials will become available, swamping out anything of value.

When you are the author of an educational resource and wish to share your work, an organization called Creative Commons (CC) has developed an open global legal framework and standards for the open licensing of shared resources and creative output.

There are six licenses with varying permissions for the context and the degree to which the owner grants a user the right to adapt or develop the resource. The licenses are flexible and easy to generate and apply; they are displayed on the resource and have to be passed on by anyone using the resource, either as it stands or having adapted it in some way (provided permission has been given for this).

Advantages of OERs:

The main advantages of OERs are:

- It can save time and energy by adapting or revising resources that have already created.
- It expands opportunities for interdisciplinary teaching and learning by allowing integrating and revising multiple educational resources.
- It reduces the cost of course materials, particularly textbooks so that all students have access and aren't financially burdened.
- Find and access information instantly on any topic, and can access with various devices.
- Gives learners the option of looking at course content openly before enrolling.
- Can reduce the students bear, sometimes increasing graduation and retention rates

OERs useful for health science professionals:

- ❖ **BCampusOpenEd**
Specific subjects: Health/Medical in general, Home support/Resident care, Pharmacy/Pharmacology, Psychiatric/Mental health. The B.C. Open Textbook Project is funded by the BC Ministry of Advanced Education. A goal of the Project is to provide flexible and affordable access to higher education resources by making available openly-licensed textbooks.
- ❖ **College Open Textbooks**
Specific subjects: Active healthy lifestyles, Anatomy and physiology, Contemporary health issues, Diversity and difference in communication; Drug, Brains and Behavior; Emergency and Risk management case studies etc.

College Open Textbooks (COT) is one of the premier resources for locating and adopting open-licensed textbooks and other Open Educational Resources (OERs). COT offers over 850 titles, curated specifically for two-year colleges but also appropriate for many lower-division courses at four-year colleges; a comprehensive catalogue of links to resources hosted by a wide range of online repositories and other sites; peer and accessibility reviews of selected titles, and mentoring online professional networks that support for authors opening their resources, and other services.

- ❖ **The Global Text Project**
Interesting books including Accredited Social Health Activist, Diseases of Children in the Subtropics and Tropics, Physical Health Hazards, Practical Plastic Surgery for Non surgeons, Primary immunodeficiency Disorder. The Global Text Project is a joint project of the Terry College of Business of the University of Georgia and The Daniels College of Business of the University of Denver. It aims to publish electronic texts for students in the developing world and maintains a database of links to books for such students.
- ❖ **Johns Hopkins Bloomberg School (US), Open Courseware Project**
JHSPH OCW offers open materials and images from more than a hundred courses developed by the faculty of JHSPH, the world's foremost institution of public health education and research. OCW is created to provide learning opportunities and teaching resources to all who pursue improvement of health and prevention of disease around the world.
- ❖ **EdX - Open courses from leading universities on the world**
Specific courses: Healthy ageing, The Body matters, Nutrition and Health, Trends in e-Psychology, Education in Healthcare. EdX is an online learning destination and MOOC provider, offering high-quality courses from the world's best universities and institutions to learners everywhere. Currently, Edx is offering thousands of courses in various subjects for different study levels.
- ❖ **FutureLearn**
Specific courses: Anatomy, Caring for older people, Exploring cancer medicines, Dental photography in practice, how the flu spreads and evolves, the diabetes: a patient-centered approach. FutureLearn offers a diverse selection of courses from leading universities and cultural institutions from around the world. These are delivered one step at a time, and are accessible on mobile, tablet and desktop.

- ❖ **TED - Ideas worth spreading:**
Specific topics: The future of medicine, Take charge of your health care, Breast cancer, What we can do to die well, A smarter, more precise way to think about public health.

TED is a non-profit devoted to spreading ideas, usually in the form of short, powerful talks (18 minutes or less). TED is a global community, welcoming people from every discipline and culture who seek a deeper understanding of the world. On TED.com, there is a clearinghouse of free knowledge from the world's most inspired thinkers and a community of curious souls to engage with ideas and each other.

RMIT Research Repository:

Fields of research: Clinical Sciences, Complementary and Alternative Medicine, Human Movement and Sports Science, Nursing, Nutrition and Dietetics, Medical Biochemistry and Metabolomics.

- ❖ **BioMed Central Open Access Journals**

Bio Med Central offers a variety of journals that are open access, such as BMC Nursing, BMC Oral Health, BMC Palliative Care, BMC Pharmacology to name a few.

