

SCHOLARLY PUBLISHING AT LANDSPITALINN THE NATIONAL UNIVERSITY HOSPITAL OF ICELAND

Solveig Thorsteinsdottir

Introduction

In this short overview I like to look at the publishing patterns of physicians at Landspítalinn, the National University Hospital of Iceland, which is one of the main research institutions in life sciences in Iceland. The trends that are identified are the citations to Icelandic publications, publication languages, international and local publishing affiliations, the number of articles published in open access and the coverage of Icelandic scholarly publications in international databases. The focus is on the period 2007 - 2010. The searches are done in Web of Science, PubMed and Scopus. I will also look at the cut in library budget during the recession and how it might affect research at the hospital.

The citations to Icelandic publications

Recent report from Rannís the Icelandic Center for Research on “Research and development in Iceland 2009¹ and Norden, NordForsk “International Research Cooperation in the Nordic Countries”² cover the research trends in Iceland as well as the other Nordic countries.

According to these reports the published research articles in Iceland have grown 900% over fourteen year period from 1994 to 2008. The growth in research publication in the other Nordic countries over the same period is lower or from 110% to 200%. The growth of publications from Iceland is both in national publication and international publications. The growth in the other Nordic countries is greater in international publications than in national publications. Icelandic international cooperation is 75% of the country publications which is about 25% higher than international cooperation in the other Nordic nations.^{1,2}

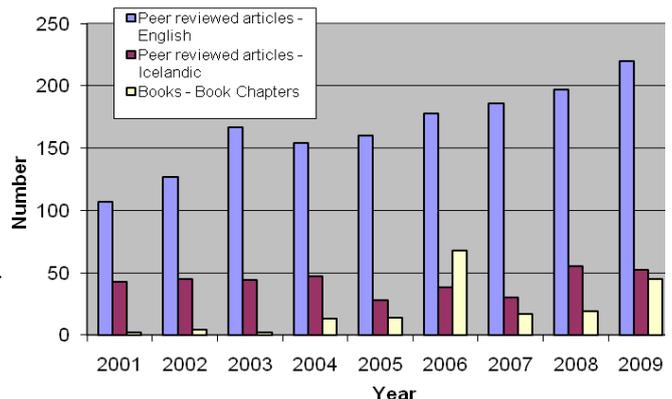
High proportion of research done in Iceland is in life

sciences or 58% of all research done in Iceland, which is similar to the proportion in life sciences in the other Nordic countries.^{1,2}

In the publications from Rannís the Icelandic Center for Research on “Research and development in Iceland 2009³, the outcome in the reports show that Icelandic authors in medicine rank high in comparison to other Nordic countries. It is pointed out that Iceland’s low percent of the total Nordic research publications makes it different from the other Nordic countries in comparison.

Table 1 shows peer-reviewed articles, book chapters and books from Landspítalinn published in the period 2001 - 2009. The research in Landspítalinn (LSH) has grown 52% over 8 year period in peer reviewed articles in English. During the same period peer reviewed articles in Icelandic, books and book chapters have increased slightly.⁴

Table 1: Peer reviewed articles and Books LSH 2001-2009.



The number of authors from Landspítalinn, who published peer review articles in 2009, was about 190. In order to compare with the citations to publications of Icelandic researchers at Landspítalinn to other Nordic university hospitals a search was done in Web of Science. The focus was on the period 2007 – 2010.

¹ Research and development in Iceland 2009. (2009) Rannís the Icelandic Center for Research, Available at: http://www.rannis.is/files/Vasabók%202009%20ensk_1386807549.pdf

² International Research Cooperation in the Nordic Countries. (2010) Norden, NordForsk [2]. Available at: http://www.nordforsk.org/_img/bibliometri_1.pdf

³ Research and development in Iceland 2009. (2009) Rannís the Icelandic Center for Research, 26-27. Available at: http://www.rannis.is/files/Vasabók%202009%20ensk_1386807549.pdf

⁴ Tenopir, C, King, DW, Mays R, Wu, L and Baer, A, Measuring value and return on investment of academic libraries, *Serials*, (2010) 23(3), 182-190.

