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Journal of the European Association for
Health Information and Libraries
Vol. 13 No. 2 June 2017

CONTENTS

EDITORIAL

MONOGRAPHIC SECTION

Feature Articles

NEWS FROM EAHIL

NEWS FROM EAHIL SPECIAL INTEREST GROUPS

NEWS FROM HLA

BOOK REVIEWS

Open research data: another step towards open science

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Dear EAHIL friends,

Open data is the hot topic that has involved the entire scientific community, including health librarians and information specialists and it is important, besides remaining constantly updated, to understand how this key topic is evolving.
The European Commission (EC) has issued specific Guidelines on FAIR Data Management concerning all research data generated by Horizon 2020 projects, by which FAIR means Findable, Accessible, Interoperable and Reusable. "Good research data management is not a goal in itself, but rather the key conduit leading to knowledge discovery and innovation, and to subsequent data and knowledge integration and reuse". This is the EC vision for Europe: *Open innovation, Open science and Open to the World*.

As *JEAHIL*'s June 2016 issue presented the first of two editions on Open science, "Open science 1: open access", part of the present issue (June 2017) has been dedicated to completing the series with "Open science 2: open research data".
I would like to thank Fiona Brown and Katri Larmo, members of the Editorial Board of the journal and guest editors, for the completion of both ventures. They have collected excellent articles, introduced the topic in the Preface, and listed data facts and relevant links in the Annex.
In her Letter from the President, Maurella Della Seta is also giving us, amongst other things, some recent news on Open Data, with particular reference to two events that recently took place in Rome and in Taiwan.
Finally, Annarita Barbaro has reviewed *The Data Librarian's Handbook* with plenty of ideas and resources regarding open data.

In addition to the monographic section on Open Data, you will find two other papers published in this issue. The first one, on social media use in medical education by Bushra F. Nasir *et al*. from Australia, is based on a prospective, multi-site survey of medical students and educators. The second, by M. Grilli from Heidelberg University, proposes a standardised procedure to conduct systematic searching of literature in medical libraries.

We are preparing for the Dublin ICML+EAHIL Conference. *JEAHIL's* Editorial Board will meet there to discuss a dense agenda, with the aim of improving the quality of the journal and finding new relevant topics to investigate in the future. Please let us know if you would like certain topics to be covered or would like to give us any feed back on the journal.

Lastly, let me dedicate a few lines to thank each member of the Editorial Board for their passionate work, and to thank all of those who are reading the journal. Just by reading these pages, you give meaning to all the effort which lies behind the publication of *JEAHIL*.

Thank you, and see you all in Dublin!
Federica

MONOGRAPHIC SECTION

Open science: research data

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Open science: research data

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Research data is an important output of universities and research organisations; and researchers, funding bodies and institutions are increasingly aware of the value in making such data reusable. Librarians are becoming increasingly involved in research data management, moving from a support role to one of a partner in the research process (1).

This issue of *JEAHIL* presents various aspects of sharing data and research, with three interesting and thought-provoking articles. The editors are grateful to the authors for sharing their experiences and recommendations.

Alicia Fátima Gómez Sánchez writes about the fundamentals of research data and research data management plans in the biomedical field. Alicia describes the early stages of research data management plans and gives an overview of how we, as librarians, can work with researchers to help them manage their data. She discusses how we can help researchers increase the visibility of their research results. Alicia describes the specific issues around biomedical data, for example personal information, and describes various solutions to these.

Mari Elisa Kuusniemi reports on a recent study at the University of Helsinki, which investiged the research data infrastructure and data related service requirements of the university's researchers. The results of this study will provide the evidence to empower the university to implement bespoke data management policies and services.

And, finally, Bridget Sheppard reports on the various processes and issues involved in establishing a new open access online journal, *Veterinary Evidence* (https://www.veterinaryevidence.org/), designed to support evidence-based veterinary medicine. The paper describes the staffing requirement, choosing the online platform and commissioning content and is very useful for anyone who would like to set up a new journal.

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APPENDIX. OPEN RESEARCH DATA FACTS

WHAT?

Briefly said, open research data is freely available in the internet, free to use, reuse, and redistribute (1, 2). There are many definitions, but these are the most often highlighted points.

WHY?

Open research data supports research's integrity, impact, visibility, efficiency and cost-efficiency. It can accelerate the pace of discovery and growth of the economy. Individual researchers, scientific processes and ultimately the whole mankind win with open data (2, 3). Recent studies have shown increased citations when data is made openly available (4, 5).

HOW?

Many major research funders, organizations and journals have already created or are in the process of creating policies regarding research data sharing, e.g. the Bill and Melinda Gates Foundation, European Commission, UK Medical Research Council, US National Institutes of Health and Wellcome Trust. In 2016, also the International Committee of Medical Journal Editors (ICMJE) made proposal to require data generated by interventional clinical trials to be responsibly shared (6).

There are many ways to share data, varying from "upon request" to "open" (7). For various reasons (e.g. protecting personal data or commercial use) all data can't be fully open. For instance, the European Commission's approach is "as open as possible, as closed as necessary" (8). Ideally data could be archived in an open repository, such as Zenodo, Figshare, Dryad, some of NCBI's databases etc. Persistent identifiers guarantee that data is citable. For finding available data there are many interesting developments, such as the DataMed/bioCADDIE project of the Big Data to Knowledge (BD2K), which aims "to do for data what PubMed did for literature" (7).

Researchers need support for creating data that can be opened. The first step in sharing is good planning. When data is well documented and preserved right from the start, it is easier to share, and the shared data can also be understood by others. So alongside policies, many organizations are creating services. Libraries are taking a strong role in this: supporting, consulting, educating, creating services and collaborating with other institutions, both within and outside their own organizations (9).

SOME INTERESTING LINKS

- BD2K Guide to the Fundamentals of Data Science Series

  http://www.bigdatau.org/data-science-seminars
  - Big Data to Knowledge (BD2K) Initiative's virtual lecture series on the data science underlying modern biomedical research
- BioSharing.org

  https://biosharing.org/
  - A curated, informative resource on data standards, databases, and policies
- DataMed

  https://datamed.org/
  - Aims to "do for data what PubMed did for papers"; by NIH BD2K Data Discovery Index

- FAIR Data Principles
  https://www.force11.org/group/fairgroup/fairprinciples
- Mantra
  http://datalib.edina.ac.uk/mantra/
  - A free, online non-assessed course with guidelines to help you understand and reflect on how to manage the digital data you collect throughout your research. It has been crafted for the use of post-graduate students, early career researchers, and also information professionals. It is freely available on the web for anyone to explore on their own.
  - Through a series of interactive online units you will learn about terminology, key concepts, and best practice in research data management.
  - By the University of Edinburgh
- Research Data Management and Sharing (MOOC)
  https://www.coursera.org/learn/data-management
  - The University of North Carolina at Chapel Hill, The University of Edinburgh

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Some fundamentals for Open Research Data Management in Health Sciences

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Abstract

The open science movement is increasingly expanding and pushing researchers to embrace new ways of working. Funding agencies, stakeholders, publishers and scientific communities want them to take care of the whole research process, from planning the initial stages of research, to the publication, sharing and archiving of their data. The aim of this article is to present some fundamentals about research data and research data management plans (DMPs), particularly in the biomedical field. Some of the main points related to the publishing of research data, as well as some recommendations for choosing a suitable repository are described. Finally, reasons and advantages for health librarians to be involved in the curation and making research data open and re-usable are set out.

Key words: research data; data management plans; biomedical research; data curation; information dissemination.

Introduction

The interest in research data and research data management in the context of open science has dramatically increased in the last years. Specially funders (1-3) but also publishers, have already implemented data sharing policies (4-6), with the aim to make science more transparent and reproducible. The first step in this road was the introduction and development of Data Management Plans (DMPs), required by the EU on projects financed under the H2020 program (7) and quickly used by a lot of national funding agencies as a must have criteria for the new projects. In fact, the NIH has officially supported the concept of data sharing as an essential issue for the translation of research results into knowledge, products and procedures to improve human health since 2003 (8).
To achieve openness and transparency, research data must be not only open accessible, but also discoverable and reusable. Data need to be described using appropriate metadata, which can be defined as the structured information about data following the right standards, and deposited in trustworthy repositories that assure access and preservation (9).
The aim of this article is to describe some of the main characteristics of research data, especially in the biomedical field, and to provide an overview about how librarians could help researchers to manage research data in the context of open science.

Research data, metadata and data management plans

Research data can be a wide diversity of collected information: textual or numerical data, samples, notebooks, images, questionnaires, recorded audios or videos, models, software, reports, procedures, workflows, and many more. Formats can also vary: text files, software, websites, images, etc.
All information about the type and the format of the information needs to be described. In addition, data need to be complemented by proper metadata. Metadata describe the data, and are essential to recover and reuse research data. Moreover, there are metadata standards that allow the interoperability across systems. Metadata can be classified in 3 main types (10): descriptive, administrative, and structural:

- descriptive metadata serves to discovery and understand a resource, and refers for example to the title, author, publication date or abstract. The main standard for this is the Dublin Core Schema, which is a small set of vocabulary terms

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that can be used to describe resources (11);

- for librarians supporting data management the two main types of administrative metadata are related to intellectual property, and preservation metadata. The most adopted standard for these metadata is the PREMIS Data Dictionary and all its supporting documentation, which was developed by the Preservation Metadata Implementation Strategies (PREMIS) international working group, established by the Online Computer Library Center (OCLC) and Research Libraries Group (RLG) (12);
- structural metadata help to describe the relationship between the different parts of the resources; they are important for navigation, and an example can be the sequence or the place in the hierarchy (10).

Data Management Plans (DMPs) are documents or web forms describing the data management life cycle for the data to be collected, processed and/or generated by a project, and serve to make research data findable and re-usable (7). Research data management has to be considered in the context of the research data lifecycle, including identifying, cleaning, describing, storing and preserving or sharing data (13). Support for some of these stages can be offered by biomedical and other specialized libraries, especially in the development of metadata and data standards. Furthermore, data management plans for grant applications include the description of the data, the utility, information about how to make data findable – again, through the provision of metadata – and making them openly available via deposit in open repositories. All this DMP information could be better described if an information specialist is involved in the research process.

Preparing biomedical research data to be shared

Documentation and licenses

The metadata included in the DMP is necessary but not sufficient. In order to complete the picture and add the context to the research data we need to add some material that explains how data has been created, what they mean, how their structure is, and which alterations and manipulations have been done to clean and analyse the data. "Creating this comprehensive documentation is very important because it transfers knowledge about your data to other potential users enabling researchers to discover, understand, and properly cite your data. It provides the context to the data and ensures re-use and comprehension in the long term" (14).

There are different descriptive metadata standards, used to particular needs or disciplines (15, 16). By applying a metadata standard recognized by your discipline, you can help others discover, comprehend, and evaluate data across time and distance without having to access the data itself. However the choice of the right metadata standard is not easy and often it is imposed by the repository or data archive where we publish the data. Two standards are widely used: DDI and DataCite. In the biomedical field the Minimum Information for Biological and Biomedical Investigations becomes largely used.

A "readme" file could be added to give more information about a data file and help the data to be correctly interpreted. It is very useful for the author himself (it is always difficult to understand in the future the data and the code we have applied) or by other researchers when sharing or publishing data (17).

When the research data has a DMP, is well documented, has the files converted to an open format, anonymized and clean, then it is ready to be shared in a repository, after having chosen the right license for the data publication and reuse. For example you can use one of the less restrictive Creative Commons licenses like CC0, CC-BY, CC-BY-ND or CC-BY-SA. If you decide to publish your data or database as open data then one of the Open Data Commons Licences must be used, like the Public Domain Dedication and License (PDDL), the Attribution License (ODC-By) or the Open Database License (ODC-ODbL).

Types and formats

Because of their diversity and complexity of biomedical research (fundamental, preclinical, clinical, imagery, OMICS, laboratory, nursing, public health, etc.), it is difficult to make an exhaustive list of biomedical research data types and formats. Regarding the format of research data, the problem is intimately linked to their perpetuation, their transmission and their quality. It is therefore encouraged to use non-proprietary formats, which will not depend on a software or company, but which can be read as much as possible. As for quality, the question is important for data in the form of media files (sound, image and video), since it is not uncommon to sacrifice part of the quality, and therefore information due to compression, in order to reduce the weight of the file. Regarding this point, the choice is always a matter of compromise according to the needs and the capacities of the services.

Anonymisation

In order to be accessible and interoperable, research data must be cleaned, anonymised and published in a repository. In many cases, data produced by biomedical research relates to humans and is therefore subject to strict data protection rules and laws. In addition, in most Western countries health information of individuals is considered sensitive data and must therefore be particularly protected (18).

The sharing of patient data requires the agreement of the person concerned. This agreement can be translated into three levels of consent from the patient allowing the use of his or her personal data (19):

- broad consent: data might be shared after use;
- middle consent: participants were told that their data might be shared with people working in specific research areas related to the study;
- explicit consent: participants would be contacted for an opinion whenever there was a request for sharing.

