



Health Care System reform and short term savings opportunities

Iceland Health Care System project

7 October, 2011

THE BOSTON CONSULTING GROUP

Preface

This is the final report from a 5 week effort to analyze the performance of the Icelandic health care system and identify opportunities for short term savings and more long term Health Care reform.

The BCG project team has reported on a weekly basis to a Steering Group consisting of key stakeholders in the Icelandic health care system and has been supported by a Data Group. In addition, an Advisory Group has met with the project team on one occasion. Five site visits have been made to different organizations (Reykjanesbaer, Landspítali, Akranes, Akureyri, Glaesibaer).

As the Ministry of Welfare was in urgent need of external input as part of deciding on priorities for 2012 this work has been done in a "best effort approach" in a very short period of time. Individual recommendations and savings potentials need to be further investigated and detailed in order for the Ministry of Welfare to make decisions but the report provides directional advice on which areas should be the focus of further review. Analysis is based on data provided by the Data Group as well as publicly available sources.

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Executive summary

The Icelandic health care system is publicly financed and provides care to 318 000 inhabitants of which 2/3 live in the capital region. The system is organized in 7 health care regions (which provide specialized care, primary care and elderly care) and 76 municipalities (of which some provide elderly care). About 14% of the care is privately provided and there is no gatekeeping system. The population will grow by 7% the next 20 years and is overall still fairly young compared to other European countries. The most important risk factor among the population is obesity which is increasing at a rapid speed.

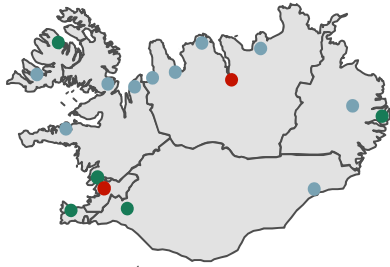
Iceland has very good quality of care results compared to other European countries especially in areas such as AMI, stroke and breast cancer but dental and diabetes care stands out as exceptions. Access to specialist care is good although access to GPs is viewed as a concern. Overall Iceland spends 9.3% of GDP on health care which is average compared to other European countries but the financial crisis has strained the budget. The current plan is to increase the budget by 0.3 BISK 2012. This increase is the result of reallocation of funding consisting of a 2.5 BISK increase (in private specialist care, drug spend and care for patients treated abroad) and a cut of cost by 2.2 BISK in other areas (primarily public hospital care). Our review has shown that overall the current system is characterized by a number of challenges:

- *Care structures:* The current care structure and service levels of specialized care and elderly care have not been designed in sufficient detail on a country wide level resulting in a suboptimal structure.
- *Current market rules & gatekeeping:* The current reimbursement system for private specialist is fee-for-service and for public providers there is a fixed budget. In combination with no gatekeeping this is causing a continuous increase in private specialist care visits and risk for over consumption e.g. cataract surgery. Primary care has similar incentives challenges with fee-for service for private after hours GPs while the public primary care organization has a large number of internal challenges (focus has been on capital region).
- *Patients flows:* There is also likely to be potential to improve the current patients flows through better care integration and better patient guidance.
- *Direct expenditure:* There is potential to further reduce drug spend and also review opportunities to implement Lean processes in public care providers.
- *In addition:* There are substantial improvements needed in the planning and performance management of the system. A component in this will be improved E-Health. Given the obesity trend a strong prevention strategy is needed. Our Value Based Health Care maturity assessment indicates that much of the infrastructure is in place, however, strategic direction from the government is needed to accelerate data richness and reporting.

In summary, several improvements can be made to the system in order to provide better service, better quality of care and increase efficiency. Further analysis is needed to both understand the current challenges in more detail as well as design future solutions. Together with the Steering Group we have defined the following prioritizations in terms of which areas need to be addressed:

- 1) A reform of the current primary care model and the private specialist model in the capital region. In addition, an improvement project around data gathering, budgeting and performance management needs to be launched and several short term savings ideas need to be further analyzed.
- 2) A review of the current elderly care model to identify how more equal, efficient and higher quality care can be provided.
- 3) An redesign of the overall care structure across the 7 regions and municipalities.

The project has reviewed the current Icelandic HC system



HC system landscape

Identifying and describing the HC system landscape with focus on

- Demographics and geography of Iceland
- Key risk factors and incidence of common diseases
- Current resources and capacity of the system
- Financial situation and degree of private provision
- Recent developments



System performance

Evaluating the performance of the system in four dimensions

- Quality e.g. outcomes and VBHC maturity
- Access e.g. waiting times
- Finance e.g. key growth contributors
- Efficiency e.g. care structures, market rules, patient flows



First priority of reform

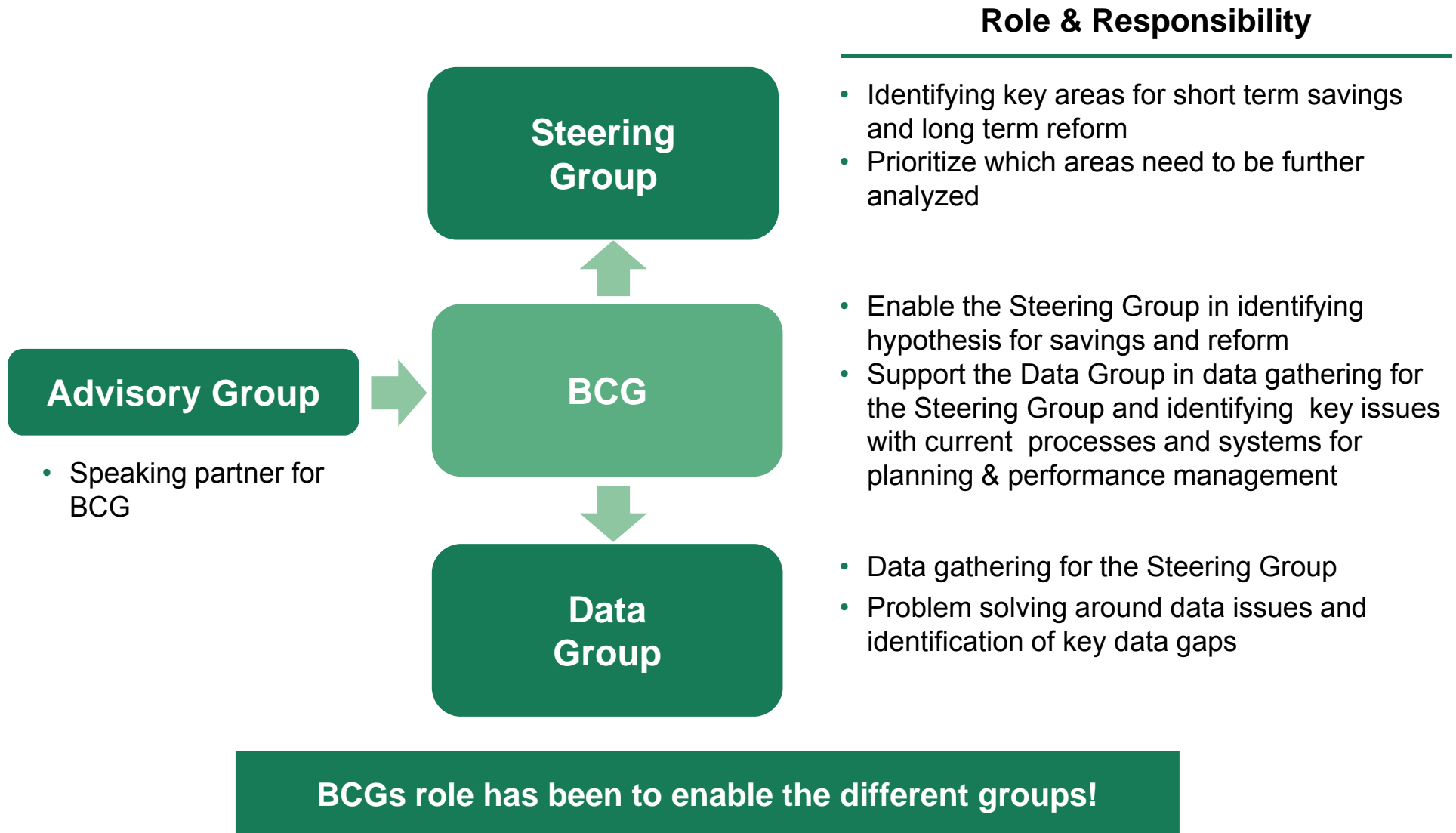
Short term savings potential

- Despite recent cuts, identify further short term cost improvements

Long term reform

- Identify areas with long term improvement potential

Role & responsibilities of key project members



Participants in key groups

Steering Group

Anna Lilja Gunnarsdotti
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 Political advisor to the minister
 CEO
 Chief of Finance and Information
 CEO
 Chief of Medicine
 Chief of Nursing and Operations
 Chief of Medicine
 Director General, Operations
 Special Advisor

Ministry of Welfare
 Ministry of Welfare
 Landspítali
 Landspítali
 Akureyri hospital
 East Health Directorate
 West Health Directorate
 Glaesibaer Health Care Center
 Ministry of Welfare
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Ministry of Welfare
 Ministry of Welfare
 Ministry of Welfare
 Landspítali
 Directorate of Health
 Directorate of Health

Agenda

Description of the Icelandic health care system

Current performance of the system

Key changes needed to secure a better system in the future

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Description of the Icelandic health care system

Current performance of the system

Key changes needed to secure a better system in the future

Summary of the Icelandic health care system set-up

Population & geography

- Total population of 318,000 which will grow by 23,000 (7%) by 2020
- Relatively young population with an additional 3,000 >75 by 2020
- Rural areas becoming depopulated and 2/3 live in the capital region

Incidence and risk factors

- Overall average incidence
 - Diabetes particularly low historically although increasing
- Low tobacco and alcohol consumption however overweight is very high and increasing

Structure

- Care organized in 7 regions and 76 municipalities
- 2 main hospitals, 6 regional hospitals, 16 health institutions
- No gatekeeping

Financing

- 80% government, 20% out-of-pocket
- Dental care to larger extent funded out-of-pocket
- Public care units have fixed budgets but private providers reimbursed fee-for-service

Degree of private provision

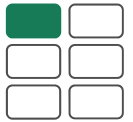
- 14% of total expenditure is privately provided primarily in dental and specialized care
- Additional 7% from non profit nursing homes

Recent events

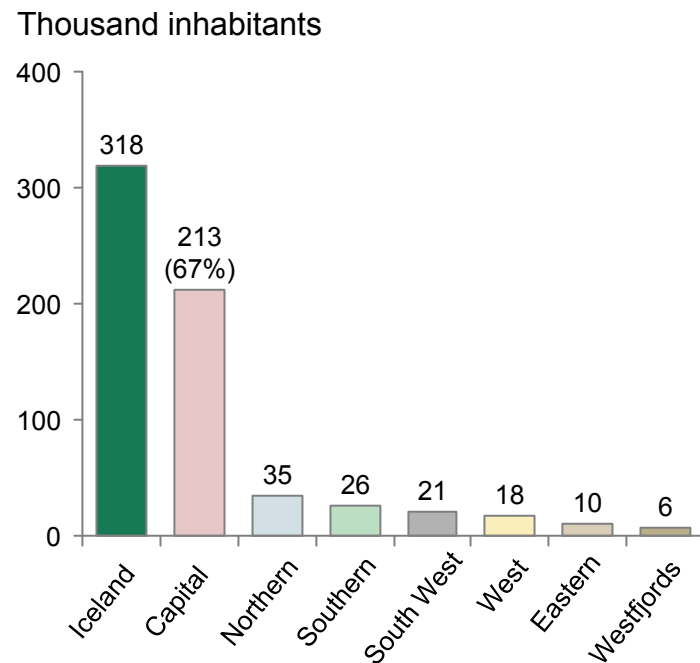
- Large cost cutting efforts have been made last few years
- Recent creation of the Ministry of Welfare through merging of two ministries

Iceland's population of 318 000 is spread out in 7 regions

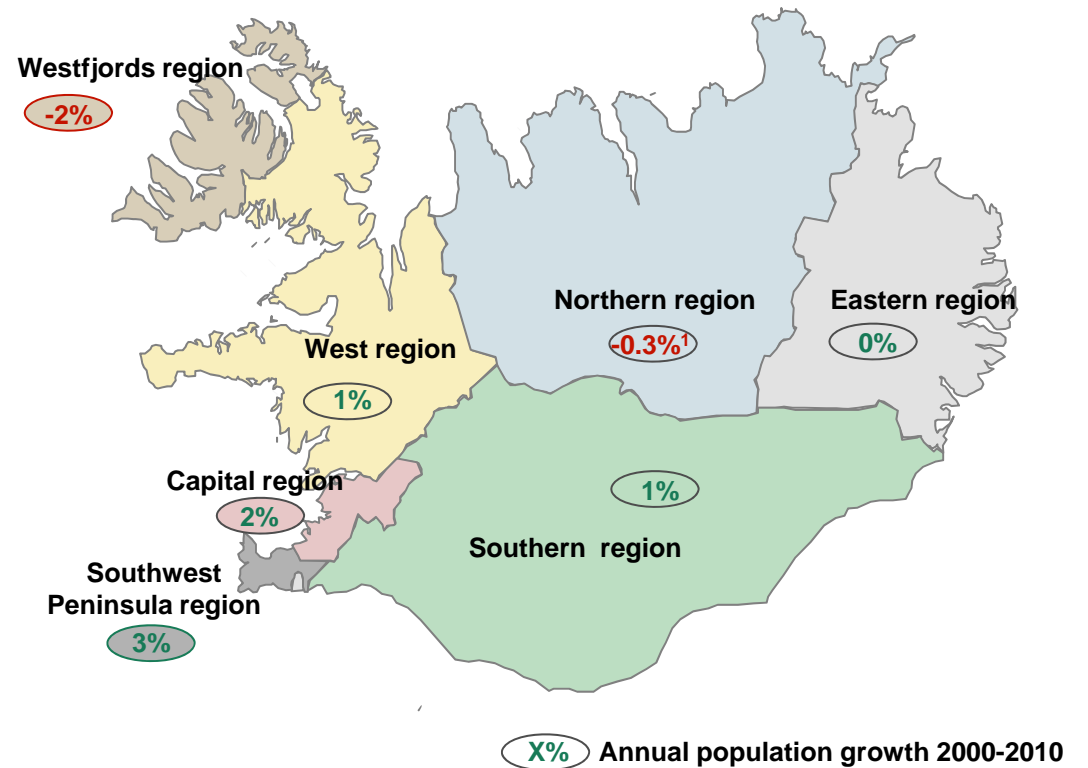
Southern regions attracting people from northern parts



2/3 of the population lives in the capital region



Population is moving from north to south



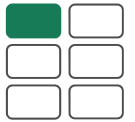
1. 2011 statistics CAGR refer to 2000-2010 where the previous Northwest and Northeast are combined to new Northern region

Source: Ministry of Welfare, BCG analysis

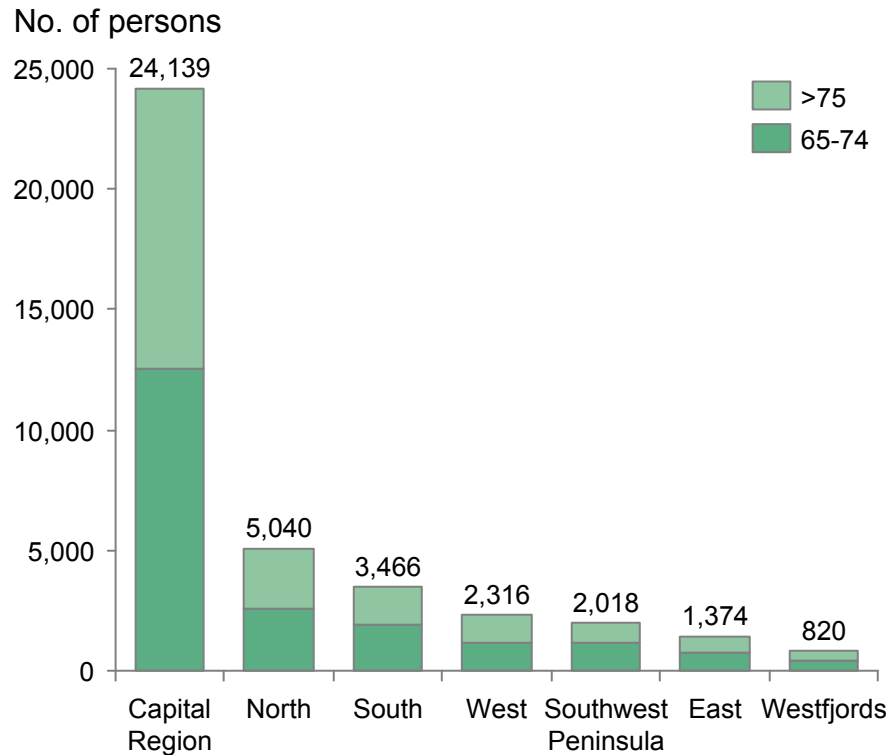
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Today 6.4% of the population is above 75 years old

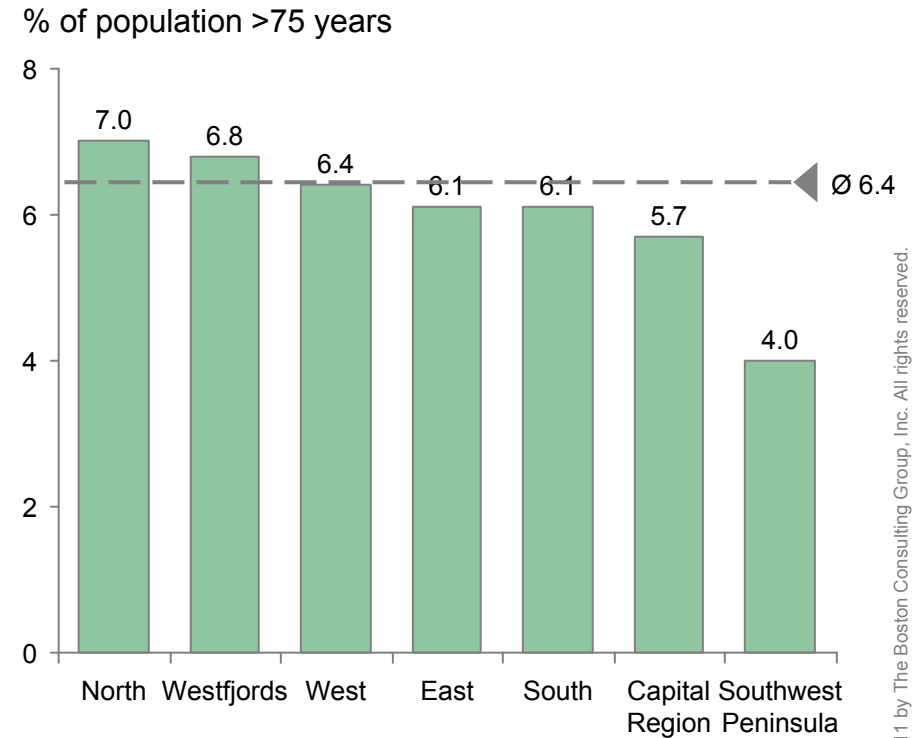
Fairly similar distribution of elderly in the health care regions, except the Southwest Peninsula



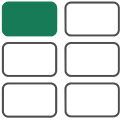
39,000 persons in Iceland above the age of 65



Fairly even distribution of elderly across country, Southwest outlier



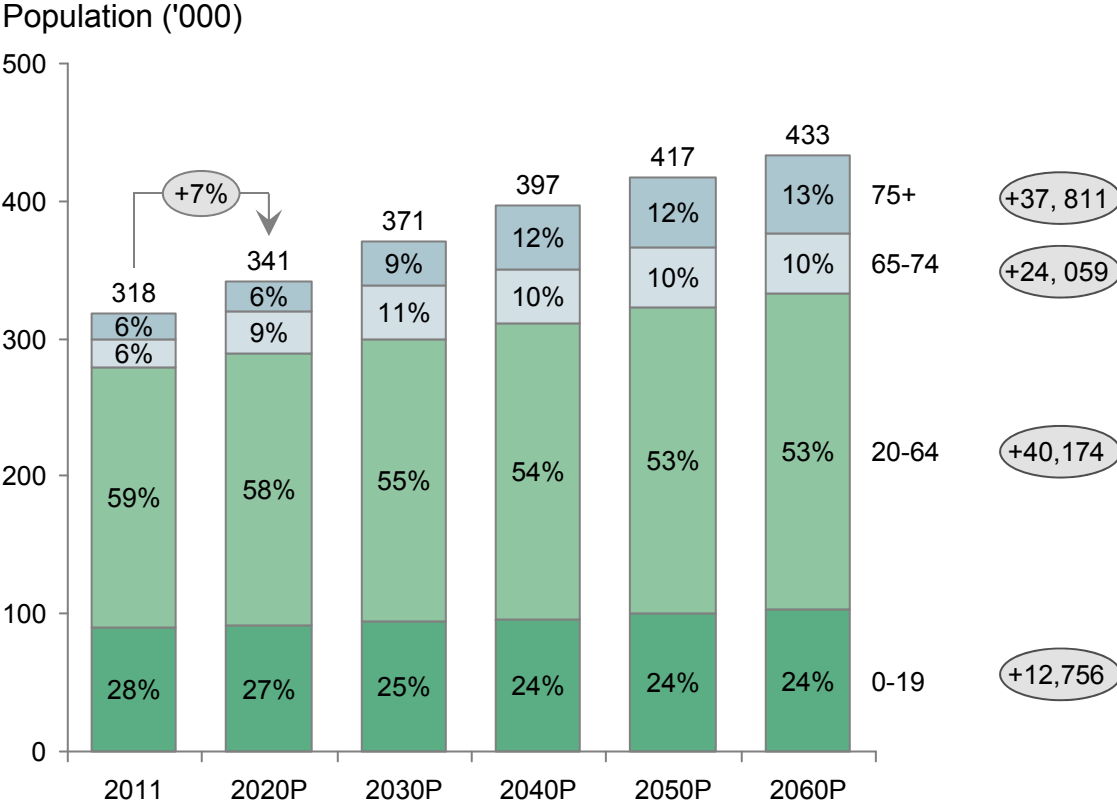
Note: Population 1 Jan 2011
 Source: Ministry of Welfare, BCG analysis
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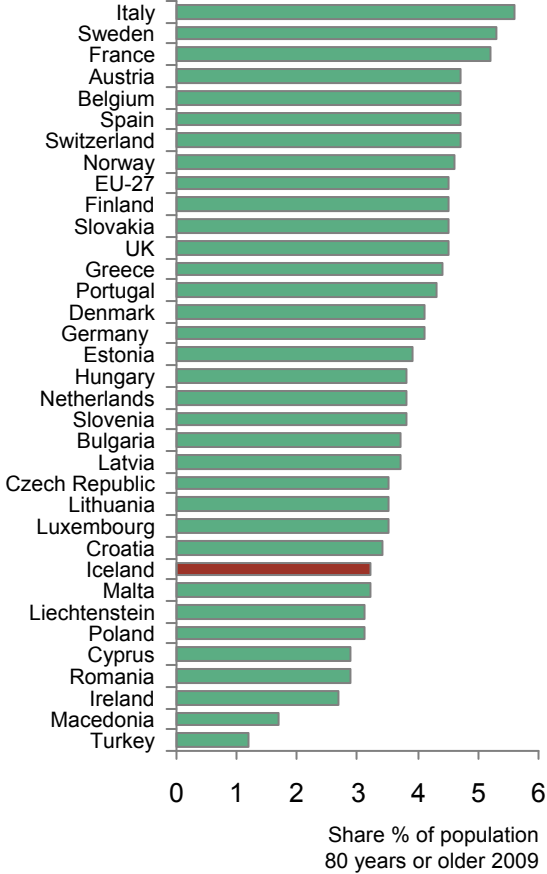
Population projected to increase by 7% by 2020

With an increasing share of elderly (>75 years) reaching 13% 2060

65+ population will increase 61,900 by 2060



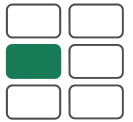
Iceland has a relatively young population



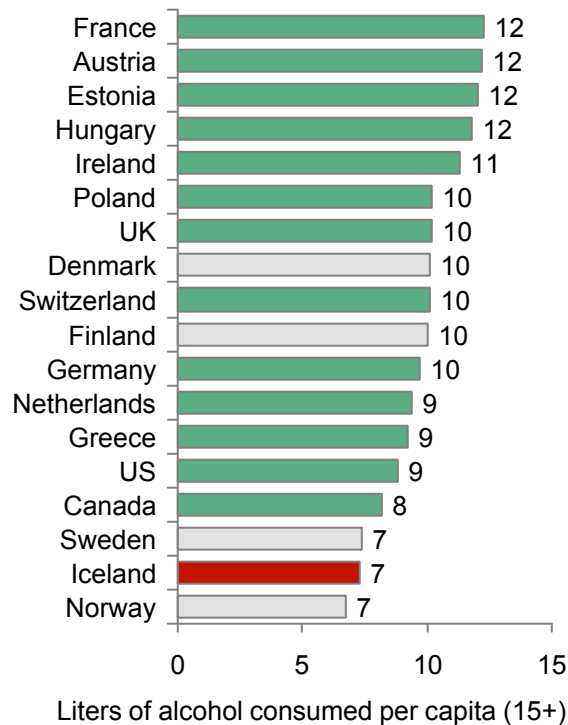
Source: Statistics Iceland, OECD 2008 BCG analysis
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Overweight and obesity is the worst risk factor

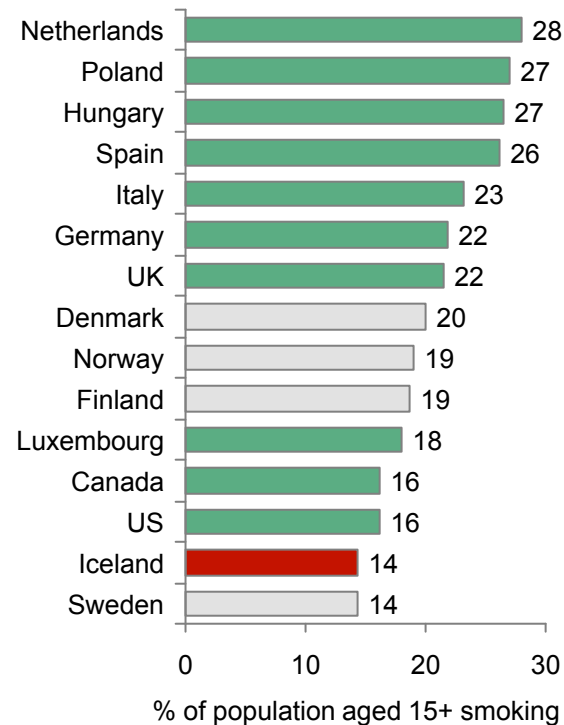
Icelanders have low alcohol and tobacco consumption



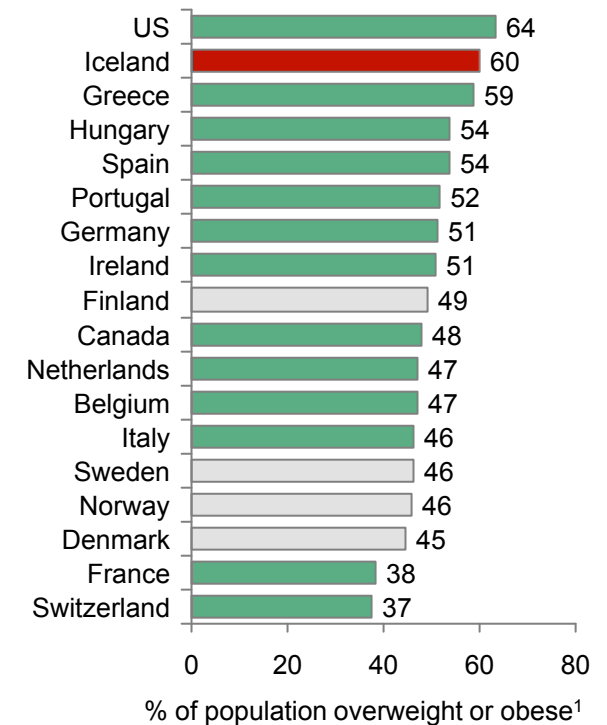
Icelanders consume less alcohol than most OECD countries ...



