

Report on the Literature Review

**Results from the Literature Review concerning
“Counteracting brain drain and professional isolation of
health professionals in remote primary health care through
teleconsultation and telementoring to strengthen social
conditions in remote BSR”.**

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List of Abbreviations:

| | |
|---------|---|
| BelMAPO | Belarusian Medical Academy of Post-Graduate Education |
| BITNET | International Baltic of Telemedicine Network |
| BSR | Baltic Sea Region |
| CDH | central district hospitals |
| CPD | continuous medical education |
| DRG | diagnosis related group |
| EBM | evidence based medicine |
| ECG | electrocardiogram |
| EHIF | Estonian Health Insurance Fund |
| EPR | electronic patient record |
| EUR | Euro |
| GDP | Gross domestic product |
| GP | general practitioner |
| ICD 10 | international classification of diseases |
| ICT | information and communication technology |
| KELA | Finish Social Insurance Institution |
| KVSH | Kassenärztliche Vereinigung Schleswig-Holstein |
| LMA | Latvian Medical Association |
| MDST | mobile distance- spanning technology |
| PHC | primary health care |
| RMHE | Radiation Medicine and Human Ecology |
| RSPC | Belarusian republican healthcare organizations |
| SEK | Swedish krona |



Short Abstract

This literature review is part of the theoretical background of the PrimCareIT project. It has the aim to create a basis for further research in the PrimCareIT project and to give an overview of the state of the art in the seven partner countries Belarus, Estonia, Finland, Germany, Latvia, Lithuania and Sweden.

In each country the study coordinators carried out a literature review on the basis of a questionnaire to answer the different questions regarding the respective health care systems, definitions of primary health care, professional isolation and brain drain as well as the prevalence of teleconsultation and telementoring.

The review showed that the state of the art in the countries is still on different levels. There have been some kind of teleconsultations or telementoring solutions used in all countries. But especially topics such as the effects of teleconsultation and telementoring on the health care system or the weighting of factors leading to brain drain have not been considered in most of the countries.

Therefore the partners will in further research, by carrying out expert interviews among professionals in the seven countries as well as a focus group, concentrate on the further retrieval of information regarding the usage of teleconsultation and telementoring to counter-act brain drain and professional isolation in the partner countries.

The target groups of this output are all project partners from work packages and general public interested in the project.

The partners of WP3 have been involved in elaboration of the present output.

1 Introduction

The overall aim of the project PrimCareIT is to raise the attractiveness of remote primary health care for medical professionals by the means of teleconsultation and telementoring. The project counteracts brain drain and professional isolation in sparsely populated areas for more equal access to primary health care in the Baltic Sea Region (BSR).

PrimCareIT includes and connects findings from the flagship projects ImPrim and ICT for Health. ImPrim focuses on financial incentives and professional development to attract health professionals to PHC. PrimCareIT complements this approach by elaborating on opportunities of teleconsultation and telementoring. The increasing lack of medical professionals, such as health workers and medical doctors, challenges the maintenance of primary health care in all Baltic sea regions. Demographic change and ageing population lead to a rising demand for primary health care services. PrimCareIT reuses outputs from ICT for Health, i.e. education courses to raise eHealth acceptance of health professionals but also further develops strategies to counter-act brain drain and professional isolation from primary health care in remote areas in the Baltic Sea Region through the use of teleconsultation and telementoring.

The objectives of the project form the structure of the Work Package (WP) framework and are represented by the diagram below:



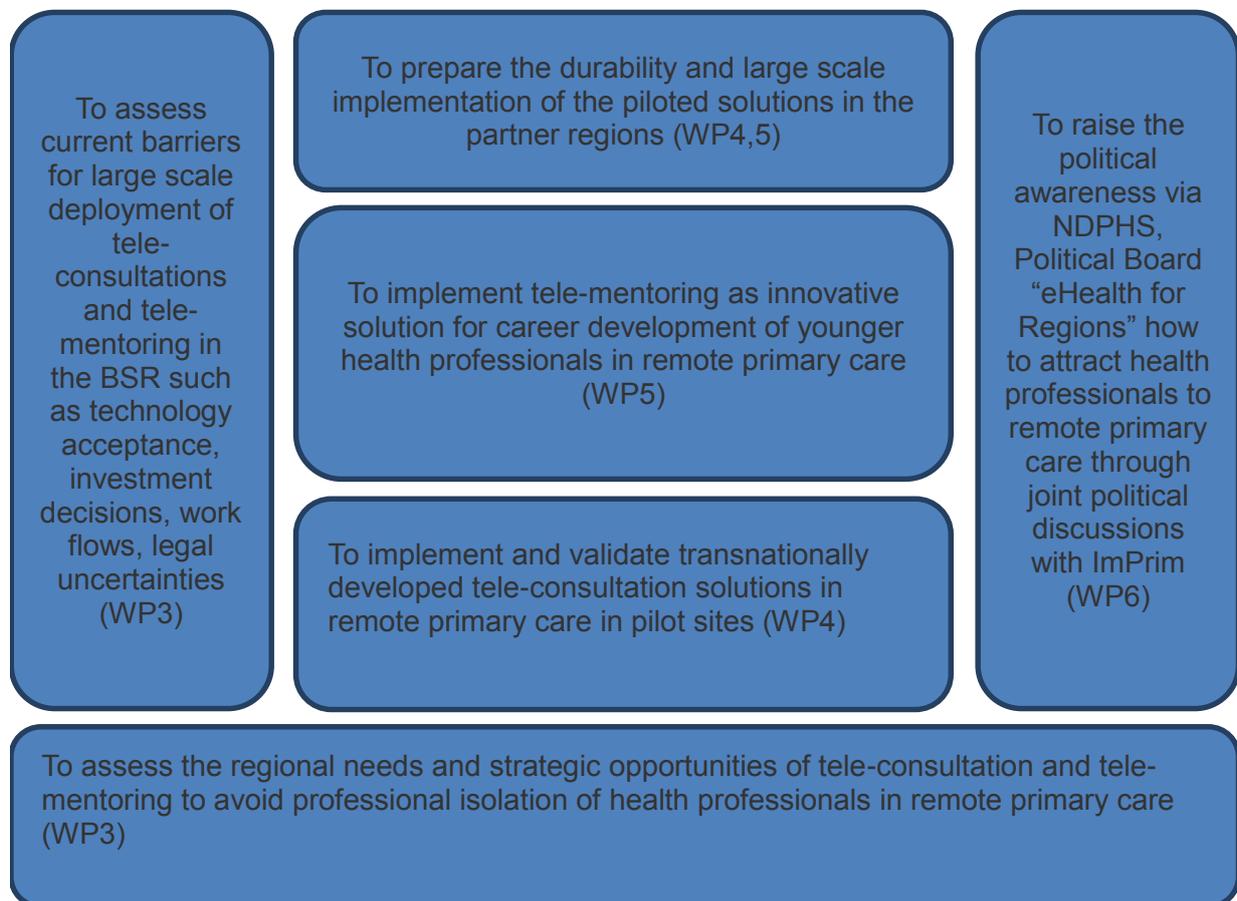


Figure 1: Work package structure of PrimCareIT (Source: compiled by the author)

The project base and the background layer for all other activities is the assessment of the regional needs and strategic opportunities of teleconsultation and telementoring to avoid professional isolation and health professionals in remote primary care. To assess these needs the background of the current situation in countries participating in the project should be identified. The findings will lead to the generalization of overall situation regarding deployment of teleconsultations and telementoring in the partner regions and also will lead to the definition of specific ways of the counteraction of professional isolation and brain drain in regional remote primary care.

In work package three the main question is to assess the regional needs and strategic opportunities of teleconsultation and telementoring in order to avoid professional isolation of health professionals in remote primary care. This first outcome is a literature review on professional isolation and brain drain of medical professionals in rural primary care and gives an overview about the country-specific differences.

2 Methods

This transnational country-specific literature review has been written by the regional study coordinators. The situation in Belarus, Estonia, Finland, Germany, Latvia, Lithuania and Sweden is described. Each country specific literature review is carried out describing the national regions and health care system, defining of professional isolation and brain drain, analysing effects of professional isolation, identifying factors leading to professional isolation and brain drain, weighting of professional isolation compared to other factors that enhance brain drain and describing on-going teleconsultation, telementoring activities and specific requirements on tele-services.

The literature review is based on the information publically available in each country. The review was conducted as a study that was carried out by each regional study coordinator. A questionnaire build the basis for this study to ensure that each country would deliver the same output by answering the respective questions according to the national state of the art.

Therefore, each regional study coordinator researched the country-specific databases regarding articles about relevant topics such as brain drain, professional isolation, teleconsultation and telementoring in variation and related terms. The sources further opened the way to new articles, cited in the respective works. Each country's coordinator created the study for his/her country and afterwards all parts were merged in this report and compared and discussed in the group.



3 Country specific literature review

3.1 Description of the regions

The following chapter includes a description of the regions, where the surveys are taken out. A broad overview on the structure of the health care system in those regions is given, including for example the number of inhabitants, the number of GPs, health professionals and others that are situated in those regions. Furthermore, a country specific definition of „primary care“ is given and a description of who the actors in primary care in those region are.

3.1.1 Belarus

Administrative territories

At the present time, the administrative-territorial division of the Republic of Belarus is the following: Minsk City (the capital) and 6 regions (oblasts): Vitebsk, Brest, Grodno, Minsk, Mogilev and Gomel, which include 118 districts¹.

Demographic characteristics

According to the National Statistical Committee of the Republic of Belarus the population of Belarus is 9,481 million people (2011)².

The share of urban population is 75,1%, rural – 24,9%. The population aged 60 and older makes 19,2%. A regressive type of population age structure and decrease of the population size is observed³.

The crude birth rate is 11,5 / 1,000; the crude death rate is 14,3 / 1,000 population.

It should be noted that last 10 years are characterized by the decreased infant mortality. In 2011, the infant mortality rate was 3,9 / 1,000 live births being one of the lowest in CIS countries. It means that we are fulfilling the aims (task №3) of WHO's strategy "Health for all in the 21st Century". Life expectancy at birth was 70,4 years including males with 64,6 years and females with 76,5 years⁴.

Healthcare in Belarus

National priorities in the sphere of healthcare are defined by the government of the Republic of Belarus. State sector of healthcare makes 93% of the National Healthcare System, private medicine – 7%⁵

¹ Law of the Republic of Belarus «About administrative-territorial division and the order of solving administrative-territorial issues of the Republic of Belarus», (1998, p.15).

² The Report of the National Statistical Committee of the Republic of Belarus (2011, <http://belstat.gov.by/homep/ru/indicators/main.php>).

³ Public Health in the Republic of Belarus / The official statistical collection, 2010 (2011, p. 31-40); Public Health in the Republic of Belarus / The official statistical collection, 2011 (2012, p. 31-51).

⁴ Public Health in the Republic of Belarus / The official statistical collection, 2010 (2011, p. 30-49); Public Health in the Republic of Belarus / The official statistical collection, 2011 (2012, p. 32-45).

⁵ Public Health in the Republic of Belarus / The official statistical collection, 2011 (2012, p. 38,51).



Administration. Healthcare system in Belarus is based on the centralized administration and organized on the administrative-territorial principle. The central authority is the Ministry of Health of the Republic of Belarus, which is subordinated to the Council of Ministers of the Republic of Belarus⁶.

There are regional authorities of healthcare, which are in the direct subordination to the Ministry of Health (Public Health Departments of Regions and Minsk City Executive Committees), republican healthcare organizations (Republican Scientific and Practical Centres, medical educational establishments, unitary enterprises, etc.) as well as institutions of state sanitary inspection – Republican Centre of Hygiene, Epidemiology and Public Health⁷.

The regional healthcare organizations render inpatient, outpatient and emergency medical care in the regions (oblasts). They are administered by Healthcare Departments of the regional executive committees.

The administration of rural healthcare is carried out by the central district hospitals (CDH), which include district polyclinics (outpatient departments).

Local hospitals, nursing hospitals, hospital-based outpatient clinics including general practitioners (GPs) offices are the structural units of the district polyclinics. The structure of the outpatient clinics and local hospitals includes medical and obstetric centres.

Financing of healthcare system in Belarus is almost totally carried out by the state funds from the budget of different levels.

Every year the share of the state expenses for the healthcare system is nearly 4% of the gross domestic product (7% of GDP is totally devoted to health protection).

Personnel. There are 45 485 specialists (48,1 per 10000 people) with higher medical education in the organizations of the Ministry of Health of the Republic of Belarus. 32 131 doctors (33,9 per 10000 people) are directly involved in rendering the medical care⁸.

Medical care to the population

In the Republic of Belarus, the definition of WHO and Declaration of Alma-Ata for primary healthcare (PHC) is used. There are no definitions of PHC in the Law of the Republic of Belarus “About Healthcare” (edited 20.06.2011) that is why legislators use the term PHC meaning the complex of medical services⁹

In compliance with the Law of the Republic of Belarus “About Healthcare” the patients receive the following types of medical care¹⁰:

Primary healthcare is the basic type of rendering medical care when the patient has the most spread diseases including traumas, poisoning and other medical emergencies as well as other measures aimed at improving the patients’ quality of life.

Specialised healthcare is the type of medical care when the patient has the disease requiring

⁶ Law of the Republic of Belarus “About Healthcare” (1993, 2008, p. 2-7).

⁷ Rudenko, M. *et al.* (2006, p. 10-16).

⁸ Public Health in the Republic of Belarus / The official statistical collection, 2010 (2011, p. 55-56).

⁹ Sharabchiev & Dudina (2010, p. 66-79)

¹⁰ Law of the Republic of Belarus “About Healthcare” (2008, p. 3-6).



special methods of medical treatment and if necessary - complex, high-technological or unique methods based on the up-to-date achievements of medical science and techniques. PHC is rendered to people by the district, regional and republican healthcare organizations. Polyclinics render PHC in cities. Outpatient clinics, GPs' outpatient offices and local hospitals-based outpatient clinics render PHC in rural areas. Paramedical aid is rendered by the specialists with secondary education at medical and obstetrical centres in rural areas¹¹. All the organizations of PHC are owned by the state. Their activity is financed and controlled by the district healthcare administrations at the central district hospitals, their total number being 120¹².

In 2011 in Belarus, there were 1 437 outpatient care organizations including 636 outpatient clinics, 2 358 medical and obstetrical centres and 163 local hospitals¹³.

In the regional centres and in Minsk, PHC is rendered in polyclinics and maternity welfare centres. There are 374 paediatric polyclinics and hospital-based outpatient paediatric departments, 482 polyclinics for adults, 326 maternity welfare centres in the country.

Municipal polyclinics cover quiet considerable areas and serve from 10 000 – 100 000 people and more¹⁴.

In municipal polyclinics, there are all basic categories of highly specialized doctors who have outpatient appointment hours (otolaryngologists, surgeons, ophthalmologists, neurologists, endocrinologists, cardiologists, gynaecologists, etc.)

There are 421 independent outpatient clinics, which work at the principle of general practice. In 2011, the number of GPs was 591¹⁵.

Specialized outpatient and inpatient care is organized in the territorial-district way: each district is served by the corresponding hospital.

Emergency service functions in the system of PHC providing the people with the special and emergency medical aid.

Nursing hospitals were organized to render medical and social care to elderly people. In 2011, there were 102 nursing hospitals¹⁶.

3.1.2 Estonia

The Literature review is based on the information available about the Republic of Estonia. Estonia is the smallest of the Baltic States, the three republics that lie on the east coast of the Baltic Sea.

The Estonian health system is built around a basis of compulsory, solidarity-based insurance and universal access to health services made available by providers that operate under private law. Stewardship and supervision as well as health policy development are the duties

¹¹ Zhilevich *et al.* (2008, p. 82-84); Khulup *et al.* (2008, p. 15-19)

¹² Public Health in the Republic of Belarus / The official statistical collection, 2010 (2011, p. 58-60)

¹³ Public Health in the Republic of Belarus / The official statistical collection, 2011 (2012, p. 58-60, 72-81)

¹⁴ Public Health in the Republic of Belarus / The official statistical collection, 2010 (2011, p. 60-82)

¹⁵ Public Health in the Republic of Belarus / The official statistical collection, 2010 (2011, p. 72-75)

¹⁶ Public Health in the Republic of Belarus / The official statistical collection, 2010 (2011, p. 58-59)



of the Ministry of Social Affairs and its agencies. The financing of health care is mainly organized through the independent Estonian Health Insurance Fund (EHIF). The Ministry of Social Affairs and its agencies are responsible for the financing and management of public health services, that is, the share paid by the state budget. Local municipalities have a minor, rather voluntary, role in organizing and financing health services.¹⁷

Health care provision has been almost completely decentralized since the passing of the new Health Services Organization Act in May 2001 (with effect from 2002). The Act defines four types of health care: primary care provided by family doctors, emergency medical care, specialized (secondary and tertiary) medical care and nursing care. Health care providers are autonomous. Services can only be provided by individuals or institutions operating as private legal entities: a limited liability company, a foundation or a private entrepreneur. Most hospitals are either limited liability companies owned by local governments, or foundations established by the State, municipalities or other public agencies. In this sense, they are owned and managed as public institutions, either on a profit-making (limited liability company) or non-profit-making (foundation) basis. Most ambulatory providers are privately owned. All family doctors are private entrepreneurs or salaried employees of private companies (owned by family doctors); these companies are restricted to providing only primary and nursing care services. The only areas of direct state control include county governors' decisions on family doctor service areas within their locality and the Ministry of Social Affairs' decisions on the number of ambulance units to be financed by the state budget. The State's influence on specialized care and nursing care is most evident in the areas of licensing, supervision and public financing.¹⁸

The Health Services Organization Act, which came into force in 2002, established the regulatory framework for primary care and family medicine, whereby primary care is organized as the first level of contact with the health system and provided by independent family doctors practicing on the basis of a practice list. Every family doctor has a service area (an area of a local government) determined by the county governor.¹⁹

The Act and subsequent regulations of the Ministry of Social Affairs define the responsibilities of family doctors and the regulations surrounding the practice of the specialty. The Act also establishes family doctors as private practitioners contracted by the EHIF. The Health Services Organization Act set out the legal form for practicing as a family doctor. According to this Act, family doctors are private owners and may practice as private entrepreneurs, or found companies to provide primary health care (PHC). The latter may merge only with other companies providing PHC, and may not be partners or shareholders of companies providing specialized medical care. As a result of a 2007 amendment of the Health Services Organization Act (which entered into force in 2008), the local government can act as a partner and shareholder of a company providing PHC. The range of activity of family doctors is defined by law as providing PHC, nursing care, social services, and teaching and scientific

¹⁷ Koppel *et al.* (2008, p.19)

¹⁸ Koppel *et al.* (2008, p.29-30)

¹⁹ Koppel *et al.* (2008, p.144)



research in health care.²⁰

Family doctors are financed on the bases of the contract with the EHIF. Financing includes many components: basic allowance, capitation payment (which is adjusted according to the age of the patients), fees for services, distance fee and quality bonus. Majority of the family doctors (76, 7%) are working alone as private entrepreneurs or founded a limited-liability company.²¹

Estonia has a population of 1 327 312 (as of 1st April 2012) according to the Statistics Estonia.²² “Approximately one third of whom live in rural areas. In terms of the population’s age structure, fewer than 15% are aged between 0 and 14 years and the share of the population of 65 years and older (17.1%) and 80 years and older (3.5%) is increasing (2007).”²³

“Although the number of doctors and nurses continued to decrease after 1998, the ratio per 1000 inhabitants has remained more or less stable – just over 3.0 and 6.5 per 1000 population, respectively – due to a parallel fall in the size of the population.”²⁴ In 2006 there were 3,27 doctors per 1000 inhabitants and 1,05 family doctors per 1000 inhabitants.²⁵ According to the available data of EHIF, there were 800 working family practitioners as of 01st April 2011 and 804 practice lists in Estonia, 4 doctors were working with two different practice lists. It is known that 44 doctors, who are working with a practice list, are older than 66 (as of 31st December 2010) and 87 doctors are between 61-65 year old and working as a family practitioner.²⁶ “Even if all the doctors who have passed the family doctor training start working as family doctors, we will have 60 fewer family doctors in 20 years, as 72% of current family doctors will attain retirement age by then.”²⁷ “A total of 77% of family doctors are situated in urban areas, whereas 23% are in rural areas.”²⁸

According to the Health Services Organization Act division 2 § 7 the definition of general medical care is:

- (1) General medical care means outpatient health services which are provided by family physicians and health care professionals working together with them.
- (2) A family physician is a specialist who has acquired the corresponding specialty and who practices:
 - 1) on the basis of a practice list of the family physician;
 - 2) as a specialist without a practice list.

²⁰ Koppel *et al.* (2008, p.144)

²¹ Riigikontroll (2011, p.6-7)

²² Statistikaamet (2012)

²³ Koppel *et al.* (2008, p.1)

²⁴ Koppel *et al.* (2008, p.118)

²⁵ Koppel *et al.* (2008,p.119 table 5.2)

²⁶ Saar (2011)

²⁷ Riigikontroll (2011, p.2)

²⁸ Koppel *et al.* (2008, p.145)



The definition of a family doctor is explained in more detail in the primary care development plan²⁹:

- Family doctor is a specialized doctor, who as graduated the residency or an in-service retraining course and has taken the primary care exam.
- Family doctor gives consistent general medical help, organizes care and measures of preventing disease to all of the patients in her/his practice list.
- The family practitioner is the first person to consult with in the case of illness.
- Family doctor is obliged to give medical help directly or according to the needs of the patient organize medical help from other doctors or medical services, referring patients to a specialist's consultation or to the hospital.
- Family doctor's decision about referring and organizing medical help is based on the health status of the patient, to assure the patient gets the best possible necessary help, considering the existing resources that are agreed upon in the contracts.
- Family doctor guarantees to the patient in his/hers practice list the accessibility and continuity of medical help.

In Estonia actors in primary care are³⁰

- a. Family doctors and family nurses
- b. Home nursing service
- c. Physiotherapy service
- d. Midwife service
- e. School health care service
- f. Pharmacy service
- g. Occupational health service
- h. Dental care service
- i. Mental health nursing service

²⁹ Maaros *et al.* (2001, p.4)

³⁰ Sotsiaalministeerium (2009, p.3)



3.1.3 Finland

It is well known internationally that the publicly organized Finnish health care service has been a success story. The Finnish health care system has undergone substantial change since the Second World War. In the 1940s, a dense network of maternity and child health clinics was established. The 1950s and 1960s saw heavy investment in building hospitals. By the latter half of the 1960s, the newly strengthened hospital system found that it could not effectively manage with many serious, common health problems such as cardiovascular disease etc. The system of primary care and preventive health care were weak. Gains in life expectancy also slowed during this period.³¹

The next two decades were dedicated to building up the Finnish network of primary health care centres. In the 1972 we got Primary Health Care Act and health centres were established. The health centres offered a wide range of services, including general physician services, maternity and child welfare, dental care, school health care, and long –term inpatient care. New medical schools were established at universities and number of physicians working in primary health care nearly tripled in only a few years.

