

Library support needs of the Medical Faculty at the University of Basel and the University Hospital

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Abstract

At the University of Basel, the Faculty of Medicine and Faculty of Science together represent about 60% of students. In recent years, in particular the Life Sciences have expanded and diversified to a great extent. Close cooperation is fostered between University departments, University spin-offs, the University Hospital, local biomedical institutes and pharmaceutical companies. The complex research landscape in Basel requires a diversity of library services to meet the information needs of scientists and clinicians. An increasing demand for extensive advice on complex literature searches can be observed. We therefore substantially expanded our public training programme. ILT curricula were further strengthened. In addition, we intend to implement a new service for “systematic literature searching” to support our medical researchers and clinicians.

Key words: medical libraries; library services; information literacy; professional competence; evidence-based medicine.

Introduction

The University of Basel is situated on the Rhine bend, where Switzerland, France and Germany meet. Founded in 1460, it is the oldest university in Switzerland. The first written evidence of the University Library dates from the year 1471. Since 1996 the university has been self-governed while remaining under the jurisdiction of the two cantons of Basel-Stadt (city) and Basel-Land (country). As a full university with seven faculties, it covers a wide spectrum of academic disciplines in which currently around 13,000 students are enrolled. The Faculty of Medicine has a long tradition in Basel, it is one of the four founding faculties. Famous anatomists and physicians have taught and lectured here since the 16th century, including Andreas Vesalius and Paracelsus. Today, the Faculty of Medicine and Faculty of Science together represent about 60% of the students. In recent times, in particular the Life Sciences have expanded and diversified to a great extent. They have been designated as a main strategic focal area at the University of Basel, focusing on molecular and biomedical research, stem cell and cancer research, neurosciences, infection biology, systems biology, clinical medicine,

nanosciences and pharmaceutical science. In these fields, basic research is well connected with biomedical applications. Therefore, close cooperation is fostered between university departments and local commercial partners, resulting in an extensive network of biomedical and pharmaceutical companies, hospitals, university spin-offs, and other research institutes. This network provides very good conditions for interdisciplinary research and exchange.

The complex research landscape in biomedicine in Basel requires a diversity of library services to meet the information needs of scientists and clinicians. In 1978, the medical library was founded as a subsidiary of the university library on the campus of the university hospital and the Department of Biomedicine (DBM). This central location of the medical library, “embedded” on campus, was very advantageous for direct contact and exchange with our library users. Assistance with literature searches in medical databases and the library catalogue could mostly be provided immediately, whenever medical students or clinical doctors came to the library to borrow materials or to photocopy articles. Access to important information sources in those days was

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often limited to the premises of the medical library – nowadays, of course, e-resources are available campus-wide. The library has always been sought for its information services, resulting in substantial footfall.

In 2013 the medical library had to move off-campus to a location in the centre of town due to the urgent expansion needs of the Department of Biomedicine and their plans to build new labs. While this decision was regrettable in many respects for the medical library and its users, the general lack of space on campus made this decision unavoidable. The library's new location in town, however, is considered only a preliminary solution, as in the long run a new library and learning centre for medicine, the pharmaceutical and the life sciences will be established on the grounds of the new Life Sciences campus that is being developed. While the medical students and students of related disciplines followed the library to its new place without hesitation, visits from clinicians, nursing staff and medical researchers however, became more rare. One explanation may be the larger distance to the hospital and university campus, but the other certainly is the considerable increase of e-journals, e-books, databases and other electronic information resources available in the university network. Despite the scarcer presence of clinicians in the medical library, we observe an increasing demand for extensive advice on complex literature searches via email and telephone.

Public programme for information literacy teaching (ILT)

It became obvious that we needed to reform and expand our training programme and enquiry services to become more visible at the new location, and to meet a broad range of information needs from our clients. First, we decided to interview different target groups about their requirements and interests. Who is in need of dedicated training sessions for medical databases, trial registers and other medical information sources? The subject librarian for Medicine and Life Sciences, who is already involved in various curricular courses, frequently received requests for mediated literature searches and the evaluation of search strategies from different target groups:

- students of Medicine, Nursing Science, Pharmaceutical Sciences and the Life Sciences

(BA/MA);

- PhD students;
- Post-Doctorate candidates;
- medical scientists, assistant professors;
- medical doctors, physicians, clinicians, study nurses;
- nurses, physiotherapists and allied health professionals;
- members of the public.

Meetings and interviews with representatives of the different target groups were helpful to categorise the knowledge levels in medical information literacy and familiarity with databases and IT in general. Whereas some of our clients just wish to "refresh" and update their database search skills and therefore attend a basic or advanced training course, others (especially PhD or Post-Doc candidates, and clinical researchers) have very special interests, focused on a clinical research question. For the latter, it is necessary to conduct in-depth, systematic literature searches in individual sessions that need to be well prepared beforehand.

