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Abstract
Librarians in Sweden are facing huge challenges in meeting the demands of their organisations and users. This article looks at four key areas: coping with open science/open access initiatives; increasing demands from researchers for support doing systematic reviews; understanding user experiences in Swedish health science libraries; and the consequences of expanding roles for recruitment and continuing professional development. With regard to changing roles, there is an increasing shift from the generalist towards the expert role. The authors raise the issue as to how to prepare those new to the profession to the changing environment of health science libraries.

Keywords: careers; collaboration; library and information professionals; licensing; national strategies; nordic states; open access (OA); professional development; research data (management); review, systematic

Health science libraries in Sweden: new directions, expanding roles
Lotta Haglund
Head of Library & Archive
Swedish School of Sport and Health Sciences, Stockholm, Sweden
Email: lotta.haglund@gih.se
Twitter: @L8haglund
Annikki Roos
Library Director
Karolinska Institutet University Library, Stockholm, Sweden
Email: Annikki.roos@ki.se
Twitter: @AnnikkiRoos
Petra Wallgren-Björk
Library Director
Danderyd University Hospital, Stockholm, Sweden
Email: petra.wallgren-bjork@sll.se
Twitter: @PeWaB

The Swedish context
Health science librarians in Sweden are employed either by the county councils in hospitals or by universities. In some cases, the hospital library is also the university medical library (Örebro, Kalmar). Most medical university libraries belong to multi-faculty universities; only the Karolinska University Library is a single faculty medical university. A few remaining pharmaceutical libraries can also be found in Sweden. In Stockholm, and probably also elsewhere in Sweden, many health care professionals divide their time and employment between the hospital/county council and the university, which complicates information access and delivery. The economic situation for the individual library is very varied depending on the organisation to which the library belongs.

In Sweden, there is no library association dedicated to the health information field, but the Swedish Library Association organises all librarians and library types (Biblioteksföreningen, 2018). The Swedish Library Association is considered by many in the academic sector to have a very strong focus on public libraries and school libraries. Although the Association organises conferences and meetings of different specialist groups, there are no specific activities relating to the health information sector. In the past few years, the Association has taken a stronger interest in the LIS educations in Sweden and the employability of the newly graduated students in relation to the needs of the library sector.

The Swedish government has commissioned work on a National Strategy for Libraries, and a working group was established at the Swedish National Library. Several reports have been published, and in May, a draft strategy was referred to all interested parties for comments. The National Strategy will be finalised in March 2019 (Nationell biblioteksstrategi, 2018). Thus far, there
has been very little mention of issues that are specific to health science libraries.

**Open science/open access initiatives in Sweden**

The Swedish government has followed the recommendations and guidelines the European Commission has set for member states (European Commission, 2018.) In their latest Research Bill (28th Nov. 2016), the Swedish government specified a goal for open access of research data and publications. The target for research publications which are financed by public funding is that they should be openly accessible immediately after publishing. Research data that are related to the publication should be made openly available at the same time as the article is published. This vision should be achieved within 10 years at the latest (Ministry of Education and Research, 2016). The Swedish Research Council has the responsibility for promoting open research data, and the assignment given to the National Library of Sweden is to coordinate the OA of publications (National Library of Sweden and Swedish HEIs, 2018).

The national political statements have led to various activities in Sweden. The Swedish National Library has started a series of studies to analyse obstacles to the transition to OA in order to find a way to achieve the goals set by the government (National Library of Sweden and Swedish HEIs, 2018). This work started in 2017 and is expected to be finalised during 2019.

The lack of transparency of licensing and publishing costs has been identified as a barrier to OA (Jonson, 2017). In Sweden, Bibsam, an office within the National Library of Sweden, has coordinated the national licenses of databases and electronic journals since 1996. For hospital libraries, deals are negotiated by the consortium Eira (2018). In 2017, Bibsam, together with the higher education institutes, started a project called Open APC Sweden, which collected information about OA publishing expenses (National Library of Sweden and Swedish HEIs, 2018). This information is very valuable when offsetting agreements are negotiated with publishers. The idea behind offsetting deals is to link licensing costs (reading costs) to publishing charges (APCs) in order to prevent publishers from ‘double dipping’ (Björk, 2017).

Starting in Spring 2018, several pilot agreements with OA components (read and publish model) were initiated. One of these offsetting deals has been evaluated. The report notes that the amount of OA articles increased at same time as the availability of administration diminished (Kronman, 2018). It appeared, not surprisingly, that the problem was the expenses. The total cost for reading and publishing was rising more than expected. Another problem identified was that the deal promotes hybrid OA over Gold OA. In all, about 40% of all articles published by Swedish researchers were openly available in 2016 (Kronman, 2016).

Offsetting deals have gained the main attention when the recent national licensing agreements have been negotiated in Sweden. The expensive lessons learned from the evaluated agreement have raised awareness of the various OA models among librarians. The need to discuss the policies and objectives of OA has also been expressed.

Developments within the other areas of open science (open data/tools/methods) are quite decentralised compared to OA. These are coordinated by the Swedish Research Council, but there are several actors in this field (‘SND Swedish National Data Service, 2017; SUNET, 2015; Swedish National Infrastructure for Computing). The Government has given the Swedish Research Council the task of evaluating the extent to which publicly financed data fulfils the FAIR principles. This task must be finished in December 2018.

Research data support services in the libraries of the Swedish higher education institutes are evolving. The understanding of the importance of research data as a part of researchers’ information environment seems to be growing among Swedish libraries, but there remains quite a lot of work to be done.