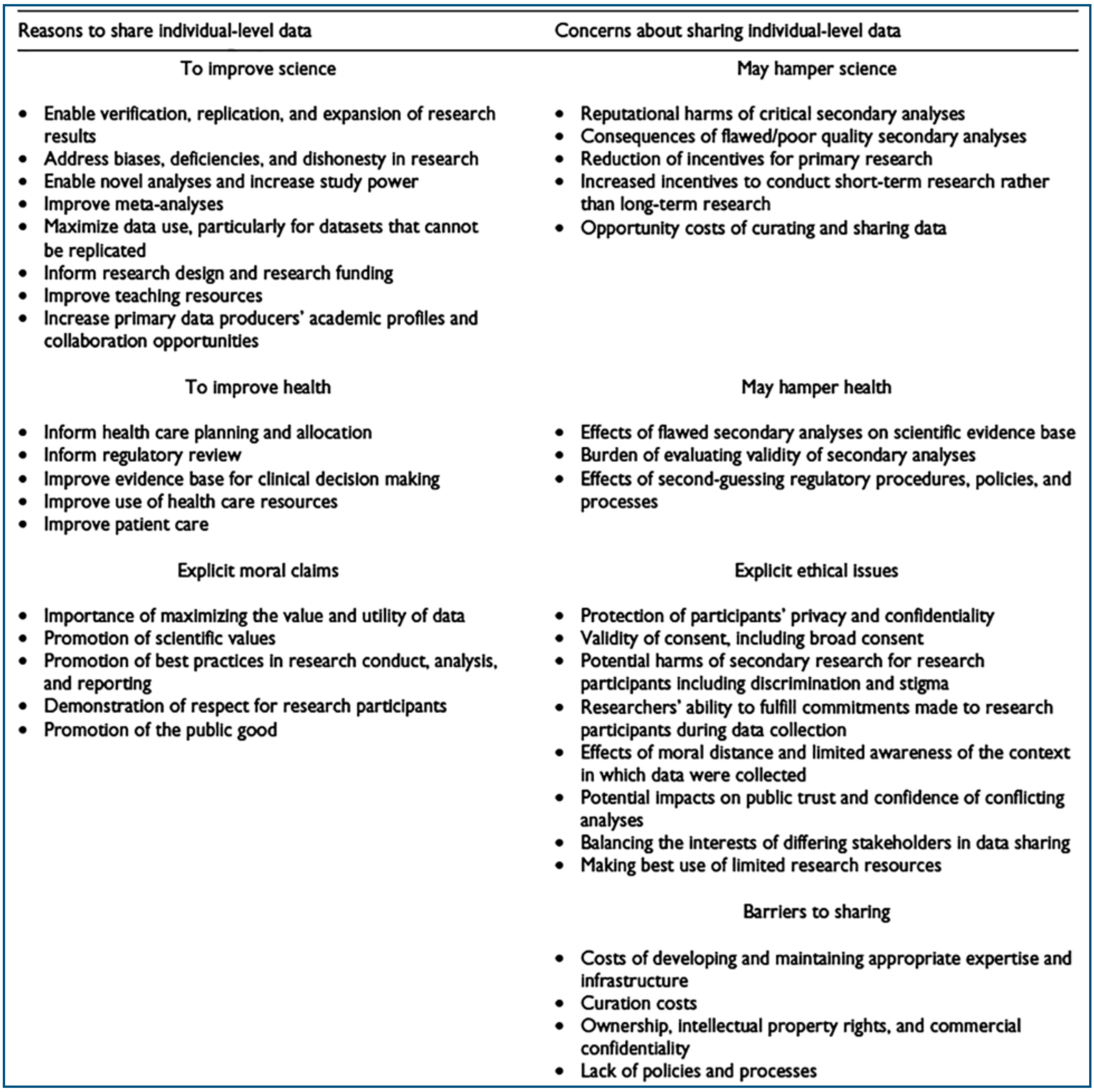
This characteristic of biomedical research remains the most important obstacle to data sharing, which can only be done on very strict rules governed by contracts between the research teams. However, anonymization and statistical disclosure control techniques have been developed from many years (20). Today, there is a software allowing to remove direct identifiers (names, email, date of birth, social security number, address, etc.) and recode indirect identifiers (information that can make it possible to identify the person by crossing the data with other public datasets, such as the dates of entry and discharge from hospital, dates of delivery, etc.) and other sensitive information in order to obtain a good balance between anonymization and loss of information (21-23). Thanks to a precise data analysis, cleaning and anonymization work, we can convert medical data that seemed impossible to share, into anonymous sets, shareable on a data repository publicly or on request (*Table 1*).

Choosing an appropriate repository

After the description and the preparation of the data, the next important step is the election of a trustworthy repository to archive and preserve the data, that may be general or limited to datasets. Of course, institutional repositories should be considered, but there are many other options that can be used to archive datasets as Zenodo, Figshare, Dryad or another data repository cited in the re3data.org registry.

Talking about Health Sciences, the must be underlined that some fields, as for Genomics or Proteomics, where data have their own structures and databases and have been storing open data for many years, particularly in the OMICS, public health or clinical trials. Some examples of very well established archives and knowledge databases are Genbank (the NIH genetic sequence database), Gene Ontology, Pfam (for protein families), UniProt (Universal Protein Resource), the European Nucleotide Archive (ENA), HealthData.gov, or the datasets included in the International Clinical Trials Registry Platform (ICTRP) of the WHO, among many others. Researchers working for instance in the fields of the OMICS are aware that sometimes there is even a requirement for some journals to store data regarding an article in the related archives. In addition, archiving datasets in specific subject repositories can improve the visibility of the research and increase the number of citations or downloads.

Health librarians should be able to recognise the most accurate repositories to give the best advice. In addition, information specialists should have some knowledge about the main certifications or audit tools for trustworthy repositories, as the Trustworthy Repositories Audit & Certification (TRAC), DRAMBORA (Digital Repository Audit Method based on risk assessment), the Nestor Catalogue of Criteria for Trusted Digital Repositories, the Data Seal of Approval, or the ISO 16363 Audit and Certification of Trustworthy Digital Repositories. This kind of certifications can assure the preservation and accessibility of data over time.



Reasons to share individual-level data	Concerns about sharing individual-level data
To improve science	May hamper science
• Enable verification, replication, and expansion of research results • Address biases, deficiencies, and dishonesty in research • Enable novel analyses and increase study power • Improve meta-analyses • Maximize data use, particularly for datasets that cannot be replicated • Inform research design and research funding • Improve teaching resources • Increase primary data producers' academic profiles and collaboration opportunities	• Reputational harms of critical secondary analyses • Consequences of flawed/poor quality secondary analyses • Reduction of incentives for primary research • Increased incentives to conduct short-term research rather than long-term research • Opportunity costs of curating and sharing data
To improve health	May hamper health
• Inform health care planning and allocation • Inform regulatory review • Improve evidence base for clinical decision making • Improve use of health care resources • Improve patient care	• Effects of flawed secondary analyses on scientific evidence base • Burden of evaluating validity of secondary analyses • Effects of second-guessing regulatory procedures, policies, and processes
Explicit moral claims	Explicit ethical issues
• Importance of maximizing the value and utility of data • Promotion of scientific values • Promotion of best practices in research conduct, analysis, and reporting • Demonstration of respect for research participants • Promotion of the public good	• Protection of participants' privacy and confidentiality • Validity of consent, including broad consent • Potential harms of secondary research for research participants including discrimination and stigma • Researchers' ability to fulfill commitments made to research participants during data collection • Effects of moral distance and limited awareness of the context in which data were collected • Potential impacts on public trust and confidence of conflicting analyses • Balancing the interests of differing stakeholders in data sharing • Making best use of limited research resources
	Barriers to sharing
	• Costs of developing and maintaining appropriate expertise and infrastructure • Curation costs • Ownership, intellectual property rights, and commercial confidentiality • Lack of policies and processes

Table 1. *Summarizing the benefits and concerns of biomedical data sharing (24).*

Conclusions

Research data has become the new "fuel" of science and the biomedical field is not an exception. Funder's or institutional mandates are one of the reasons to make data openly available, but more important is to make science transparent and reproducible. A good description of the data and the setting up of good metadata is essential to recover information in databases, and information specialists can help on their descriptions as they are aware of describing and organizing information.

Besides the different nature and formats of research data, there are also some particularities in some Health Sciences fields that should be underlined, as the importance of confidentiality or the existence of subject specific repositories, that health librarians should recognize to help researchers make the most of their data.

Biomedical librarians have to invest this new field and work on a good collaboration and integration in the research process from the beginning, to ensure that the data are compliant with the FAIR principles: findable, accessible, interoperable and re-usable. Finally, datasets should be considered as research output in addition to research publications, following some of the responsible metrics recommendations by the San Francisco Declaration on Research Assessment (DORA) or the Leiden Manifesto (25).

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Project MILDRED: Charting ground for research data management services at the University of Helsinki

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Abstract

This paper describes a topical case study conducted during summer 2016 in Project MILDRED, University of Helsinki. An inventory of 250 peer-reviewed, University of Helsinki authored scientific journal articles published between 2015 and 2016 were analyzed. The inventory formed the basis for a research data repository e-survey sent to researchers.

Key words: research data repositories; research services.

Introduction

This paper describes a topical case study conducted at the University of Helsinki. Current states of research data management (RDM) practices within the academic community have been under close scrutiny during summer 2016 in Project MILDRED, Development Project of Research Data Infrastructure at University of Helsinki (UH). The two-year project started in 2016 and aims to answer to the growing need for state-of-the-art research data infrastructure and data related services for the UH research staff. Collaboration with researchers and user groups are considered pivotal throughout the project. As a result, tools and services for following the best practices in data management as well as capacity for data storage, handling and preservation will be implemented. The project is at the core of the research data policy at the UH, formulated in 2015. Thus the project takes part in the Finnish universities' common aim of unifying RDM practice and providing consistent support in data management planning.

Aim

The broad picture of the researchers' current research data depositing and preserving practices has recently been and continues to be widely scrutinized around the research library field. Libraries need to identify new roles and frame new practices to support RDM workflows (1). In order to gain new knowledge in the UH context, the project undertook a three-stage charting of the situation.

Research data are one of the most valuable research results. Therefore, information of their location benefits both researchers and the university branding. Moreover, information about repositories commonly used within a given university may help researchers in choosing suitable repository for their data.

One of the main hypotheses of the research was: if the data repositories used by university researchers can be identified, data sets related to university can be found. Then the metadata of the data can be harvested to the university's own data repository (implemented later in the project).

Methods

An inventory of 250 peer-reviewed, UH-authored scientific journal articles published between 2015 and 2016 were analyzed. The inventory revealed a selection of data repositories representing different domains that house UH data, as well as a variety of the authors' RDM statements. The sample consisted of mainly *PLOS* journals which require public RDM statements from the authors. The sample covered

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both data type specific repositories such as Sequence Read Archive and general-purpose ones such as Dryad. Almost 45% of the statements informed that all relevant data had been embedded in the paper and its supporting files. 23% of the statements assured that all relevant data had been made publicly open and accessible. To compare, all data was stated restricted access in 5% of the cases.
The inventory formed the basis for a research data repository e-survey sent to UH researchers in July 2016. The survey gathered 258 answers, providing a corpus of information about 1) what existing repositories are used; 2) what domains the repositories cover; 3) what kind of data types the repositories support; 4) reasons for why data has not been deposited; and 5) what kind of alternative storage and preservation services and devices are being utilized. For the analysis, the results were divided in three fields: life sciences, natural sciences, and humanities and social sciences.

Results

According to the survey results, the respondents' lack of specific knowledge about data depositing possibilities is the main reason for not making use of repositories (28% of the respondents stated this). Data sensitivity, irrelevance with respect to research field, small amounts of generated data and general lack of need to deposit were the next most common explanations. 11% of the respondents explicitly named sensitivity issues, another 11% general irrelevance. Need for guidance was also called for in some answers.

Of the respondents whose data was not in a repository, 68% used personal computer, 59% external hard drives, 54% the UH network hard drive, 49% USB device, and 37% commercial cloud services such as Dropbox or SugarSync.
As a result of the inventory and the survey together, a listing of 48 repositories was created. As databases in the registry Re3data provide API features to promote data system interoperability, information about e.g. data types, data access type, data licenses, software citation guidelines, quality management and metadata standards for UH data could be harvested. Repository specific metadata and access to it were here the focus of interest.

This final stage of the research revealed that most of the repositories housing UH data are mainly data type specific, with only 19% of the sample featuring organization as a specific metadata field. Repositories where organization could be identified included e.g. Gene Expression Omnibus, Inspire-HEP, NCBI Database of Genotypes and Phenotypes, and Zenodo (*Table 1*).

Repository	Openness of database	API	Persistent identifier system(s)
Database of Genomes and Phenomes (dbGaP)	open/restricted/ embargoed	yes (FTP)	-
GitHub	open/restricted	yes (other)	-
Global Biodiversity Information Facility	open	yes (REST)	-
Inspire-HEP	open	yes (OAI-PMH)	ARK, DOI, ORCID
Language bank of Finland	open/restricted	yes (OAI-PMH)	other
MG-RAST (Metagenomics analysis server)	open	yes (REST/FTP)	-
Finnish Social Science Data Archive	open/restricted	no	other
Zenodo	open/restricted	yes (OAI-PMH /REST)	DOI, ORCID

Table 1. *Repositories of the sample featuring organization as a specific metadata field.*

Exploring through various data repositories increased our understanding about the phenomena around authorship and affiliation in the data context. There are many kinds of contributors, e.g. data creator, rights holder, collector, curator, manager, analyst, submitter, contact, distributor, and many more. Data authors are rare. Affiliation equal with journal articles or books is therefore difficult or impossible to define accurately.
Anonymized version of the MILDRED survey data is shared in Figshare (2).

Conclusions

To sum up, there now exists a preliminary map of repositories storing and/or preserving UH research data as well as new knowledge about individual researchers' depositing needs, preferences and concerns. Growing knowledge about RDM practices and preferences helps orientate towards new possibilities of promoting the principles of producing and curating Findable, Accessible, Interoperable and Re-usable (FAIR) research data in an institutional setting.

There clearly is a need for training and marketing of good data management practices, university services and data repositories available. For instance, we need to make sure that data is anonymized or encrypted before storing it on external hard drives, USB devices or Dropbox, especially in the medical field. Data repositories were not very widely used among respondents, not even in the medical field.

Finding or choosing the best repository for the data is not a quite simple task (3). Raising awareness of simple tools developed to help researchers might be beneficial (like those developed by OpenAire or Whyte, A) (4, 5).

One of the main hypotheses had been that identifying the data repositories used by university researchers would lead to finding the data sets related to university. After the project, we now know better. Affiliation has a tiny role in domain specific data repositories. Traditionally, publication has been seen as the way to get the credit for research, not the data. Data repositories are built to serve research, not to help compare the greatness of research originations. Maybe that is why FAIR principles do not include accreditation.

