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# Welfare professions in the Nordic countries: Nordic and European case studies on education and research

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education and research**

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## 1. Introduction

### 1.1 Assignment

NordForsk has commissioned Faugert & Co Utvärdering AB (Technopolis Sweden) to conduct eight case studies and to contribute to a synthesis report in collaboration with the consultancy Damvad. The case studies focus on the interplay between research, education and practice within the field of welfare professions. Five case studies describe the interplay from the educational perspective and focus on nursing education in the Nordic countries, where one study per country has been conducted. The remaining three case studies concern the research perspective and especially if and how links to education and practice have been taken into account and handled. Three European research initiatives with the potential to influence both education and practice, not least for nurses, have been chosen: Joint Programme Initiative on Antimicrobial Resistance (JPIAMR), The EU Joint Programme – Neurodegenerative Disease Research (JPND), and training programmes at the European Centre for Disease Prevention and Control (ECDC).

This report presents the eight case studies. This part of the assignment has been carried out between January and June 2015 by Tobias Fridholm, Miriam Terrell, Göran Melin (project manager) and Carolina Jonsson at Technopolis Sweden and Maike Rentel at Technopolis UK.

The authors want to thank representatives of all eight cases for generously supporting the studies by making themselves available for interviews, follow-up questions, and for providing us with a rich background material in terms of documents and suggestions of additional information sources.

### 1.2 Methods and material

The five Nordic case studies were identified after consultation with leading individuals with good overview of the nursing field in the respective country followed by desk research, and finally selected in dialogue with NordForsk. Table 1 shows the selection of Nordic case studies.

Table 1: Nordic case studies

Case study	Reason for being selected
<ul style="list-style-type: none"> <li>• Master of Science in Nursing, University of Southern Denmark</li> </ul>	Represents a progressive attempt to make the nursing profession in Denmark more research-based
<ul style="list-style-type: none"> <li>• Regional network on falls prevention, Northern Savonia, Finland</li> </ul>	A promising mechanism to integrate research, education and clinical practice while addressing a relevant topic
<ul style="list-style-type: none"> <li>• Nursing education at the University of Iceland</li> </ul>	Icelandic nursing education is unusually good at integrating research, education and clinical practice
<ul style="list-style-type: none"> <li>• Master programme in knowledge-based practice in the health sciences, Bergen University College, Norway</li> </ul>	A good example of a successful and research-based education in an important field
<ul style="list-style-type: none"> <li>• Nursing programme at Linköping University, Sweden</li> </ul>	Based on problem-based learning (PBL), which research has shown to be effective in nursing education

After initial exploration of the three European cases, we learned that both JPIAMR and JPND were still at early stages regarding the research funded through the two initiatives, and therefore did not yet work much with dissemination of the research findings. In the JPND case we focused on their ambitious stakeholder consultation prior to developing their research agenda and on their development of a communications plan. Regarding JPIAMR, we focused on their work on policy level to establish and coordinate European research efforts to tackle the growing AMR challenge. In the ECDC case we chose to focus on their two training programmes, the European Programme for Intervention Epidemiology Training (EPIET) and the EU Public Health Microbiology training programme (EUPHEM).

The case studies were carried out according to established case study methodology, with the overall aim to give a correct, informative and contextualised picture of the studied initiatives. Case studies are typically dominated by qualitative empirical methods, and this study is no exception in that respect; our findings are almost entirely based on interviews and document studies. In all eight cases we have applied 'snowball sampling', by contacting a key individual located on a website, who has guided us to suitable interviewees and pointed out other key sources of information such as websites and documents. In most of the cases interviewees have also sent us documents that were not available online, such as programme plans, internal strategy documents and other studies of relevance. We have often returned to the interviewees with follow-up questions etc. The interviews at JPIAMR and ECDC were carried out face-to-face. The positive attitudes among representatives of all eight cases for being included in this study have been most helpful.

### 1.3 Report structure

The remainder of this report contains the eight case studies in the order below. The case studies can be read independently of each other. Sources of information are presented at the end of each case study.

- The EPIET and EUPHEM training programmes, European Centre for Disease Prevention and Control (ECDC)
- Joint Programme Initiative on Antimicrobial Resistance (JPIAMR)
- The EU Joint Programme – Neurodegenerative Disease Research (JPND)
- Master of Science in Nursing, University of Southern Denmark
- Regional network on falls prevention, Northern Savonia, Finland
- Nursing education at the University of Iceland
- Master programme in knowledge-based practice in the health sciences, Bergen University College, Norway
- Nursing programme at Linköping University, Sweden

## 2. The EPIET and EUPHEM training programmes, European Centre for Disease Prevention and Control

This case study concerns two training programmes at the European Centre for Disease Prevention and Control (ECDC). ECDC is a European Union (EU) agency aimed at strengthening Europe's defences against infectious diseases. The agency works closely with national health protection bodies across Europe, for instance in the development of disease surveillance and the development of early warning systems, two key parts of ECDC's activities. ECDC began its operations in 2005 and is based in Stockholm.

One part of ECDC's mission is to provide training, why the agency runs two ambitious training programmes, the European Programme for Intervention Epidemiology Training (EPIET) and the EU Public Health Microbiology training programme (EUPHEM). The programmes are selected as case studies because they constitute good examples of international educations that integrate research and practice.

### 2.1 Overview of the EPIET and EUPHEM programmes

EPIET has been run since 1995 and is thus older than the ECDC itself, with which it was integrated in 2007. EUPHEM is newer, initiated in 2008, and is modelled on EPIET. Despite differences in the content the formats of the two programmes are thus very similar. The objectives are to “provide state-of-the-art training in field epidemiology (EPIET)/public health microbiology (EUPHEM), enabling its fellows to apply epidemiological (and microbiological, EUPHEM) methods to a wide range of public health problems in Europe.”<sup>1</sup>

Both programmes are structured around two year fellowships at selected public health institutions in EU member states. Ten percent of the studies consist of training courses while the rest of the time is spent at the public health institutions, where the fellows mostly work with supervised individual practice-based projects which are close to – or integrated with – real public health events or activities. The two programmes are thus heavily based on a practice-based pedagogical method. The fellows are expected to participate in mandatory field work and courses but also partly free to choose training courses according to their own needs. The individual portfolio is designed to consist of several projects that together cover identified core competences in the respective programme's field. Each fellow has a local supervisor who follows him or her throughout the programme, and may also have additional supervisors for specific projects. The supervision is relatively intensive, expected to an average of four hours per week. However fellows are working on the projects independently for most of the time. EPIET and EUPHEM fellows are employed by the training site according to a framework partnership agreement with ECDC.

Both EPIET and EUPHEM have two tracks, an ‘EU-track’ and a ‘Member state-track’. The content of the tracks are the same but the administration and funding are different. In the EU-track ECDC provides funding for the courses and modules, travelling, accommodation etc. while in the Member state-track fellows receive the local salary from their training institutes. ECDC also partly supports other functions and activities in the programmes. The two tracks are further described below.

EPIET and EUPHEM may be described as equivalents to Master programmes', although the programmes have not obtained formal academic recognition and the graduates do not receive academic credentials.<sup>2</sup> To be admitted, fellows are required to

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<sup>1</sup> EPIET programme website (2015). Available at: <http://epiet.org> and EUPHEM programme website (2015). Available at: <http://euphem.org>

<sup>2</sup> The main exception is Germany, where EPIET-fellows can enrol in the Master of Science in Applied Epidemiology programme, which the EPIET-partner Robert Koch Institute organises together with Charité University, a joint medical institution between the Freie Universität Berlin and the Humboldt-

have either a post-secondary diploma in a relevant scientific field as well as at two to three years of working experience, or a relevant PhD (for EUPHEM). Fellows are selected among nationals of EU member states and countries in the European Economic Area (EEA).<sup>3</sup> EPIET usually accepts 15-20 fellows per year, while EUPHEM is (still) smaller with 9–10 fellows per year.

EPIET and EUPHEM serve as bridges between the public health institutions in Europe in several ways. Most notably, they require most of the fellows (the EU-track, see below) to spend the fellowships at institutions in other member state than their own. In addition, they link the training sites (currently 45 in EPIET and 18 in EUPHEM)<sup>4</sup> across Europe and thus promote cooperation between these. Supervisors, teachers and others are also offered training, which helps establishing a European public health community. Many training sites also cooperate with the central scientific coordinators of the two programmes. Each year ECDC organises The European Scientific Conference on Applied Infectious Disease Epidemiology (ESCAIDE), in which individuals presently or previously involved in EPIET and EUPHEM play important roles.

## 2.2 Results of EPIET and EUPHEM

EPIET and EUPHEM have to date seen more than 200 fellows graduate. EPIET represent an estimated 90 percent of these. The number of courses offered has over time grown from 3–4 to 14 and the programmes have been integrated with many other efforts across Europe, including in the Nordic countries. They have also established collaborations with non-EU countries around the Mediterranean Sea. An evaluation of EPIET in 2010 concluded that the programme is of high quality and relevance, very well managed and very well regarded among stakeholders.<sup>5</sup>

In 2009 a study was conducted on the results and impacts of EPIET, primarily consisting of a mapping of the graduates' labour markets. The study found that a large majority, 90 percent, of the EPIET and EPIET-associated<sup>6</sup> graduates from 1995 to 2008 worked in the public health sector. Two thirds of the graduates had not changed employer since graduating. Private industry had attracted a mere five percent of the graduates. Twenty percent had left the EU for employments elsewhere, many of them in international public health organisations. Around one in ten had assumed leading management positions. The study also found that the 149 EPIET graduates from 1995 to 2008 by 2009 had published 340 scientific articles.<sup>7</sup>

EPIET has also resulted in the establishment of an alumni network open to graduates from EPIET, EUPHEM and other European field epidemiology training programmes. The alumni network, with about 500 members, helps keeping the community together by offering information on on-goings in the field epidemiology area, organising gatherings at conferences and other occasions, supporting current fellows and regularly distributing a fairly ambitious newsletter.