The Finnish system is more decentralized and mixed in its funding than other Nordic countries are. The national administration does not organize services itself, but defines general health policy guidelines. These guidelines fall under the responsibility of the national Ministry of Social Affairs and Health.³²

The majority of Finnish health care services are organized and provided by the municipal health care system. To fund these services, municipalities levy taxes and receive states subsidies. Specialist care in the municipal system is provided by 20 hospital districts, each of which is owned by and funded by its members of municipalities. In addition to the public municipal system, Finns can also receive partial reimbursement for private health care services. The third funding mechanism renders occupational health care by private or municipal providers.³³

One important social affairs and health care financing system in Finland is the Social Insurance Institution (KELA). KELA supplements the public health care system by refunding some of the costs incurred by the client in using private health care services and medicines used in outpatient care. KELA reimburses rehabilitation and travel costs. KELA pays a daily allowances in compensation for sick-leave days, when it causes a loss of income. The government is responsible for ensuring the adequacy of the health insurance funds.³⁴

³¹ Teperi *et al.* (2009, p.36-37)

³² Teperi *et al.* (2009, p.36-37)

³³ Teperi *et al.* (2009, p.36-37)

³⁴ Teperi *et al.* (2009, p.36-37)



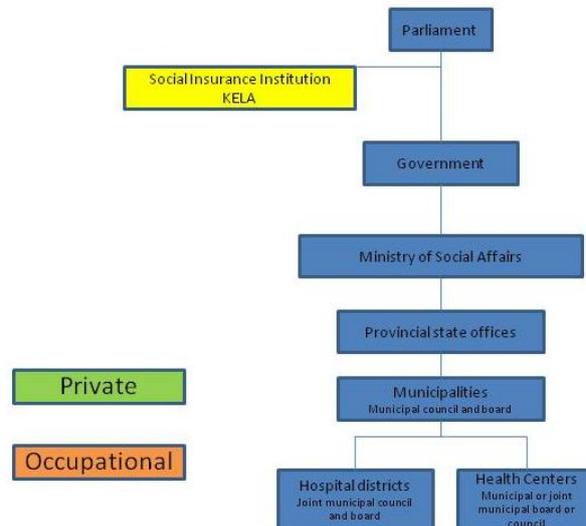


Figure 2: The organisation of municipal health care system in Finland (Source: compiled by the author)

In the next figure (2) there is mentioned the Ostrobothnia Hospital District and the member municipalities and the joint municipal areas. There are 20 member municipalities and average 198 500 inhabitants living on area. One of the Finnish partners in PrimCareIT is the Joint Municipalities Board “Kaksineuvoinen”. There are three municipalities in this area: Kauhava, Lappajärvi and Evijärvi. They are taking part into this project as pilot.³⁵

³⁵ www.epshp.fi

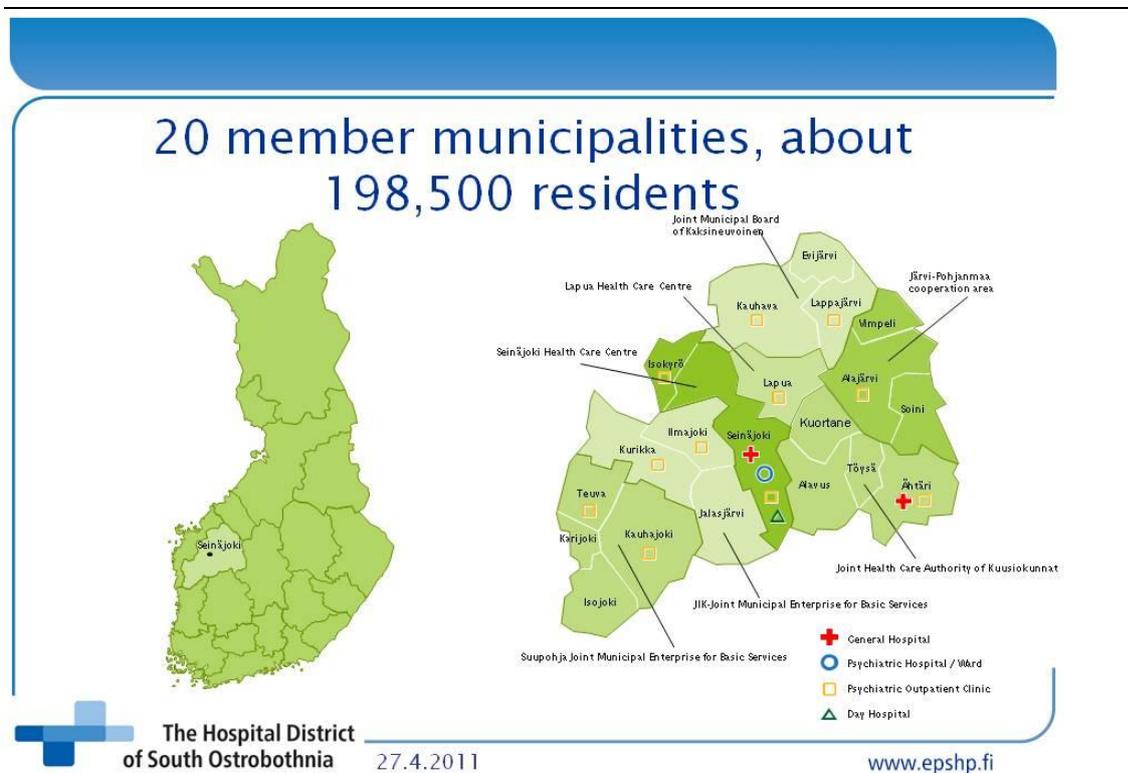


Figure 3: The Hospital District of South Ostrobothnia and the member municipalities and the joint municipal areas³⁶

The functions of the Health Care Centres or the Joint Municipal Boards are:

- to guide in health matters and carry out prevention of diseases
- to organize medical examinations and screenings
- to run maternity and child health clinics
- to arrange for schools, student and occupational health care services
- to organize the provision of dental health care services
- to organize of medical treatment for local residents
- to organize home nursing services
- to provide rehabilitation services
- to arrange mental health services
- to provide a local ambulance service (In the beginning of next year 2013 this Paramedic responsibility belongs to Central Hospitals). ³⁷<http://www.finlex.fi>

³⁶ http://www.epshp.fi/1/yleisesittely/jasenkunnat_ja_terveyskeskukset

³⁷finnish legislation databank, www.finlex.fi

3.1.4 Germany

The Federal Republic of Germany consists of 16 federal states (called "Bundesländer"), of which 13 are area states and three are city-states (Hamburg, Bremen and Berlin). Each federal state is subdivided into several municipalities. There are 81.8 Mio. people living in Germany on an area of 357,123.5 km². 74% of those live in urban areas³⁸. The population density in Germany is therefore 229 people/km²³⁹. The median age in Germany is 44.9 years and the life expectancy 80.19 years. The birth rate is 8.33 per 1,000 population, the infant mortality rate is 3.51 per 1,000 population and 1.41 children are born per woman. The population growth rate is with -0.2% negative⁴⁰.

German Health Care System

The German health care system is generally divided comparably strict into inpatient or stationary and outpatient or ambulant care⁴¹. Primary care, as defined by the "Declaration of Alma Ata"⁴², is carried out by for-profit health care providers and includes "physicians, dentists, pharmacists, physiotherapists, speech and language therapists, occupational therapists, podologists, and technical professions"⁴³ as well as psychotherapists and doctors working as psychotherapists⁴⁴. Primary care is mainly covered by family doctors, who are mostly GPs, internists or paediatricians⁴⁵. In contrast to other countries primary care physicians do not have gate-keeping functions unless patients are registered in a so-called "Hausarztmodell" (general practitioner-centred model)⁴⁶. Those are in place since 2004 and Patients taking part sign a contract with their insurance company that they will always first visit their GP. Those patients not being part of a "Hausarztmodell" are free to chose and consult a specialist without prior contact to a family doctor⁴⁷. Before the implementation of this model a study from 1998 among patients showed that before the "Hausarztmodell" 48% of the patients visited a specialist without prior referral. The insurance companies want to achieve financial and time savings.

A survey from 2011 comparing primary health care systems showed that German primary care physicians have an average of 242 patients per week, which is twice as much as most other countries from the survey, such as Canada (124), France (110), Italy (172), Norway

³⁸ Central Intelligence Agency (2012c)

³⁹ Destatis (2012)

⁴⁰ Central Intelligence Agency (2012c)

⁴¹ Bundesärztekammer (2012)

⁴² Alma-Ata (1978)

⁴³ Busse, Riesberg (2004, p. 96)

⁴⁴ Brunkhorst (2011, p. 5)

⁴⁵ AOK (2012)

⁴⁶ Schnitzer *et al.* (2011, p. 942)

⁴⁷ Jurgutis *et al.* (2008)



(81), Sweden (53), United Kingdom (130) or the United States (96)⁴⁸. The average time a German primary health physician spends with one patient is 9.1 minutes, which is on the other hand one of the shortest visits compared to the other countries, Canada (17.0), France (22.2), Italy (10.3), Norway (20.6), Sweden (28.8), United Kingdom (13.3) or the United States (22.5)⁴⁹. The number of family doctors being organized in a single practice is with 67% compared to other European countries rather high⁵⁰.

In contrast to the primary sector, in secondary ambulatory care “nurses, assistant nurses, elderly caretakers, social workers, and administrative staff” in acute care and long-term care institutions” are working⁵¹. Medical care centres are part of the outpatient system, since inpatient is defined as a facility where patients stay at least for one night⁵².

90% of the German population are insured in the public statutory health insurance. Therefore the German health care system is mainly financed through a statutory contribution system and insurance fees are based on a percentage of the income⁵³. With health expenditures of 11.3%⁵⁴ of the GDP Germany is ranked 55 in the CIA country comparison of the world⁵⁵.

The survey will be carried out with a focus on the area state of “Schleswig-Holstein”.

Schleswig-Holstein

Schleswig-Holstein is located in the north of Germany, neighbouring the town of Hamburg in the south, Denmark in the north, and the states of Niedersachsen and Mecklenburg-Vorpommern in the southeast. Schleswig-Holstein is further divided into eleven districts and four district free towns. With a total area of 15,800 km² there are currently 2,832,027 inhabitants, which accounts for a population density of 179 people/ km²⁵⁶.

Currently, there are in total 140,000 people working in health care in Schleswig-Holstein, of which roughly 10,670 are employed at the Schleswig-Holstein University Hospital⁵⁷. With 250 citizens per physician Schleswig-Holstein is close to the German average of 245 citizens per physician⁵⁸.

The following graph shows the number of physicians in “Schleswig-Holstein” in 2001 and 2009, working in different fields of primary care.

⁴⁸ Koch *et al.* (2011, p. 258)

⁴⁹ Koch *et al.* (2011, p. 258)

⁵⁰ Jurgutis *et al.* (2008)

⁵¹ Busse, Riesberg (2004, p. 96)

⁵² Gesundheitsberichterstattung des Bundes (2012)

⁵³ Bundesärztekammer (2012)

⁵⁴ World Health Organization (2012)

⁵⁵ Central Intelligence Agency (2012c)

⁵⁶ Destatis (2012)

⁵⁷ Schleswig-Holstein (2012)

⁵⁸ Deutsche Ärztekammer (2010)



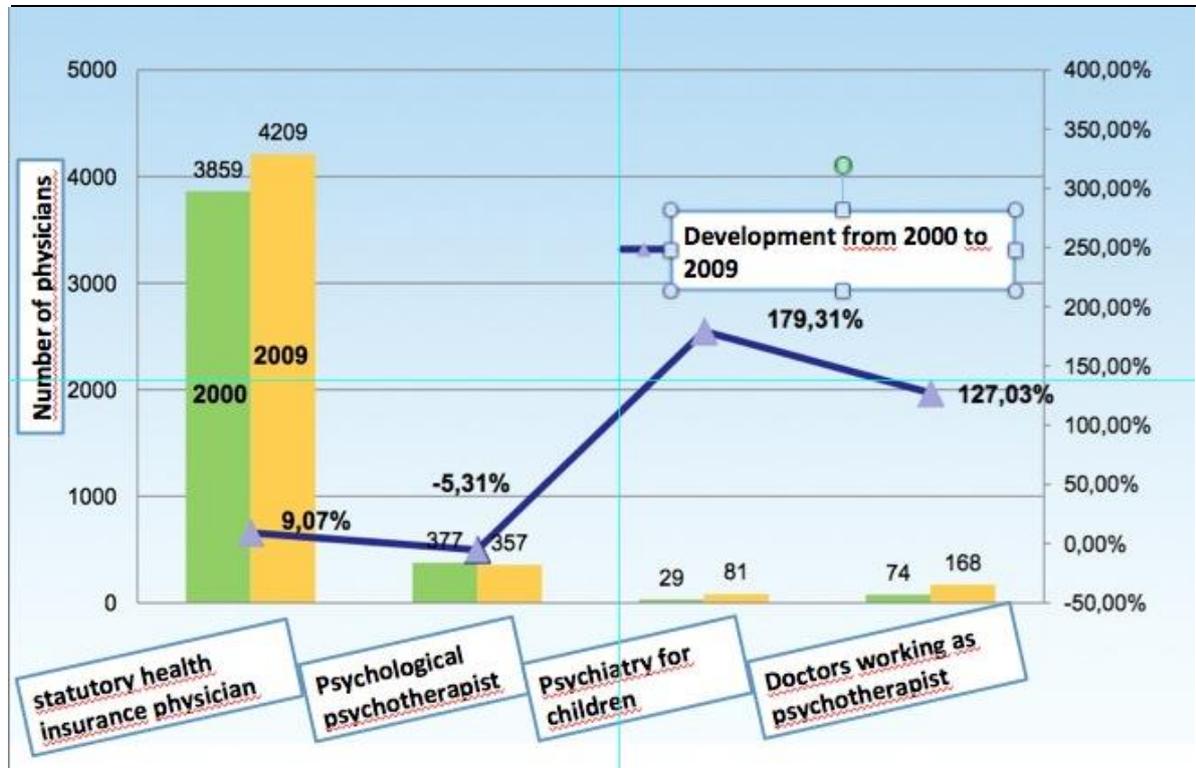


Figure 4: Primary Care, number of physicians in “Schleswig-Holstein” in 2001 and 2009⁵⁹

On the federal level each state has the task to provide a hospital plan, including the number of beds needed. According to this plan the hospitals are accounted for public health provision. Those hospital plans are in Schleswig-Holstein based on different figures such as the assumed number of inhabitants, the number of cases and the mean residence time⁶⁰. Hospitals are responsible for inpatient and outpatient care. The following figure shows a map of Schleswig-Holstein indicating all hospitals that have been accepted in the current hospital plan.

⁵⁹ Brunkhorst (2011, p. 5)

⁶⁰ Ministerium für Arbeit (2010, p. 65)



Figure 5: Locations of all hospitals accepted into the hospital plan of Schleswig-Holstein⁶¹

3.1.5 Latvia

The Republic of Latvia is located on the eastern Baltic coast, in the western part of the eastern Europe plain. The Latvian health care system has undergone a remarkable transformation in the years since independence, and is now in the process of consolidating its new structures and institutional arrangements.

In 2005 there were approximately 3.16 physicians per 1000 inhabitants in Latvia, compared to 3.17 for the EU. Latvia has experienced significant declines in numbers of doctors, midwives and nurses, particularly during the first half of the 1990s. By contrast, numbers of GPs have been continuously increasing since 1990, due to the introduction of and strong support (involving retraining of former primary care internists and paediatricians) provided to this specialty that forms the basis of family medicine, and which was introduced as a cornerstone of reforms in the mid-1990s. Apart from GPs, dentists are the only category of health care personnel which by 2005 increased in number (per 1000 population) compared

⁶¹ Ministerium für Arbeit (2010, p. 70)

to 1990, due to the privatization of practically all dental practices, thus increasing their profitability and the attractiveness of this profession.⁶²

In Latvia only 53% of health care services is financed from government.

At present the reforms in health care system are on-going. In primary health care the payment method will be based on quantity of provided services according to the capitation and quality (quality bonus system that replace old fragmented payment scheme.

In inpatient care till 2009 the Latvian tariff system was used. Now the payment for provided services in inpatient care is based on global budget but from 1 January 2014 the DRG system has to be in place.

All hospitals are divided in following groups: university hospitals, regional multi-profiled hospitals, specialized hospitals, local hospitals and care hospitals. The reform of hospitals is continuing. In year 2003 there are 131 hospitals, in year 2008 – 78 but now 39 and it is not the final of the reforms

In Latvia Primary health care is defined as health care services, which are provided of primary health care professionals to a person in outpatient treatment settings, in inpatient hospital outpatient department or at home.

Primary health care providers in Latvia are: General Practitioner (including pediatrician and internist), Physician's assistant (feldsher), Nurse, Midwife, Dental care providers (dentist, dentist's assistant, dentistry nurse, hygienist).⁶³

During the last years the role of Primary health care is strengthen and the financial flow inside the health care is reallocated

Table 1: Redistribution of financial flows inside health care system in Latvia⁶⁴

| State budget proportion for health care resources (%) | 2009 | 2011 |
|---|------|------|
| Outpatient care | 24.0 | 30.0 |
| Inpatient care | 40.7 | 30.0 |
| Reimbursement of pharmaceuticals | 12.4 | 12.0 |
| Emergency health care | 4.0 | 5.0 |
| Health promotion | 1.3 | 2.6 |
| Other (education, investments, international obligations, administrative costs) | 17.6 | 20.4 |

We are planning to take out our survey of the Project PrimCareIT after the development of the questionnaire oriented on the needs of the project PrimCareIT in two regions of Latvia- in the East Balvi area (close to the border with Russia) and Aizpute rural area in the West part of Latvia. The main location of pilot Project will be rural area of Kurzemes region.

⁶² Tragakes E., Brigis G., Karaskevica J., Rurane A., Stuburs A., Zusmane E. (2008, p. 251)

⁶³ Latvijas Republikas Ministru kabinets. Noteikumi Nr. 1046. „Veselības aprūpes organizācijas un finansēšanas kārtība”. (2006. 19. dec.) <http://www.likumi.lv/doc.php?id=150766>

⁶⁴ Latvijas Republikas Veselības ministrija. Veselības aprūpes budžets 2006.-2011.gads (http://www.vm.gov.lv/lv/ministrija/budzets/veselibas_aprupes_budzets_20062011gads/)



The area of Kurzemes region is 13 485 km² and the population of the region is 321 000. There were 1377 GP's who had a contract with the Health Payment Center in 2010 and 217 of them were located in Kurzemes region. An average of 19,29 patients visited the family doctor during one day in Kurzemes region, but family doctors attended an average 0,66 patients at their home during one day. In total there were 1,107,971 ambulatory visits in Kurzemes region during Year 2010. ⁶⁵

3.1.6 Lithuania

Lithuania is situated in the Eastern Europe and extends over an area of 65300 km². At the date of April, 2012 number of population was 3 190 070⁶⁶. The population is distributed more or less evenly with concentrations in the five cities (see figure below). Average population density is about 49 per sq. km.

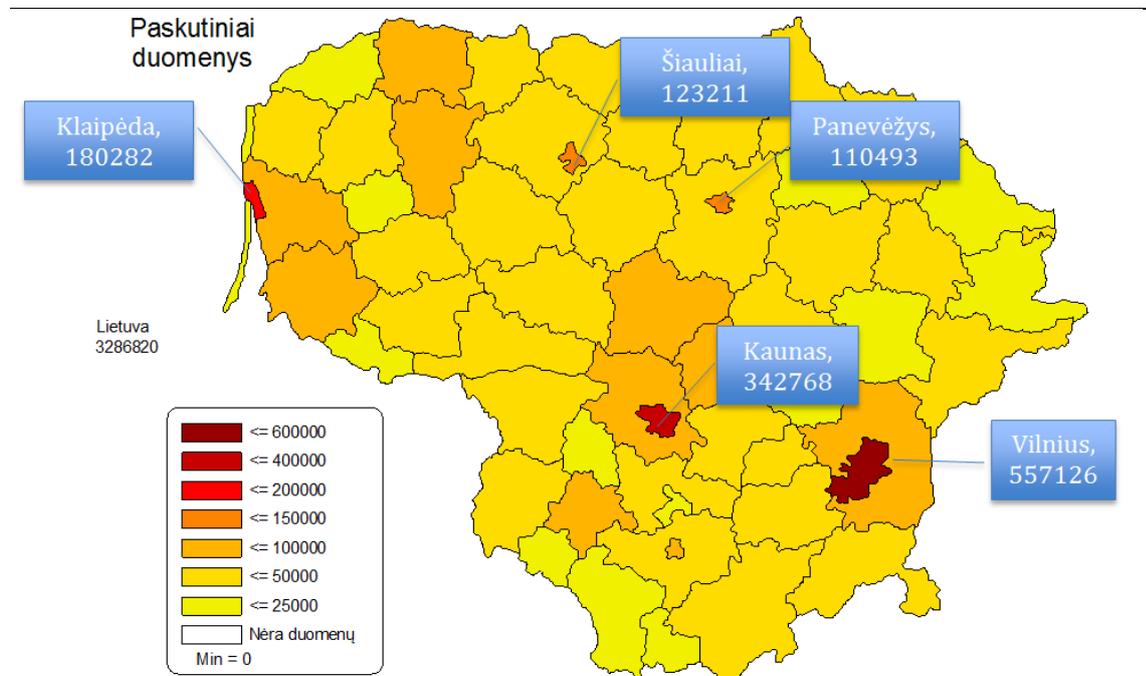


Figure 6: Average number of inhabitants in Lithuania (2010)⁶⁷

During the last ten years Lithuania has lost about 140 thousands inhabitants due to negative

⁶⁵ Latvijas Republikas Veselības Ministrija Veselības norēķinu centrs. (2011, p. 114) <http://vec.gov.lv/uploads/files/4f686bacf2891.pdf>

⁶⁶ Statistics Lithuania (2012)

⁶⁷ Lietuvos sveikatos rodiklių informacinė sistema (2012)

net migration and about 102 thousands due to natural decrease⁶⁸ (also see figure “Net international migration and natural decrease”). Lithuanian population is aging: at the beginning of 2011 there were 144 aged inhabitants per 100 children under 15 years old comparing to 97 aged inhabitants per 100 children in 2001.

Population changes statistics by county shows that the largest city, Vilnius, has the least change of population (see figure “Population and its changes by county”).

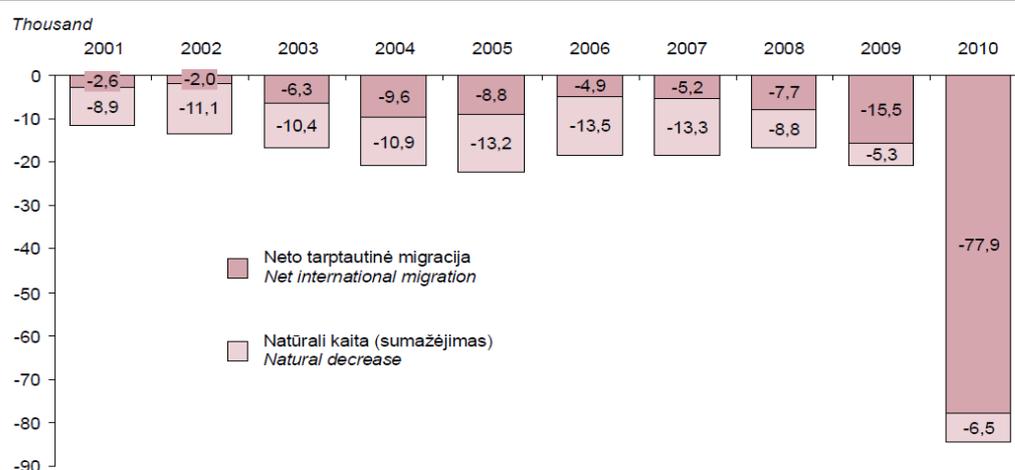


Figure 7: Net international migration and natural decrease⁶⁹

Table 2: Population and its changes by county⁷⁰

| County | Population, thousand | | Change in the population | |
|--------------|----------------------|---------------|--------------------------|--------------|
| | 2011* | 2001 | number | per cent |
| Total | 3053.8 | 3484.0 | -430168 | -12.3 |
| Alytus | 158.6 | 187.8 | -29198 | -15.5 |
| Kaunas | 612.5 | 701.5 | -88997 | -12.7 |
| Klaipėda | 337.3 | 385.8 | -48482 | -12.6 |
| Marijampolė | 161.0 | 188.6 | -27656 | -14.7 |
| Panevėžys | 254.2 | 300.0 | -45772 | -15.3 |
| Šiauliai | 305.8 | 370.1 | -64304 | -17.4 |
| Tauragė | 109.8 | 134.3 | -24485 | -18.2 |
| Telšiai | 153.4 | 179.9 | -26497 | -14.7 |
| Utena | 150.6 | 186.0 | -35364 | -19.0 |
| Vilnius | 810.6 | 850.0 | -39413 | -4.6 |

*Provisional data

⁶⁸ Gaidelyte *et al.* (2010)

⁶⁹ Statistical yearbook of Lithuania 2011. (2011)

⁷⁰ Provisional results of the population and housing census 2011 by county and municipality (2011)



In Lithuania the national Ministry of Health is responsible for general supervision of the entire healthcare system. Ministry of Health declares four strategic aims⁷¹: 1) provide quality, safe and affordable health care; 2) protect and promote health, preventing diseases, reducing morbidity and mortality; 3) improve the availability of medicines for people and ensure that the medicines in Lithuanian market are of high quality, safe and effective, promote rational use of the medicines; 4) ensure effective and reliable health care using resources of the mandatory health insurance. Ministry of Health is strongly involved in drafting legal acts and issuing regulation for the sector⁷². The ministry has an overall responsibility for the public health system's performance. It also develops a public healthcare infrastructure by establishing state programmes aiming at the achievement of key health targets and by making decisions together with Ministry of Economy and Ministry of Finance on major investment projects.