Institutional repositories containing metadata of data are still important when we want to increase the visibility of research and researchers. There is no point in trying to collect information about all data sets produced or used in an organization. There is no way to calculate the amount of data or data sets, but there is certainly a qualitative value of collecting data somehow related to the university.

When the whole concept of contribution is unclear in this context, we can concentrate on thinking about the quality instead of the volume. How can we optimize the impact of data sets and the metadata we will collect into the institutional data repositories we will create? How can we give tools for visualizing or how nicely can we bring forth the most topical dataset for journalist to utilize? These are the questions we will concentrate on in the future.

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Veterinary Evidence: bringing knowledge to the veterinary profession and setting up an open access journal

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Abstract
Veterinary Evidence *is an open access online journal, published by RCVS Knowledge the charity partner of the Royal College of Veterinary Surgeons. This paper describes the development of* Veterinary Evidence *from its beginnings to the present day.*

Key words: open access; journal; veterinary, RVCS Knowledge; *Veterinary Evidence*.

Introduction

In July 2013 RCVS Knowledge, the charity partner of the Royal College of Veterinary Surgeons (RCVS), announced a refocused mission of supporting the growing evidence-based veterinary medicine (EBVM) movement across the globe; this new direction came following a period of consultation, and on the back of a successful symposium on EBVM held at the end of 2012.

Soon after the relaunch it was agreed that one of the main outputs of RCVS Knowledge's work to support the profession, and help improve the quality of veterinary care, would be the publishing of critically appraised topics to fill known evidence gaps. Known as Knowledge Summaries, these critically appraised topics would bring together high quality synthesised evidence from the veterinary literature and help vets and vet nurses make better, and quicker, evidence-based decisions.

After a period of discussion with stakeholders, and thanks to generous initial funding from the RCVS, it was agreed that these Knowledge Summaries would form the core element of a new open access online journal, *Veterinary Evidence* (www.veterinaryevidence.org), which would also be a platform for a wide range of veterinary topics from economics to clinical practice and teaching, EBVM tools and other practise-essential knowledge.

Veterinary Evidence: the first steps

In setting up *Veterinary Evidence* there were three initial issues to address: the staffing needed, the online platform that we would use, and content for the first issue.

Staffing

In order to make *Veterinary Evidence* a reality, the following key staffing needs were identified: an Editor-in-Chief who could act as an advocate for EBVM and *Veterinary Evidence* and who could network with the veterinary community, a Managing Editor who would manage the entire publication process from commissioning through to publication, and someone with extensive digital experience who would make an all-in-one innovative and easily accessible submission system and online platform.

Key to the development of *Veterinary Evidence* was an Editorial Board who would work alongside the editorial office to peer-review and commission content for the journal.

Choosing the online platform

We wanted to offer authors, reviewers and readers a platform which made every aspect of the publication process and access to content as simple as possible, but at the same time an online resource that was engaging and innovative in its interactive way of

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connecting people within the veterinary community. We found a lot of our needs were met by the open source software Open Journal System (OJS) which allowed us to build upon a tried and tested framework, while adding our own bespoke functionality and branding during the initial phase of *Veterinary Evidence*.

Commissioning content

In looking for content for the first issue we were fortunate in that we could look to the existing RCVS Knowledge EBVM Network to author papers – as a result we were able to launch with a mix of Knowledge Summaries, articles, podcasts and commentaries that provided authoritative and up-to-date information to the profession. The inclusion of both written and audio material meant that we were able to offer resources that would suit a range of learning styles.

The technicalities

In order to start publishing accepted content we needed to register *Veterinary Evidence* with CrossRef, the registration organisation for DOIs (Digital Object Identifiers). This would give each paper a unique DOI number, which would provide a persistent link to its online location.

We then needed to assign an ISSN (International Standard Serial Number) to our publication. ISSNs are used to identify all continuing resources, irrespective of whether the publication is in print or electronic.

Having set these up we were then able to start publishing content.

The publication model

Veterinary Evidence uses a continuous publication model with a new issue opening every quarter (March, June, September and December) with content published directly into the current issue. Instead of page numbers each paper has an article ID that is related to its DOI number – making everything citable upon publication. Continuous publication was chosen as it means authors don't have to wait for the next available issue in order to get their work published and it enables content to be available to the veterinary community quickly; allowing readers to download, share and put their findings into practice.

Open Access

Veterinary Evidence content is published under the CC-BY 4.0 licence which allows others to copy and redistribute the material in any medium or format and to remix, transform, and build upon the material for any lawful purpose, even commercially without asking prior permission from the publisher or the author as long as the content is credited appropriately. We chose this licence as it is the most liberal; it therefore gives the veterinary profession the greatest freedom to make use of our material.

There are currently no submission fees or article processing charges (APCs) meaning it is completely free to submit, publish and read *Veterinary Evidence*. This is otherwise known as diamond open access. The decision not to charge APCs was taken to encourage the widest possible range of authors and therefore to grow the wider evidence base.

To ensure material on *Veterinary Evidence* is preserved in perpetuity the content is archived on Portico, a digital preservation archiving service.

Peer review and editorial process

All manuscripts submitted to Veterinary Evidence undergo an open peer-review process with the names of the reviewers published alongside the article.

All accepted submissions are then edited by our in-house editors to ensure that language is clear and precise, to apply house style and to adjust article length where necessary. The proofs are then sent to the authors to resolve any queries and for the inclusion of their edits.

Authors must adhere to published reporting guidelines when structuring their manuscripts.

Since launch

Veterinary Evidence launched in February 2016 and since that time has published 5 issues with the sixth currently open. Since then 24 Knowledge Summaries, 14 articles, 5 commentaries and 28 podcasts have been published. The journal has engaged with an international audience spanning 25+ countries, the papers have been downloaded over 50,000 times, and the podcasts listened to over 3,500 times. Readership and submissions continue to grow with visitors currently increasing by 13% month on month.

Future developments

As with any new venture the journal has posed some challenges: encouraging submissions and recruiting peer-reviewers are the major hurdles we are working to overcome. Reputation plays a big part in this, which is why we are working to get *Veterinary Evidence* indexed in certain databases such as Cab Abstracts and PubMed, and for it to be listed in the Directory of Open Access Journals.

We are also in the process of creating a brand new innovative platform which will incorporate audio summaries of content, CPD e-learning courses as well as providing an area for the veterinary community to network, discuss and share ideas. Developing ways to measure the impact of *Veterinary Evidence* on the profession and the use of Knowledge Summaries in practice will also be a key part of measuring its success. A screenshot of the homepage of the journal is shown in *Figure 1*.

Veterinary Evidence welcomes submissions on topics that may help a clinician in practice. Paper types considered are: Knowledge Summaries, research articles, commentaries, clinical audit, systematic reviews, systematic reviews protocols, case studies and teaching articles. The submission process is outlined on our website, for any queries please contact the Managing Editor, Bridget Sheppard bridget@veterinaryevidence.org.

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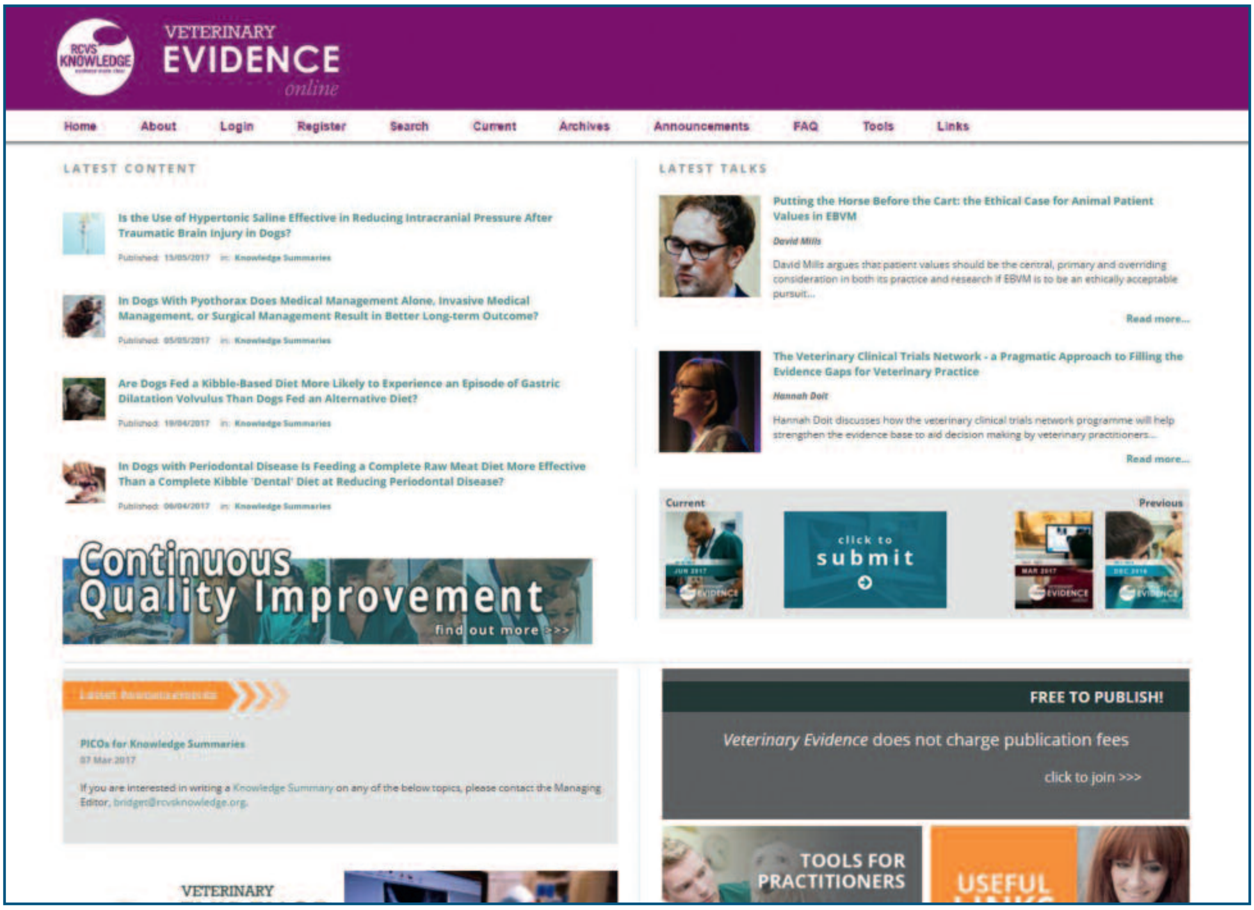

Is the Use of Hypertonic Saline Effective in Reducing Intracranial Pressure After Traumatic Brain Injury in Dogs?
Published: 15/05/2017 in: Knowledge Summaries

In Dogs With Pyothorax Does Medical Management Alone, Invasive Medical Management, or Surgical Management Result in Better Long-term Outcome?
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Are Dogs Fed a Kibble-Based Diet More Likely to Experience an Episode of Gastric Dilatation Volvulus Than Dogs Fed an Alternative Diet?
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Fig. 1. *Homepage of Veterinary Evidence.*

FEATURE ARTICLES

Social media use in medical education: current perceptions and future potential

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Rural Clinical School, Faculty of Medicine, The University of Queensland,
Toowoomba, Australia

A practical method for systematic searching of literature in medical libraries

Maurizio Grilli
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Social media use in medical education: current perceptions and future potential

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Abstract
Introduction. *The increasing use of social media in medical education makes it important to understand how educators and students use social media and perceive its benefits.* ***Methods.*** *A prospective, multi-site, survey of medical students and educators was conducted. A 16-item questionnaire was evaluated, including multiple item options and open-ended questions.* ***Results.*** *867 students from 23 medical schools and 197 staff from 16 participating institutions across the globe took part in this study. Facebook was the most used social media site, with 87% students using it for browsing. The majority of staff (57.0%) used this site largely for social interaction (67.3%). With regards to medical studies, students mostly use Facebook to communicate with peers (81.0%). 40.9% of students thought that social media can be used for discussion or sharing of information, however 6.1% thought that confidentiality issues and sharing inappropriate information is of concern. Respondents saw potential, but had confidentiality and misinformation concerns.* ***Conclusion.*** *Understanding the perceptions of medical schools' use of social media is essential for both educators and students who wish to embrace its benefits in the current technology enhanced teaching environment.*

Key words: social media; medical education.

Introduction

Australians have some of the highest social media usage in the world (1) and continue to embrace technology for various purposes. The use of social media has become a part of our daily routine – 24% of Australians access a form of social media more than five times a day (2). Using social media platforms like Facebook™, Twitter™, and Instagram™, has transformed the way we communicate and share knowledge amongst ourselves. The University of Queensland (UQ), Faculty of Medicine, Rural Clinical School participated in a large-scale, international, multi-cohort study (3) that evaluated the use and influence of social media by medical students and teaching staff. The study conducted by Bryne-Davis *et al.* (3) aimed to identify patterns of use of social media for both medical school staff and students, perceptions of the potential uses of social media, and the effectiveness of social media for medical education. Using the methodologies of Byrne-Davis *et al.* (3), the outcomes specifically for participating Australian universities are explored in this study.

The medical profession has been no exception in witnessing the rise of the integration of social media (4) within institutions. Many medical teaching and learning institutions have adopted the use of social media tools for various purposes (4, 5), including its use for communication (6), instruction (7), and assessment (8). Numerous studies have investigated how implementing the use of social media can potentially benefit, and have great advantage for medical professionals (4, 9, 10). With an increase in social media usage for professional reasons, the possibility of un-professionalism can also be of concern (11, 12).

A recent systematic review reported an increase in academic performance, improved professional attitudes, better learning engagement, and greater collaboration between students and medical professionals, with the use of social media tools (5). Despite the increase in the use of social media and associations with its potential benefits, it is still not clear what Australian medical schools, need or expect to achieve, with their use of social media for medical education. Understanding how, and for what

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purposes Australian medical schools use social media is the first step in determining how to maximise the use of social media to maximise positive and minimise negative outcomes of its use. By gaining this information a better understanding on how social media can be integrated into medical education can be attained.