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Universität zu Berlin. The modules of the Master programme are incorporated into the EPIET courses and activities. EUPHEM benefits from a somewhat similar arrangement in Spain.

<sup>3</sup> Beside EU member states, countries that can participate in EPIET and EUPHEM currently include Iceland, Liechtenstein and Norway.

<sup>4</sup> In EPIET there are also five institutes that participate but are not acknowledged training sites.

<sup>5</sup> Royal Tropical Institute (2010). External Review of the European Programme for Intervention Epidemiology Training (EPIET). Amsterdam, the Netherlands

<sup>6</sup> Some countries have established national programmes that collaborate closely with EPIET.

<sup>7</sup> Bosman, A., B. Schimmer and D. Coulombier (2009). Contribution of EPIET to public health workforce in the EU, 1995-2008. *Eurosurveillance* 14 (43), 29 October 2009

### 2.3 Addressing challenges for EPIET and EUPHEM

One challenge for ECDC is to keep the distributed programme together. A number of measures have been taken to achieve this. Supervision is highly protocolled, which enables the central coordinators to monitor and support the progress of each fellow. Collaboration between fellows is also encouraged and supported, but still most projects are national. To facilitate the much desired cross-national learning the programmes have monthly telephone meetings with the fellows where e.g. national outbreaks are discussed. The central coordinators also regularly visit the training sites. The fellows are very attractive to employers, and also during their studies they are wanted in projects at the host institutes. To handle that pressure, ECDC has decided that fellows in the MS-track may work up to 20 percent with projects related to their previous work before joining the programme. The programmes also benefit from what the evaluators stated: “We are impressed by the concern, commitment and efforts of the EPIET coordination and administration in making it the best possible experience for the fellows.”<sup>8</sup>

Another challenge, particularly highlighted in the evaluation from 2010, is to cater for the needs in all EU member states. Too much focus on quality implicates a risk of privileging the ‘old’ and resource-rich EU member states and applicants from these countries. At the same time, the national public health needs are generally larger in the member states that joined in 2004 or later. In addition, EPIET and EUPHEM easily stimulate a ‘brain drain’ from countries with less attractive wages and working conditions by educating fellows from these countries at institutions in more affluent countries. This is highly evident in the mapping of EPIET graduates from 2009, which reflects an overwhelming dominance of employers in ‘old’ EU member states, while states that joined in 2004 or later hardly employed any EPIET graduate at all.<sup>9</sup>

To deal with the challenge the Member-state track was recently added to the programmes. While in the established EU-track fellows are trained in different countries than their country of origin, fellows in the Member state-track remain at the institutions in their home countries. The arrangement is considered fruitful, but the new track has also imposed particular challenges on the programme coordinators. The placements require more support than the EU-track and not all training sites live up to the highest standards that ECDC require in the EU-track. ECDC has also observed a tendency that fellows in the Member state-track are particularly challenged to do tasks that lie outside the programme work.

A third challenge concerns expansion of the programmes. The need for the graduates from the programmes is evidently higher than the programme can satisfy. There are however several bottlenecks to overcome. ECDC is careful about the quality of the programmes, with extensive processes before an institute is accepted as training site for a fellow and relatively close central monitoring of the fellows’ progress. When selecting a training site, ECDC looks not only for e.g. competent supervisors, but also for the existence of a broader network. In addition, each training site must also be ready to supply some of the resources that support the training. The number of training sites is therefore limited. In order to grow, ECDC would like to collaborate with, for instance, other EU initiatives such as the Marie Skłodowska-Curie Actions and ERASMUS+ or cross-national organisations such as the Nordic Council of Ministers.

Another challenge for EPIET and EUPHEM concerns what is perceived as too weak links with academia. Almost all activities are carried out at non-academic institutions such as government-run public health institutes. Also teachers are typically based at

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<sup>8</sup> Royal Tropical Institute (2010). External Review of the European Programme for Intervention Epidemiology Training (EPIET). Amsterdam, the Netherlands, s. 69

<sup>9</sup> Bosman, A., B. Schimmer and D. Coulombier (2009). Contribution of EPIET to public health workforce in the EU, 1995-2008. *Eurosurveillance* 14 (43), 29 October 2009

such institutions; only a considerable minority of them come from universities.<sup>10</sup> The interviewees see considerable potential in developing closer links with the academic research community, to which the public health community could provide highly valuable contributions based on their practical experience and ‘real data’. Some collaboration in this area has begun in the Netherlands, and ECDC views the Nordic countries as highly suitable for similar efforts.

Finally, the two programmes would, according to the interviewees, benefit from a broadening of the course content. Particularly more social scientific and humanist content is asked for. For instance, the recent outbreak of Ebola virus in West Africa highlighted the importance of anthropological competence. The interviewees express a wish to conduct a more thorough mapping of which additional competences that are needed across the collaborating European institutes. Some Member states want the MS track of EUPHEM to be extended to e.g. three years, to give the fellows more time to learn about different microbiological areas, but ECDC has been reluctant to that wish.

## 2.4 Sources of information

The information in this case study has been collected through interviews and desk research. Interviewees and other sources of information are listed below.

### 2.4.1 Interviewees

Dr. Arnold Bosman. Head of the EPIET programme, ECDC

Dr. Aftab Jasir. Head of the EUPHEM programme, ECDC

### 2.4.2 Websites and documents

We have reviewed a considerable number of documents and several brochures offered by the interviewees and the ECDC website. The following documents and (parent) websites have been particularly useful:

Bosman, A., B. Schimmer and D. Coulombier (2009). Contribution of EPIET to public health workforce in the EU, 1995-2008. *Eurosurveillance* 14 (43).

EPIET Alumni Network (2015). Available at: <http://epietalumni.net>

EPIET programme website (2015). Available at: <http://epiet.org>

EUPHEM programme website (2015). Available at: <http://euphem.org>

Royal Tropical Institute (2010). External Review of the European Programme for Intervention Epidemiology Training (EPIET). Amsterdam, the Netherlands

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<sup>10</sup> Bosman, A., B. Schimmer and D. Coulombier (2009). Contribution of EPIET to public health workforce in the EU, 1995-2008. *Eurosurveillance* 14 (43), 29 October 2009

### 3. Joint Programme Initiative on Antimicrobial Resistance

Antimicrobial resistance (AMR) is one of the greatest societal challenges. Being a cheap and efficient way of preventing growth of microorganisms, it is nowadays clear that antibiotics<sup>11</sup> have been used too intensively and have not been handled with sufficient care. As a consequence, pathogenic bacteria have developed resistance to many, or all, of the existing antibiotics that can be used in a certain medical situation. At the same time the costs for developing new antibiotics have grown considerably and led many pharmaceutical companies to withdraw from the antibiotics area. The problem is growing and is already immense. Gonorrhoea may soon be untreatable and in 2013 alone nearly half a million new cases of multidrug-resistant tuberculosis were reported.<sup>12</sup> Without antibiotics even an infected wound from a kitchen accident may become lethal. Moreover, in the animal-based food industry entire food production systems may be at risk due to rising costs and lower productivity with AMR. The societal costs are high, in the European Union alone AMR costs an estimated €1.5 billion per year in terms of extra healthcare costs and productivity losses, a sum that does not include costs for infection control or preventive measures.<sup>13</sup>

Against this background, the Joint Programme Initiative on Antimicrobial Resistance (JPIAMR) was formed in 2011. JPIAMR is an ambitious effort to bring together industry, public health bodies and academia to share experience and resources to address the AMR challenge. European research on AMR is observed to be fragmented and far from all countries have developed specific research programmes to target AMR. The more outreaching activities of JPIAMR began in December 2013/January 2014 when the extensive steering document, the Strategic research agenda, was launched and the first joint transnational call for research proposals was published.

#### 3.1 Overview of JPIAMR

JPIAMR aims at developing “scientific proposals which will lead to sustainable use of antibiotics to treat infectious diseases and to a decrease in the number of patients with resistant infections in Europe”, to “integrate relevant scientific fields across national borders and to create a common Strategic Research Agenda...” and to provide “the forum and platform for initiating and coordinating joint actions jointly with Stakeholders beyond issuing joint calls.” JPIAMR’s overall aim is to “reduce the burden of AMR by 2040”.<sup>14</sup>

Nineteen countries participate in JPIAMR, among them Denmark, Finland, Norway and Sweden. All participating countries are represented in the Management board, the central body for decision-making. Seven representatives of the Management board constitute the Steering committee, which oversees the on-going work in Strategic working groups that organise JPIAMR’s work in four broad areas.<sup>15</sup> JPIAMR also has a Scientific advisory board of thirteen leading researchers that develops a research agenda for AMR. The day-to-day work is carried out by a small secretariat. JPIAMR also runs a Stakeholder advisory board where selected key organisations are members and a Stakeholder forum which anyone who wants to promote AMR research can join. The Scandinavian presence in JPIAMR is strong, fundamentally because the

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<sup>11</sup> Antibiotics are one of several antimicrobials and acts on bacteria. The problem with antimicrobial resistance is mainly related to antibiotics.

