HEALTH POLICY FOR OLDER ADULTS WITH SPECIAL ATTENTION TO ELDERLY PATIENTS AND PRACTICES IN DISCHARGING OLDER ACUTE CARE PATIENTS

Explanatory Case Study

Policy Paper for the World Bank Central Europe and the Baltics Aging Project (P133202)

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List of abbreviations

AED - Admission and Emergency department

ALOS- Average length of stay

AWG- Aging Working Group

CDPC- Centre for Disease Prevention and Control

CSB- Central Statistical Bureau

EC - European Commission

ECB- European Central Bank

EMU- European Economic and Monetary Union

EU - European Union

FFS - Fee-for-service

G7 countries- U.S., U.K., France, Germany, Italy, Canada and Japan

GDP- Gross Domestic Product

GP- General Practitioner

HC- Health care

IMF - International Monetary Fund

KPI - Key performance indicator

LVL- Latvian Lat

MoEPRD - Ministry of Environmental Protection and Regional Development

MoH - Ministry of Health

MoW - Ministry of Welfare

NHS- National Health Service

OECD - Organization for Economic Co-operation and Development

OOP- Out of pocked payments

P4P- Pay-for-performance

SEMS- State Emergency Medical Service

SOP- Standard operating procedure

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Executive summary

The share of those aged 65 and over and the age dependency ratio is going to increase substantially in Latvia by 2060.

Therefore, meeting the challenges of population aging is one of the most important long-term growth and public finance issues in Latvia.

In 2011, NHS spent about 29%[1] of its resources for the age group of 65 and over. Although the spending on the age group of 65 and over as a proportion of total public health care spending is relatively low when compared to that of OECD countries[2], the resources spent for this age group are not going to improve labor force health and participation.

Therefore, a question would be – what are the opportunities to reduce spending and improve care by keeping them healthier and more independent and could the savings be allocated to improve the health of the working age population in a budget-constrained environment?

The objective of this exploratory case study was to understand better how facilities and communities in Latvia manage the transition of older patients out of acute care hospitals and back into the community, to see if practices in two pairs of institutions and municipalities are different enough in managing the health and social care nexus for elderly (aged 65 and over) patients, to provide evidence and ideas for how service providers are reacting to the incentives they face in care decisions and to provide suggestions for further policy research that would ensure more effective discharge process and cause a fundamental improvement in the use of public health spending to encourage "healthy aging" in Latvia.

We used hospitalization and re-hospitalization rates and ALOS of population aged 65 and over as quantitative indicators of discharge behavior effectiveness and asked experts from MoH, NHS and MoW to propose two pairs, which would exhibit differences in these indicators. Although our primary focus was the analysis of two pairs of acute care hospital and municipality, we collected available health and social care as well as mortality data for all 118 territories of Latvia in order to support the choice of pairs and to determine if there are any correlations between selected indicators and social and outpatient health care services.

[1] NHS (2011)

[2] OECD, available at:
http://www.oecdobserver.org/news/archivestory.php/aid/556/Healthcare_expenditure_:_a_future_in_question.html#sthash.iYimpska.dpuf
The over-65 age group accounts for 40-50% of healthcare spending and their per capita healthcare costs are three to five times higher than those under 65 in OECD countries. Although this case study accounts only for the public (NHS) health care spending, we assume that over-65 age group's share of private health care spending is similar to that of public (NHS) spending (e.g. about 30%)

Data collected during the course of the study did not demonstrate substantial pair differences in ALOS, but confirmed the initial choice of pairs in terms of differences in hospitalization and re-hospitalization rates. The members of the pairs also exhibited differences in hospitalization rates with indicator diagnoses - diagnoses, which can be well managed within primary health care setting.

Qualitative research (interviews) was used to better understand the reasons behind differences in quantitative indicators of pairs. It suggested that lower rates of hospitalizations and re-hospitalizations of elderly are associated with better integration of elderly and promotion of alternatives to hospital care, lower number of contracted hospitalizations, tighter admission practices, more coordinated care, better discharge planning and higher utilization of social and medical home care services.

Having analyzed pairs and available quantitative information on health care and social services we concluded there is no sufficient information about how much is spent on those aged 65 and over due to lack of comprehensive and compatible methodology for social and medical data collection and analysis. Currently available data provide information about some fragments of care. For example, there is information on how much a hospitalization with a certain diagnosis costs or how much social home care for retired costs, but short-term social bed service cost data for elderly are not collected at all. Therefore, we do not know the costs of full cycle of care (e.g. how much the total care of an elderly with a certain diagnosis would cost). There are no explicitly defined KPIs, which would allow comparing health care providers and municipalities and no defined patient outcomes measures to assess the effectiveness of different health care and social interventions, including discharge planning. There is also lack of comprehensive process for integrated care and incentives for integrated care.

Our recommendations include:

- establishment of a common and compatible methodology for social and medical data collection and definition of KPIs (metrics),
- development of an integrated health and social care process through the combined effort by both the MoH and MoW (process),
- alignment of incentives for integrated care process to work (incentives),
- dissemination of information about integrated care to all stake holders, including population, providers and municipalities (education).

Our exploratory case study had several limitations (e.g. it was performed on cohort (municipality) level, did not record the impact of different discharge practices on individual patient outcomes, did not account fully for all associated costs etc.) and that is why further research is necessary to assess the impact of discharge planning and, more broadly, of different health care and social interventions of integrated care on mortality, health outcomes and costs.

1. Problem setting and objective of the study

Major pressures on public finances in G7 countries have been arising from pension and health care spending and it is expected that health care reform will be the fiscal challenge of the twenty-first century[3].

Meeting the challenges of population aging is one of the most important long-term growth and public finance issues in Latvia, too.

According to European Commission[4], the share of those aged 65 and over will increase to more than 35% in Latvia by 2060. Government health care spending is going to require from additional 0.5% (AWG reference scenario) to 1.1% (AWG risk scenario) of GDP by 2060.

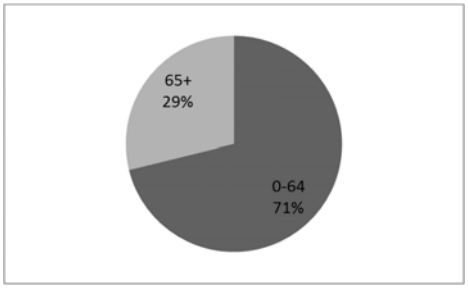
Aging in Latvia has coincided with falling fertility and substantial population outflow due to emigration. Latvia's population has shrunk by 340 thousand between 2000 and 2012; among those, more than 210 thousand have been lost due to emigration[5]. The most rapid decline of population coincides with the aftermath of the economic and financial crisis in 2009 and 2010, when Latvia lost 1.9% and 2.1% of its population respectively.

The age dependency ratio is going to increase substantially as the cohort of those aged 65 and over as a share of the working age population is projected to increase from 26% in 2000 to 66% in 2060[6].

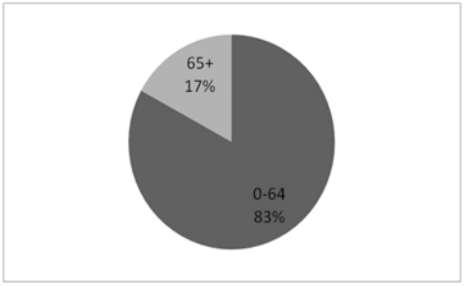
In 2011, NHS spent about 29%[7] of its resources for the age group of 65 and over, although this group represented only 17%[8] of the population (see Figure 1).

Figure 1 Share of NHS spending and share of the population by age groups 0-64 and 65+

Share of NHS spending



Share of population



[3] IMF, available at: http://www.imf.org/external/pubs/ft/spn/2010/spn1013.pdf

[4] European Commission (2012), available at: http://ec.europa.eu/economy_finance/publications/european_economy/2012/pdf/ee-2012-2_en.pdf

[5] CSB (2013), Central Statistical Bureau of Latvia, Riga, available at http://www.csb.gov.lv/notikumi/visstraujakais-iedzivotaju-skaita-samazinajums-2009-un-2010-gada-35949.html

[6] World Bank (2013), available at: http://www.slideshare.net/LatvijasBanka/the-social-sectors-from-crisis-to-growth-in-latvia

[7] NHS (2011)

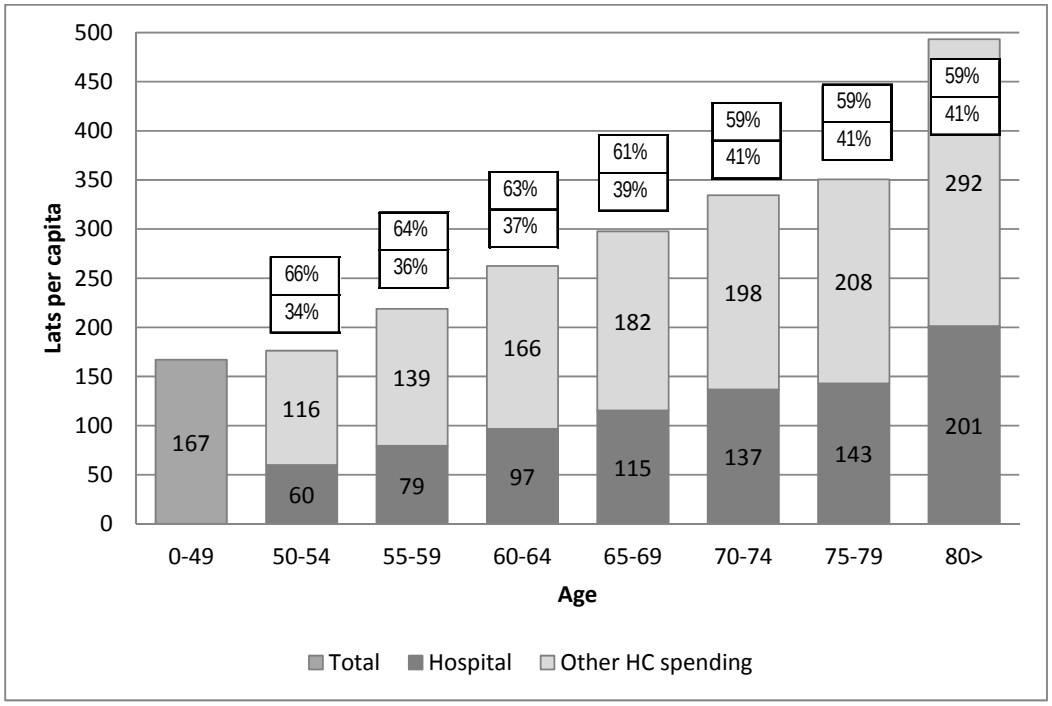
[8] CSB (2011)

Source: NHS (2011), CSB (2011)

Although the spending on the age group of 65 and over as a proportion of total public health care spending is relatively low when compared to that of OECD countries[9], the resources spent for this age group are not going to improve labor force health and participation. Therefore, a question would be – what are the opportunities to reduce spending and improve care by keeping them healthier and more independent and could the savings be allocated to improve the health of the working age population in a budget-constrained environment?

Health care spending per capita is increasing with age. From the age of 55-59 until the age of 70-74, hospital spending increases more rapidly than the total health care spending. It reaches 41% of total per capita health care spending in the age group of 70-74. After the age of 74, hospital spending increases at the same pace as the total health care spending per capita. (see Figure 2).