The municipalities are responsible for providing primary healthcare to their local populations. They have been granted property rights for outpatient facilities and nursing homes. Municipalities are engaged in running small and medium sized hospitals within their localities, in accordance with legislation, which has delegated this function to them. The position of Municipality Physician is supervisory and decision-making authority in the field of primary healthcare. Moreover, municipalities have a wide range of responsibilities in the implementation of local health programmes and improvement of public health activities. In 2010, there were 147 state or municipality hospitals and 434 out patient health care institutions functioning in the health system. At the end of 2010 there were 1657 functioning private health care institutions, among them: 1046 odontology offices, 184 primary care institutions, 18 medical rehabilitation, 5 ambulance institutions and 14 hospitals.⁷³

Primary healthcare in Lithuania is provided in 452 state and 1284 private institutions⁷⁴. State institutions may be centres, general practitioners' offices, ambulatory clinics and polyclinics – general or specialised. Ambulatory clinics are usually in the smaller towns, while polyclinics are situated in bigger cities, providing more complex services such as outpatient surgery. Paramedical centres (medical posts) and health posts (public health specialist) in schools also provide some primary care activities such as health education, health risk assessment in rural areas. Half of the Lithuanian hospitals are general hospitals, and they have 67% of the country's hospital beds. There are also 36 specialised, three rehabilitation hospitals and sanatoriums. Until July 2010, the Ministry of Health managed 13 of these national healthcare facilities directly. At the regional level, the county administrations governed some hospital and specialised care, with Ministry involvement. Municipalities often ran small or midsized hospitals.

Family healthcare is based on the institution of a family physician. This position in Lithuania has been introduced taking into account the experience of other countries. Family physicians should maintain not only direct care activities like diagnosing and treating patients, but also

⁷¹ Sveikatos apsaugos ministerijos misija (2012).

⁷² Kiskiene *et al.* (2010)

⁷³ Sveikatos priežiūros įstaigų tinklas 2010 m. (2010)

⁷⁴ Kiskiene *et al.* (2010)



target the health preservation and disease prevention functions. A family physician plays the role of a counsellor or a coordinator guiding through the health system, offering the consultation on elementary health issues, monitoring the occurrence of chronic diseases and making the referrals for necessary specialist consultations. Licensed family physician takes care of the inhabitants registered at the primary healthcare facility (out-patient clinics, family doctor centres).

Important features of primary healthcare organization in Lithuania are summarized in figure "Important features of primary healthcare organization in Lithuania".

Table 3: Important features of primary healthcare organization in Lithuania⁷⁵

| | |
|---|---|
| Political/administrative unit responsible for primary healthcare | Executive institutions of municipalities are responsible for primary healthcare in Lithuania. Second and third level healthcare (ambulatory and hospital treatment services) is provided by healthcare institutions subordinate to municipalities and Ministry of Health. |
| Consumer Choice | According to the law all persons can freely choose any primary healthcare institution and GP. A patient can change GPs without payment after six months (some exceptions for students). |
| Financing | Financing of public healthcare is mainly tax-based. |
| Public or private providers | GPs are mainly publicly employed primary care providers. There are also private GP practices, which have contracts with State Patients' Fund and receive compensation for primary healthcare services. There can be completely private practitioners, who get paid by patients. |
| Gatekeeping function of the GP | A GP is the first contact point for patients (he/she performs gatekeeping function). Of course, patients always can access private practitioners including specialists without visiting GP. |
| Integrating health: initiatives for coordination | There is an ongoing reform to form more rational healthcare infrastructure: district hospitals shall treat common conditions, national hospitals - difficult conditions; there are plans to diminish the number of healthcare institutions by integrating small institutions. |

In 2010 there were 37,68 practicing physicians in average per 10 000 citizens and 5,7 practicing family physicians in average per 10 000 citizens. In 2010 there were 437,78 visits to primary care in average per 100 citizens and 273,28 visits to family physicians in average per 100 citizens. The dynamics of the tendencies are shown in figures below.

⁷⁵ Kiskiene *et al.* (2010, p. 11)



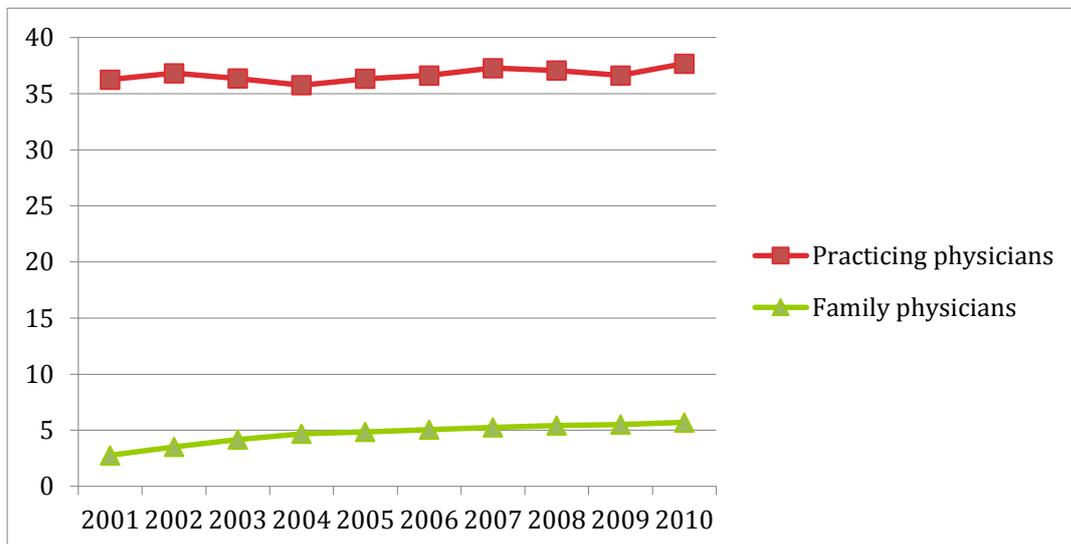


Figure 8: Dynamics of the number of physicians per 10 000 citizens⁷⁶

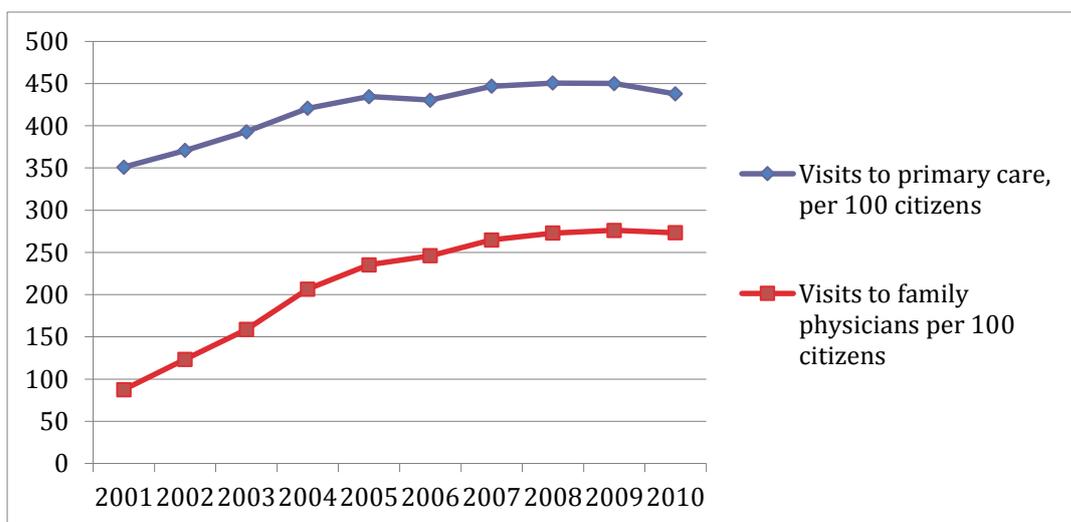


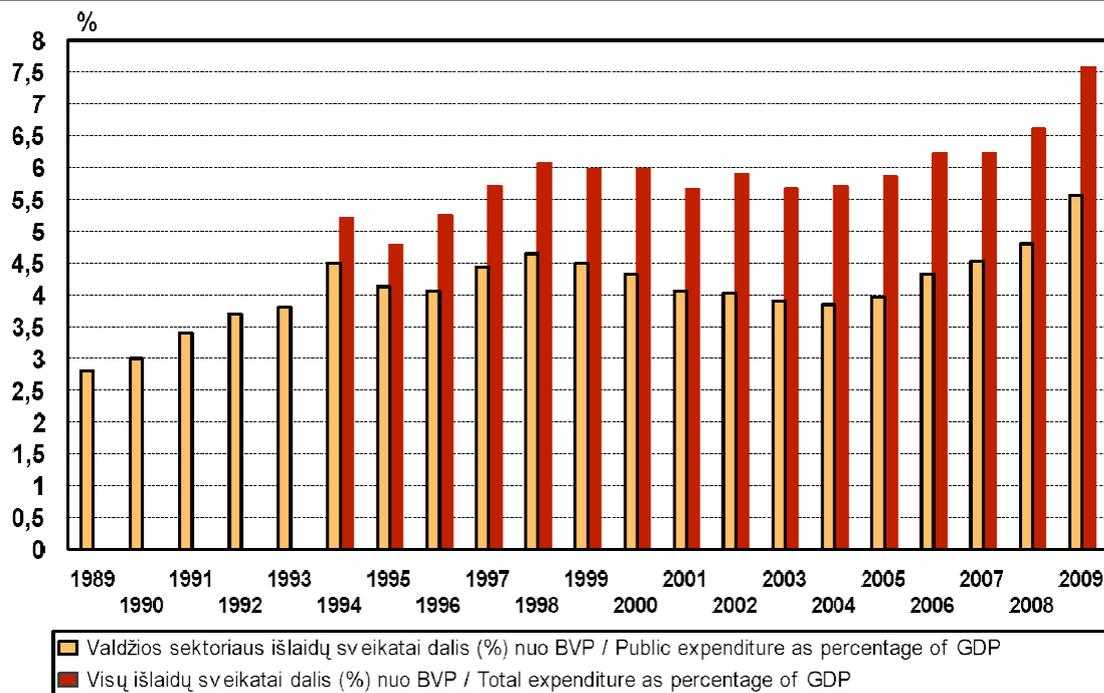
Figure 9: Dynamics of the visits to physicians per 100 citizens⁷⁷

⁷⁶ Lietuvos sveikatos rodiklių informacinė sistema (2012)

⁷⁷ Lietuvos sveikatos rodiklių informacinė sistema (2012)



Expenditure on Health in 2010 was 7,02 % of GDP and it was about 6700 million litas (about 1940 million EUR). Dynamics of expenditure is shown in figure “Dynamics of expenditure on Health as Percentage of GDP“. Private sector’s expenditure was about 27% of the overall expenditure.



Nuo 2004 m. duomenys skaičiuojami pagal EBPO metodiką
Since 2004 data is calculated according to OECD methodology

Figure 10: Dynamics of expenditure on Health as Percentage of GDP⁷⁸

3.1.7 Sweden

Sweden has a population of nine million people living in an area of approximately 450,000 square kilometres. This makes Sweden one of the most sparsely populated countries in Europe. A majority of the inhabitants live in the southern part of the country. People are increasingly moving from the rural areas to the urban areas. Economic and demographic conditions thus vary widely in different parts of Sweden. This has an impact on the structure of the Swedish welfare system.

Sweden has a decentralized healthcare system where responsibility for health and medical care is shared by the central government, county councils and municipalities. The Swedish

⁷⁸ Gaidelyte R. *et al.* (2010, p. 66)



healthcare system gives everyone who lives or works in Sweden equal access to subsidized healthcare. Around 90% of the Swedish county councils' work involves health care and 10% of that health care is carried out by private care providers financed by the county council. From the Swedish Health Act § 5 it can be read that: Health care that requires treatment for inpatient care requires hospitals. Health care that doesn't require inpatient care is known as outpatient care where primary health care is a part. Primary health care shall with no limitation of the disease, age or patient group respond to the needs of basic medical treatment, care, prevention and rehabilitation that do not require hospital medical and technical resources or other special skills.

The county council organizes primary health care to all residents within the county so that all providers are treated equally. By January 2010, all county councils introduced what is known as the primary choice system in primary care. The system entails patients choosing whether they would prefer to go to a private or public health care centre anywhere in the country. A variety of health professionals work in health care centre within primary care, i.e. physicians, nurses, midwives, physiotherapists and administrative staff. There are special clinics for children and expecting mothers, as well as youth clinics that offer advice on a range of issues, including family planning.

Kalmar County

Kalmar county is 11 171 square km and is situated in the south east of Sweden. It's a coastal area including the second largest Swedish island Öland situated in the Baltic Sea. The island is connected to the mainland with a bridge about six km long.

The county has 238 000 inhabitants which is 3% of the total population of Sweden and makes approx. 20,3 inhabitants/square km. The largest city, Kalmar has about 36 000 inhabitants. There are 3 hospitals in Kalmar county. A part of the area in the midland and also the island of Öland is defined as thinly populated area though it takes more than 45 minutes to a city bigger than 3000 inhabitants.

Kalmar county has 27 health care centers where 19 centers have 4 or fewer physicians.⁷⁹

Extra physicians are taken in every week. Since the last three years, the needs for extra physicians steadily increase. Nearly 335 000 visits to a physician at an health care center in Kalmar county makes 1,44 visits for each inhabitant⁸⁰.

Västerbotten County

Västerbotten county is located in the Northern part of Sweden is 55 432 km² and the second large county of Sweden. The county had 259 667 (2011-12-31) inhabitants where most of the people lives in the area close to the Baltic Bay. Since there are large areas of sparsely populated areas the mean population density is only 4.68 inhabitants/km². There are three hospitals in Västerbotten with a university hospital located in Umeå and local hospitals in Skellefteå and Lycksele.

Västerbotten county council has 31 health care centers with 13 of them having 4 or less

⁷⁹ Open Comparisons 2010, Swedish Association of Local Authorities and Regions

⁸⁰ Open Comparisons 2010, Swedish Association of Local Authorities and Regions



physicians. There is a shortage of physicians, especially in the sparsely populated areas, which confers a need of extra physicians, often on very short-term bases. The health care centers have about 324 000 visits a year which makes 1.44 visits per inhabitant. From a demographic point of view there is a prominent move of people from rural areas to cities, which puts real demands on the health care in non-city areas. Another real concern is the low entrance of students to care educations. It is now calculated that this will cover only about twenty per cent of the future need in the coming ten year.

3.1.8 Key indicators of the healthcare systems

In the following table key indicators from each country are presented to get an overview of the different countries.

Most of the information are taken from the World Health Organisations' Global Health Observatory Data Repository, since the most recent data were available in this database. The data can be accessed in an online data base reachable at: <http://apps.who.int/ghodata/?theme=country>⁸¹ or as reports via http://www.who.int/gho/publications/world_health_statistics/2012/en/⁸². Other sources are marked with a footnote. Those not marked are taken from the WHO.

Table 4: Overview of key indicators from the seven countries (Sources: WHO + OECD see resp.)

| Indicator | Belarus | Estonia | Finland | Germany | Latvia | Lithuania | Sweden |
|--|------------------------|------------------------|------------------------|-------------------------|------------------------|------------------------|------------------------|
| Population (in thousand) total (WHO) | 9,595 (2011) | 1,341 (2010) | 5,365 (2010) | 82,302 (2010) | 2,252 (2010) | 3,324 (2010) | 9,380 (2010) |
| Healthcare Expenditure as % of GDP (WHO) | 5.6% (2010) | 6.0% (2010) | 9.0 % (2010) | 11.6% (2010) | 6.7% (2010) | 7.0% (2010) | 9.6% (2010) |
| Public sector health care expenditure as % of total health care expenditure (WHO) | 77.7% (2010) | 78,7% (2010) | 75.1% (2010) | 77.1% (2010) | 61.1% (2010) | 73.5% (2010) | 81.1% (2010) |
| Private expenditure on health as a percentage of total expenditure on health (WHO) | 22.3% (2010) | 21.3% (2010) | 24.9% (2009) | 22.9% (2010) | 38.9% (2010) | 26.5% (2010) | 18.9% (2010) |

⁸¹ World Health Organisation (2012a)

⁸² World Health Organisation (2012b)



| Indicator | Belarus | Estonia | Finland | Germany | Latvia | Lithuania | Sweden |
|---|------------------------|--|--|--|---|---|--|
| WHO Ranking of Health care systems of 2000 ⁸³ | 72 | 77 | 31 | 25 | 105 | 73 | 23 |
| Physicians density (per 10 000 population) (WHO) | 51.78 (2010) | 33.34 (2009) | 29.05 (2009) | 36.01 (2009) | 29.88 (2009) | 36.14 (2009) | 37.7 (2008) |
| Hospital beds (per 10 000 population) | 112 (2007) | 54 (2011) | 62 (2011) | 82 (2008) | 64 (2009) | 68 (2008) | 28 (2011) |
| Population proportion over 60 (%) (WHO) | 18 (2011) | 23 (2011) | 25 (2010) | 26 (2010) | 23 (2010) | 21 (2010) | 25 (2010) |
| Population living in urban areas (%) (WHO) | 75% (2011) | 69% (2011) | 85% (2010) | 74% (2010) | 68% (2010) | 67% (2010) | 85% (2010) |
| Obesity rate | n.a. | 18% (2009, OECD) ⁸⁴ | 15% (2009, OECD) ⁸⁵ | 14.7% (2009, OECD) ⁸⁶ | 15.6% (2006, CIA) ⁸⁷ | 19.7% (2006, CIA) ⁸⁸ | 11.2% (2009, OECD) ⁸⁹ |
| Rank in European Health Consumer Index 2012 ⁹⁰ | -- | 18 | 10 | 14 | 31 | 26 | 6 |

⁸³ Photius (2000)

⁸⁴ Organisation for Economic Co-operation and Development (2011a)

⁸⁵ Organisation for Economic Co-operation and Development (2011b)

⁸⁶ Organisation for Economic Co-operation and Development (2011c)

⁸⁷ Central Intelligence Agency (2012a)

⁸⁸ Central Intelligence Agency (2012b)

⁸⁹ Organisation for Economic Co-operation and Development (2011d)

⁹⁰ Health Consumer Powerhouse (2012)



3.2 Definition of professional isolation and brain drain

The following chapter contains the descriptions of the meaning of „professional isolation“ and „brain drain“ in the different countries and studies concerning professional isolation and brain drain in the health care systems.

3.2.1 Belarus

The term “brain drain” in Belarus is understood as the deficiency in personnel⁹¹. It is characterized by outflow of the qualified specialists (especially from the primary outpatient care organizations) and disproportion in providing urban and rural population with doctors and medium-level medical personnel.

No special studies for assessing the brain drain and professional isolation have been carried out in Belarus. There were studies aimed at the evaluation of the quality satisfaction of rendered medical aid where some of the points were devoted to medical personnel satisfaction of their work. Besides, the Ministry of Health of the Republic of Belarus analysed the personnel efficacy in order to prevent the brain drain.

The term “professional isolation” is not widely used in Belarus. It apparently means the lack or limitation of the possible continuous education and professional communication of the medical personnel.

It could be considered from 2 positions:

- professional isolation connected with rendering medical services (presence/absence/limitation of the possible consultations with the colleagues and specialists of higher level);
- professional isolation connected with the possible qualification improvement through the educational system (by means of educational establishments).

The qualification improvement and retraining of the personnel of all the specialities (prevention of professional isolation) is carried out by the unique educational establishment – the Belarusian Medical Academy of Post-Graduate Education (BelMAPO). Every year during the period of 2005-2011 from 16 000 to 20 000 doctors had been improving their qualification⁹². Doctors even from areas have a great possibility to improve their professional level (including Internet recourses) on their own.

Professional isolation is still a hot issue for the republic. Mostly it is connected with the possible use of modern information technologies and reliable high-speed connection channels. Therefore, despite the present possibility for professional improvement, special measures based on the modern IT achievements are taken to prevent professional isolation.

⁹¹ Dymkova (2002, p. 68-74).

⁹² Demidchik & Kalinina (2011, p. 22)



3.2.2 Estonia

In Estonia professional isolation means that people are isolated from their ethnical speciality surroundings, which helps to generate ideas and offers professional training.⁹³

Brain drain is the emigration of qualified labour, in case of Estonia the migration to foreign countries.⁹⁴

Brain drain from rural to urban areas has not been studied directly in Estonia, but in 1995 and in 2000 a questionnaire was carried out among the doctors who had gotten a diploma in medicine in 1982- 1996. In 1995 there were 483 (64,0%) and in 2000 there were 482 (66,8%) responds to the questionnaire.⁹⁵ According to the results of these studies more than half, 53,0% of the doctors who had answered the questionnaire worked in the two biggest medical centres in Estonia – in Tallinn (30,7%) and in Tartu (22,3%). 38,0% of the people who had answered worked in the rural communities. From foreign countries they got 4 (0,8%) answers.⁹⁶

Comparing the results from 1995 to the results from 2000, there was no significant change in the percentages of the doctors who worked in urban and who worked in rural areas.

Proceeding from these results there has not been a substantial migration of doctors from rural to urban areas. But as these studies were made quite a long time ago, the situation has probably changed since then.

In Estonia the problem is also that a lot of the doctors who have graduated medical studies are not working in the health care sector or have gone to work abroad. Unfortunately, there is no exact data, but according to the available information an estimated 20% of the doctors who graduated in 2003-2004 have disappeared – they are not working in the health care system.⁹⁷

In Estonia the biggest problem is the brain drain to foreign countries. The number of certificates that are being issued to affirm the profession of the doctors, who want to go to work abroad, is known. Since joining the European Union (in 2004) the quantity of the certificates that have been given out is not equivalent to the actual number of the health care workers who have gone to work abroad. In reality about 55-60% of these people go to work in a foreign country. Since 2004 the Health Board has issued 1013 certificates to doctors, wherefrom 124 have been given to family doctors and 359 certificates to general practitioners (including the doctors who have just graduated).⁹⁸

Regardless of the fact that only about half of them leave Estonia, this is a significant number. Brain drain is a problem in Estonia.

There are no studies concerning professional isolation in Estonia.

⁹³ Kaskla *et al.* (2005)

⁹⁴ Kallaste *et al.* (2003)

⁹⁵ Saava *et al.* (2003, p.101)

⁹⁶ Saava *et al.* (2003, p.52)

⁹⁷ Mand, K. (2005)

⁹⁸ Terviseamet (2012)



3.2.3 Finland

“Many countries have experienced increasing difficulties in recruiting general practitioners in primary care. A heavy workload, low job control, increased and inappropriate demands from patient and an administrative burden have been considered barriers to primary care work. In a Finnish national survey, 71 % of physicians who worked or had worked in a primary health care centre in 2000 agreed the statement ‘working as a doctor in health centre is too often isolated work’. It is important to define the causes of feelings of isolation in more detail in order to better tailor working conditions to GPs’. The main components of isolation were making decisions alone, lack of collaboration with other workers in the health centre and secondary care specialists, not being a part of the work community and lack of mentoring at work.”⁹⁹

“The present study analyzes interregional migration flows in Finland during 1985-96 using a large sample from longitudinal census data file. The regional concentration of population has sped up in recent years, and most migrants now head to five urban growth centres. The empirical analysis reveals that it is particularly the human capital component (young, educated individuals) that moves to, and stays in, the growth centers. Conversely, some individuals, mainly older and less educated ones, move back to their original home regions. This countermovement reduces the speed of population concentration. Declining regions are nevertheless rapidly losing their most productive human capital through interregional migration flows.”¹⁰⁰

“Highly educated immigrants are likely to move to urban regions. The result, the reallocation of highly educated labour, and thereby also the redistribution of human capital, seems to be taking place in Finland. Qualified individuals choosing a residential location expect a supply of relevant jobs, as well as interesting educational, cultural and recreational opportunities for themselves and their families.”¹⁰¹

When comparing the educational capital to the country average, cities with universities together with their surrounding areas stand out as winners. On the other hand, higher education institute network has also narrowed the differences between regions, and without it regional differences could be even higher. Due to the biased age-structure, also regional educational capital concentrates to the centres. As a result of this concentration, many areas have lost their youth and educational capital to more attractive regions. Most of the schools in low-populated municipalities depend on the public sector, i.e. on local teachers and doctors.¹⁰²

However, compared to the other Nordic countries, Finns show greater willingness to relocate to the countryside. Approximately 23 % of Finns have considered or are considering moving to the countryside, whereas in other Nordic countries this figure is fewer than 10 %.¹⁰³

⁹⁹ Mäntykoski *et al.* (2010, p. 430-435)

¹⁰⁰ Pekkala (2003, p. 466-482)

¹⁰¹ Ritsilä *et al.* (2003, p. 437-448)

¹⁰² Karhunen (2008, p. 4-7)

¹⁰³ Virtanen (2003, p. 38-41)



3.2.4 Germany

Professional Isolation

There is no specific understanding of professional isolation in German literature. Professional isolation generally is the effect that health professionals feel isolated from their professional peers and have the impression that they lack someone to turn to in regard of specialist discussions or exchange¹⁰⁴. This lack does not necessarily have to be real. It rather reflects the impression of the individual than the actual situation¹⁰⁵. Therefore people from highly populated areas can feel even more isolated than people in more remote areas in case those in remote areas have a tight network to interact with their peers. But it is still easier to keep connected in areas with a higher population than in rural areas due to the geographical proximity. From the author's point of view this understanding is considered suitable for Germany.