<sup>12</sup> WHO (2015). Antimicrobial resistance. Factsheet No.194, updated April 2015

<sup>13</sup> ECDC/EMA (2009). The bacterial challenge: time to react. A call to narrow the gap between multidrug-resistant bacteria in the EU and the development of new antibacterial agents. Joint technical report.

<sup>14</sup> JPIAMR (2015) JPIAMR website, available at <http://www.jpiamr.eu>. JPIAMR (2013). Strategic Research Agenda, Joint Programming Initiative on Antimicrobial Resistance. December 2013

<sup>15</sup> The four areas are :Implementation of JPIAMR’s Strategic research agenda, Alignment (of national and European Strategies with JPIAMR’s Strategic research agenda), Evaluation and Internationalisation (expansion of joint programming to address the global nature of AMR)

Scandinavian countries represent 'best practice' in how to address the AMR challenge and Sweden was the main driver behind the creation of JPIAMR. These are also the reasons why JPIAMR placed its secretariat in Stockholm.

### 3.2 A focus on research

JPIAMR has identified research as the area where its potential contribution is the largest. Many of the AMR challenges need to be addressed by research, for instance the developments of new antibiotics, alternatives to antibiotics and new diagnostic tools. Other areas where research is needed include methods for surveillance of AMR, transmission routes of resistant microbes and the effectiveness of different types of interventions to AMR. However, despite the research needs and the magnitude of the AMR problem, AMR is often seen as a challenge for public health organisations rather than for the research community.

The challenge of promoting AMR research largely relates to governance: who shape the research agendas? Much of the work of JPIAMR therefore consists of bringing the AMR challenge higher up on the political and research funding agendas in the European countries and elsewhere. One ambition is to push for, and support, the development of national research strategies for AMR. Only seven of JPIAMR's nineteen member countries have such strategies today; Norway and Sweden are among these. JPIAMR's Strategic research agenda is a key document in this respect, intended to serve as a guide for national strategies and priorities.

JPIAMR also wants to facilitate coordination between national research efforts on AMR research to ensure efficient use of the combined European resources. To that end, JPIAMR has identified six broad research priority topics, outlined in detail in the Strategic research agenda.<sup>16</sup> JPIAMR has mapped AMR research in its member countries, resulting in a database with 1,300 research projects classified according to the six priority topics. JPIAMR also organises joint calls for research projects. Two calls have been made this far, both focused on the development of new drugs.

The coordinating role of JPIAMR also involves relations with other European or international organisations, as well as with national actors in countries that are not members of JPIAMR, both inside and outside Europe. JPIAMR collaborates closely with, in particular, the World Health Organization (WHO) and the European Centre for Disease Prevention and Control (ECDC). Together with the European Commission, JPIAMR has also engaged in discussions with the pharmaceutical industry, often through the European Federation of Pharmaceutical Industries and Associations (EFPIA) and the Innovative Medicines Initiative (IMI).<sup>17</sup>

As mentioned, the Nordic countries are world-leading in handling AMR in healthcare practice. However, the AMR problem also requires concerted research efforts targeting specific areas, which is not the typical way Nordic academic research is governed. The general bottom-up structure of Nordic research is identified as a challenge for these countries, since AMR efforts would require more top-down approaches. The United Kingdom and USA are mentioned as good examples of the latter; in both countries the political leaderships have declared AMR a significant global threat and launched extensive programmes and powerful strategies to battle AMR.<sup>18</sup> The Netherlands used to have a mostly bottom-up approach but has recently developed more central-driven

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<sup>16</sup> The six research priorities are: Therapeutics, Diagnostics, Surveillance, Transmission, Environment and Interventions. For each of these JPIAMR has formulated focus areas and a number of objectives.

<sup>17</sup> IMI is a public-private partnership initiative between EC and EFPIA which aims to accelerate the discovery and development of better medicines by removing bottlenecks in the drug development process.

<sup>18</sup> See e.g. documents at: Government of the United Kingdom (2013). UK 5 Year Antimicrobial Resistance Strategy 2013 to 2018. Available at <https://www.gov.uk/government/publications/uk-5-year-antimicrobial-resistance-strategy-2013-to-2018>

strategies. AMR is expected to be a prioritised topic during the Netherlands's Presidency of the Council of the European Union between January and June 2016.

### 3.3 Efforts to promote integration of research, education and practice

Due to its focus on the overarching policy agenda, JPIAMR's links to education and clinical practice are generally indirect, but certainly not missing. The Strategic research agenda emanates from needs identified in practice, and many of JPIAMR's collaborative partners – ECDC, EFPIA, WHO and many national actors – represent practice rather than academic research. Not least the relation with ECDC is important in that respect. JPIAMR does not engage in 'direct practice', e.g. by providing guidelines for healthcare or animal farming, but some of its initiatives, for instance research on new diagnostic tools, are expected to have considerable implications for practice once the research results are produced. With regard to measures to prevent e.g. excessive use of antibiotics, undesired hygiene practices in healthcare or antibiotics in wastewater, the challenges are to spread existing knowledge and enforce existing regulations rather than to do more research; those tasks are therefore primarily on the tables of ECDC and the national health ministries.

JPIAMR has thus far had weak links with education. The focus on research and the policy arena has meant that education, also on postgraduate level, has largely been surpassed. JPIAMR has mostly worked with education outside of Europe, for instance in Argentina, one of JPIAMR's member countries. With some support from JPIAMR, Argentina plans to organise education on AMR topics for leaders of research laboratories in all South American countries. In the future JPIAMR hopes to work more with junior scientists, as a way to forge links with education.

### 3.4 Sources of information

The information in this case study has been collected through an interview and desk research. The sources of information are listed below.

#### 3.4.1 Interviewee

Dr. Laura Marin. Programme manager, JPIAMR Secretariat

#### 3.4.2 Websites and documents

We have reviewed a considerable number of documents and several brochures offered by the interviewee and the JPIAMR website. The following documents and (parent) websites have been particularly useful:

ECDC/EMEA (2009). The bacterial challenge: time to react. A call to narrow the gap between multidrug-resistant bacteria in the EU and the development of new antibacterial agents. Joint technical report.

JPIAMR (2013). Strategic Research Agenda, Joint Programming Initiative on Antimicrobial Resistance. December 2013

JPIAMR (2015). Action plan alignment: National Strategies.

JPIAMR (2015). JPIAMR website, available at: <http://www.jpiamr.eu>

WHO (2015). WHO website, available at: <http://www.who.int>

## 4. The EU Joint Programme – Neurodegenerative Disease Research

The EU Joint Programme – Neurodegenerative Disease Research (JPND) is a large global research initiative aimed at tackling the challenge of neurodegenerative diseases such as Alzheimer’s and Parkinson’s diseases. These diseases are strongly linked with age and lead to disability and reduced quality of life, with an estimated 6.3–7.3 million people suffering from Alzheimer’s in Europe, a number that is expected to grow significantly in the next decades. Neurodegenerative diseases also place a heavy burden on the relatives and carers who look after these patients, constituting a total direct and informal care cost of €105-160 billion across the EU.

By increasing and coordinating investment between the 28 participating countries, and promoting alignment between existing programmes, the JPND aims to “maximise the collective potential” to find causes, develop cures, and identify appropriate ways to care for patients living with neurodegenerative diseases, in order to lessen the social and economic impact for patients, families and health care systems. JPND began in 2009, launched its “Strategic Research Agenda” in early 2012 and started supporting research projects and alignment actions from that point. Three years on, the first research projects are starting to produce insights. Given the early stage of the research, this report focuses on JPND’s strategies to ensure the societal relevance of research and its comparably ambitious communication strategies.

### 4.1 Making research relevant: patient engagement from the outset

JPND aims to address these diseases in their entirety. Therefore the scope of JPND-supported research covers fundamental, clinical and healthcare/social research. Consequently, from the outset, JPND recognised the need to connect and engage with a wide range of stakeholder communities,<sup>19</sup> in order to ensure the initiative’s support to research that addresses the needs of the ‘end user’ and reduces the severe impact of these diseases.

To this end, a stakeholder consultation process was initiated in 2011 to inform the creation of the JPND Strategic Research Agenda, involving a combination of workshops, face-to-face meetings, email questionnaires, and a broad public online consultation through the JPND website. The main stakeholder groups identified were patients and carers, healthcare professionals, policy makers, industry, and research charities / other funders.

One of the workshops brought together representatives from pan-European patient and carer organisations, with the aim of identifying patient-centred priorities for JPND research. It became clear during the consultation process that the patient perspective was defined by a strong focus on improving elements of *living with* neurodegenerative disease, such as psychosocial components of the patient experience, rather than *finding a cure* for disease (the main focus of the biomedical research community), and that these were deemed to be crucial for lessening the impact of the disease.

Insights from the consultation phase fed into the JPND research strategy, which was published in February 2012. This high-level “Strategic Research Agenda” sets out five scientific priorities:

- The origins of neurodegenerative diseases

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<sup>19</sup> Communication and knowledge transfer between JPND researchers (to build effective collaboration networks across national borders and establish cross-disciplinary teams that have the capacity to tackle the research challenges) and with stakeholder audiences are considered key functions of the initiative. The relatively small coordination group/secretariat includes a full-time individual dedicated to this task.