Figure 2 Age related public (NHS) spending per capita



Source: NHS (2011), CSB (2011)

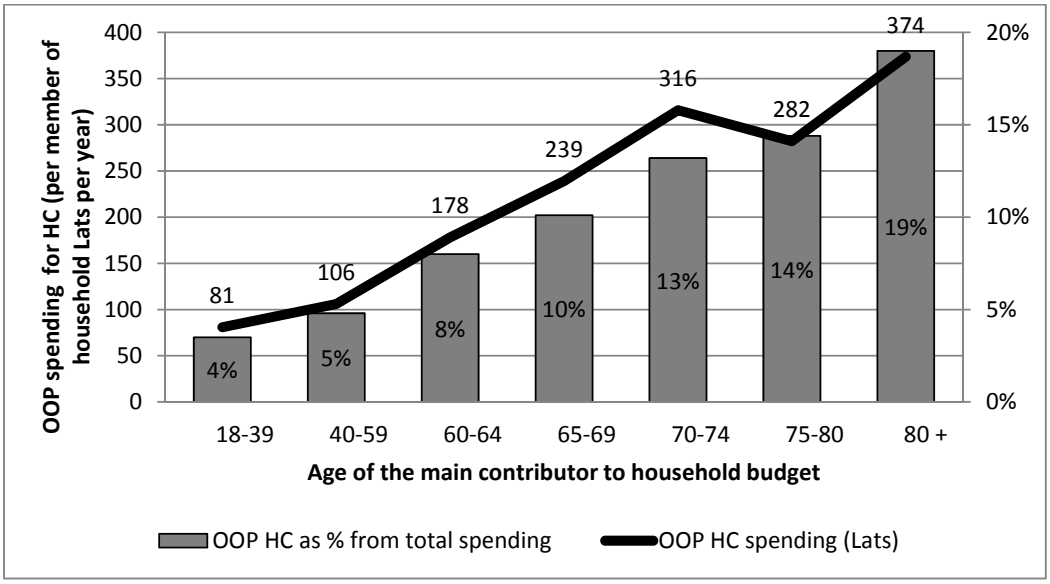
[9] OECD, available at:

http://www.oecdobserver.org/news/archivestory.php/aid/556/Healthcare_expenditure_:_a_future_in_question.html#sthash.iYimpska.dpuf

„The over-65 age group accounts for 40-50% of healthcare spending and their per capita healthcare costs are three to five times higher than those under 65"

However, Figure 2 accounts only for public (NHS) spending for health. In 2011, private households' out-of-pocket payment on health contributed to almost 40% of total health expenditure[10]. Figure 3 illustrates evolution of per capita private OOP spending on health as a function of the age of the main contributor to household budget.

Figure 3 Evolution of per capita private OOP spending on health as a function of the age of the main contributor to household budget

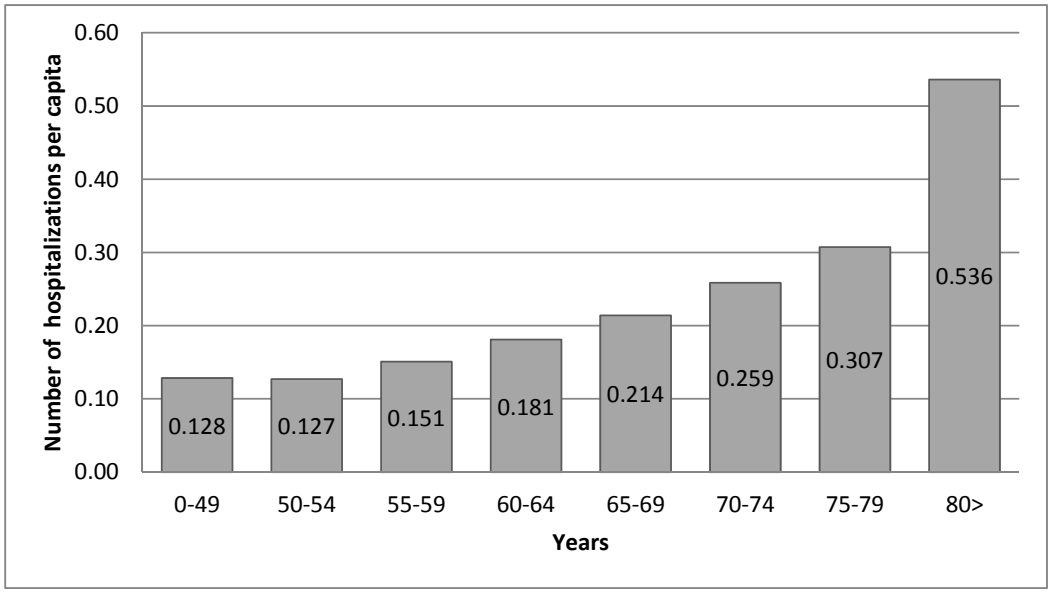


Source: CSB (2011)

The number of hospitalizations per capita is also increasing with age (see Figure 4) and it becomes the main driver of age related public (NHS) hospital spending growth after the age of 70 (see Table 1).

[10] WHO (2011), available at: http://www.euro.who.int/en/what-we-do/data-and-evidence/databases/european-health-for-all-database-hfa-db2

Figure 4 Age related number of hospitalizations per capita



Source: NHS (2011), CSB (2011)

Table 1 Growth of hospital spending and growth of number of hospitalizations per capita

	Age						
	50-54	55-59	60-64	65-69	70-74	75-79	80>
LVL/capita	60	79	97	115	137	143	201
Growth	n/a	32%	23%	19%	19%	4%	41%
Hospitalizations/capita	0,13	0,15	0,18	0,21	0,26	0,31	0,54
Growth	n/a	19%	20%	18%	21%	19%	75%

Source: NHS (2011), CSB (2011)

Although only 19%[11] of the total population (65302 of 347233) in the age group of 65 and over is hospitalized during the year, more than half of those hospitalized are re-hospitalized[12] during the year (see Table 2)

[11] NHS (2011)

[12] Re-hospitalization is defined as more than one hospitalization of the same person during the year with the same or different disease or condition

Table 2 Patients hospitalized 1, 2 or 3 and more times as a proportion of all hospitalized in the age groups during 2011

	Number of times being hospitalized		
Age	1	2	3 and more
0-17	61,5%	22,7%	15,8%
18-49	65,5%	20,6%	13,8%
50-64	54,2%	22,2%	23,7%
65 and over	49,6%	25,1%	25,3%

Source: NHS (2011)

However, many of these hospitalizations and re-hospitalizations can be avoided.

There are a number of diagnoses, which can be well managed within primary health care setting. These diagnoses are referred as indicator diagnoses[13] in this paper and their selection draws on two documents - OECD Health technical paper on selecting indicators for the quality of health promotion, prevention and primary care[14] and Annex 13 of the Regulations of the Cabinet of Ministers No. 1046[15], which lists 146 diagnoses, including asthma and primary hypertension.

The literature data also suggest that more integrated and coordinated care, including effective discharge planning may reduce re-hospitalizations and the length of stay[16]. ALOS is one of the hospital effectiveness indicators[17]. At the same time, premature and not thoroughly planned discharge may contribute to re-hospitalizations[18,19].

The objective of this exploratory case study is to understand better how facilities and communities in Latvia manage the transition of older patients out of acute care hospitals and back into the community, to see if practices in two pairs of institutions and municipalities are different enough in managing the health and social care nexus for elderly patients, to provide evidence and ideas for how service providers are reacting to the incentives they face (financial, institutional, regulatory, professional,

[13] Hospitalizations with diagnoses manageable within primary health care setting are also referred as preventable hospitalizations: http://www.mass.gov/chia/docs/cost-trend-docs/cost-trends-docs-2012/preventable-hospitalizations.pdf

[14] Selection Indicators for the Quality of Health Promotion, Prevention and Primary care at the Health System level in OECD counties, OECD Health Technical Paper no 16, 16th November 2004

[15] Cabinet of Ministers (2006). Regulations on organization and financing of health care. Regulations of the Cabinet of Ministers No. 1046. Annex 13 was in force until July 1, 2009

[16] Shepperd S, Lannin NA, Clemson LM, McCluskey A, Cameron ID, Barras SL. Discharge planning from hospital to home. Cochrane Database Syst Rev. 2013 Jan 31; 1:CD000313. Epub 2013 Jan 31.

[17] OECD (2011), "Average length of stay in hospitals", in Health at a Glance 2011: OECD Indicators, OECD Publishing.http://dx.doi.org/10.1787/health_glance-2011-33-en

[18] Petersen, SØ (2007) Activity based financing – decreased length of stay and increased number of readmissions? Experiences from Norway 2002-2006. Paper presented at the 23rd PCS/I International Working Conference, Venice, Italy, November, 2007.

[19] Petersen, SØ (2007) Reinnleggelser I perioden 2002-2006. I Petersen, Stein Østerlund (red.) "SAMDATA Sektorrapport for somatisk spesialisthelsetjeneste 2006." SINTEF Helse, Rapport 3/07,Trondheim, 2007.

etc.) in care decisions and to provide suggestions for further policy research that would ensure more effective discharge process and cause a fundamental improvement in the use of public health spending to encourage "healthy aging" in Latvia. The hospitalization and re-hospitalization rates and ALOS are used as discharge effectiveness measures in this case study (see also Methods).

The structure of the paper is as follows: it provides social and economic background and its implications on health care and social welfare systems, discusses financing, organization and provision of health care and social services to elderly, describes the methods and limitations of the study, discusses the results, and then provides conclusions , policy recommendations and suggestions for further research.

2. Social and economic background

Latvia's economy and health care system were quite vulnerable before the economic recession, which began in 2008[20]. Economic growth, driven by consumption and investments in real estate along with a growing current account deficit, was not sustainable. As soon as capital inflows from abroad ceased and interest rates surged, there was not much fiscal space for maneuver. Although the share of registered unemployment has been falling steadily, negative savings rates and high shares of OOP payments for health care made Latvian households vulnerable to economic shocks. At the same time, the population's health status was relatively poor compared to the rest of Europe. Too little emphasis was placed on primary care and prevention, while most resources were spent on acute care. Other factors, such as low total expenditure on health, with a low share of public expenditure and a high share of OOP payments exposed weaknesses in health system's financing. Excessive hospital capacity consumed most of public health care resources in 2008 and, as a consequence, became one of the targets of government cuts when the crisis emerged.

In late 2008, Latvia applied for financial assistance to international lenders. The agreed programme was centered on maintaining the currency peg in order to create conditions for accession to European Economic and Monetary Union (EMU) in the medium term[21]. A total of € 7.5 billion was made available between the end of 2008 and the first quarter of 2011. As a precondition to the loan, the government pledged to implement significant restructuring measures in the Economic Stabilization and Growth Revival Programme[22]. Health care was mentioned explicitly in the Programme as one of the sectors where cuts would be made. The health sector was further singled out in the Letter of Intent[23] signed with the IMF. Between 2008 and

[20] Taube, M., Mitenbergs, U. and Sagan, A. (2013 forthcoming). The impact of the economic crisis on the health system in Latvia, in Thomson, S. et al, eds, The impact of economic crisis on health systems in Europe, Buckingham: Open University Press.

[21] EIU (2009), Latvia, Country Profile 2009, Economist Intelligence Unit

[22] Cabinet of Ministers (2008). Latvia's Economic Stabilisation and Growth Revival Programme, Government of Latvia, Cabinet of Ministers of the Republic of Latvia, available at http://www.mk.gov.lv/en/aktuali/zinas/2008/12/12122008-01

[23] Government of Latvia (2008) Letter of Intent (to IMF), Riga, December 18, 2008, available at http://fm.gov.lv/files/files/Letter_of_Intent_2008-12-18.pdf

2011, significant budget consolidation measures were implemented in Latvia, translating into a cumulative fiscal adjustment of 16.6% of GDP over that period[24].

Since early 2010, economic growth has slowly resumed. On 22 December 2011, the IMF's Board supported the closure of Latvia's international loan programme. Of € 7.5 billion that was made available, Latvia used only € 4.5 billion. Convergence reports of the European Commission and the European Central Bank (ECB) of 5 June, 2013, concluded that Latvia was ready to adopt the Euro in 2014[25].

During the crisis, the share of health expenditure as a percentage of total general government expenditure declined from 10.6% in 2008 to 9.2% in 2010[26]. At the same time, spending on social protection was prioritized. As a result of the implemented reforms in the health care sector, there was a shift away from hospital care to ambulatory and home care, which was included in the benefits basket in 2009. State functions were concentrated in fewer institutions and the number of staff was reduced and publicly financed pharmaceutical care was rationalized. Co-payments were raised across the board, and nonemergency hospital services were heavily rationed. Throughout the reform process, the most vulnerable groups of population were protected by the Social Safety Net.

3. Health and social care for elderly

There is no specific health care policy addressing the elderly population in Latvia; however, the issue of aging is emphasized in all important policy documents concerning public health and health care. The Sustainable Development Strategy of Latvia until 2030[27] points out investment in human capital as one of strategic priorities due to aging of the society. The National development plan 2014 – 2020[28] emphasizes the objective of a long, healthy and active life. Public Health Strategy 2011 – 2017[29] sets the target to prolong healthy life years.