Four main university hospitals in the Nordic countries were compared to Landspítali. The number of articles retrieved from the WOS search is lower than in Table 1. The number is lower because some researchers did not use the correct name of Landspítali in the address field. In Table 2 articles are included if the name Landspítali had appeared in the address field. The same apply in table four. Table 2 shows that by comparing the average citations per article in the ISI database WOS Landspítali ranked the highest of these hospitals. It ranked third if compared average citations per item.

Table 3 shows the international cooperation at Landspítali. The three countries that showed the highest cooperation with Landspítali were Sweden, USA and England in this order.

The cooperation of all Icelandic scientists for the same period is slightly different. The top three countries are USA, Sweden and England. ²

Table 2: Four main university hospitals in the Nordic countries compared to Landspítali.

	Average citation per *item 2007-2010	Average citations per article or review
Landspítali University Hospital	7.62 (items 790)	10.98 (articles 535)
University Copenhagen Hospitals	7.54 (items 1.224)	9.85 (articles 885)
Karolinska University Hospital	5.97 (items 5.817)	7.48 (articles 4.399)
Sahlgrenska University Hospital	8.34 (items 3.390)	6.32 (articles 2.419)
Helsinki University Central Hospital	8.13 (items 923)	6.21 (articles 1.246)

* Item (Article, editorial material, meeting abstract, review, letter, proceedings paper, correction, biographical-item, reprint, database review)

Cooperation in research

International cooperation is important for a small country like Iceland. The higher international cooperation, about 25% higher than the other Nordic countries, might partly explain why Iceland scores higher than other Nordic countries for number of citations per articles.

The cooperation with the EU countries, USA and internal Nordic cooperation is most important for all the Nordic countries. ¹

Table 3: Landspítali affiliations.

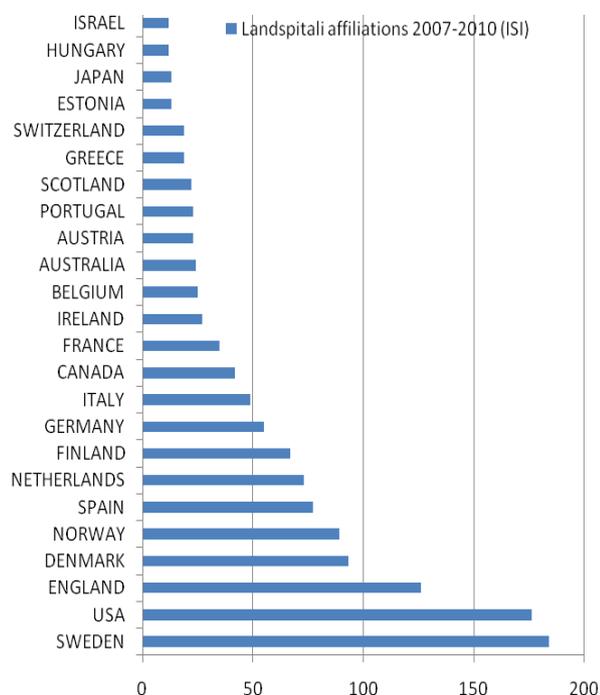


Table 4 (next page) shows the article covered Hirslan the subject repository for Landspítali. Out of these articles 70% are published in foreign journals. The Icelandic Medical journal – Læknablaðið has the greatest number of articles published in Iceland or 65% of the total of all health science journals in Icelandic. Of the 600 foreign journal articles 535 are in WOS or 89%. Of these articles in WOS 73% are co-publications with institutions outside Iceland and 23% with other Icelandic institutions and 4% co-authors are from Landspítali only.

Publication languages

The language used to publish is English and Icelandic. Articles in English receive international audience and a higher impact score in WOS. Only one Icelandic journal in health sciences, Laeknabladid, is indexed in PubMed, Scopus and WOS. Not all articles are included. The 52 articles included in WOS from Landspítali in Laeknabladid over the four year period 2007 – 2010 were cited only 12 times. Average citation per article is 0.23.