- Disease mechanisms and models
- Disease definitions and diagnosis
- Treatments and prevention
- Healthcare and social care

The patient and carer perspective on unmet research needs is strongly reflected in priority five – “Healthcare and social care”.<sup>20</sup> Among the specific areas highlighted under this priority are palliative and end-of-life care, and assisted living technologies. Action groups were set up for both, to further develop strategy and implementation plans, in consultation with stakeholders.

The action group on palliative and end-of-life care has since developed recommendations for JPND-supported actions in this area and reported to the JPND Management Board in April 2015. The Assisted living technologies action group has partnered with the Ambient-Assisted Living (AAL) Joint Programme to align actions and bring together important stakeholders in this area including users, academia, small businesses and the ICT and service industries. This included a joint session at the 2013 AAL Forum in Norrköping, Sweden, a key meeting for the European AAL community to meet and discuss topics relevant for the adoption of AAL solutions in the market.

The consultation period in 2011 also laid the groundwork for continuing two-way dialogue throughout the lifetime of the JPND initiative to integrate the ‘experiential knowledge’ of patients and carers with the ‘learned knowledge’ of the research community, and ensure that research is relevant to those directly affected by these diseases.

To further support this two-way dialogue, the membership of the JPND Scientific advisory board was expanded in 2013 to include scientific representatives from patient organisations and industry. In addition, an action group was set up to adequately implement patient and public involvement (PPI) actions and activities in neurodegenerative disease research, and to develop the necessary relationships and ensure continued dialogue between opinion leaders in the PPI field. The group has produced a user-friendly guide for JPND researchers on how to involve patients, their family members and caregivers, and the organisations that represent them, in their studies. In 2014, this action group evolved into an advisory board comprised of members with significant expertise in PPI and will continue to operate on a continuous basis.

#### 4.2 Effective communication networks to support impact of research findings

While the implementation of the JPND strategic research agenda is still in its early stages, with research projects only just starting to yield research results, the initiative has laid the groundwork for an extensive communication infrastructure, which will be instrumental in promoting the uptake of research findings into practice and transfer of insights into policy.

A variety of clearly-defined communications processes have been developed, including best practice guidelines and key messages tailored to specific target audiences through which JPND researchers can disseminate their results. The information is made available through publication via the JPND website and JPND email feeds/social

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<sup>20</sup> Interestingly, to date, only one research funding initiative has been implemented in this track, as member states choose from among the proposed initiatives on the basis of national research priorities, funding landscapes and research capacity. In December 2012, a JPND joint transnational call was launched between 14 countries, for the evaluation of health care policies, strategies and interventions for neurodegenerative diseases. The supported projects, which started in 2013, are seen as the initial step of information gathering, which can serve to underpin future research in healthcare delivery.

media, group emails to the JPND stakeholder database, press releases, JPND newsletters, articles in the popular press, and publications on JPND member and stakeholder websites.

In the next phase, these ‘one-directional’ channels will be supported by a ‘two-directional’ communications infrastructure, with the focus of communication activities shifting from building links between JPND researchers to promoting the relevance of research results to the wider stakeholder community. This includes the development of communication strategies specific to the national contexts of the 28 countries participating in the JPND, and the organisation of a central JPND stakeholder event that brings together influencers, representatives, stakeholders and champions.

JPND also aims at developing a network of researchers trained and actively engaged in producing information tailored to different audiences (experts, policy makers, patients, and the general public), and to the different local contexts of the JPND participating countries. This will include the development of a streamlined process for translation of content into various languages to make the findings accessible across the EU member states.

As JPND-supported research outputs will increasingly come on stream over the next years, these established networks will help to support knowledge transfer to key audiences detailed in the JPND Research Strategy. Targets of the long-term goals for JPND communication and dissemination for uptake of research findings are:

- the mainstream clinical and research education and training programmes for healthcare professions, such as nurses, doctors, social workers and physiotherapists,
- national public health policy,
- public health messaging, to effect behavioural change vis-a-vis risk factors for neurodegenerative diseases (e.g. those associated with an unhealthy lifestyle), and
- policy around the implementation of new technologies or practices, for examples in the area of telemedicine, assisted living or in delivering services.

### 4.3 Sources of information

The information in this case study has been collected through an interview and desk research. The sources of information are listed below.

#### 1.1.1 Interviewee

Dr. Derick Mitchell. Senior Communications Manager, JPND Secretariat

#### 1.1.2 Websites and documents

We have reviewed a considerable number of documents and several brochures offered by the interviewee and the JPND website. The following documents and (parent) websites have been particularly useful:

JPND (2015). JPND website, available at <http://www.neurodegenerationresearch.eu>

JPND (2012). JPND Research Strategy.

JPND (2015). Patient and Public Involvement in JPND Research: A user-friendly guide for applicants to JPND Calls for proposals; January 2015.

JPND (2014). Dissemination and Communication Guidelines for JPND-support Projects. October 2014.

JPND (2014). JUMPAHEAD: Final plan for using and disseminating knowledge (internal document)

## 5. Master of Science in Nursing, University of Southern Denmark

This case study concerns the recently initiated Master of Science in Nursing programme (*Kandidatuddannelsen i klinisk sygepleje*) at the University of Southern Denmark (SDU). The case was chosen because it is a progressive attempt to make the nursing profession in Denmark more research-based. Nursing education in Denmark is organised by university colleges (*Professionshøjskoler*) where research has traditionally been a fairly marginal activity, although recent efforts have been made to increase the amount of (applied) research carried out in these organisations.

### 5.1 Overview of the programme

The Master of Science in Nursing programme at SDU started in Odense in September 2014 and covers two years of full-time studies (120 ECTS credits). By adding academic competence, the aim of the programme is to contribute to strengthening the clinical nurses' role and function in their daily work. The target group is nurses who typically have a couple of years of work experience and who are expected to return to their employment to implement their newly acquired competence, knowledge and skills in direct contact with patients. The first year SDU saw 72 applicants to the 30 study places, while they received 50 applications in 2015.

The overall programme structure is divided in three parallel tracks: social science, research methodology, and specialised clinical nursing. All students follow these three tracks. The two-years of study consist of eight quarters, each comprising a period of eight weeks of classes. The programme structure is presented in Table 2. The modules vary in scope but all end with an exam.

Table 2 Programme structure.

<b>MSc in Clinical Nursing (120 ECTS)</b>			
	Social science track (20 ECTS)	Specialised clinical nursing track (70 ECTS)	Research methodology track (30 ECTS)
8th quarter	Masters dissertation (30 ECTS)		
7th quarter			
6th quarter		Elective module (10 ECTS)	F2 Methods of health sciences II (15 ECTS)
5th quarter	SF5 Healthcare law (5 ECTS)	KS4 Rehabilitation and palliative care (5 ECTS)	
4th quarter		KS3 Healthcare technology (10 ECTS)	
3rd quarter	SF3 Healthcare finances and financial evaluation (5 ECTS)	KS2 Health promotion and disease prevention (5 ECTS)	F1 Methods of health sciences I (15 ECTS)
2nd quarter	SF2 Project management (5 ECTS)	KS1 A/B Clinical healthcare practice (10 ECTS)	
1st quarter	SF1 Organisation and change management (5 ECTS)		

The four courses within the social sciences track constitute 20 ECTS credits in total, including studies in healthcare law (5 ECTS) and finance (5 ECTS) as well as project management (5 ECTS) and organisation and change management (5 ECTS). The track design aims to give the students new skills and to develop their competence regarding how to work in the healthcare system.

The research methodology track consists of a two level course in methods of health sciences. Comprising 15 ECTS each, the courses include theories of science and various scientific methods and approaches. This track is intended to give the students basic academic skills, including abilities to formulate and answer hypotheses and research questions, how to interpret their research results and to critically evaluate scientific

literature. The courses are also intended to provide the students with analytic skills and an understanding of how new knowledge is created.

The specialised clinical nursing track is the most comprehensive track of the three tracks. The track consists of four courses focusing on specific areas: clinical healthcare practice (10 ECTS), health promotion and disease prevention (5 ECTS), healthcare technology (10 ECTS) and rehabilitation and palliative care (5 ECTS). This track also includes an elective module of 10 ECTS credits. The specialised clinical nursing track is designed to help the students develop and improve the skills they acquired during their basic training. The total scope of the courses in this track is 40 ECTS credits and the master thesis constitutes an additional 30 ECTS credits.

## 5.2 The links between research, education and practice

The dual Danish system with nursing education at university colleges and research at universities constitutes a particular challenge for initiatives to make the nursing education more research-based. The task to undertake research activities was inserted in the law in 2013, then expressed as applied research and development activities close to practice, related to the needs of the professions and the educations. Around at the same time, the Danish government increased funding to research and development activities at the institutions for professional and vocational training, including the university colleges. Most of the teaching staff at the university colleges has been recruited primarily based on professional, practice-based competence; only a significant minority have PhDs. Nursing students graduate with a Professional Bachelor, a non-academic degree.

Against that background the Master programme at SDU represents a significant step towards integration of research with education and practice in the nursing field. The programme was established after a planning process that took several years, and involved professors and lecturers at SDU as well as representatives from the healthcare sector. The education was initially supposed to focus on healthcare technology but it was soon agreed that the programme should be more comprehensive and respond to the need of educating more nurses that have both academic knowledge and clinical competence.

Essential to the programme is the focus on using the students' earlier experiences of working within the Danish healthcare system. When enrolled, but prior to the start of the education, the students are asked to bring a case from their earlier work experience. The cases chosen are mostly based on an individual patient situation or issue and are used to facilitate the students' ability to link their practical work with research activities and input. The cases aim to serve as an efficient tutoring method for both students and lecturers. The student can relate to their own working environment and by taking part of the other students' cases they learn about other areas as well.