The Latvian health care system is based on general tax-financed statutory health care provision, with a purchaser–provider split and a mix of public and private providers. The system provides coverage to the entire population and provides access to a basic service package but leaves patients exposed to substantial user charges and direct payments. The bulk of the health care budget is managed by the National Health Service (NHS), which is the main institution responsible for the implementation of state health policies. It purchases services for the population by signing contracts with

[24] Government of Latvia (2013). Budget consolidation 2008-2011 (fact sheet). Ministry of Finance, available at: http://www.fm.gov.lv/lv/aktualitates/jaunumi/27969-veikta-budzeta-konsolidacija-laika-posma-no-2008-2011-gadam-faktu-lapa

[25] EC (2013) Commission concludes that Latvia is ready to adopt euro in 2014. Press release 05/06/2013, available at: http://europa.eu/rapid/press-release_IP-13-500_en.htm?locale=en

[26] WHO (2010), available at: http://www.euro.who.int/en/what-we-do/data-and-evidence/databases/european-health-for-all-database-hfa-db2

[27] Parliament of Latvia (2010), Sustainable Development Strategy of Latvia until 2030, available at: http://www.latvija2030.lv/upload/latvija2030_saeima.pdf , accessed on 13 June 2013.

[28] Cabinet of Ministers (2012), National development plan 2014 – 2020, available at: http://likumi.lv/doc.php?id=139505&from=off , accessed on 13 June 2013.

[29] Cabinet of Ministers (2011), Public Health Strategy 2011 – 2017, available at: http://likumi.lv/doc.php?id=237269

independent providers. Primary care providers (GPs) are paid using a mix of capitation, fee-for-service (FFS), fixed practice allowances, bonuses and a pay-for-performance (P4P) scheme. Secondary ambulatory providers are mostly paid by flat rate fees for defined episodes of illness, with additional FFS payments for preventive, diagnostic and therapeutic interventions. However, there is a cap on secondary ambulatory provider budgets. Since 2010, hospitals are paid through global budgets, which were introduced to control overall hospital expenditure. The annual global budget per hospital is calculated prospectively by multiplying the forecasted number of patients (the number of patients treated in the previous year with certain adjustments) with a corresponding patient tariff and summing up the results. Acute care was provided by 21 hospitals in 2011 – 7 in capital Riga, 3 in Kurzeme, 4 in Latgale, 4 in Vidzeme, and 3 in Zemgale region. There were also 5 care hospitals[30] and 13 specialized hospitals contracted by the NHS in Latvia in 2011.Considering the focus of this case study on the effectiveness of discharge of the elderly as measured by the hospitalization and re-hospitalization rates as well as ALOS, it is important to bear in mind how payment methods in Latvia may influence the behavior of providers and in particular generate incentives to treat patients in rather than outside of the hospital. For example, prospective global budgets (with quotas based on history) may drive hospitalizations until the quota is reached; capitation payment for GPs without adjustment for hospitalizations may drive hospitalizations; quota-based FFS payment of specialists may provide incentives for hospitalizations after reaching the quota.

Provision of social services is regulated by the law[31] and the regulations of the Cabinet of Ministers[32]. There is a division of responsibilities for provision of social services between the central government (Ministry of Welfare)[33] and municipalities[34], with the latter de facto being mostly in charge when it comes to the elderly. Services under responsibility of Ministry of Welfare are financed from the central government's budget, while municipality services are financed from local budgets. Municipalities receive their financing via the central government for the most part, as a share of income and other taxes, and financial equalization resources.

There are unified regulations for entitlement and payment for services[35] as well as quality requirements for providers of social services[36].

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[30] These care hospitals provided acute care until 2009, when their status was changed as part of the crisis-related reform program. In 2009, the Ministry of Health implemented a large scale reform of the hospital sector, changing structures and cutting the number of hospitals in half. Several local hospitals were downgraded to low intensity care hospitals with outpatient and day care units, and some of them no longer provide inpatient care but only outpatient and day care services.

[31] Social services and social assistance law, available at: http://likumi.lv/doc.php?id=68488

[32] Cabinet of Ministers (2008). Regulations on provision of social services and social assistance No. 288, available at: http://likumi.lv/doc.php?id=174327

[33] Institutional social care for people with with mental disorders, social rehabilitation for people with vision and hearing disorders, institutional social care for children with mental disorders, and most of social rehabilitation services are financed by central government.

[34] Social assistance and social services (day care centers, home care, short term social beds in health care institutions, long term social care and rehabilitation services (nursing homes) for elderly) are financed by municipalities.

[35] Cabinet of Ministers (2003), Procedures for payment for social care and social rehabilitation services and the procedures for covering service costs from local government budget, No.275, available at: http://likumi.lv/doc.php?id=75481

[36] Cabinet of Ministers (2003), Requirements for Social Service Providers, No.291, available at: http://likumi.lv/doc.php?id=75887

However, since municipalities themselves are determining the order of provision of services in their local regulations[37], there are differences in the scope of available services and social assistance among municipalities.

Each municipality has its own social service office, responsible for the administration and provision of social services. Social service must be requested by the person, who needs the assistance, or the information about such person can be provided by other parties (e.g. relatives, neighbors, GPs, hospitals). The social service office decides on provision of the service after the social service specialist (social worker) has assessed the individual needs and resources of the person in question. Elderly are not singled out as a separate group and they can receive social services or assistance if they qualify for such service or assistance in accordance with the national and local regulations.

The municipality is responsible for providing services corresponding to the needs of a client; if the municipality is not capable of providing the service itself, it contracts a third party service provider.

The recipient of the social service is responsible for covering the costs of the service in accordance with the order prescribed by municipality regulations. If the client cannot cover the full cost of the service, he/she pays a co-payment up to the difference between his/her income and the income level of a needy person. The income level of a needy person is set at the national level. The rest of the cost must is covered by the primary guardian/caretaker or, if the guardian/caretaker is not able to do so, by the municipality. The municipality also may provide discounts and exemptions above the national standard by adjusting municipality regulations accordingly. The services provided by central government, with exception of long term services for persons with severe mental disorders, are free of charge. For long term services for persons with severe mental disorders, part of their pension is withheld to offset the government's cost.

Long term social care and rehabilitation services (**nursing homes**) and **social home care** and **day care centers,** also referred as alternatives to long term care, are the main social services provided to elderly.

For residential care, although there has been an increase of the capacity of nursing homes and more than 4500 elderly received this service in municipality-owned nursing homes in 2011, there is still unmet demand and waiting time may last up to 5 months[38].

For home care, in 2011, 77% (92) municipalities provided social home care service[39]. Although the number of municipalities providing home care has declined by 16%

[37] Most of municipalities regulations, including those of social services, are available at: http://www.varam.gov.lv/lat/likumdosana/pasv_not

[38] Ministry of Welfare (2011)

[39] Ministry of Welfare (2011), available at: http://www.lm.gov.lv/text/2357

from 2009 to 2011, the number of clients receiving home care has increased to 7328 persons (2% of 65 and over population) or by more than 40% from 2004 to 2011. Those elderly who do not require a full range of home services may receive services like "lunch at home", "safety button" and others. There were 1779 elderly receiving such services in 2011. Day care center services were used by 5110 elderly in 2011[40].

There is also a **short-term social bed service** available at hospitals. This service is used when home care is not appropriate. It is financed by the municipality with a client co-payment. The service is granted for up to two months; however, it may be extended based on a request of health care provider (GP or physician at the hospital).

Social assistance is provided to people lacking resources for covering basic needs (incl. health care needs) following assessment by a case worker. Assistance is granted upon confirmation of the need by health care providers for services such as dental care, pharmaceuticals, covering co-payments etc. In 2011, 33170 adults received municipal social assistance[41].

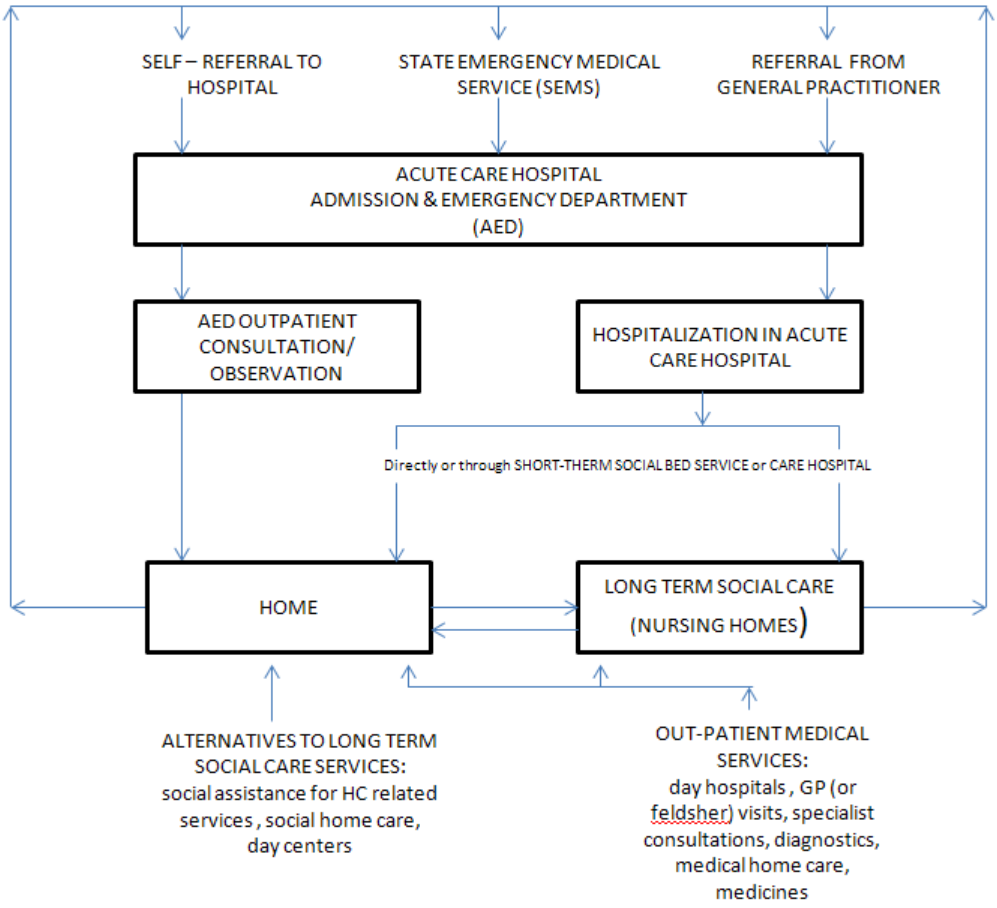
Although both medical and social cares are a part of elderly patients' integrated care, there is no formal coordination of these services at the national level; each municipality manages the integration of these services locally.

Figure 5 describes a pathway an acute elderly patient may undergo through medical and social service. The pathway is not exhaustive and captures only the main alternatives.

[40] Ministry of Welfare (2011), available at:http://www.lm.gov.lv/text/1382

[41] Ministry of Welfare (2011), available at: http://www.lm.gov.lv/text/2357

Figure 5 Pathway of an acute elderly patient



4. Methods

Upon initiation of this exploratory case study, we assumed that there are differences in how facilities (acute care hospitals) and communities (municipalities) in Latvia manage the transition of older patients out of acute care hospitals and back into the community and that there are several factors (financial, institutional, regulatory, professional, etc.) contributing to these differences.

We used hospitalization and re-hospitalization rates[42] and ALOS of population aged 65 and over as quantitative indicators of discharge behavior effectiveness

We used qualitative research in order to better understand the factors contributing to differences in quantitative data.

[42] Hospitalization rate is the total number of all hospital stays divided by the corresponding number of the population in the territory and age group; re-hospitalization rate is the total number of repeated (more than one time) hospitalizations of the same people during the year divided by the corresponding number of the population in the territory and age group; the latter is inclusive of the former.

Although our primary focus was the analysis of two selected pairs of acute care hospital and municipality, we collected available health and social care as well as mortality data for all 118 territories of Latvia in order to support the choice of pairs and to determine if there are any correlations between selected indicators of discharge effectiveness and social and outpatient health care services.

Pairs for case studies were selected following MoH (2), MoW (1) and NHS (2) expert advice, before obtaining quantitative data for all territories. Experts were asked to identify acute care hospitals and territories, which have different medical practices in the management and discharge of older inpatients measured as differences in hospitalization/re-hospitalization rates and ALOS (see also Problem setting and objective of the study).