Brain Drain

Brain drain is in most cases the consequence of professional isolation. Highly qualified staff moves to areas with a more challenging professional environment¹⁰⁶. Since most parts of Schleswig-Holstein are rural areas brain drain is a rather important issue. In Hamburg, the urban area closest to Schleswig-Holstein, 247.3 physicians are counted for 100,000 citizens, which is quite a high number compared to Schleswig-Holstein with only 172.46 per 100,000 population¹⁰⁷.

The brain drain is severe in the rural states neighbouring Hamburg, which is shown by the fact that 20% of the 82,000 emigrants to Hamburg of 2005 came from the surrounding six districts and further 50% originate mainly from the rest of the surrounding federal states (Schleswig-Holstein, Mecklenburg-Vorpommern, Niedersachsen and Nordrhein-Westfalen)¹⁰⁸. The fact that 70% of 2005's emigrants moving to Hamburg were aged between 20 and 30 years demonstrates that the brain drain of young people leaving remote areas to go to the cities is serious. Hamburg therefore functions as a magnet to a high number of younger people from the surrounding states¹⁰⁹.

The lack of qualified staff in remote areas is a big issue since some sources state that there will be 15,000 physicians missing in the coming years¹¹⁰. The medical areas most affected by this development are ophthalmologists, gynaecologists, dermatologists and neurologists¹¹¹.

¹⁰⁴ Services for Australian Rural and Remote Allied Health (2012)

¹⁰⁵ Services for Australian Rural and Remote Allied Health (2012)

¹⁰⁶ Kwok, Leland (1982, p. 91)

¹⁰⁷ Gesundheitsberichterstattung des Bundes (2010)

¹⁰⁸ Kaiser, Pohlan (2007, p. 65)

¹⁰⁹ Kaiser, Pohlan (2007, p. 65)

¹¹⁰ Korzilius (2008)

¹¹¹ Kopetsch (2007, p. 16)



3.2.5 Latvia

Since 1991 the number of hospitals and doctors per 10 000 inhabitants in Latgale has decreased, and now support of doctors in those region is two times lower than in the capital Riga. Imbalance between the supply of doctors and difficulties to access the medical care may be explained by the fact that doctors who studied in Riga, do not want to work in other regions and rural paramedic points, where the need for physicians is high, but professional development opportunities in the medical field are low.¹¹²

In 2011 the President of Latvia A. Berzins had a meeting with representatives of the Latvian Medical Association (LMA), in which a discussion about the health care sector current key issues was hold. The participants of the meeting agreed that there had been also improperly decisions in the health sector policy, which now are manifested in unconsidered investment in equipment and structures, leaving behind medical personnel salary issues. This factor in turn reinforces the young doctor to leave from the country with consequences of increasing number of aging doctors in health care system.¹¹³

The terminology „Professional isolation and brain drain“ is not used in Latvia but the problem of lack of physicians in some rural area exists. The physicians from rural areas move not only to cities of Latvia but also abroad where the salaries of doctors are higher compared with Latvia.

The Latvian government pay special allowance to GPs who work in rural areas based on density of population and the distance to the closest hospital. That helps to stabilise the „brain drain“ but not the professional isolation.

The studies are not provided in Latvia

3.2.6 Lithuania

Meaning of professional isolation and brain drain in Lithuania is the same as elsewhere¹¹⁴. There are few studies concerning this question, more addressing emigration and brain drain problems.

One of the studies was performed in 2002 in the framework of the project “Health human resource development and planning in Lithuania”, sponsored by Open Society Fund, Lithuania¹¹⁵. The aim of this survey was to evaluate intentions of Lithuanian physicians and medical residents to work in the European Union (EU) and other countries. The survey was performed in 2002 using the questionnaire developed by the Ministry of Labor and Solidarity of France, 242 medical residents and 497 physicians were surveyed. Survey results indicated that 60.7% of medical residents and 26.0% of physicians intended to leave for the EU or other countries. The survey also showed that the first-choice countries were United

¹¹² Eiropas Komisija Phare, Latvijas Republikas Finanšu Ministrija. Latgales attīstības plāns – pilotprojekts, darba noslēguma ziņojums. (2000, p. 322)

¹¹³ Valsts prezidents ar LĀB pārrunā veselības aprūpes nozares problēmjaudājumus (20.10.2011.) http://www.president.lv/pk/content/?art_id=18658

¹¹⁴ Lietuvių emigracija: problema ir galimi sprendimo būdai (2005)

¹¹⁵ Stankūnas *et al.* (2004)



Kingdom, Germany and the Nordic countries. Almost 15.0% of medical residents and 5.0% of physicians planned to leave for the EU on permanent basis. The largest part of those who intended to leave for the EU, planned to go there after accession. It was a definitive decision of 2.5% of medical residents and 3.8% of physicians.

Another broad study on this question was “Lithuanian Emigration: Challenges and Opportunities”, done by Civil Society Institute on year 2005¹¹⁶. As a result of extensive worldwide media coverage on the emigration and brain drain questions and profound public resonance that the study achieved, government policies were initiated to tackle the problem of emigration.

The thesis that the assessment of the brain drain scope in Lithuania is not possible because of the lack of systematic data sources is declared in the article by L. Labanauskas in 2006¹¹⁷. This article discusses the brain drain issue in the context of free movement of persons after the EU enlargement. On the one hand, free movement of persons is an optimum condition for political, economic, social and cultural transformations within a society, but, on the other hand, the loss of human capital because of emigration of highly skilled people and brain drain can have a negative long-term impact on the further development of the country. The conclusion is drawn that the tendency to emigrate will prevail in the future within the younger and more educated part of the Lithuanian population who (within the education system of the sending country) will have acquired more globally transferable knowledge.

3.2.7 Sweden

The wording “professional isolation and brain drain” is not mentioned in any of the articles we found. Our experience is that the wording more is used and mentioned on a daily basis in articles in the Swedish medical journal and other daily healthcare newspapers. The question was instead given to the Medical association in Sweden, which resulted in that they associated the wording with the work they do within the dissemination of knowledge also called CPD (continuous medical education) to give every inhabitant in Sweden the same quality of care with best practice standards. This could be done with distance teamwork that might be teleconsultation or telementoring.

3.2.8 Conclusion for the definitions

The literature review concerning the definition “professional isolation and brain drain” shows that there is not such a big difference between the countries. Nevertheless there could be detected some differences. The following table provides an overview of the country-specific meanings.

¹¹⁶ Lietuvių emigracija: problema ir galimi sprendimo būdai (2005).

¹¹⁷ Labanauskas (2006)



Table 5: Overview of definitions of professional isolation and brain drain

| | Belarus  | Estonia  | Finland  | Germany  |
|---|--|---|---|--|
| Definitions of professional isolation and brain drain | <ul style="list-style-type: none"> No specific definition. The term “professional isolation” is not widely used in Belarus. It apparently means the lack or limitation of the possible continuous education and professional communication of the medical personnel. The term “brain drain” is understood as the deficiency in personnel characterized by outflow of the qualified specialists (especially from the primary outpatient care sector) and disproportion in providing urban and rural population with doctors and medium-level medical personnel. | <ul style="list-style-type: none"> In Estonia professional isolation means that people are isolated from their ethnical speciality surroundings which helps to generate ideas and offers professional training. Brain drain is the emigration of qualified labour, in case of Estonia the migration to foreign countries. | <ul style="list-style-type: none"> No specific definition, but the main components of isolation were making decisions alone, lack of collaboration with other workers in the health centre and secondary care specialists, not being a part of the work community and lack of mentoring at work Highly educated immigrants are likely to move to urban regions. | <ul style="list-style-type: none"> Professional isolation is the effect that health professionals feel isolated from their professional peers and have the impression that they lack someone to turn to in regard of specialist discussions or exchange Brain drain is the consequence of professional isolation Highly qualified staff moves to areas with a more challenging professional environment |
| | Latvia  | Lithuania  | Sweden  | |
| | <ul style="list-style-type: none"> In Latvia the wording “Professional isolation and brain drain” is not used | <ul style="list-style-type: none"> No county-specific meaning | <ul style="list-style-type: none"> No specific definitions for “professional isolation and brain drain” | |



3.3 Effects of professional isolation

The effect of professional isolation and brain drain from remote primary care in general and the respective region are part of the following chapter.

3.3.1 Belarus

It should be noted that in the world Belarus has the leading position in providing people with doctors, but we also face problems with personnel in the primary sector. In 2011, according to the data of the Ministry of Health of the Republic of Belarus, the need in specialists with the higher medical and pharmaceutical education was 4 341 persons, with secondary medical education – 5 389 persons.

The main reasons of the outflow of medical personnel are as follows:

- out-migration (high prestige of a medical doctor profession in foreign countries);
- in-migration (migration of the specialists from rural to urban areas);
- natural decrease of medical personnel due to retirement, disability, death, age and health status.

The main factors of in- and out-migration of medical personnel are as follows:

- dissatisfaction of the remuneration of labour;
- dissatisfaction of the provision with the habitation;
- dissatisfaction of the possibility of professional improvement;
- changed social status (marriage), etc.

According to the data of the Labour Union of Belarusian Medical Personnel on average 30% of young specialists quit their jobs after the obligatory period of work, later 50% of them take jobs in the state medial establishments, 10% in private, 37,7% do not plan to stay in healthcare system, and 2,3% would like to be hired abroad.

There is a real threat of an increased outflow of doctors and nurses to the Russian Federation and European countries. Moreover, there are special programmes of hiring medical personnel from neighbouring countries providing them with the adaptation assistance, language learning and apartment renting.

We should mention that deficiency in healthcare personnel (brain drain) is also influenced by the professional isolation of the specialists.

The reasons of professional isolation of medical personnel are as follows:

- remote territories;
- insufficient possibilities for using up-to-date IT;
- insufficient financial and technical resources,
- poor working conditions (absence of automated work sites and equipment), etc.



3.3.2 Estonia

Studies that directly concentrate on the effect of brain drain from rural to urban areas have not been carried out, but general consequences of the migration of the health care workers has been described a little.

Praxis Centre for Policy Studies investigated the willingness of Estonian health care workers to go to work abroad in 2004.¹¹⁸ In that study the negative aspects of the migration of health care workers were pointed out. „The main influence with the emigration of the health care workers to the country of origin derives from the loss of training expenses and from the possible labour shortage in health care sector. When a publicly educated health care worker leaves the country permanently, then the investment that the country has made, is not compensated because the taxes are not returned from the profits by the worker in this country./.../

A very important influence of the migration to the country of origin is the effect on the labour market and on the demand of labour. Provided in the country of origin arises a shortage of labour, then the quality and quantity of health care services suffer as well. The departure of experts from a specific speciality might be accompanied by a decrease in the services available. If the number of experts of some speciality is limited, then the departure of a couple people might change the services offered by the entire field to non-existent. /.../ Arising from the migration the shortage of labour in highly specialized professions and from the long-lasting training in the health care sector, it is not possible to replace the shortage of labour immediately. This might add additional workload and as a result the deterioration of work conditions to the workers who do not emigrate.¹¹⁹

The emigration of health care workers is relevant, because the possible negative consequences influence the majority of the residents in the country through the accessibility of the health care services. Also because the training of health care workers has one of the most expensive tuitions and because of emigration state's resource is lost. It has to be taken to account that there might be positive outcomes to the country of origin as well, but mostly there are only negative consequences.¹²⁰

The emigration of doctors might bring about the migration in the country itself. As a result, organizing the primary care service in the skirts of the country might be complicated. Big hospitals invite the specialists from the smaller hospitals to work for them. So, working for several employers becomes a custom. The regional differences in health care services may increase and the accessibility of medical care may decrease.¹²¹

¹¹⁸ Võrk *et al.* (2004, p. 17-18)

¹¹⁹ Bach (2003, p.14)

¹²⁰ Võrk *et al.* (2004, p.19)

¹²¹ Mand, K. (2005)



3.3.3 Finland

Approximately 440 000 persons with a higher education degree migrated between the Finnish sub-regions during the years 2000-2006. Regions, which lost and gained the biggest numbers of educated people show clearly which areas gained and lost also in brain drain. Migration focuses to a large extent to the southern regions of the country, geographically to small areas (mainly to the provinces of Uusimaa, Itä-Uusimaa, Pirkanmaa, Kanta-Häme, Päijät-Häme and Ahvenanmaa). The capital region of Helsinki alone is the end-location of every third moving that takes place in Finland.¹²²

From South Ostrobothnia, 806 persons with a higher education degree moved away during the years 2000-2006. This is equivalent to 0,41 % of the population in the region. The surrounding areas of Seinäjoki however form an exception to this, as for example in 2007 it received approximately 500 in-migrants (in 2009 this changed to -19). Numbers can be compared to the Lapland region, which had the biggest out-migrant flow, losing 2459 people during the same years.¹²³

There were 25 312 licensed physicians in Finland in the beginning of 2012. The number of physicians of working age (under 65 years) living in Finland was 19 642. Several physicians from other EU countries also obtain a license in Finland, but don't come to work here.

Therefore the medical workforce of Finland is smaller than the number of licensed physicians. Annually about 600 new physicians graduate in Finland. Physician density in Finland is one physician of working age per 275 inhabitants. 94 % of physicians living in Finland are members of the Finnish Medical Association. In the beginning of 2012 the Association had 23 694 members, 1 608 of whom were medical students. On January 1st 2012 the total number of specialists licenses was 18 585, of which 14 499 were held by physicians under 65 years. 64% of Finnish physicians (15 070) are specialists. There are 11 799 specialist physicians of working age, of which 6 294 are female. 23 % of physicians have achieved a doctoral degree. Specialist education was renewed in 1999. The earlier 92 specialization programmes were replaced by 49 new specialties. The number of special competence areas is 36 and the number of recognized competences of physicians under 65 years is 2 129. Finnish Medical Association, Physicians 2012,¹²⁴

The Finnish Medical Association aims to develop health care in order to secure a right to good care for everyone. Association also calls for patients' right to choose their physicians and care institutions. In 2011 number of permanent physician's in health centres increased by 50, and at the same time less substitutes were needed. The amount of physician posts was increased by over 60 compared to the year 2010. A major part of the new posts were located in bigger cities (with over 100 000 residents). The number of unfilled positions was 246, which equals to 6,5 % of all the physician positions. Health centres had a total of 3790 positions in October 2011.¹²⁵

¹²² Aro (2009, p.67-68)

¹²³ Aro (2009, p.67-68)

¹²⁴ www.laakariliitto.fi

¹²⁵ www.laakariliitto.fi



Physician shortage is a regional challenge. Worst situation faces the remote areas in Eastern Finland, such as provinces of Kainuu and Itä-Savo. In South-Western Finland (provinces of Varsinais-Suomi and Satakunta) shortage is only under 3 %. Also in other provinces of Southern Finland shortage of physicians has remained under 5 %, including the province of South Ostrobothnia. In over half of the health centres all the positions are filled. Every fifth health centre has a shortage of less than 10 %. 78 % of the population uses the services of these health centres. In 22 health centres more than 20 % of the posts remain unfilled, most of these centres being small (under 10000 residents). Finnish Medical Association states that at least three criteria need to be fulfilled when securing the primary health care facilities. These include patient's right to choose his or her physician and the continuation of the treatment; physicians right to define his or her workload, and supportive salaries.¹²⁶ In 2009 there were 283 physicians of working age and 411 residents/physician in South Ostrobothnia. Lowest numbers were found in the provinces of Varsinais-Suomi and Uusimaa, where the ratio was 230 residents/physician. The highest ratio was in Länsi-Pohja region in the North-Western Finland, 546 residents/physician. The average ratio in Finland was 275 residents/physician. Compared to this, the South Ostrobothnia ratio was distinctly higher than the Finnish average.¹²⁷

3.3.4 Germany

Professional isolation and brain drain have the effect that health care in rural areas cannot be kept at an equally high level compared to urban areas. The effects are a loss in quality of care, more professional isolation and a work load increase in the surrounding hospitals.

Loss of Quality

Since mostly older and chronically ill patients stay behind in their home regions they still have to be able to access primary health care¹²⁸. This is problematic if the number of providers decreases constantly. Especially in the case that physicians retire and no successors continue running their practices the patients have to find new providers who will then be faced with more patients. This has considerable consequences on the quality of care and the waiting times, which are still comparably low in Germany¹²⁹.

Another aspect is that the loss of health professionals into other regions further enhances the problem of professional isolation among those health professionals staying behind in the remote areas. Furthermore, the hospitals in the surrounding regions will suffer from the lack of primary health professionals. As soon as there are no primary care providers available the patients turn to the hospitals for support. This leaves the hospitals with a high amount of work that is not primarily their task and binds valuable resources for treatment or diagnoses that should originally be carried out by primary care¹³⁰.

¹²⁶ www.laakariliitto.fi

¹²⁷ Lääkäriliitto (2009)

¹²⁸ Beske (2005, p. 329)

¹²⁹ K. Koch *et al.* (2011, p. 2589)

¹³⁰ Stender (2011, p. 10)



Schleswig-Holstein

In Schleswig-Holstein the effect of brain drain and professional isolation can be seen in the missing successors for GP practices that are available due to retirements. Schleswig-Holstein is currently according to the practice finder of the KVSH facing a lack of 42 family doctors and 17 specialists in primary health care practices¹³¹.

Hospitals have realised that they will be the ones suffering from a lack of primary health care providers. That's why for example the hospitals in Brunsbüttel and Heide at the western coast of Schleswig-Holstein started programs to promote concepts for GP specialisation¹³².

3.3.5 Latvia

Health in the Baltic countries

Practising physicians by speciality at the end of 2010

| | Estonia ¹ | | Latvia | | Lithuania | |
|--|----------------------|-----------------------|-------------|-----------------------|--------------|-----------------------|
| | Number | Per 10,000 population | Number | Per 10,000 population | Number | Per 10,000 population |
| TOTAL | 4355 | 32.5 | 6146 | 27.6 | 12226 | 37.7 |
| of them: | | | | | | |
| Family doctors / general practitioners | 865 | 6.5 | 1310 | 5.9 | 1838 | 5.7 |
| Internal medicine | 523 | 3.9 | 675 | 3.0 | 2107 | 6.5 |
| Surgery | 407 | 3.0 | 598 | 2.7 | 1179 | 3.6 |
| Paediatrics | 168 | 1.3 | 308 | 1.4 | 1048 | 17.2 |
| Gynaecology (including obstetrics) | 256 | 1.9 | 406 | 1.8 | 660 | 2.0 |
| Oncology | 37 | 0.3 | 61 | 0.3 | 97 | 0.3 |
| Otolaryngology | 95 | 0.7 | 147 | 0.7 | 270 | 0.8 |
| Ophthalmology | 124 | 0.9 | 204 | 0.9 | 344 | 1.1 |
| Anaesthesiology | 260 | 1.9 | 336 | 1.5 | 658 | 2.0 |
| Neurology | 128 | 1.0 | 217 | 1.0 | 449 | 1.4 |
| Psychiatry | 183 | 1.4 | 248 | 1.1 | 533 | 1.6 |
| Addiction specialists | - | - | 60 | 0.3 | 21 | 0.1 |
| Tuberculosis | - | - | 109 | 0.5 | 13 | 0.04 |
| Infectology | 33 | 0.3 | 49 | 0.2 | 57 | 0.2 |
| Epidemiology | - | - | 7 | 0.03 | - | - |
| Dermatology & venerology | 73 | 0.5 | 113 | 0.5 | 170 | 0.5 |
| Radiology | 188 | 1.4 | 239 | 1.1 | 457 | 0.2 |
| Pathology | 53 | 0.4 | 33 | 0.1 | 61 | 0.2 |
| Forensic medicine | - | - | 45 | 0.2 | 48 | 0.3 |
| Laboratory | 138 | 1.0 | 178 | 0.8 | 80 | 1.4 |
| Hygiene | - | - | 2 | 0.01 | - | - |
| Others | 824 | 6.2 | 801 | 3.6 | 2136 | 6.6 |

¹ In Estonia there are not separate specialists of tuberculosis, addictions and forensic medicine; the term of physicians does not include specialities of hygiene and epidemiology

Figure 11: Practising physicians by speciality at the end of 2010¹³³

According to the statistical data GPs in rural area provide broader scope of services in Latvia. The referral rate in rural areas is lower compare to cities.

¹³¹ Kassenärztliche Vereinigung Schleswig-Holstein (2011)

¹³² Stender (2011, p. 10)

¹³³ National Institute for Health Development of Estonia, Department of Health Statistics, The National Health Service of Latvia, Health Information Centre, Institute of Hygiene, Lithuania. Health in the Baltic Countries 2010, 19th edition. 2011., 39p.



3.3.6 Lithuania

There are no studies describing effect of professional isolation and brain drain in remote primary care.

The head of the Clinic of family medicine, Lithuanian university of health sciences, prof. L. Valius in 2010 publication¹³⁴ mentioned that the pension, emigration and work outside the profession – all of these factors leads to the situation that in primary care clinical practice today is only about 1 800 family doctors. The need for the Lithuania is about 2200 family doctors. 5-6 years before the most promising, talented residents, family doctors had to receive recommendations if they want to get employed. Now it is the opposite – employers, managers are calling looking for family doctors.

The effects of the lack of physicians in primary care leads to the bigger workload, more frequent patients are sent to the secondary level specialists even if it is not needed.

3.3.7 Sweden

We cannot describe any effects of PI and BD though we had no result in this literature review concerning PI and BD.

3.3.8 Comparison of country-specific effects

The following table provides an overview of the outcomes concerning the effects of professional isolation and brain drain from the seven countries:

Table 6: Overview on country-specific effects of professional isolation and brain drain

| | Belarus  | Estonia  | Finland  | Germany  |
|---|---|---|---|--|
| Effects of Professional Isolation and Brain Drain | <ul style="list-style-type: none"> There are no studies describing effect of professional isolation and brain. | <ul style="list-style-type: none"> Loss of training expenses Labour shortage in health care sector Additional workload to other doctors Deterioration of work conditions to other doctors The emigration of doctors might bring about the migration in the country itself <p>The regional differences in health care services increase and the accessibility of medical care decreases</p> | <ul style="list-style-type: none"> Lack of personal Too much responsibility Lacking support of colleagues, which can be a major concern especially to younger physicians. | <ul style="list-style-type: none"> Loss of quality Longer waiting times Increase of patients for remaining doctors Increase of isolation Workload increase of hospitals |
| | <ul style="list-style-type: none"> There are no studies describing effect of professional isolation and brain. | <ul style="list-style-type: none"> There are no studies describing effect of professional isolation and brain. | <ul style="list-style-type: none"> No studies found The effect of PI and BD might be that it is not possible for the health care to give the same quality of care with best practice standard for all inhabitants as said in the act. | |

¹³⁴ Kulvietienė, J. (2010)

3.4 Factors leading to professional isolation and brain drain

In the next section the factors leading to and enhancing professional isolation and brain drain in remote primary care are described.

3.4.1 Belarus

The Ministry of Health of the Republic of Belarus questionnaire for studying the reasons of outflow of the medical personnel showed that the majority of migrants (60%) are the people aged under 40. The main reasons of migration pointed out by the respondents were as follows:

- low labour remuneration (40%);
- arduous and harmful working conditions (10%);
- insufficient labour organization (5%);
- limited possibilities for professional development (6%), etc.

One of the factors influencing the brain drain is the professional isolation due to the territorial remoteness, insufficient possibilities for using up-to-date IT, insufficient financial and technical resources, poor working conditions, etc.

Limited financial resources will also cause the decreased IT accessibility and professional improvement that can lead to professional isolation and deficiency in qualified personnel (outflow of medical personnel), which in turn may result in decreased accessibility and quality of medical care.

3.4.2 Estonia

In 2011 the audit about the organisation of the family doctor service was published by the National Audit Office of Estonia. According to the assessment the family doctor system does not motivate family doctors to work in rural areas. „The analysis showed that the patient lists of family doctors are generally shorter in rural areas, which means that the revenue base of the doctors is smaller. This means that family doctors in rural areas earn less than their colleagues who work in towns and cities. Another obstacle for family doctors who may consider working in rural areas is that they usually work alone, which makes it harder for them to find locums when they go away on holiday and/or training. Also, work with a short list of patients makes the provision of certain services impossible, as the doctor does not acquire the experience required for this. Family doctors who run their practice alone also tend to spend more time on non-medical activities.“¹³⁵

The National Audit Office of Estonia studied the reasons why finding family doctors to rural areas is problematic. During this study, representatives of the Estonian Association of Family Doctors and the representatives of county government administrators and single family doctors were interviewed. In their opinion the main reasons that prevent family doctors from working in the small communities are:

¹³⁵ Riigikontroll (2011, p.2)



- 1) The work of a family practitioner in the rural area is harder (the social and economical problems of the patients are greater; they do not have the opportunity to go to the city for a consult from the specialized doctor; it is presumed that the family doctor is available off-hours at least by phone etc.)
- 2) Finding a replacement for the time of vacation, training or something else, is very complicated, but this has a negative effect on the qualification (no time to take part in further training) and on the risk of burning out syndrome (taking a vacation for a longer period is never an option).
- 3) The family doctor's family members (husbands, wives, children) may not find employment or enough extra-curricular activities in rural areas
- 4) It is very difficult for a young family doctor to start from nothing with a new practice list. Start-up investment to open a practice is big.¹³⁶

The county governments' very different and unpredictable support for family doctors does not help finding primary care actors to the rural areas. The law does not obligate the county governments to help the family doctors.