Researchers at SDU participate in planning and organising the content of the programme and its modules. They also teach in their specific areas of research. Due to the comparably close connection between students and researchers, research results are intended to be directly implemented or used as examples in the education. The structure of the education helps the students to integrate the knowledge and skills acquired within the three parallel tracks and to use their accumulated knowledge in their nursing practice. The research questions in the students' master theses will be formulated in close connection to relevant issues at hospitals or within the primary healthcare.

Many students continue – as SDU had expected – to work part-time in parallel to the full-time studies. That helps the students to integrate theoretical knowledge with their practical work, but at the same time, there is concern that the students find it difficult to focus on the studies. One of the interviewees opens up for extending the education in time, to facilitate for students to combine their studies with work.

### 5.3 Future development

Since the need for more academically educated nurses has been recognised within the healthcare sector, it is important to disseminate information about the skills of the graduated nurses to as many healthcare facilities as possible. One challenge is to ensure both political and organisational support for the students after their graduation. To be able to implement their new skills and competence in their working environment, the graduates will need support and acceptance from their employer as well as colleagues; there will most likely be organisational resistance to changing some established practices.

The modules and the programme as whole will be further developed based on potential changes and improvements identified along the course of the programme. Some possible changes were mentioned in the interviews, for instance that the elective module in the sixth quarter of the programme could be used for international exchange with other countries that have similar health care systems, e.g. the Nordic countries. Network activities for student counsellors at different higher education institutions and in different countries are also mentioned as factors that would facilitate the development of the education. The results of the education are, and will be, relatively closely monitored. For instance, SDU intends to keep track of where and how the alumni work, and how the knowledge from the education has been used. The programme will also be continuously evaluated through meetings with the panel of professors and lecturers.

### 5.4 Sources of information

The information in this case study has been collected through interviews and desk research. Interviewees and other sources of information are listed below.

#### 5.4.1 Interviewees

- Dr. Dorte Nielsen. Assistant Professor and Study leader at the Master of Science in Nursing programme, University of Southern Denmark
- Dr. Thora Grothe Thomsen. Postdoctoral researcher at Roskilde and Køge hospital and Study module coordinator at the Master of Science in Nursing programme, University of Southern Denmark
- Dr. Lars Thrysoe. Researcher at Odense University Hospital and Study module coordinator at the Master of Science in Nursing programme, University of Southern Denmark

#### 5.4.2 Websites and documents

Syddansk universitet (2014). Studieordning for kandidatuddannelsen i klinisk sygepleje [Study plan for the Master of Science in Nursing programme]

Syddansk universitet (2015). Master of Science in Nursing. Available at: <http://www.sdu.dk/en/Uddannelse/Kandidat/Klinisksygepleje>

## 6. Regional network on falls prevention, Northern Savonia, Finland

This case study concerns a network on falls prevention in the region of Northern Savonia in central Finland. The regional falls prevention network (hereafter RFPN) was chosen as a case study because it is a promising mechanism to integrate research, education and clinical practice while also addressing a highly relevant topic. The ambition with the network is to transfer knowledge and working models from RFPN to other regions.

Preventing falls is important both from a patient perspective and from a societal point of view. Falls are relatively common, especially among the elderly population, and often lead to subsequent deterioration of health. Hip fractures represent a large share of the hospital-treated fall accidents among elderly and frequently lead to patients not being able to return home for a long time, if at all. In Finland the number of hip fractures has increased to around 7800 each year, with an estimated societal cost of €250 million in 2010. Patients who have to remain in institutional care after the fracture are approximately 2.5 times more costly than patients who can return home.<sup>21</sup> Similarly, a Swedish study estimated the average societal cost for the 270 000 reported fall accidents (broadly defined) in 2005 to around €2.4 billion.<sup>22</sup> Besides the monetary costs, falls of course lead to a decreased quality of life for many citizens.

### 6.1 Participants and structure of the network

RFPN aims to promote the awareness of falls prevention among patients and their families as well as among personnel in healthcare and social care by:

- organising education and training
- following falls in different organisations
- promoting evidence-based uniform practices
- writing recommendations and guidelines

The activities to promote falls prevention started in 2010 as a pilot project at Kuopio University Hospital. The members realised a need for input from organisations and professionals outside the hospital, which led to the establishment of RFPN in 2012. The network has grown continuously and currently comprises 27 professionals representing municipalities and municipality networks in Northern Savonia, the University of Eastern Finland (through the School of Pharmacy and the Clinical Research Centre), Savonia University of Applied Sciences (through the nursing education), Savo Consortium for Education, Kuopio University Hospital and other hospitals, and a private nursing home organisation. In addition, subnetworks have been established in several parts of Northern Savonia as well as in a neighbouring region, Central Finland. RFPN engage nurses, nursing leaders, medical doctors, a pharmacist, a nutrition therapist, physiotherapists, a nursing teacher, a patient safety manager and a clinical nurse consultant. The day-to-day activities are led by a 'network manager' who has a PhD and works as a Clinical nurse consultant at Kuopio University Hospital.

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<sup>21</sup> Lüthje, P., T. Helkamaa, I. Nurmi-Lüthje, J.-P. Kaukonen and M. Kataja (2013). An 8-Year Follow-Up Study of 221 Consecutive Hip Fracture Patients in Finland: Analysis of Reoperations and their Direct Medical Costs. *Scandinavian Journal of Surgery*, September 20, 2013 and Tervo-Heikkinen, T. Holopainen, A., Haatainen, K. and Miettinen, M. (2014). Regional collaboration in falls prevention - making a continuum. Presentation at 3rd Nordic Conference on Research in Patient Safety and Quality in Healthcare, 2–3 October 2014, Stavanger, Norway

<sup>22</sup> Loss of productivity represented 40 percent of that cost. Swedish Civil Contingencies Agency (2010). *Samhällets kostnader för fallolyckor [Societal costs for fall accidents]*. MSB report 0197-10

RFPN is supported by the Nursing Research Foundation (Hotus), a non-governmental organisation aiming to develop and establish evidence-based nursing in Finnish healthcare. Hotus has a coordinating role in RFPN and gives strategic advice and lectures, and informs on the basics of evidence-based practices. It also chairs the RFPN steering group, which beside the Hotus representative consists of subnetwork leaders, the network manager and managers representing member organisations.

## 6.2 Promoting evidence-based practice

RFPN is focused on promoting evidence-based practice. A considerable part of the activities this far has therefore aimed at summarising existing research and develop professional guidelines to ensure that professionals in different organisations work in similar ways to prevent falls. The guidelines include for instance advice on nutrition and physical practice, which types of shoes to use, advice on where to place furniture, and to consider each patient's full medication. A risk assessment tool and a checklist for actions following a fall have been developed as well. Some members of RFPN also engage in outreaching activities: they visit and organise courses on falls prevention for staff in e.g. primary healthcare, elderly care and in hospitals. A patient brochure on falls prevention has also been developed by RFPN.

The network was established around the same time as a database system for patient safety information, HaiPro, was introduced in the region's healthcare. RFPN encourages registration of falls in HaiPro (in which reporting is voluntary) and hopes to be able to use the information for future analyses. The overall ambition with collecting information and reviewing existing research is to be better at identifying risks and risk groups. One interviewee mentions that HaiPro suffers from under-reporting because healthcare staff are afraid that it will be used to track mistakes, but the same person also finds that RFPN has contributed to better reporting habits by creating more trust between the system's users.<sup>23</sup>

One reason why Hotus participates in RFPN is to be able to spread RFPN's results and better promote evidence-based healthcare on the national level. RFPN is depicted as unusually promising in that respect. Participants in similar activities have often been unengaged in supporting dissemination of results to a wider audience. These actors are typically local or regional, and sometimes private, organisations that invest in the networks/projects to strengthen their own activities. If the results are to be spread, they sometimes want return on their investments or are unwilling to contribute with the (human) resources necessary to support further dissemination. Some participants also do not realise the significance of what they have achieved.

In RFPN, Hotus made clear from the beginning that national dissemination was important and seen as a goal, and falls prevention is viewed as a promising topic in that respect. Hotus pushed for the expansion of RFPN and the establishment of subnetworks, to learn from collaboration practices in different parts of the network and to pave the way for national dissemination by involving types of organisations that exist in other regions as well. National dissemination has started by RFPN through presence at a couple of conferences, but the largest effort by far will be made in late 2015 when RFPN will participate in the National patient safety week in Finland and organise one day with events on falls prevention.

## 6.3 The roles of researchers and nursing students

Nursing education is involved in RFPN primarily through participation from students at Savonia University of Applied Sciences. Students have conducted minor project

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<sup>23</sup> This observation is in line with Nykänen et. al., who find that database tools in nursing tend to promote data storage and documentation rather than communication and collaboration between (different types of) healthcare professionals. Nykänen, P., J. Kaipio and A. Kuusisto (2012). Evaluation of the national nursing model and four nursing documentation systems in Finland – Lessons learned and directions for the future. *International journal of medical informatics* 81 (2012), pp. 507–520

work, e.g. by interviewing and informing hospital patients about falls prevention and by informing a privately run nursing home how they can prevent falls. Students have also organised public events in markets, shopping centres etc. where they have informed about falls prevention. There are plans in RFPN to involve nursing students in events during the National patient safety week, and ideas on how students could participate in the development of educational material to the public. Falls prevention has since 2012 also been included as parts of courses in the nursing and paramedic nursing programmes. The students are able to use e.g. RFPN's protocols, checklist and guidelines as practical examples, which help bringing education closer to practice. The interviewees also express hopes to involve thesis-writing Master students who can study falls prevention or RFPN and thereby support local research.