We collected the data about the volume and costs of primary and secondary health care services for the population of 65 years and over for all 118 territories of Latvia in 2011. Data on hospitalizations with indicator diagnoses were collected only for selected pairs of hospitals and municipalities. **All health care service data (volume, costs) indicated in this paper is for the population of 65 and over.**

The information available at the Ministry of Welfare on volume and costs of selected social services, including long term social care and social rehabilitation services delivered through nursing homes, day care centers, and home care were collected for all retired population (over 62 years) for all 118 territories of Latvia. We also collected data on total municipal social expenditure for all age groups in all 118 territories.

Municipalities of the selected pairs were asked to provide additional data on utilization and costs of selected social services (day care centers, home care, service apartments for people with severe functional disorders, social assistance for health care services, long term care services (nursing homes) and short-term social beds services) for those aged 65 and over. However, one municipality could not provide social home service cost data for those aged 65 and over separately, so MoW database data for those aged 62 and over were used instead; the same municipality's day care center data were highly inconsistent with those reported to MoW and that is why they are not reported separately in this case study. None of municipalities could provide reliable data on nursing home services so MoW database data for those aged 62 and over were used instead. None of municipalities could provide cost data for short term social bed service for those aged 65 and over; therefore, only numbers of unique clients are included in this case study.

Therefore, **total municipal social expenditure data are from MoW database and for the whole population. In the pair analysis, data on social assistance for health care and short-term social beds (only unique clients) are from municipality social service data and are for the population of 65 and over; data on social home care**

services and nursing home services are from MoW database and for the population of 62 and over.

We also collected mortality data for those 65 and over for all 118 territories in 2011.

All data were analyzed per capita of the specific age group or, where appropriate, of the whole population, to enable comparisons.

Correlations using Pearson's Correlation coefficient and 2-tail T-test were assessed between hospitalizations and re-hospitalizations and other health care and social services with the potential to influence hospitalization/re-hospitalization rate. Correlations with coefficient below 0.2 were considered non-existent or negligible[43].

For obtaining the quantitative data the following sources were used:

National Health Service information and management data base (for health care services except for State Emergency Medical Service calls), data base of State Emergency Medical Service (for State Emergency Medical Service calls), Centre for Disease Prevention and Control data base (for mortality data), MoW data base (for selected social services and total social expenditure for all territories), CSB database (for the number of population and age structure in each of the territories), databases of local municipalities (for day care centers, service apartments for people with severe functional disorders, social assistance for health care, long term care (nursing homes) and short-term social beds).

Structured interviews were used in qualitative research in order to explain quantitative differences in pairs. In order to avoid bias, an independent research company SKDS conducted interviews involving representatives of municipalities, social services, hospitals and GPs.

5. Limitations

The case study has the following limitations:

- This is an exploratory case study with objective to understand better how facilities and communities in Latvia manage the transition of older patients out of acute care hospitals and back into the community and to provide suggestions for further policy research.
- Data of only one year (2011) are used; therefore, it is not possible to assess any medium-long term trends.

[43] Quinnipiac university, available at: http://faculty.quinnipiac.edu/libarts/polsci/statistics.html

- Not all cost data for services provided to population aged 65 and over are accounted for due to incompatibility of data or lack of data (see also Methods and Conclusions).
- Case study considers only publicly paid health care and ignores private part.
- Territories cannot be fully matched with a single hospital since the patients can be hospitalized in different hospitals.
- Re-hospitalization rate in the pair analysis is underestimated since only re-hospitalizations in the same hospital are accounted for due to methodology of data collection; however, Table 2 contains full information on all re-hospitalizations at the national level.
- Psychiatric care is not included in the case study.
- Data are analyzed on community/cohort level rather than on individual patient level, individual patient outcomes are not considered.
- We have not always been able to verify the accuracy of information expressed in qualitative research/interviews.
- Number of population is as of March 1, 2011.

6. Results

Common trends and correlations

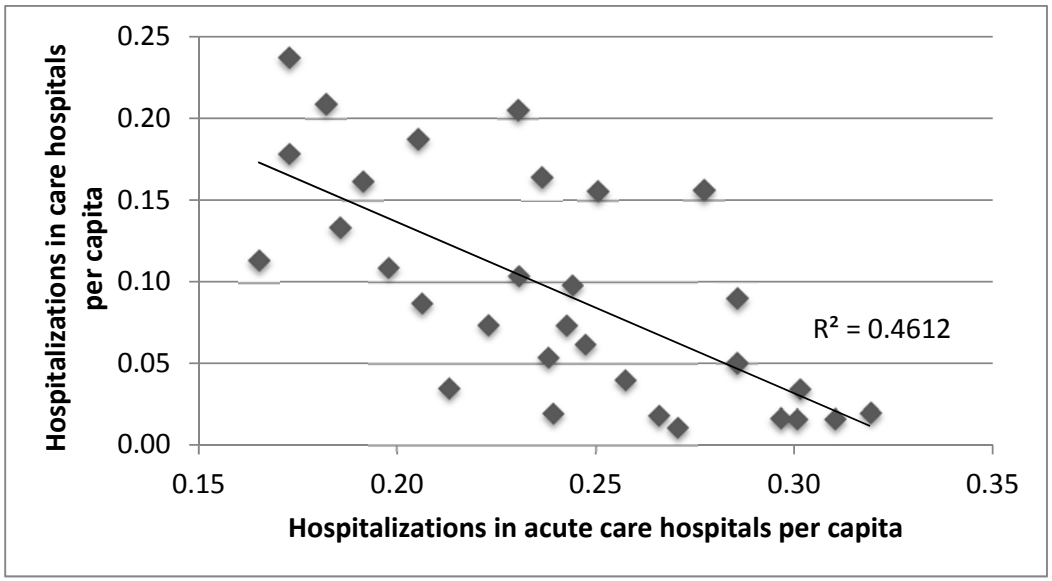
If social and outpatient health care are substitutes for hospital care, one could expect that in territories where more of the former is available, fewer hospital stays are required. We computed correlations between volumes for these variables across the territories to assess whether such effect – negative correlation between social and outpatient health care services and inpatient services (hospitalization and re-hospitalization rates in acute care hospitals, ALOS) - could be detected.

There was no negative correlation/statistically significant correlation (see also Methods) found between hospitalizations in acute care hospitals and any outpatient health care or social service. There was a weak positive relationship with outpatient reimbursed medicine prescriptions. We also found that hospitalizations in acute care hospitals were negatively correlated with hospitalizations in care hospitals ($r=-0.43$; $r^2=0.1875$). This negative correlation becomes stronger ($r=-0.68$; $r^2=0.4612$) when territories with very low hospitalization rates in care hospitals (below 0.01 per capita) are removed from the analysis (see Figure 6). Strong negative correlation between hospitalizations in acute care hospitals and care hospitals suggests care hospitals are substitutes for acute care hospitals, which may indicate patients with minor problems have been diverted to care hospitals and kept out of full service acute hospitals. According to Regulations of the Cabinet of Ministers Nr. 1046[44], care hospitals (most of them former small local hospitals) are supposed to play both substitutive and supplementing role – provide care in case of exacerbations of chronic diseases and care

[44] Art.6.9.

after discharge from acute care hospitals; however, as suggested by this correlation, the substitutive role is prevailing. Therefore, better understanding of the services care hospitals are actually providing and defining the future role of care hospitals in the integrated care chain would be needed (see also Recommendations).

Figure 6 Correlation between hospitalizations in acute care hospitals and care hospitals

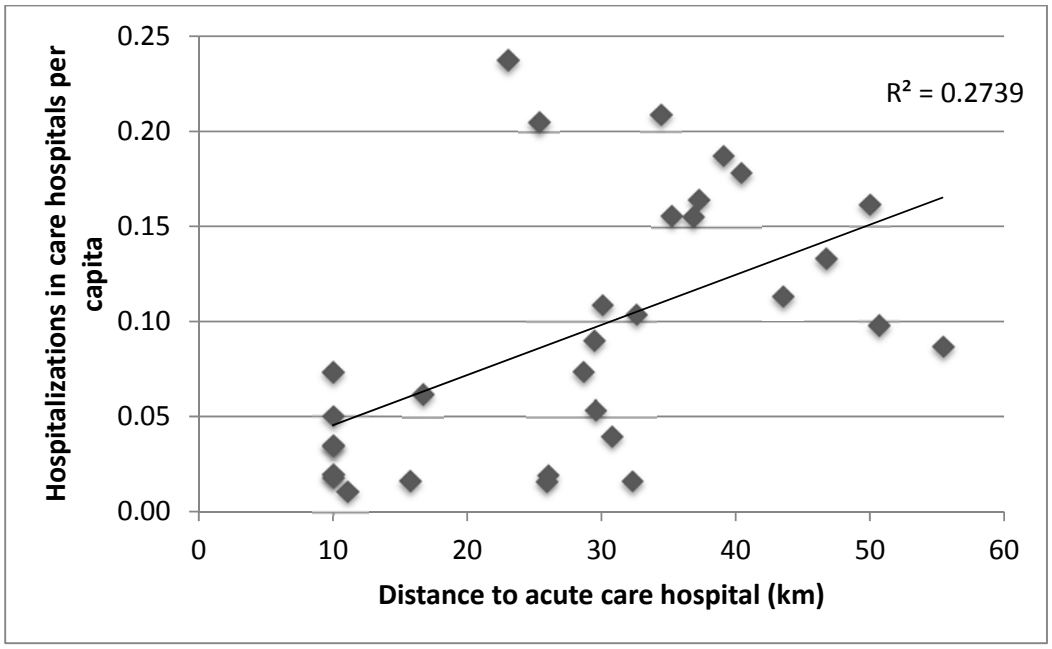


Source: NHS (2011), CSB (2011) Note: Only territories (n=31) with care hospital admission rates >0.01 included

However, caution must be observed when interpreting this correlation since there may be other variables, like distance to acute care hospitals, causing the correlation.

Hospitalization rate in care hospitals increases as the distance of municipality to acute care hospitals increases (see Figure 7).

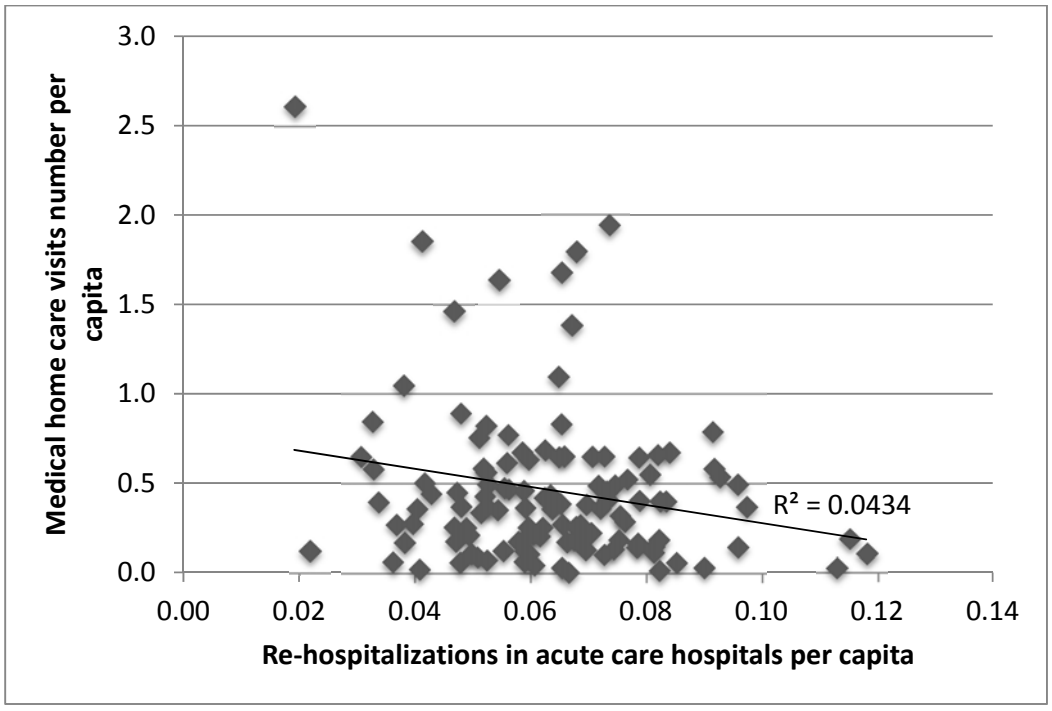
Figure 7 Correlation between hospitalizations in care hospitals and distance to acute care hospital



Source: NHS (2011), CSB (2011) Note: Only territories (n=31) with care hospital admission rates >0.01 included

There was no negative correlation/statistically significant correlation found between re-hospitalization rate in acute care hospitals and any outpatient health care or social service with exception of medical home care services (see Figure 8) – there was a weak negative correlation between medical home care services (number of visits) and re-hospitalizations, suggesting that home care either prevents the need for re-hospitalization because the patient becomes healthier faster or the patient can be cared for at home instead of being readmitted even if there is a problem.