Lower income of family doctors in the smaller cities and parishes is certainly one important reason in addition to other obstacles why young family doctors are not motivated to work in the rural areas.¹³⁷ Smaller practice lists, therefore less money and fewer opportunities to find a replacement. That kind of situation demotivates young people to specialize in primary care and to open a practice in the rural area.¹³⁸

According to the study ordered by the Ministry of Social Affairs in 2004 the doctors and residents are leaving Estonia for the reasons listed as followed: a) higher salaries (40-50% of the respondents marked this as the main reason); b) an opportunity for professional development and getting more experience; c) discontent with Estonian health care system; d) presumption, that there are better working conditions and opportunities for professional work abroad; e) limited number of vacant residency places in Estonia; f) family reasons, better quality of life abroad.¹³⁹

Praxis Centre for Policy Studies asked in their study in 2004 about the future plans that health care workers have in regards of migration. 5,4% (about 663 respondents) of the health care workers who answered said that they had a certain plan to go to work to a foreign country, among the residents the number who planned to leave was a bit higher 9,2%.¹⁴⁰

The willingness of the students to work in a foreign country when an opportunity represents itself is much higher compared to the health care workers. Altogether 91.2 of all students studying medicine would leave.¹⁴¹

¹³⁶ Riigikontroll (2011, p.24)

¹³⁷ Riigikontroll (2011, p. 25)

¹³⁸ Riigikontroll (2011,p. 37)

¹³⁹ Mand, K. (2005)

¹⁴⁰ Vörk, A. *et al.* (2004, p.38)

¹⁴¹ Vörk, A *et al.* (2004, p. 54)



As mentioned the health care workers, so did the students from different medicine specialities that the main reason, the first reason to go abroad to work is a higher salary. On an average this was named the first reason in 37.8% of the cases, followed by reasons: the experience of living and working elsewhere (12.8%) and further training or professional work experience (11.4%).¹⁴²

In conclusion the main reason why brain drain in Estonia is a problem, is money. Health care workers do not want to go to work to rural areas because of the lower income, but the work in rural area is harder because of the patients' backgrounds. Start-up investment to open a practice is big, but the county governments' support is very different and unpredictable and that does not motivate young family doctors to go to work to rural areas. In case of the Estonia finding a replacement for an holiday and/or training is very problematic as well. The main reason why brain drain to foreign countries is rather extensive is also money. 50% of the health care workers, who want to go abroad, have said that the reason is an higher salary abroad. Residents and students have listed the cause as the first reason to go abroad

3.4.3 Finland

All the above-mentioned reasons affect to brain drain and professional isolation in remote regions. Comparing or listing different causes is no easy and not even reasonable, as people are different and base their decisions in individual reasoning. Several reasons, such as urbanization, migration of social capital and educated population to the growth centres, and lack or scarcity of services, free-time activity options and cultural services, affect to the big picture and lead to brain drain and causally to professional isolation in remote areas. Also lack of physicians in remote areas brings a risk of being over-loaded by work, having too much responsibility, and lacking support of colleagues, which can be a major concern especially to younger physicians. Especially younger generation values other factors than status and salary in work. They often want free-time possibilities and good management. Thirty-two physicians participated into research ``Occupational isolation among general practitioner in Finland``. In the analysis of qualitative data, they found four main themes of feeling isolated. These themes were: Making decision alone; deficient collaboration, not being part of the work community and lack of mentoring at work. Young doctors especially wished they had a backup; possibility of mentoring and consulting among GP colleagues.¹⁴³

¹⁴² Vörk, A *et al.* (2004, p.56)

¹⁴³ Aira *et al.* (2010, p. 430-435)



3.4.4 Germany

The different factors leading to professional isolation and brain drain are rooted in the state of infrastructure, job opportunities for the partners, salaries and career opportunities, the image of the region and the lack of professional peers¹⁴⁴.

Concerning infrastructure the existence of public transportation and accessibility of the regions are as well of importance as the availability of institutions for education or cultural and free time activities. Also, the job opportunities in the region for the partners of medical staff is of a major importance. Another factor enhancing brain drain is founded in low salaries and career opportunities. Doctors used to earn more in urban than in rural areas before the "Versorgungsstrukturgesetz" (act on care structure in the stationary health insurance), because their earnings were not calculated on the actual number of patients but by budget. So that a doctor in a rural area with more patients had to see more patients for the same money than his colleague in an urban area that only had less patients¹⁴⁵. This mismatch has been abolished by the above-mentioned act but the prejudice still exists. Also the reputation of the region can be a factor leading to brain drain. A study among young health professionals revealed that there are differences in the favoured rural regions as well.¹³⁹ The researchers found out that students tend to prefer the region they originated from. But this is also regionally different. Preference of the original region was highest in Southern Germany with 93.1%, followed by the cities of Hamburg, Berlin and Bremen (91.8%) and Western Germany with 85.6 %. The lowest willingness to go back to the rural area they came from was among the students from Eastern Germany (76.7 %). Hamburg, Bavaria and Baden-Württemberg were named as the most attractive regions for those not going back to their original regions¹⁴⁶. Another important factor that leading to brain drain is the lack of professional peers.

3.4.5 Latvia

The main reasons of brain drain in Latvia are the difference between income level in Latvia and old EU countries and differences of living conditions in rural area compared with big cities. During the last 2 years the income level of general practitioners compares with the average level of salaries has increased and now even physicians of hospitals get financial motivation to become general practitioner.

Regarding the professional isolation the lack of IT technologies in Latvia is one of the main reasons. The insufficient use of e-Health technologies was mentioned in the report of present situation when crisis hit Latvia in 2009. Only 30 – 35% of GPs use Patient Management system developed for Primary Health care. The use is isolated practically without network. The centralized procurement of Patient Management system is started in March 2012. One of the main factor e-Health solutions for primary health care are not developed in Latvia at present. Some modules of e-Health have to be introduced in 2013.

¹⁴⁴ Günther *et al.* (2010); Korzilius (2008); Roick *et al.* (2010, p. 12)

¹⁴⁵ Bundesministerium für Gesundheit (2012)

¹⁴⁶ Gibis *et al.* (2012)



3.4.6 Lithuania

Factors, leading to professional isolation and brain drain in Health care sector (overall, not specifically remote primary care) in Lithuania are (2006)¹⁴⁷: salary problems; excessive workload; unfavourable working methods and bureaucracy; the lack of work tools and poor its quality; poor working atmosphere in health sector institutional teams.

It was recommended¹⁴⁸ that in the health care sector the following should be done (in order of importance):

- to reduce the highly skilled physicians workload, such as some of their functions (mostly administrative) transfer of lower-skilled workers and increase the separation of medical and office / department of its management functions.
- to increase the capacity of institutions to adapt to the on-going decentralization of the system, improve the management capacity of institutions. It should be better organized management of the institution itself, for example, individual managers' positions to take over part of the administrative and management functions
- to ensure adequate funding for quality and appropriate work equipment. This would not only improve the quality of services, but also facilitate the work conditions and professional development, employee motivation would pay more attention to personnel management in each institution, in order to improve the atmosphere of institutions teams

3.4.7 Sweden

We had no result concerning which factors that leads to PI and BD in this literature study.

¹⁴⁷ Lietuvos integracijos į ES poveikis kvalifikuotų Lietuvos viešojo sektoriaus darbuotojų išvykimui dirbti į užsienį (2006)

¹⁴⁸ Lietuvos integracijos į ES poveikis kvalifikuotų Lietuvos viešojo sektoriaus darbuotojų išvykimui dirbti į užsienį (2006)



3.4.8 Comparison of country-specific factors

The following table contains the findings on factors leading to professional isolation and brain drain in the different countries.

Table 7: Overview factors leading to professional isolation and brain drain

| | Belarus  | Estonia  | Finland  | Germany  |
|---|---|--|---|---|
| Factors leading to Professional Isolation and Brain Drain | <ul style="list-style-type: none"> • Low labour remuneration • arduous and harmful working conditions • insufficient labour organization • limited financial, technical and information resources • territorial remoteness (urban and rural areas), • low possibility of professional improvement, etc. • it should also be mentioned that all these factors influence the professional isolation. | <ul style="list-style-type: none"> • The patient lists are generally shorter in rural areas => revenue base is smaller • In the rural areas the doctor works usually alone => harder to find locums • Provision of certain services is impossible • The work in the rural area is harder • The family doctor's family members may not find employment or enough extra-curricular activities in rural areas • Start-up investment to open a practice is big • The county governments' support for family doctors is very different and unpredictable • Main reason for emigration is higher salaries abroad | <ul style="list-style-type: none"> •urbanization, migration of social capital and educated population to the growth centres, •lack of free time activity options and cultural services, •risk of being over-loaded by work •having too much responsibility, and lacking support of colleagues, which can be a major concern especially to younger physicians. •Especially younger generation values other factors than status and salary in work. They often want free-time possibilities and good management (which often has proved to be problematic in public sector). | <ul style="list-style-type: none"> •Insufficient Infrastructure <ul style="list-style-type: none"> o Poor Accessibility / Transportation in the region o Lack of opportunities for cultural and free time activities •Lack of educational institutions •Missing job opportunities for partners •Low salaries and career opportunities •Bad image of the region •Lack of professional peers |
| | Latvia  | Lithuania  | Sweden  | |
| | <ul style="list-style-type: none"> • Lack of IT technologies • Only 30 – 35% of GPs use Patient Management system developed for Primary Health care. The use is isolated practically without network. The centralized procurement of Patient Management system is started in March 2012. • One of the main factor e-Health solutions are not developed in Latvia. | <ul style="list-style-type: none"> • salary problems • excessive workload • unfavourable working methods • bureaucracy • the lack of work tools and its poor quality • poor working atmosphere in health sector institutional teams | <ul style="list-style-type: none"> • No studies found • but the factors could be lack of dissemination of knowledge within the health care professionals. | |
| | | | | |



3.5 Weighting of professional isolation compared to other factors that enhance brain drain

After having named the factors the next chapter concentrates on the weighting of those factors compared to other factors that enhance brain drain. The impact of professional isolation on brain drain is therefore discovered.

3.5.1 Belarus

The study of the weight of professional isolation as compared to other factors (financial support and bonuses) has not been carried out.

3.5.2 Estonia

There are no studies in Estonia regarding professional isolation.

In conclusion it can be presumed that professional isolation is not considered a very big problem in Estonia, because in the studies which are concentrated on brain drain, professional isolation is not mentioned, but better remuneration is the first reason in every study that has been made, why health care workers leave. Some of the health care workers expect that there are better opportunities for professional development and they get more experience in foreign countries¹⁴⁹, but we do not know if the reason for that is professional isolation in Estonia.

3.5.3 Finland

On the political level, Finland is going through a phase in which the division of municipalities will be dramatically reformed in the coming years. As a consequence of this reform, the primary health care system will also be transformed. This reform is partly a response to the continuous brain drain from and isolation of remote regions. How it will influence these regions and their professionals, will be seen in the future. There is certainly a need to fix the un-functional structures, which partially cause the shortage of physicians. The reform should aim to a creation of an efficient service system and rational use of physician labour force in publicly financed health care services. The Finnish Medical Association estimated that currently approximately 200 physicians' annual work contribution is wasted for writing unnecessary statements and reports such as short-term sick leaves. "Approximately 600 physicians' work contribution goes waste while staring un-functional information systems."¹⁵⁰ Public health care sector doesn't appear attractive to many of the physicians, and as a result they change to the private sector, such as occupational health care services provided by enterprises. Bureaucracy, stiffness of systems and risk of losing the self-control of ones work are additional factors which reduce the willingness of physicians to work in the public health care sector. "If Finnish health care system would be rearranged in a reasonable manner, current number of physicians should be bough to cover the health care services to all the

¹⁴⁹ Mand, K. (2005)

¹⁵⁰ www.suomenlaakariliitto.fi



Finns“ states the Finnish Medical Association.¹⁵¹

Finland could learn from the changes done in the health care service systems of other Nordic countries. Central factor in these changes has been the adding of patients' freedom of choice and diversifying the services. Also in Finland the health care providers could be both municipal and private. This would help to bring more physicians to the publicly financed health care services. There are almost 20,000 physicians of working age in Finland, which is in the same level with other Nordic countries. Amount of physicians is constantly growing with the current educational quantities despite the retirements. Despite this the Ministry of Education and Culture has suggested that the number of entries to the faculties of medicine would be raised from the current 608 to 770 students/year.¹⁵²

3.5.4 Germany

Different factors influence the decision of young health professionals to open or take over a practice in rural areas. Those include the remuneration, workload, extend of administrative work, collaboration with colleagues, balance of work and family, extend of responsibility in the decision making process or the availability of continuing education¹⁵³.

In 2007 a study in cooperation with the Ärztekammer was carried out to find out about the weighting of factors leading to brain drain with the title "Factors influencing the Decision to Establish a Primary Care Practice: Results from a Postal Survey of Young Physicians in German". A total of 14,939 doctors under the age of 40 were contacted via mail. With 5,381 respondents the response rate was 36%. The following figure shows that the weighting of factors influencing young physicians to settle down in remote areas. The physicians were asked to rate the factor on a scale from one to five, with one being the least important and five being the most important factor. The following table presents the average outcome of this rating.

¹⁵¹ www.suomenlaakariliitto.fi

¹⁵² www.suomenlaakariliitto.fi

¹⁵³ Günther *et al.* (2010)



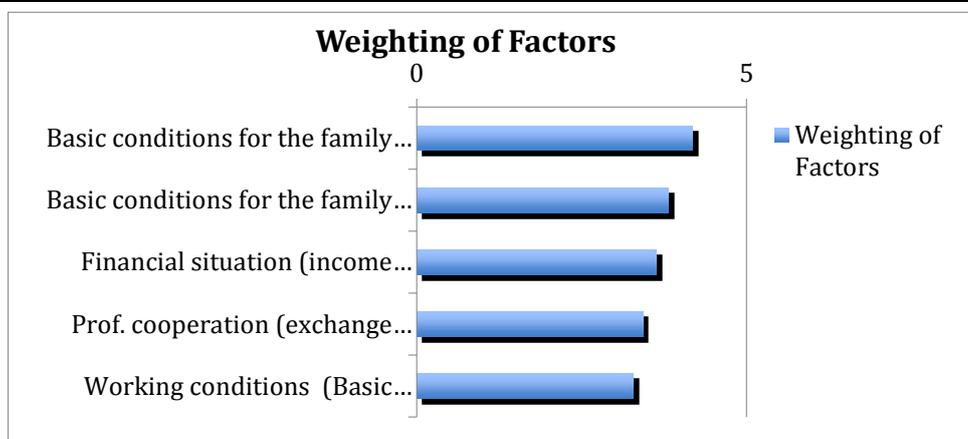


Figure 12: Weighting of factors influencing young physicians to settle down in remote areas ¹⁵⁴

The outcome of this study illustrates that there are different aspects that influence young professionals to open a primary care practice in rural areas. Professional cooperation is not the most important one, but it is regarded as a factor that influences the decision and should therefore be supported by concepts such as teleconsultation and telementoring.

3.5.5 Latvia

The study will be provided during PrimCareIT project.

3.5.6 Lithuania

A study¹⁵⁵ (2002) showed that the major reasons for emigration were higher salary, better professional possibilities and better quality of life. For medical residents a previous visit abroad for professional reasons increased the risk of working abroad significantly. In the case of physicians, age was the factor that significantly decreased the risk; however having friends abroad increased the risk by more than three times.

The study¹⁵⁶ by L. Labanauskas (2006) presents results of a survey carried out at the Vilnius University Institute of Oncology. The survey showed that 80% of respondents want to leave for abroad. 52 % wants to go for a period what is named “to earn money and come back”.

3.5.7 Sweden

Though we had no result in this literature study concerning PI and BD it's not possible to describe factors leading to PI and BD and the weighting of them.

¹⁵⁴ Roick *et al.* (2010, p. 17)

¹⁵⁵ Stankūnas *et al.* (2004)

¹⁵⁶ Labanauskas (2006)



3.5.8 Comparison of the weighting factors

The following table contains an overview of the findings on the weighting of factors leading to professional isolation and brain drain from the different countries.

Table 8: Overview of the weighting of factors leading to professional isolation and brain drain

| | Belarus  | Estonia  | Finland  | Germany  |
|--|--|--|--|---|
| Weighting of factors leading to Professional Isolation and Brain Drain | <ul style="list-style-type: none"> The study of the weight of professional isolation as compared to other factors (financial support and bonuses) has not been carried out. | <ul style="list-style-type: none"> There are no studies in Estonia regarding professional isolation. In conclusion it can be presumed that professional isolation is not considered a very big problem in Estonia, because in the studies which are concentrated on brain drain, professional isolation is not mentioned, but better remuneration is the first reason in every study that has been made, why health care workers leave. | <ul style="list-style-type: none"> The study of the weight of professional isolation as compared to other factors (financial support and bonuses) has not been carried out. | <ul style="list-style-type: none"> A study among approx. 5,000 physicians, who were asked to indicate which factors were the most important for opening a practice showed the following ranking: first being the most and six the least important factor: <ol style="list-style-type: none"> 1. Basic conditions for the family (partner and children) 2. Job obligations (on-call duties or administration tasks) 3. Financial situation (income and support for investments) 4. Professional cooperation (exchange with professional peers, cooperation and joint equipment usage) 5. Working conditions (Basic conditions of daily work in the practice) 6. Quality of life (Basic conditions for own lifestyle) |
| | Latvia  | Lithuania  | Sweden  | |
| | <ul style="list-style-type: none"> The study will be provided during PrimCareIT project. | <ul style="list-style-type: none"> A Study (2002) showed that the major reasons for emigration were higher salary, better professional possibilities and better quality of life. For medical residents a previous visit abroad for professional reasons increased the risk of working abroad significantly. In the case of physicians, age was the factor that significantly decreased the risk; however having friends abroad increased the risk by more than three times. | <ul style="list-style-type: none"> No studies found | |



3.6 On-going teleconsultation and telementoring

The next section contains a description of on-going teleconsultation and telementoring projects. Therefore, in each chapter at first on-going examples are described. In a second section the effects of teleconsultation and telementoring are researched.

3.6.1 Belarus

3.6.1.1 Examples, Best-Practices, Projects or Studies using teleconsultation or telementoring

The Healthcare informatization is carried out within the state programmes on the following directions¹⁵⁷:

- information systems automatization in the healthcare organizations, which makes it possible to keep medical records in electronic documents;
- inclusion of the healthcare organizations in E-mail and Internet network in order to provide electronic documents circulation and data exchange;
- organization of the common information area of the Belarusian healthcare system based on the corporative information exchange network;
- provision with medical (discharge forms, records, history, analysis data, etc.), regulatory, organizational and executive documentation based on the common network in electronic form using the electronic signature;
- tele-medical technologies improvement;
- public health care and epidemic welfare monitoring systems development;
- formation of public electronic medical resources.

The following projects in the sphere of tele-medical technologies were introduced into practice in Belarus¹⁵⁸:

1. Automated republican tele-medical system of unified electronic consultations, which covers 10 republican, regional and district healthcare organizations in Minsk, Mogilev and Gomel regions.
2. Republican tele-medical consultation system in the most injured Chernobyl areas of Brest, Gomel and Mogilev regions. Tele-medical system covers 11 district (CDH), 9 regional and 10 republican (RSPC) healthcare organizations.

This system makes it possible for district and regional healthcare organizations to use distant consultations based on X-ray, ultrasound and cytological examinations and diagnosing the patients. The technology of distant ECG consultation has also been developed.

¹⁵⁷ Sachek (2010, p. 2-5); Zharko (2009, p. 2); Zharko *et al.* (2006, p. 3-6)

¹⁵⁸ Sachek (2010, p. 2,3); Zharko *et al.* (2006, p. 5,6)



There are several constantly working tele-medical systems¹⁵⁹:

- Consultation network on the thyroid nodules pathologies (the recipient is the RSPC of Radiation Medicine and Human Ecology (RSRC of RMHE) in Gomel, the consulting organization is the Republican Centre for Thyroid Cancer (RCTC).
- Photofluorographic consultation network on the basis of TB dispensaries № 1 and 2 and Minsk policlinics № 27.

3.6.1.2 Effects of teleconsultation and telementoring

The study of the influence of teleconsultations and telementoring on the brain drain and professional isolation has not been carried out in Belarus.

3.6.2 Estonia

3.6.2.1 Examples, Best-Practices, Projects or Studies using teleconsultation or telementoring

In 2001 there were 5 telemedicine centers in Estonia: in department of polyclinic and family medicine in Tartu University Hospital, in Neurology Clinic in Tartu University Hospital, in neurology clinic in Tallinn Mustamäe Hospital, in Kohtla-Järve Hospital and in the primary care practice “Meelia” in Kuressaare. More active have been the Kohtla-Järve and Tartu neurologists, neurosurgeons and in their first year of activity about 250 patients were consulted.¹⁶⁰ According to the personal communication with Tartu University Hospitals’ neurologist Ülla Linnamägi this project lasted about 2 years. Unfortunately there are no consultations anymore, only tele-lectures take place, but new methods are used. Well in work is also electroneuromyography tele-network, used for diagnosing the nerve-muscle diseases. Here the Estonian specialists have a reason to be content: four Estonian centers are connected to the network that gives the chance for less experienced to ask advice from known specialists – colleagues from Estonia and from the University of Uppsala.¹⁶¹

One example of joint tele-conferences and tele-medicine consultations in Estonia has taken place between family doctors of Kuressaare (island of Saaremaa) and Tartu. These two centres have worked together regularly since September 2000.

These centres made a plan of what kind of lectures they would want, considering wishes of both sides. Lectures have been from Tartu and also from Kuressaare. Specialists from Tartu University Hospital have consulted four patients from Kuressaare. All of these consultations were prepared before. All information considering the patient (x-ray pictures, lab analysis, etc) were delivered to the specialists through e-mail, so the specialist knew what was the problem. During the teleconsultation the specialist had the chance to ask some extra questions from the patient and give him/her instructions. Family doctor also had a chance to give his/her opinion about the case. In conclusion these teleconsultations saved at least one

¹⁵⁹ Sachek (2010, p. 4,5)

¹⁶⁰ Linnamägi (2001)

¹⁶¹ Linnamägi (2001)



visit to Tartu for every patient.¹⁶²

In the end of 2006 the special web-based training programme for Estonian family doctors called Svoog, was completed. Estonian family doctors can have training without leaving practice. Today it guarantees to all of the family doctors who are registered in the programme, an opportunity to follow the lectures being broadcasted live or watch at the recordings when ever they want to. All the conferences and seminars organized by the Estonian Association of Family Doctors, follow-up schooling that is organized every month by the Tallinn Association of Family Doctors and the morning conferences that take place in Tartu are being broadcasted in the programme. Doctors can put together their own training plan that considers everyone's individual training needs. Doctors can follow their own continuing professional development plan, where they develop vocational knowledge. Schedule of training is put together by family doctors themselves, it means that the Estonian Association of Family Doctors and department of family medicine know best, which topics doctors need the most. There is also the possibility to get follow-up schooling points. Svoog allows for every doctor to start his/her follow-up schooling points account, that can be later used in re-certification.¹⁶³

This web-program is not directly involved with teleconsultation or telementoring at present, but in the future everything is possible. A start has been made, because due to the training centre that is available and in use by every doctor to self-educate, then professional isolation can be partly avoided, hopefully

3.6.2.2 Effects of teleconsultation and telementoring

There are no studies in Estonia that focus on the effects that teleconsultation or telementoring has on counter-acting brain drain and professional isolation.

3.6.3 Finland

3.6.3.1 Examples, Best-Practices, Projects or Studies using teleconsultation or telementoring

Most Finnish providers currently use electronic patient information systems. However, the development of health information systems has been largely un-coordinated at the national level. The Ministry of Social Affairs and Health has been working to improve this situation for years. A major milestone was achieved in December 2006, when Parliament passed new legislation concerning electronic prescription systems and patient record. All providers were obliged to adopt these systems and to achieve full functionality by 2011.