... and tobacco consumption is also low...



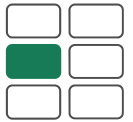
... but high share of population is overweight or obese



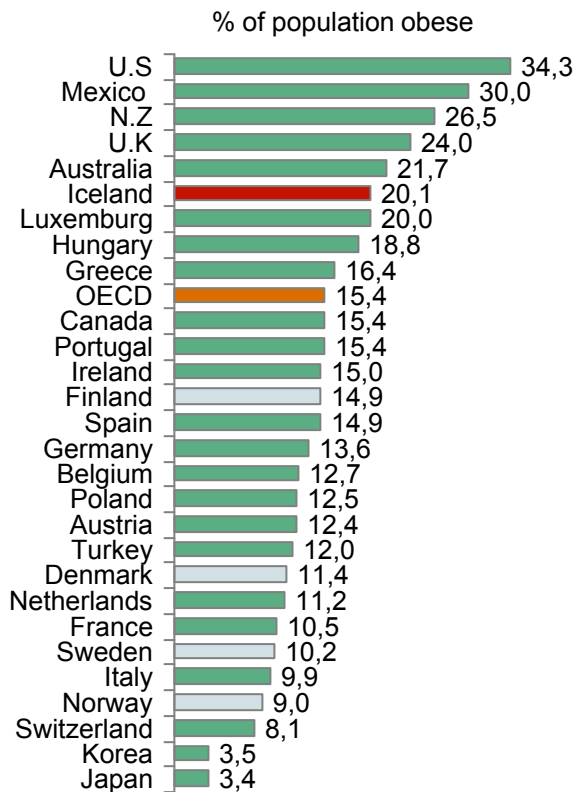
1. Self-reported
Source: OECD Statistics

Obesity is increasing rapidly in Iceland

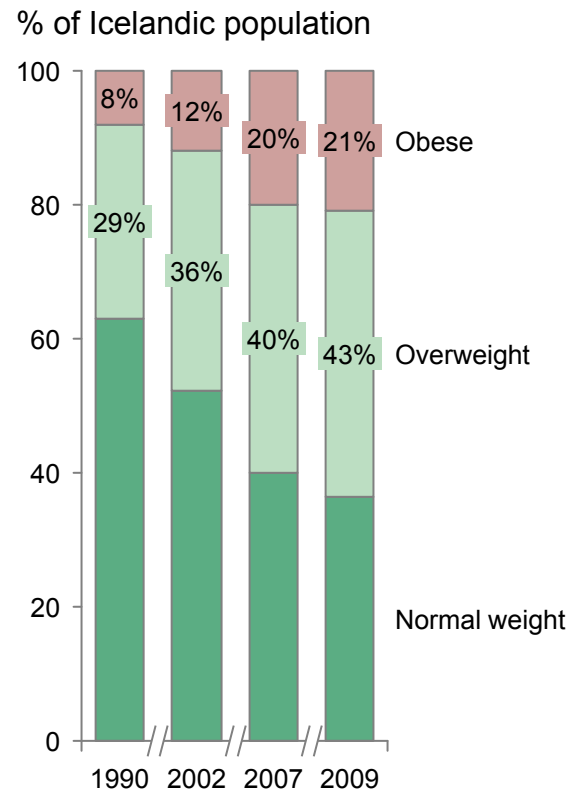
Obesity is more common in rural areas



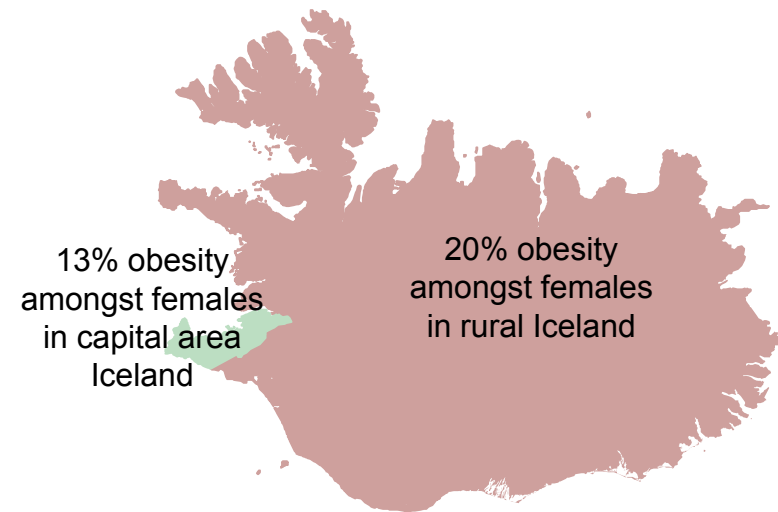
5th most obese country



Obesity and overweight has increased rapidly



Obesity rates higher in rural areas than in Capital area

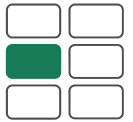


Source: OECD health at a glance, *Smoking, obesity and education of Icelandic women by rural-urban residence*, Steingrimsdottir et al 2010, BCG analysis

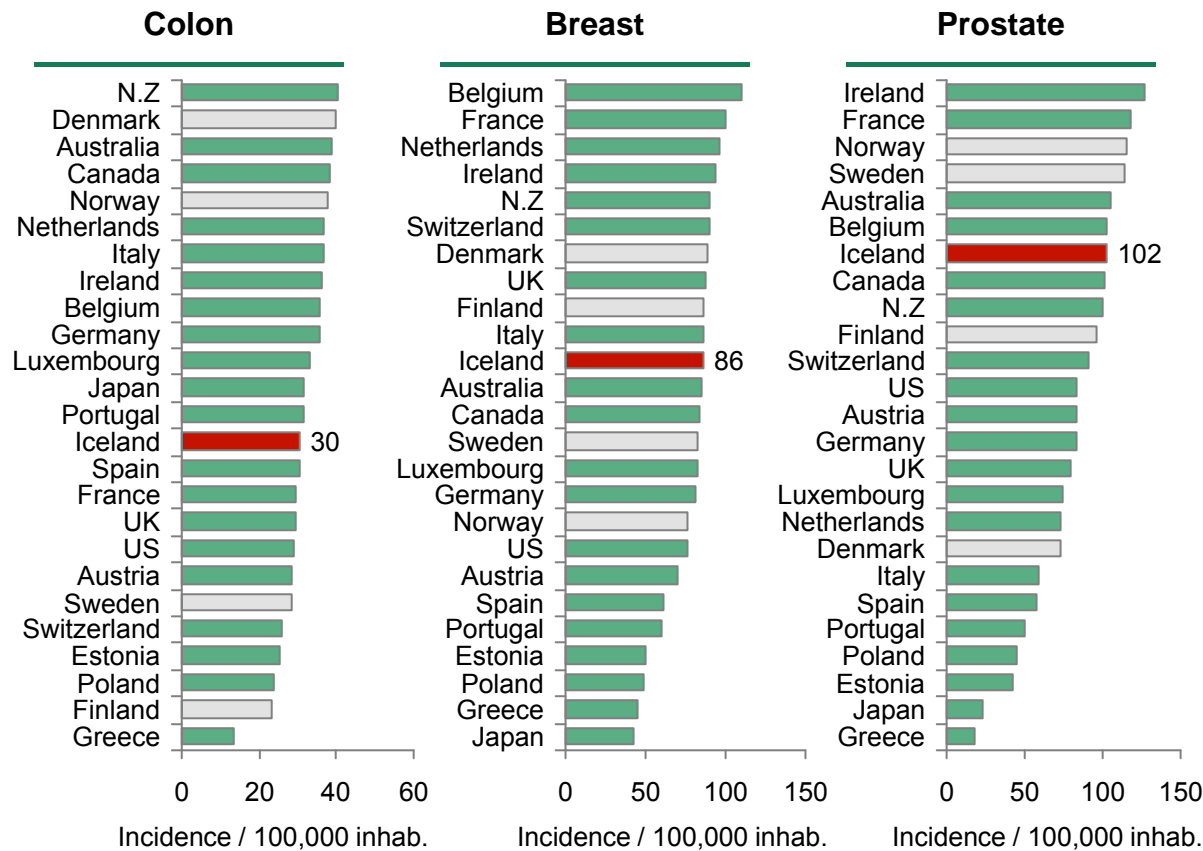
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Average or low incidence of common diseases

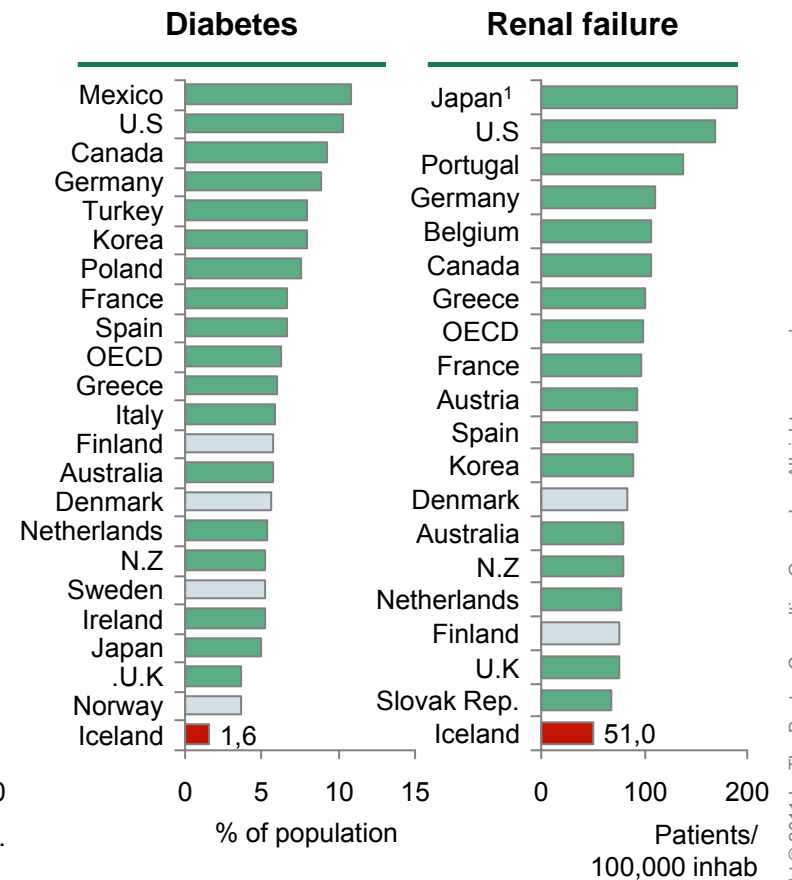
Incidence for chronic disease exceptionally low



Incidence of common cancer forms around Nordic average



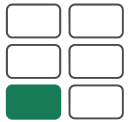
Low prevalence of major chronic diseases



1. Japan data from 2003
 Source: OECD health at a glance 2009 statistics from 2007
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Reimbursement model differ between providers

In addition, Iceland is one of the few countries with no gatekeeping



Key elements of Icelandic healthcare system

Reimbursement model

Generally fixed budgets in public provision

- Hospitals and primary care have yearly budgets
- No DRG system or compensation depending on care volume
- Budgets to nursing homes are weighted with a RAI score which assess the care need of the patient

Private care reimbursed based on "fee-for-service"

- Applies to providers in primary care as well as specialists
- Reimbursement generally regulated with yearly contract with Ministry of Welfare
- Patient fees decided in contract with Ministry of Welfare¹

Gatekeeping

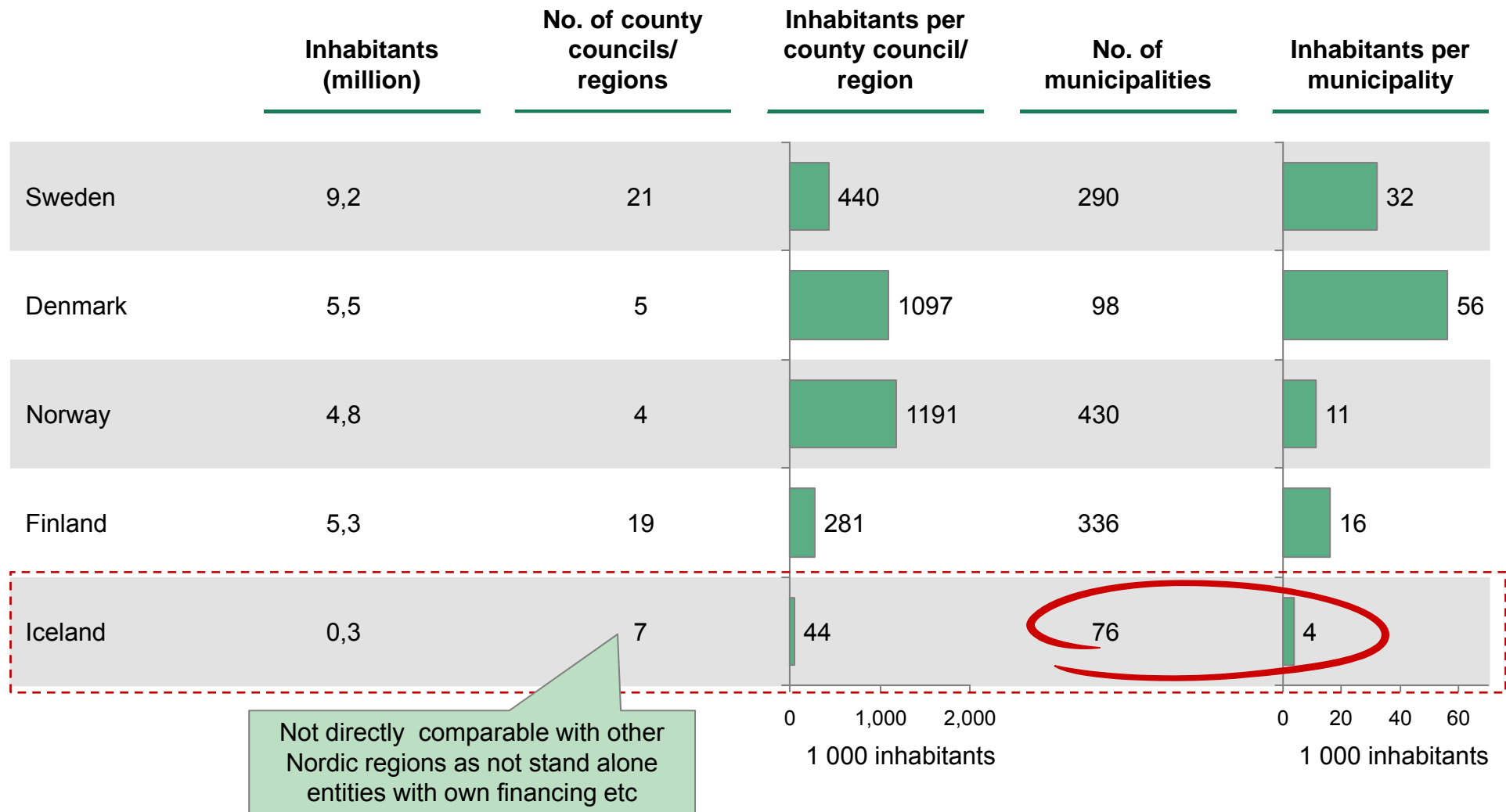
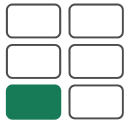
No gatekeeping

- Patients are generally free to seek specialist care without referral
- Easy for specialists to start up practice
 - no verification of patient need or optimal geographical location required

1. No contracts for private specialists since end of March 2011
Source: Interviews, BCG analysis

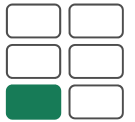
Icelandic system set-up is very decentralized

This particularly applies to the municipalities

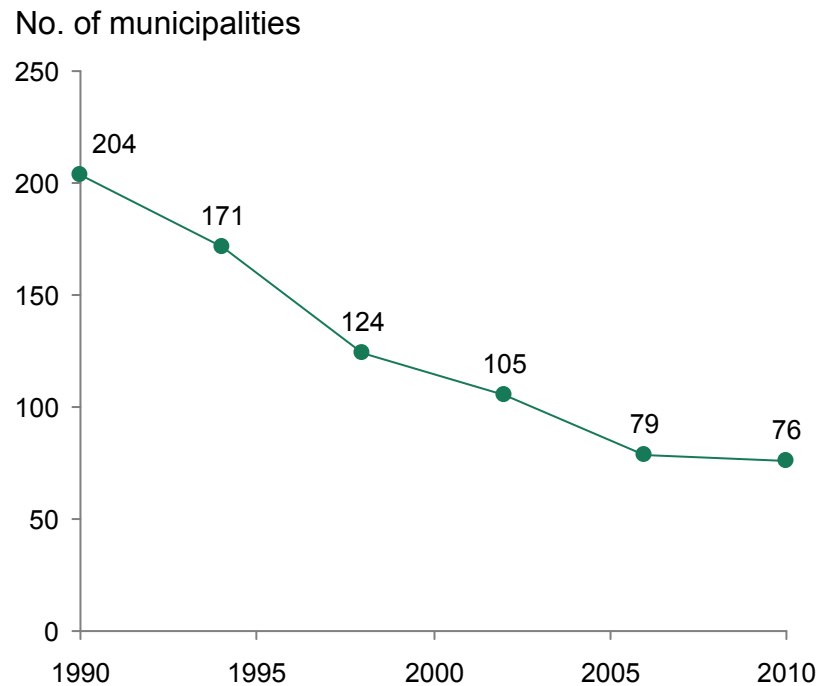


Efforts have been made to merge municipalities

But there are still municipalities with less than 60 inhabitants



Mergers of municipalities to today's 76



Effort in 2003 to reduce to 46, but 76 was achieved

In 2003, the Minister of Social Welfare suggested that the inhabitants of 66 municipalities should vote on mergers

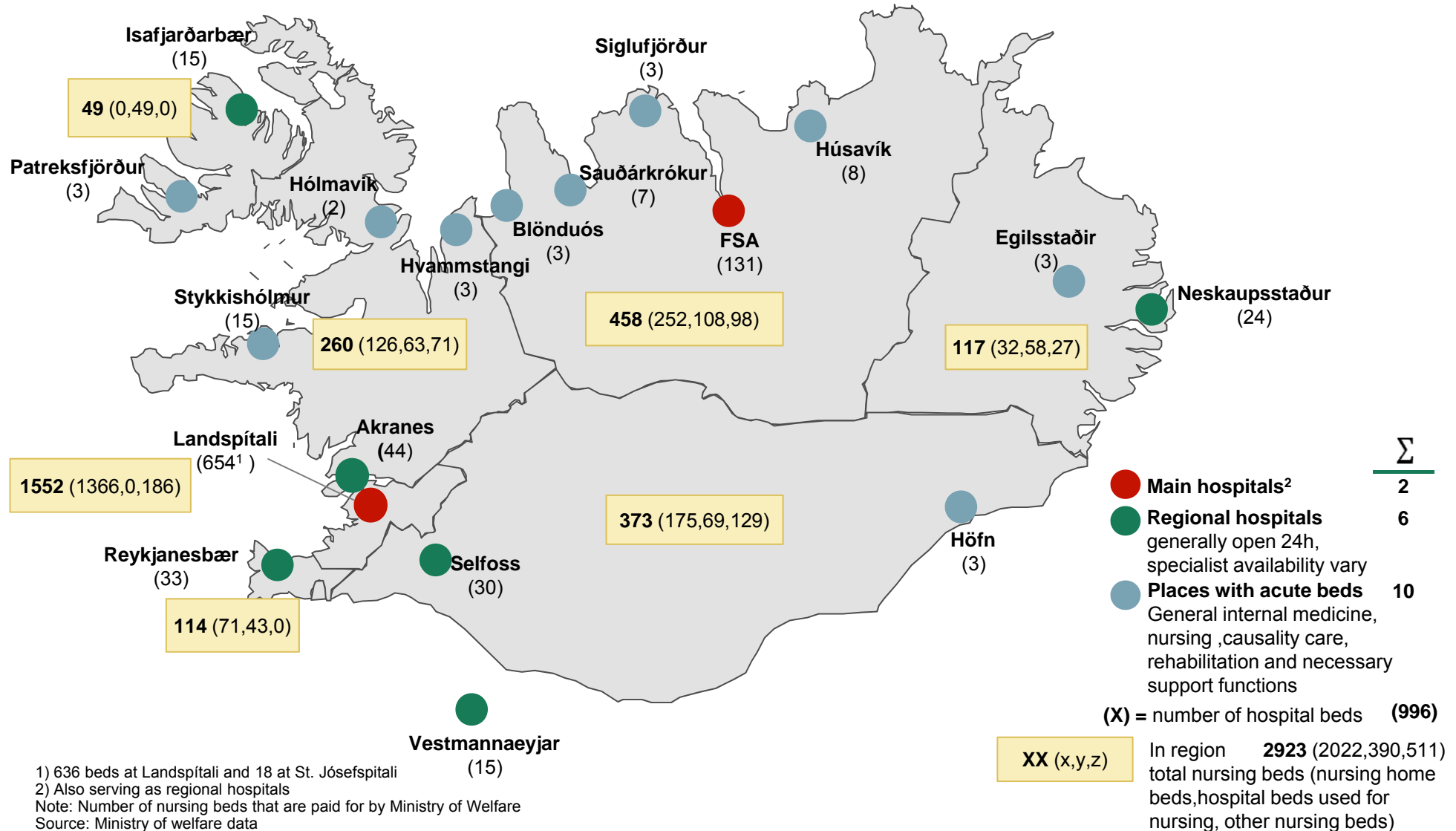
- Would all suggestions have passed, the number of municipalities would have been reduced from 105 to 46
- The result of the work is that there is today 76 municipalities

Minimum population in a municipality is by law 50

- Today four municipalities with 61,57,57 and 52 inhabitants

Current structure consists of 7 health care regions

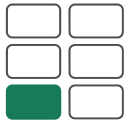
All with one main/regional hospital, additional general hospital institutions and primary care



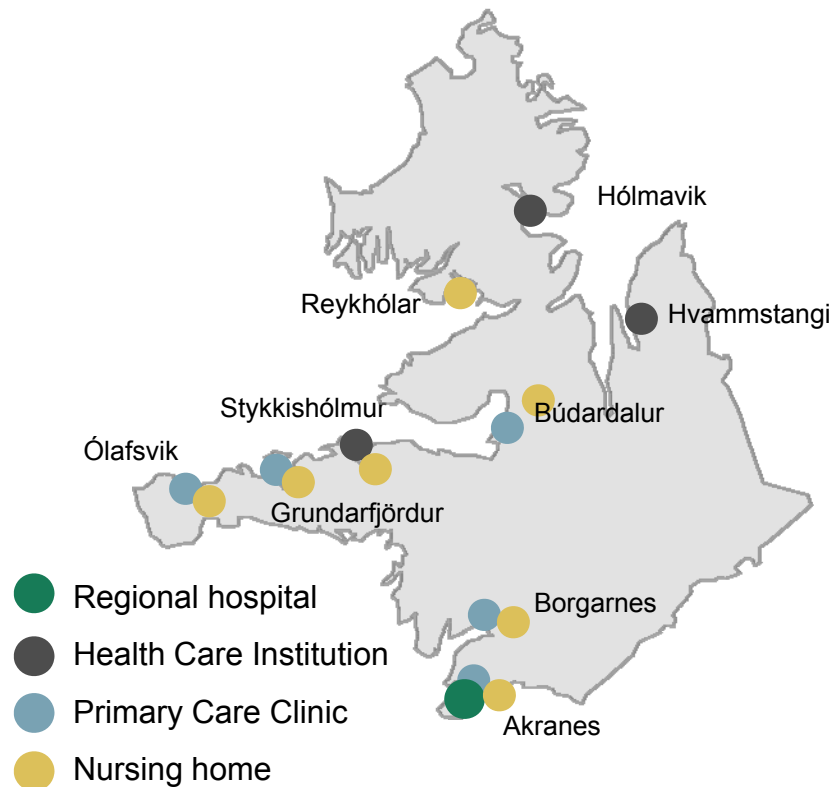
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Details on care provision by region