Figure 8 Correlation between re-hospitalizations in acute care hospitals and medical home care service

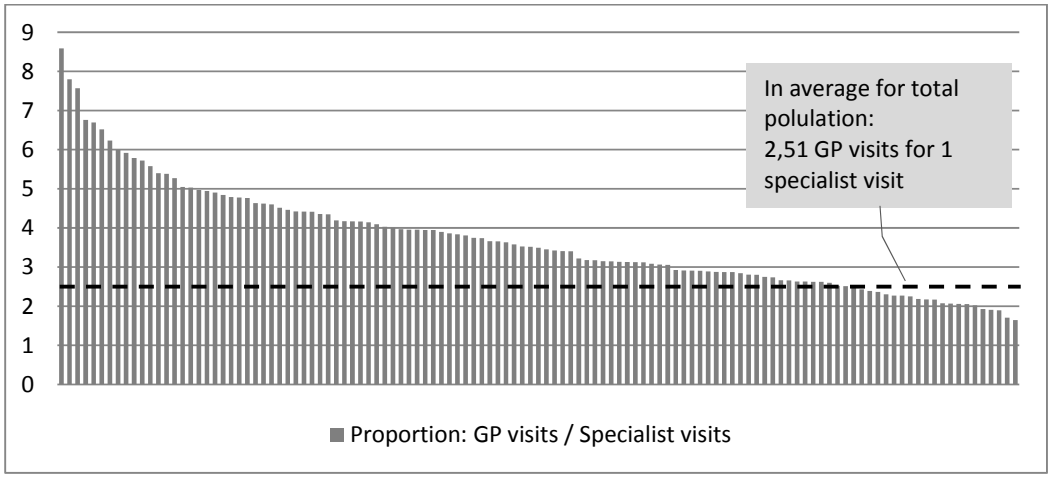


Source: NHS (2011), CSB (2011)

Neither hospitalizations and re-hospitalizations nor total health care costs were negatively correlated with GPs activities. On the contrary, there was a weak positive relationship between GPs visits and total health care costs. Some studies[45] indicate that „the expansion of primary health care services may not always reduce costs because it ends up identifying previously unmet needs, improves access, and tends to expand service utilization". There is also a wide variation of the ratio between GPs visits and outpatient specialist consultations across the country (see Figure 9). These findings question whether GPs perform their gatekeeper role sufficiently in all territories and urge to assess more thoroughly the effectiveness of primary care services.

[45] Atun R (2004). What are the advantages and disadvantages of restructuring a healthcare system to be more focused on primary care services? Copenhagen, WHO Regional Office for Europe

Figure 9 Ratio between GPs visits and outpatient specialist visits



Source: NHS (2011)

There was no negative correlation/statistically significant correlation found between ALOS and any outpatient health care or social service. However, there was a weak positive relationship between ALOS and medical home care visits.

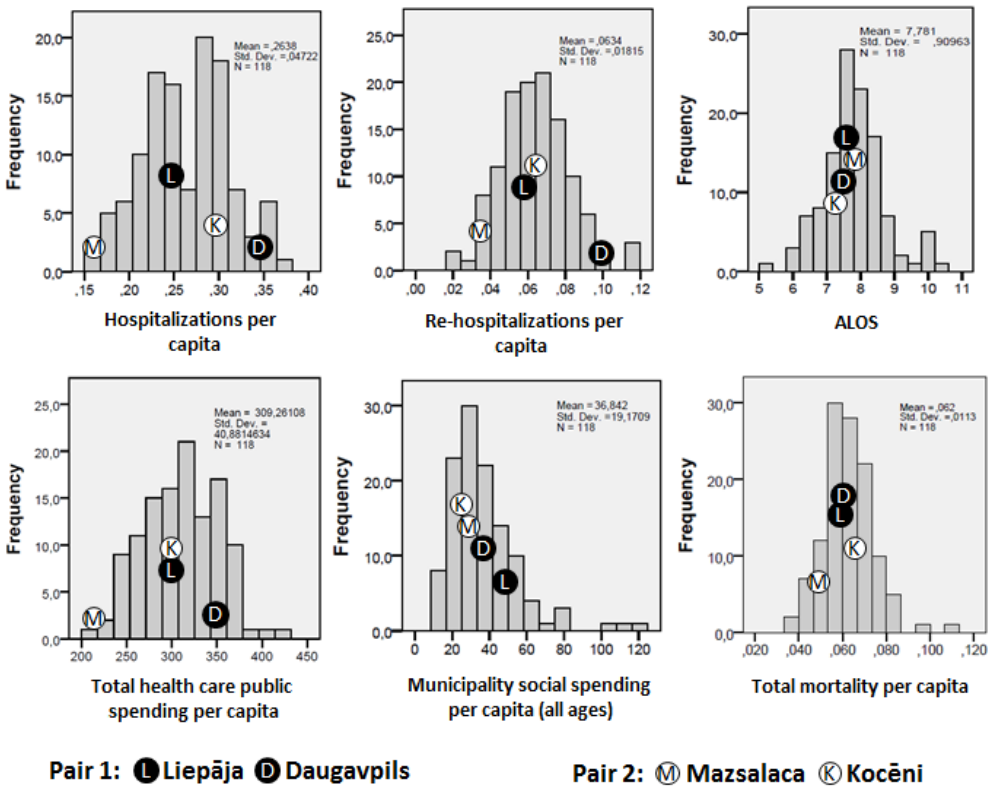
In conclusion, there is no massive substitution effect that can be picked up through simple correlation analysis.

Selection of pairs

We selected the pairs based on MoH and NHS expert advice on hospitals and territories which have different medical practices in the management and discharge of older inpatients (see Methods).

Figure 10 below is based on obtained quantitative data for all territories of Latvia and it supports expert-driven choice of pairs since the members of the pairs stand apart from each other in terms of hospitalizations and re-hospitalizations; however, there is no substantial difference in ALOS. Hospital payment method (see Health and social care for elderly) and lack of incentives for prolongation of the stay may partially explain why there are no substantial differences in ALOS. Daugavpils has high spending per capita of medical resources, while that of Mazsalaca is at the low end versus country mean. Daugavpils and Liepaja are median social spenders; both Kocēni and Mazsalaca have even lower social spending per capita.

Figure 10 Major indicators of the selected pairs in normal frequency distribution charts



Source: NHS (2011), CDPC (2011), MoW (2011)

The Table 3 below summarizes hospitalization rates with indicator diagnoses for selected pairs, which follows the same pattern as total hospitalization and re-hospitalization rate.

Table 3 Hospitalizations with indicator diagnoses per capita

	Daugavpils	Liepāja	Kocēni	Mazsalaca
Hospitalizations per capita with indicator diagnoses	0,0420	0,0165	0,0396	0,0160

Source: NHS (2011)

Analysis of selected pairs

Daugavpils and Liepāja

The first pair includes two regional cities – Daugavpils and Liepaja - each served by a regional acute care hospital located in the city.

There are no care hospitals in these two territories.

Daugavpils is located in eastern Latgale region with a driving distance of 224 km from Riga. Liepaja is located in western Kurzeme region, 217 km from Riga. The distance from Daugavpils to Liepaja is 428km.

As indicated in the Table 4, both cities are comparable in terms of population, income per capita and the share of 65+.

Table 4 Key indicators of Daugavpils and Liepāja cities and hospitals

	Daugavpils city	**Liepāja city**
Population	91 898	75 598
Budget revenues (LVL)	59 795 166	48 865 578
Annual budget revenues per capita (LVL)**	651	646
Number of social workers[46]	29	45
Inhabitants per social worker **	3169	1680
General practitioners (GP)*	64	35
Inhabitants per GP **	1436	2160
Population 65+	15 792	13 327
65+ as a % of population	17%	18%
Hospitals		
Number of patients according to contract	24 963	15 262
Contracted hospitalizations per capita**	0,27	0,20
Number of specialized programs	20	24
Contract size for hospital services (LVL)	7 244 523	6 218 158
Contract size per capita (LVL)**	78	82
Intra-hospital mortality 65+ /capita***	0,02	0,02

[46] Ministry of Welfare (2011), available at: http://www.lm.gov.lv/text/2357

Source: NHS (2011) for health care data; CSB (2011) for population size; CDPC (2011) for mortality data; MoEPRD (2011) for municipality budget data; MoW (2011) for social care data

Notes: *some of GPs also serve neighboring rural areas

**number of city population used

***per number of hospitalized 65+ in all hospitals of Latvia

Although there are no statistical data available on the differences in health status of the population of Daugavpils and Liepaja cities, population of Latgale's region has poorer health than that of Kurzeme's region – mortality of population above in 65 in Latgale is 0,070 (per capita), while mortality in Kurzeme's region is 0,063[47] (per capita). There is higher unemployment (18.7% vs. 15.1%)[48] and higher prevalence of psychiatric and behavioral disturbances caused by use of psychoactive substances in Latgale (2133 in Latgale vs. 1532 in Kurzeme per 100000)[49].

There are fewer social workers, but more GPs per capita in Daugavpils. Therefore, one could expect higher primary care activity in Daugavpils; however, it appears to be similar in both cities (see Table 5)

Acute care hospitals serving the cities are comparable - they provide similar number of specialized programs. There is no significant difference in intra-hospital mortality.

In 2011, Liepaja's regional hospital served 87% of all Liepaja's and 77% of all Liepaja's region hospitalized patients, while Daugavpils regional hospital served 90% of all Daugavpils and 89% of all Daugavpils region hospitalized patients. Therefore, both hospitals are representative of the corresponding cities. In total, 32% of Kurzeme's region hospitalized patients were hospitalized in Liepaja's hospital and 52% of all Latgale's region hospitalized patients were hospitalized in Daugavpils hospital[50].

However, NHS contracted 35% more hospitalizations per capita in Daugavpils than in Liepaja in 2011. The number of contracted hospitalizations is set prospectively based on the number of hospitalizations of the previous period (see Health and social care for elderly).

Social care is provided by local social service office in both cities. Daugavpils municipality has defined 15 social services in its local regulations[51], while Liepāja –

[47] CDPC (2011)

[48] CSB (2011), available at http://www.csb.gov.lv

[49] CDPC (2011), available at: http://www.spkc.gov.lv/veselibas-aprupes-statistika/

[50] Nacionālais veselības dienests, Vēstis nr 20, 2012

[51] Daugavpils municipality (2010), available at: http://likumi.lv/doc.php?id=211867

19[52]. Liepāja has included in its regulations provision of short-term social beds services in the health care institutions; although Daugavpils municipality claims this type of service is also provided in the city, short-term social bed service is not included in Daugavpils municipality's regulations. Daugavpils is providing social assistance in 11 health care related positions[53], while Liepāja – in 4[54]. According to the MoW[55], both territories provided almost the same types of social services to their elderly in 2011: long-term care (nursing homes), home care, short-term social beds. In addition, Daugavpils provided day center services; Liepāja started to provide this service in 2012. None of the municipalities provided services like "lunch at home", "safety button" and "laundry" (see also Health and social care for elderly). According to Daugavpils municipality, it provides consultations to hospitalized patients twice a week in Daugavpils hospital with the objective to ensure continuity of services after discharge[56].

Table 5 summarizes primary and secondary health care and social care activity per capita, provides total health care and social spending and mortality per capita, and indicates difference of these indicators between Daugavpils and Liepaja and between each city and the mean of the country.