There have also been efforts to improve clinicians' and patients' access to health information. In 2000, the Finnish Medical Society Duodecim launched the internet Portal "Terveysportti" from which clinicians can access information on EBM guidelines, the Current Care Guidelines, drug characteristics and prices, the Cochrane Library, several leading international medical journals, ICD-10 codes, a drug interaction database, a comprehensive

¹⁶² Maaros, Tiik *et al.* (2001)

¹⁶³ Kalda (2009)



list of Finnish Medical Terms and some Finnish medical journals. Almost all municipalities and hospital districts have purchased this service for their employees. This internet Portal has become very popular among clinicians and other health care providers. In 2006, Duodecim also built another second internet portal “Terveyskirjasto” (Health Library) for patients and general public. It contains thousands of patient-centric articles.¹⁶⁴

Finland has achieved more widespread use of information technology (HIT) than other health systems. A well-constructed national EPR system could lead to fundamental breakthroughs in managing and measuring health care in the common information management structures. In order to harness the potential of ICT for value creation, Finland should invest more aggressively in health information technology and its implementation.¹⁶⁵

South Ostrobothnia Health Technology Development Centre supports technically videoconferences that take place in South Ostrobothnia Health Care District. Data collected by the Health Technology Development Centre during the years 2003-2012 shows that usage of videoconferencing is steadily increasing in the region. While in 2003 total of 422 technically supported videoconferences took place in Seinäjoki Regional Hospital; in 2011 number was already 633. These numbers are not complete as some units, such as psychiatry, also arrange videoconferences independently. However, it can be concluded that the number of videoconferences is growing. Tele-services are mainly used for training purposes (both medical and in-service training), consultations between primary, secondary and tertiary care institutions, and in addition to different types of meetings.¹⁶⁶

Videoconferencing between Seinäjoki Central Hospital and other hospitals takes place on a daily basis. For example Dermatology unit uses telecommunication devices normally three times a week for participating medical lectures hosted by University hospitals in Tampere and Helsinki. This telementoring arrangement enables small ward to keep up-to-date with the newest research outcomes and treatment methods. These lectures are participated by doctors, medical students and nurses alike. Small dermatology unit in Seinäjoki Central hospital has only 2-3 doctors working permanently, and telementoring is an important tool for them to keep track of the latest developments in the field.^{167, 168}

Another success story in videoconferencing is in the field of dentistry, where teleconsultation has been used for educational purposes. In the hospital district of South Ostrobothnia, a 13-month study was carried out in 2004-2005. Study investigated whether videoconferencing could be used for diagnosis and for making treatment plans for patients requiring prosthetic or oral rehabilitation treatment. The consultations took place between a specialist dental treatment unit in the central hospital and general dental practitioners in seven regional health centres. In 24 out of 27 teleconsultations, a diagnosis or treatment plan could be made. All participating dentists were satisfied with the consultation process and indicated that the technology used was of sufficient quality for clinical purposes. A patient satisfaction questionnaire indicated that patients were also satisfied. A study concluded that teleconsultation in dentistry has the potential to increase the total

¹⁶⁴ Teperi *et al.* (2009, p.83-85)

¹⁶⁵ Teperi *et al.* (2009, p.83-85)

¹⁶⁶ www.eptek.fi

¹⁶⁷ Tommola *et al.* (2005, p.988-904)

¹⁶⁸ Ignatius *et al.* (2010, p.467-470)



number of dental specialist services in sparsely populated areas, such as those in Finland.¹⁶⁹ Seinäjoki Central Hospital and the Tampere University hospital use teleconsultation in Coronary Angiography. This co-operation practice has been implemented in the beginning of 2008 and is done between the cardiology department at the Seinäjoki Central Hospital and Cardiology department of the Tampere University Hospital. By using teleconsultation, all pictures, videos, documents and results can be transferred from Seinäjoki to Tampere for a second opinion in real time. More specialized doctors are able to give their opinions on patient cases and treatment, making treatments safer. Co-operation also increases the knowledge of the treating cardiologists in Seinäjoki, and simultaneously, transportation costs, time, and the efforts of the patients are saved by the efficient use of eHealth. By use of teleconsultation, some of the operations can be performed in Seinäjoki. For example analysis of the needed treatment is now done in Seinäjoki instead of sending the patient 170 km away to the nearest university hospital. Generally in Finland, heart surgeries are performed at specialized university hospitals. Lesson learned from this experience is that it is possible to carry out effective consultation for treating chronic heart diseases by the use of eHealth.¹⁷⁰ Another example of a successful adaptation of telemedicine is a system developed by a Helsinki-based family doctor firm called Doctagon. Aim of this telemedicine system is to ameliorate physicians' services to the assisted living residences for elderly in remote areas. Medical problems of elderly who live at home or in assisted living residences are often quite simple but could potentially result to a notable weakening of persons operational capacity if treatment is delayed. These teleconsultations lessen the costs and save elderly's strength as unnecessary ambulance rides can be avoided, and unnecessary complications are also prevented.¹⁷¹ New TeleCare telemedicine service is based both on regular visits of a physician to assisted living residences, and on 24 hours medical telephone service which has thorough, up-to-date information of the patient. In addition to this, telemedicine equipment is placed in residences to support acute treatment decisions. Aim is that at daytime the first consultation could be done in patient's own care unit. Only after that the decision of patient's possible transfer to further treatment is done.¹⁷²

3.6.3.2 Effects of teleconsultation and telementoring

See previous chapter.

¹⁶⁹ Tommola *et al.* (2005, p.988-904)

¹⁷⁰ Beck *et al.* (2011); ICTforHealth (2011, no 3.4.1)

¹⁷¹ www.doctagon.fi

¹⁷² www.doctagon.fi



3.6.4 Germany

3.6.4.1 Examples, Best-Practices, Projects or Studies using teleconsultation or telementoring

Teleconsultation and telementoring are not that widely used in German primary health care, yet. There are only some efforts being done but it is still far from being implemented nationwide. On the contrary, both approaches are merely used in the inpatient sector of the German health care system. Telementoring is in university hospitals used in educating health professionals such as surgeons¹⁷³, while teleconsultation already finds a great prevalence in fields such as telepathology¹⁷⁴, teleradiology¹⁷⁵, teleneurology¹⁷⁶ or cancer research¹⁷⁷, where specialist conferences are carried out on a regular basis or information and documents are transferred to receive a second opinion.

In the following some projects from primary health care are described in detail that are or were carried in Germany.

Wound Management

In primary health care there are only some projects being carried out such as two projects concerning wound management in the Ostalb-Kreis¹⁷⁸ and in Witten¹⁷⁹. In both projects the wound management is carried out by a nursing service that takes care of the wounds at the patients homes. In those two projects the nurses also take over the documentation of the wounds with a camera for the physicians and receive further information on the treatment by a wound specialist or a physician. The physician thereby saves valuable time by not having to visit the patient personally¹⁸⁰. Also, the wounds are saved in the documentation system and can be discussed on a regular basis with other specialists in so called "wound conferences"¹⁸¹.

Endoscopy Alliance

Another project where teleconsultation is already used in practice is the "Endoscopy Alliance" in Leipzig. Different ear, nose and throat specialists carry out endoscopies in their practices and send the pictures to the "Kopfzentrum Leipzig" (head centre Leipzig), where the cases are observed by head specialists¹⁸². Unfortunately, no studies are available on either of the projects, yet.

¹⁷³ Leis (2008, p. 146)

¹⁷⁴ Hufnagl, Schlüns (2008, p. 250)

¹⁷⁵ Weisser, Walz (2007, p. 267)

¹⁷⁶ Patterson (2005)

¹⁷⁷ Schlag *et al.* (2003, p. 13)

¹⁷⁸ Gesundheitsnetz Ostalbkreis (2012)

¹⁷⁹ Koch, Hundacker (2009)

¹⁸⁰ Grunau *et al.* (2009); Walter (2012)

¹⁸¹ Koch, Hundacker (2009)

¹⁸² Strauß (2012)



Telepsychiatry

In Regensburg in southern Germany, a study on telepsychiatry was running from 1999 to 2002. The aim was to counteract the lack of psychiatrists through the usage of audio and videoconferences among older people suffering mainly from depressions, dementia, schizophrenia or addiction to alcohol/medications. A physician or a nurse was always with the patient while the psychiatrist was connected via phone or videoconference device. The health professional with the patient and the psychiatrist did anamneses, talked about diagnosis or the treatment. Among the health professionals no acceptance problems occurred. After the patients got used to the system only 10% denied a teleconsultation¹⁸³. Since Nordfriesland, a district of Schleswig-Holstein, is confronted with a low density of psychiatrists, especially for the provision of the islands, this telepsychiatry concept has been promoted for implementation in this area as well¹⁸⁴.

Mentoring for female physicians

In Germany there have so far no telementoring projects been carried out, but a project called "Mentoring für Ärztinnen" (Mentoring for female physicians) was initiated by the Medical Chamber of Schleswig-Holstein (Ärztchamber Schleswig-Holstein) in 2008¹⁸⁵. The aim of this project was to find tandem partners for educational exchange, namely a more experienced female doctor (mentor) and a less experienced female doctor (mentee). The programme provided the first contact and some joint meetings, but after the introduction the mentor and the mentee were contacting each other independently. While some women met on a regular basis others just had contact via phone or email¹⁸⁶. Similar programmes have been conducted in other parts of Germany for example in Cologne as well¹⁸⁷. The following table indicates the status of the different projects:

Table 9: Overview on status of the projects

| Past | On-going | Future |
|-------------------------------|------------------------------|--|
| Tele-Psychiatry in Regensburg | "Mentoring für Ärztinnen" | Tele-Psychiatry at Islands in Schleswig-Holstein |
| | Wound Management in Witten | |
| | Wound Management Ostalbkreis | |
| | Endoskopie Alliance | |

3.6.4.2 Effects of teleconsultation and telementoring

Since teleconsultation and telementoring is not yet a common approach on counter-acting brain drain and professional isolation in Germany, there are no studies available on the effect that teleconsultation and telementoring has in this field.

¹⁸³ Szecsey *et al.* (2004)

¹⁸⁴ dsn Analysen & Strategien (2010, p. 84)

¹⁸⁵ Kunze (2012)

¹⁸⁶ Schnack (2010, p. 29)

¹⁸⁷ Rudroff, Herberg (2004, p. A3012)



3.6.5 Latvia

3.6.5.1 Examples, Best-Practices, Projects or Studies using teleconsultation or telementoring

During the period 2003 - 2005 there were Telemedicine Center in Riga municipality. Although The Center was liquidated in year 2005, the introduced system continued to operate: medical staff was able to use the exchange of data, patients were able to get information, but doctors - to get assistance in pre-diagnosis determination and advice via the Internet.

In general Telemedicine started in Riga prematurely and unconvincing. Firstly, the Telemedicine Centre was unable to provide specific concept of operations, estimates and business plans. Secondly, in year 2005 budget of Telemedicine Centre was 300,000 lats (about 428 571 euro), but the experts agreed - to establish an effective telemedicine system it is necessary to invest more than one million in infrastructure and equipment.¹⁸⁸

At the beginning of May 2012 Parliament Committee on Social and Employment Matters had a meeting with business persons and doctors in which was reviewed the proposal to develop telemedicine and services for remote social areas. After the meeting it was decided to incite the Prime Minister to form a working group for this proposal evaluation.

Telemedicine gives the opportunity to provide health services remotely by using technology. Usually patient at home has a device (sensor), which reads the programmed parameters (blood count, pressure, cholesterol and sugar level, pulse, temperature, etc.). This is the way how patients can control their own health and use these data to inform doctor.

Representatives of Latvian company "Lattelecom" informed about opportunity to participate in the project in which in European Union funding is available. It is also provided that an international consortium with participation of six countries (Finland, Sweden, Denmark, Estonia, and Lithuania, Latvia) health care facilities will be created with purpose to develop EU funding application. Scandinavian countries already have such technological solutions, but they are interested in the upgrade, while Estonia is a good step ahead of Latvia in e-health services.

This project will be planned for care of chronic patients with heart and lung diseases and also patients with diabetes. At present approximately 60,000 patients are registered in the Register of diabetes patients.

In the project will be planned that 200 GP will join to this Project. Every GP would make care of 50 registered chronic patients.

A commission decided to inform the Prime Minister and ask to organize the multi-profiled working group for evaluation of the possibility of introduction of telemedicine Technologies. The organisers of this project have calculated the costs of this project will be 14-19 mil LVL but running costs of the solution of the project 2-3 mil. LVL per year. The savings in the health care system would be 30 mil. LVL per year after 3-4 years. The mortality rate of the chronic patients will decrease and economic effect would be 35-38 mil. LVL per year. The maximum of financing from EU funds would be 5 mio. EU and the EU would cover 50 % of eligible costs.

¹⁸⁸ Bulmane L. Telemedicīna. Laba ideja, pārags starts. Diena. 2005. 8. Nov.
<http://www.diena.lv/arhivs/telemedicina-laba-ideja-parags-starts-12596256>



Telemedicine is analysed in connection with social care services. It means that also local municipalities will be involved in this Project.

Telemedicine is already discussed, but it is included only in the second or third phase of the Latvian e-Health Project. In case if this Project will be supported by government the results of the Project have to be integrated in e-Health system of Latvia.

The Head of the Association of rural general practitioners Mrs. Liga Kozlovska expressed opinion that the use of telemedicine technologies is very important for general practitioners because chronic patients need permanent observations. The use of solutions of telemedicine would allow to promote the health and quality of life. Good example is experience of old EU countries in this field. L.Kozlovska and other specialists stressed attention on necessity to adjust the regulation in the field of telemedicine and security of patient data.

Member of Parliament Mr. Andris Buikis has estimated that the Project will give some positive effects only after 7-8 years. It has to be more clear to know the costs per year what government has to donate for running of this system. A.Buikis expressed incomprehension that in preparation of the project are not involved specialists from Latvia because the content is not only medical care but also technologies.¹⁸⁹

International Baltic of Telemedicine Network (BITNET)

The Partners of this Project were health care institutions from Sweden (Uppsala University hospital), Estonia, Lithuania and Latvia. The Partners from Latvia were Stradina University hospital, Liepaja Regional hospital, Children university hospital, hospital Gailezers (now Riga East University hospital), Daugavpils Regional hospital and Ventspils hospital.

Project started in 1999 with aim to implement the drawings of the BITNET (*Baltic International Telemedicine Network*) Project and to create the telemedicine network of Baltic and North European countries. Project was implemented in year 2002 and the developed solutions are used till now in the previous mentioned hospitals.

The goal of this Project is to make consultations from the distance without sending specialists out from university clinics when the local doctors are not sure about the decision based on the images of computertomograph. Using the solution of this Project it is possible to get consultation in one our from the hospitals which are participants of this network.

With support by Sweden Baltic Sea Information Technology Fund it is developed the Project BITNET to support health care institutions in Telemedicine in Latvia, Lithuania and Estonia and S-Petersburg (Russia). In July 1999 2.86 mil. SEK is donated for this Project in Latvia.

The essence of BITNET is to create the local networks in Baltic countries (the centers are in Tartu, Riga and Kaunas) and to connect these networks with Uppsala University hospital (Sweden). It is connected all these hospitals in one network by ISDN line. The technical centre for Latvia - Stradina University hospital where it was procured computertomograph, equipment of magnetic resonance, ultrasound, gamma camera, equipment for angiography. All this equipment is connected in a network.

Foreign supported projects are always asked for financial participation from the public to

¹⁸⁹ L. Dārziņa. Uzņēmēji un ārsti piedāvā domāt par telemedicīnas iespējām. Latvijas Vēstneša portāls par likumu un valsti. 2012. <http://www.lvportals.lv/?menu=doc&id=247328>



whom the funds. Unfortunately, Latvia does not have to offer. These and other reasons (such as the country's readiness to implement the project, a high level of computerization in the hospital before start of the project) from BITNET project allocated 8 million SEK, Latvia received only 2.86 million, far less than the two neighbouring countries Lithuania and Estonia. For the Swedish Baltic Sea IT Fund donation country pays value added tax, so that nearly one fifth of the amount is not the specific project for which it was intended. To avoid this problem, necessary changes in appropriate Cabinet of Ministers.

Telemedicine is one of the best ways to provide rural and urban residents a high standard of medical care, allowing complex situations quickly get not only Latvian, but also the world's best professional recommendations for treatment. It has become a daily need to get advice before elective surgery and investigations to clarify the diagnosis and patients are not exposed to unnecessary manipulation. BITNET project was a great opportunity for all Latvian doctors to make sure the real need for telemedicine systems.¹⁹⁰

The Joint Telemedicine Information System in Latvia.

The Joint Telemedicine Information System project aim is to create a modern and unified data exchange information system to provide patients an effective, fast treatment using the most modern medical technology - telemedicine with technological support.

Ensure the efficient use of medical care through a single system and telemedicine networks, expanding existing and creating new telemedicine study base in Latvia.

The Joint telemedicine network in Latvia would ensure the progressive transformation of medical care, during which direct contact with the patient's physician, his investigation and consultation would be largely replaced by the transmission of information via telecommunications and automated data processing capabilities. Developments of this type of contact between patients and doctors have successfully addressed a number of problems defined in the health reform program conceptual framework, such as:

- Saves physician time and enables more frequent monitoring the patient's condition.
- Reduce transport costs.
- The possibility of patient data to be sent for consultation with leading experts around the globe.

Currently, the Disaster Medicine Centre approbates one of the Telemedicine technologies.

With hardware that allows the transmission of the patient's ECG for consultation on Operative Disaster Medical Center medical staff, 18 are equipped ambulance cars.

Disaster Medical Center plans to cooperate with telemedicine to the following:

- Maritime Search and Rescue Service, the Latvian Shipping Company, Latvian Maritime lines;
- Latvian Railways, the International passenger transport operators and airlines;
- The State Fire and Rescue Service.¹⁹¹

¹⁹⁰ Zālīte R. Telemedicīna iedzīvotāju dzīvības glābšanai. 2001. <http://www.sakaru-pasaule.lv/main.php3?sub=view&RID=158>

¹⁹¹ Pamatnostādnes „e-Veselība Latvijā”. (2005, p. 87) (Apstiprinātas ar MK 2005. gada 17. augusta rīkojumu. Nr. 560)



In Latvia currently is not any project Telehomecare that allows for remote monitoring of patient's health, if the patient is at home. In Latvia currently is not used in clinical decision support system, which is based on digitally stored computer analysis results interactively ask questions to doctors, provides support for diagnosis or deciding on treatment.

3.6.5.2 Effects of teleconsultation and telementoring

The studies do not exist.

3.6.6 Lithuania

3.6.6.1 Examples, Best-Practices, Projects or Studies using teleconsultation or telementoring

In the past, telemedicine activities have been held mainly by research groups that were implementing few pilot projects. Maybe, the most consistent work in this field was done by the Telemedicine Center of Kaunas University of Medicine¹⁹². This center was established in 2002 after successful international pilot project Litmed (1999-2002) that was implemented together with the Biomedical Engineering Institute of Kaunas University of Technology¹⁹³. The problems for that the Litmed project showed solutions were: 1) teleconsultations and second opinion; 2) distance education; 3) information exchange and creation of common databases. The project "Digital ophthalmology"¹⁹⁴ showed simple enough assistive consultation for primary care physicians how to diagnose and differentiate acute eye diseases. Then followed pilot projects Litmed II, Baltic MedWeb. Due to the lack of political force these projects did not succeeded in wide implementation but did great job in promoting telemedicine in Lithuania. Lithuania was participating in two cross-border projects in the field of teleradiology¹⁹⁵. The Baltic eHealth project was conducted from 2004 to 2007 under Interreg IIIB program. During the project more than 200 hospitals from Denmark, Sweden, Norway, Estonia and Lithuania were connected into one dedicated secure IP-based network. Three hospitals from Denmark, Estonia and Lithuania used the network to establish the cross-border teleradiology service. X-ray images taken in Denmark were reported in Estonia and Lithuania. There were altogether 150 exams reported. The R-Bay project was a European eTEN market validation project. The project had eleven partners from eight European countries. The clinical partners came from Czech Republic, Denmark, Estonia, Finland, Lithuania and the Netherlands. R-Bay is an online eMarketplace, a consultation portal, for buying and selling of imaging related telemedicine services.

There are also recent trials in ophthalmology field to promote telemedicine services (teleconsultation) for family clinics¹⁹⁶. The trials are based on the grounds of the work of the Telemedicine Centre of the Lithuanian University of Health Sciences (formerly Kaunas

¹⁹² <http://tmc.kmu.lt>

¹⁹³ <http://www.bmii.ktu.lt>

¹⁹⁴ <http://www.bmii.ktu.lt:8081/unrs/eyes?trg=about>

¹⁹⁵ Kiskiė *et al.* (2010)

¹⁹⁶ Paunksnis *et al.* (2011)



University of Medicine) and private initiative of clinicians and researchers with the aim to promote bottom-up, self-sustainable telemedicine development and to increase accessibility to, and quality of, healthcare especially in rural or underserved areas. The leader in this starting project was UAB Stratelus, a small medical company, together with several family clinics in the rural areas of Lithuania and with support of the Family Medicine Centre of the Kaunas University of Medicine. The aim of the project was to start screening and monitoring of elderly population for diabetic retinopathy, aging macular degeneration, optic nerve head evaluation, and glaucoma in their homes and near-home locations, in a mobile telenetwork mode. There has been established a small regional telenetwork with the consultation center in Kaunas and Family or Primary Care centers in Klaipeda, Kaitinenai, Karmelava and Vilkaviskis. Project used special camera Smartscope, designed for telemedical applications by Finland company Optomed OY¹⁹⁷. Family physicians were trained to use this camera to screen eye fundus. The images of eye fundus then are captured in digital format, evaluated by primary care physician and, in the case of nonclarity of diagnosis, sent to the consultation center in Kaunas. The high level ophthalmologists then can evaluate eye fundus images and consult primary care physician on the particular case. The study showed that such teleconsultation network can decrease patient costs up to four times and also to save time for the patient and for the high level ophthalmologists.

On 22 of February, 2011 the conference “Telemedicine and e-health in family physician practice” was held in Lithuanian University of Health Sciences, Kaunas¹⁹⁸. The main topics of the conference were concentrated in two directions: the use of electronic patient records in primary care and demonstration of the two teleconsultation case studies for: cardiology and ophthalmology. Teleconsultation case study for cardiology demonstrated remote consultation of the cardiology patient. This demonstration presented the project for middle and western Lithuania during which will be established a network of 253 family physicians with modern digital networked ECG recorders what will be used for teleconsultations. Teleconsultation case study for ophthalmology presented the project described above¹⁹⁹ and the Smartscope – the tool for the ophthalmology, dermathology and othoralynology what is useful in telemedicine applications.

3.6.6.2 Effects of teleconsultation and telementoring

There have not been found any studies concerning the effects that teleconsultation or telementoring has on counteracting brain drain and professional isolation in Lithuania.

¹⁹⁷ http://www.optomed.fi/smartscope_m5/

¹⁹⁸ Lebricaite (2011)

¹⁹⁹ Paunksnis *et al.* (2011)



3.6.7 Sweden

3.6.7.1 Examples, Best-Practices, Projects or Studies using teleconsultation or telementoring

We found no studies mentioning telementoring and sparsely studies that includes teleconsultation and those found was mostly from 1999-2005. Although the demographic changes with increasing number of elderly, population movement and low rate of entrance to care educations is a real future demand and ICT-solutions may counteract this troublesome development lines.

3.6.7.2 Effects of teleconsultation and telementoring

None of the studies found focused on the effects that teleconsultation or telementoring counter-acting BD and PI. The aim of the studies we found in this literature study was more focused on making the care more efficient, cost effective and provide benefits both for patients and the health professionals.



3.6.8 Comparison of ongoing projects

The following table contains an overview of the on-going teleconsultation and telementoring projects and also the findings on effects that teleconsultation and telementoring has on counteracting brain drain and professional isolation.