In order to tailor an attractive programme for different target groups, it is essential to have well-trained instructors – information professionals specialising in Medicine and the Life Sciences. However, most institutions have only one or two subject specialists. Usually they already have a broad spectrum of tasks as collection managers in their disciplines and are frequently involved in teaching. The flood of information requests from students, researchers and hospital staff is, therefore, a big challenge for medical librarians and their institutions, especially when they are short-staffed. Although some Swiss university libraries (Zurich, Lausanne, Berne and Basel) are currently making an effort to strengthen the scientific library staff in the Health Sciences, they are facing difficulties due to limited staff resources or even recruitment freezes. In a first step, a training programme focusing on the main medical databases (Medline, Cochrane Library, Embase) was implemented between 2013 and 2016. It is addressed to students of the Health Sciences, scientists, clinicians, nurses, Allied Health Professionals, as well as the general public. The training courses take place several times a year and they are offered to different target groups and performance levels, for beginners and advanced users. The public training programme is continually

being expanded and now also includes e.g. reference management courses, bibliometric methods, open access publishing or research data management. The schedule is published on the university's website for advanced education, on the website of the university library and in the intranet of the university hospital. However, the visibility of the advanced training programme must still be improved, as the websites are not regularly consulted by all of our clients. Direct mailings are not approved by many University departments and the university hospital. In addition to our public training programme, offers for individual systematic literature searches must be substantially increased in the near future.

Information Literacy Project in Switzerland

Between the years 2009 and 2011 a project of the Swiss Universities Conference (Suc-P2) called "Information Literacy at Swiss Universities" was implemented within the framework of the larger nationwide initiative E-lib.ch (Electronic Library Switzerland). The joint project of several universities aimed to support professionals of the Swiss university libraries in their work to promote information literacy and to create a professional network. For this purpose a new platform was implemented to formulate the Swiss standards for information literacy and to introduce different IL models and learning objectives for different target groups. The platform also serves as a repository for ILT materials. They can be accessed under: <http://www.informationskompetenz.ch>

The main objectives in scholarly education were to introduce ILT campus-wide, to integrate ILT into the curricula, to use modern technology for effective instructions, and to focus on problem-based lessons that can be applied to coursework and professional settings. Standards for learning objectives and assessments have been introduced and performance levels were defined for different target groups: for beginners (skills for first year students, bachelor), for advanced groups (skills for students at transition from bachelor to masters) and for experts (skills for scientific research).

Nowadays, information literacy courses in Medicine are well established in medical curricula in Switzerland (1) and in many other European countries, e.g. (2-6). Libraries have turned into "Teaching Libraries" (7) and there are numerous

best practice examples of information literacy instructions at medical libraries (8). In the Health Sciences the importance of information literacy has been recognised early, so efforts to integrate ILT courses into curricula were already made a long time before the Swiss nationwide project was initiated.

Information literacy - why is it such an important issue in the health sciences?

There are many reasons, i.e. the very high publication rates and strong increase of biomedical information as well as the diversification of information sources. New platforms spring up like mushrooms, citation or full-text databases, clinical knowledge bases, point-of care medical resources, search engines etc. Medical students need to distinguish trustworthy, evidence-based and valid information, available in high-quality medical databases, from other information they find e.g. in a quick Google search. These are strong arguments for the needs of professional guidance and critical evaluation of these information sources.

ILT curriculum development

In the early 2000s the university library and the medical faculty in Basel reached out for a collaboration in ILT curriculum development. A lecture on "Information retrieval" in conjunction with computer-based training courses for the first year BA students was soon implemented. Learning objectives for first year medical students encompass the knowledge of all relevant medical information sources, the different publication types, the definition of a clinical question and its translation into a search question for a database, the design of search strategies adjusted to different information sources, the use of different search tools and techniques to limit and specify searches, and the knowledge on how to get access to full-texts from bibliographic references. In 2014 the curriculum for BA Medicine was reformed and information literacy strengthened and complemented by an obligatory self-paced online certificate.

For the 3rd year BA medical students a lecture on EBM-based literature search and accompanying computer-based courses were implemented. They focus on formulating clinical research questions in the PICO format, on the systematic search for publications with best evidence (guidelines,

systematic reviews, meta-analyses, RCTs) and the critical appraisal according to the principles of Evidence-Based Medicine. Additional courses are offered for students in preparation of their master theses in a so-called “Month of Science” where all critical skills for the preparation of the thesis are treated, i.e. scientific writing, citing literature correctly, systematic literature searching and reference management courses with EndNote.