**Systematic reviews – increasing demands from researchers**

Systematic reviews are an increasingly common research method used to analyse large sets of data...
from different sources (Nicholson, McCrillis & Williams, 2017). Many medical librarians have been asked to participate in systematic reviews with local researchers, and in many cases, researchers are not familiar with the systematic review process or the amount of time it takes to do a systematic review (Beverley, Booth & Bath, 2003). According to the literature, the quality of the systematic reviews improves immensely when a librarian is on board doing the searches and helping determine if a research question is appropriate for a systematic review (Foster, 2018).

In Sweden, many of the hospital libraries offer such service to their researchers. Clinical librarians are involved with systematic review projects for a longer period, making them less available for other service opportunities. This leads to problems as most of Sweden’s hospital libraries are small with few employees. But this core facility is important; it is a useful service for their clients and should be a priority for the library management (Meert, Torabi & Costella, 2016). Such projects lead to new collaborations with other departments and organisations that also do research or business development. This provides a great opportunity to market library services and emphasise the importance of evidence-based research and development. This work is also an opportunity for the individual librarian to improve their own search skills. For many clinical librarians, this entails greater work with health technology assessment (HTA) in many county councils in Sweden.

User Experience (UX) – an old-new direction in Swedish health science libraries

To be able to develop library services that are based on the needs of the patrons, librarians have used different methods to study their expectations. The findings show that patrons are content with library services, a result that is difficult to use to improve services (Regionbiblioteket Halland, 2011). This is also the case when it comes to traditional quantitative measures used by libraries, which do not reveal the quality of the interaction between library and patron (Appleton, 2016). In recent years, the methods described as ‘user experience’ (UX) has been gaining interest. The ‘graffiti wall’ is among the easiest and the most popular method to collect patron views of the library. It gives the individual patron the possibility to write his/her view on the library and to see the answers from library staff alongside the question (Priestner, 2015).

Using so-called design thinking is another way of working with the users’ experience, starting with defining the problem, collecting information to understand the users’ position/needs, then prototyping and testing. The idea is that to be able to solve the problem you need to understand it from the users’ perspective and to solve it together with the users. Design thinking is also an activity that can engage all library staff (Bell, 2018; KIBs metodbank, 2016; User Experience in Libraries, 2016; UX (tag) 2013–2015; UX för att förbättra våra tjänster, 2016; UX metoder på Chalmers bibliotek, 2017).

Expanding roles – consequences for recruitment and continuing professional development

As described above the roles of the health science librarian is expanding, and there is an increasing shift from the generalist towards the expert role. Can these experts be found in our health science libraries, or do we need to develop new competencies to fill these roles? How do we prepare those new to the profession for this kind of work? Is it too far outside our comfort zone?

According to a recent report, the first-year students at the library and information science (LIS) programmes sometimes have a very traditional view of librarianship. In the profession, there is a sense that the majority of LIS students in Sweden are aiming at a career at public libraries, sometimes due to the fact that they have a background in the humanities, but also because of the failure to acquaint them with other kinds of librarianship than the public librarian (Biblioteca Digitala; Bibliotekschefers roll i det digitala samhället under lupp; Lund University, 2018; National Library of Sweden, 2018; Uppsala University). There is also a lack of librarians with a PhD and with a background in science, both often sought after in the more specialist functions in health science libraries.
Programme syllabi are available on the LIS institution websites, and the authors reviewed them to understand if and how much of the content might have relevance for the new roles described in this paper. Most syllabi are very general but courses with the title ‘Professional information searching’, ‘Classification and information retrieval’, ‘Information access, including models for information access […]’, as well as evaluation of information searching and information systems’ can be found i.e. in Borås (University of Borås, 2018a, 2018b). There is also a shorter course on Scientific publishing (. 2018). At Linnaeus University, several courses have descriptions that imply usefulness for future health science librarians, for instance: ‘Knowledge organisation IV: theoretical solutions and practical use of search ability based on metadata and subject analysis in net based information systems’; ‘Digital handling of registers’; ‘Scientific communication and bibliomtery’, including open access; ‘Library and information ethics II’, including copyright issues, digital integrity and espionage (Linnaeus University, 2016).

Acquiring new skills can be done in two ways: from an expert/peer learning in the workplace and/or by taking part in continuing education courses offered by professional bodies or organisations such as the Swedish Agency for Health Technology Assessment and Assessment of Social Services (SBU) (SBU, 2018). There are often continuing education courses available at the yearly events of the European Association for Health Information and Libraries (EAHIL), the Medical Library Association in the United States or the Canadian Health Libraries Association (Continuing education courses during the EAHIL conference 2018 in Cardiff, UK, 2018; Continuing Education Workshops, 2018).

According to the reports produced as input to the National Strategy for libraries, academic libraries need staff with knowledge about systems, (scientific) communication publishing, ‘academic competence’ etc., that new librarians are not expected to have. But the report argues that the solution is not to recruit staff with other academic backgrounds, as that would lead to a loss of status for librarians and diminish citizen’s trust in the library as an institution (National Library of Sweden, 2018). The authors believe that libraries have much to gain from multidisciplinary approach to staff recruitment.

Summarising, health science libraries and librarians in Sweden are facing huge challenges in meeting the demands of our organisations and our users. We will have difficulties filling expert positions if we lack professional librarians willing to leave their comfort zone to take on new roles, as well as a reluctance on the part of newly trained library professionals to work in an academic environment.

**Conflict of interest**

None.

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For details on how to contribute to this feature please contact:
Jeanette Murphy
Honorary Senior Research Fellow in Health Informatics
The Farr Institute of Health Informatics Research
University College London, CHIME
London, UK
Email: j_murphy_london@outlook.com
Twitter Handle: @MurphyJeannette

Policy Environment OpenAIREproject: European Commission.

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