A weak link in RFPN is that there is no active research on falls prevention going on in the region. All research that has fed into RFPN has been brought in from outside the region, and initial plans to conduct research on the effectiveness of RFPN had to be postponed. The recent establishment of a subnetwork in the neighbouring region of Central Finland however meant the inclusion of researchers able to carry out a baseline study and monitor results and effects. Interviewees view other types of research on RFPN as desired as well, both detailed case studies and studies on the overall progress including e.g. issues of organisational change, outcomes for patients and economic effects. This far, only the baseline study has been launched.

#### 6.4 Challenges for the future

Since RFPN is still a young initiative, many activities are relatively recently started and may need to be further developed. RFPN is currently elaborating a structured model on how to disseminate practices around falls prevention locally. The model is considered to be a key instrument and is intended to be used also outside the region.

Shortage of funding is a major challenge. RFPN does not even have a project budget; members contribute with resources in-kind and occasionally with small amounts of cash to specific ends. The costs for printing brochures were for instance covered by one-time cash contributions from participating organisations. Other proposed initiatives, such as the development of a website where information would be collected, has not attracted enough funding from the participants and has therefore not been realised. Hotus has secured some external funding for its participation which it occasionally uses to cover other participants' travel costs to conferences etc. There exist no figures on how much time and resources each participant devotes to RFPN.

Another challenge relates to reluctant managers across the healthcare system. Managers can act as gatekeepers to an organisation's or unit's participation and need to be supportive, which is not always the case. Besides not believing in the RFPN's potential, managers are sometimes cautious not to make obligations to RFPN as they want to have resources available to handle expected, but yet unknown, reforms in Finland's healthcare system.

#### 6.5 Sources of information

The information in this case study has been collected through interviews and desk research. The sources of information are listed below.

##### 6.5.1 Interviewees

Dr. Marja Äijö. Principal lecturer, Savonia University of Applied Sciences

Dr. Kaisa Haatainen. Patient safety manager, Kuopio University Hospital

Dr. Arja Holopainen. Research director at the Nursing Research Foundation (Hotus) and Chair of RFPN's steering committee

Dr. Tarja Tervo-Heikkinen. Clinical nurse consultant, Kuopio University Hospital and Manager of RFPN

### 6.5.2 Websites and documents

We have reviewed a considerable number of documents offered by the interviewees as well as information on several websites and other reports. The following documents and (parent) websites have been particularly useful:

- Lüthje, P., T. Helkamaa, I. Nurmi-Lüthje, J.-P. Kaukonen and M. Kataja (2013). An 8-Year Follow-Up Study of 221 Consecutive Hip Fracture Patients in Finland: Analysis of Reoperations and their Direct Medical Costs. *Scandinavian Journal of Surgery*, September 20, 2013
- Nursing Research Foundation (2015). Nursing Research Foundation's website, available at: <http://www.hotus.fi>
- Nykänen, P., J. Kaipio and A. Kuusisto (2012). Evaluation of the national nursing model and four nursing documentation systems in Finland – Lessons learned and directions for the future. *International journal of medical informatics* 81 (2012), pp. 507–520
- Swedish Civil Contingencies Agency (2010). Samhällets kostnader för fallolyckor [Societal costs for fall accidents]. MSB report 0197-10
- Tervo-Heikkinen, T. Holopainen, A., Haatainen, K. and Miettinen, M. (2014). Regional collaboration in falls prevention - making a continuum. Presentation at 3rd Nordic Conference on Research in Patient Safety and Quality in Healthcare, 2–3 October 2014, Stavanger, Norway

## 7. Nursing education at the University of Iceland

This case study concerns the nursing education at the University of Iceland (HÍ) and collaboration between the university and the National University Hospital. The University of Iceland is the only institution that offers nursing education at Master and PhD levels in Iceland.

### 7.1 Overview of the nursing education

The nursing education at HÍ is undertaken by the Faculty of Nursing, established in its current form in 2000 and is organisationally situated within the School of Health Sciences. The faculty comprises a wide range of academic subjects and the overall ambition of the Icelandic educations in nursing and midwifery is to maintain an excellent standard to enable the graduates to pursue careers in any health care institution in Iceland or elsewhere. Many faculty members are educated and trained at universities abroad, and are engaged in international collaborations with the institutions particularly in the Nordic countries, Europe and in the United States.

Comprising more than 600 students, the undergraduate and graduate programmes offered at the faculty are listed below:

- Undergraduate level
  - Nursing BS (240 ECTS)
- Graduate level
  - Study programme for a professional qualification (certificate) in midwifery (60 ECTS)
  - Midwifery Candidatus (120 ECTS)
  - Specialised Nursing Diploma
  - Nursing MS (120 ECTS)
  - Midwifery MS (120 ECTS)
  - Nursing PhD

Academic education within nursing has been provided in Iceland for over forty years. In 1973, the first educational programme in nursing started at HÍ. Subsequent shifts of all educations in nursing (1986) and midwifery (1996) from university colleges to the university are viewed by the interviewees as significant advancements for both the educations and the professions. The research activities were substantially boosted by the introduction of studies at Master and PhD levels. The Nursing Master programme has a fairly research-intensive profile, and emphasises flexibility which enables the students to strengthen and deepen their knowledge and skills within an individually chosen academic field. The comparably high academic influence over the nursing educations in Iceland has contributed to what the interviewees describe as international recognition for high quality nursing education.

The nursing education is conducted in close collaboration with the Landspítali National University Hospital of Iceland, a long-standing collaboration which for about ten years has been based on a formal agreement, last renewed in 2011.<sup>24</sup> The collaboration is a central component of the strong link between research, education and healthcare practice in the nursing field in Iceland. Besides ensuring the engagement of hospital staff in teaching, the agreement includes ten full, assistant or associate professors having joint positions at the university and the hospital, thereby

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<sup>24</sup> Landspítali National University Hospital of Iceland was founded through a merger in 2000. HÍ's earlier collaboration took place with its predecessors, among them the Icelandic State University Hospital.

being able to facilitate the interaction between theoretical research and issues identified in healthcare practice. The hospital and HÍ also jointly operate the Nursing Research Institute, established in 1997. The institute organises open seminars, lectures and workshops on various research subjects at which students can participate. In addition, a research fund connected to the institute has been established to promote PhD training.

## 7.2 Clear and strong link between research, education and practice

The research and educational environment is characterised by a high level of integration between research, education and practice. This is most fundamentally reflected in a general problem-solving approach that permeates the activities. An important factor, underlined by the interviewees, is that it is common that university researchers, hospital nurses and students at both undergraduate and graduate levels work together in research projects. The link between education and practice is further supported through members of the hospital staff who conduct parts of the teaching and are able to influence the course set-up and material. Some of them hold adjunct positions at HÍ. The education consists of lectures, dialogue-based teaching, tutorials, exercises and group work.

The interviewees give several examples of how members of the research staff have formulated practice-based research questions and how these have been addressed by students at all educational levels who have participated in studying the issues and contributed to problem-solving. The results, such as guidelines and models, have frequently been implemented in the clinical work at the hospital. Overall, societal needs tend to be comparably much attended to in the academic life in Iceland, which, it could be argued, is particularly beneficial for education in a field like nursing.

Students also receive practical training at a recently opened campus clinic, established due to an observed poor access to healthcare among young people. In the clinic nursing students, together with students within other fields such as therapists or dentists, provide health care for other students. The clinic aims to provide healthcare for students who study away from home and to create an opportunity for Master students (close to graduation) to implement and test their skills. The service is an extension of the municipal healthcare and the activities at the campus clinic also serve as a platform for research.

## 7.3 Challenges for the future

The interviewees mention three main challenges for further integration of research, education and nursing education in Iceland:

- The economic downturn resulted in large budget cuts in the healthcare field, which, the interviewees argue, from the perspective of nursing education has been most visible in worsened possibilities to collaborate with nursing homes and primary healthcare facilities. Such facilities are often privately run, which means that close collaboration require a genuine interest and commitment from the owners. Financial constraints at the hospital have meant that the full potential of the collaboration agreement has not been realised, for example by filling identified focus areas with students who conduct clinical work. At HÍ there are economic constraints on the education which makes priorities necessary.
- At policy level, some of what the interviewees consider research is viewed as development of services or quality assurance, due to its problem-solving approach. This is challenging for instance in studies of family-support to elderly family members who still live at home. Such studies – which are highly relevant from a societal perspective – tend to be classified as quality assurance rather than scientific research. In addition, due structural constraints nursing educations are in some respects run on different terms than closely related medical educations. For instance, supervised clinical hours give academic credits to medical students but not always for nursing students.

- The interviewees view the requirements on the nursing education as too low both in Iceland and elsewhere, which they link to political pressure of lowering costs and the length of these educations. Low requirements are also viewed as a challenge on the demand side; the interviewees find that organisations that hire nurses put too much emphasis on clinical experience and do not appreciate academically educated individuals to the extent they should.

#### 7.4 Sources of information

The information in this case study has been collected through interviews and desk research. Interviewees and other sources of information are listed below.