Another important issue is the creation of new learning environments in the health sciences. E-learning and e-assessment are on the rise and form an integral part of ILT curricula. A mix of lectures, hands-on courses, e-learning and e-tutorials will be offered, following the concept of “Blended learning”. Learning content is offered in different forms and students may choose what seems most appropriate for them. Blended Learning corresponds to the different learning habits of students and is therefore more flexible. At the University of Zurich already in 2006 an e-learning module for knowledge transfer was successfully introduced into the medical curriculum (1). In Basel, an e-tutorial on advanced systematic literature search is currently in preparation.

Special literature search courses for scientists

A special literature search seminar for researchers in biomedicine was developed a couple of years ago. It takes place three times a year at different universities in Switzerland (Basel, Zurich and Lausanne) in cooperation between scientific librarians from the university libraries in Zurich, Basel, Lausanne and the ETH library. They developed a learning module for 3Rs searches, i.e. to find alternative methods for animal testing, according to the principles of the 3Rs of animal use in alternative test method development: Replacement, Reduction and Refinement. This literature search seminar is part of the larger “LTK2-Module” offered by the Institute of Laboratory Animal Science at the University of Zurich and it is mandatory for all directors in animal experimentation.

During the past years, the advanced study programme expanded at the University of Basel and quite a few postgraduate Master degree courses were implemented in the Health Sciences, e.g.

Master of Public Health, Epidemiology, Insurance Medicine, International Health, Functional Kinetic Science, Medicines Development, and Spiritual Care. As a result, there is an increasing demand for ILT in the new health care disciplines. Medical scientists and clinical researchers enrolled in the advanced study programme often turn to us when they need assistance in systematic literature searches for their research topics. Therefore we need to increase target-group-specific ILT programs for advanced study groups. Individual literature search sessions are always very effective for our clients but time-consuming for the scientific library staff, as each research topic has to be well prepared before each meeting. Recently requirements for the search protocols became more stringent from the medical faculty as well as from publishers. Search protocols have to be much more detailed and comprehensive, the search methodology has become an important issue. Every single step of a search in a medical database, in a trials register or in grey literature sources needs to be accurately documented to make the search strategy transparent and reproducible.

Systematic literature searching - library support for Evidence Based Medicine

PhD and Post-Doc candidates and medical scientists require more in-depth searches for their research projects in different medical information sources (trial registers, main databases, conference proceedings, grey literature) than other clients, especially when they are working on a systematic review or a meta-analysis. Their aim is to find not only the main published articles on a research subject or clinical question but every single published work related to the question. This requires advanced search skills and a broad overview of the relevant information sources. Clinicians, on the other hand, need to search for literature for their daily work to keep up-to-date with their medical specialty and to find the best evidence available for the treatment of their patients. Evaluating the abundance of information resources for their value and evidence often exceeds the limited time available to clinicians and researchers. Therefore, the ability of librarians to find evidence to address distinct clinical problems becomes more essential (9). A tight cooperation with medical librarians and information specialists therefore seems a very

reasonable and efficient way to select the trustworthy, peer-reviewed and evidence-based information resources for daily clinical practice, as has been proven in many reports. Cobus (10) points out that a collaborative partnership between Public Health educators and librarians can help integrate core competencies and improve Public Health education. According to Dorsch & Perry (11), EBM instruction is an interest shared between medical educators and medical librarians, and co-authorship between the groups and distribution of literature seems a very productive collaboration. Controlled studies measuring the impact of cross-disciplinary efforts have signalled a continuing progress in EBM instruction.

Another essential task is to get acquainted with the various search tools offered in medical databases and platforms, i.e. to make appropriate use of controlled vocabularies (e.g. MeSH, Emtree, CINAHL headings), textword search and search filters. Fortunately, standards for search methodology and search strategies in medical information sources have been introduced along with the growth and acceptance of EBM. The practice of EBM means integrating individual clinical expertise with the best available external clinical evidence from systematic research. It can affect safety by providing a direct link between the medical literature and patient care (9). The worldwide distributed Cochrane Centres for Evidence-Based Medicine and the Cochrane Review Groups (CRG) have defined quality standards for literature search in order to safeguard and distribute empirically significant, highly qualified medical information. These standards are publicly available, e.g. in the Cochrane Handbook for Systematic Reviews of Interventions, chapter 6: searching for studies (12). A main task of the Cochrane Review Groups is to organise medical research information in a systematic way to facilitate the choices that health professionals and policy makers face in health interventions according to the principles of EBM. The CRGs and collaborators conduct systematic reviews from randomized controlled trials of healthcare interventions and diagnostic tests according to the principles of EBM. The resulting Cochrane Reviews are then published in the Cochrane Library (<http://www.cochrane-library.com/>), regarded as the highest standard of

evidence. Since 2016, a National License for the Cochrane Library has been facilitated by the Swiss Academy of Medical Sciences (SAMS). At the University of Basel, at the Basel University Hospital, and at other Swiss universities and hospitals, numerous researchers collaborate with the Swiss Cochrane Centre in Lausanne, the German Cochrane Centre in Freiburg im Breisgau, and with the CRGs to work on systematic reviews. For this purpose they frequently ask the medical library for assistance in systematic literature searching.