Table 5 Key health care and social service indicators of Daugavpils and Liepāja

Indicators	Daugavpils	Liepāja	Difference D/L	Difference D/mean LV	Difference L/mean LV
Hospitalizations	0,35	0,25	40%	27%	-9%
Re-hospitalizations	0,10	0,06	53%	38%	-10%
Hospitalizations with indicator diagnoses	0,04	0,02	118%	n/a	n/a
ALOS	7,64	7,65	0%	-3%	-3%
Day hospital episodes[57]	0,08	0,11	-22%	-10%	15%
GP (or feldsher) visits (incl. GP visits with procedures)	5,08	4,99	2%	5%	3%
GP visits with procedures[58]	1,66	0,99	67%	50%	-10%

[52] Liepāja municipality (2010), available at: http://likumi.lv/doc.php?id=206325

[53] Daugavpils municipality (2010), available at: http://likumi.lv/doc.php?id=205687

[54] Liepāja municipality (2008), available at: http://likumi.lv/doc.php?id=173956

[55] Ministry of Welfare (2011), available at: http://www.lm.gov.lv/text/2357

[56] Daugavpils municipality (2013), available at: http://www.soclp.lv/par-mums-socialie-pakalpojumi-2

[57] Day hospital episode may last several days if the same patient is treated for the same condition for several consequitive days (the patient spends nights outside the day hospital during treatment days)

[58] GP visit may be without any specific procedure or with procedure (wound care, ECG, catheterization, vaccination etc.) specified in the Annex 14 of the Regulations of the Cabinet of Ministers No. 1046

Outpatient specialist visits	2,46	1,90	29%	28%	-1%
Outpatient diagnostic procedures and Lab. visits	4,77	4,72	1%	10%	9%
Medical home care visits	0,49	0,68	-28%	-9%	26%
Prescriptions of reimbursed medicines	10,33	8,75	18%	18%	0%
AED outpatient consultations	0,05	0,08	-34%	-25%	14%
State Emergency Medical Service calls	0,58	0,42	39%	29%	-7%
State Emergency Medical Service calls resulting in delivery to AED	0,21	0,12	74%	17%	-33%
Social assistance for HC related services (unique clients	0,087	0,020	333%	n/a	n/a
Short-term social beds (unique clients)	0,005	0,012	-60%	n/a	n/a
Nursing home care (unique clients 62+)	0,013	0,002	487%	n/a	n/a
Social home care (unique clients 62+)	0,007	0,031	-78%	n/a	n/a
Mortality	0,06	0,06	3%	-2%	-5%
Total municipality social spending (all ages) (LVL)	38,77	49,79	-22%	-10%	16%
Total HC spending (LVL)	364,03	330,24	10%	6%	-4%

Source: NHS (2011) for health care data; CSB (2011) for population data; CDPC (2011) for mortality data; SEMS (2011) for State Emergency Medical Service data; MoW (2011) for nursing home care and home care data and total municipality social spending; Municipality data on file (2011)[59] for data on social assistance for HC related services and short term social beds

[59] Information from A.Lauka,Social service office of Liepaja city, 09.05.2013. , and B.Siliņa, Social sevice office of Daugavpils city, 16.05.2013.

Notes: Data are per capita and for age group of 65 and over, except: total municipality social spending is for all ages and data for nursing home care and social home care are for 62+; ALOS is average length of stay for 65+

The rates of **hospitalizations and re-hospitalizations and hospitalizations with indicator diagnoses** are much higher in Daugavpils. Both re-hospitalizations (40% of the difference) and hospitalizations with indicator diagnoses (20 % of the difference) contribute to the hospitalization rate difference.

The hospitalization and re-hospitalization rates in Daugavpils are above the mean of the country.

There is also higher utilization of **State Emergency Medical Service (SEMS) calls** (and more calls resulting in delivery to AED)**, out-patient specialist services and medicines** when compared to Liepaja. All these indicators are above the mean of the country.

There are fewer **Admission and Emergency department (AED)** outpatient consultations per capita in Daugavpils. 88% of those arriving at AED in Daugavpils hospital are hospitalized versus 76% in Liepāja hospital, suggesting that either Daugavpils tends to hospitalize less severe cases or those arriving at AED in Daugavpils have more severe condition on average than those in Liepaja. If the condition of the patient is not considered such as to require hospitalization, it is addressed by AED specialist (see Figure 5, Pathway of an acute elderly patient) and registered as AED outpatient consultation. Daugavpils AED outpatient consultation rate is also 25% below the mean of the country.

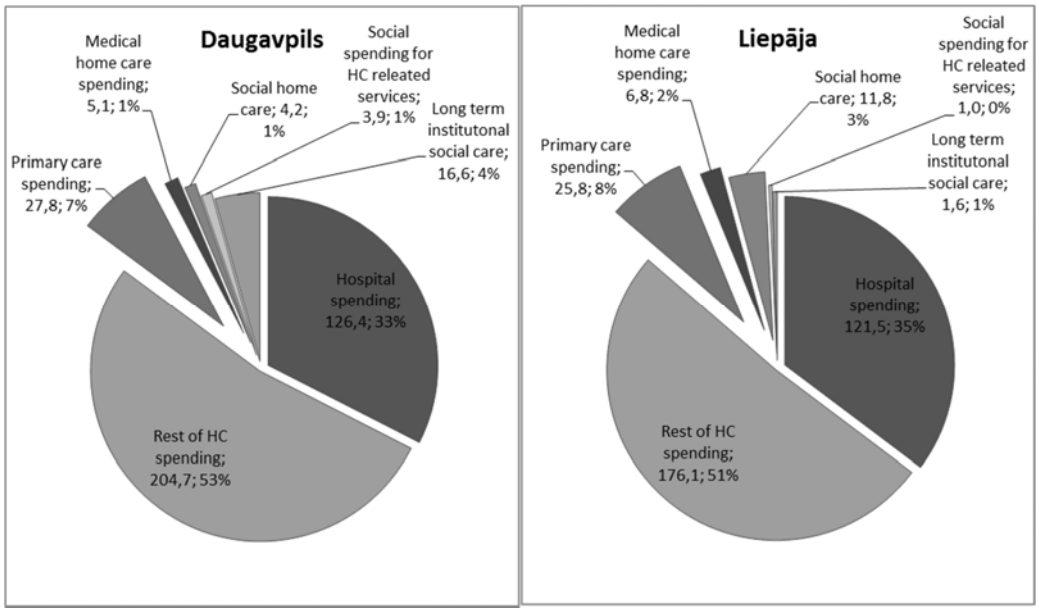
Daugavpils also uses less **day hospital and medical home care**. Both these indicators in Daugavpils are below the mean of the country.

Daugavpils also uses substantially less **short-term social beds, social home care** when compared to Liepaja. However, it utilizes significantly more **social assistance for health care,** which includes coverage of co-payment of elderly for the first 3 days in the hospital. Daugavpils also utilizes much more nursing home care.

Overall, Daugavpils spends more on health care, but has lower total social spending. Total health care spending per capita in Daugavpils is above the country mean, while total social spending (all services, all ages) is below the country mean.

Analysis of the costs of selected health (acute care hospitals, GPs and medical home care) and social services (social home care, nursing home care, and social assistance for health care related services) for elderly indicates Daugavpils spends more per capita on institutional care (see Figure 9). These data pose the question what would be the patient outcomes if more were spent on non-institutional services in Daugavpils.

Figure 11 Spending per capita (LVL) for selected health care and social services for elderly in Daugavpils and Liepāja



Source: NHS (2011) for health care data; CSB (2011) for population data; MoW (2011) for nursing home care and social home care data; Municipality data on file (2011) for data on social assistance for HC related services

Notes: Health care and social assistance for HC related services data are for the age group of 65 and over, nursing home care and social home care data are for the age group of 62 and over

Qualitative research suggests the following factors may be contributing to the differences in the rates of **hospitalizations, re-hospitalizations, and hospitalizations with indicator diagnoses** between Daugavpils and Liepaja:

- Municipality's policy towards integration of elderly and promoting alternatives to hospital care

Interviews reveal differences in municipalities' policy towards supporting integration of elderly and promoting alternatives to hospital care. According to Liepaja's municipality:*„…we are also organizing so called health months, when we are informing population about different health promotion measures...during these months it is possible to check the health...as far as I know we are the only municipality in the country organizing such events...".*

At the same time, Daugavpils municipality provides incentives for higher utilization of hospital services by covering patient co-payment for the first 3 days in the hospital: *„...there are more patients in the hospital with indicator diagnoses and in general because...municipality reimburses three days of treatment in the hospital for*

*retired...people know it and it drives the hospitalizations..." (*Daugavpils hospital executive)

- Number of contracted hospitalizations

More prospectively contracted hospitalizations in Daugavpils (see Table 4) most likely are another important driver of higher hospitalization and re-hospitalization rates in the city (see also Health and social care for elderly). More contracted hospitalizations could be a result of the municipality and hospital's policy of maintaining high demand for hospitalizations and achieving a larger annual contract with NHS. However, it is also important to bear in mind that overall health status in poorer in Latgale than that in Kurzeme.

- Admission practices:

Interviews suggest there are differences in admission practices, which may originate in differences in municipalities' policy towards integration of elderly and promoting alternatives to hospital care and in the number of contracted hospitalizations. Municipalities are the owners of the regional acute care hospitals in Liepaja and Daugavpils. Liepaja's hospital tends to admit fewer patients with the conditions manageable in outpatient setting:

„...we are not hospitalizing such patients, because we have so called „observation" beds next to ER, where patient can stay up to 24 hours...and many things, including elevated blood pressure, arrhythmias ...can be managed within 24 hours and patient can go home without hospitalization..." (Liepaja hospital executive)

- Coordinated/integrated care and discharge planning:

Although none of the hospitals has a formal discharge protocol, interviews suggest there is more effective communication and coordination between different players of integrated care in Liepaja: *„...we are informing GPs about discharged patients, we have a possibility to send discharge statements electronically...there is also a social service information system under supervision of a social worker...every year we are inviting them [municipality social workers] to see what is going on here...we have a well-established social service...social worker [in hospital] is a young energetic woman with appropriate higher education..."* (Liepaja's hospital executive)

„We are well adapted, because we have a social worker who knows other social workers in the region and, if we need to get somebody home, he will give a call." (Liepāja hospital executive)

"...there is information exchange during common seminars for GPs and hospital...there is information exchange about different innovations...there is also discussion about discharge statements, if there is anything the one or the other party is not satisfied...it all take place to ensure better succession of the services..."(Liepaja's Municipality)

The communication process in working differently in Daugavpils:

„...there are no criteria or system as such, which would prescribe how to discharge elderly...we are not sending to GP anything else...just providing discharge statement...we advise patient to visit GP, we are not calling and telling..." (Daugavpils hospital executive)

This is confirmed also by a social worker from Daugavpils:

„...there is no system in place whereby the hospital would inform social service about the discharge of elderly from the hospital....."

According to a GP from Daugavpils region:

„...after the hospital, when the patient comes to me with a discharge statement, I learn that he has been hospitalized...the hospital is not consulting or informing me if any of my patients is in the hospital, but it should...I also don't know if he is receiving home care, the hospital is not informing me, I know about home care if it is prescribed by me...".

This suggests there is almost no communication among GPs, specialists, emergency service, or hospital.

- Utilization of medical home care services and day hospital

Daugavpils, which has more hospitalizations and re-hospitalizations, also provides less medical home care than Liepaja. On the country level, there is a weak negative correlation between medical home care and re-hospitalizations (see Common trends and correlations). Interviews suggest the causality: *„...re-hospitalization depends on two things – on the home care, where a nurse visits the patient and provides the necessary care and on the patient's own responsibility, as well as on participation of relatives in the patient's care..."* (Liepaja's hospital executive)

Interviews also suggest much broader use of medical home care in Liepaja when compared to Daugavpils:

„..home care works quite broadly...it is possible to rehabilitate and take care of any patient at home, including those after major surgeries like hip and knee replacement...we can discharge quickly enough after cancer surgeries...by prescribing home care already in the hospital and in this case we are informing GP...if necessary, GP can prolong this care..." (Liepaja's hospital executive)

„...I prescribe home care to eligible patients...meaning after stroke...there was also a case when I prescribed home care to the patient with decubitus...but if home care is prescribed already in the hospital, I don't learn about it..." (GP from Daugavpils)

Although on the country level there was no statistically significant correlation between day hospital activity and hospitalizations in acute care hospitals, interviews suggest

higher utilization of day hospital may reduce the hospitalization rate in acute care hospital:

„ ...we have very busy day hospital with a wide range of surgeries, and the patient has an opportunity to stay in hospital hotel bed 24 hours...it really a good thing, which provides relief for the hospital for more complicated things..." (Liepaja's hospital executive)

- Utilization of social services (short-term social beds, social home care):

According to Liepaja's hospital, there is easy and convenient access to short term social beds and medical care beds (contracted as for the care hospital) upon discharge in Liepāja:

„...we in the regional hospital have short term social beds, there are 60 of them, 30 of them are financed by the social service, the others are available for a fee … then there is an opportunity to stay … for 10 days, as long as the social worker arranges the further care for an elderly persons...these 10 days are paid by the state [health budget]..."