Western Health Region



Distribution of health care provision in Western region



1. Number of beds reduced to 63 according to institution, but get funding for 64 beds.
 2. Number of beds reduced to 49 according to institution, but get funding for 63 beds "in order to meet the budget cuts"
 3. Surgeries performed in OR under anesthesia.
 Note: Capacity and resource data from 2011, except no. of ambulances (2009). Volume data from 2010
 Source: Ministry of Welfare data market 2011, slide checked and confirmed by each institution

Key facts

Capacity

Hospital beds: 64¹

Elderly care:

- Nursing home beds (RAI): 126
- Hospital beds used for nursing (RAI): 63²
- Other long term nursing beds: 71
- Home care provision: ~10,700 visits, ~430 individuals serviced

Primary care physicians on call: 8

Emergency rooms: 1 (Akranes)

Ambulances: 14

Volumes

Surgeries³ : In total 1,425

- **Top 3:** 20% female genitals, 16% digestive system and spleen, 16% muscles and bones

Deliveries: 358

Resources

Physicians (Annual Working Unit, AWU): 27

- Of whom practicing at Health care clinics (AWU): 9

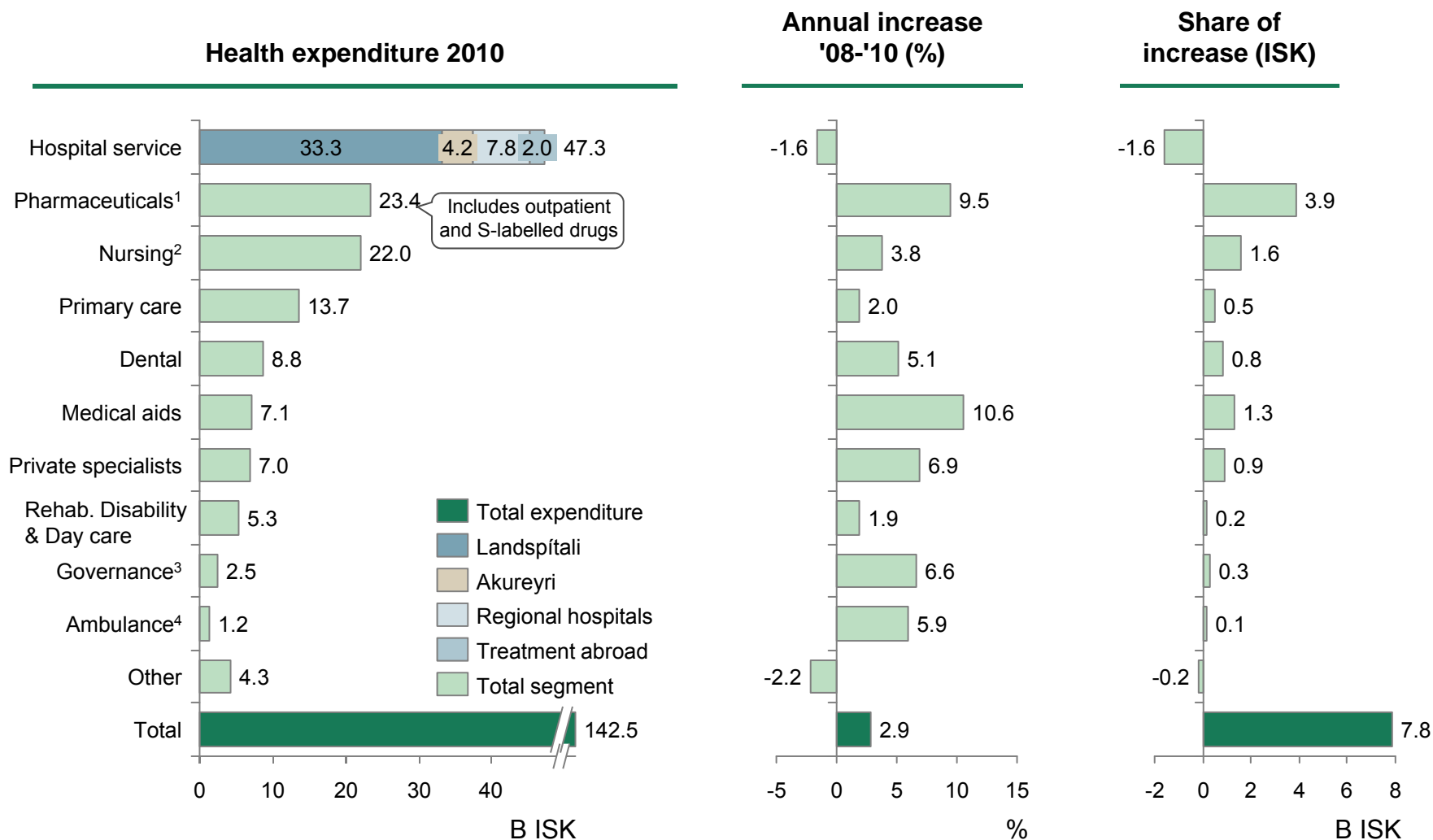
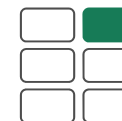
Nurses (AWU): 67

Other medical personnel (AWU): 74

→ See appendix for more regions

State and patient health expenditure was 142 B ISK 2010

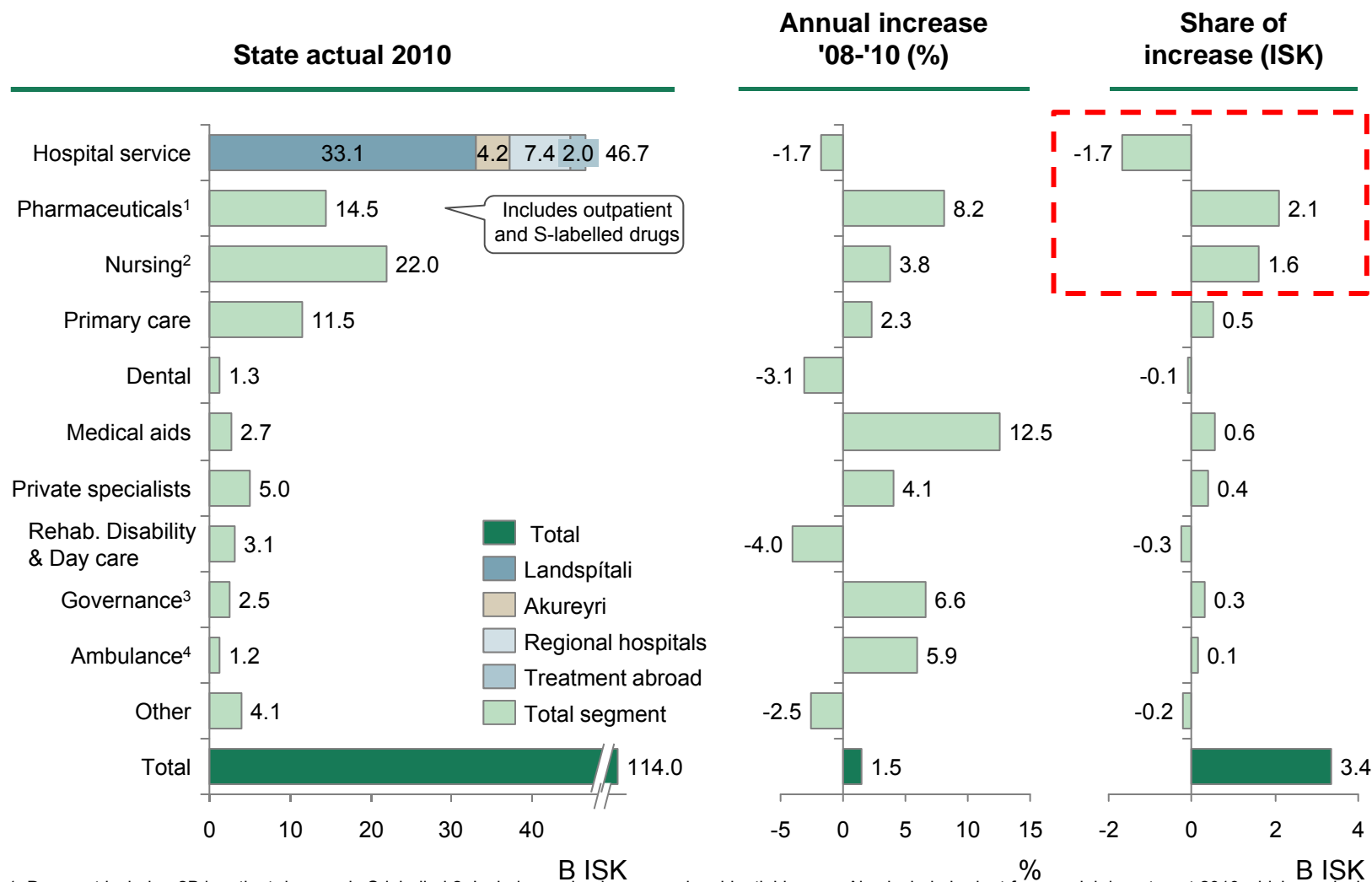
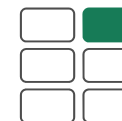
Pharmaceuticals, nursing and aids increased most since '08 whereas hospital decreased



1. Does not include ~2B inpatient drugs only S-labelled 2. Include nursing homes and residential homes. Also include budget from social department 2010 which was included 2008, 2009 and again 2011 3. Include Ministry of Welfare, Directorate of Health and Icelandic radiation authority 4. Only include state spend not the budget on the individual hospitals 5. Other include Sjúklingatrygging, new Landsítali Capex and Heilbrigðismál, ýmis starfsemi eand other capex costs etc
Source: Ministry of welfare reported data 2011

State expenditure has increased 1.5% per year since 2008

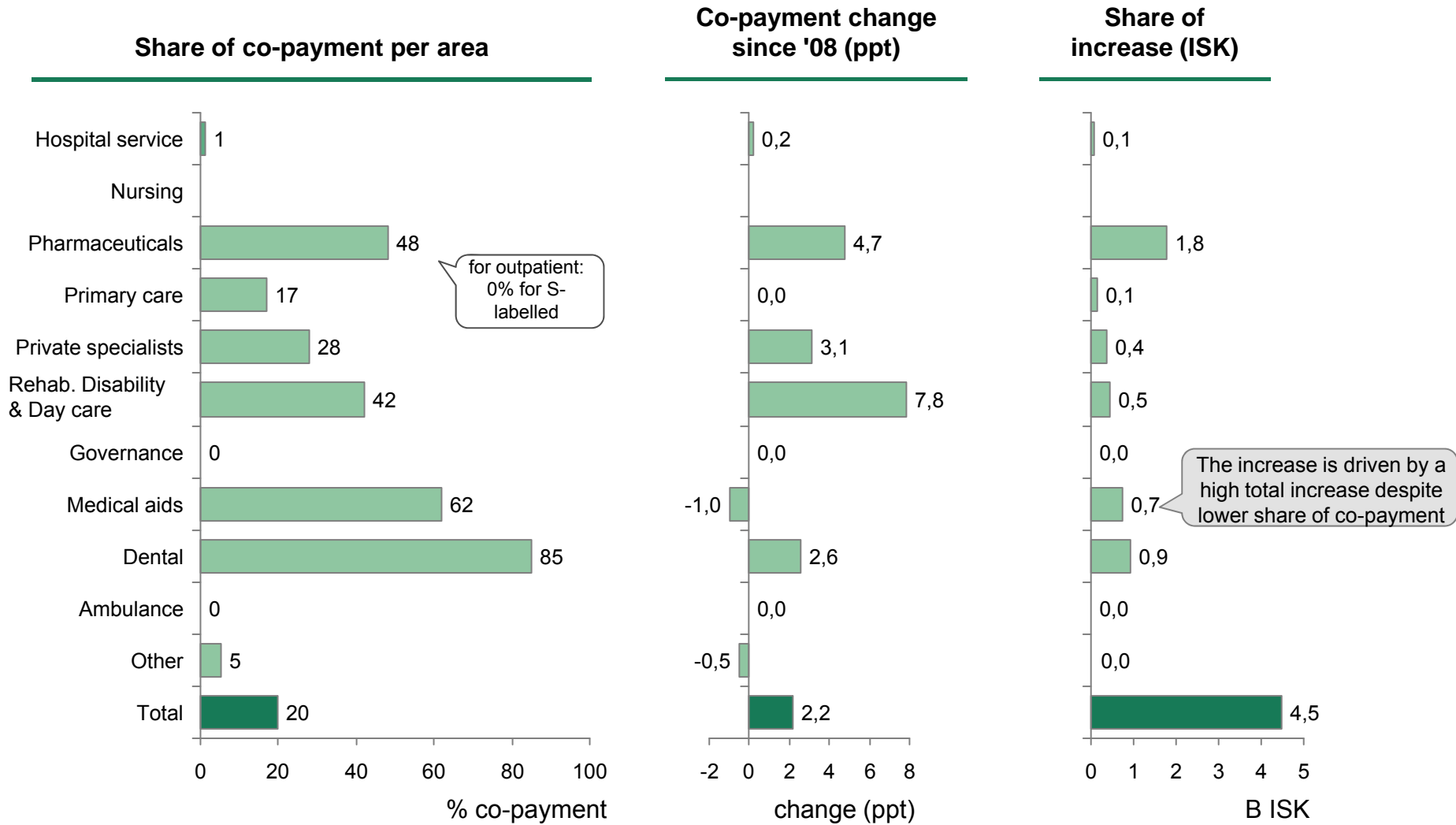
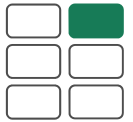
Pharma and nursing are cost drivers whereas hospital service is decreasing



1. Does not include ~2B inpatient drugs only S-labelled 2. Include nursing homes and residential homes. Also include budget from social department 2010 which was included 2008, 2009 and again 2011 3. Include Ministry of Welfare, Directorate of Health and Icelandic radiation authority 4. Only include state spend not the budget on the individual hospitals 5. Other include Sjúklingatrygging, new Landsítali Capex and Heilbrigðismál, ýmis starfsemi eand other capex costs etc
Source: Ministry of welfare reported data 2011

Co-payment has increased in all sectors and is 20% in total

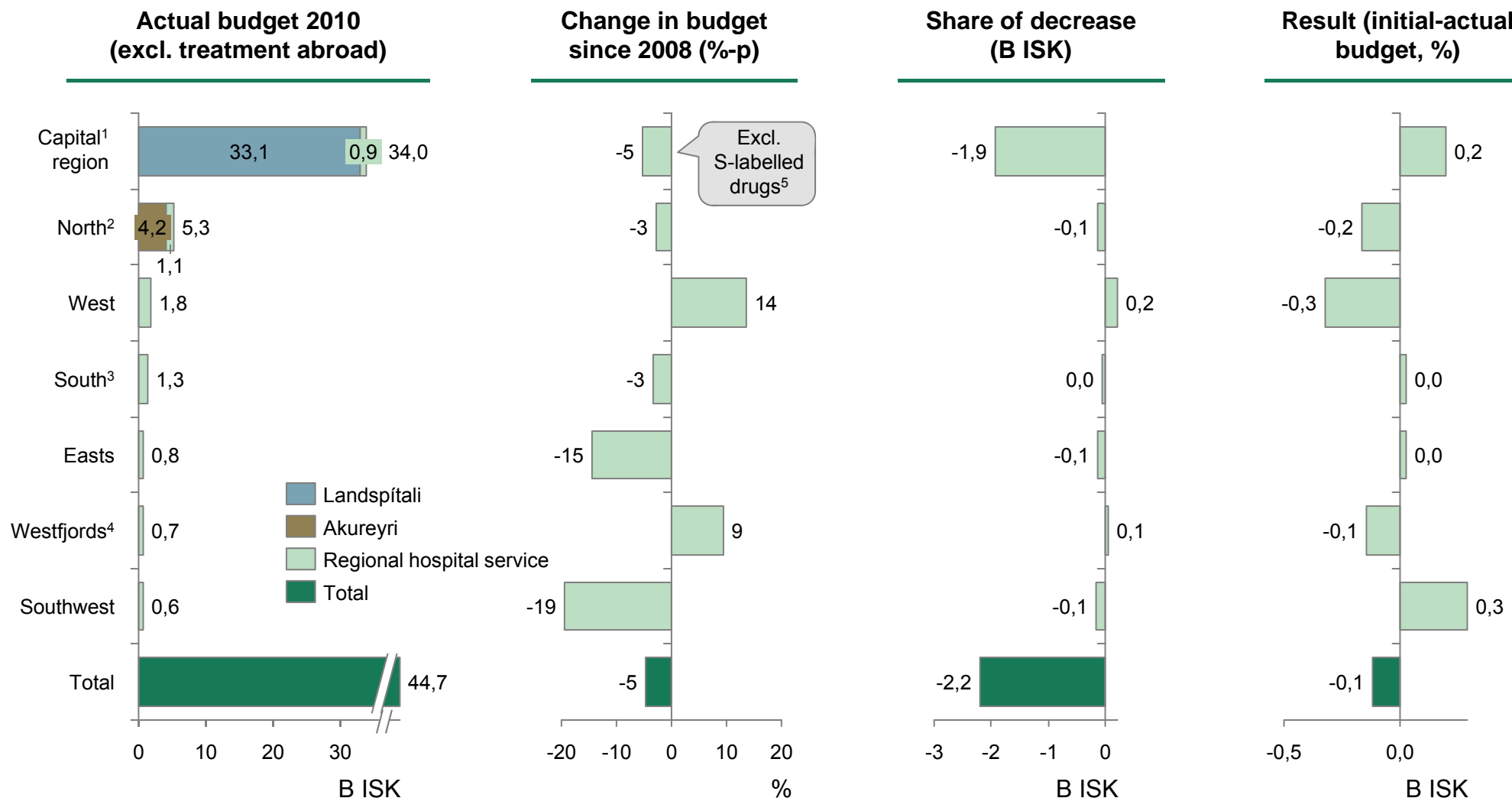
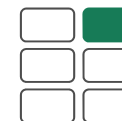
Driver behind 2% total increase since 2008 is pharmaceuticals, dental and medical aids



1. Include 10 B from social department budget 2010 which was included 2008, 2009 and again 2011 2. Does not include ~2B other inpatient drugs 3. Include Ministry of Welfare, Directorate of Health and Icelandic radiation authority 4. Only include state spend not the budget on the individual hospitals
Source: Ministry of welfare

Total hospital service budget reduced with 5%-p since 2008

West have received increased budgets



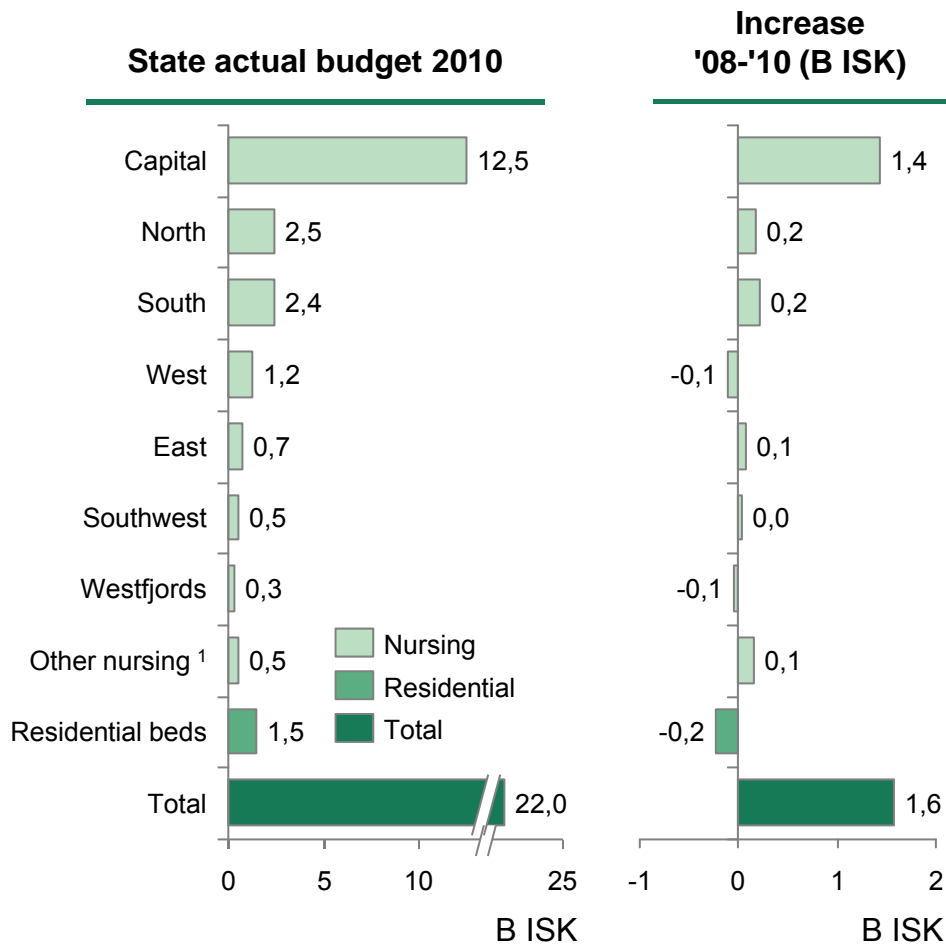
1. Besides Landspítali Rjóður, hvíldarheimili fyrir börn and St. Jósefsspítali, Sólvangur are included 2. Besides Akureyri actual spend for hospital service in Heilbrigðisstofnun Þingeyinga Blönduósi Fjallabyggð and Sauðárkróki in total amounting to 1.1 B ISK is included 3. Included institutions are Heilbrigðisstofnun Suð-Austurlands Suðurlands and Vestmannaeyjum 4. Include a Heilbrigðisstofnun H Vestfjarða & Patreksfirði 5. Landspítali spend on S-labelled drugs 3.067 B for 2008 have been excluded as it is not in the budget 2009 and 2010
Source: Ministry of Welfare



Increased budget for nursing driven by Capital region

A result of higher budget per bed partially driven by higher care need

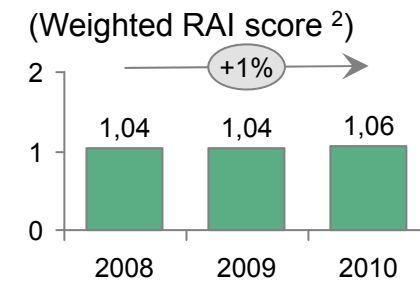
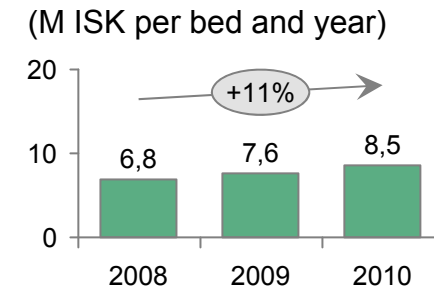
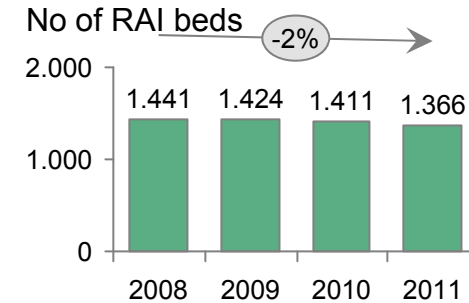
Increase driven by Capital region