Methods

Participants

Participants were medical students, in any year of study, as well as academic and professional staff members, from participating medical schools across Australia.

Study design

All medical schools that took part in this international study utilised the study design developed by researchers at the University of Manchester (3). Questionnaires were developed to evaluate the current use of social media, perceptions of potential uses of social media, perceptions of usefulness of social media, and comparisons between traditional methods of communication and social media. The 16-item questionnaire was developed based on existing literature reviews (3). Questions were validated with a small sample of United Kingdom medical school students before wide-scale implementation with the participating medical schools. Questions focused on multiple item options or were open-ended questions. Three main themes of data were collected as part of the questionnaire: 1) participant demographics; 2) everyday use of social media; 3) learning with social media (3). Participants were recruited through the use of various learning interfaces, such as the UQ BlackBoard – an informative platform for students, with information about the study and a link to the anonymous online survey. Academic staff members were invited to complete the survey through email correspondence. Participants provided informed consent before undertaking the survey, and had to be above 18 years of age to participate.

Analyses

Quantitative analyses of data was summarised using descriptive statistics and presented as percentages. Statistical significance tests (T-tests and ANOVA) were performed based on the data. Qualitative open-ended questions were analysed using thematic analysis (13, 14) to look for specific themes, perceptions, and barriers or facilitators to the use of social media.

Ethical clearances

Ethical clearances were obtained by The University Of Manchester Ethics Of Research on Human Beings Committee, United Kingdom (Ref. No. 14100) and The University of Queensland Behavioural and Social Sciences Ethical Review Committee (Approval No.: 2014001170).

Results

From the 23 participating medical schools, and after removing incomplete or incorrect data, a total of 867 students participated in the student survey. From UQ, all 1983 students, in 2013, from Yrs. 1-4, were invited to participate in the study. Similarly an estimated 434 current teaching focused staff (includes Clinical, Academic, and Administrative and eLearning staff) were invited to take part in this study. Overall, 3.7% of students and 6.3% of staff responded. Demographic characteristics for both student and staff respondents is described in *Table 1*. There was no significant differences for age (P=0.02, CI: 0.19-2.51) or gender (P=0.49, CI: 0.07-0.80) between UQ and non-UQ universities. Other Australian and international universities had a significant difference for age (P <0.00, CI: 0.55-1.56) but not for gender (P=0.82, CI: 0.06-0.08); and international and UQ had a significant difference for age (P<0.00, CI: 1.62-3.19), but not for gender (P=0.56, CI: 0.16-0.85).

Student responses

Specific reasons for how various social media sites are used by students and the frequencies of its usages are described in *Table 2*. *Table 3* highlights the frequencies of different social media platforms used by students. Reasons for social media site uses based on the Universities surveyed are further highlighted in *Table 4*.

Overall, 63.2% of students believe social media has a place on the medical curriculum, including 60.8% of UQ students. From other questions asked in the survey, 34.3% of students indicated that their medical school had an official social media account, whereas the majority were unsure (40.5%). UQ

Student participants	The University of Queensland (n=74)	Other Australian Universities (n=342)	International Universities (n=451)
Age (Mean (SD))	24.49 (5.08)	22.08 (2.74)	23.13 (4.48)
Age group - Freq (%)			
18-25	49 (66.2)	413 (92.0)	288 (84.2)
26-35	23 (31.1)	35 (7.8)	46 (13.5)
36-45	1 (1.4)	1 (0.2)	5 (1.5)
45+	1 (1.4)	0 (0)	3 (0.9)
Gender - Freq (%)			
Male	32 (43.2)	179 (39.7)	133 (38.9)
Female	42 (56.8)	272 (60.3)	209 (61.1)
Faculty of Medicine Yr - Freq (%)			
Yr 1	32 (43.2)	55 (12.2)	57 (16.7)
Yr 2	20 (27.0)	94 (20.8)	59 (17.3)
Yr 3	9 (12.2)	120 (26.6)	95 (27.8)
Yr 4	12 (16.2)	93 (20.6)	62 (18.1)
Yr 5	0 (0.0)	50 (11.1)	35 (10.2)
Yr 6	0 (0.0)	29 (6.4)	34 (9.9)
Yr 7	0 (0.0)	5 (1.1)	0 (0.0)
Graduate level - Freq (%)			
Undergraduate	22 (29.7)	424 (94.0)	232 (67.8)
Postgraduate	52 (70.3)	27 (6.0)	110 (32.2)
Staff participants	The University of Queensland (n = 27)	Other Australian Universities (n = 31)	International Universities (n = 139)
Age (Mean (SD))	44.59 (12.57)	49.52 (51.00)	46.26 (45.00)
Age group - Freq (%)			
18-25	1 (3.7)	1 (3.2)	2 (1.4)
26-35	7 (25.9)	3 (9.7)	8 (5.8)
36-45	6 (22.2)	5 (16.1)	62 (44.6)
45+	13 (48.1)	22 (71.0)	65 (46.8)
Staff position - Freq (%)			
Academic/research	15 (55.6)	15 (48.4)	45 (32.4)
Clinical/professional	2 (7.4)	3 (9.7)	91 (65.5)
Teaching/education	0 (0.0)	2 (6.5)	1 (0.7)
Academic/clinical	1 (3.7)	2 (6.5)	1 (0.7)
Administrative	9 (33.3)	9 (29.0)	1 (0.7)
Social media role - Freq (%)			
eLearning	1 (3.7)	4 (12.9)	6 (4.3)
Information updates	0 (0.0)	2 (6.5)	4 (2.9)
No role	26 (96.3)	25 (80.6)	129 (92.8)

Table 1. *Participant demographics (no gender data collected for staff participants).*

	Reason for use (%)							
Social media site	Information seeking	Information sharing	Social interaction	Entertainment	Relaxation	Comment/ discussion	Following posts from friends/ contacts	Networking & career advancement
Facebook (n=823)	591 (71.8)	493 (59.9)	674 (81.9)	637 (77.4)	470 (57.1)	379 (46.1)	584 (71.0)	163 (19.8)
Twitter (n= 419)	296 (70.6)	250 (59.7)	359 (85.7)	327 (78.0)	237 (56.6)	193 (46.1)	302 (72.1)	77 (18.4)
LinkedIn (n=76)	54 (71.1)	46 (60.5)	58 (76.3)	56 (73.7)	45 (59.2)	37 (48.7)	57 (75.0)	15 (19.7)
Tumblr (n=151)	116 (76.8)	93 (61.6)	120 (79.5)	128 (84.8)	89 (58.9)	68 (45.0)	112 (74.2)	36 (23.8)
Google+ (n=57)	44 (77.2)	33 (57.9)	51 (89.5)	47 (82.5)	39 (68.4)	35 (61.4)	42 (73.7)	13 (22.8)
Instagram (n=554)	396 (71.5)	332 (59.9)	464 (83.8)	426 (76.9)	312 (56.3)	257 (46.4)	413 (74.5)	99 (17.9)
Pinterest (n=135)	98 (72.6)	82 (60.7)	116 (85.9)	105 (77.8)	73 (54.1)	58 (43.0)	99 (73.3)	20 (14.8)
YouTube (n=664)	467 (70.3)	388 (58.4)	534 (80.4)	509 (76.7)	383 (57.7)	299 (45.0)	461 (69.4)	121 (18.2)

Table 2. *Student's reasons for use of social media.*

	Facebook	Twitter	LinkedIn	Tumblr	Google +	Instagram	Pinterest	YouTube
University of Queensland (n=74)	33 (44.6)	27 (36.5)	3 (4.1)	0 (0.0)	0 (0.0)	7 (9.5)	0 (0.0)	8 (10.8)
Other Australian Universities (n=342)	154 (45.0)	115 (33.6)	13 (3.8)	2 (0.6)	3 (0.9)	21 (6.1)	0 (0.0)	36 (10.5)
International Universities (n= 451)	221 (49.0)	166 (36.8)	8 (1.8)	0 (0.0)	4 (0.9)	30 (6.7)	0 (0.0)	50 (11.1)

Table 3. *Social media platforms used by medical schools (Freq (%)).*

	Communicate with peers	Communicate with lecturers	Discussion	Seek information	Share information	Feedback to school	Reflect on events	Networking & career advancement	Do not use for studies
University of Queensland (n=74)	62 (83.8)	4 (5.4)	39 (52.7)	41 (55.4)	39 (52.7)	3 (4.1)	4 (5.4)	15 (20.3)	10 (13.5)
Other Australian Universities (n=342)	277 (81.0)	27 (7.9)	222 (64.9)	188 (55.0)	144 (42.1)	19 (5.6)	12 (3.5)	68 (19.9)	47 (13.7)
International Universities (n=451)	363 (80.5)	18 (4.0)	288 (63.9)	254 (56.3)	177 (39.2)	17 (3.8)	19 (4.2)	79 (17.5)	69 (15.3)

Table 4. *Medical studies and the use of Facebook (Freq (%)) .*

medical schools used Facebook (44.6%) and Twitter (36.5%) the most frequently, and similar trends were seen for other Australian (45.0 and 33.6%) and International universities (49.0 and 36.8% respectively). A majority of students (74.3%) did not reply to posts from their medical schools on social media, including 70.3% of UQ students.

Qualitative analysis for the reasons why students believe social media does or does not have a place in the medical curriculum indicated that 40.9% of students think that social media can be used for discussion or sharing of information. Nevertheless, 6.1% also indicated that even though social media can be used for sharing useful information, confidentially issues and sharing inappropriate information is of concern. Students indicated that social media platforms can be used for interactive learning and curriculum revision (4.5%), however this may be a distraction from traditional teaching methods; 3.0% of respondents indicated that social media has no place in the medical curriculum. Other responses indicated that medical schools should keep up with current trends in social media, however there were also concerns that not everyone knows how to, or is willing, to use social media for medical studies. Students indicated that social media posts are often not taken seriously and this may hinder its use as an effective learning and teaching tool.

Staff responses

The reasons for using various social media platforms by all participating staff respondents is detailed in *Table 5*. The Use of social media platforms according to the participating institutions is explained in *Table 6*. Descriptive questions included in the survey also questioned staff respondents about the target audience for the institutions social media accounts. Participation rate levels are explained in *Table 7*.

	Reason for use (%)							
Social media site	Information seeking	Information sharing	Social interaction	Entertainment	Relaxation	Comment/ discussion	Following posts from friends/	Networking & career advancement
Facebook (n=113)	72 (63.7)	71 (62.8)	76 (67.3)	54 (47.8)	32 (28.3)	40 (35.4)	71 (62.8)	33 (29.2)
Twitter (n=68)	67 (77.9)	64 (74.4)	64 (74.4)	44 (51.2)	25 (29.1)	32 (37.2)	59 (68.6)	31 (36.0)
LinkedIn (n=81)	49 (60.5)	46 (56.8)	47 (58.0)	34 (42.0)	17 (21.0)	30 (37.0)	45 (55.6)	40 (49.4)
Tumblr (n=4)	3 (75.0)	4 (100.0)	4 (100.0)	4 (100.0)	1 (25.0)	1 (25.0)	3 (75.0)	2 (50.0)
Google+ (n=46)	34 (73.9)	34 (73.9)	32 (69.6)	23 (50.0)	12 (26.1)	16 (34.8)	28 (60.9)	18 (39.1)
Instagram (n=56)	42 (75.0)	35 (62.5)	43 (76.8)	33 (58.9)	13 (23.2)	17 (30.4)	37 (66.1)	21 (37.5)
Pinterest (n=17)	15 (88.2)	13 (76.5)	13 (76.5)	14 (82.4)	5 (29.4)	7 (41.2)	16 (94.1)	9 (52.9)
YouTube (n=44)	35 (79.5)	31 (70.5)	33 (75.0)	26 (59.1)	17 (38.6)	19 (43.2)	32 (72.7)	19 (43.2)

Table 5. *Social media platforms used by staff respondents.*

	Information seeking	Information sharing	Social interaction	Entertainment	Relaxation	Discussion/ comment	Follow friends/family	Networking & career advancement
University of Queensland (n=27)	15 (55.6)	16 (59.3)	15 (55.6)	13 (48.1)	7 (25.9)	8 (29.6)	16 (59.3)	9 (33.3)
Other Australian Universities (n=31)	10 (32.3)	16 (51.6)	13 (41.9)	8 (25.8)	5 (16.1)	5 (16.1)	16 (51.6)	11 (35.5)
International Universities (n=139)	80 (57.6)	62 (44.6)	67 (48.2)	51 (36.7)	27 (19.4)	33 (23.7)	60 (43.2)	36 (25.9)

Table 6. *Use of social media platforms according to the participating institutions (Freq (%)).*

	Average	Excellent	Good	Poor	Unsure	Very poor
University of Queensland (n=27)	4 (14.8)	1 (3.7)	1 (3.7)	1 (3.7)	12 (44.4)	1 (3.7)
Other Australian Universities (n=31)	3 (9.7)	1 (3.2)	3 (9.7)	2 (6.5)	17 (54.8)	0 (0.0)
International Universities (n=139)	23 (16.5)	1 (0.7)	18 (12.9)	4 (2.9)	63 (45.3)	2 (1.4)

Table 7. *Level of participation rates from target audience to the institutions activities on social media (Freq (%))* .

Qualitative analyses revealed that the reasons for these participation rate levels was due to being too busy, and social media being not interesting or interactive enough. Staff indicated institutional social media accounts were mostly used for information updates or as a communication method, as well as to attract new students. A small portion of staff specified the use of institutional social media accounts for discussion, to maintain a social presence, for teaching purposes, and also because it was currently necessary for the digital age ("everyone else was doing it"). Some staff members also expressed that their institutions were not involved with social media, and that the institutions had no reason to have any social media accounts. A total of 25.9% of UQ staff noted that their institution intended to continue to use social media in the future, most however (59.3%) were unsure. When respondents were questioned about how their institution intended to expand on its use of social media, most staff respondents indicated that it would be for communication and providing up-to-date information. Some staff elaborated on how the use of eLearning/flipped classroom approaches, blogs, updating policies, as well as providing more financial contributions towards social media use, could improve expansion of social media usage within their institutions.