Table 10: Overview of on-going teleconsultation and telementoring projects and the findings on effects of teleconsultation and telementoring

| | Belarus  | Estonia  | Finland  | Germany  |
|---|---|--|---|--|
| Ongoing Teleconsultation | <ul style="list-style-type: none"> Automated republican tele-medical system of unified electronic consultations. Republican tele-medical consultation system in the most injured Chernobyl areas. Consultation network on the thyroid nodules pathologies. Photofluorographic consultation network on the basis of TB dispensaries. | <ul style="list-style-type: none"> There have been video teleconsultation projects and pilots in Estonia, but at the moment there are no on-going video teleconsultations. | <ul style="list-style-type: none"> South Ostrobothnia Health Technology Development Centre supports technically videoconferences that take place in South Ostrobothnia Health Care District. | <ul style="list-style-type: none"> Wound Management between home care nurse and wound specialist or GP Endoscopy Alliance between ear/nose/throat specialist and head center Leipzig Telepsychiatry in Regensburg |
| Ongoing Telementoring | <ul style="list-style-type: none"> na | <ul style="list-style-type: none"> Special web-based training programme for Estonian family doctors called Svoog | <ul style="list-style-type: none"> Videoconferencing between Seinäjoki Central Hospital and other hospitals takes place on a daily basis. Telementoring in Dermatology Tele-dentistry for educational purposes Teleconsultation in Coronary Angiography. | <ul style="list-style-type: none"> No Telementoring but a project for "Mentoring for female physicians" was started 2008, where Mentoring was mainly via telephone or email. |
| Effects of Teleconsultation and Telementoring on PI and BD | <ul style="list-style-type: none"> The study of the influence of teleconsultations and telementoring on the brain drain and professional isolation has not been carried out. | <ul style="list-style-type: none"> There are no studies in Estonia that focus on the effects that teleconsultation or telementoring has on counter-acting brain drain and professional isolation. | <ul style="list-style-type: none"> Videoconferencing between Seinäjoki Central Hospital and other hospitals on a daily basis. For example Dermatology unit uses telecommunication devices normally three times a week for participating medical lectures hosted by University hospitals in Tampere and Helsinki. This telementoring arrangement enables small ward to keep up-to-date with the newest research outcomes and treatment methods. | <ul style="list-style-type: none"> There are no studies available on the effect that teleconsultation and telementoring has in this field, since teleconsultation and telementoring is not a common approach, yet. |



| | Latvia  | Lithuania  | Sweden  |
|--|--|---|--|
| On-going Teleconsultation | <ul style="list-style-type: none"> • BITNET (Baltic International Telemedicine Network) • Telemedicine information systems | Litmed project Digital ophthalmology Tele-ophthalmology Teleconsultation case study for cardiology Teleconsultation case study for ophthalmology Teleradiology; Smartscope | Some studies found but we also know that on a daily basis physicians uses teleconsultation between colleagues. |
| On-going Tele-Mentoring | <ul style="list-style-type: none"> • na | <ul style="list-style-type: none"> • na | <ul style="list-style-type: none"> • na |
| Effects of Teleconsultation and Telementoring on PI and BD | <ul style="list-style-type: none"> • The studies do not exist. | <ul style="list-style-type: none"> • There have not been found any studies concerning the effects that teleconsultation or telementoring has on counteracting brain drain and professional isolation in Lithuania. | <ul style="list-style-type: none"> • In the studies found there are effects of: maintaining the diagnostic competence, educational effect, quality of care, |



3.7 Specific requirements on tele-services

The specific requirements on tele-services from the perspective of health professionals in sparsely populated areas with regard to different types of application of teleconsultation are part of the last section of this report.

3.7.1 Belarus

The study of preferred tele-services for the primary care sector has not been carried out. While communicating with doctors, it has been shown that in case of cancelled paper documentation, doctors will give preferences to information technologies. This is to be legitimated, which depends on legislators.

3.7.2 Estonia

There are no studies available regarding preferences concerning tele-services in the primary health care sector in Estonia.

3.7.3 Finland

Out of all videoconferences held in South Ostrobothnia Health Care District, approximately 90 % are held for educational purposes (telementoring), 5 % for administrative meetings, and approximately 1-5 % for teleconsultations. These numbers clearly state that the major demand relates to different telementoring services, especially to those used for specialist doctor trainings. Annually approximately 550-600 educational videoconferences take place in South Ostrobothnia Health Care District. ²⁰⁰

Main requirements from the perspective of health professionals are cost and time efficiency. Doctors can follow the real-time training from distance without need to travel elsewhere for contact learning. For young doctors working in sparsely populated areas this is a major improvement as they can carry out their specialization trainings from the rural locations using telementoring services, without need to leave their posts. This saves transportation costs, but also time can be arranged more efficiently as training session takes only part of the daily routine, and rest of the time can be used for working in hospital. ²⁰¹

Majority of health care professionals using tele-services in South Ostrobothnia Health Care District seem to be satisfied with the currently used videoconferencing system. They have stated hardly any specific requirements on the services, which can imply that current tele-services are functional. Some health care professionals have, however, stated that they would prefer personal PC-based tele-services instead of a separate system that is used at the moment. ²⁰²

²⁰⁰ www.eptek.fi

²⁰¹ www.eptek.fi

²⁰² www.eptek.fi



3.7.4 Germany

Since there are no studies concerning teleconsultation or telementoring in primary health care or remote areas available there are no information on the services preferred by health professionals.

But in general there are some aspects that a tele-service should provide so that it is being integrated into health care. A tele-service should be easy to use without much explanation, easy to be integrated into the daily routine and be conforming with the national law. Also possibilities for financial compensation should exist and the usage should be evidence-based²⁰³.

3.7.5 Latvia

Latvia has some experience in telemedicine for inpatient care. The solutions of project BITNET are used from 2002 in 5 hospitals of Latvia. Now the process of modernization of these solutions has started. Latvia has not specific requirements on tele-services because we can start to develop these services for PHC from nothing. The solutions developed by Project PrimCareIT will be taken into account in the 2nd or 3rd phase of e-Health project when the implementation of these phases will started

3.7.6 Lithuania

There are no specific studies regarding requirements on tele-services in primary care in rural areas. In the conference "Telemedicine and e-health in family physician practice", 02/22/2011 was noticed²⁰⁴ that for the family physicians the use of telemedicine equipment (the Smartscope²⁰⁵ was meant in this case) is very useful, because they can make a patient's photo, send it to the consultant and receive an answer promptly, but there is a lack of legislative scheme, how such work should be paid. National health insurance fund has no working mechanism how to pay for such consultations. The Ministry of Health argues that there could be some technical solution, but it is still unnamed.

The master studies research²⁰⁶ (2008) on "The assessment of the potential of use of telemedicine from the point of view of Kaunas University Hospital departments' heads" by Asta Rugieniūtė showed that the primary fields of medicine where the potential use of telemedicine could be developed include radiology, ophthalmology and cardiology. 23.8% of respondents thought that there were enough options to develop telemedicine in Kaunas University Hospital, whereas the options to develop it in Lithuania were assessed moderately. Many respondents (39.6 %) thought that there was not enough potential to do that. The most important factors in developing telemedicine in Lithuania were: wishes and efforts of doctors to work in a different way, the establishment and use of telemedicine's methods and devices

²⁰³ Dittmar *et al.* (2009, p. 22)

²⁰⁴ Lebricaite (2011)

²⁰⁵ http://www.optomed.fi/smartscope_m5/

²⁰⁶ Rugieniūtė, A. (2008, p. 48)



in practice and the improvement of telemedicine law. The main barriers to the development of telemedicine in Lithuania are: insufficient computer and foreign languages skills, inadequate technologies and the lack of knowledge about information and telecommunications technologies and the shortage of information about telemedicine.

3.7.7 Sweden

No studies were found that specifically mentioned the primary health care preferences on tele-services. Short reflections and examples from studies that were found within the tele-service area are summarized below:

- Diagnostic support from the specialist eye hospital to primary care centres uses video slit-lamps and real-time videoconferencing. Proved to be an excellent on-the-job training tool to develop and maintain the diagnostic competence of general practitioners ²⁰⁷.
- The specialist doctors rated the video-consultation satisfactory for diagnosis. Roughly 40% of the referrals could be avoided by telemedicine. The general practitioners rated the educational effect of the consultation very highly ²⁰⁸
- Northern Sweden is a sparsely populated area with six hospitals and about 50 healthcare centers. The distance diagnostics were developed and tested in two healthcare centers. The potential prime gainers were the patients. The quality of care may also have been improved.²⁰⁹
- Project during the years 2002-2005 with video consultation between rural health care centers and hospital in Umeå, the north of Sweden, resulted in knowledge that the technic must work, that it is more interesting to use for the health care centers in the rural districts than for the referral/consulting clinic in the hospital ²¹⁰
- Mapping the need of telemedicine in the north region of Sweden using questionnaire to physicians participating in medical boards resulted in the need for videoconference in activities as diagnosis, care planning, education and administrative meetings and a general need of telemedicine in healthcare²¹¹.
- The aim of this study was to describe the reasoning among general practitioners (GPs) about the use of mobile distance-spanning technology (MDST) in care at home and in nursing homes. Seventeen GPs were divided in five groups for a group interview. The results show quite a few expressions about the MDST as useful and valuable in health care at home and in nursing home settings, cannot be used in all situations and cannot replace human meetings, should primarily be a tool for the profession. Understanding the professions' reasoning about technology use in health care must be the base for implementing MDST ²¹².

²⁰⁷ Blomdahl, S *et al.* (2002, p. 43-44)

²⁰⁸ Made, C. *et al.* (1999, p. 93-94)

²⁰⁹ Löfgren, C. *et al.* (2009, p. 431-438)

²¹⁰ Lindholm, U. (2005)

²¹¹ Egnell, P. (2007)

²¹² Wälivaara, RN *et al.* (2011)



4 Summary and interpretation of main results

4.1 Definition for primary care

Each country has a specific definition for primary health care. In Belarus with this term is understood the basic type of rendering medical care when the patient has the most spread diseases including traumas, poisoning and other medical emergencies as well as other measures aimed at improving the patients' quality of life. In Estonia primary health care is defined as out-patient health services which are provided by family physicians and health care professionals working together with them. A family physician is in the Estonian context a specialist who has acquired the corresponding specialty and who practices on the one hand on the basis of a practice list of the family physician or on the other hand as a specialist without a practice list. In Sweden it is defined that primary health care shall with no limitation of the disease, age or patient group respond to the needs of basic medical treatment, care, prevention and rehabilitation that do not require hospital medical and technical resources or other special skills.

Primary health care providers also vary according to the country. In Latvia Primary health care is provided by general practitioners (including pediatrician and internist), physician's assistant (feldsher), nurse, midwife, dental care providers (dentist, dentist's assistant, dentistry nurse, hygienist), but in Germany the care providers are physicians, dentists, pharmacists, physiotherapists, speech and language therapists, occupational therapists, podologists, and technical professions. It is described that in Lithuania there are different primary health care institution divisions identified by the area in which they are located - ambulatory clinics are usually in the smaller towns, while polyclinics are situated in bigger cities, providing more complex services such as outpatient surgery. Paramedical centres (medical posts) and health posts (public health specialist) in schools also provide some primary care activities such as health education or health risk assessment in rural areas. The main functions of health care centers in Finland are guidance in health matters and carrying out prevention of diseases, the organization of medical examinations and screenings, running maternity and child health clinics, arranging health care services for schools, student and occupational health care services, organizing the provision of dental health care services as well as medical treatment for local residents. The organization of home nursing services and the provision of rehabilitation services along with the arrangement of mental health services and the provision of local ambulance service are also tasks of Finish health care centers.



4.2 Definition of professional isolation

The main components of professional isolation are health professionals feeling isolated from their professional peers, lack of mentoring work and opportunities to have professional discussions with the medical personnel or exchange. Also a limitation of the possibilities to continuous education and not being a part of the work community are mentioned in the different countries. There are no specific definitions of brain drain and professional isolation in Latvia and Sweden.

4.3 Definition of brain drain

In the seven countries the term brain drain is understood as the outflow of qualified specialists from rural areas due to emigration to foreign countries or migration to urban regions. Brain drain is mentioned as being a consequence of professional isolation.

4.4 Studies concerning Professional Isolation or Brain Drain in Health Care System

The majority of the countries (Belarus, Germany, Latvia, Sweden) do not have studies about professional isolation or brain drain in their health care system, but in Lithuania and Estonia this topic is viewed mainly from migration to the foreign countries point of view. Only in Finland research about occupational isolation among general practitioner was carried out in which the four main themes of feeling isolated were named as follows: making decision alone; deficient collaboration, not being part of the work community and lack of mentoring at work.

4.5 Effects of professional isolation and brain drain

The main effects of professional isolation and brain drain are described in studies provided in Germany and Finland. Loss of quality, longer waiting times, increase of isolation and workload increase of hospitals are the key effects in Germany, but lack of physicians in remote areas, risk of being over-loaded by work, having too much responsibility, and lacking support of colleagues – in Finland. Other countries do not have studies that directly concentrate on the effects of professional isolation and brain drain, but such effects as emigration, work outside the profession, retirement, and decreasing of accessibility of medical care were found by the experts of health care.

4.6 Factors leading to professional isolation and brain drain

Furthermore, the factors leading to professional isolation and brain drain are described by the different country's partners as follows: In Belarus the main factors are seen in a low remuneration for work, inadequate working conditions, insufficiency of labour organization, limited resources of finances, technical equipment and information, territorial remoteness (urban and rural areas) and little possibilities of professional improvement. In Estonia factors are that the revenue base in rural areas is smaller, because it is based on the patient lists,



which are generally shorter in rural areas. Also it is harder to find replacements, because rural doctors normally work alone. Other factors are that certain services are not provided in remote regions, that the working conditions in rural areas are harder and the payments abroad are higher. Another financial factor is that the start-up investments for a practice are high and the support by the county unpredictable. Also the lack of job opportunities for family members is limited and therefore builds a factor against the decision for a rural region. Furthermore, the start-up investments to open a practice are high. In Finland the factors are seen in the urbanization and the migration of educated people to the more urban areas. Also the lack of free time activities and other services increase professional isolation and brain drain. The working conditions that get worse through brain drain of other health professionals, such as higher work load or more patients also increase the effect of brain drain. In Germany the main factors named are an insufficient infrastructure, i.e. poor accessibility or transportation to and in the region as well as a lack of cultural or free-time activities and educational institutions. Other factors in Germany are seen in the missing job opportunities for the partners and family members, low salaries and career opportunities, as well as a bad image of the region and the lack of professional peers. In Latvia the main factor for professional isolation and brain drain is the lack of IT technology, because only 30-35% of Latvian GPs use patient management systems. In Lithuania the factors leading to professional isolation and brain drain are reported to be rooted in salary problems, high workload, unfavourable working methods and bureaucracy, a lack of work tools and poor quality of those as well as the poor working atmosphere in health sector institutional teams. In Sweden no studies could be found regarding any factors but it was assumed by the partners that the lack of dissemination of knowledge between the health care workers can be seen as a factor enhancing professional isolation and brain drain.

4.7 Weighting of factors leading to professional isolation and brain drain

The weighting of factors influencing professional isolation and brain drain was not researched in Belarus, Estonia, Finland and Sweden. Still, for Estonia it is assumed by the authors that since there are no studies concerning the impact of professional isolation on brain drain that it is not considered to be of such an importance as for example financial aspects. In Lithuania a study from the year 2000 showed that the most important factors were a better remuneration, better professional possibilities and an increased life quality. In Germany a study found out that the basic conditions for the family members, such as job opportunities for the partner are ranked the most important and a quality of life the least important factor. Professional isolation was ranked number four out of six factors influencing the decision for a practice.

4.8 On-going teleconsultations and telementoring projects

Concerning the on-going teleconsultation and telementoring projects the status is quite different in the countries. There are teleconsultation projects existing in all participating countries. In Belarus those projects concern tele-medical consultations in Chernobyl injured



areas as well as telemedicine in pathology and in TB dispensaries. In Estonia there have been teleconsultation projects, but they are not in practice any more, while telementoring is delivered through a web-based training program called Svoog. In Finland teleconsultation is wide spread and telementoring is carried out on a daily basis in dermatology, education and coronary angiography. Germany is not that far yet, but has some approaches such as a teleconsultation wound management, as well as teleconsultations between ear-nose-throat physicians and a headcenter and in psychiatry. Telementoring is no topic in Germany, yet. Latvia is using teleconsultation in the BITNET and in telemedicine information systems, while Lithuania has limited projects in digital ophthalmology, cardiology and radiology. From Sweden it is reported that teleconsultation is carried out between health professionals on a daily basis.

4.9 Effects of teleconsultation and telementoring on professional isolation and brain drain

Regarding the effects of teleconsultation and telementoring on the health care system only in Finland and Sweden effects were found. In all other countries no effects could be found. From Finland it was reported that the wards were able to keep up to date with the information, while in Sweden the effects described were that professionals were able to maintain their diagnostic competence. Also educational effects and an enhanced quality of care was reported from Sweden.

4.10 Requirements of tele-services

The requirements on tele-services have not been studied in Belarus, Estonia and Latvia. Only in Finland, Germany, Sweden and Lithuania requirements, such as an easy integration, easy usage or the ability to integrate it into the clinical process, were named among others.



5 Discussion

5.1 Definition of Primary Health Care

The definition of Primary Health Care is defined in different ways, which makes it difficult to compare similarities and differences between the seven countries. Four countries, i.e. Estonia, Germany, Latvia and Sweden used their health care acts to define Primary Health Care while Belarus, Finland and Lithuania chose to describe the functionality of the Primary Health Care.

Estonia, Latvia, Lithuania and Sweden explicitly mentioned outpatient treatment/care in their definition of primary health care. Belarus didn't mention this word but said that the aim for their Primary Health Care was "improving the patients' quality of life" which might be possible to translate to "outpatient care".

Lithuania and Sweden have both private- and state institutions within their Primary Health Care. All countries, more or less, mentioned family doctors, GPs, nurses and other health care professionals working with them, working with patients (listed patients, local patients) in need of basic medical treatment, prevention and rehabilitation. Lithuania is the only country mentioning complex services such as outpatient surgery within their Primary Health Care. However in the beginning of 2013 Finland will start with a local ambulance service. Sweden explicitly mentions that Primary Health Care is for patients that do not require hospital medical and technical resources or other special skills.

5.2 Definition of Professional Isolation

Belarus, Latvia and Sweden couldn't find any definition of professional isolation in their literature and Lithuania didn't give explicit information on their definition.

In Estonia, Finland and Germany the definition of professional isolation is to make decisions alone, lack of collaboration with other workers, not being a part of the work community and lack of mentoring at work.

Even though Latvia didn't have a definition they have the problem of lack of physicians in rural areas, which could be understood being a factor that causes professional isolation.

5.3 Definition of Brain Drain

Sweden, Latvia and Lithuania have no explicit definitions to brain drain but Latvia, as for the definition of professional isolation, mentions physicians from rural areas moving from rural areas to cities or abroad and that this causes brain drain. The other countries, i.e. Belarus, Estonia, Finland and Germany understand/define brain drain by outflow/emigration of the qualified specialists from rural to residential areas and the difficulties in providing the rural population with qualified health care staff.



5.4 Studies concerning Professional Isolation or Brain Drain in Health Care System

No studies concerning professional isolation or brain drain exist in Belarus. Estonia have neither studies concerning professional isolation but several concerning brain drain, though they define it as emigration of qualified labour that is a big problem in Estonia since joining the EU in 2004.

Finland has found several studies written during the last 10 years in the area of where they define professional isolation and brain drain.

Germany has also found studies concerning brain drain, i.e. emigration of physicians from rural areas to urban areas.

Latvia found studies concerning the imbalance of doctors to rural districts but no one of them mentions the words professional isolation and/or brain drain. The studies are not translated into English.

As Latvia the studies found in Lithuania is not translated into English. The studies found focus on brain drain issues being the emigration of physicians to other countries.

It's clear that the brain drain factor defined as emigration of physicians from rural to urban districts or to other countries is a big important question to solve in several countries where several studies discuss this question. Even though it is mostly studies that have studied the symptoms and not as much how to solve the problem.

5.5 Effects of professional isolation and brain drain

Concerning the effects of professional isolation and brain drain a difference can be seen in the studies that have been carried out in the different countries.

In Belarus, Latvia, Lithuania and Sweden no studies on effects of professional isolation or brain drain could be found. In Estonia, Finland and Germany some sources were found that named certain effects and in all three countries an increased workload was reported as well as a lack of workers for the health care system and a further increase of the isolation are named. In Estonia and Germany an additional number of patients for those physicians staying behind is reported. In Germany it was reported that this leads to a loss of quality and an increase of waiting times. Also the German hospitals are mentioned to fear an increase in patients from primary care. Estonia also faces a loss of training expenses, while in Finland those staying behind will have to carry a higher responsibility. Although, in Sweden no studies were found on the effects of professional isolation and brain drain it was stated by the Medical Association that professional isolation and brain drain might lead to this and that there are activities in Sweden to prevent what could be translated to "professional isolation and brain drain" to enable that every Swedish inhabitant will receive the same quality in health care.

Those outcomes show that the effects of professional isolation and brain drain are not that widely investigated, yet. To counteract professional isolation and brain drain it would be of importance to know about the effects precisely.



5.6 Factors leading to professional isolation and brain drain

Among the factors leading to professional isolation and brain drain in the seven countries similarities can be found. While in Sweden and Latvia not too many factors could be found, there are various factors named in Estonia, Finland, Germany and Lithuania. Higher salaries in other regions build a factor named in Belarus, Estonia, Germany and Lithuania. The factor of job opportunities for the family or the partners was named by Estonia and Germany, while poor working conditions seemed to influence professionals from Belarus and Lithuania. In both, Finland and Germany the infrastructure for free-time activities and other services is regarded as a factor as well. Only in Estonia the possibility for a lack of support by the county was named, while Germany was the only country, where the lack of professional peers was named as a factor leading to brain drain.

The factors are quite similar in the different countries. This shows that the strategies to counteract professional isolation and brain drain could be similar as well. But the existing research shows that all countries are touched by this topic, which shows how important further research in ideas to counter-act those phenomena is.

5.7 Weighting of factors leading to professional isolation and brain drain.

Since the weighting of factors has not been considered in any study, yet, in Belarus, Estonia, Finland and Sweden, it can only be assumed that the factor is either not of too importance or has not been that widely known, yet. In Germany and Lithuania the weighting of importance differs in so far that in Lithuania the factor of life quality was ranked as one of the most important factors, while it was the least important factor in a Germany study. The financial situation was named as well in Lithuania as in Germany but seemed to be less important in Germany than in Lithuania.

The fact that only in Germany and Lithuania the weighting of the factors influencing professional isolation and brain drain have been researched leads to the conclusion that further research in this field is needed. Because it is not only important to know what influences the decision of future health care workers but which factors are the most important.

5.8 On-going teleconsultations

In every country there are or have been on-going teleconsultation projects, but there are not very many on-going teleconsultations evolving primary care.

In Lithuania and in Estonia there were video teleconsultation projects and pilots in primary care already in 2001 and 2002. Due to the lack of political force these projects did not succeeded in wide implementation.

In Finland South Ostrobothnia Health Technology Development Centre supports technically videoconferences that take place in South Ostrobothnia Health Care District. Tele-services are mainly used for training purposes, consultations between primary, secondary and tertiary care institutions, and in addition to different types of meetings. Videoconferencing takes place on a daily basis. In Sweden physicians also use teleconsultation between colleagues on a daily bases, but no exact data is available.



In Finland Seinäjoki Central Hospital and the Tampere University hospital use teleconsultation in Coronary Angiography as well.

In Germany there are only some projects being carried out in primary health care such as two projects concerning wound management in the Ostalb-Kreis and in Witten between nurses and physicians. There are many tele-medicine projects in other fields, for example wound management, endoscopy alliance and telepsychiatry. Different ear, nose and throat specialists carry out endoscopies. Telepsychiatry's aim was to counteract the lack of psychiatrists through the usage of audio and videoconferences among older people. Teleconsultation already finds a great prevalence in fields such as telepathology, teleradiology, teleneurology or cancer research. Teleconsultation and telementoring are not that widely used in German primary health care, yet and the same situation is in Latvia, there are 2 projects in Latvia regarding telemedicine but not for the primary health care specialists. For example there is BITNET (Baltic International Telemedicine Network). The main objective is that doctors can get teleconsultation in one hour from the other hospitals that are connected in the network. The second project is telemedicine information systems. This system is oriented for emergency service.

Belarus has an automatized republican tele-medical system of unified electronic consultations. There is also Republican tele-medical consultation system in the most injured Chernobyl areas. This system makes it possible for regional, oblast's healthcare organizations to use distant consultations of X-ray, ultrasound and cytological examinations and diagnosing of the patients. The technology of transferring and distant consultation of ECG has also been tested, as in Lithuania. Consultation network on the thyroid nodules pathologies take place and photofluorographic consultation network on the basis of TB dispensaries.

At the moment there are quite a few tele-medicine projects in Lithuania: Litmed project, digital ophthalmology, tele-ophthalmology, teleconsultation case study for cardiology, teleconsultation case study for ophthalmology and teleradiology.

In conclusion teleconsultation is used in medicine and in every country there have been or are projects evolving teleconsultations, but it is not widely used in the primary health care. Why teleconsultations are not widely used, is it the lack of motivated medical personnel, poor financing or there are no laws that support teleconsultations in primary health care? There are different reasons in every country and it should be researched further why there are only a few teleconsultation practices in the primary health care and what should be done to overcome these obstacles.