❖ **BMJ Open (British Medical Journal)**

It is an online open access general medical journal that is dedicated to publishing medical research from all disciplines and therapeutic areas.

Boundless

Boundless improves education for millions of students and educators through educational resources powered by cloud technology. Built with a community of educators, who work side-by-side with experts and students, Boundless provides ready-to-use content, tools, and test materials to make teaching more efficient and learning more effective. Educators can engage their students more effectively through customizable books and intuitive teaching aids as part of Boundless Teaching.

❖ **Boundless-Microbiology Hub**

Boundless improves education for millions of students and educators through educational resources powered by cloud technology. Built with a community of educators, who work side by-side with experts and students, Boundless provides ready-to-use content, tools, and test materials to make teaching more efficient and learning more effective. Educators can engage their students more effectively through customizable books and intuitive teaching aids as part of Boundless Teaching.

❖ **Chemistry Central**

Chemistry Central is an open access chemistry publisher, operated by BioMed Central and owned by Springer Science Business Media, committed to the free and widespread dissemination of chemical research.

❖ **Directory of Open Access Books--Health Sciences**

Index of Health Sciences open access eBooks.

❖ **InTech**

InTech is a pioneer and world's largest multidisciplinary open access publisher of books covering the fields of Science, Technology and Medicine. Since 2004, InTech has collaborated with more than 86180 authors and published 2355 books and 6 journals with the aim of providing free online access to high-quality research and helping leading academics to make their work visible and accessible to diverse new audiences around the world.

❖ **Learning Together with Cases**

As you explore this site, you will discover four types of resources: A series of fictional, media-rich, virtual patient cases, Video vignettes of real professionals discussing and demonstrating their roles, A variety of tools for teachers as well as links to modules with detailed content about specific IP competencies, Social networking tools such as discussion boards enabling students and teachers to connect and learn together.

❖ **MERLOT (Multimedia Educational Resource for Learning and Online Teaching)-Health Sciences Collection**

It has availing free and open collection of peer-reviewed online learning materials for higher education. This problem set was developed to assist undergraduate students taking a one semester or two semesters, non-majors course in organic chemistry.

Wiley Open Access Publication Portfolio

Wiley-Blackwell has an extensive collection of open access scholarly journals, read more about their initiative and explore available titles.

The following open access Wiley journals are also available under the Creative Commons Attribution (**CC-BY**) license, which allows (with the correct attribution of the original creator) copying, distribution and transmission of a work.

Adaption and commercial use is also permitted:

- Brain and Behavior
- Cancer Medicine
- Ecology and Evolution
- EMBO Molecular Medicine
- Evolutionary Applications
- Food Science & Nutrition
- Geoscience Data Journal
- Microbiology Open

Health science libraries have been conducted research on day today physician practice. Research scholars have found a solution on particular diseases. These kind of information published online to user can benefited from the open sources. Following are below.

1. JHSPHOpen Courseware

Johns Hopkins University Bloomberg School of Public Health OCW offers open materials and images from more than a hundred courses developed by the faculty of JHSPH, the world's foremost institution of public health education and research.

2. Open Educational Resources for Nursing

The OERN's portal is open and free for everyone around the world to use to find free, open and online educational and training resources. We will be "recommending the best" and "linking to the rest" of materials that could meet your interdisciplinary needs. Contribute to the global digital library of cancer resources so everyone worldwide can have the best and latest information. Develop and lead the social networks needed to bring individuals out of isolation and into a supportive community. Participate in online community conversations with researchers, physicians, healthcare professionals, and others working in cancer education to freely share experiences and expertise.

3. NCBI Bookshelf

Bookshelf provides free online access to books and documents in life science and healthcare. Search, read, and discover.

4. BEN BioSciEdNet

The BEN Portal provides access to education resources from BEN Collaborators and is managed by the American Association for the Advancement of Science (AAAS). Over 20,601 reviewed resources covering 77 biological sciences topics are available.

5. PubMed Central

PubMed Central (PMC) is the U.S. National Institutes of Health (NIH) free digital archive of biomedical and life sciences journal literature.

6. PubMed Health

PubMed Health provides information for consumers and clinicians on prevention and treatment of diseases and conditions. PubMed Health specializes in reviews of clinical effectiveness research, with easy-to-read summaries for consumers as well as full technical reports. Clinical effectiveness research finds answers to the question what works? In medical and health care.

Open sources have more helpful to all kind of users. It has more help to library and information centers have been enhancing their services.