Discussion

The use of social media sites among both staff and students within all participating universities is similar. Even though most sites were used largely for social interaction and entertainment, responders also specified that social media can be "a particularly useful source for both networking and discussing learning points or clinical experiences with other medical students". A majority of students were unsure if their medical school had an official social media account, but specified that "It is a very easy way to communicate with our peers about work and an easy, and quick way for the medical school to reach us" and therefore should be integrated within the medical school in future.

Medical educators are also still not convinced of the importance and role of social media sites as part of medical education, even though evidence shows improved learning from the integration of social media within medical education (15). Though uncertain responses from staff on levels and reasons of participation on social media sites were described, the advantageous integration of social media for teaching and learning purposes was highlighted throughout the staff responses. Staff presented its potential benefits, where social media platforms have "moved on from revision videos to an eLearning format and flipping the classroom; the eventual plan would be to have a whole series of videos around pre-learning, learning through short lectures, and revision for [OSCEs] examinations". On the other hand, some staff respondents were reluctant to move away from traditional teaching methods due to issues such as confidentiality and inappropriate information sharing, however this may be due to a lack of knowhow. Flynn, Jalali *et al.* (2015) "recommend formal faculty development around learning theory" would provide the necessary credence/credibility for its scholarly value in teaching.

Despite the worldwide increase of the use of social media for medical education, its usefulness for enhancing medical education learning and teaching, remains poorly understood. If steps to educate students and staff to embrace the use of social media, are not undertaken, and social media is left as an unstructured entity, it may end up causing a negative impact on medical learning (16). More importantly, educators need to learn and lead effective ways to implement social media tools in student learning. Educators have piloted the use of social media through integration of its use in the medical curriculum (17) and have shown that social media can enhance learning, problem solving, networking and partnership (18). The use of social media in medical education also maps well to concepts of connectivism (19), social development theory and community of practice (15). When we explore the use of social media, these learning theories provide credence for our scholarly educators. After ensuring that effective policies and training are present (20), the use of social media can significantly benefit both educators and students of medical education.

Conclusion

The use of social media in medical education is integral for educators who wish to embrace its benefits in the current technology enhanced teaching environment. With the use of current technology and interactive digital platforms, social media sites promote discussion, interactions and increased sharing of information between both individuals and communities (21). Its use promotes pervasive and profound communication methods, further encouraging medical educators and administrators to incorporate the use of social media technology in various instructional and teaching or learning strategies. As a result, social media tools foster learning and improved medical student learning styles, as well as connecting them with medical experts, enhancing collaborations and increasing creativity (21).

Although educators and students still hold reservations regarding ethical responsibilities with the use of social media tools, medical schools need to step up and provide appropriate policies and procedures for their institutions. Developing such policies will help educators and students' awareness of appropriate behaviours, and guide them through their use of social media sites for medical education, while also encouraging the necessity to maintain essential codes of conduct on social media sites (21). These findings may lead to opportunities for successful integration of social media to the benefit of all those involved in medical education. The future success of our students relies on educators/medical schools equipping them with the skills to learn in a digital and social world.

Declaration of interests

The authors declare that they have no competing interests.

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A practical method for systematic searching of literature in medical libraries[*]

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Abstract
Systematic searching in libraries occurs parallel to many other tasks. This article aims to propose a standardized procedure to conduct the search in relatively short time.

Key words: systematic literature searching; search strategy; search report.

Introduction

The *Cochrane Handbook for Systematic Reviews of Interventions* (1) is the generally accepted guideline for the systematic literature research in the field of medicine. The handbook recommends that you collaborate with the specialized librarians when making systematic literature overviews. Specialized medical librarians have the competence to plan and carry out searches. Their core activity is the support of research in the context of theses and dissertations, but they almost never have the time to carry out systematic literature searches entirely according to the rules of the Cochrane Collaboration.

In this regard, Campbell (2) proposes some secondary solutions, such as at least partial job exemption for librarians engaged in searches from the obligation to provide information services, a more complete definition of search on the part of the applicants, or further training for the applicants on the part of the librarians.

This article rather proposes a practical structured method to simultaneously execute the following steps of systematic searching and thereby to save time in normal working hours:

- creation of a search protocol for internal administration;
- preparation of a search protocol for the applicant;
- creation of the search strategy;
- perform the systematic search.

This article should be seen primarily as a proposal for a working method in everyday practice. It is moreover not an introduction to the use of databases or the principles of information retrieval. These basic skills are presupposed.

Understanding the topic

The exact understanding of the topic is the prerequisite for starting the search. This is usually done by means of the title and a brief description by the client. However quite often, a personal interview is required at this stage. The scope of this discussion is to clarify the aim of the research project and the related background and whether there are already many published articles on the subject or whether it is more a new research theme.

Definition of the theme aspects

The definition of the topic aspects and the relevant search terms are the first basic steps for the preparation of the search in the databases. The more careful and accurate the search is prepared in this phase, the more secure and faster it will be feasible. In this phase the well-known scheme PICO (patient, intervention, comparison, outcome) (3) can be helpful. However, in most cases the schema is only partial. The O (outcome) aspect is for example almost always omitted in the search execution. Instead there is often the need to articulate the other aspects better, for example, if P means not just a pathology, but also

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a special patient selection. Often, special aspects of the intervention should also be highlighted. The main issue is to accurately represent the research object through all relevant aspects. In the described case of the simultaneous occurrence of the aspects of pathology and particular patient type, one P is no longer sufficient. Then, for example, there must be a P1 and a P2, which at first should be kept and searched separately from each other. But they will build a single hit group in the search strategy.

Implementation

In order to achieve the above-mentioned objectives, the tabular form has proved its worth. A two-column table is created for each aspect. In the column on the left, the search terms are listed, which can be searched for in the databases. In the column on the right, you may enter temporarily excluded search terms. If for one aspect more than one subordinate, superordinate or equivalent term can be considered, new rows are inserted into the table for a better overview of each term. The determination of the aspects and the selection of the relevant search terms are made in consultation with the applicants. A help in the choice of the search terms is the MeSH Database in Pubmed. In this database the terms are embedded in one or more structures from which the possibly related terms can be selected. When defining search terms, search is carried out not only for subjects but also for text words or synonyms. If the search terms are found in the MeSH Database as subjects, most of the corresponding text words are found here as so-called "entry terms". These should be included as search terms because the allocation of the MeSH terms to the new publications in PubMed can take up to approx. 6 months. Until then these publications can only be found via the text words in the title, abstract or among the keywords. You can see in *Table 1* how this would look like.

¯P

"Obesity" [Mesh] OR Obes*[tw] OR	
"Obesity, Morbid"[Mesh] OR	
"Overweight"[Mesh] OR Overweight*[tw] OR "Excess Weight"[tw] OR	

Table 1. *Search terms.*

Test execution in PubMed

If the number of hits in PubMed is too small at the first preliminary search, the search can be extended by the following search methods:

- Text Word [tw] instead of Title / Abstract [tiab] as a field name for the text words. Thus the "Keywords" field is also searched;
- exclusion of too specific aspects of the search. This makes the search less precise, but also articles in which the subject is only marginally dealt with will be found.

If too many hits have been found, you can limit the search by the following search commands:

- the "no explosion" command in the MeSH terms. This means that the subordinate MeSH terms in the respective hierarchy are excluded from the search;
- analyze some of the irrelevant hits to determine which key words have led to these hits. You can then consider whether these search terms can be excluded from the search (move them temporarily to the right column of the table).

Search execution in the databases

After the test has been carried out in PubMed, the search is carried out in all the provided databases. Therefore the search terms have to be adapted to the respective database. This adaptation of the search terms should be carried out for all databases before starting the search. Sometimes inaccuracies occur, which can be corrected immediately.

Before the search execution, the search strategy is defined in a table. All steps are displayed and numbered. These could look like in the example given in *Table 2*.

1	P
2	I
3	C1
4	C2
5	3 OR 4
6	1 AND 2 AND 5
7	Filter ab Jahr 2000

Table 2. *Search strategy.*

Search protocol

It should be possible for the client to just copy the search terms with copying and pasting and to repeat the search in the databases. For this reason, it is recommended to list the search strings in tabular form with the respective hit numbers. For PubMed, for example, it would look like in *Table 3*.

	Vollständiger Suchsatz	Trefferzahl
P	("Obesity"[Mesh] OR Obes* [tw] OR "Obesity, Morbid"[Mesh] OR "Overweight"[Mesh] OR "Overweight*[tw] OR "Excess Weight"[tw] OR "Overnutrition"[Mesh] OR Overnutr*[tw] OR "Adiposity"[Mesh] OR Adipos*[tw] OR ...	423666
I	("Sick Leave"[Mesh] OR Sick Leave*[tw] OR Sickness Absen*[tw] OR Sick Absen*[tw] OR Sick Day*[tw] OR Work Absen*[tw] OR Work Leave* [tw] OR Illness Day*[tw] OR Illness Absen*[tw] OR "Absenteeism"[Mesh] OR Absenteeism[tw] OR Absence Day*[tw] OR Absent Day*[tw] OR Presenteeism[tw] OR Work Productivit*[tw] ...	1034973
O	(Cost[tw] OR Costs[tw] OR Economic*[tw] OR Indirect Expenditure*[tw] OR Indirect Expense*[tw] OR "Cost of Illness"[Mesh] OR ...	759979

Table 3. *Search strings.*

How long you need to search, depends on the complexity of the topic and on how complete the search is intended to be. For twenty evaluated searches according to this method, the average duration of each search was approximately ten hours. This time refers to all phases of the search.

All phases of the search are in this way documented in a comprehensible manner and, most notably, it is easy for the user to orientate himself. This structured approach has proved very successful in practice.

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ICML +
EAHIL 2017

The International Programme Committee and Local Organising Committee for ICML + EAHIL 2017 are delighted to invite you to Dublin in June 2017. The event is a combination of the International Congress of Medical Librarians and a traditional EAHIL Workshop – bringing you the best of both worlds! In addition to parallel paper sessions, we are offering a dedicated Workshop strand throughout the event, with a great selection of Interactive Workshops employing a range of innovative methods; knowledge café, flipped classrooms, a 'mock courtroom' and more! Spaces in the workshops have been deliberately limited to 20 to allow participants to enjoy the full experience, so register soon so you don't miss out.

ICML + EAHIL 2017 Keynote Speakers

Michelle Kraft

Michelle is the Library Director at The Cleveland Clinic and former president of the Medical Library Association. She has published several articles and book chapters and spoken on the topics of medical librarianship, technology and emerging roles of librarians. She enjoys engaging in lively discussions with librarians across the world on ways to do things better, more efficiently, and questioning the status quo. She has a very active professional social media presence on Twitter **@krafty** and on her blog the Krafty Librarian www.kraftylibrarian.com

Richard Corbridge

Richard is the Chief Information Officer for the Irish national health service, and the Chief Executive of *eHealth Ireland*, a new structure responsible for the delivery of an eHealth Eco-System for Ireland that will facilitate health informatics innovation and delivery nationwide. Richard also has a wealth of experience in the Health and Clinical Research sector leading various informatics delivery elements; business change, benefits management and Information security projects. Follow Richard on Twitter **@R1chardatron** and www.richardcorbridge.com

Aoife Lawton

Aoife is the newly appointed National Health Services Librarian in Ireland, with responsibility for the management and integration of library and information services in the Ireland's national health service. With a long career in Irish health libraries Aoife has contributed to Open Access policy and implementation, library leadership and collaboration. She has published regularly in the health library field and authored the book *The Invisible Librarian* in 2015. Follow Aoife on Twitter **@aalawton**

CONTINUING EDUCATION COURSES **Monday June 12th & Tuesday June 13th 2017**	
CEC 1. PRESSing search strategies and AMSTARing systematic reviews: have a go session	Alison Bethel and Morwenna Rogers
CEC. 2: Librarians as Open Science facilitators: How to develop Research Data Management Services	Alicia F. Gomez and Pablo Iriarte
CEC 4. Synchronous Online Teaching – Keeping virtual classroom students engaged	Mr Tomas Allen
CEC 5. Improve your data! How to use surveys effectively in health information and library based research and evaluation	Dr Hannah Spring
CEC 6. Librarians can help address reporting concerns in the biomedical literature, particularly for systematic reviews	Shone Kirtley
CEC 7. Practice makes perfect - Improving information literacy through understanding the quality of evidence	Connie Schardt and Lisa Kruesi
CEC 8. Diverse Questions, Diverse Evidence, Diverse Review Types: Searching in Support of Qualitative and Realist Syntheses	Andrew Booth
CEC 9. Developing and validating geographic search filters for use in systematic literature searches	Thomas Hudson and Elizabeth Barrett
CEC 11. Searching for studies for systematic reviews: developing the librarian's methodological toolkit	Dr. Bernd Richter, Carol Lefebvre , Maria-Inti Metzendorf and Ulrike Lampert
CEC 12. Improving efficiency and confidence in systematic searching through an innovative way of searching bibliographic databases	Wichor Bramer and Gerdien B De Jonge
CEC 13. Advanced search techniques: a guide to the developing a search strategy for a systematic review	Mala Mann
CEC 14. Embedding knowledge in healthcare transformation: creating opportunities to inform strategic change	Alison Turner and Anne Gray
CEC 15. Room for a Review? Matching Review Type to Purpose and Search Strategies to Review Type	Dr Louise Preston
CEC 16. Writing for Publication: Getting Started, Getting Help and Getting Published	Maria J Grant

ICML + EAHIL schedule of events 12-16 June 2017

	Monday 12th June	Tuesday 13th June	Wednesday 14th June	Thursday 15th June	Friday 16th June
AM	Continuing Education Courses EAHIL Board Meeting	Continuing Education Courses	• Conference opening and key note speeches • Parallel paper sessions • Interactive Workshops • Poster exhibition • Sponsor exhibition	• Key note speeches • Parallel paper sessions • Interactive workshops • Poster exhibition • Sponsor exhibition	• Parallel paper sessions • Interactive workshops • Poster exhibition • Sponsor exhibition • EAHIL General Assembly
Lunch			• Lunchtime Masterclasses • EAHIL Special Interest Group Meetings	• Lunchtime Masterclasses • EAHIL Special Interest Group Meetings	• Lunchtime Masterclasses • EAHIL Special Interest Group Meetings
PM	Continuing Education Courses EAHIL Board Meeting	Continuing Education Courses EAHIL Council Meeting	• Parallel paper sessions • Interactive Workshops • Poster exhibition • Sponsor exhibition	• Parallel paper sessions • Interactive workshops • Poster exhibition • Sponsor exhibition	• Closing address • Closing ceremony and prize giving **Dublin Library Tours**
Evening			**Welcome Reception at The Dining Hall, Trinity College Dublin**	**Gala Dinner & Céilí Mór at The Mansion House, Dawson Street**	

Letter from the President

Maurella Della Seta

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Dear Colleagues,

By the time you read this letter we'll be very close to the EAHIL 2017 Workshop in Dublin and I hope to see as many of you as possible there. I am confident that the workshop will have a large and skilled participation of colleagues, both for the interest of the topics under discussion and the cultural and lively interest of the venue, located in the refurbished old Castle building in Dublin, a thriving centre for culture and home to a great arts tradition.