##### 7.4.1 Interviewees

Prof. Helga Jónsdóttir. Director of research and development in nursing care for the chronically ill, University of Iceland

Prof. Guðrún Kristjánsdóttir. Chair of research and development in children's nursing, University of Iceland

Dr. Þórdís Katrín Þorsteinsdóttir. Assistant professor at University of Iceland and research coordinator at the emergency department at Landspítali National University Hospital of Iceland

##### 7.4.2 Websites and documents

Faculty of Nursing at the University of Iceland (2015). Available at:

[http://english.hi.is/school\\_of\\_health\\_sciences/faculty\\_of\\_nursing/about\\_faculty](http://english.hi.is/school_of_health_sciences/faculty_of_nursing/about_faculty)

Landspítali (2015). Available at: <http://www.landspitali.is>

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## 8. Master programme in knowledge-based practice in the health sciences, Bergen University College

The Master programme in evidence-based practice in the health sciences at Bergen University College (HiB) was chosen as a case because it is a good example of a successful education in a field of key importance to the welfare sector. The programme is closely connected to the research at the Centre for Evidence Based Practice at HiB, which focuses on educational research and implementation strategies. HiB is the leading Norwegian research performer in this field, and has close relations with The Norwegian Knowledge Centre for the Health Services (NOKC), an agency established to improve quality in the healthcare sector primarily through an evidence-based approach. HiB also supports other university colleges in working with evidence-based content in healthcare educations.

### 8.1 Why this programme?

The demand of graduates with competence in evidence-based practice is relatively high and found both in hospitals and in organisations such as NOKC and to some extent higher education institutions. Norway has come comparatively far in the work with evidence-based healthcare. One outcome of the national research and innovation strategy for the healthcare sector, HelseOmsorg21, is that evidence-based practice will be a compulsory component in all tertiary education in the healthcare area.

The programme at HiB started in 2008 as one of the first of its kind also in an international perspective. Evidence-based healthcare had been introduced early at HiB, already in 2001, and in 2003 the HiB ran a course for its staff on the topic to prepare them for teaching. Some nurses at the university hospital wanted to participate as well, and the combination of HiB staff and practitioners turned out to be very fruitful. A few years later HiB would establish profile areas to which Master programmes would be connected, and evidence-based healthcare was selected to be one of those. At the time the only similar education in the world was organised by University of Oxford. Australia was another stronghold. HiB invited one professor from each of these places to spend two years in Bergen to help establishing the programme. During the same period the Centre for Evidence Based Practice was established at HiB and since, several faculty staff have graduated with PhDs in the field.

### 8.2 Programme overview

The programme focuses on how to develop, spread and implement 'best practice' in clinical work in the healthcare sector. The programme targets evidence-based practice in healthcare, which is a well-established approach to improve patient treatment through systematic integration of clinical expertise, patient values and research evidence. The approach is in its original meaning confined to large, quantitative studies including systematic reviews and meta-analyses, but the programme has chosen to include also research such as comparative quantitative studies and qualitative studies, and clinical audits. Table 3 gives an overview of the curriculum. For their Master theses the students typically conduct systematic reviews or evaluate healthcare practice through clinical audits, often with staff at NOKC as co-supervisors.

The two-year programme currently runs as part-time studies over four years. It mostly consists of distance studies with occasional one-week assemblies in Bergen. To support knowledge exchange between students, the programme administration works cautiously with designing group work and in other ways make students work together both during and between the gatherings in Bergen. The students are in average highly motivated.

Table 3 Overview of the programme curriculum

Semester	Topic	ECTS credits
1	Introduction to Evidence-based practices (EBP) in health care	15
2	EBP – Implementation I (clinical practice)	15
3	Philosophy of Science, Methodologies and methods	15
4	EBP – Implementation II (organisation)	15
5	Developing a research project and in-depth research methods	15
6–8	Master thesis	45

The programme design is a combination of practical circumstances and intentional programme design. Students come from all over Norway; they usually have families, and have employments that they are unwilling to drop. Many students have come from positions where they have worked with capacity building within a healthcare organisation. Few of them have however been leaders. A typical arrangement is that the employer agrees to pay full salary to the student during the education, provided that the student e.g. conducts relevant case-study-based course work at the employment site during the education and promises to stay for a number of years after graduation. HiB on its part looks positively at the fact that students have continuous contact with a practical healthcare and are able to conduct studies in a real environment. The programme is also designed to enable the students to focus on areas of specific interest to them.

The programme is relatively popular with 80 applicants to 30 study places in the last round. The average age of the students is high, 44 years, and rarely any student has been younger than 30. An important reason to the relatively aged student population is that master education is a recent phenomenon in Norwegian nursing, barely older than this programme. The programme thus met a long-standing need among nurses for continuous education, why the average age will probably decrease over time.

Another reason to the many aged students relates to the content of the programme. As interviewed staff members at HiB point out, unlike other master programmes in nursing it is not an education for specialist nurses. The students graduate with a diploma and an expertise that many other nurses and healthcare staff do not know much about. As a consequence, the programme has tended to attract students with deep insights into health practice and the questions nurses face in their everyday work. The interviewed members of staff at HiB have mixed feelings about this situation. On the one hand, they point out that the education would be difficult to run if the students lack practical experience – “they need to be able to ask the right questions, to have a focus in their studies”. On the other hand, the interviewees regard the younger students to be more skilled academics and better at composing critical analyses. In addition, the interviewees note that from a societal point of view it would be better to invest in young students who will work for many years.

### 8.3 Changes in programme design

Over time, HiB has had to adapt the programme in various ways, both to align better with the students’ levels of competences and interests, and to better fit with the situation and the needs in the healthcare sector. An important change has been a slight shift in the curriculum from a theoretical and academic perspective – e.g. how to develop a systematic study – towards the practical aspects, how such studies can be implemented. The resistance in the healthcare sector turned out to be more challenging than HiB had initially expected. The resistance consists not only of gate-keeping individuals who may need to be persuaded, but also of fundamental organisational issues – how should the implementation be most efficiently organised, which actors should be involved in the work, etc. HiB has therefore, for instance, invited lecturers in organisational studies and NOKC.

## 8.4 What do the students do after studies?

A follow-up study by the HiB programme staff concludes that after the studies, the students see themselves as “change agents”. The programme helped them develop a desire to improve clinical care and to support ‘best practice’. The programme staff members have identified three main capacities that the students developed:

- Self-efficacy: Improved consciousness of their professional standing, strong beliefs in their abilities to promote ‘best practice’, and support to the (national) network for evidence-based practice
- Analytic competence: Improved abilities to support evidence-based practice in healthcare, which require several types of competences
- Useful tools: Knowledge on the structured steps of evidence-based practice and how to implement them, as well as understanding of the ‘professional language’ within the community of evidence-based practitioners

Initially the programme staff members were uncertain about to what extent the graduates’ knowledge would be utilised in the healthcare sector. Today the uncertainty is gone; the staff members are through numerous examples convinced that the graduates have made important and positive accomplishments in the Norwegian healthcare sector.

Hospitals vary significantly in their abilities to make use of the students. Some hospitals have acted strategically by letting one employee take the education in order to get competence for planned reorganisations, others appear to have been positively surprised by the competence a graduate has gained, while yet others have shown little plans or intentions to make use of the students’ new skills. Former students have pointed out the critical importance of having manager support in introducing more evidence-based practice; several of them have experienced considerable difficulties in that respect. A prerequisite is of course that managers have sufficient knowledge about the approach, which has not always been the case. Such resistance has led to a significant share of the former students changing employers.

Another sign of the resistance the students have met in the hospital sector is that almost none of them have seen their wages increase as a direct result of the education. One reason is most certainly that the graduates are not recognised as specialist nurses, other reasons that the hospitals are not ready for changes or that managers do not (arguably due to lack of understanding) recognise the students’ competences.

As part of the efforts to nurture the ‘evidence-based healthcare community’ in Norway, HiB is keen to stay in touch with alumni and encourages them to contact HiB or NOKC. HiB also makes use of former students in the education. The community formation is motivated both by a desire to get feedback and other support to the education and research at HiB, and by the insight that the students benefit greatly from the community support to handle the recurring challenges as “change-agents”.

## 8.5 Challenges for the future

Members of HiB staff recognise several challenges for the future. Regarding the education as such, HiB would like to ensure that all students have worked in the healthcare sector before entering the programme. If the number of applicants will increase, HiB considers introducing a requirement of two years of practical experience. However, HiB would also like the academic level of the studies to improve, preferably by attracting more younger students who are seen as better than the older ones in that respect. That ambition is partly motivated by a desire to tie the education closer to the research centre that HiB has in the same field – the influence of the students’ employers and the NOKC has meant that HiB has not been able to attract as many students as hoped for into doing fieldwork together with the researchers at HiB, and HiB would also like more students to be interested in PhD studies after graduation.

The movement towards the introduction of evidence-based practice at all levels in healthcare education means that HiB stands strong, and that the staff is likely to get more involved also in the undergraduate education. As one interviewee puts it, “the students must be better at *understanding* a guideline, not just obeying. They also need to learn where to find knowledge and to consume research so that they are able to educate themselves along the way”.

Regarding the labour market for graduates, HiB observes that students have found it increasingly difficult to get their study leaves paid for by their employers. Several hospitals have seen the students change employers shortly after graduating and are therefore been less willing to pay for others. The students, on their part, often motivate such changes of employers by pointing at lack of opportunity to utilise their new skills, and considerable difficulties to get a wage increase. A related point is the lack of recognition of graduates as specialists, but the interviewees appear to see no opening in that respect. The challenges on the labour market are arguably the most important challenges the programme faces; to achieve a more natural and legitimate position in the Norwegian healthcare system.