Open Access Databases:

An internet era has more effective tool for health science libraries. Some of country have more problem and not able to give a basic need of their civil society. Because those have limit sources. These limited sources haven't satisfied their problem, these kind situation they have get the benefit from open databases.

- arXiv
Sponsored by Cornell, this site provides e-prints of quantitative research papers in many of the science disciplines.
- BioMed Central
Open access journals available through BioMed.
- DOAJ
The Directory of Open Access Journals provides full text coverage of scientific, scholarly journals.
- E-Print Network
Scientists have created this network of information gleaned from websites and databases to create a database of e-prints.
- FreeFullPDF
Over 80 million free scientific publications available.
- GAILEO Knowledge Repository
Digital collections from the University of Georgia.
- Genamics
A free database of almost 10,000 journals. The articles themselves are not available on the database, so it is an identification resource.
- InTech
InTech's byline, "Open Science Open Minds" introduces their platform, which provides open access to STEM books, chapters, and journals
- Journal TOCs
A searchable resource providing tables of contents for over 17,000 scholarly journals (almost 3000 of which are open access)
- Medknow
Based in Mumbai, India, and focusing on developing countries, Medknow is a pioneer in open access publishers worldwide offering free HTML articles from 155 medical journals.
- PLoS (Public Library of Science)
A database of open access, peer reviewed journals in the sciences.
- ROARMAP
Links to open access repositories worldwide
- SPARC (Scholarly Publishing and Academic Resources Coalition)

The Scholarly Publishing and Academic Resources Coalition provides access to papers, articles, blogs, newsletters, and news for research scientists.

Scientific Open Access Communities:

- **BioOne**
"A global collaboration bringing together scientific societies, publishers, and libraries to provide access to critical, peer-reviewed research in the biological, ecological, and environmental sciences."
- **DAVID**
DAVID, A Database for Annotation, Visualization, and Integrated Discovery is a bioinformation database that provides gene specific data and promotes data sharing among scientists.
- **Faculty of 1000**
A searchable database of current publications by research faculty. Although the full texts of these publications are available through a subscription, the database may be searched free of charge.
- **Hum-Molgen**
An international communication forum for human molecular genetics featuring journal literature and other publications.
- **OpenDOAR**
A resource identifying open resource sites.
- **Research Gate**
"ResearchGate allows you to network with the largest global community dedicated to science and research: we help you to expand your contacts, share knowledge and find potential research partners."
- **Scirus**
Contains journal content, researchers' home pages, and preprints for the scientific community. Filters resources by source or format type.
- **SPARC**
The Scholarly Publishing and Academic Resources Coalition provides access to papers, articles, blogs, newsletters, and news for research scientists.
- **INASP (International Network)**
INASP's Programme for the Enhancement of Research Information (PERii) aims to support research capacity in developing and emerging countries. INASP's PERii:Open Access provides access to resources freely available.
- **Creative Commons**
Creative Commons is a nonprofit organization that enables the sharing and use of creativity and knowledge through free legal tools.

Others:

- **Bookboon.com - Healthcare & Medicine Books**
Bookboon.com contains free eBooks and textbooks that can be downloaded as a pdf, no registration needed.
- **Global Text Project - Health**
The Global Text Project is a joint initiative between the Terry College of Business at the University of Georgia and The Daniels College of Business of the University of Denver to publish eBooks that can be accessed by all, especially the developing world.
- **InTech - Health Sciences**
InTech publishes more than 2,300 open textbooks and 6 journals in a variety of subjects that fall under the heading of science, technology, and medicine.
- **Orange Grove - Health Science**
Florida's digital repository for instructional resources, which includes a collection of open textbooks on a variety of subjects.
- **Open.Michigan - Medical**
This website features academic content created by the University of Michigan community that you can use in your own research, teaching or learning experiences.
- **Applied Math & Science Education Repository - Medicine**
AMSER (the Applied Math and Science Education Repository) is a portal of educational resources and services built specifically for use by those in Community and Technical Colleges but free for anyone to use. AMSER is funded by the National Science Foundation (NSF) as part of the National Science Digital Library, and is being created by a team of project partners led by Internet Scout.
- **NCBI Bookshelf**
Bookshelf, the books division of the NLM Literature Archive (LitArch) at the National Center for Biotechnology Information (NCBI), is an online searchable collection of books, reports, databases, and other scholarly literature in biology, medicine, and the life sciences.

Databases and Articles

- **Directory of Open Access Journals**
Access to high quality, open access, peer-reviewed journals.
- **BioMed Central**

Over 290 quality peer-reviewed open access journals in Biology, Clinical Medicine and Health.