This issue of *JEAHIL* is devoted to research data access and management. In this regard, I have the pleasure of driving your attention to an interesting event that took place on May 15 in my Institute. The title of the meeting was "Open Data, cement of Science: Bibliosan survey results for Open Science (BISA)". It was organised by a group of medical librarians working in research institutes participating in the Bibliosan Consortium, funded by the Italian Ministry of Health. The purpose of the event was to disseminate the results of an inquiry sent to researchers and librarians to investigate the treatment and management of their research data. The survey was sent to about 15,000 scientists working in 60 institutions. The answers were more than 2400, that is a rate of 15.5 % of responders, which is a good result, considering the rate of answers to similar surveys in other countries.

Another important aim of the meeting was to point out the need for a common policy – at least among Bibliosan partners or, even more, at a national level, in order to regulate the purpose and the modalities of research data storage, and to support researchers in data storage practices required by the Horizon 2020 projects (Data Management Plan). The European Commission prescribes open access not only to publications, but also to research data for all H2020 projects – ongoing and banned by 2020 – collecting or generating data. Open research data is therefore a default option, with minor exceptions, due to patent coverage, commercial exploitation, and confidentiality or security reasons. Medical research data must be FAIR, i.e. Findable, Accessible, Interoperable and Reusable, and it is our responsibility, as librarians and information specialists, to contribute to the achievement of this goal. A new professional profile – Institutional Data Manager – should be foreseen as long as research activities and data are present.

During the conference, a speaker remarked that only a few European countries (Cyprus, France, Norway, and Portugal) have a National Policy for Open Data and Open Science. Other countries (Denmark, Germany, Estonia, Lithuania, Netherlands, UK and Sweden) adopted plans, guidelines, or recommendations. Austria, Belgium, Croatia, and Finland are developing a roadmap for this purpose. Many other countries (Bulgaria, Czech Republic, Italy, Greece, Iceland, Latvia, Luxembourg, Malta, Romania, Slovakia, Slovenia, Spain, and Hungary) took no action yet. I believe that it is very important for our profession to give a strong contribution to the development of data storage policies in most European countries, which are still idling in this field. Moreover, new working opportunities are now open for young librarians who wish to undertake the challenge offered by data management and dissemination.

The importance of facilitating open access to research data was also the common thread of another event, where I was personally present, at the end of last March, thanks to the generous invitation of the Taiwan Medical Library Association (TMLA). The hospitality of our Taiwanese colleagues was incredibly welcoming and, although being very far from Europe (a 14 hours flight), I felt at home all the time. The title of the TMLA International Conference was “Beyond”. Its aim was sharing views on the latest findings and experiences that would help all the attendees to search for ways to think beyond the conventional. New roles and challenges facing medical librarians were deeply analysed in two full-immersion days. The evidence that medical librarianship has more similarities than differences even in distant realities surprised me. Topics such as

- Innovative service design
- Finding ways for allowing health sciences libraries to stay relevant
- Learning health system beyond medical library
- Alternatives to scholarly information access and evaluation
- Application of evidence in quality improvement
- Awareness that embedded librarians are librarians without limits
- Open data in health care on government websites

are all very familiar to us, and debated in many EAHIL events and training courses. I focused my speech on the fact that, in many European countries, libraries are closing, and there are financial restrictions due to the economic crisis and the spending review process. How can librarians cope with these challenges and which are the best strategies to adopt? We are now living the fourth industrial revolution, which very shortly means that the so-called Internet of things and the Internet of Systems are embedding technology within societies and the human body. Many works will disappear or change dramatically and, if we want to survive as librarians, we have to rethink many aspects of our job. Medical librarian education, continuing professional development, preservation and management of research data, and participating in institutional data policy making, are only some examples of issues in which our Association is concentrating its efforts. EAHIL tries to be always innovative and places a special emphasis on being more proactive and keen to its members emerging requirements.

I am particularly glad to inform you that EAHIL will be able to return TMLA hospitality at the Dublin event, We are looking forward to welcome a TMLA delegate who will take part in a meeting with other sister organizations representatives.

Fig. 1. *Taiwan Medical Library Association 2017 Meeting.*

Fig. 2. *Taiwan Medical Library Association 2017 Meeting, Gale Dinner.*

I hope that you will enjoy reading this issue of *JEAHIL* and find it interesting for your profession and useful for rethinking under a new point of view your daily activities.
Looking forward to participating in the next Dublin Workshop, I wish you a wonderful summer and a deserved rest period with your families and friends.

Maurella

Report from the European Veterinary Libraries Group (EVLG)

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The EVLG at EAHIL Dublin.

The European Veterinary Libraries Group (EVLG) will have their SIG meeting at the EAHIL Workshop in Dublin.
Our meeting will be on Wednesday 14th June, 13.00-14.30 (Lunchtime) at **Dublin Castle Conference Centre (Upper Courtyard) Bedford Rooms 207 & 208.**

Hopefully you will all manage to have your "brown bag lunch" with you to our meeting, the lunchtime starts 12.30.

During the meeting we will discuss the following subjects:

- EVLG future. Membership of the organization.
- Subcommitte reports.
- The ICAHIS 9 in Budapest 2018.
- The EVLG presence on webpages, mailing lists and social media.

In the evening the Vetlibbers will try to keep together at the Welcome reception.
The EVLG meeting is open for all who are interested in animal health communication.

Fig. 1. *In Edinburgh at EAHIL 2015 we had a much appreciated veterinary history tour of the city.*

Health Libraries Australia Report for EAHIL

Publishing and communications: Health Libraries Australia

Jane Orbell-Smith
AFLIA (CP) Health Publications Editor
Health Libraries Australia
Librarian Redcliffe and Caboolture Hospital Libraries
Metro North Hospital and Health Service
Queensland, Australia

Health Libraries Australia (HLA) is the national group representing health library and information professionals within the Australian Library and Information Association (ALIA). My portfolio is "Publishing and Communications". This role entails everything from hunting out sponsors to chasing articles for our publications to writing filler, to contributing to our website. It is a very busy portfolio as in addition, we also have two publications, the monthly *HLA Alerts*, and the quarterly, *HLA News*.

Governance

The HLA Editorial Board oversees all publications for the Group. Coming from all parts of Australia, the Board meet quarterly (via teleconference) and assist the Editor with sourcing material particularly for the *HLA News*. In addition to Board participation at the annual HLA Strategic Planning Day, all HLA Executive contribute to and determine the focus of publications for the coming twelve months ensuring they complement the Group's priorities.

Publications

I am the Editor for our two regular publications, *HLA News* and *HLA Alerts*. Both publications are produced and distributed online to keep costs down and make them readily accessible. Initiated in 2003, *HLA News: National Bulletin of Health Libraries Australia*, is the group's quarterly online open access journal. The bulletin is indexed in CINAHL, RMIT Publishing (Informit), the Informed Librarian and, also in the ILOSearch database. The Bulletin is accessible online at: https://www.alia.org.au/enewsletters/alia-health-libraries-australia-news.

The *HLA Alerts*, commenced in 2014, is a monthly alerting service only for HLA members. The contents are contributed by a few people who collect material of interest from their own alert subscriptions. These contributions are then brought together with links (where available) to the original article. Both HLA publications are submitted to ALIA House for on-forwarding to members utilising "Mailchimp" software.

In addition to the above, HLA produce an Annual Poster released each May to celebrate Australian Library and Information Week. Current and past posters are accessible on the HLA website at: https://www.alia.org.au/groups/HLA/hla-demonstrating-value.

Communications

Beyond our publishing, HLA run a number of communication channels including elist, social media, and our website. The concept is to ensure our message gets to our members and affiliates whilst recognising that one communication means does not reach everyone.

Elist

ALIAHealth is the HLA elist; it is open to anyone interested in health libraries and health librarianship. The ALIA Elist subscription page is available at: https://www.alia.org.au/elists/aliahealth

Social Media

HLA Community, is a member only accessible social media site where HLA members interact directly with one another. This site is used as a first release mechanism to members ensuring value adding to membership by being "the first to know".

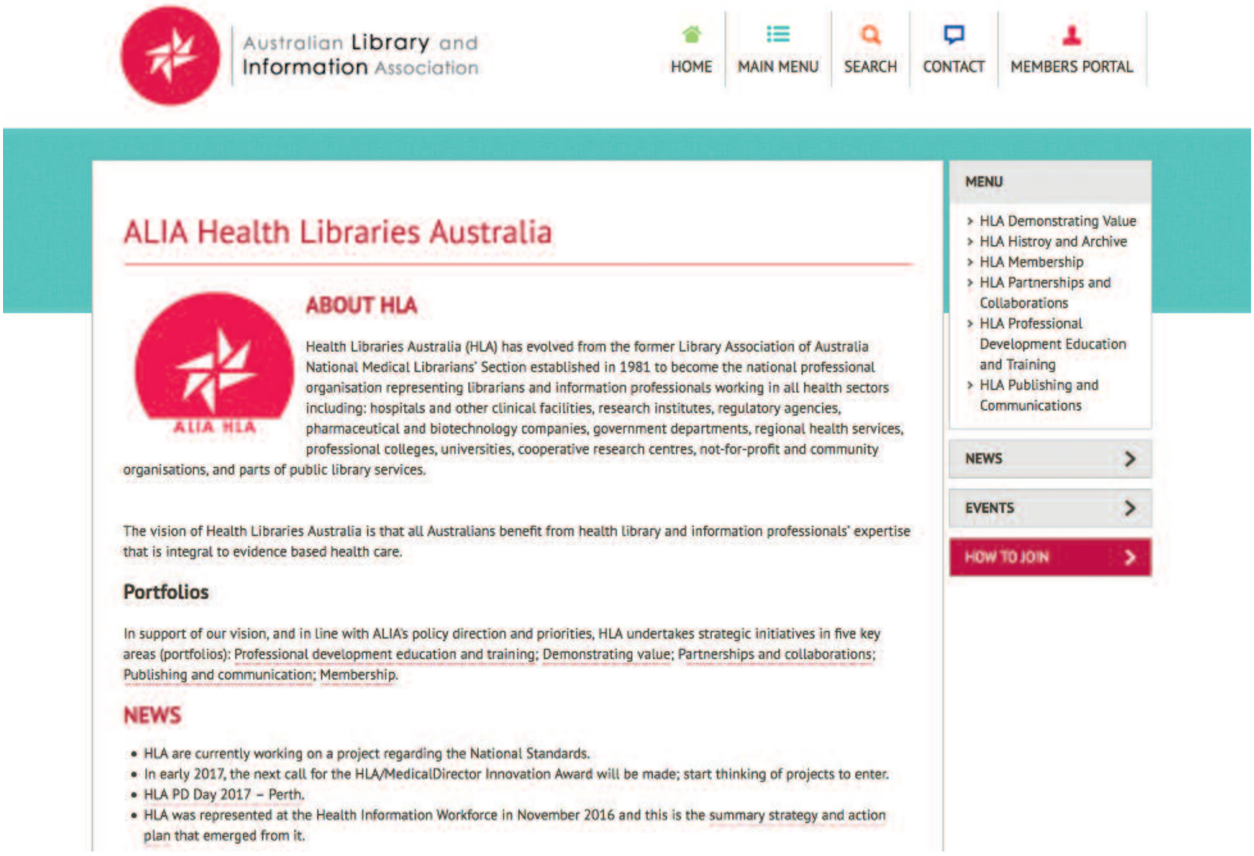
HLA also have a *LinkedIn* group (Health Libraries Australia). The site brings together not only those interested in health librarianship but extends to include related fields of interested too.

The HLA TwitterChat is a recent innovation that has evolved from our HLA Journal Club. It runs bi-monthly and participants discuss an identified topic. The twitter tag used is: #healthlibaust.

Website

A recent major revamp of our website (https://www.alia.org.au/groups/HLA) now reflects the HLA portfolios. This makes it much easier for our members to locate the information they require rather than scrolling through one long page with lots of links. Feedback on the new design and layout is positive.

I invite you to review our publications and website and welcome any contributions you may wish to submit to *HLA News*.



ALIA Health Libraries Australia

ABOUT HLA

Health Libraries Australia (HLA) has evolved from the former Library Association of Australia National Medical Librarians' Section established in 1981 to become the national professional organisation representing librarians and information professionals working in all health sectors including: hospitals and other clinical facilities, research institutes, regulatory agencies, pharmaceutical and biotechnology companies, government departments, regional health services, professional colleges, universities, cooperative research centres, not-for-profit and community organisations, and parts of public library services.