Capital region increase driven by higher budget per bed

Decreasing care volume

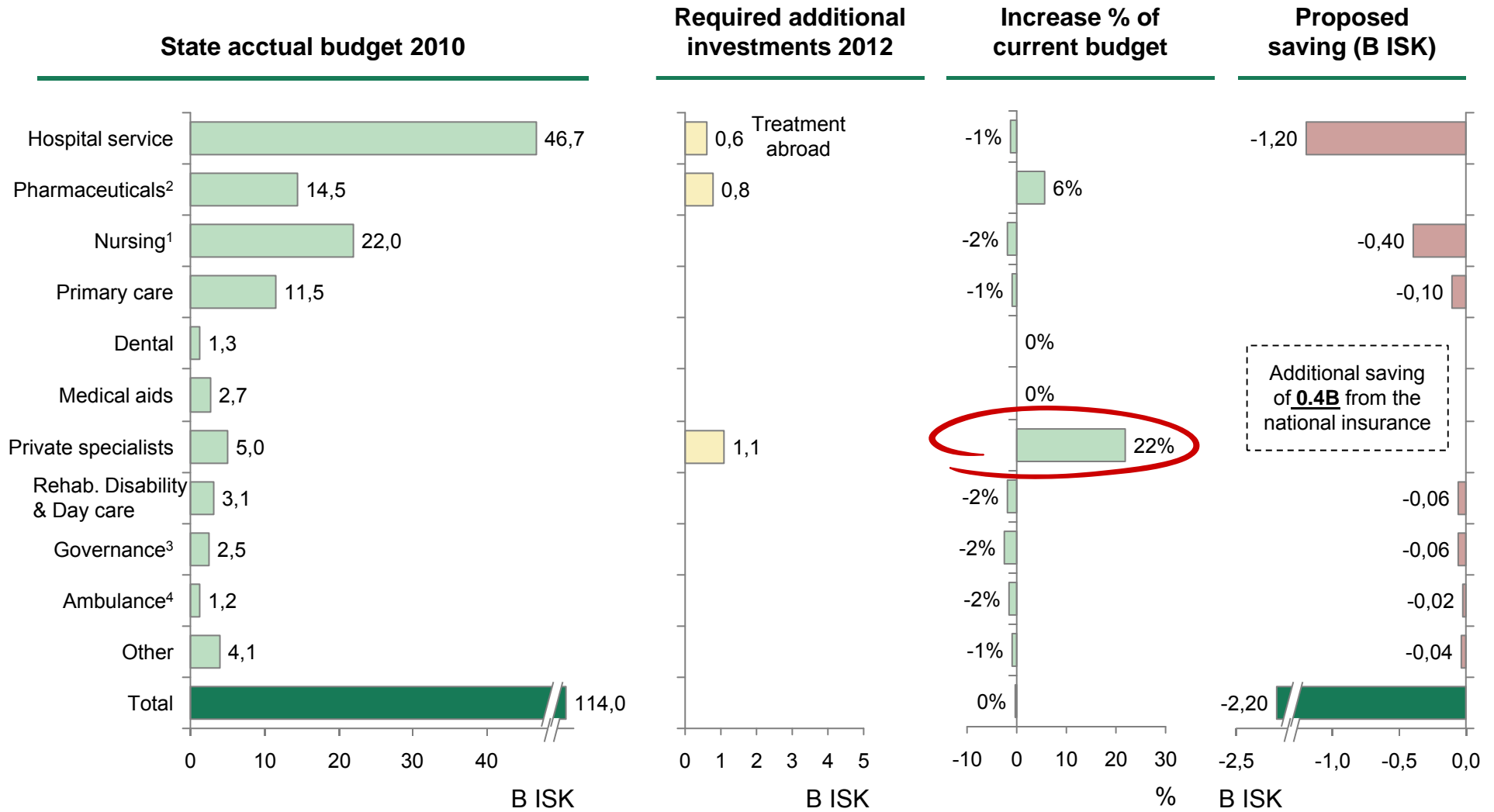
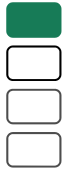
Increasing per bed budget



1. Unspecified post in Social Ministry budget 2010² "general nursing beds". RAI score assess care need of patients and higher score mean more care intense patient
Source: Ministry of Welfare reported data 2010

Reallocations will be made in the budget 2012

Increase in private specialist budget by 22%



1. Include 10 B from social department budget 2010 which was included 2008, 2009 and again 2011 2. Does not include ~2B other inpatient drugs 3. Include Ministry of Welfare, Directorate of Health and Icelandic radiation authority 4. Only include state spend not the budget on the individual hospitals
Source: Ministry of welfare

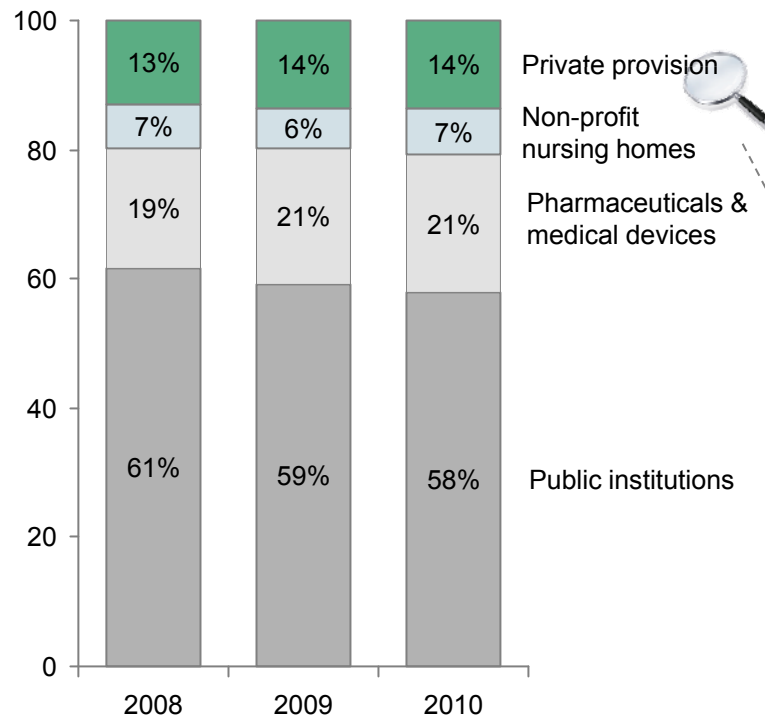
Private provision has been flat around 14%

In ISK private provision has increased but not as a share of the total expenditure

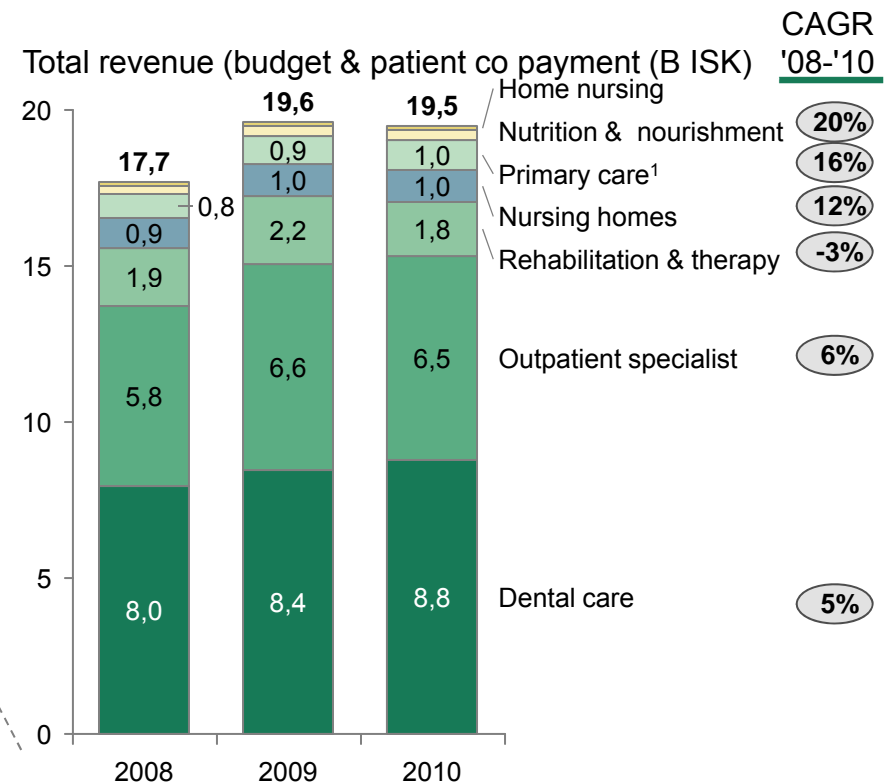


Degree of private provision constant

% of total healthcare expenditure (public & patient co-payment)



Private provision dominated by dental and outpatient specialists



1. Patient revenues estimated by using same percentage as for public primary care for all years

Note: Dental, outpatient specialists, rehabilitation, nutrition and nourishment and home nursing are from SI data, Primary care are from Ministry of Welfare budgets for Laeknavaktin, Laumuli and Salarstodin

Source: Ministry of Welfare, national insurance (SI)



Examples of recent changes and cost reductions

Structure

- Regions created in 2007 to govern organization of health care provision
- Two ministries merged 1 Jan 2011 creating Ministry of Welfare
- Centralization of deliveries e.g. increase of deliveries in Akureyri and decrease in surrounding health centers
- Closing of surgery department in Reykjanesbaer

Care delivery

- Increase outpatient treatments in Landspítali, Akureyri and West region
- Increasing share of day surgeries at Landspítali and West region
- Decreased length of stay at Landspítali
- Reduced number of hospital beds in several regions

Drugs

- Procurement of outpatient pharmaceuticals done monthly where the lowest cost drug must be used (generics are promoted)

Other

- Increase in co-payment of private specialists
- Centralized role recently created with responsibility and overview of emergency response

Landspítali has reduced its operating cost in order to meet state budget the last three years



Operating cost reduced by a number of initiatives

Structural shifts

- Shifting patient volumes from inpatient wards to outpatients,
- Merged the two sterilization units, inpatient wards and the two general emergency rooms

Staffing shifts

- Reduction of doctors on call & nurse shifts

Limits on disposables/labs/pharma

- Limit consumables/disposables assortment & diagnostic tests
- Savings in pharmaceutical costs – recommendations in patient records, etc.

Direct cost cuts

- Reduction of overtime hours paid (-10%)
- Less education and restrictions on conferences, travels etc

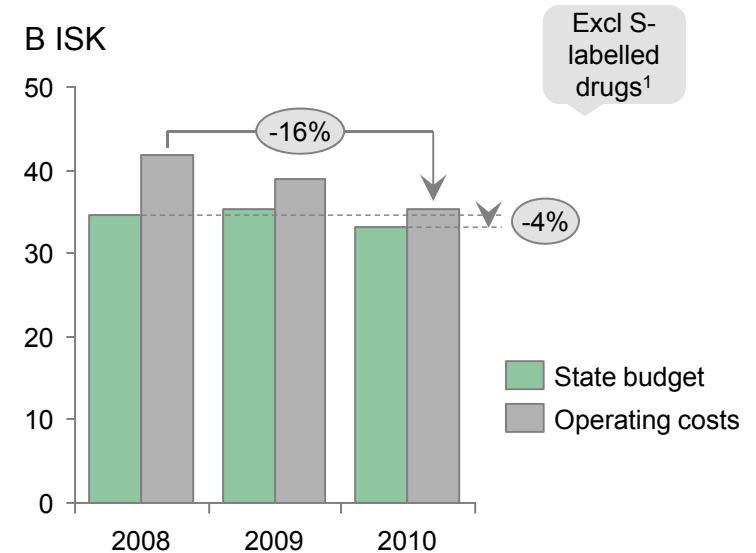
Savings in support functions

- Outsourcing of support functions, (staff cantina & cleaning)
- Cut the use of printing by 30% and centralized printers
- Centralize medical secretaries

Increased awareness/culture

- Increase cost transparency e.g cost labeling disposables,
- Encouraging change behavior contributing to savings

16% cost reduction '08-'10 and 4% state budget reduction



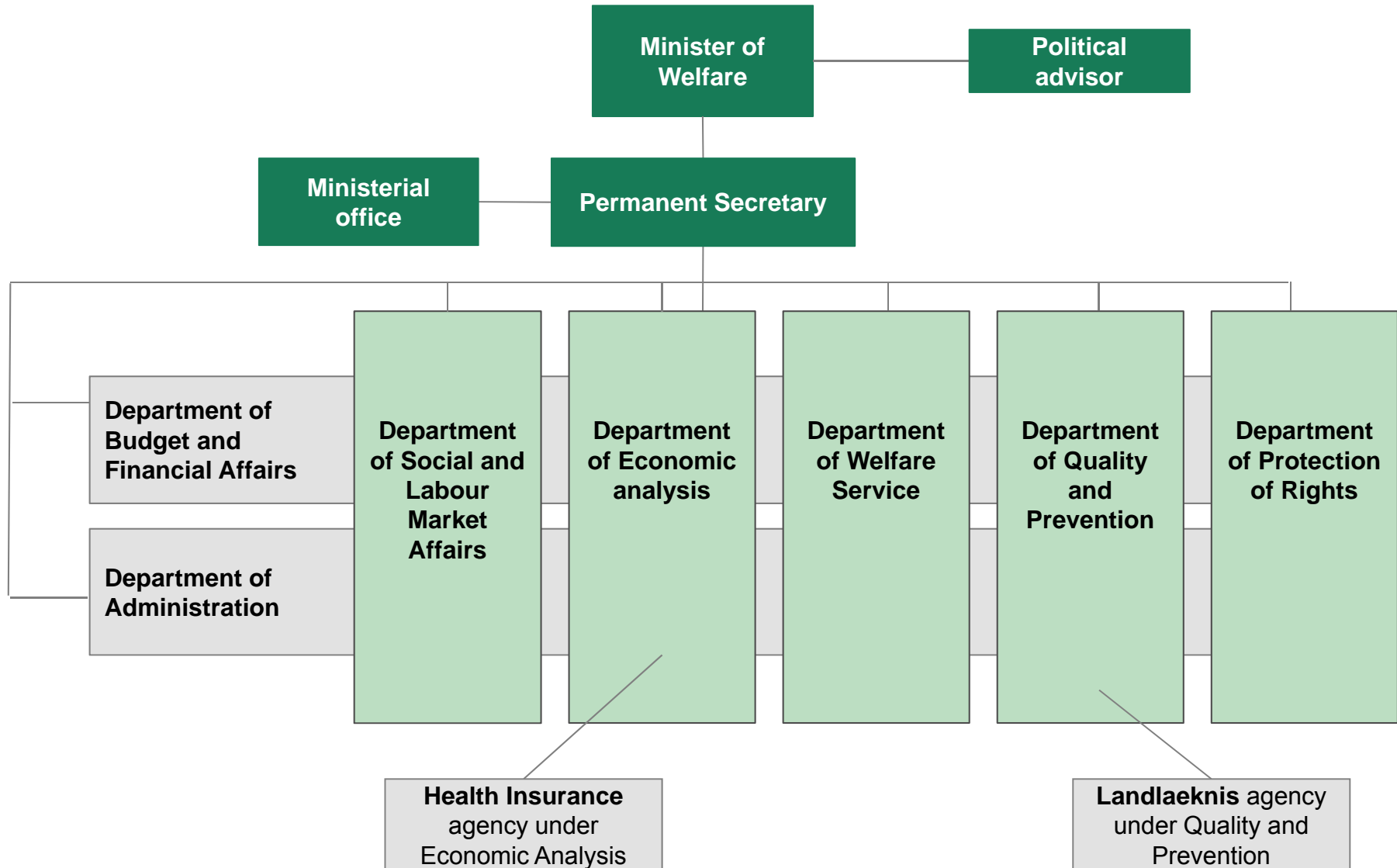
Key facts

	2008	2009	2010	'08-'10
No. of beds	788	718	677	-14%
Average length of stay	8.1	7.5	7.5	-7%
Employees	5,118	5,219	4,752	-7%
Personnel (% of total cost)	63%	70%	72%	9 ppt

1. Actual budget 2008 was 37.6 B ISK of which 3.067 was for S-labelled drug which was not included in budget 2009 and 2010s
Source: Hospital Statistics and Financial accounts 2009, Landspítali webpage

New Ministry of Welfare formed 1st January 2011

Responsibilities and operating models are still being developed



Source: Ministry of Welfare

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Agenda

Description of the Icelandic health care system

Current performance of the system

Key changes needed to secure a better system in the future

Review of key system performance in four dimensions

Quality

- Iceland has among the highest care quality in Europe
- Maturity of VBHC Iceland scores high on national enables but lower on data richness, quality and sophistication of use

Access

- Overall access to care is good especially in specialized care although some concerns raised about primary care access

Finances

- HC cost as a share of GDP has been increasing and the financial crisis has put cost pressure on the HC sector
- Budget reallocations need to be made next year

Efficiency

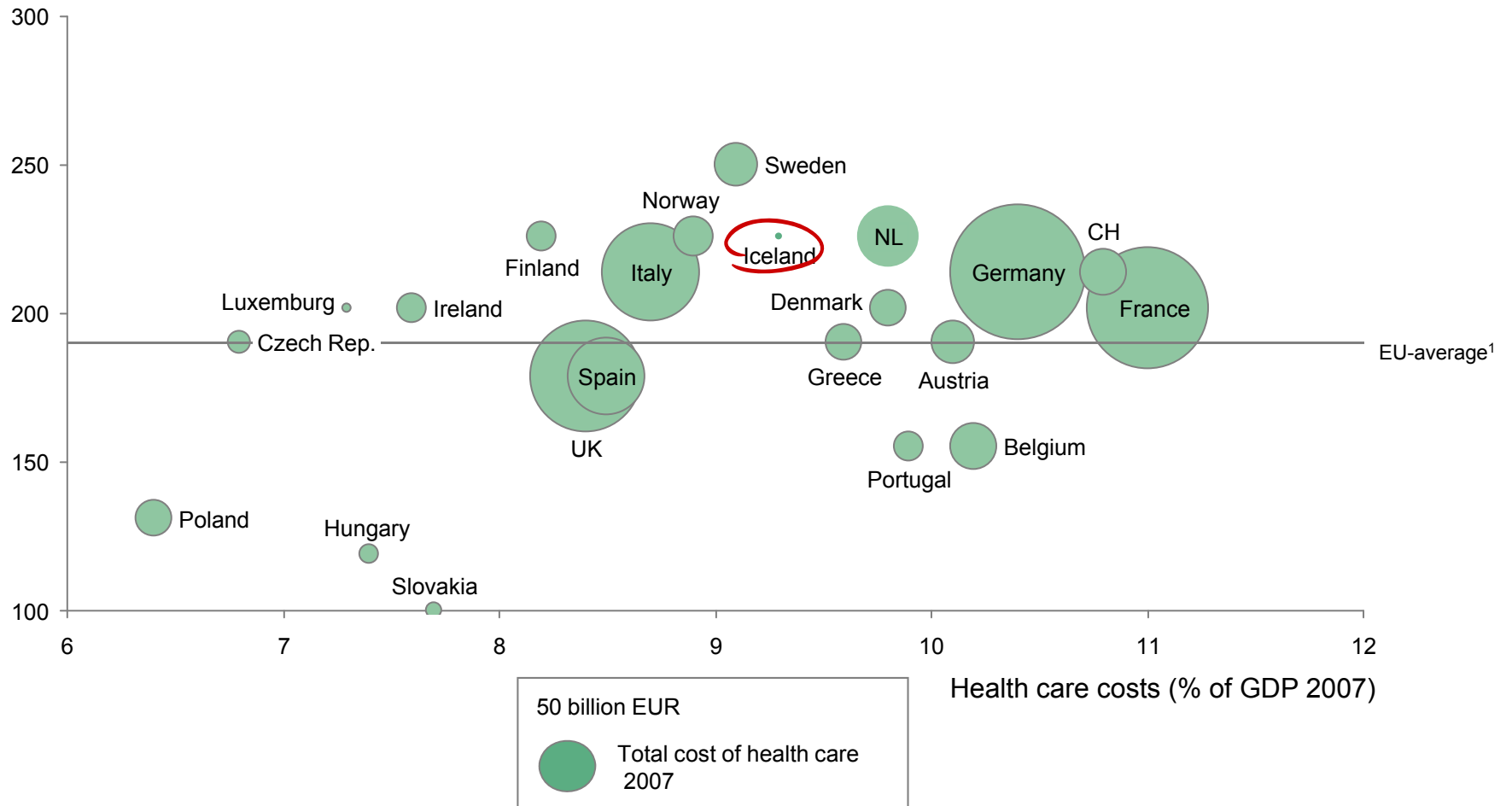
- First analysis indicate a large number of improvement areas in terms of care delivery structure, market rules, to high usage of emergency care etc

Quality of health care in Iceland high

Scoring top five in Europe when measuring outcomes

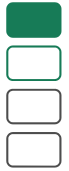


Quality points based on medical outcomes

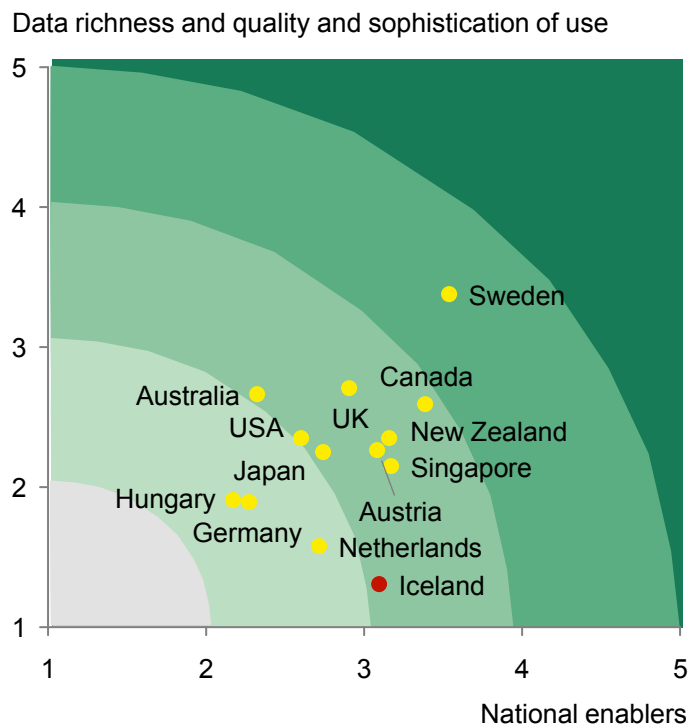


1. Weighted average based on Euro Health Consumer Index 2009 and total health care costs 2007
 Source: Euro health consumer index 2009, OECD health data 2009

Analysis of Iceland's VBHC maturity level identify lack of data collection and sophistication of use



Average on national enablers for outcome data collection but scores low on data richness and sophistication of use



See appendix for additional detail

A countries maturity level guides areas for national focus

Scores high on important infrastructure enablers

- High clinical IT usage and reasonable level of interoperability
- Unique identifiers personal numbers
- High use of standards however not always consistently
- No patient consent required

Lower score on national commitment enablers

- Little governmental strategic direction
- Medium-high engagement among physicians
- Very little reporting to public on outcome data and there is fiscal interest from the public
- Registry for cancer nationally funded

Currently few registries and low richness in outcome data

- Two national with low data richness
- A number of Landspítali registries with higher data richness score primarily used for clinical improvement work
 - However with little impact on clinical guidelines and reimbursement, accreditation

Data is currently primarily used in research applications

- Low level of reporting to clinicians, public and payers
- IceBio registry is an exception with a platform used as a clinical tool and data shared with clinicians on a monthly basis

Note: National enablers is average of scores for 1a3-6, 1b (all), and 2a6; Data richness and quality and sophistication of use is average of 2a (all), 2b (all), 2c1-3, and 3 (all, except 3.5). Note clinician engagement is not included in this overall assessment. Singapore data is desk base research only interviews scheduled for 26th August -2nd September, Austria Data is still not finalised
Source: BCG interviews and analysis 2011

Correlation between high quality and availability of registry



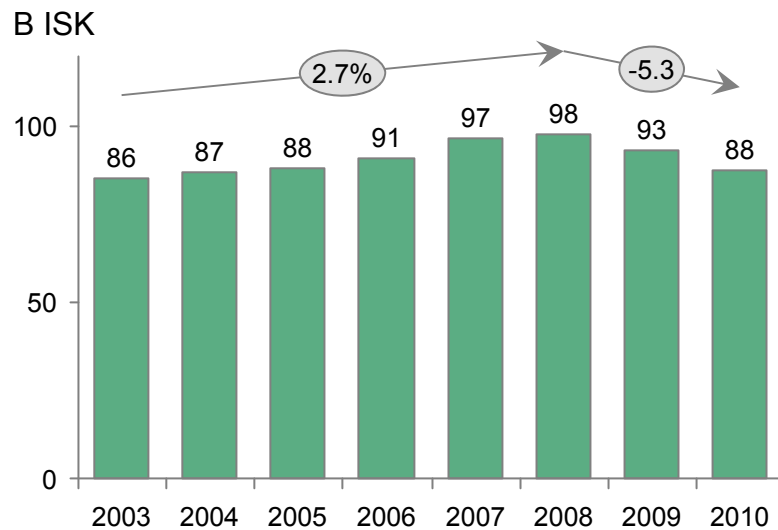
	Disease	Quality indicator	Incidence /Prevalence	Registry	Quality ranking	
1	Acute myocardial infarction	• Lowest post 30 days mortality in OECD 2.1%	~200/ year ²	✓	● Very High	} OECD ⁴
2	Breast cancer	• Next highest 5 year survival rate among OECD 88% ¹	~600/ year ³	✓	● Very High	
3	Digestive tract cancers	• Next highest 5 year survival rate among OECD ¹ 66% for colorectal cancer	~40/ year ³	✓	● Very High	
4	Chronic renal failure	• Highest proportion of treated patients receiving transplants in OECD	~150 people ³	✓	● High	
5	Stroke	• Lowest post 30 days mortality for isocemic stroke 2.3% ¹ • OECD average for hemorrhagic stroke 19.8% ¹	~500/ year ²	✗	● High	} Public-ations
6	Knee arthroplasty	• Revision rate 3% 7 after surgery in line with Sweden's revision rate and lower than Norway and Denmark's	367/ year ³	✗	● High	
7	Hip arthroplasty	• Revision rate for total hip replacement 6% after 10 years higher than Sweden 's 3%	~635/ year ³	✗	● Medium	
8	Cataract	• Proportion of surgeries performed as day cases is 91% lowest in Nordics	~2653/year ³	✗	● Medium	} OECD
9	Diabetes	• Mortality index adjusted for prevalence is 2, avg. in Nordics • Highest index of acute admissions adjusted for prevalence	1.6% of population ³	✗	● Low	
10	Leukemia & lymphoma	• No quality indicators found	17 /year ³	✓		
11	Spine surgery	• No quality indicators found	~400 disc oper. /year ³	✓		
12	Schizophrenia	• No quality indicators found	0.3-0.7% of pop. ²	✗		See appendix for additional detail