- Digital Public Library of America
Explore 11,548,959 items from libraries, archives, and museums

Open Courseware (OCW)

- MIT Open Courseware (OCW)
content and resources for over 2000 of its courses.
- Duke's Center for the Study of the Public Domain
Materials provided from Duke's Intellectual Property Rights Program.
- Rice - Connexions
An educational repository of materials and a course management system. Connexions is open to anyone to develop content and share materials.
- FETP OpenCourseWare
Course syllabi, lecture notes, bibliographies, and other teaching materials from Fulbright Economics Teaching Program are made available on this site.
- JHSPH Open Courseware
Johns Hopkins University offers open access to the course content in its Bloomberg School of Public Health
- University of Notre Dame OpenCourseware
Open access to materials used in a variety of courses taught at Notre Dame is provided on their opencourseware site.
- Tufts Open Courseware
Listed by school (e.g., dental medicine, arts and sciences) are course materials accessible to anyone online.

Other OERs

MERLOT II -- NURSING COLLECTION

Curated collection of free and open online teaching, learning, and faculty development services contributed and used by an international education community. FILTERED FOR "NURSING"

OER for Nursing (University of California)

Find free, open, and online educational and training resources. Recommendations for "the best" and "linking to the rest" of materials to meet interdisciplinary needs.

Open Education Consortium

Search courses by institution, language and category.

IOM Reports

IOM (Institute of Medicine) reports published after 1998.

Freesound

Freesound offers a collaborative database of audio snippets, samples, recordings, bleeps, released under Creative Commons licenses that allow their reuse.

FreeVideoLectures

FreeVideoLectures provides video lectures from schools like Columbia University, Stanford and the University of Michigan. Subjects available right now are in the areas of neuroscience, patient communication, microscopy, anatomy dissections and orthodontics.

HEAL National Digital Library

The Health Education Assets Library (HEAL) is a collection of over 22,000 freely available digital materials for health sciences education. The collection is now housed at the University of Utah J. Willard Marriott Digital Library.

Special collections include:

Albert Einstein College of Medicine Gallery of
Hematology Images
Knowledge Weavers Dermatology Images
Knowledge Weavers ECG Collection
NeuroLogic Exam: An Anatomical Approach
Pathology Education Instructional Resource (PEIR)

Oral Cavity Subset
Lymphatic Tissues and Organs
Subset
Placenta Subset
Respiratory System Subset
Blood and Bone Marrow Subset

PediNeuroLogic Exam: A Neurodevelopmental Approach
Poja Histology Collection

Royal College of Surgeons in
Ireland Illustrations.

MedPix

Provided by the US National Library of Medicine, MedPix® is searchable database, integrating images and textual information. The primary target audience includes physicians and nurses, allied health professionals, medical students, nursing students and others. The content material is organized by disease location (organ system), pathology category, patient profiles, and by image classification and caption. The website can be used to browse the cases or diagnosis. Quizzes related to the image are also available.

MedPix® images and case materials are available free of charge for your personal use and for local teaching at your institution including distribution of handouts and syllabi. For anything other than personal use, you should respect the original contributor and contact them for additional permission requests.

MERLOT – Multimedia Educational Resource for Learning and Online Teaching

The MERLOT repository is a database of metadata that describe 1) all the learning materials (including learning exercises), sometimes called learning objects, that have been contributed to the repository by MERLOT Members, and 2) the profiles of registered MERLOT Members. No registration is necessary to search the site or use the learning materials, which have been peer-reviewed.

OER Commons

OER Commons is a digital library and network for educational resources. Resources can be found by using the site's search function or by browsing by subject or type of material and tags. By registering, users can contribute their own materials as well as create collaborative groups to share resources and discussion.

Public Health Image Library

From the Centers for Disease Control and Prevention, 750 health-related images licensed in the public domain. This means they have no copyright restrictions, although it is requested that the content provider be credited and notified in any public or private usage of the images.

Wikimedia Commons

With over 30 million media files, Wikimedia Commons is probably the largest indexing site for media on the web that can be uploaded by anyone. Most of the images found within its database are usable via a Creative Commons license or are in the public domain.

Conclusion:

OERs are very helpful in teaching and learning where it is difficult to get the learning materials. Nowadays educational resources are costly and not affordable to all. OERs can be used as an alternative to traditional resources. Because of ICT development OERs can be accessed without barrier of time and place. Well established institutions should participate in the development of OERs. Knowledge should be shared to all with free of cost. It should not be stored in a dark place where users are not possible to identify it.

References:

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