The vision of Health Libraries Australia is that all Australians benefit from health library and information professionals' expertise that is integral to evidence based health care.

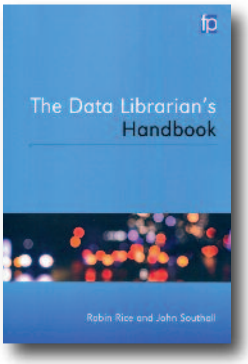
Portfolios

In support of our vision, and in line with ALIA's policy direction and priorities, HLA undertakes strategic initiatives in five key areas (portfolios): Professional development education and training; Demonstrating value; Partnerships and collaborations; Publishing and communication; Membership.

NEWS

- HLA are currently working on a project regarding the National Standards.
- In early 2017, the next call for the HLA/MedicalDirector Innovation Award will be made; start thinking of projects to enter.
- HLA PD Day 2017 – Perth.
- HLA was represented at the Health Information Workforce in November 2016 and this is the summary strategy and action plan that emerged from it.

BOOK REVIEWS



The Data Librarian's Handbook
Robin Rice and John Southall
London: Facet Publishing; 2016.
177 p.
ISBN 9781783300471

In the last few years interest in data curation has been steadily growing thanks to the open access movement and the introduction (and strengthening) by research funders of policies requiring the deposit and sharing of the data produced by the research they are funding. This has created a situation in which many librarians and information professionals are called to support researchers in a range of activities related to data management.

The Data Librarian's Handbook, written by Robin Rice and John Southall (two librarians with over 20 years' combined experience in the field of data), is one of the very few books so far to address this increasingly important situation.

This book offers practical guidance for any information professional interested in data and in its management and, as the authors state in their Preface, is written for two primary groups of readers: library and information science students and their teachers, and librarians who may be tasked with involvement in data-related services. However, it should also be an interesting read for others, such as library managers or policy makers, research data management coordinators and data support staff.

The first two chapters are about the different factors which have lead to growing demand for data services and the development of the role of the data librarian. Starting from the observation that the foundation of the role of a data librarian is the same as that of any other librarian – collecting and arranging information in a way that guarantees that it will be retrievable and usable for a broad range of users in the future – the authors introduce the peculiar demands of this different kind of information such as intellectual property rights, the relationship between metadata and data, and data citation.

Chapters 3 to 8 are more concrete and give many useful examples and suggestions, which are of great importance as almost everyone working as data librarians today received no special training beyond learning on the job, and, in some cases, personal mentoring. Chapter 3 gives practical advice on how to organize effective training courses on data management related issues such as data citation, manipulation, visualization and statistical literacy. This chapter also includes a useful list of training resources or portals suitable for use in the creation of a training course on data or for self-study. The authors underline in this chapter that it is of fundamental importance for data librarians to keep up with their data literacy not only by attending conferences and reading or monitoring trends on social media, but also learning on their own how to use new data-related tools and software, without being frightened off by the fact that this often requires a familiarity with the basics of coding. Chapter 4 discusses more strategic questions, such as how to improve the profile of the library's digital collections making them discoverable as part of a coherent and well developed collection.

Chapters 5 and 6 focus on how to develop an effective research data management (RDM) policy and infrastructure using examples taken from different institutions and also a set of case studies from data librarians. Chapter 6 outlines the importance of developing a data management plan (DMP), using eight case studies from a range of disciplines to show how these demands are being dealt with at different institutions. The provision of data management services can take a variety of forms depending on the needs of the researchers and institutions involved and can be an opportunity for the librarians to give guidance and to become more active and visible partners in the research process. Moreover, interaction with researchers in the development of a data management plan can be an opportunity for the data professional to reflect on the services being developed and offered by the library in order to improve them. Each policy which appears in these case studies is analysed and commented on by the authors so as to expand on the lessons that can be drawn.

Other issues surrounding the management of research data are discussed in Chapter 7, which is focused on the problems related to the creation and maintenance of institutional data repositories, and Chapter 8 which analyses the legal and ethical issues arising with sensitive or confidential data. As the chapter makes clear, data librarians can play an important role in helping researchers resolve their concerns about the difficulty of handling and sharing these kind of data so as to find a balance between their (understandable) caution and the need to create preserved and re-usable data collections.

The last two chapters give a snapshot of the changing approach to open data in different disciplines, and the consequently growing opportunity for information professionals to get involved and make a difference. They end with a wake up call to librarians, who should not lose the opportunity to be a player in this new data driven world (particularly in the light of the recent discussions about lack of understanding of library contributions on the part of patrons and administrators and the growing "invisibility" of librarians).

The book is an easy and informative read giving plenty of ideas, advice and links to key resources that can be genuinely useful to librarians who want, or are called on, to play an active role in the research process and in the managing of research data, as well as an excellent starting point for thinking about future developments in the field.

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TAKE A LOOK!

[collected during February to May 2017]

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The goal of this section is to have a look at references from non-medical librarian journals, but interesting for medical librarians. Acknowledgement to **Informed Librarian Online.**

FREE ACCESS

1. Steve Hardin. **Text and data mining meets the pharmaceutical industry: Markus Bundschus speaks**
Bulletin of the American Society for Information Science and Technology v. 43 n. 3, February/March 2017
Text and data mining have proven to greatly impact the world of biomedical research, especially for Roche Diagnostics in Penzberg, Germany. Taking information from such sources as patient literature, genomic cancer samples and PubMed articles, researchers at Roche Diagnostics are able to structure the data in a way that lends itself to creating personalized healthcare. Text mining used to build structured databases tends to yield the most relevant information for biomedical research, so Roche uses unstructured data to build a knowledge base automatically
http://onlinelibrary.wiley.com/doi/10.1002/bul2.2017.1720430314/abstract

2. Sachin Y and K. Divyananda. **Exploring the role of library in clinical information delivery for the students of Health Science Universities in Karnataka: A study**
International Research: Journal of Library and Information Science Issue No. 4 (Dec. 2016), Volume No.6
Health Science university libraries represent the vast majority of health professionals and most accessible clinical information resources and services. The role of the library professional is emerging in quality improvement programs that use the information to assist health professionals in improving clinical practices at the point of care. A study was conducted to know the approaches to use of clinical information by medical students from the library in ten Health Science Universities / Deemed Universities located in the Karnataka state, for this purpose researcher chosen questionnaire methods and data gathered form 782 medical students.
http://irjlis.com/exploring-role-librarian-clinical-information-delivery-health-students/

3. Sarah Crissinger. **Access to research and Sci-Hub. Creating opportunities for campus conversations on open access and ethics**
College & Research Libraries News v. 78 n. 2, February 2017
Sci-Hub is a repository that makes illegal access to academic papers possible to anyone. It has generated a spectrum of responses from librarians, publishers, and open access advocates.
http://crln.acrl.org/content/78/2/86.full

ABSTRACTS ONLY

1. Beth McGowan & Kathy Ladell. **Spanish language children's books focusing on health literacy: An annotated bibliography**
Public Library Quarterly Volume 36, 2017, Issue 1, pp. 77-93
This bibliography should be useful for public librarians, school librarians, academic librarians collecting for education departments, literacy experts, and medical and health sciences librarians.
http://www.tandfonline.com/doi/full/10.1080/01616846.2017.1275798

2. Emily Vardell & Deborah H. Charbonneau. **Health insurance literacy and roles for reference librarian involvement**
The Reference Librarian Volume 58, 2017, Issue 2, pp. 124-135
The goal of this article is to highlight a number of concrete ways reference work could be expanded, especially in public library settings, to support health insurance literacy concerns by offering illustrative examples and recommendations for authoritative health insurance information resources. Overall, this article contributes to the existing literature by offering practical recommendations that may be relevant to reference librarians supporting the health insurance information needs of their communities.
http://www.tandfonline.com/doi/full/10.1080/02763877.2016.1228096

3. Lewis G. LiuHarold Gee. **Determining whether commercial publishers overcharge libraries for scholarly journals in the fields of science, technology, and medicine, with a semilogarithmic econometric model**
The Library Quarterly 87, no. 2 (April 2017), pp. 150-172
The issue of whether commercial publishers overcharge libraries for scholarly journal subscriptions has been an important practical concern for researchers and practicing librarians for decades. Recent studies of the issue have not been able to move the research literature toward a consensus but rather have created more controversy. This study addresses this debate in the fields of science, technology, and medicine. More important, an appropriate research methodology is used, including an effective econometric model, a large sample size, and regression analyses by subject area. The study conclusively shows that commercial publishers indeed overcharge libraries by a large margin.
http://www.journals.uchicago.edu/doi/abs/10.1086/690736

4. Alberto Martin-Martin et al. **Can we use Google Scholar to identify highly-cited documents?**
Journal of Informetrics Volume 11, Issue 1, February 2017, pp. 152-163
The main objective of this paper is to empirically test whether the identification of highly-cited documents through Google Scholar is feasible and reliable. To this end, we carried out a longitudinal analysis (1950-2013), running a generic query (filtered only by year of publication) to minimise the effects of academic search engine optimisation. This gave us a final sample of 64,000 documents (1000 per year). The strong correlation between a document's citations and its position in the search results (r = −0.67) led us to conclude that Google Scholar is able to identify highly-cited papers effectively.
http://www.sciencedirect.com/science/article/pii/S175115771630298X

5. Francisco Collazo-Reyes et al. **Change in the publishing regime in Latin America: from a local to universal journal, Archivos de investigación Médica/Archives of Medical Research (1970-2014)**
Scientometrics February 2017, Volume 110, Issue 2, pp. 695-709
This study addresses an early case of an association between a local journal and a commercial publisher in Latin America striving to improve quality. The two journals examined are Archivos de Investigación Médica (AIM), 1970-1991 and its continuation as Archives of Medical Research (AMR), 1992-2014. The aim is to characterize and compare the publishing policies and patterns of scientific communication and bibliometric

indicators developed under the two different types of publication: AIM as a source of local dissemination and the commercially circulated AMR.
http://link.springer.com/article/10.1007/s11192-016-2207-8

6. Christophe Boudry et al. **Availability of digital object identifiers in publications archived by PubMed**
Scientometrics March 2017, Volume 110, Issue 3, pp. 1453-1469
Digital object identifiers (DOIs) were launched in 1997 to facilitate the long-term access and identification of objects in digital environments. The objective of the present investigation is to assess the DOI availability of articles in biomedical journals indexed in the PubMed database and to complete this investigation with a geographical analysis of journals by the country of publisher.
http://link.springer.com/article/10.1007/s11192-016-2225-6

7. Lindsay Harris, Mary Peterson. **The economic value and clinical impact of the South Australian Health Library Service 2011-2016. A case study in organizational performance and survival**
Business Information Review Vol 34, Issue 1, pp 18-24
This is a case study of how one Australian state's health department library service is attempting to measure the economic value and clinical impact of its professional services and online resources. The case study describes the context in which performance measurement strategies were devised and gives examples of key performance indicators being applied to evaluate library services in a manner comprehensible to the senior management of the parent organization.
http://journals.sagepub.com/doi/full/10.1177/0266382117692451

Publications and new products

Letizia Sampaolo

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Looking at life

A young couple moved into a new neighbourhood. The first morning, while they were eating breakfast, the young woman watched her neighbour hanging her clothes out to dry.
"Her laundry doesn't look very clean," she said to her husband. "She obviously doesn't know how to wash clothes properly. Perhaps she needs a better soap powder."
Her husband looked at her but said nothing.
During the weeks that followed, every time her neighbour hung her clothes out to dry, the young woman watched her and made the same comments.
One morning, about a month later, the young woman was surprised to see a nice, clean line of washing hanging outside her neighbour's house.
"Look!" she said to her husband. "Our neighbour has finally learnt how to wash her clothes properly! I wonder who taught her."
"Actually," replied her husband, finally speaking out, "I got up very early this morning and cleaned our windows."
And so it is with life. What we see when we watch other people depends very much on the clarity of the window through which we look. (Source: Unknown)
This little pretty story tells how our assumptions are like windows on the world and what we see mainly depends on the lens through which we look at life. I love it much as it reminds me that our "windows" and our "lens" should be constantly kept clean, otherwise they could affect the way we see the world.
So, what an idea! The next International Congress of Medical Librarianship (ICML) + European Association for Health Information and Libraries (EAHIL) in Dublin, Ireland, is an awesome occasion to match impressions and experiences, and try and "clean" our own "windows". I hope to meet you there. Enjoy!

JOURNAL ISSUES

Health Information and Libraries Journal: Contents of March issue 2017

Editorial
Knowledge Management in healthcare libraries: the current picture.
E. Hopkins

Review Articles

Tracing the "grey literature" of poster presentations: a mapping review.
H. Yu, I. Asghar, S. Cang

Original articles

Development and testing of a Medline search filter for identifying patient and public involvement in health research.
M. Rogers, A. Bethel, K. Boddy

Factors affecting smartphone adoption for accessing information in medical settings.
I. Tahamtan, S. Pajouhanfar, S. Sedghi, M. Azad, M. Roudbari
Where people look for online health information.
S.A. LaValley, M.T. Kiviniemi, E.A. Gage-Bouchard
Database selection in systematic reviews: an insight through clinical neurology.
M. Vassar, V. Yerokhin, P.M. Sinnet, M. Weiher, H. Muckelrath, B. Carr, L. Varney, G. Cook
Knowledge Into Action – supporting the implementation of evidence into practice in Scotland.
Herbert, S. Davies, A. Wales, K. Ritchie, S. Wilson, L. Dobie, A. Thain
Effects of argument quality, source credibility and self-reported diabetes knowledge on message attitudes: an experiment using diabetes related messages
TC Lin, LL Hwang, YJ Lai

Regular features

- **Dissertations into practice**

The information needs of occupational therapy students: a case study.
J. Morgan-Daniel, H. Preston

- **International perspectives and initiatives**

Shaping the professional landscape through research, advocacy and education – an Australian perspective.
G. Siemensma, A. Ritchie, S. Lewis

- **Teaching and Learning in Action**

Cracking induction in health libraries: is there a right way?
N. Forgham-Healey

FROM THE WEB

- **The Ten Things you need to know if you want to work in libraries.**
  Ned Potter is an Information Professional working for the University of York University. He is also a Trainer for various organizations including the British Library, and is interested in communication, edtech, library marketing and social media. He recently published a stimulating presentation "If you want to work in Libraries here are ten things you need to know" about what you really need to focus on if you want to work in libraries and are going to have an interview:
  - The library is not all about books
  - The library is all about people
  - The library is all about technology
  - You will need a qualification
  - The competition is tough

- Social Media is your friend
- You need to be ready to fight
- You have to be okay with change
- You can pursue existing passions
- There are so many different roles.