In Daugavpils, however, the care for elderly upon discharge is organized differently:

„....we have social beds in the nursing home...they are not in the hospital, there is short term care and we have a nursing home… usually there is an application (by patient, relatives, neighbors etc.) for social services and during the review process, if the patient continues to live at home, we are contacting volunteers at Red Cross and they are visiting the person until the decision is made what to do next... " (Social worker of Daugavpils municipality)

According to a GP from Daugavpils, patients are often refusing social care due to additional cost*:"...but people often refuse, because this help costs...probably 2 LVL per hour..."* Indeed, the price of social home care in Daugavpils is set at LVL 2.21 per hour[60]; however, there are exemptions for certain groups, which may receive the service free of charge. In Liepaja, however, this service is fully reimbursed by municipality.

Kocēni and Mazsalaca

The second pair includes two relatively small rural municipalities – Mazalaca and Kocēni- each served by the same regional acute care hospital in Valmiera. Therefore, any differences in hospitalization and re-hospitalization rates between Mazalaca and Kocēni should be attributable to differences other than in inpatient care policies and practices. There are no care hospitals in these two territories. However, three of the four GPs work together in a municipality-owned health and social care centre in Mazsalaca,

[60] Daugavpils municipality (2013), available at: https://www.latvija.lv/LV/PublicServices/Service.aspx?pubcatid=&pubsrvid=URN:IVIS:100001:PP-PAP.Daugavpils.DPDSLP-001

where also day hospital services are provided. Therefore, better social and medical service coordination could be expected in Mazsalaca.

Both Mazalaca and Kocēni belong to Vidzemes region. Mazsalaca's center is located 46 km from Valmiera hospital and 151 km from the capital Riga; Kocēni is located next to Valmiera city, where Valmiera hospital in located, and 104 km from the Riga. The distance from Mazsalaca to Kocēni is 50 km.

As indicated in the Table 6, Kocēni is more populated and younger region with higher income per capita.

Table 6 Key indicators of Kocēni and Mazsalaca municipalities and Valmiera hospital

	Kocēni county	**Mazsalaca county**
Population	6 241	3 460
Budget revenues (LVL)	4 541 542	1 944 619
Annual budget revenues per capita (LVL)*	728	562
Number of social workers[61]	6	4
Inhabitants per social worker*	1040	865
General practitioners (GP)	3	4
Inhabitants per GP*	2080	865
Feldshers	1	2
Population 65+	1 087	814
65+ as a % of population	17%	24%
Intra-hospital mortality 65+ /capita**	0,0184	0,0111
Contract size for day hospital services (LVL)	0	20 071
Regional hospital in Valmiera		
Number of specialized programs	15	
Contract size for hospital services (LVL)	2 684 461	
Hospital contract size per capita (LVL)***	109	

Source: NHS (2011) for health care data; CSB (2011) for population size; CDPC (2011) for mortality data; MoEPRD (2011) for municipality budget data; MoW (2011) for social care data

[61] Ministry of Welfare (2011), available at: http://www.lm.gov.lv/text/2357

Notes: *number of county population used

**per number of hospitalized 65+ in all hospitals of Latvia

***number of Valmiera city population used

There are no statistical data available on the differences in health status of the population of Mazsalaca and Kocēni; however, population of Vidzeme's region where both territories are situated, has better health than that of Latvia in average. Mortality of population above 65 in Vidzeme is 0,055 per capita, while mortality in Latvia is 0,060[62] per capita. There is lower unemployment in Vidzeme compared with Latgale and Kurzeme region (13% vs. 15.1% and 18.7%)[63] and lower prevalence of psychiatric and behavioral disturbances caused by use of psychoactive substances in Vidzeme (1384,7 in Vidzeme vs. 1532,0 in Kurzeme vs. 2133,4 in Latgale per 100000)[64].

There are fewer GPs per capita in Kocēni; however, it is likely that a part of Kocēni inhabitants are registered with GPs residing in neighboring Valmiera. Valmiera regional hospital is serving both territories. In 2011, Valmiera regional hospital served 82 % of all Kocēni region hospitalized patients and 75% of all Mazsalaca region hospitalized patients[65].

Social care is provided by local social service office in both regions. Kocēni municipality has defined 15 social services in its local regulations[66], while Mazsalaca – 12[67], both included in its regulations providing of short-term stay (social beds) in the health care institutions, although Kocēni municipality claims this type of service is not provided yet. Kocēni is providing social assistance in 2 health care related positions[68], while Mazsalaca – in 3[69]. Mazsalaca has also included in its regulations reimbursement of patient co-payment in hospitals. According to the MoW[70], both territories provided long-term care (nursing homes) to their elderly in 2011. Mazsalaca also provided home care and short-term social beds service. None of the municipalities provided day care services or services like "lunch at home", "safety button" and "laundry" (see also Health and social care for elderly).

Table 7 summarizes primary and secondary health care and social care activity per capita, provides total health care and social spending and mortality per capita, and

[62] CDPC (2011)

[63] CSB (2011), available at http://www.csb.gov.lv

[64] CDPC (2011), available at: http://www.spkc.gov.lv/veselibas-aprupes-statistika/

[65] NHS (2011)

[66] Kocēni municipality (2011), available at: http://www.kocenunovads.lv/upl_files/KND_2011_16_saistosie_noteikumi.pdf

[67] Mazsalaca municipality (2012), available at: http://www.mazsalaca.lv/content/files/otreizejie_saist_par_socialo_pakalpojumu_19.12.2012_ar%20precizejumiem%20(1).pdf

[68] Kocēni municipality (2012), available at: http://www.kocenunovads.lv/upl_files/Saistosie_noteikumi_2012_13.pdf

[69] Mazsalaca municipality (2012), available at: http://www.mazsalaca.lv/content/files/4_konsolid_soci%C4%81l%C4%81_pal%C4%ABdz_saist_not_21.11.2012.pdf

[70] Ministry of Welfare (2011), available at: http://www.lm.gov.lv/text/2357

indicates difference of these indicators between Kocēni and Mazsalaca and between each region and the mean of the country.

Table 7 Key health care and social service indicators of Kocēni and Mazsalaca municipalities

Indicators	Kocēni county	Mazsalaca county	Difference K/M	Difference K/ meanLV	Difference M/ meanLV
Hospitalizations	0,30	0,16	94%	11%	-42%
Re-hospitalizations	0,07	0,03	113%	-6%	-56%
Hospitalizations with indicator diagnoses	0,04	0,01	186%	n/a	n/a
ALOS	7,53	7,88	-4%	-4%	0%
Day hospital episodes	0,06	0,16	-64%	-39%	70%
GP (or feldsher) visits (incl. GP visits with procedures)	4,33	3,76	15%	-11%	-22%
GP visits with procedures	0,83	0,83	0%	-25%	-25%
Outpatient specialist consultations	1,50	1,20	25%	-22%	-38%
Outpatient diagnostic procedures and Lab. visits	4,42	3,56	24%	2%	-18%
Medical home care visits	0,83	0,65	28%	53%	19%
Prescriptions of reimbursed medicines	9,53	5,41	76%	8%	-38%
AED outpatient consultations	0,04	0,03	33%	-46%	-59%
State Emergency Medical Service calls	0,39	0,35	13%	-14%	-24%
State Emergency Medical Service calls resulting in delivery to AED	0,17	0,08	115%	-5%	-56%
Social assistance for HC related services (unique clients)	0,00	0,01	-100%	n/a	n/a

Short-term social beds(unique clients)	0,00	0,02	-100%	n/a	n/a
Long term institutional social care (unique clients 62+)	0,021	0,029	-25%	n/a	n/a
Social home care (unique clients 62+)	0,004	0,023	-83%	n/a	n/a
Mortality	0,07	0,05	27%	11%	-12%
Total municipality social spending (all ages) (LVL)	26,87	31,18	-14%	-38%	-28%
Total HC spending (LVL)	331,88	242,61	37%	-4%	-30%

Source: NHS (2011) for health care data; CSB (2011) for population data; CDPC (2011) for mortality data; SEMS (2011) for State Emergency Medical Service data; MoW (2011) for nursing home care and home care data and total municipality social spending; Municipality data on file (2011)[71] for data on social assistance for HC related services and short term social beds

Notes: Data are per capita and for age group of 65 and over, except: total municipality social spending is for all ages and data for nursing home care and social home care are for 62+; ALOS is average length of stay for 65+

The rates of **hospitalizations and re-hospitalizations and hospitalizations with indicator diagnoses** are much higher in Kocēni. Interestingly, Mazsalaca has the lowest hospitalization rate in the country along with the highest share of 65+. Both re-hospitalizations (43% of the difference) and hospitalizations with indicator diagnoses (25% of the difference) contribute to the hospitalization rate difference. Hospitalization rate is above the mean of the country while re-hospitalization rate is slightly below the mean of the country in Kocēni. There is no substantial difference in **ALOS.**

There is higher utilization in Kocēni of **all outpatient services** (except day hospital service), **diagnostics and medicines** when compared to Mazsalaca. Only few of them - diagnostics, medicines and medical home care - are above the mean of the country.

Although there are more **medical home care** visits per capita in Kocēni, there are fewer such visits per unique hospitalization when compared to Mazsalaca.

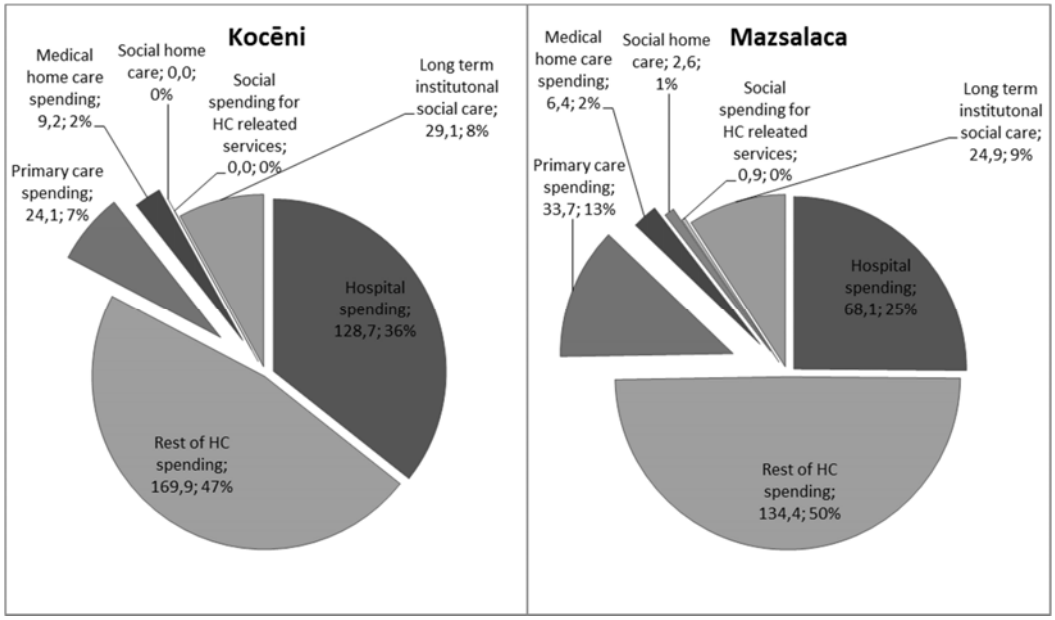
[71] Information from S.Dārziņa, Social service office of Kocēni, 09.05.2013.