1. Age adjusted 3.Data from publications 3. Official Icelandic data 4. Health at a Glance 2009
Source: OECD,



Reallocation is needed within the HC budget for 2012

Adjusted for inflation health expenditure has decreased 5% per annum '08-'10



Health exp. % of GDP

10.4 9.9 9.4 9.1 9.1 9.2 9.6 9.3

Increased as a result of lower GDP growth

Current savings target

To afford escalating costs in S-labelled drugs (0.8 B ISK), treatment abroad (0.6 B ISK) and private specialists (1.1 B ISK) reductions of the other budget post amounting to 2.2 B ISK is required

Translating budget savings into resources could hypothetically mean¹

- Cutting 23% of outpatient pharmaceutical budget, or
- Completely stop reimbursing medical aids
- Laying off 157 doctors, corresponding to 12% of total number of doctors and surgeons, or
- Laying off 314 nurses, corresponding to 12% of all nurses

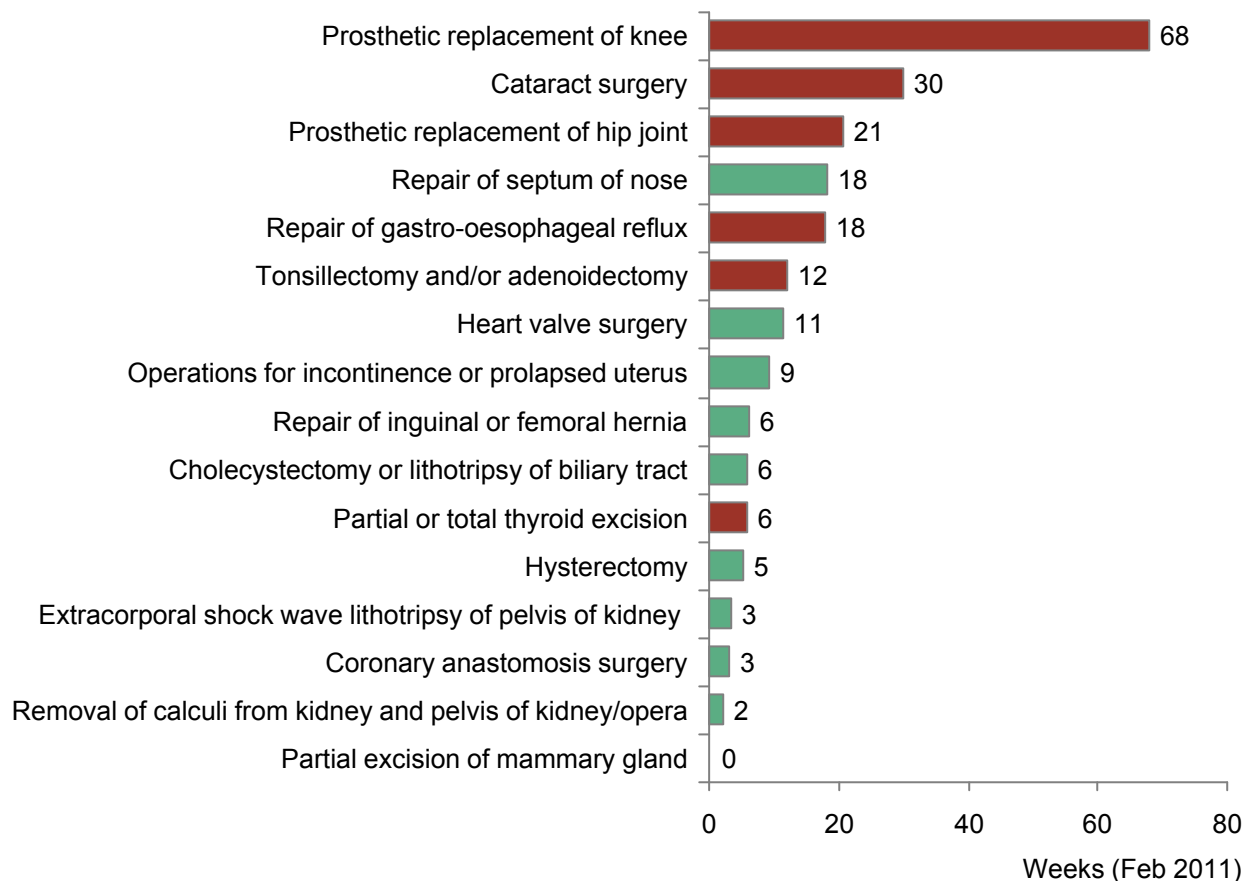
1. Average cost per doctor estimated at 14,000,000 ISK per year and nurse 7,000,000 ISK per year
Source: OECD, Iceland Statistics, Ministry of Welfare, BCG analysis

Landspítali has better access than Karolinska in most cases

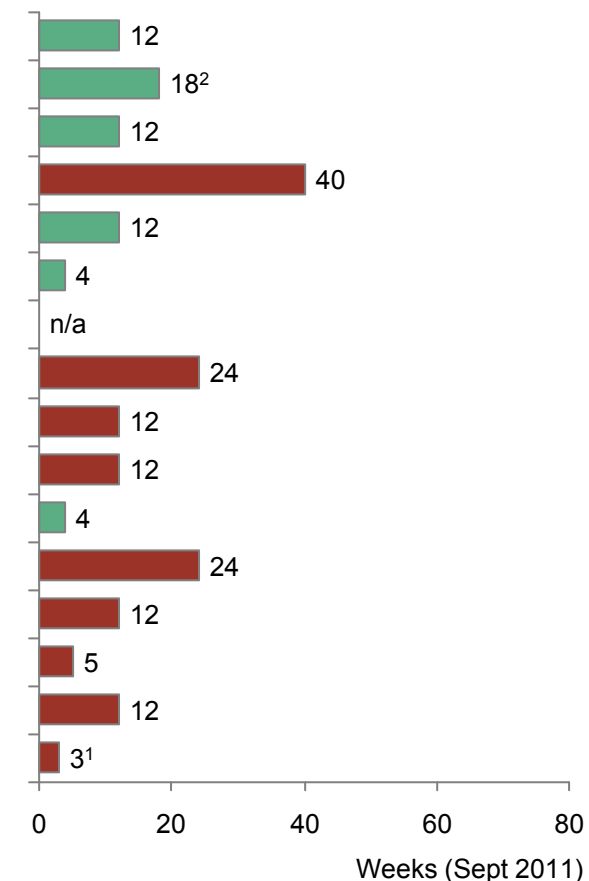
Note that it is inherently difficult to compare waiting times



Waiting times for selected procedures at Landspítali



Waiting times at Karolinska in Stockholm



1. This number regards 2009 and not 2011; 2. Procedure executed at St Görans eye clinic and not at Karolinska
 Source: SLL; omvard.se; Öppna jämförelser av cancersjukvårdens kvalitet och effektivitet 2011

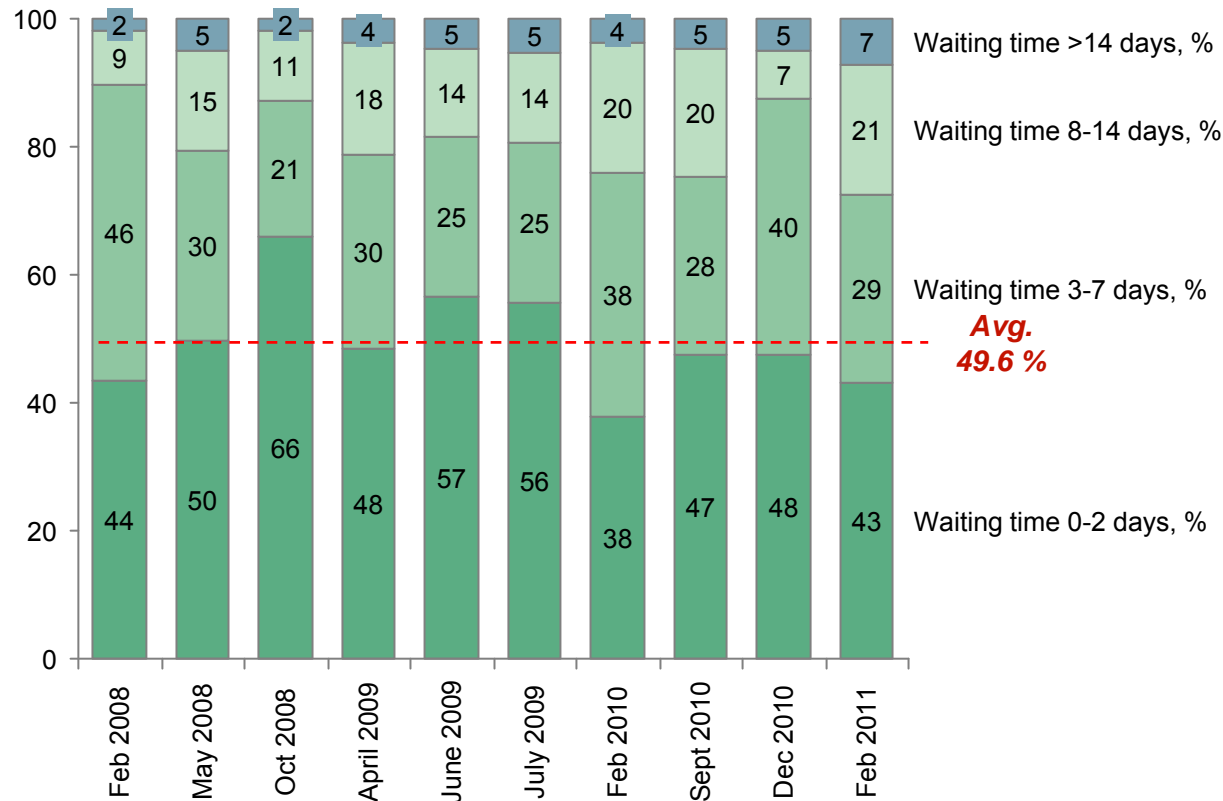
Access to primary care in capital region better than Sweden

Definition of overall acceptable waiting time needs to be defined



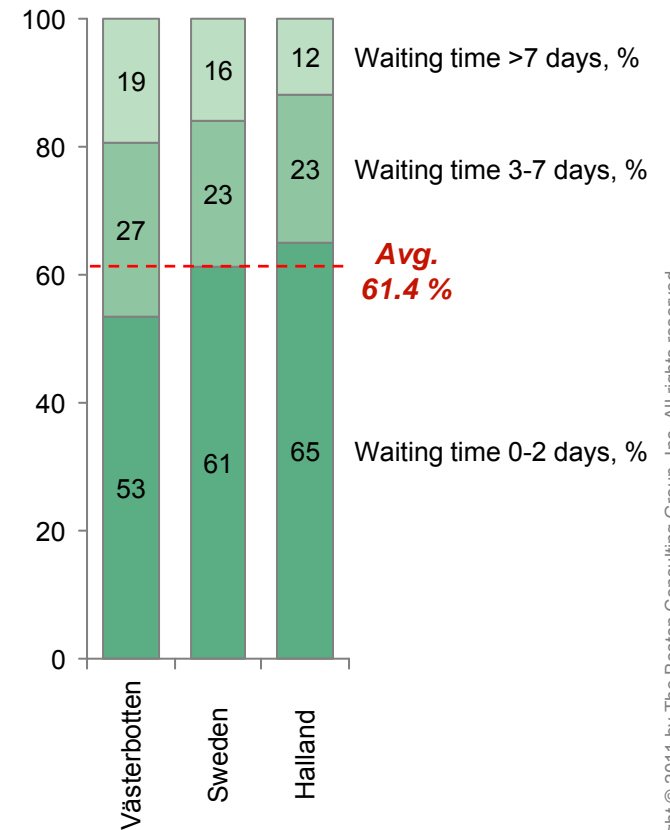
50% of patients seeking primary care in Capital Region gets an appointment within 2 days

% of all patients seeking primary care



Corresponding number for Sweden is 61%

% of all patients seeking primary care fall 2010



Note: Swedish data based on surveys among patients visiting GP centers during fall 2010, 238 699 surveys were sent out with a response rate of 56.7 %. Icelandic data based on service in all public primary care clinics in Capital area and private clinic Lagmuli

Source: Primary Health Care of the Capital Area (waiting time surveys as part of an internal quality check). Mr. Jonas Gudmundsson; Institutet för kvalitetsindikatorer

Overview of key hypothesis on efficiency



	Key hypothesis	Strength of hypothesis
Structural levers	1 Unequal and inefficient elderly care provision	
	2 Un-optimal hospital structure e.g. elective care, emergency care etc	
Market rule levers	3 Capitation for public and fee for service model for private providers in combination with lack of gate keeping causing issues <ul style="list-style-type: none"> • Large use of private GPs after hours • Overuse of private specialized care • Likely overuse of emergency rooms 	
	Patient flow levers	4 Over hospitalization resulting in long average length of stay
Direct expenditure levers		5 Drug spend too high in selected areas
	Other levers	6 Potential to optimize care service further with Lean approach
		7 Lack of planning, performance management, e-Health and in some areas of prevention

Elderly care should be equal, of high quality and efficient



Equal

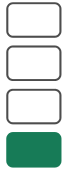
- Although efforts have been made to benchmark and divide beds per inhabitant recent data indicated that there is an uneven distribution of elderly care today

High quality

- Limited performance management of quality in elderly care
- Recent report indicated that there are large quality issues in selected areas of elderly care

Efficient

- Likely to be some efficiency improvements given the lack of structured planning and performance management

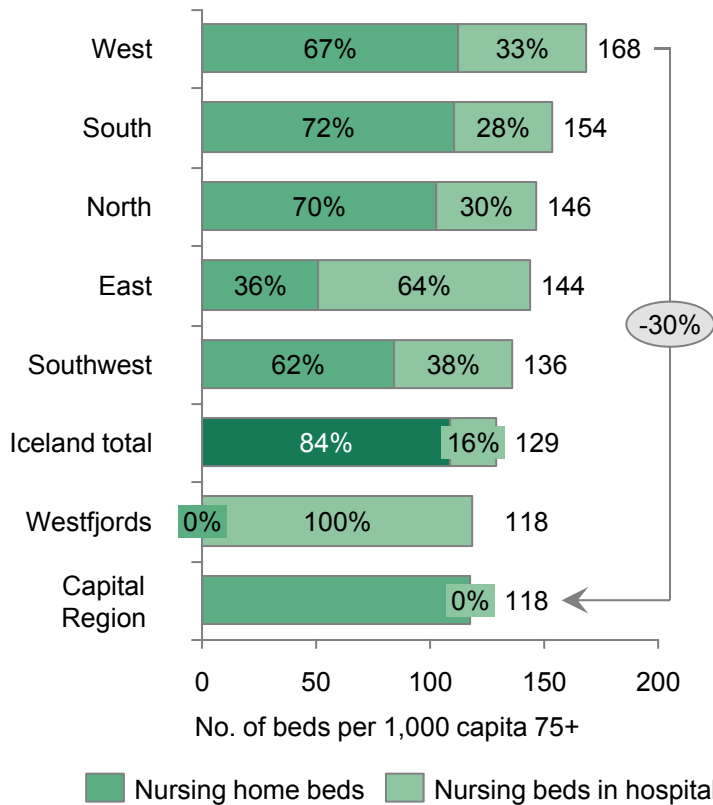


Large variation in elderly care provision between the regions

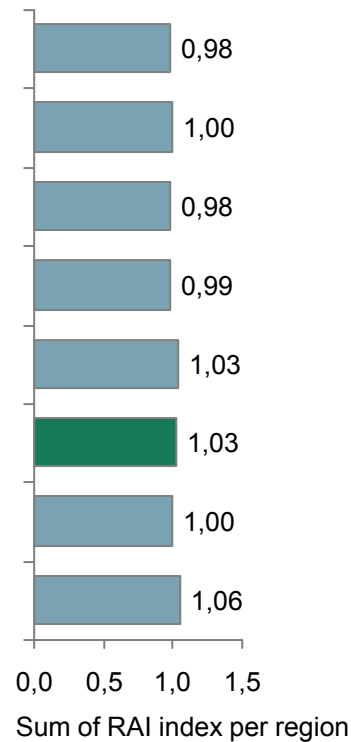
West and South consume more elderly care than Capital region

High variation in number of nursing beds across regions

Number of beds per region and type of bed

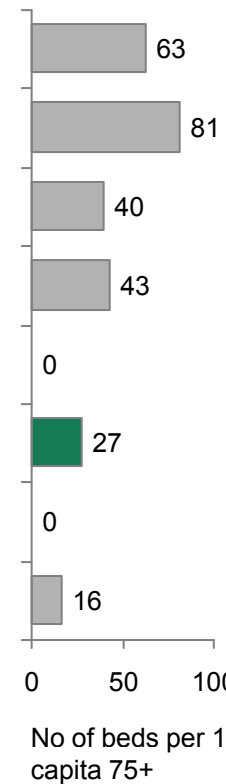


High RAI score in Capital region show high care need

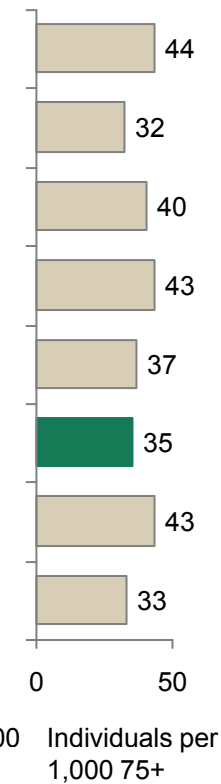


Same tendency for other elderly care

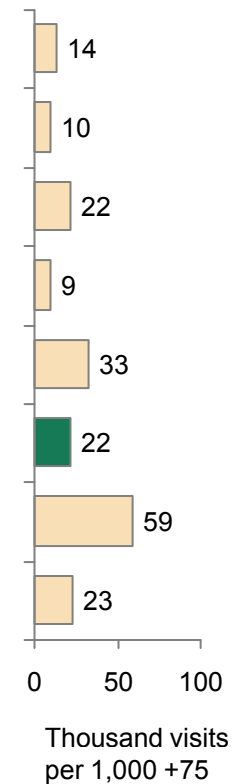
Other nursing beds¹



Day care



Home nursing



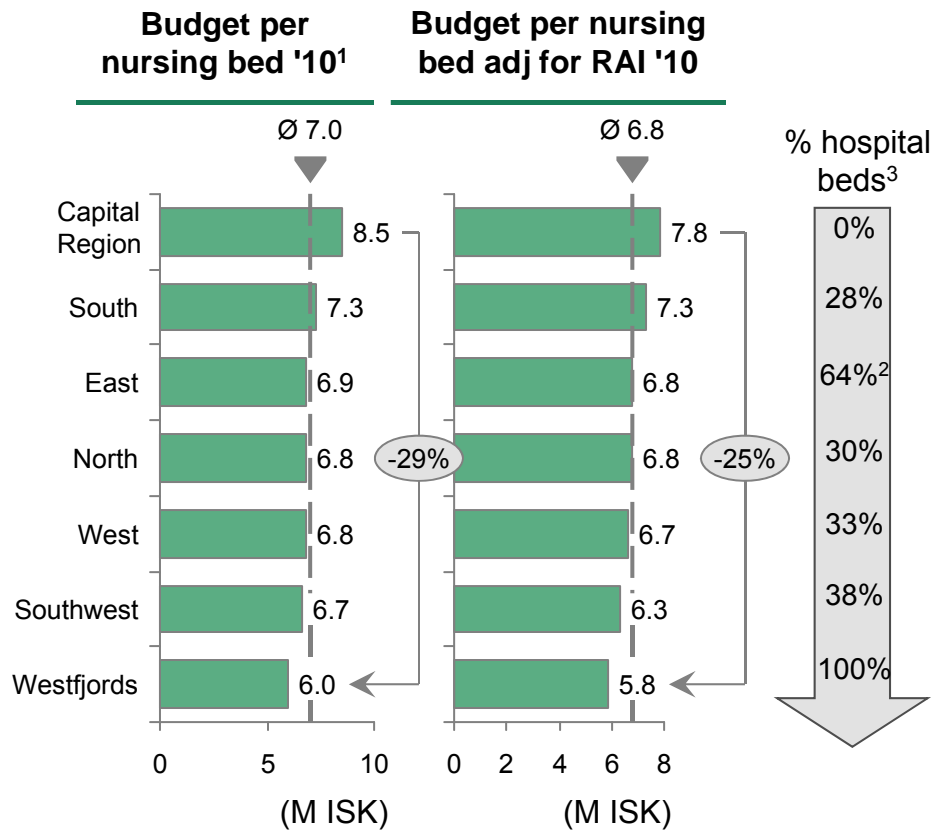
1. Non-RAI elderly care beds, to higher extent patient co-financed
 Note: Data from 2011
 Source: Reported by Ministry of Welfare 2011



Budget per bed differ across regions

Regions with higher proportion of hospital beds have lower budgets per bed

Difference in budget per bed across regions



Historically different budgets for hospital and nursing homes may explain difference

Nursing homes per bed budget determined by:

$$\text{Standard RAI per bed} \times \text{RAI per institution} \times 365 \text{ days} + 2-6\% \text{ additional budget if home has } < 60 \text{ beds}$$

- Standard RAI per bed has to some extent been adjusted for inflation and other extra cost including additional tax per employee

Hospital nursing beds budget have not been adjusted in the same manner for RAI until 2011

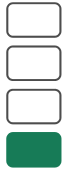
- Fixed budgets only based on number of beds not adjusted for inflation and other extra costs

1. Refer to combined budget for both hospital and nursing home beds 2. Outlier as it has many smaller nursing homes resulting in a higher budget per bed see slide XX for more detail 3. Ratio of number of beds in hospital divided by total number of nursing beds
 Note: 2010 budget data
 Source: Reported by Ministry of Welfare 2011

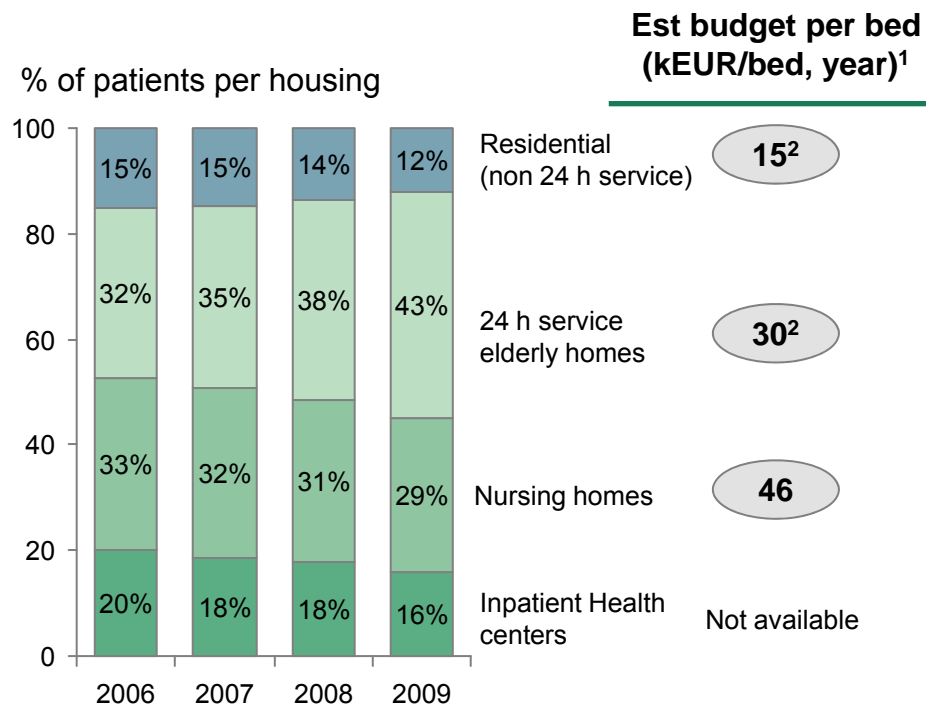
The Finnish example



Shifting elderly to less care intense housing types in an effort to increase quality and reduce costs



Finland have shifted patients from less care intense care forms



Reforms driven by cost reductions but also with regards to preferences of elderly

24 h service homes are non institutional publically financed housing for elderly with somewhat lower care offering

- Generally preferred by elderly
- Higher private provision ~50%
- Similarly to Iceland waiting lists have increased and typically patients are sicker when admitted
- Non 24 h hour service housing has been decreasing as a result of policy to reduce number of elderly needing to change housing

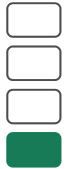
Strong political support for increasing home nursing

- A number of reforms to increase access and utilization of home care and home nursing
- Primarily driven by ambition to keep patients at home rather than in more cost driving housing services

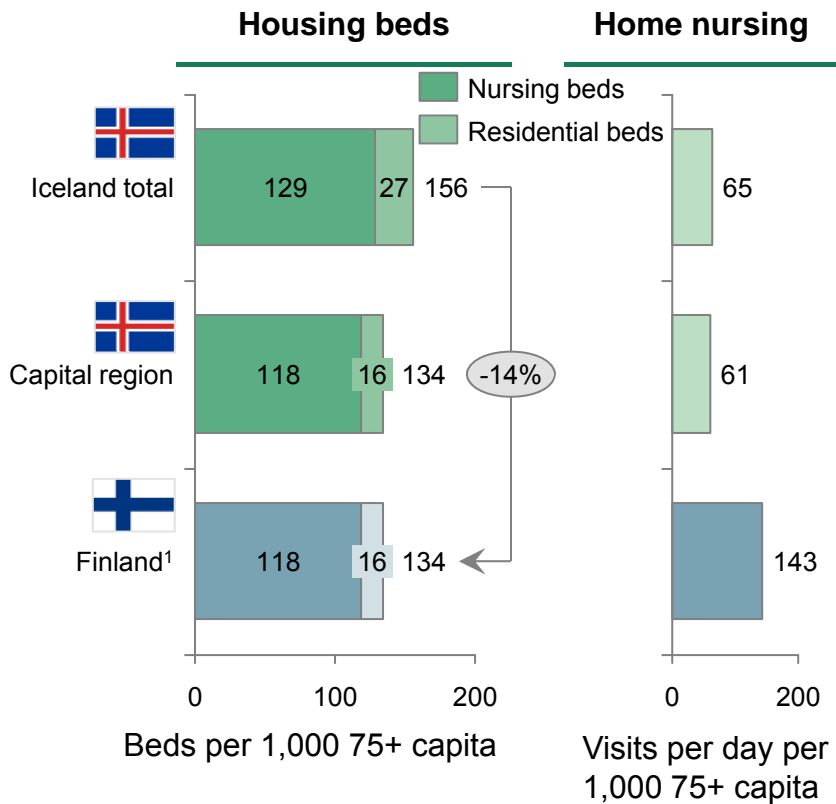
1. Based on public expenditure and potential co-payment divided y number of patients 2..Include co-payment of around 20%
 Source: Statistics Finland, National Institute for Health and Welfare Finland, BCG analysis