5.9 On-going telementoring

There is no on-going telementoring in Belarus, Sweden, Lithuania and Latvia. Telementoring is practiced in primary health care only in Finland, but in Estonia and Germany some measures have been made towards applying telementoring in clinical work.

In Estonia there is no on-going video telementoring, but a special web-based training programme for Estonian family doctors called Svoog. This training programme is available online to all the members of the Society of Estonian Family doctors. This website can be used for telementoring in the future.



In Finland videoconferencing between Seinäjoki Central Hospital and other hospitals take place on a daily basis. For example Dermatology unit uses telecommunication devices normally three times a week for participating medical lectures hosted by University hospitals in Tampere and Helsinki. Tele-dentistry is being used for educational purposes too. Teleconsultations take place also in the field of coronary angiography.

In Germany there is no on-going telementoring, but a project for "Mentoring for female physicians" was started in 2008. The aim of this project was to find tandem partners for educational exchange. In that project the mentoring was mainly via telephone or email. These findings are important because they indicate that telementoring is not widely used, but a few countries have taken action towards using these services in the future. It should be investigated further why there is no telementoring and how it could be incorporated to everyday clinical practice.

5.10 Effects of teleconsultation and telementoring on professional isolation and brain drain

There are no studies that focus on the effects that teleconsultation or telementoring has on counter-acting brain drain and professional isolation in Belarus, Estonia, Germany, Latvia and Lithuania.

As described before, only in Finland telementoring arrangement enables small wards to keep up-to-date with the newest research outcomes and treatment methods and in Sweden the studies found there are effects on maintaining the diagnostic competence, educational effect and quality of care.

This outcome is important because it confirms that teleconsultation and telementoring have not been used for counteracting professional isolation and brain drain or these tele-services have not been thought as an possibility for counteracting professional isolation and brain drain, therefore the reason they have not been used.

In the future the effects of teleconsultation and telementoring on professional isolation and brain drain should definitely be investigated.

5.11 Requirements on Tele-Services

In Belarus, Estonia, Germany and Latvia there are no studies available regarding preferences concerning tele-services in the primary health care sector.

It was reported that in Belarus using tele-medicine is to be legitimated, which depends on legislators. Germany and Lithuania also noted that these tele-services need to be legal. Germany, Finland and Sweden marked that tele-services should be easy to use, easy to integrate into everyday work and time efficient. The health care workers in Finland have stated hardly any specific requirements on the services, which can imply that current tele-services in their country are functional. Some health care professionals have, however, stated that they would prefer personal PC-based tele-services, which would makes this services easier to use and provide on a daily bases.

Finland, Germany and Lithuania also noted that the financial compensation is important. Germany stated that the usage should be evidence-based.



It can be assumed that because of the reason tele-services are not used in most of the countries on a daily bases in primary health care sector, there are also no studies about the requirements on tele-services. However a lot of the countries emphasize the importance of easy use and easy integration into everyday work, legitimacy and funding. Further studies should be made about the requirements on tele-services so that the users of these services would be motivated to use them in the future and that the usage would be time- efficient and cost-efficient.

6 Conclusion

The literature review demonstrates that there are large differences between the seven countries, which shows how important further investigation is to find out which solutions could be adapted from one country to another. The absence of studies concerning the impact of teleconsultation and telementoring on the health care system or the weighting of factors influencing brain drain and professional isolation in most countries shows that there is still a lot of space for further investigation.

Studies such as the eHealth strategies report by Stroetmann *et al.*²¹³ or studies having been conducted in the context of other EU-baltic sea region projects, such as ICT for Health, only concentrated on the overall goals of eHealth in the particular countries or on other specific solutions regarding eHealth. No study has so far considered and compared the prevalence of teleconsultation and telementoring in the participating countries of this study.

This literature review has shown that further empirical studies and expert interviews are necessary in order to find out the reasons for professional isolation on brain drain in rural areas.

To further investigate this topic in the seven participating countries the study coordinators will in a second step of research carry out expert interviews in the respective regions to discover the opinions on teleconsultation and telementoring among professionals. Afterwards the findings from both, the literature review and the expert interviews, will be discussed in focus groups. At the end of the project a strategy to counteract brain drain and professional isolation using teleconsultation and telementoring will be expressed.

²¹³ Stroetmann *et al.* (2011)



7 Resources

Belarus:

Regulatory documents

Law of the Republic of Belarus «About administrative-territorial division and the order of solving administrative-territorial issues of the Republic of Belarus» of 05.05.1998, № 154-3.

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Annex

| | Belarus | Estonia | Finland | Germany |
|------------------------------------|---|---|--|--|
| Description of | <i>Description of Belarus in total</i> | <i>Description of Estonia in total</i> | <i>Seinäjoki, South Ostrabothnia</i> | <i>Schleswig-Holstein</i> |
| Health care | <i>Very detailed with lots of statistical data</i> | <i>Very detailed with lots of statistical data</i> | <i>Very detailed with historic overview and lots of statistical data</i> | <i>Overview with statistical figures</i> |
| Def. Primary Health Care | Primary healthcare is the basic type of rendering medical care when the patient has the most spread diseases including traumas, poisoning and other medical emergencies as well as other measures aimed at improving the patients' quality of life. | According to the Health Services Organization Act division 2 § 7 the definition of general medical care (primary health care) is: (1) General medical care means out-patient health services which are provided by family physicians and health care professionals working together with them. (2) A family physician is a specialist who has acquired the corresponding specialty and who practices: 1) on the basis of a practice list of the family physician; 2) as a specialist without a practice list. | The functions of the Health Care Centres or the Joint Municipal Boards are: <ul style="list-style-type: none"> to guide in health matters and carry out prevention of diseases to organize medical examinations and screenings to run maternity and child health clinics to arrange for schools, student and occupational health care services to organize the provision of dental health care services to organize of medical treatment for local residents to organize home nursing services to provide rehabilitation services to arrange mental health services to provide a local ambulance service (In the beginning of next year 2013 this Paramedic responsibility belongs to Central Hospitals). | Primary care, as defined by the "Declaration of Alma Ata" (3), is carried out by for-profit health care providers and includes "physicians, dentists, pharmacists, physiotherapists, speech and language therapists, occupational therapists, podologists, and technical professions" (4). Primary care is mainly covered by family doctors, who are mostly GPs, internists or paediatricians (5). |
| Def. Professional Isolation | No specific definition. The term "professional isolation" is not widely used in Belarus. It apparently means the lack or limitation of the possible continuous education and professional communication of the medical personnel. | In Estonia professional isolation means that people are isolated from their ethnical speciality surroundings which helps to generate ideas and offers professional training. (Kaskla et al 2005) | It is important to define the causes of feelings of isolation in more detail in order to better tailor working conditions to GPs'. The main components of isolation were making decisions alone, lack of collaboration with other workers in the health centre and secondary care specialists, not being a part of the work community and lack of mentoring at work." (Aira, M., Mäntykoski, P., Vehviäinen, A. and Kumpusalo, E. (2010). Occupational isolation among general practitioners in Finland, Occupational Medicine. (60),430-435 | Professional isolation is the effect that health professionals feel isolated from their professional peers and have the impression that they lack someone to turn to in regard of specialist discussions or exchange (12) |



| | Belarus | Estonia | Finland | Germany |
|---|---|---|---|--|
| Def. Brain Drain | The term "brain drain" is understood as the deficiency in personnel characterized by outflow of the qualified specialists (especially from the primary outpatient care sector) and disproportion in providing urban and rural population with doctors and medium-level medical personnel. | Brain drain is the emigration of qualified labour, in case of Estonia the migration to foreign countries. (Kallaste et al 2003) | "Highly educated immigrants are likely to move to urban regions. The result, the reallocation of highly educated labour, and thereby also the redistribution of human capital, seems to be taking place in Finland. Qualified individuals choosing a residential location expect a supply of relevant jobs, as well as interesting educational, cultural and recreational opportunities for themselves and their families." (Ritsilä, J. & Haapanen, M. (2003). Where do the Highly Educated Migrate? Micro-level evidence from Finland. International Review of Applied Economics, (Vol. 17, No. 4.), (437-448)) | Brain drain is in most cases the consequence of professional isolation. Highly qualified staff moves to areas with a more challenging professional environment (13). |
| Studies concerning PI and BD in Health Care System | n/a | Brain drain from rural to urban areas has not been studied directly in Estonia. Topic is more migration to foreign countries. | Thirty-two physicians participated into research "Occupational isolation among general practitioner in Finland". In the analysis of qualitative data, they found four main themes of feeling isolated. These themes were: Making decision alone; deficient collaboration, not being part of the work community and lack of mentoring at work. Young doctors especially wished they had a backup; possibility of mentoring and consulting among GP colleagues. (Aira, M., Mäntykoski, P., Vehviäinen, A. and Kumpusalo, E. (2010). Occupational isolation among general practitioners in Finland, Occupational Medicine (60), 430-435) | na |



| | Belarus | Estonia | Finland | Germany |
|------------------------------|--|--|---|--|
| Effects of PI and BD | <p><i>Factors leading to PI and BD are described</i></p> | <p>Studies that directly concentrate on the effect of brain drain from rural to urban areas have not been carried out, but general consequences of the migration of the health care workers has been described a little and are as follows: 1) Loss of training expences 2) Labour shortage in health care sector 3) Additional workload to other doctors 4) Deterioration of work conditions to other doctors 5) The emigration of doctors might bring about the migration in the country itself 6) The regional differences in health care services increase and the accessibility of medical care decreases</p> | <p>In over half of the health centres all the positions are filled. Every fifth health centre has a shortage of less than 10 %. 78 % of the population uses the services of these health centres. In 22 health centres more than 20 % of the posts remain unfilled, most of these centres being small (under 10000 residents). Also lack of physicians in remote areas brings a risk of being over-loaded by work, having too much responsibility, and lacking support of colleagues, which can be a major concern especially to younger physicians.</p> | <p>Loss of quality Longer waiting times Increase of isolation Workload increase of hospitals</p> |
| Factors leading to PI and BD | <p>Low labour remuneration, arduous and harmful working conditions, insufficient labour organization, limited financial, technical and information resources, territorial remoteness (urban and rural areas), low possibility of professional improvement, etc. It should also be mentioned that all these factors influence the professional isolation.</p> | <p>1) The patient lists are generally shorter in rural areas => revenue base is smaller 2) In the rural areas the doctor works usually alone => harder to find locums 3) Provision of certain services is impossible 4) The work in the rural area is harder 5) The family doctor's family members may not find employment or enough extra-curricular activities in rural areas 5) Start-up investment to open a practice is big 6) The county governments' support for family doctors is very different and unpredictable 7) Main reason for emigration is higher salaries abroad</p> | <p>Several reasons, such as urbanization, migration of social capital and educated population to the growth centres, and lack or scarcity of services, freetime activity options and cultural services, affect to the big picture and lead to brain drain and causally to professional isolation in remote areas. Also lack of physicians in remote areas brings a risk of being over-loaded by work, having too much responsibility, and lacking support of colleagues, which can be a major concern especially to younger physicians. Especially younger generation values other factors than status and salary in work. They often want free-time possibilities and good management (which often has proved to be problematic in public sector).</p> | <ul style="list-style-type: none"> • Insufficient Infrastructure <ul style="list-style-type: none"> o Poor Accessibility / Transportation in the region o Lack of opportunities for cultural and free time activities o Lack of educational institutions • Missing job opportunities for partners • Low salaries and career opportunities • Bad image of the region • Lack of professional peers (16, 22, 23) |



| | Belarus | Estonia | Finland | Germany |
|--|--|--|---|--|
| Weighting of factors leading to PI and BD | The study of the weight of professional isolation as compared to other factors (financial support and bonuses) has not been carried out. | There are no studies in Estonia regarding professional isolation. In conclusion it can be presumed that professional isolation is not considered a very big problem in Estonia, because in the studies which are concentrated on brain drain, professional isolation is not mentioned, but better remuneration is the first reason in every study that has been made, why health care workers leave. | On the political level, Finland is going through a phase in which the division of municipalities will be dramatically reformed in the coming years. As a consequence of this reform, the primary health care system will also be transformed. This reform is partly a response to the continuous brain drain from and isolation of remote regions. How it will influence these regions and their professionals, will be seen in the future. There is certainly a need to fix the unfunctional structures which partially cause the shortage of physicians. The reform should aim to a creation of an efficient service system and rational use of physician labour force in publicly financed health care services. The Finnish Medical Association estimated that currently approximately 200 physicians' annual work contribution is wasted for writing unnecessary statements and reports such as short-term sick leaves. "Approximately 600 physicians' work contribution goes waste while staring unfunctional information systems." (www.suomenlaakariliitto.fi) | The first being the most and six the least important factor: 1. Basic conditions for the family (partner and children) 2. Job obligations (on-call duties or administration tasks) 3. Financial situation (income and support for investments) 4. Professional cooperation (exchange with professional peers, cooperation and joint equipment usage) 5. Working conditions (Basic conditions of daily work in the practice) 6. Quality of life (Basic conditions for own lifestyle) (23) |



| | Belarus | Estonia | Finland | Germany |
|---|---|--|---|--|
| Ongoing Teleconsultation | <ul style="list-style-type: none"> Automated republican tele-medical system of unified electronic consultations. Republican tele-medical consultation system in the most injured Chernobyl areas. Consultation network on the thyroid nodules pathologies. Photofluorographic consultation network on the basis of TB dispensaries. | There have been video teleconsultation projects and pilots in Estonia, but at the moment there are no ongoing video teleconsultations. | South Ostrobothnia Health Technology Development Centre supports technically videoconferences that take place in South Ostrobothnia Health Care District. | <ul style="list-style-type: none"> Wound Management Endoscopy Alliance Telepsychiatry |
| Ongoing Telementoring | na | Special web-based training programme for Estonian family doctors called Svoog | Videoconferencing between Seinäjoki Central Hospital and other hospitals takes place on a daily basis. Telementoring in Dermatology Tele-dentistry for educational purposes Teleconsultation in Coronary Angiography. | No Telementoring but a project for "Mentoring for female physicians" was started 2008. Mentoring was mainly via telephone or email. |
| Effects of Teleconsultation and Telementoring on PI and BD | The study of the influence of teleconsultations and telementoring on the brain drain and professional isolation has not been carried out. | There are no studies in Estonia that focus on the effects that teleconsultation or telementoring has on counter-acting brain drain and professional isolation. | Videoconferencing between Seinäjoki Central Hospital and other hospitals takes place on a daily basis. For example Dermatology unit uses telecommunication devices normally three times a week for participating medical lectures hosted by University hospitals in Tampere and Helsinki. This telementoring arrangement enables small ward to keep up-to-date with the newest research outcomes and treatment methods. | Since teleconsultation and telementoring is not yet a common approach on counter-acting brain drain and professional isolation in Germany, there are unfortunately no studies available on the effect that teleconsultation and telementoring has in this field. |



| | Belarus | Estonia | Finland | Germany |
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| Requirements on Tele-Services | <p>The study of preferred tele-services for the primary care sector has not been carried out. While communicating with doctors, it has been shown that in case of cancelled paper documentation, doctors will give preferences to information technologies. This is to be legitimated, which depends on legislators.</p> | <p>There are no studies available regarding preferences concerning tele-services in the primary health care sector in Estonia.</p> | <p>Main requirements from the perspective of health professionals are cost and time efficiency. Majority of health care professionals using tele-services in South Ostrobothnia Health Care District seem to be satisfied with the currently used videoconferencing system. They have stated hardly any specific requirements on the services, which can imply that current tele-services are functional. Some health care professionals have, however, stated that they would prefer personal PC-based tele-services instead of a separate system that is used at the moment</p> | <p>A tele-service should be easy to use without much explanation, easy to be integrated into the daily routine and be conforming with the national law. Also possibilities for financial compensation should exist and the usage should be evidence-based (39).</p> |



| | Latvia | Lithuania | Sweden |
|--|---|---|--|
| Descrip- tion of regions | East Balvi area (close to the border with Russia) and Aizpute rural area in the West part of Latvia | Description of Lithuania in total | Description of Sweden in total but also the Kalmar county and Västerbotten county |
| Health care system | Overview with historical and statistical figures | Very detailed with lots of statistical data | Overview |
| Def. Primary Health Care | In Latvia Primary health care is defined as health care services, which are provided of primary health care professionals to a person in outpatient treatment settings, in inpatient hospital outpatient department or at home. Primary health care providers in Latvia are: General Practitioner (including pediatrician and internist), Physician's assistant (feldsher), Nurse, Midwife, Dental care providers (dentist, dentist's assistant, dentistry nurse, hygienist). | Primary healthcare in Lithuania is provided in 452 state and 1284 private institutions. State institutions may be emergency centres, general practitioners' offices, ambulatory clinics and polyclinics – general or specialised. Ambulatory clinics are usually in the smaller towns, while polyclinics are situated in bigger cities, providing more complex services such as outpatient surgery. Paramedical centres (medical posts) and health posts (public health specialist) in schools also provide some primary care activities such as health education, health risk assessment in rural areas. | From the Swedish Health Act § 5 it can be read that: Health care that requires treatment for inpatient care requires hospitals. Health care that doesn't require inpatient care is known as outpatient care where primary health care is a part. Primary health care shall with no limitation of the disease, age or patient group respond to the needs of basic medical treatment, care, prevention and rehabilitation that do not require hospital medical and technical resources or other special skills. The county council organizes primary health care to all residents within the county so that all providers are treated equally. By January 2010, all county councils introduced what is known as the primary choice system in primary care. The system entails patients choosing whether they would prefer to go to a private or public health care centre anywhere in the country. |
| Def. Professional Isolation | Terminology „Professional isolation and brain drain“ is not used in Latvia but the problem of lack of physicians in rural area exists. The physicians from rural area move not only to cities of Latvia but also to abroad where the salaries of doctors is higher compare with Latvia. | Meaning of professional isolation and brain drain in Lithuania is the same as elsewhere. Literature studies are addressed much more to the problem of brain drain than to the professional isolation. | No literature is found using the words "professional isolation and brain drain" so no specific definition can be made. |
| Def. Brain Drain | | | n/a |
| Studies concerning PI and BD in Health | The studies are not provided in Latvia | There are few studies concerning this question, more addressing emigration and brain drain problems. - "Health human resource development and planning in Lithuania" - "Lithuanian Emigration: Challenges and Opportunities" | No studies found. |



| | Latvia | Lithuania | Sweden |
|---|--|---|---|
| Effects of PI and BD | Effects are not described GPs in rural area provide broader scope of services in Latvia. The referral rate in rural areas is lower compare to cities. | No description of effects. There are no studies describing effect of professional isolation and brain drain in remote primary care. The head of the Clinic of family medicine, Lithuanian university of health sciences, prof. L. Valius in 2010 publication mentioned that the pension, emigration and work outside the profession – all of these factors leads to the situation that in primary care clinical practice today is only about 1 800 family doctors. The need for the Lithuania is about 2200 family doctors. 5-6 years before the most promising, talented residents, family doctors had to receive recommendations if they want to get employed. Now it is the opposite – employers, managers are calling looking for family doctors | No studies found but the answer from the the Medical association in Sweden, which resulted in that they associated the wording with the work they do within the dissemination of knowledge in purpose of that every inhabitant in Sweden will get the same quality of care with best practice standards. Th effect of PI and BD might be that it is not possible for the health care to give the same quality of care with best practice standard for all inhabitants as said in the act. |
| Factors leading to PI and BD | The main factor is the lack of IT technologies in Latvia. Only 30 – 35% of GPs use Patient Management system developed for Primary Health care. The use is isolated practically without network. The centralized procurement of Patient Management system is started in March 2012. One of the main factor e-Health solutions are not developed in Latvia. | Factors, leading to professional isolation and brain drain in Health care sector in Lithuania are (2006) : salary problems; excessive workload; unfavorable working methods and bureaucracy; the lack of work tools and poor its quality; poor working atmosphere in health sector institutional teams. | No studies found but the factors could be lack of dissemination of knowledge within the health care professionals. |
| Weighting of factors leading to PI and BD | The study will be provided during PrimCareIT project. | Study (2002) showed that the major reasons for emigration were higher salary, better professional possibilities and better quality of life. For medical residents a previous visit abroad for professional reasons increased the risk of working abroad significantly. In the case of physicians, age was the factor that significantly decreased the risk; however having friends abroad increased the risk by more than three times. | n/a |
| Ongoing Teleconsultation | BITNET (Baltic International Telemedicine Network) Telemedicine information systems | Litmed project Digital ophthalmology Tele-ophthalmology Teleconsultation case study for cardiology Teleconsultation case study for ophthalmology Teleradiology; Smartscope – the tool for the ophthalmology, dermathology and othoralynology what is useful in telemedicine applications. | Some studies found but we also know that on a daily basisi physicians uses teleconsultation between colleagues. |
| Ongoing Telementorin | na | na | |



| | Latvia | Lithuania | Sweden |
|---------------------------------|--|---|---|
| Effects of Teleconsultation and | The studies do not exist. | There have not been found any studies concerning the effects that teleconsultation or telementoring has on counteracting brain drain and professional isolation in Lithuania. | In the studies found there are effects of: =- maintaining the diagnostic competence, educational effect, quality of care, |
| Requirements on Tele-Services | Latvia has not specific requirements on tele-services because we can start to develop these services for PHC from nothing. | National health insurance fund has no working mechanism how to pay for such consultations. The Ministry of Health argues that there could be some technical solution, but it is still unnamed. The most important factors in developing telemedicine in Lithuania were: wishes and efforts of doctors to work in a different way, the establishment and use of telemedicine's methods and devices in practice and the improvement of telemedicine law. | Attitudes make it important that it is easy to use and easy to integrate in the clinical work. |



Appendix 4: Political reflections

Milestone 3.3: "The feedback from political discussions in WP6 is reflected in the WP3 outputs"

Analysed political discussions (Documents provided by WP 6)

- Round Table Discussion from the final conference in Tallinn
- Discussion about PrimCareIT from Annual meeting of PSB of eHealth for Regions network

The literature review shows that the state of the art in the countries is still on different levels. Several politicians commented on this finding during the political discussions. Aigars Miežitis (National Health Service Latvia) for example told that Latvia has a centralized system. Practically Latvia can be considered as a one region, and there are no problems for recruiting the general practitioners. However there are challenges for recruiting the specialists.

Whereas Stefan Lamme (Region of Skåne, Sweden) explained that Region Skåne has relatively short distances. However there are some areas that can be considered somewhat remote. These problems are very acute in some parts of Sweden and recruitment of the health care specialists should be also supported by the means of eHealth.

Also Pernille Buhelt (Region North Denmark) explained that in Denmark the National strategy is been done. The whole country is moving to a single system

During the round table discussion on the final conference the participating politicians also pointed out the differences between the countries as well as regions or areas. Demographic morbidity shows that there are great inequalities between very well inhabited cities and remote areas. I strongly believe that ICT measures such as tele-mentoring and tele-consultation could encourage GPs to work in remote areas," said Justina Januševičienė, Ministry of Health in Lithuania

Nonetheless there is also a contrary opinion. "The initial situation in the six countries is similar: demographic change and a lack of health care professionals in rural areas. The political will to implement ICT seems therefore to be quite strong, yet the level of strategies varies greatly. Per Mosseby, Swedish Association of Local Authorities and Regions, remarked that there are still some organizational problems. At the same time this situation is intensified due to the observed specialization in medicine, so there is a surplus of health care specialists in larger cities. While there are already some strategies in place, the cooperations are not as effective as they could be. Justina Januševičienė would like to see that by 2020 eHealth no longer to be considered an aim but an integrated part of health care.

The literature review also showed that there have been some kinds of teleconsultations or telementoring solutions used in all countries. But especially topics such as the effects of teleconsultation and telementoring on the health care system or the weighting of factors leading to brain drain have not been considered in most of the countries.

Some statements from political discussions also supported this theory. Pernille Buhelt (Region North Denmark) for example explained that one of the problems is that research is usually only done in the bigger hospitals. Many solutions such as IT and cheaper housing



need to be used.

On the other hand she gave the example that ICT solutions between hospitals are widely used in Denmark. She found tele-mentoring and tele-consultation as solutions that can be used on daily basis.

While some interesting projects are already being carried out, there is no large-scale deployment of tele-consultation or tele-mentoring in use in Estonia yet, said Ivi Normet, Estonian Ministry of Social Affairs. The same can be observed in the other five represented countries.

Aulis Ranta-Muotio (South Ostrobothnia Health Care District) explained that in his municipality there is a fibre optic network that can be used for the new solutions, which is another proof that some kind of teleconsultations or telementoring solutions used in all countries.

All speakers agree that ICT solutions such as tele-mentoring and tele-consultation are of great importance. They contribute to the political aim to provide equal access to health care services.

So all in all the feedback from political discussions confirms the findings from the literature review.