If Laeknabladid were not included in WOS average citations per article would be 11.81 for Landspítali. The abstracts from the articles are in English and the impact of this Icelandic journal in WOS is low. It is important for a small nation like Iceland to publish in the native language to maintain the Icelandic vocabulary in health sciences but it is also important for Icelandic authors to be read and cited in the international arena. An Icelandic author who writes on the same subject and publishes both in Laeknabladid

Table 4: The percentage of articles published in foreign journals and the percentages published in local journals.

Articles in Hirslan from Landspítalinn					
	2010	2009	2008	2007	
Articles published in foreign journals	152	157	141	150	70%
Article published in Icelandic journals	52 *(38)	61 *(45)	75 *(47)	59 *(31)	30%
Editorials in Icelandic journals	22	20	21	21	
Editorials in foreign journals	2	2	1	1	
Total	228	240	238	231	
*Læknablaðið (Icelandic Medical Journal)					

and also in a foreign journal might receive a high citation score in the foreign journal and none in the Icelandic journal. Læknablaðið has a negative effect on the average citations per articles in WOS. The average score for all articles is 10.98. By omitting Læknablaðið the Icelandic Medical Journal the score is 11.81. The difference is 0.83 in average citations by articles or reviews. Læknablaðið has been indexed only for few years in the international databases and the impact of the journal is still very low in WOS.

Number of articles published in open access

Open access is still a very small percentage of articles published from Landspítalinn in foreign journals. A search done in PubMed covering four years period 2007 – 2010 for Landspítalinn revealed that of the 226 items indexed from Landspítalinn only 14% were in open access. Of the total items 75% were in open access in PubMedCentral and 25% through Golden Open access publishing. This is low compared to world wide open access in health sciences.

This is different regarding articles published in Icelandic health science journals in Icelandic which are all open access. These Icelandic articles are stored in Hirslan, the subject repository for Landspítalinn. Icelandic publishers made an agreement with the Landspítali Health Science Library to allow all published articles to be hosted and stored in Hirslan and made accessible in open access.

The Icelandic government is taking steps toward open access. The Icelandic Research Counsel signed the Berlin declaration in May 2010. Iceland does not have any mandates yet regarding open access.

All articles published in foreign journals from Landspítalinn are indexed in Hirslan and a link is made to the publishers or foreign repositories. Only 14% are accessible in open access and 2% of these are stored in Hirslan.

Visits to Hirslan have increased over one year period over 60%. In 2010 about 135 thousand visitors visited the repository and half of the visitors were from

abroad. Within Iceland the articles published in Icelandic health science journals are used frequently. It shows that health science articles written in Icelandic do serve the Icelandic population well. It is important that authors write both in Icelandic and English. So far the only Icelandic Health Science journal Læknablaðið indexed in foreign databases does not receive many readers abroad but it is very well received within Iceland.

The cut in acquisition budget of Landspítalinn Health Science Library

The recession has had a great impact on the collection and service of the Landspítalinn Health Science Library. In three years the journal subscriptions have been cut down by 25%. The first two years the journals that received the lowest usages according to statistics were cancelled but in the 2010 major journals that are very expensive have been cancelled such as Science and other important journals. In Iceland there is a National consortium for joint subscriptions of libraries in Iceland and also funded by the Icelandic government. The National access has not been cut down during the crisis which has made a difference regarding access to journal articles. The health science journals subscribed to through the National access is about 1.573 journals. About 2.563 health science journals are included in the National consortia from EbscoHost and ProQuest Central but some are the same journals as the subscription journals but some with six months to one year embargo period. Landspítalinn subscribes to 714 journals which are excluded by the National consortia but very important journals for researchers such as the Nature journals and Cell which are not accessible through the National access. Open access journals and open access articles are starting to make a difference and growth in open access publications in the health sciences are welcome during this recession and cut back of library budget.

Subscriptions to some databases have been cancelled. Hardly any books have been purchased in three years.

The library offers interlibrary loan services and has in addition until now purchased articles ahead of print

for researchers. Interlibrary loans are getting to be very expensive. Due to restrictions from publishers some articles can only be delivered in black and white and in print not in electronic format. Articles bought directly from publishers are no longer offered by the library since the budget of the library does not allow it. The articles bought directly from publisher have strict rules regarding usages. Only one user can open the article in color and in some cases after one month the article is deleted from the user computer file by the publisher software built into the delivery system. Libraries who have had to cut down the journal subscriptions and plan to offer access to users on article bases might find that difficult to supply due to the restrictions from publishers and high cost.