## 8.6 Sources of information

The information in this case study has been collected through interviews, document studies and desk research. Interviewees and other sources of information are listed below.

### 8.6.1 Interviewees

Prof. Monica Wammen Nortvedt, Head of Centre for Evidence Based Practice and Vice Dean at the Faculty of Health and Social Sciences. Bergen University College

Anne Kristin Snibsøer, Lecturer and PhD student at Centre for Evidence Based Practice, Bergen University College

### 8.6.2 Websites and documents

Master i kunnskapsbasert praksis i helsefag (2015). Available at <http://www.hib.no/studietilbud/studieprogram/ma-kbp4/>

Nortvedt, Monica W, Jamtvedt, Gro, Nordheim, Lena Victoria, Reinart, Liv Merete & Graverholt, Birgitte (2012). *Jobb kunnskapsbasert! En arbeidsbok. [Work evidence-based! A workbook]* Akribes forlag.

Senter for kunnskapsbasert praksis (2015). Available at <http://www.hib.no/om-hogskolen/senter-for-kunnskapsbasert-praksis/>

Two unpublished research articles on the programme’s graduates on the labour market. Both articles are currently in review processes at international journals.

## 9. Nursing programme at Linköping University, Sweden

This case study concerns the undergraduate Nursing programme at Linköping University (LiU) in Sweden. The programme was chosen as a case study because it is based on the pedagogical method of problem-based learning (PBL). Our aim has been to illuminate how a PBL-approach may support the integration of research, education and practice.

### 9.1 Overview of the programme

The Nursing programme at LiU is a three-year programme that leads to a Bachelor of Science in Nursing and a nursing license from the Swedish National Board of Health and Welfare. The programme is built around three main subject areas: nursing science (51% of the content), medical science (31%) and behavioural science (18%). Twenty-eight percent of the programme is based on clinical training through internships during five of the six semesters. The programme also has access to a centre for skills training where students can practice clinical skills using simulators.

After graduation the students have the possibility to continue on one of LiU's ten educations to become a Specialist nurse. LiU also offers two Master programmes in the nursing field: Advanced Specialist nurse in surgical care, and a programme that educates quality improvement workers for the healthcare field.

### 9.2 Problem-based learning

The Nursing programme at LiU is based on PBL, a pedagogical method used to improve students' self-learning with the help of group work and supervisors. LiU is a pioneer in PBL, which was introduced there as early as 1986. What sets PBL apart from conventional pedagogical methods is the emphasis on the students' own roles in finding their ways to solve a problem. While in conventional methods the teacher often provides a relatively firm structure for learning, including what literature to read and which pieces of knowledge are relevant in a given situation, the teacher in PBL typically takes the role of a mentor who provides overall guidance but no solutions. PBL is thus designed to help students develop their abilities and confidence to find solutions to situations that are new and unfamiliar to them. In this way the students are expected to graduate with tools to tackle all kinds of situations they may face in their working life.

PBL in LiU's nursing education is therefore based on situations that students may encounter in their future professions. LiU calls these situations scenarios or starting points. The design and content of them are thought to vary depending on the area or objectives of interest. A scenario/starting point could for example describe a patient, an event linked to health and care in the society, an ethical dilemma or a physiological process. The design of the situations may be expressed as stories, journal excerpts, statements, quotes, pictures, movies, recorded calls or as a role play. The students are then expected to figure out the challenge and how to handle the situation. It could for example be a matter of understanding the symptoms of a disease, how to take care of a person in crisis, to understand how a municipality's healthcare is organised or to learn about effects of certain drugs in the human body.

Much of these efforts take place in discussions in groups of six to nine students who are assisted by a mentor (teacher). The mentor's role is to guide, stimulate, challenge and support the work of the students. A key point for the mentors is to indicate which direction a knowledge seeking process should take, rather than to provide final answers. The students are themselves expected to judge if they have enough information to consider a problem solved.

### 9.3 The link between research, education and practice

The PBL approach is itself an integration of research and education, since the learning method is essentially the same process as in research. By choosing scenarios and

starting points that are based on real clinical situations, practice is incorporated into the education. In addition, some problems may require consultation of research literature to be solved.

On the other hand, the interviewees at LiU express that the programme has not had a more outspoken goal than other nursing education to strengthen the links between research, education and practice. Beside the national goals the programme has no particular goals in place related to integrating research and practice with education. LiU is revising the curricula and steering documents at the moment and expects more explicit goals and strategies for how to reach these to be incorporated.

The interviewees' view is that integration between research, education and practice is expected to occur naturally with the PBL method, without particular instructions to or incentives for the students. At the same time, the interviewees observe that students are generally not sufficiently aware of the usefulness of research and the significance research results may have for clinical practice, and therefore do not consult research literature is often as they should do.

Besides the PBL work, the education also contains more conventional pedagogical methods, including lectures, seminars, and supervised clinical practice. All these methods include research-based educational content. For instance, LiU introduces the concept of evidence-based healthcare already during the first semester. One instrument to stimulate the students' clinical understanding is through recurring lectures by representatives for other healthcare areas, such as psychologists and veterinarians. The idea is to give students insights in the relations between different professions as well as an understanding of how knowledge and research in nearby areas can be connected with the nursing profession. LiU also invites nursing students to attend R&D lunch seminars, which are arranged relatively frequently. However, attending these seminars is voluntary, which has resulted in very low level of student participation.

Unfortunately no investigative evaluation or study has been undertaken to compare the quality and performance of the LiU PBL method with other pedagogical methods in nursing education elsewhere. In 2007, LiU's nursing education was one of 31 nursing programmes (40% of all investigated programmes) that were criticised by the Swedish National Agency for Higher Education (HSV) for quality problems, but neither the criticism nor the commendations appear to have been related to the PBL approach.<sup>25</sup> In 2014 the 49 nursing programmes were evaluated again, and LiU's nursing programme was one of 40 that received the middle rating, "high quality". The evaluators indicate that PBL is likely to have had a positive impact on LiU's outcome in the evaluation.<sup>26</sup>

However, a meta-analysis of 22 studies that have investigated the effects of PBL in nursing education shows a positive effect that is medium-to-large, which, the authors conclude, "indicates that PBL offers many benefits to nursing education research when compared with traditional methods."<sup>27</sup> The result supports findings in studies on PBL in medical education. The authors also observe that the results are more positive in favour of PBL when external researchers observe performances of the students and graduates, than when researchers estimates the quality of the educations by asking the

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<sup>25</sup> Swedish National Agency for Higher Education (2007). Utvärdering av grundutbildningar i medicin och vård vid svenska universitet och högskolor  
Del 2: Utbildningsbeskrivningar och bedömningar. Report 2007:23 R

<sup>26</sup> The other two ratings are "Insufficient quality" and "Very high quality". Swedish Higher Education Authority (2014). Beslut: Kvalitetsutvärdering av sjuksköterskeexamen, 2014-02-18

<sup>27</sup> Shin, I.S. and J.H. Kim (2013). The effect of problem-based learning in nursing education: a meta-analysis. *Advances in health sciences education : theory and practice* 18 (5), pp. 1114

students and graduates of their assessments. PBL is held to be a particularly efficient method to stimulate high performance in clinical practice.<sup>28</sup>

#### 9.4 Challenges for the future

Regarding the integration of research, education and practice, the interviewees at LiU observe the following challenges for the future:

- The most pressing challenge for the teachers at LiU's nursing programme is to make students more aware of the usefulness of research results to improve clinical practice. It is apparent the PBL approach provides comparably efficient inclusion of some aspects of *research as practice* – problem-solving, information-seeking etc. – but that it is not equally efficient in 'automatically' providing students with the skills to make use of *research results*.
- The interviewees also observe a need to provide more, and better, meeting points between students and (clinical) researchers. The mentioned R&D lunch seminars are in theory good opportunities, but student participation would be better if participation was mandatory, which is not possible unless the seminars are run only a few (full) days per semester. LiU also has plans to connect a social scientific centre for dementia research closer to the education, to better incorporate scenarios related to the growing challenges that an aging population puts on the healthcare sector. Overall, the interviewees note, it is particularly difficult to incorporate social scientific and humanist issues into the healthcare area, given its traditional focus on medical science.
- The interviewees note that parts of the challenge to make students more inclined to use research results is a challenge for the research community rather than for the teachers. Many studies, the interviewees observe, provide results that are hardly possible to incorporate in clinical practice; the actual working conditions and situations in healthcare do not offer opportunities to act as some research articles prescribe. When students take notice of that, they sometimes become more sceptical to consult research literature.

#### 9.5 Sources of information

The information in this case study has been collected through interviews and desk research. The interviewees and other sources of information are listed below.

##### 9.5.1 Interviewees

Prof. Carina Berterö. Professor in nursing science, subject representative and teacher at the Nursing programme, Linköping University

Dr. Margareta Karlsson. Lecturer and head of the Nursing programme, Linköping University

##### 9.5.2 Websites and documents

Swedish National Agency for Higher Education (2007). Utvärdering av grundutbildningar i medicin och vård vid svenska universitet och högskolor. Del 2: Utbildningsbeskrivningar och bedömningar [Evaluation of undergraduate education in medicine and care at Swedish universities and university colleges. Part 2: Descriptions and assessments of educational programmes]. HSV Report 2007:23 R

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<sup>28</sup> Shin, I.S. and J.H. Kim (2013). The effect of problem-based learning in nursing education: a meta-analysis. *Advances in health sciences education : theory and practice* 18 (5), pp. 1103–20

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