The point is: do we really need to focus on these ten points only in case we are going to have a job interview in a Library? Checking this out could be quite interesting. See the full slide presentation at https://www.slideshare.net/thewikiman/if-you-want-to-work-in-libraries

- **American Society for Microbiology (ASM) - Agar Art Contest 2017**

  The American Society For Microbiology (ASM) annually holds an art contest looking for agar art, that's to say, basically the creation of a painting with bacteria. Never thought about such a possibility? Yes, it's intriguing indeed. Artists inoculate agar plates with bacteria, that are naturally colorful or that have fluorescent genes. Then, as they grow, they create colorful art pieces.

  

  It is like drawing with invisible ink since the bacteria are microscopic. Nevertheless, bacteria may have different grow rates and temperatures, so the process can be quite long and involve extended periods of waiting, but the results are amazing.

  This year, for the 2017 competition, which is the third – Chaseedaw Giles and Janet Rowe of the ASM first started the contest – 265 submissions from 36 countries were received. All of the entries can be seen on ASM's Facebook page and include details shared by the original creator.

  The ASM produced a video tutorial https://www.facebook.com/asmfan/videos/10156020083760200/) for first-time artists who wanted to learn more about the process and understand that by painting with live, genetically modified bacteria, participants of all ages can learn about the safety, utility and fun of genetic engineering. In addition, by engaging the public as both painters and viewers an immersive experience that captures arts, science, and the imagination can be created each time. One of this year pieces who won third place, "Dancing Microbes", came from Tbilisi, Georgia and was submitted by Ana Tsitsishvili, an undergraduate student at the Agricultural University of Georgia. Staphylococcus epidermidis, used to create the white color, is part of the normal human flora and is typically found on the skin. *Rhodotorula mucilaginosa*, the red and pink color, is a common environmental inhabitant that can be isolated from soil or air. *Micrococcus luteus*, used to create the yellow color, is also found in soil or air, and is part of the normal flora of the mammalian skin. *Xanthomonas axonopodis*, used for green, is exclusively pathogenic to a large group of plants, such as citrus trees, cotton, beans, and grapes. Together these microbes grew into an awesome, fairytale-like painting. Read the full article at https://www.invisiverse.com/news/our-11-favorite-bacteria-art-submissions-from-asms-petri-dish-picasso-contest-0177410/

FORTHCOMING EVENTS

May 29-June 2, 2017, Helsinki, Finland
International Staff Exchange Week for Library Professionals 2017
For further information: https://www.helsinki.fi/en/university/isew-library-2017

June 12-16, 2017, Dublin, Ireland
International Congress of Medical Librarianship (ICML) + European Association for Health Information and Libraries (EAHIL)
For further information: http://eahil2017.net/

June 17-21, 2017, Rome, Italy
HTAi 2017 Annual Meeting. Towards an HTA Ecosystem: From Local Needs to Global Opportunities
For further information: http://www.htai2017.org/

June 18-21, 2017, Philadelphia, Pennsylvania, USA
9th International Evidence Based Library & Information Practice Conference (EBLIP9): Embedding and Embracing Evidence
For further information: http://eblip9.org/

September 21-22, 2017, Leicester, UK
9th International Clinical Librarian Conference
For further information: http://www.uhl-library.nhs.uk/iclc/index.html

October 9-11, 2018, Kraków, Poland
ISIC 2018 – The Information Conference
For further information: http://www.isic2018.com/, https://www.facebook.com/isic2018/,
https://twitter.com/ISIC2018

INSTRUCTIONS FOR AUTHORS JEAHIL

JEAHIL is the official *Journal of the European Association for Health Information and Libraries* (EAHIL). It publishes original articles, reviews, theme issues and brief communications in the field of health information and libraries. It also publishes news from EAHIL and from other medical library associations, meeting reports, product reviews, opinion and discussion papers and news items. No article submission/processing charges apply to authors. The aim of the European Association for Health Information and Libraries is to unite and motivate librarians and information officers working in medical and health science libraries in Europe. EAHIL encourages professional development, improves cooperation and enables exchanges of experience amongst its members.

Manuscript submission

Manuscripts should be submitted by the corresponding author electronically to the Chief Editor, Federica Napolitani, federica.napolitani@iss.it, accompanied by a presentation letter. Articles presented for publication on *JEAHIL* must be original and will be submitted to qualified referees before publication. At present, articles are reviewed mainly by the members of the editorial board. Papers in monographic issues are reviewed by the guest editors. The peer review process is single blind. Authors of submitted papers must accept editing and reuse of published material by EAHIL including electronic publishing on the EAHIL website. Reproduction of articles or part of them should be previously authorized.

Manuscript preparation

- Manuscripts should be written in good English and as concisely as possible to allow a clear understanding of the text. They should be typed double-spaced and with wide margins - font size 12 points, Times New Roman.
- The title should be followed by the complete name of the Authors, by their affiliation in English (town and country included) and by the "Address for correspondence" (author, address, email of the corresponding author).
- The recommended length for original articles is about 1000-2000 words (4-8 A4 pages) with no more than 20-25 references.
- Original articles should be accompanied by an abstract of up to 120 words and should also include key words, up to a maximum number of five MeSH terms (www.nlm.nih.gov/mesh/MBrowser.html).
- Avoid numbering in titles and subtitles; write titles in bold, subtitles in italics. Latin or foreign words should be in italics.
- Abbreviations should be spelled out in full the first time they occur in the text, followed by the shortened term in parentheses.
- All references in the text must be numbered in brackets and listed at the end of the article. They should be written in Vancouver style according to Uniform Requirements for Manuscript Submitted to Biomedical Journals (www.icmje.org/).
- For sample references refer to: www.nlm.nih.gov/bsd/uniform_requirements.html
- For abbreviations of periodicals refer to PubMed Journals Database (www.pubmed.gov).
- Extended quotations and illustrations previously published should be authorized for reproduction in *JEAHIL* by the Authors and previous Publisher.

Tables and figures

Tables and figures should always be accompanied by a legend, and be understandable without reference to the text. Numbered in Arabic numerals they should be cited in the text in round brackets and be of appropriate size for reproduction.

Submission in electronic format

All manuscripts should be submitted together with an accompanying letter in electronic format. The text should be written in Word or RTF format. Figures and photos (in separate files) should be saved in JPEG, GIF or TIFF and have a resolution of at least 300 dpi.

Please note

These Instructions to Authors are in accordance with the Uniform Requirements for Manuscripts Submitted to Biomedical Journals, published by the International Committee of Medical Journal Editors (www.icmje.org/).
Whilst the Editorial Board endeavors to obtain items of interest, the facts and opinions expressed in those articles are the responsibility of the authors concerned. They do not necessarily reflect the policies and opinions of EAHIL.

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COLOPHON

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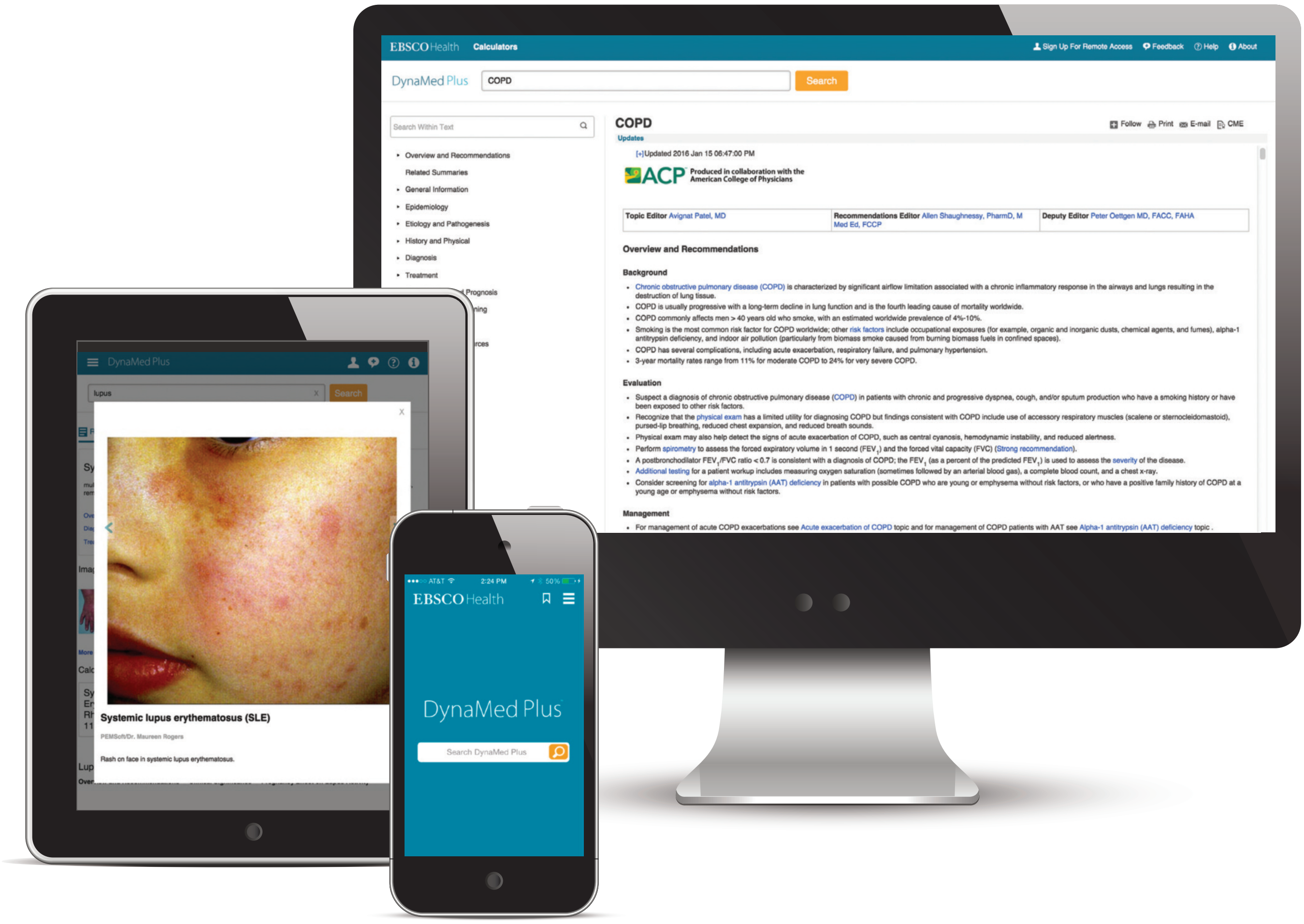

COPD

Updates

[+]Updated 2016 Jan 15 06:47:00 PM

Topic Editor Avignat Patel, MD	Recommendations Editor Allen Shaughnessy, PharmD, M Med Ed, FCCP	Deputy Editor Peter Oettgen MD, FACC, FAHA

Overview and Recommendations

Background

- Chronic obstructive pulmonary disease (COPD) is characterized by significant airflow limitation associated with a chronic inflammatory response in the airways and lungs resulting in the destruction of lung tissue.
- COPD is usually progressive with a long-term decline in lung function and is the fourth leading cause of mortality worldwide.
- COPD commonly affects men > 40 years old who smoke, with an estimated worldwide prevalence of 4%-10%.
- Smoking is the most common risk factor for COPD worldwide; other risk factors include occupational exposures (for example, organic and inorganic dusts, chemical agents, and fumes), alpha-1 antitrypsin deficiency, and indoor air pollution (particularly from biomass smoke caused from burning biomass fuels in confined spaces).
- COPD has several complications, including acute exacerbation, respiratory failure, and pulmonary hypertension.
- 3-year mortality rates range from 11% for moderate COPD to 24% for very severe COPD.

Evaluation

- Suspect a diagnosis of chronic obstructive pulmonary disease (COPD) in patients with chronic and progressive dyspnea, cough, and/or sputum production who have a smoking history or have been exposed to other risk factors.
- Recognize that the physical exam has a limited utility for diagnosing COPD but findings consistent with COPD include use of accessory respiratory muscles (scalene or sternocleidomastoid), pursed-lip breathing, reduced chest expansion, and reduced breath sounds.
- Physical exam may also help detect the signs of acute exacerbation of COPD, such as central cyanosis, hemodynamic instability, and reduced alertness.
- Perform spirometry to assess the forced expiratory volume in 1 second (FEV_1) and the forced vital capacity (FVC) (Strong recommendation).
- A postbronchodilator FEV_1/FVC ratio < 0.7 is consistent with a diagnosis of COPD; the FEV_1 (as a percent of the predicted FEV_1) is used to assess the severity of the disease.
- Additional testing for a patient workup includes measuring oxygen saturation (sometimes followed by an arterial blood gas), a complete blood count, and a chest x-ray.
- Consider screening for alpha-1 antitrypsin (AAT) deficiency in patients with possible COPD who are young or emphysema without risk factors, or who have a positive family history of COPD at a young age or emphysema without risk factors.

Management

- For management of acute COPD exacerbations see Acute exacerbation of COPD topic and for management of COPD patients with AAT see Alpha-1 antitrypsin (AAT) deficiency topic .

Systemic lupus erythematosus (SLE)

PEMSoft/Dr. Maureen Rogers

Rash on face in systemic lupus erythematosus.

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