MoW information[72] does not indicate any **short-term social bed, social home care** or **social assistance for health care** activity in Kocēni although Kocēni social service office indicates[73] it provided some social assistance for health care in 2011.

Overall, Kocēni spends more on health care, but has lower total social spending than Mazsalaca. Both indicators are below the country mean.

Analysis of the costs of selected health (acute care hospitals, GPs and medical home care) and social services (social home care, nursing home care, social assistance for health care related services) for elderly indicates Kocēni does not spend anything for social home care and social assistance for health care and spends significantly more on institutional care. Its spending for primary care per capita is lower than that in Mazsalaca despite higher number of GP visits, suggesting GPs in Koceni perform fewer and less advanced procedures than those in Mazsalaca. (see Figure 10). These data pose the question what would be the patient outcomes if more social and non-institutional care were utilized in Kocēni.

Figure 12 Spending per capita (LVL) for selected health care and social services for elderly in Kocēni and Mazsalaca



Source: NHS (2011) for health care data; CSB (2011) for population data; MoW (2011) for nursing home care and social home care data; Municipality data on file (2011) for data on social assistance for HC related services

[72] Ministry of Welfare (2011), available at: http://www.lm.gov.lv/text/2357

[73] Information from S.Dārziņa, Social service office of Kocēni, 09.05.2013.

Notes: Health care and social assistance for HC related services data are for the age group of 65 and over, nursing home care and social home care data are for the age group of 62 and over

Qualitative research suggests that the factors contributing to the differences in the rates of **hospitalizations, re-hospitalizations, and hospitalizations with indicator diagnoses** for this pair are similar to those identified for the first pair – Daugavpils and Liepāja:

- Municipality's policy towards integration of elderly and integrated care

Interviews reveal Mazsalaca's municipality takes an effort to integrate elderly: *„It is important for us to take care of elderly ..."* (Mazsalaca municipality executive)

"...we organize for our retired excursions...they like it a lot..." (Mazsalaca's social worker)

- Coordinated/integrated care and discharge planning:

Patients of Kocēni and Mazsalaca are discharged from the same acute care hospital and, according to social worker at the acute care hospital, there are no differences in patient discharge from the hospital and social services are being informed in both territories.

However, interviews suggest that there is better local coordination in Mazalaca and it is able to provide more integrated care to its population*:"...we have an individualized approach and we take each discharge case separately, we are able to do so because we are a small municipality, but we don't have a concrete system or criteria where to direct the patient after hospital..."* (Mazsalaca's GP).

"...after reorganization of the hospital into day hospital we are an institution, which provides both medical and social care, because they are so interrelated..." (Mazsalaca's GP).

„...the initiative for social care comes from a GP...the care at day center and at home is prescribed by a GP...we have short term social beds and nursing home in the same building and we have very good cooperation in the area of patient care, that is why we can resolve the issues concerning patient care very quickly..." (Mazsalaca GP)

- Utilization of medical home care services and day hospital

Mazsalaca uses much broadly day hospital services capitalizing on facility it has in its territory: *„...we are trying to treat our elderly patients in day hospital as much as possible, but not in acute care hospitals...in those territories where there is acute care hospital or it is very close, probably there are more hospitalizations...I believe this is the reason for territorial differences..."* (Mazsalaca GP). Analysis on the country level (see Common trends and correlations), indeed, reveals correlation between the distance to acute care hospital and hospitalizations ($r = -0.46$; $r^2 = 0.22$).

There are also more medical home care visits per unique hospitalization in Mazsalaca, although Kocēni provides more medical home care visits per capita.

- Utilization of social services (short-term social beds, social home care)

There is easy access to short-term social beds for Mazsalaca patients after discharge from acute care hospital as they are located in the premises of the former Mazsalaca hospital. There are no short term social beds, however, in Kocēni; according to interviews, patients from Kocēni use social beds either in Mazsalaca or those in Valmiera hospital. Mazsalaca also provides social home care.

7. Conclusions

- Methodology for social and medical data collection and analysis

Our research suggests there is a lack of comprehensive and compatible methodology for social and medical data collection and analysis. First, there is no aggregate information on all social services available in the Ministry of Welfare as parts of them are provided by MoW and parts by municipalities. Some information, like short-term social bed service cost data for those 65 and over is not collected at all. Second, even available data often are not in comparable format. For example, data on social home care at the MoW are available for two groups – retired (above 62) and before retirement (below 62), whereas data for medical social assistance - for children (below 18) and adults (above 18). Third, social data are not compatible with the medical data collected by the National Health Service. For example, NHS provides data on medical services in 5 year slots - 65-69 and 70-74 - while MoW would provide information on long term care for age groups 62-69 and 70-79. Therefore, currently available data provide information about some fragments of care (e.g. how much a hospitalization with a certain diagnosis costs or how much social home care for retired costs). However, we do not know the costs of full cycle of care (e.g. how much the total care of an elderly with a certain diagnosis would cost). Without implementing common and compatible methodology for data collection and analysis it is impossible to set performance objectives for integrated care and monitor them.

- KPIs for performance management

The collected data suggest there is large variance in different acute care hospital performance indicators (hospitalizations, re-hospitalizations, intra-hospital mortality etc.). Although data on these indicators are available in the NHS database, hospital Key performance Indicators are not clearly defined and widely used in hospital performance management and contracting by the NHS.

There are also geographical differences in how GPs perform their gatekeeper role, indicated by large variance in ratio between GPs visits and outpatient specialist consultations across country. This finding suggests the need for regular monitoring and use of KPIs in GPs performance management.

There are also no defined municipality KPIs, containing health care, public health and social care data, which would enable comparisons among municipalities and serve as a tool for performance improvement.

And finally, there are no explicitly defined patient outcomes measures to assess the effectiveness of different health care and social interventions, including discharge planning.

- Municipality's policy towards integration of elderly and "ownership" of integrated care

Our case analysis suggests that municipality's policy towards integration of elderly and "ownership" of integrated care may reduce hospitalizations and re-hospitalizations. Those territories where hospitalizations are re-hospitalizations are lower tend to have more clearly formulated policies towards elderly and a range of activities to better integrate them; they also take an "ownership" of elderly and their integrated care in the community.

- Comprehensive process for integrated care

Although there are municipalities where the care for elderly is better integrated than in others, it is due to their own initiative and there is no comprehensive process, no clearly defined strategies, responsibilities and roles for integrated care on the country level. There is no formalized patient discharge protocol neither in territories of our case study, nor on the country level. Our case study also suggests there is communication and coordination gap between medical and social care, which may result in excess hospitalization and re-hospitalizations. We believe that rather than relying on local initiatives, a comprehensive process for integrated care, recognizing systemic role of GPs and including formalized discharge protocol, should be developed on the national level.

- Impact of primary care (GPs)

Neither hospitalizations and re-hospitalizations nor total health care costs are negatively correlated with GPs activities. There is also a wide variation of the ratio between GPs visits and outpatient specialist consultations across the country. These findings question whether GPs perform their gatekeeper role sufficiently in all territories and urge to assess more thoroughly the effectiveness of primary care services.

- Utilization of short-term social beds and home medical and social care

Our case study indicate that territories where there is a higher utilization of short-term social beds and home medical and social care tend to have lower hospitalization and re-hospitalization rates and lower total health care costs. Although we have limited data to compare the outcomes between the territories with high and low utilization of

short-term social beds and home medical and social care, the initial data support further development of these services.

- Financial incentives for integrated care

The financial incentives are not supportive of integrated medical and social care neither at the level of health care providers, nor at the level of municipalities. The provider payment methods (see Health and social care for elderly) often provide incentives for shifting care to inpatient setting. Since social care is financed from the budgets of municipalities but health care services are financed centrally, municipalities may have incentives to shift an elderly patient from social services to medical services. Moreover, municipalities may have incentives to inflate hospital service usage to sustain the hospital infrastructure, which they own.

8. Recommendations

Our recommendations are based on our findings described in Conclusions and grouped into metrics, process, incentives and education since we believe the issues in all these areas must be addressed to improve discharge of elderly, develop more integrated care and ensure more healthy aging.

- Metrics

We recommend establishment of a common and compatible methodology for social and medical service data collection so that there is comprehensive information on services and costs provided to population, including elderly. To implement this recommendation, a close cooperation between Ministries of Health and Welfare is needed. Other stakeholders (such as Central Statistical Bureau) need to be consulted as the methodology obviously needs to be consistent with other national and EU databases.

There is a need to determine KPIs for health care providers (including acute care hospitals and GPs) and to collect and monitor them regularly to evaluate their performance and provide necessary information for the NHS for contracting health care services.

It is necessary to create a system of statistical and research feedback for municipality professionals so they can improve their performance, and to encourage or even require documented continuous quality improvement. In order to enable comparisons among municipalities, it is recommended to set municipality KPIs containing health care (including hospitalization and re-hospitalization rates), public health and social care data (including utilization of social home care and short-term social bed services) and monitor them on regular basis.

And finally, there is a need for explicitly defined patient outcomes measures, which along with the knowledge of associated costs, would enable assessment of the cost-

effectiveness of different health care and social interventions, including discharge planning.

- Process

We recommend a development of an integrated health and social care process through the combined effort by both the MoH and MoW to ensure the resources coming from both pots – health care and social - are continually spent better, improve outcomes and living conditions for the elderly who need care. The development of the process would include:

- Defining the scope and the role of each integrated care service (incl. systemic role of primary care/GPs, medium-long term strategy towards care hospitals and home care) provider

- Appointing responsible party coordinating cooperation among different health and social care providers and establishing a discharge SOP for elderly, which would define the criteria for evaluating access to the care after discharge and prescribe a pathway based on these criteria to ensure continuity of the care; there is a need for further discussion between Ministries of Welfare and Health and municipalities to agree on which party would assume the coordinating role; however, there is rationale of delegating more responsibility for integrated care to municipalities since they know the best their population and local conditions.

- Increasing capacity of home care and establishing the mechanism of support of elderly in families, for example, providing monetary assistance and psychological support to retired family members taking care of a family member

- Incentives

Incentives must be aligned for integrated care process to work. National financing of health services with local financing of social services creates some problematic incentives for localities. It may never be possible to completely overcome this problem because health services and social services - while they have overlaps - have never been successfully combined under one roof. Therefore, the challenge is developing successful ways to improve the management and financing of the overlaps by putting the client first. Decision-making about service delivery will always be local. There is only a limited central role. But the center needs to make sure incentives are good for the locals to do their best work, to make sure an elderly person in one part of the country receives the same minimum quality of care as anywhere else. The review[74] of integrated care incentives in other countries demonstrates that „further

[74] http://www.euro.who.int/__data/assets/pdf_file/0019/191008/EuroHealth-v19-n2.pdf

assessment of the effectiveness of these incentives is required" and „caution also should be taken when translating cost-effective incentives from one country to another, as they may not be transferable".

We recommend adjustments in provider payment to eliminate incentives for excessive use of hospital care (see Health and social care for elderly) and developing alternatives to inpatient care. For example, adjusting GP payment using indicator diagnose hospitalization rate may be helpful to achieve this objective. We also recommend considering incentives which would encourage municipalities to better integrate their elderly, develop alternatives to hospital care and discourage overuse of medical and, especially, hospital service. For example, adjusting financial equalization resources based on intensity of hospitalizations and re-hospitalizations may be helpful to achieve this objective.

- Education

Although financial incentives for municipalities and providers overall are the same, we observed differences in discharge practices of elderly and integration of the care. Therefore, obviously there are factors beyond financial considerations driving the behavior of different municipalities and providers. We observed that territories with lower hospitalization and re-hospitalization rate tend to care more about educating their providers on integrated care and their population on health promotion. According to a GP from Liepaja: „ *knowledge and education level plays a role in being healthy and sustaining health...*" That is why we also recommend disseminating information about integrated care to all stake holders, including population, providers and municipalities, and further investment in health promotion.

9. Further research

Considering the scope and limitations of this exploratory case study (see also Problem setting and objective of the study and Limitations) our recommendations include several suggestions for further policy research rather than explicit roadmap.

There is further research necessary to elaborate on provided suggestions, including how to define KPIs, how to strengthen GPs and municipalities role in integrated care process, how to broaden non-institutional care, how to align incentives, how to design education process on integrated care properly etc. And finally - how to assess the cost-effectiveness of different health care and social interventions of integrated care for elderly.