As Zipperer (9) reports, there is a need for a multifaceted approach to knowledge collection that librarians are uniquely positioned to undertake. Librarians' participation in EBM is rooted in past practice and most notably in clinical medical librarianship. EBM extends the librarians' role beyond identification of the literature to involvement in practicing and teaching quality filtering and critical appraisal of the literature (13). These activities require librarians to acquire new knowledge and develop new skills. Studies exploring the outcomes of health library services have been undertaken in a number of countries including the US, Spain, Australia and New Zealand. Zipperer (9) reports that in a seminal 1992 study based in the US, 94% of physicians surveyed stated that information from the library contributed to higher quality of care. Also, Rethlefsen et al. (14) reported in their study that the level of librarian and information specialist participation was significantly associated with higher quality reported search strategies in systematic reviews.

This altogether strong level of support should generate efforts to involve more medical librarians in this way. Therefore we intend to implement a new service for "systematic literature searching", where library information specialists support medical researchers and clinicians with their methodological knowledge in developing sound search strategies and in efficiently managing their literature references. Services like that have already been successfully established at the Medical Library of University of Mannheim, Germany (15) and at Zurich University Library. In the near future, a new team of information specialists will deliver systematic literature searches and training courses at the Berne University Library. In Basel there are also plans to establish a new library service for

systematic literature searches. In Great Britain, in the Scandinavian countries and in The Netherlands extensive scientific library services focusing on the needs of EBM research have been established for a long time. Also, the concept of the “embedded” medical librarian in hospitals is very well accepted there. Esparza et al. (16) conducted a large study to determine the effect of a clinical medical librarian (CML) on outcomes of in-patients on the hospital’s internal medicine service. Shipman *et al.* (17) reported on a “Health Information Literacy Project” that successfully surveyed hospital administrators and health care providers regarding their attitudes towards consumer health information, and used the resulting data for developing and evaluating a curriculum to be taught by librarians. This increased awareness of health literacy issues and encouraged the use of National Library of Medicine health information resources such as MedlinePlus. Training by librarians can increase knowledge of the importance of health information literacy. The study showed that a librarian-taught health information literacy curriculum raised awareness about the issue among the target group and increased both the use of NLM health resources and referrals to librarians for health information literacy support (17).

Future perspectives: Do we need a postgraduate programme in “Medical Librarianship”?

Sackett describes EBM as “nothing more than a process of lifelong, self-directed learning in which caring for patients creates the need for clinically important information” (18). The librarians’ tradition of life-long learning and professional development enables us to establish a collaborative relationship with health care professionals and to evolve into new roles in the information process (19).

Due to rising demand for support by medical librarians in Switzerland, the plans for the development of a new postgrad distance-learning program in “Medical Librarianship” come at the right time. Training practices and knowledge transfer in medical librarianship differ substantially from other subjects. In some larger medical libraries extensive training and mentoring programmes for newcomers to the profession are provided, whereas in others colleagues find it hard to acquire the

specialist knowledge they need for their job.

Scherrer (13) describes a professional development programme for librarians at the Library of the Health Sciences (LHS) at the University of Illinois at Chicago (UIC). The programme’s goals were to increase librarians’ skills and support the EBM curricular initiative at the UIC College of Medicine. Classes provide librarians with an overview in clinical study designs, statistical concepts, and critical appraisal of the literature. Other measures included the establishment of an EBM round table. The programme’s success was measured by librarians’ growing involvement in EBM curricula, journal clubs, and morning reports. Librarians gained new skills and professional satisfaction from working collegially with students, residents, and faculty.

At the University of Portsmouth a new postgraduate certificate in systematic reviews in health has been developed in collaboration with Cochrane recently. It is suited to the needs of health librarians wishing to develop and extend their knowledge and skills of systematic reviews and obtain a postgraduate qualification.

So, is there a need for a postgrad program in “Medical Librarianship” in Switzerland as well? If so, what should that include? And how could it be delivered – by distance learning? Or with some residential modules? We’ll follow up on this topic in another article of this themed issue of the *Journal of EAHIL*.

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