Lower number of beds and per bed spend in Finland

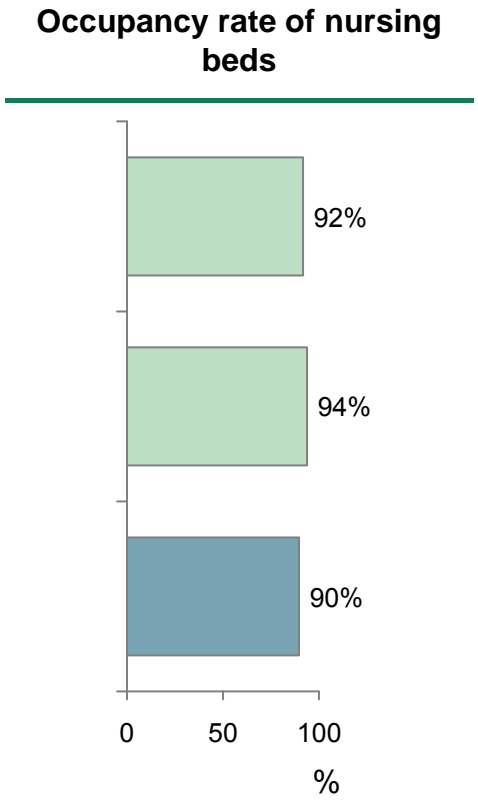
Finland increasingly utilize home nursing and less care intense housing types



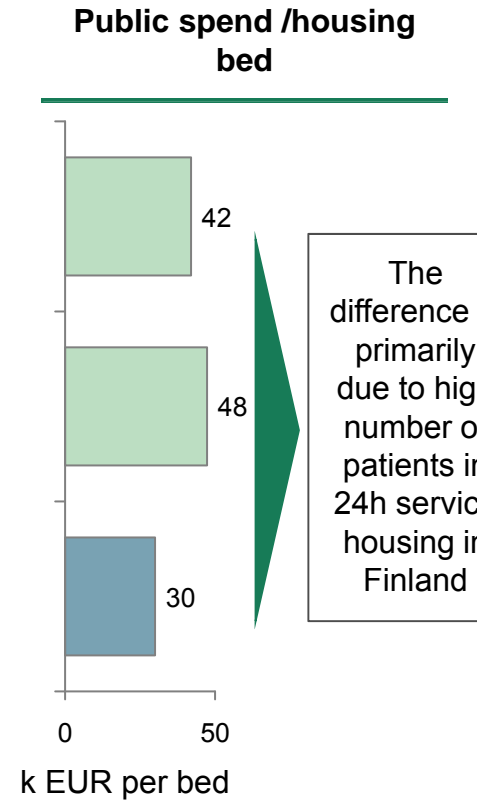
Care volumes



Utilization



Public spend per bed



¹ Finish nursing beds include inpatient beds, nursing homes and 24 h service housing
 Note: Icelands number of beds per 1,000 75+ capita data is from 2010 and from 2009 for Finland
 Source: Statistics Finland, National Institute for Health and Welfare Finland, BCG analysis

Swedish example on performance management

30 indicators used to evaluate quality, access and efficiency of Swedish elderly care



Home care and nursing homes

% satisfied with overall help/care overall	% satisfied with the treatment from the personnel
% satisfied with how staff consider their personal thoughts	% satisfied with the taste of the food

% satisfied with the opportunities to get out of home

Specific needs

% of dying getting informative talks beforehand	% of dying patients for which a pain assessment is done last week of life
% of dying with someone present at time of death	% of deaths where relatives have been offered someone to talk to afterwards
% (>65 years old) with good health 3 months after stroke	% independent of supporting tools 3 months after stroke

Risk minimization

No. of injured from falls out of 1000 pers. >80 years old	Share of nursery home residents for which fall risk assessment been made
% of nursing home resid. for which malnutrition risk assess. been made	% of nursing home resid. for which pressureulcer risk assess. been made
% of nursing home resid. for which drug review been made last year	

Drug prescriptions

% of pers. >80 with prescription of 10 drugs or more	% of pers. >80 with prescription of 3 or more psycho-pharmatics
% of pers. >80 with prescriptions with risky combinations	% of pers. >80 with prescription of drugs with anticholinergic effects

Access

Days of waiting time for nursing home	Information online
---------------------------------------	--------------------

Personnel and competence

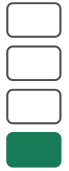
No. of different persons during 14 days	Share of staff with at least high school care education
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Standard cost

Deviation from standard cost

Source: Öppna jämförelser, Vård och omsorg äldre 2010, SKL and Socialstyrelsen

Scorecard example: Stockholm



Home care	% satisfied with overall help/care overall	63	Risk minimization	No. of injured from falls out of 1000 persons >80 years old	70
	% satisfied with the treatment from the personnel	75		Share of nursery home residents for which fall risk assessment been made	76
	% satisfied with how staff consider their personal thoughts	61		% of nursing home residents for which malnutrition risk assess. been made	66
	% satisfied with the taste of the food	47		% of nursing home residents for which pressure ulcer risk assessment been made	69
	% satisfied with the opportunities to get out of home	42		% of nursing home residents for which drug review been made last year	75
Nursing homes	% satisfied with overall help/care overall	57	Drug prescription	% of pers. >80 with prescription of 10 drugs or more	10.9
	% satisfied with the treatment from the personnel	65		% of pers. >80 with prescription of 3 or more psycho-pharmatics	4.5
	% satisfied with how staff consider their personal thoughts	45		% of pers. >80 with prescriptions with risky combinations	3.0
	% satisfied with the taste of the food	42		% of pers. >80 with prescription of drugs with anticholi-nergic effects	6.4
	% satisfied with the opportunities to get out of home	28		Specific needs	% of dying getting informative talks beforehand
Personnel and competence	No. of different persons during 14 days	7	% of dying patients for which a pain assessment is done last week of life		6
	Share of staff with at least high school care education	77	% of dying with someone present at time of death		87
Access	Days of waiting time for nursing home	17	% of deaths where relatives have been offered someone to talk to afterwards		64
		Information online	68		% (>65 years old) with good health 3 months after stroke
Std. cost	Deviation from standard cost	-7	% independent of supporting tools 3 months after stroke	54	

Source: Öppna jämförelser, Vård och omsorg äldre 2010, SKL and Socialstyrelsen
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Key findings on structure of specialized care delivery

Emergency care

- Ambulances
- ERs
- GPs on call

Ambulance services covering large part of the country with 78 ambulances

- Potential to optimize level of emergency response because of overcapacity in ambulances on several locations

Wide network of GPs on call every night

- Opportunity for savings by reducing GPs on call, but situation needs to be evaluated region by region

Two large ERs complemented with 6 smaller ones with limited access

- Potentially an opportunity to limit opening hours and staffing of small, low volume ERs

Obstetric services

Obstetric services offered in 9 places in Iceland

- Structural shift towards high volume places
- Signs that length of stay longer in smaller places

Quality of care and efficiency in current model unclear. Some smaller units have identified this as a short term savings opportunity for next year

Surgeries

Surgeries performed on nine locations throughout country

- Very small volumes in some places, e.g Saudarkroki and Vestmannaeyar

Data of very poor quality due no joint coding system making it very difficult to evaluate how optimal the current structure is. This needs to be further analyzed than we possible



The current system is not designed top down

There appears to be great consensus across system around this

Current model is not optimal

- No clear standards are set as to what services should be provided by service type and type of geographic area
 - ER opening hours
 - Visits per GPs
 - Surgeries concentration
 - Specialist service offering
- Service offering often based on historic service offering and resources available e.g. sub specialty of doctors working in hospital
- Lack of holistic system design across regions and municipalities
- Limited benchmarking is done of current service levels and best practice

Quotes for site visits

"Acute care should be all about organization and structure"

Acute specialist

"We have too many on-call GPs at night in our small region"

Chief medical officer

"Services provided are based on what ever local resources e.g. doctors they have, not on what makes sense from a quality and cost perspective "

Doctor in Landspítali

"We would like for someone to define what type of care and resources are needed in different parts of Iceland"

Nurse in one region

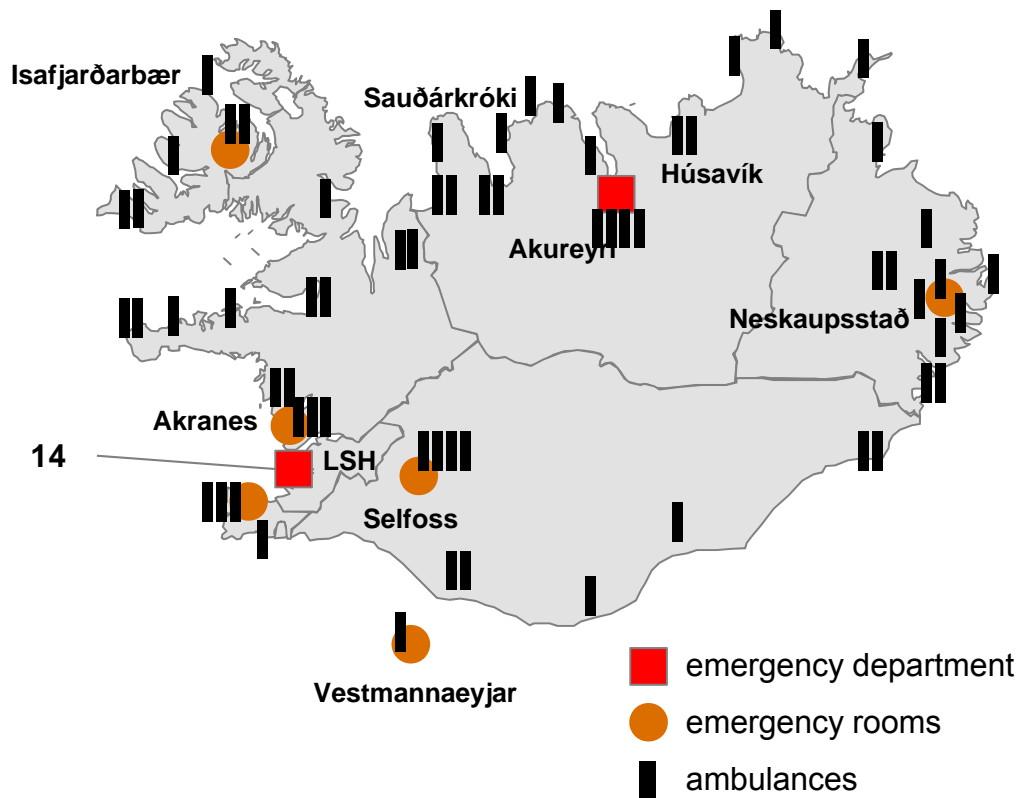


Ambulance services covering large part of the country

Complemented by 2 large around the clock ERs and 6 small with limited access

Wide network of 78 ambulances and ERs across Iceland

2 large emergency departments and 6 smaller ERs



Two main emergency rooms

- Landspítali with ~90,000 visits¹
- Akureyri with ~12,000 visits

6 small emergency rooms

- Four with lighter opening hours: Mon-Fri, 8-16
 - Akranes – staffed from hospital during day, with 4 on-call physicians during off hours
 - Vestmannaeyar – staffed with primary care physician during daytime and with 3 on-call during off hours
 - Isafjörður – staffed with hospital physician daytime and primary care physician and surgeon on call during off hours
 - Neskaupsstaður – staffed with hospital physician during daytime, and hospital physicians on call during off-hours
- Two ERs with increased opening hours
 - Selfoss, ER in hospital opened 24/7 with on-site/on-call service from 1 physician
 - Reykjanesbaer, ER in hospital opened 8-20 Monday to Friday and 10-13/17-19 on weekends, with on-site/on-call service from 2 physicians

1. Including visits to trauma room, pediatric ER, psychiatric ER and obstetric ER.

Note: Number of ambulances from 2009

Source: Emergency Health Care in Iceland, a brief overview September 2011, Ministry of Welfare, data collected by Data Group September 2011, BCG analysis

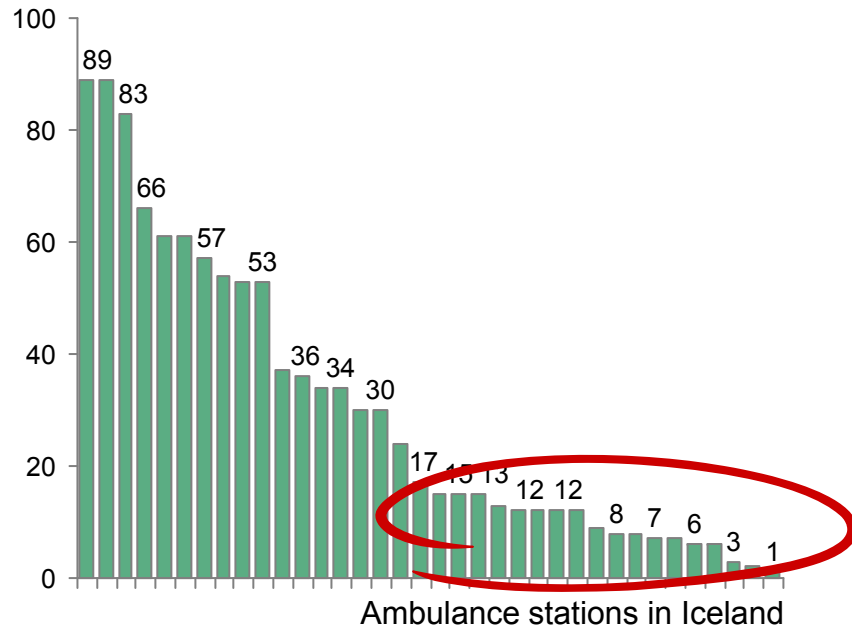


Potential to optimize level of emergency response

Overcapacity in ambulances on several locations

Very low utilization of several ambulance stations

Number of F1 and F2 transports per station per year¹



Opportunity to reduce ambulances and optimizing emergency response level

Over-capacity in ambulance care

Very low utilization of some ambulances

- Potential to limit number of ambulances to reduce costs for staffing and limiting expensive replacement of old ambulances

Low level of education of staff

Educational level off ambulance staff low

- Basic level ~130 hours education
- Intermediate level ~320 hours
- Target to have at least one intermediate in each vehicle

Current efforts to improve emergency response

- Improve skill level of ambulance personell
- Implement light emergency response with less costly vehicles

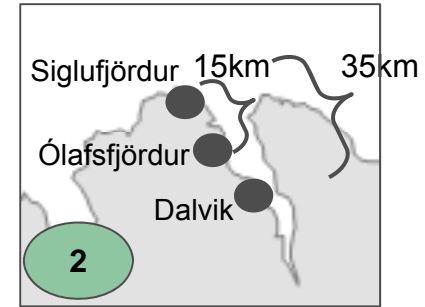
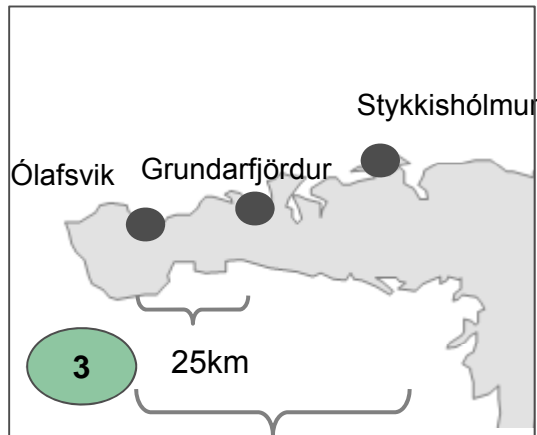
1. Stations can have more than one ambulance, e.g. Husavik. F1 and F2 transports are acute, prioritized transports
 Note: Data from 2009
 Source: Ministry of Welfare, expert interviews, BCG analysis

Opportunity for savings by reducing GPs on call

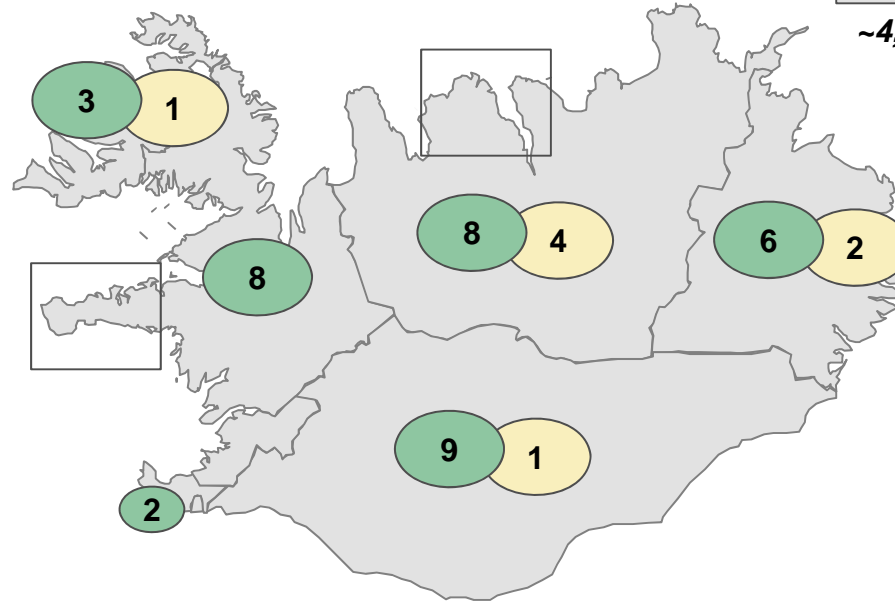
Situation needs to be evaluated region by region

- X GP1s on call in Health Care Region¹
- X GP2s on call in Health Care Region

~3,900 inhabitants



~4,200 inhabitants

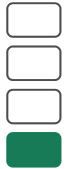


According to interviews there is opportunity to decrease number of GPs on call in some regions but further investigation needed

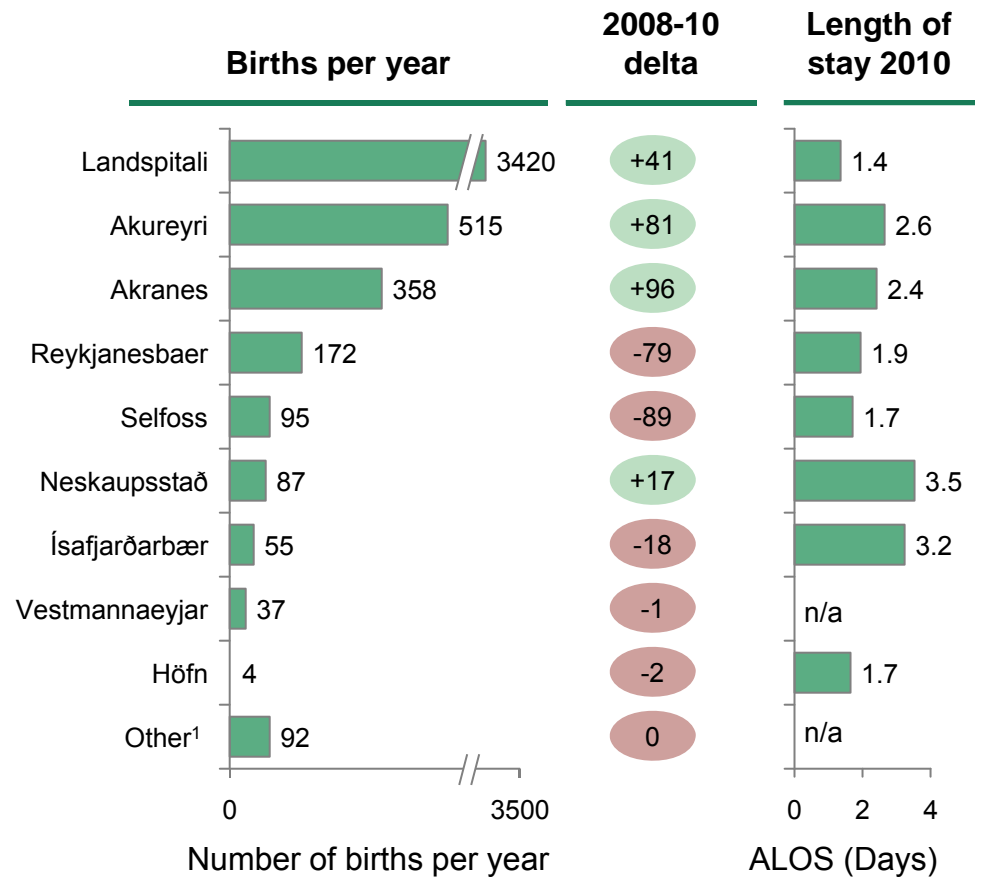
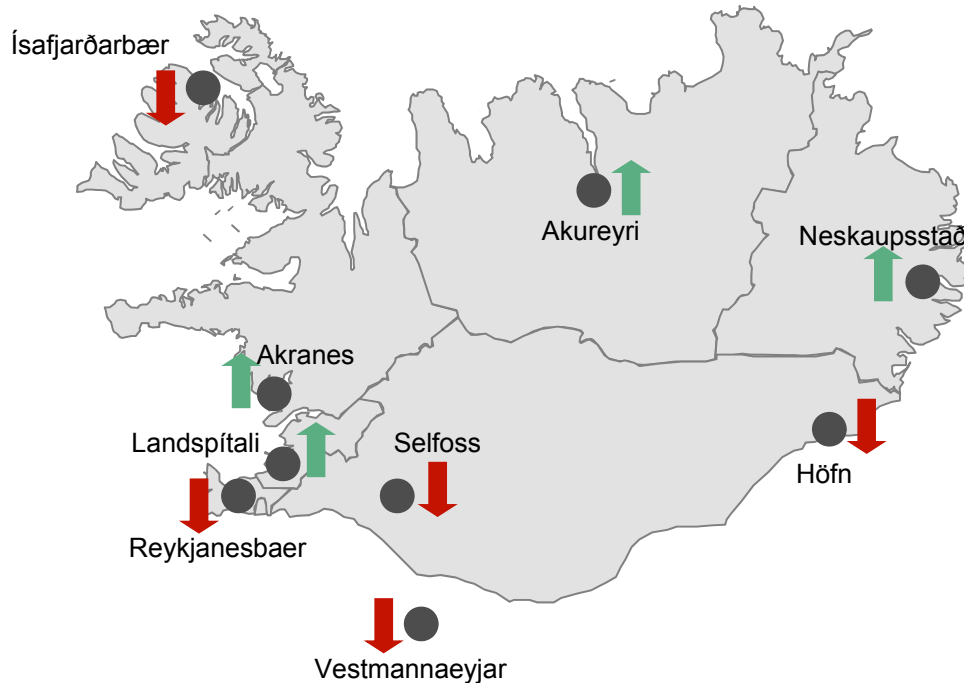
1. GP1 is a physician less than 30 minutes away, GP2 is a physician less than 120 minutes away. Approximate cost of a GP1 is ~2 MISK/year and 0,5 MSIK/ year for a G2
 Note. Capital Region excluded
 Source: Ministry of Welfare, interviews, BCG analysis

Obstetric services offered in 9 places in Iceland

Clear indications that births are moving to high volume places



Places that offer obstetric services

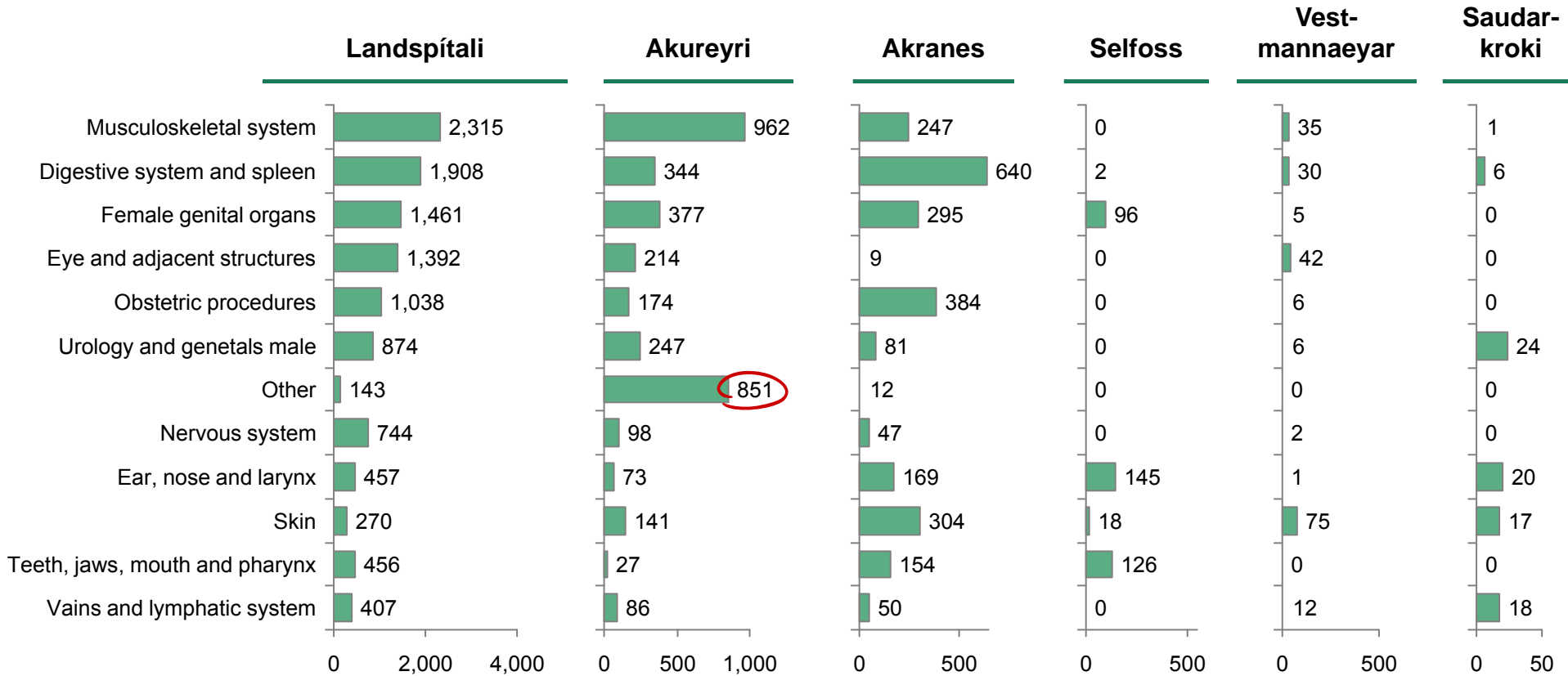
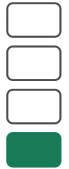


Very sensitive area as patients feel there is security in being able to give birth close to home.