In November 2010, a library user survey was performed at Landspítalinn. One of the questions was regarding the cut in subscriptions of the library. Surprisingly some users had not felt the cut but both teachers and researchers had felt the cut in subscriptions and worried about the services of the library. Researchers who used to access the articles in electronic format from the library found it time-consuming to use the interlibrary loan services of the library and were reluctant to do so. Some had purchased the articles by their own budget or asked for a reprint from the author. This was a method which they had not used for many years. Some who had recently studied in the Nordic countries still could access the articles through their old library in Scandinavia and said if that was not the case working with research in Iceland would be difficult. Many years ago Icelandic researchers had to travel abroad to be able to do research because the articles were not accessible in Iceland. We might see the same trend again.

After three years cutback in the acquisition budget of the library this year 2011 is no better. The library has to cut down by 26.6% of its 2010 spending both in acquisition and staff. Landspítalinn Health Science Library is the main health science library in Iceland. In the ten year's period eight health science libraries have been either merged with Landspítalinn Health Science Library or closed. As a result Landspítalinn Health Science Library and the Akureyri Health Science Library are the only health science libraries in Iceland.

Employment at Landspítalinn has decreased in the last three years. Some doctors have moved from Iceland especially the younger generation. Medical doctors

who have finished their further specialty education in other countries are reluctant to return to Iceland at this time. Some positions that are advertised at Landspítalinn are not filled and few apply for open positions. This is a change from few years ago when it was desirable to return back to Iceland and work at Landspítalinn. From the figures over research articles in WOS or Hirslan in 2010 it is a little lower than in 2009. The recession has not set its mark yet on the output of research but if access to research article is limited it is bound to have an impact on research in Landspítalinn. A study measuring value and return on investment of academic libraries have identified a financial return about \$1.6 for every dollar invested. [5]. The benefits of being able to access information are likely to change grant success rate and output in publications. Lack of funding might have a greater impact for Landspítalinn such as not being able to attract outstanding faculty and support research. The migration to other countries and the possibility that young people might not return after finishing their further education abroad might have impact on research output.

Conclusion

Researches done in Iceland in life sciences did increase a great deal in the last ten years. The publishing pattern of Icelandic physicians at Landspítalinn, the National University Hospital of Iceland, in life sciences in Iceland is similar to university hospitals in other Nordic countries except the growth in local publications has been higher. The citations of Icelandic publications are high in comparison to the Nordic hospitals but the publication output is much lower. The publication language is English in international publications and Icelandic in local publications. The articles in *Laeknabladid*, the Icelandic Health Science Journal, are written in Icelandic with abstracts in English. It is the only Icelandic health science journal indexed in international databases. It does not receive high impact score in international databases but is well received in Iceland. The international publishing affiliation is greater than the local affiliations. The number of articles published in open access is lower than the international averages. The coverage of Icelandic scholarly publications in international databases is high. The cut in the Landspítalinn Health Science Library budget during the recession is high but the affect on research at the hospital is too early to predict.

References

Research and development in Iceland 2009. (2009) Rannis the Icelandic Center for Research, Available at: http://www.rannis.is/files/Vasabók%202009%20ensk_1386807549.pdf

International Research Cooperation in the Nordic Countries. (2010) Norden, NordForsk [2]. Available: at http://www.nordforsk.org/_img/bibliometri_1.pdf

Research and development in Iceland 2009. (2009) Rannis the Icelandic Center for Research, 26-27. Available at: http://www.rannis.is/files/Vasabók%202009%20ensk_1386807549.pdf

Vísindastarf. (2009) Landspítali. Available at: <http://innri.lsh.is/lisalib/getfile.aspx?itemid=25056>

Tenopir, C, King, DW, Mays R, Wu, L and Baer, A, Measuring value and return on investment of academic libraries, *Serials*, (2010) 23(3), 182-190.



Solveig Thorsteinsdottir, Director, Medical and Health Information Centre
Landspítali – the National University Hospital of Iceland