1. Other including 86 births in parents home, 1 unknown, 1 in Egilsstaðir, 4 in Saudarkrokur
 Note: Data from 2008-2010
 Source: Landspítali statistics

Surgeries performed on nine locations throughout country

Very small volumes in some places, e.g Saudarkroki and Vestmannaeyar



Extensive problems with collecting data

- Data not available for some hospitals
- Differences in stringency when coding data
- OR used for other purposes in rural hospitals
- Some hospitals estimating number of procedures done in OR

No overview of operations and care provided in hospitals

Source: Data collected by Data Group during September 2011
Iceland HCS-Final report-extended version.pptx

2 Swedish example: analysis of night time patient visits showed opportunities to close ERs during night



Example from one health care region in Sweden

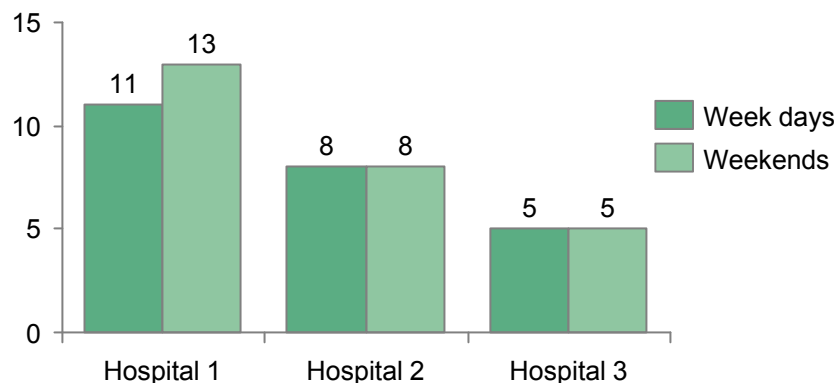
Responsibilities of the smaller hospitals in the region unclear

Provision of emergency care in region both in small hospitals and large regional ones

- Of the five small hospitals, 3 had 24h emergency rooms while 2 closed down during night

Evaluation of patient visits during night showed that closing the emergency rooms during night time would affect 5-13 patients

Avg. no. of visits during night time (20-08)



Studying patients reason for visits showed closing during night possible

On average 8 patients are affected by the closing, of them

- 3 patients can come the next day
- 1 patient can be admitted immediately
- 1 patient receives home care
- 3 patients seeks care at the large ERs in the regional hospitals
 - 2 of these can be sent home after evaluation
 - 1 patient admitted

More flexibility in direct admittance and home care enables closing of emergency room

Patient security is positively affected since patients are being cared for at better equipped hospitals

Total financial saving of 3 MEUR

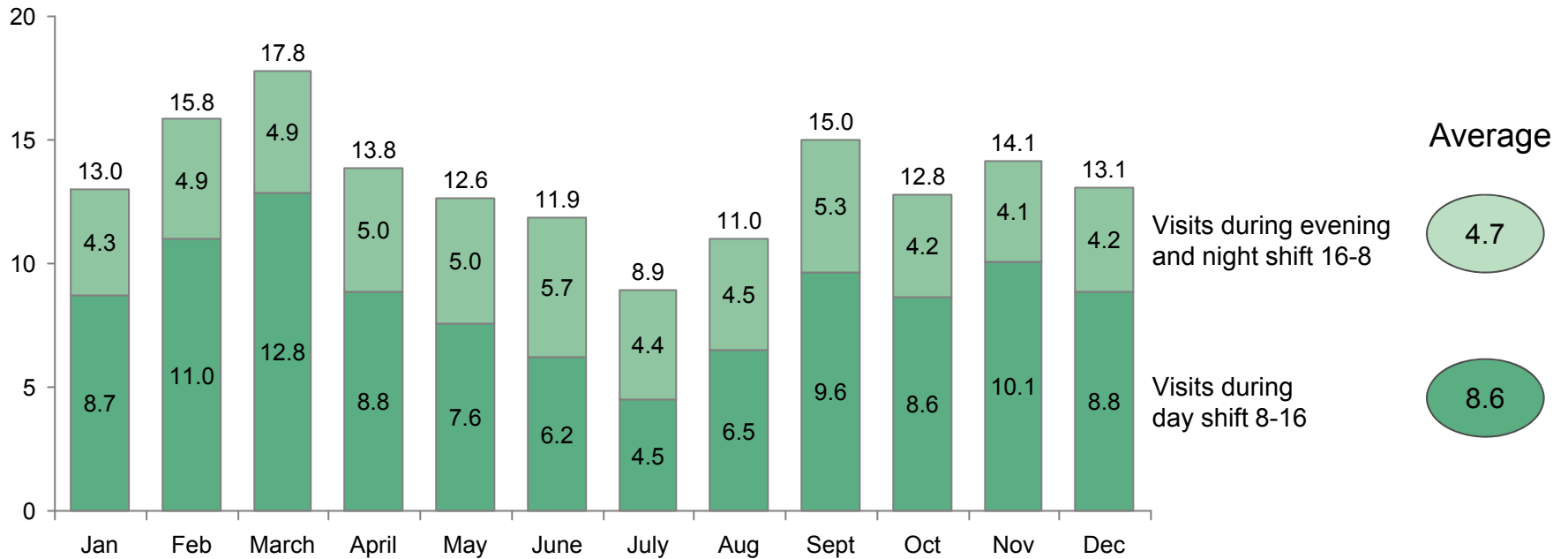
2 Low number of visits to ER in Reykjanesbaer during evenings and night



Low number of visits to Reykanesbaer ER during evening and night shift

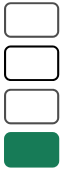
Data needs to be verified

Average no. of visits to ER per day during 2010



Patient diagnosis and staffing levels needs to be detailed and analyzed to understand how optimal this solution is

Note: Data for 2010, further split of data not available.
 Source: Data provided by Reykjanesbaer Hospital and Health Center
 Iceland HCS-Final report-extended version.pptx



Landspítali visits highlighted some of the structural issues

Example of effects of current system on Landspítali

Woman and children unit

- Lack of appropriate primary care structure lead to visits to private specialist for uncomplicated cases
 - Specialists employed by Landspítali work in private practice to take care of easier pediatric cases (fee-for service)

"We can't incentivize our staff"

Surgical unit

- Unclear strategy of distribution of surgical practices across hospitals leading to inefficiencies and jeopardize patient safety
- Lack of Orbit system in all hospitals (E-Health should be more of a priority)

"We could probably take on 10-20% additional surgical volume in current facilities"

Internal Medicine unit

- Lack of nursing beds causing longer average length of stay
 - Patients right to nursing home preference adds to complexity
- Lack of a joint electronic record creating large inefficiencies and quality of care issues

"Our specialist services have had to come into the vacuum that lack of GPs has left"

Emergency unit

- Inflow of patients too high and visits could be avoided with more structured collaboration with primary care
 - Estimated 30,000 out of 70, 000 visits could be handled by GP
- Low outpatient offering also "stretching" the current ER offering
- Lack of care guidance function in HC system

"The ER department is broadening its scope to solve the issues in other places in the system"

Key findings in the area of private specialists

Overall number of visits

In general, Icelanders prone to visit doctor, second after Denmark in doctor visits per capita

- Especially high number of visits per capita to specialist doctors

Resources

Population of doctors skewed towards specialists

- Clear overweight of specialists to GPs in Iceland compared to Nordics although GPs are in line with for example Sweden and likely to be higher than OECD data shows
- Data indicating that especially specialists in internal medicine, surgeons and pediatricians are overrepresented in Iceland

Private specialists

- Cataract surgeries
- Cardiologists
- Pediatricians

Expenditures on private specialists growing with 7% p.a. since 2008

- Patients share of this growing by 13% and governments share by 4%
- Diagnostic specialties, anesthesiologist, pediatric and ophthalmology are the large categories
- Increase in number of visits driver of health insurance cost

Increased access likely to drive growth in specialist visits

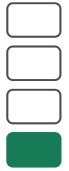
- Surge in cardiologist visits when contract signed in 2008 and gatekeeping abandoned

Clear signs of overconsumption of some specialist care, e.g. cataract surgeries

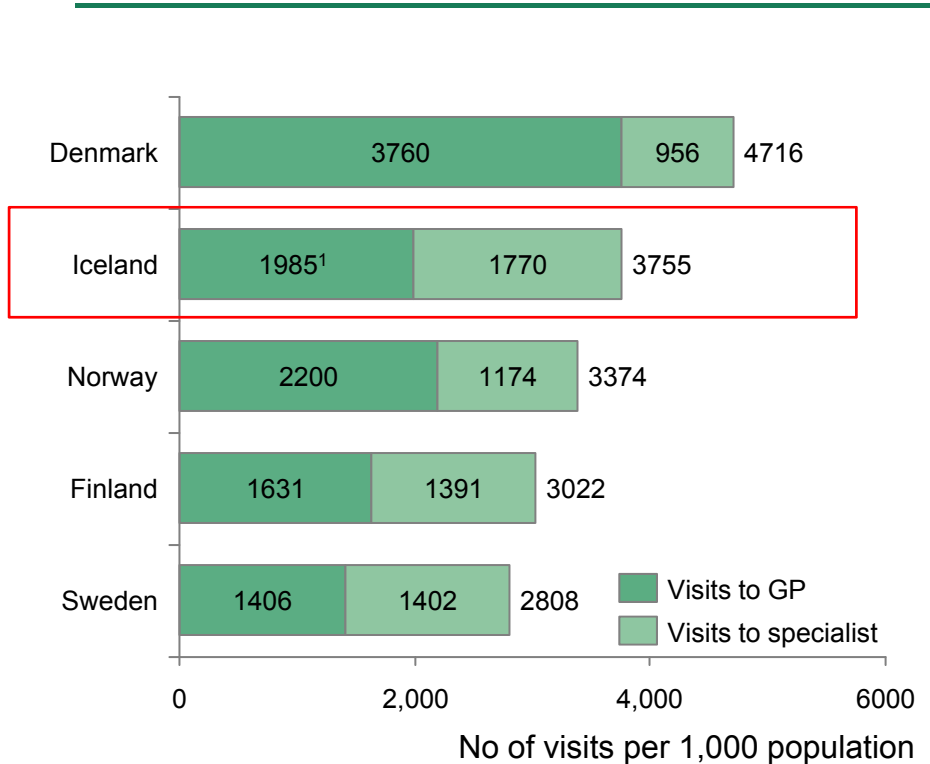
The whole private provision model needs to be reviewed and market rules put in place which will secure a optimal provision of the right volume of care

In general, Icelanders prone to visit doctor

Second after Denmark in doctor visits per capita

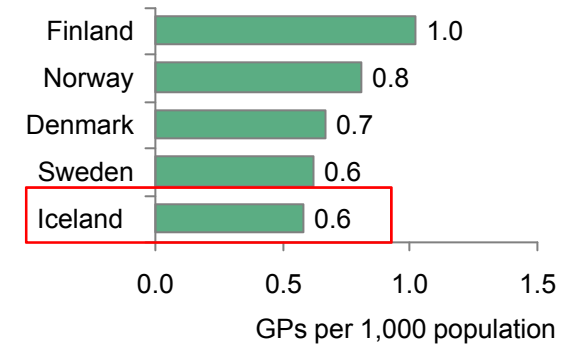


Specialist visits more common in Iceland than any other Nordic country



Driven by high amount of specialists and lack of GPs?

GPs
(per 1,000 population)



Specialists
(per 1,000 population)



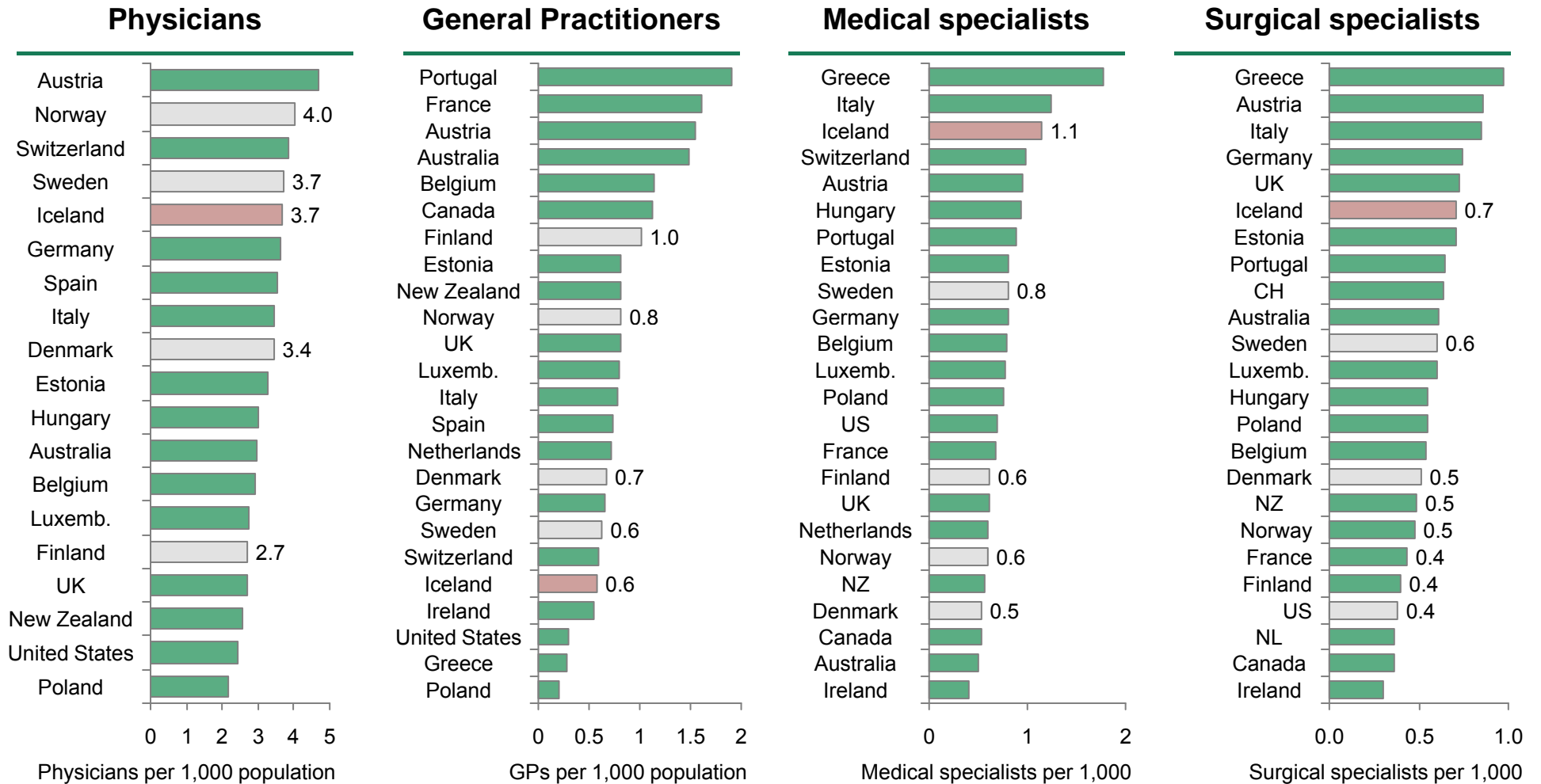
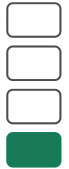
1. GP consults

Note: Medical specialists presented, but the pattern is the same for surgical specialists

Sources: Denmark: National Board of Health; Finland: THL; Iceland Statistics, Socialstyrelsen

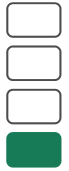
Population of doctors skewed towards specialists

Clear overweight of specialists compared to GPs in Iceland



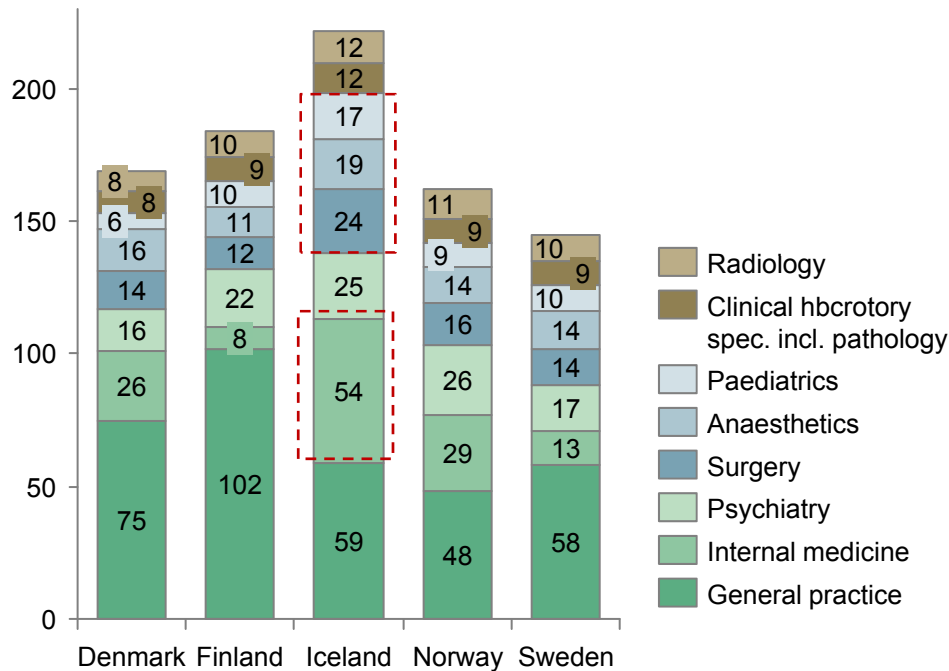
Note: Data on physicians from 2009, except for Sweden, Finland, Denmark, Australia (from 2008). Data on GPs, surgical specialists and medical specialists from 2009 for all countries except Sweden, Denmark and Netherlands (from 2008). Development of Iceland data: GPs: from 0.58 2009 to 0.57 2010, medical specialists: from 1.14 to 1.11, surgical specialists: same as 2009
 Source: OECD Statistics

3 Specialists in internal medicine, surgeons and anesthesiologists common in Iceland

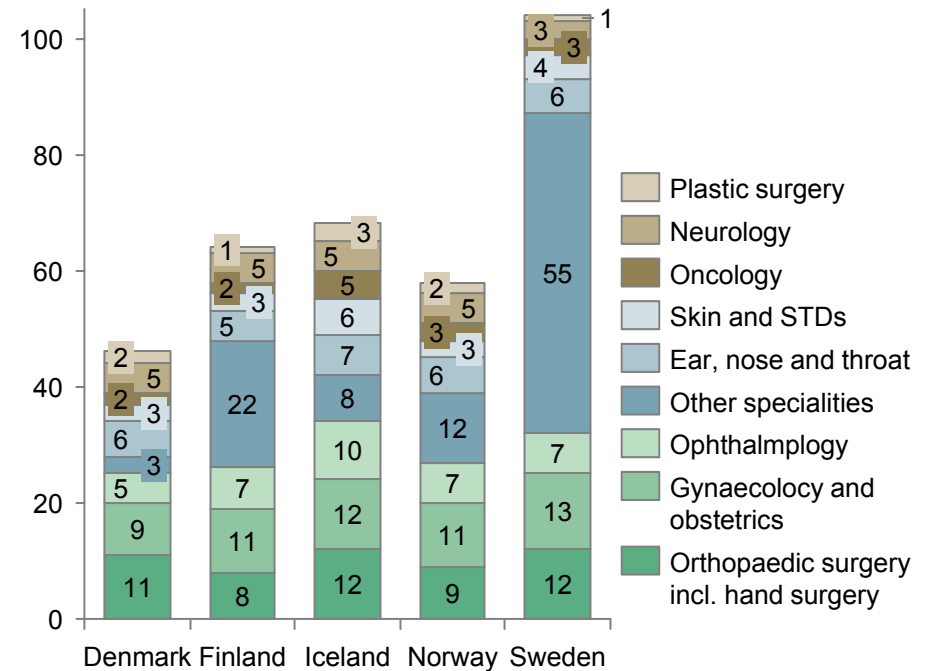


Comparison of specialties between the Nordic countries

Employed physicians by specialty per 100,000 inhabitants



Employed physicians by specialty per 100,000 inhabitants



Despite questionable data quality, this gives an indication of an overweight of some specialties in Iceland, e.g. internal medicine and pediatrics

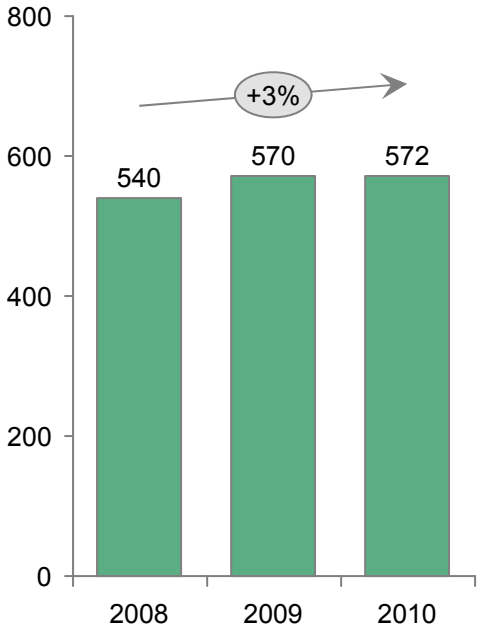
Note: Employed physicians by specialty in health and social services per 100,000 inhabitants 2008
 Source: Health Statistics in the Nordic Countries with data from 2008

Trend that people visit specialists more and GPs less

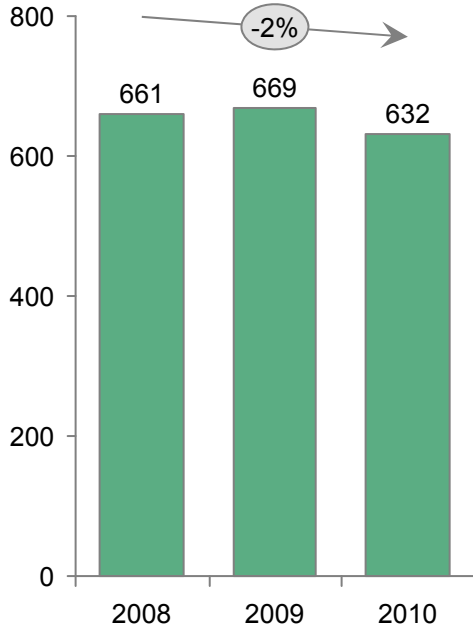
Hospitals increasing their outpatient and daycare activities



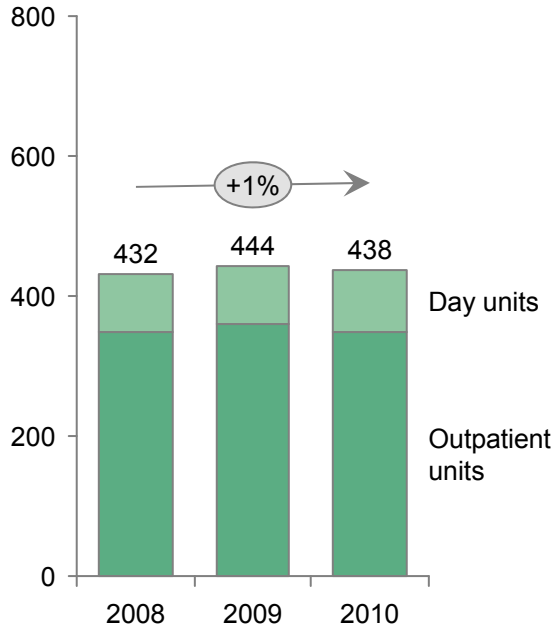
Number of private specialist visits growing with 3% p.a.¹



GP visits at Health Care centers declining



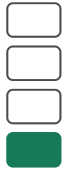
Landspítali outpatient and day unit visits stable



1. Data from Iceland Health Insurance, excluding Laboratory research at hospitals, contracts w/health institution other than laboratory research and material costs.
 Note: Data for 2010
 Source: Ministry of Welfare, Landspítali, Directorate of Health
 Iceland HCS-Final report-extended version.pptx

Expenditures on specialists growing with 7% p.a. since 2008

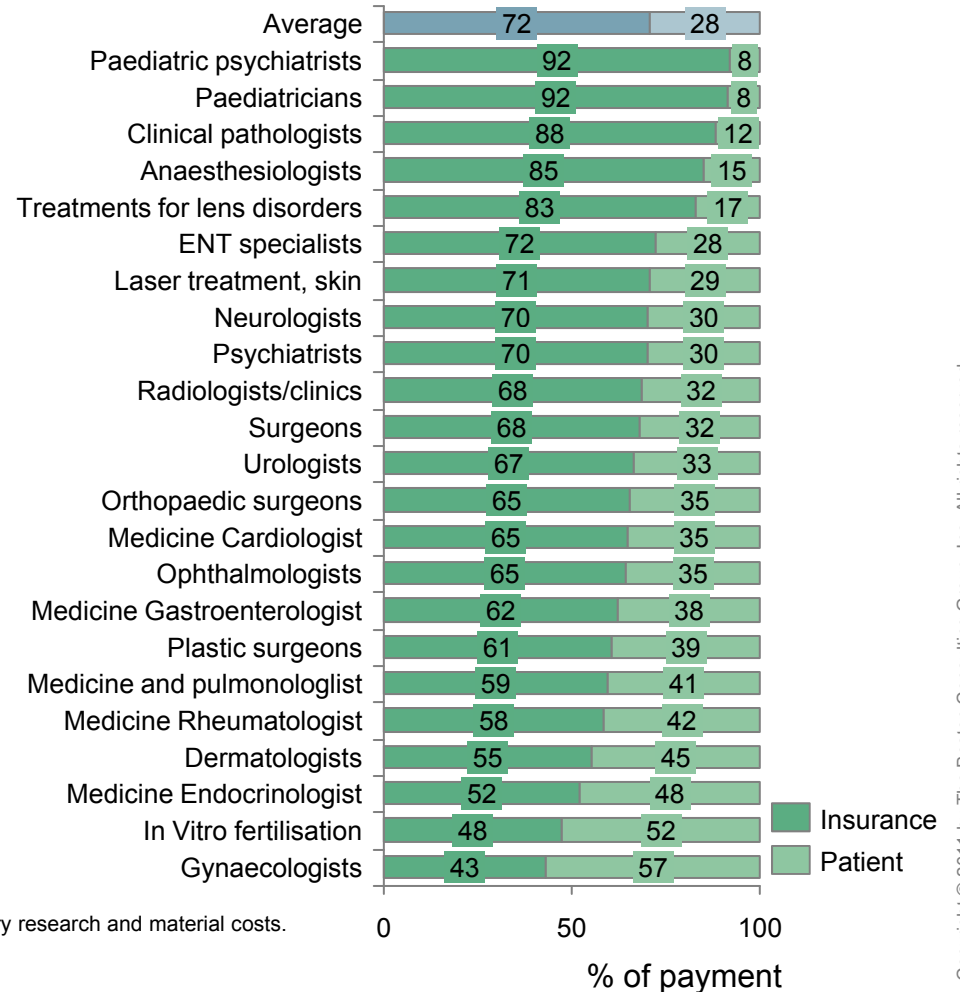
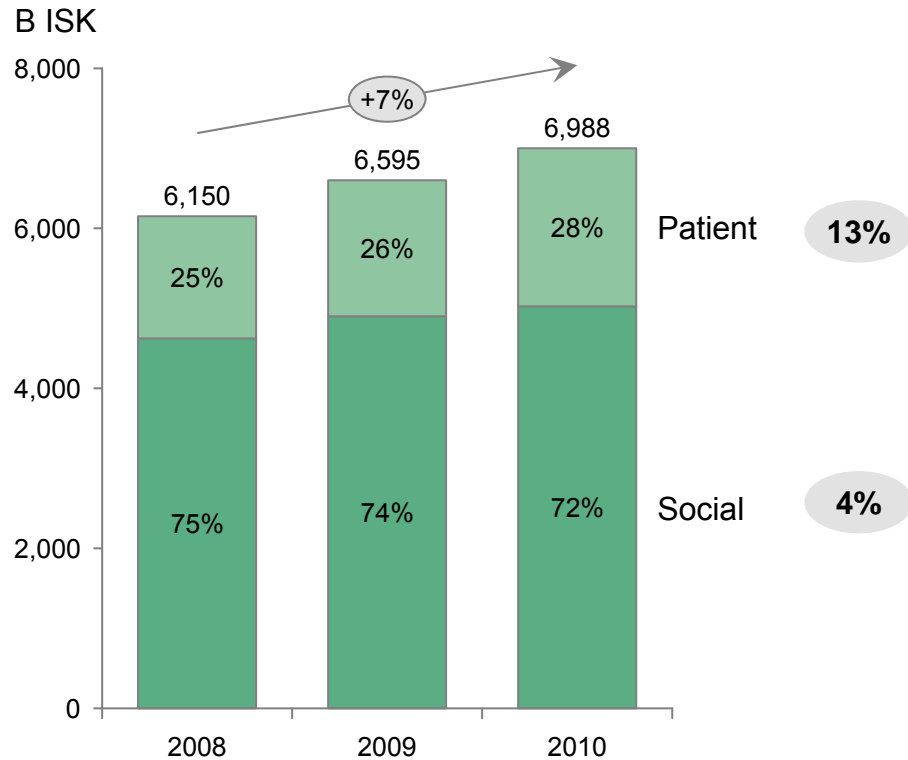
Patients absorbing largest part of cost increase



Patient co-payment has grown from 25% to 28%

P.a. growth 2008-10

Co-payment now on average 28%

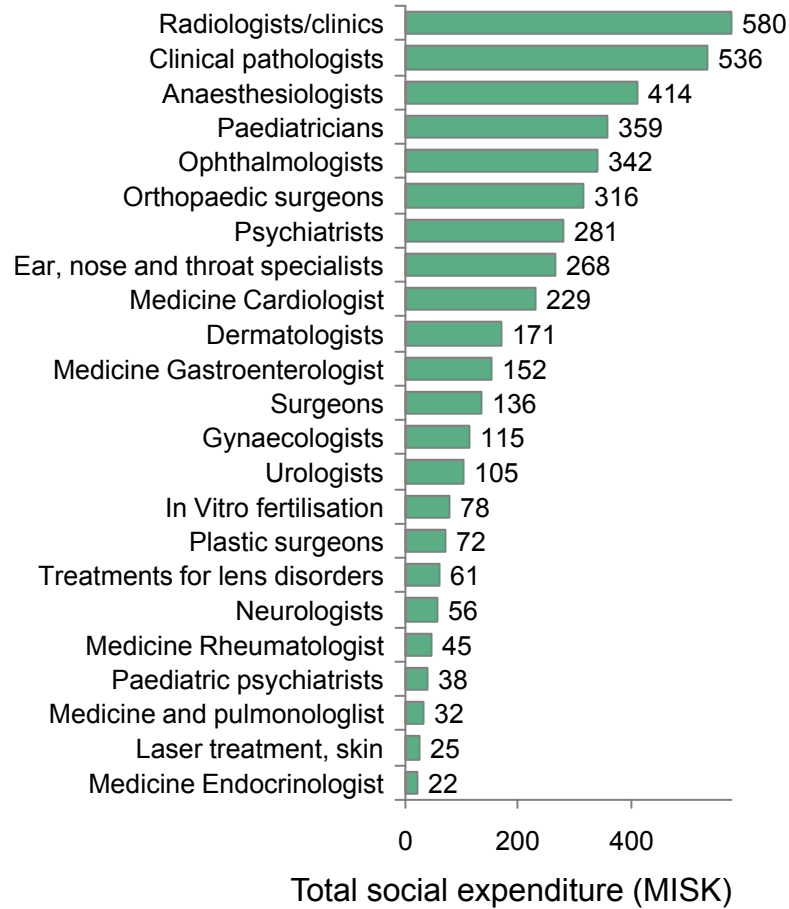


Note: Total excluding Laboratory research at hospitals, contracts w/health institution other than laboratory research and material costs.
 When excluding discounts, the total expenditure has grown with 5.6%
 Data for 2008-2010
 Source: Reported by Ministry of Welfare (Specialists and care outside institutions)

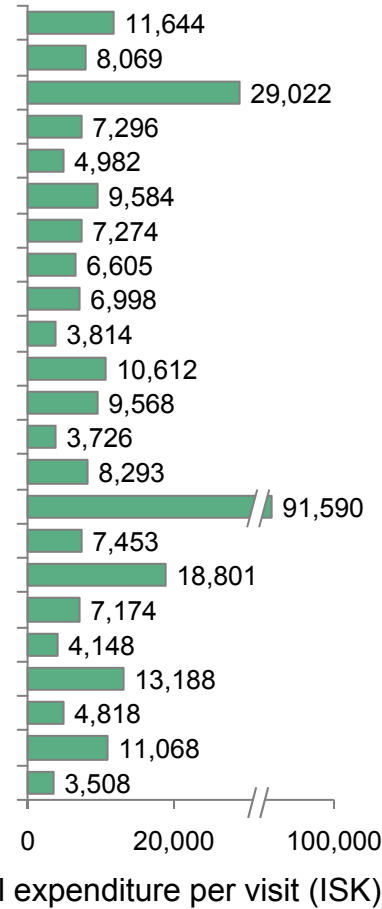


Health insurance spend driven by few specialist areas

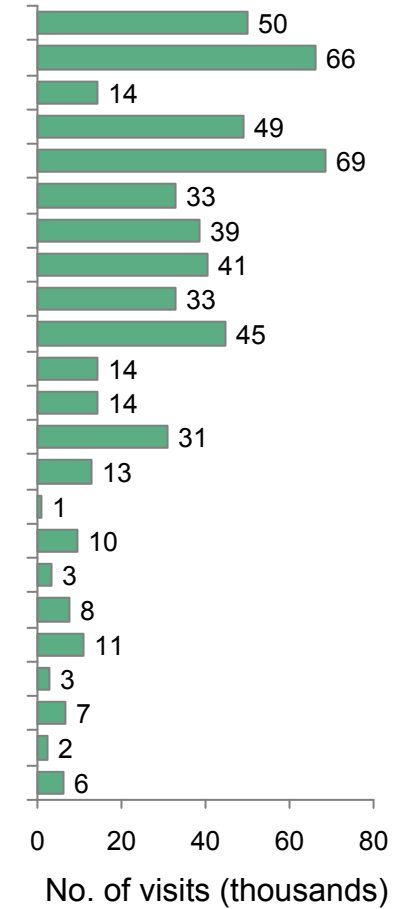
Diagnostic-related specialties two largest spend areas



Cost per visit varying, with a few large outliers



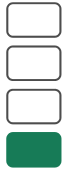
Ophthalmology with highest volumes



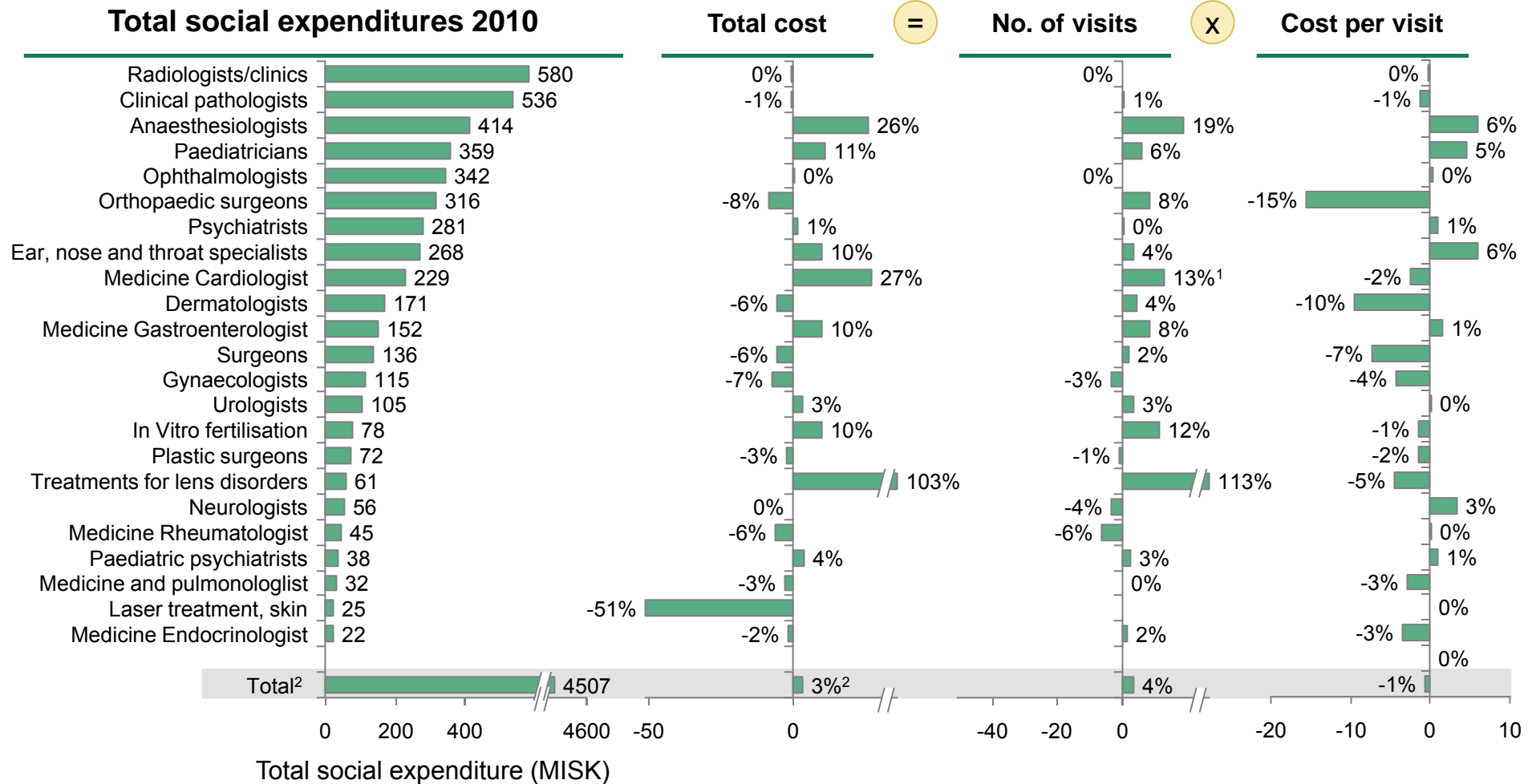
Note: Data for 2010. Total excluding Laboratory research at hospitals, contracts w/health institution other than laboratory research and material costs. Source: Reported by Ministry of Welfare (Specialists and care outside institutions)

Increase in number of visits driver of health insurance cost

On individual specialty level, cost per visit driving up costs for some specialist areas



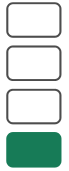
Growth 2008-2010



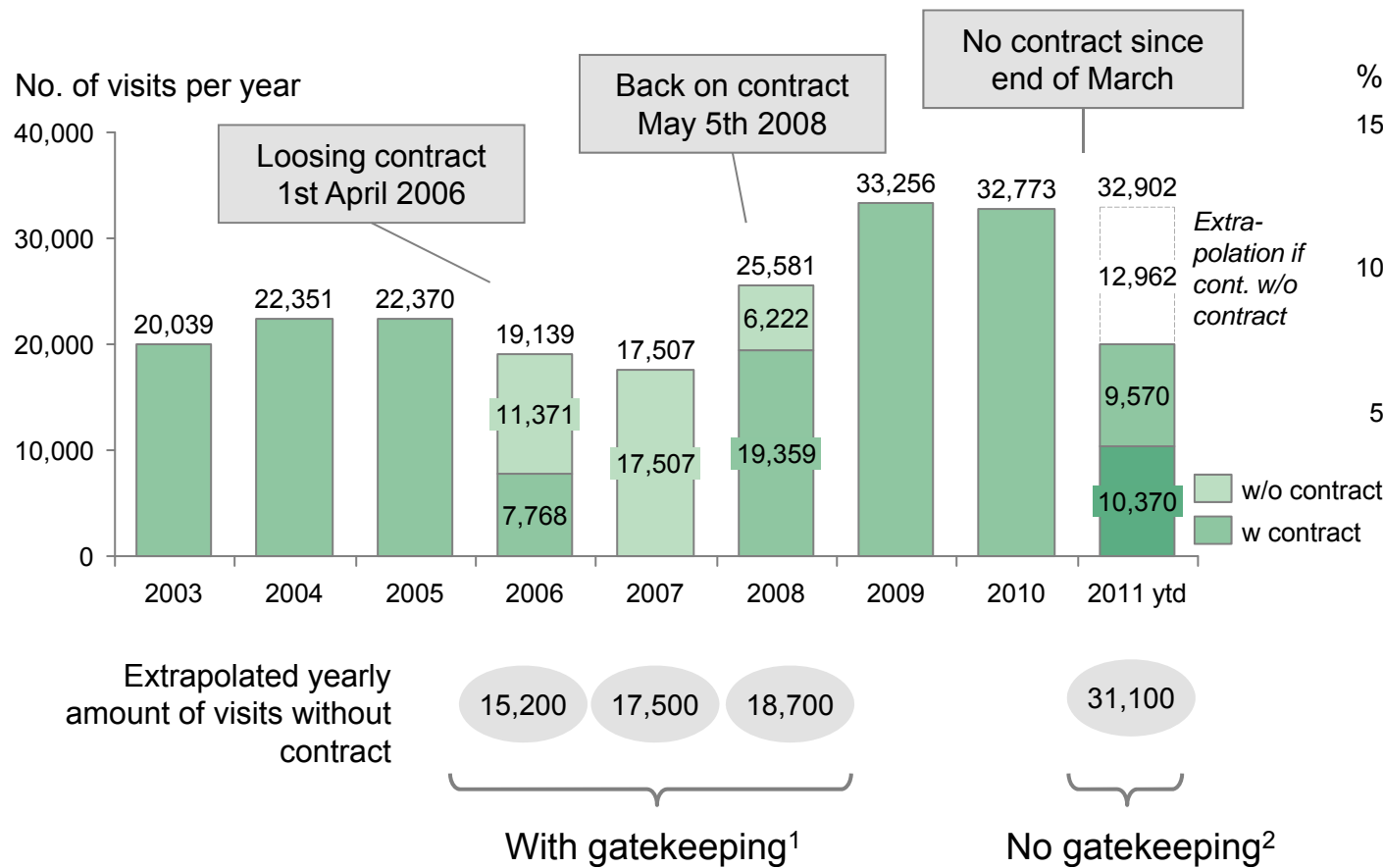
1. Added 6,222 visits for the first four months of 2008 when cardiologists did not have a contract
 2. Total excluding Laboratory research at hospitals, contracts w/health institution other than laboratory research and material costs, explaining the difference between 4% and 3% growth.
 Source: Reported by Ministry of Welfare (Specialists and care outside institutions)

Increased access likely to drive growth in specialist visits

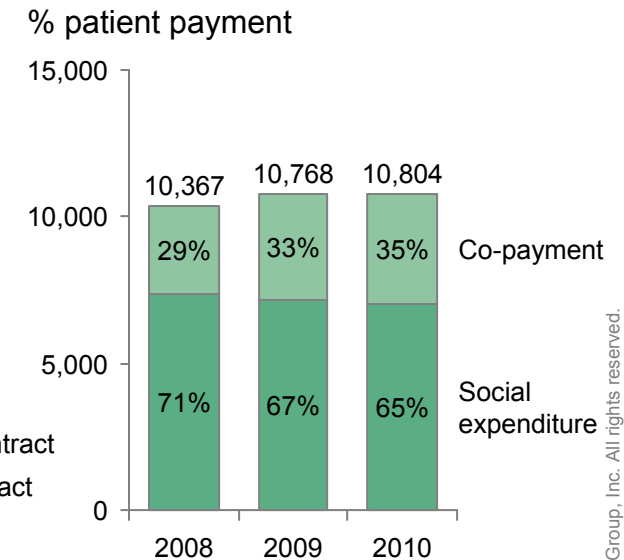
Example for cardiologists



Surge in visits to private cardiologists since contract signed in 2008



6%-p increase in patient co-payment since 2008

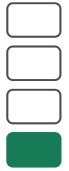


1. During time without contract 2006-2008, patient needed referral from a primary care physician in order to visit cardiologist. 2. During the five months without contract in 2011, no referral needed to visit cardiologist

Source: Ministry of Welfare, Iceland Health Insurance

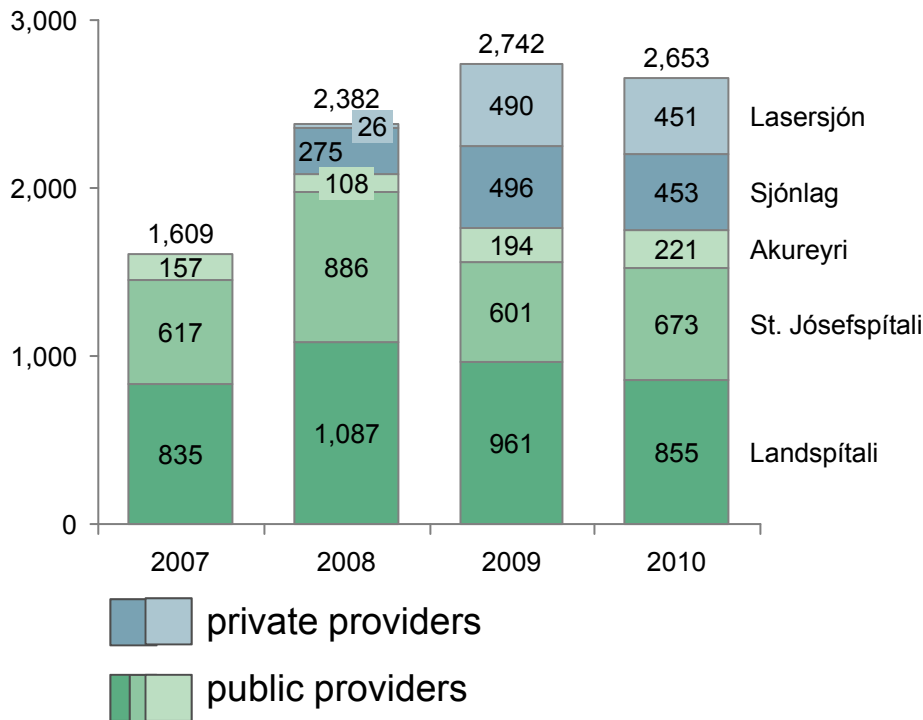
Signs of overconsumption of some specialist care

Example for cataract surgeries



Increase in private provision of cataract surgeries

No. of cataract surgeries



Share private

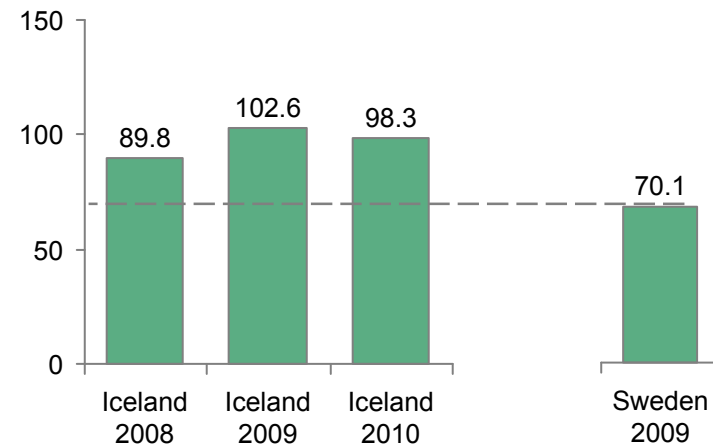
13%

36%

34%

Iceland way above Sweden in cataract surgeries per capita >70

Cataract surgeries per 1,000 capita >70



- Assuming Swedish rate of surgeries, 'fair' number for Iceland would be 1,891 in 2010, 30% less than today
- Additional private volume needed would be 142 surgeries

142 Private
1,749 Public provision 2010

Source: Directorate of Health data on cataract surgeries, Nationellt kataraktregister, SCB



Visits to pediatricians has grown with 6% p.a. last two years

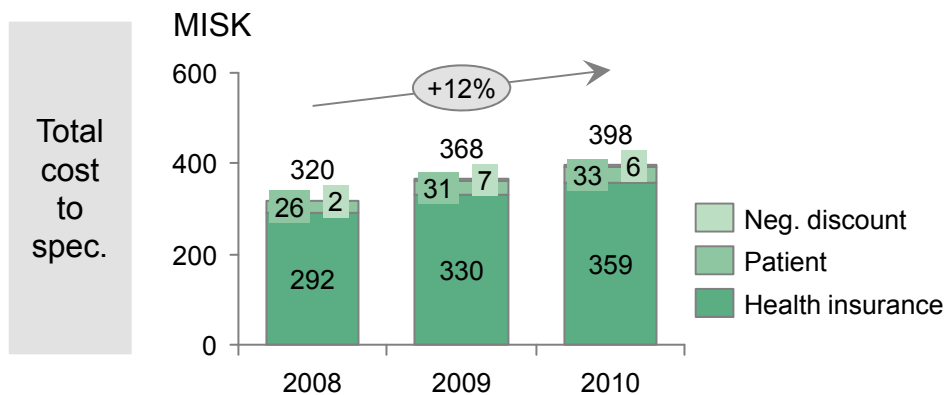
Capital Region main driver with 85% of volume

12% yearly cost increase driven by growth in visits and cost per visit

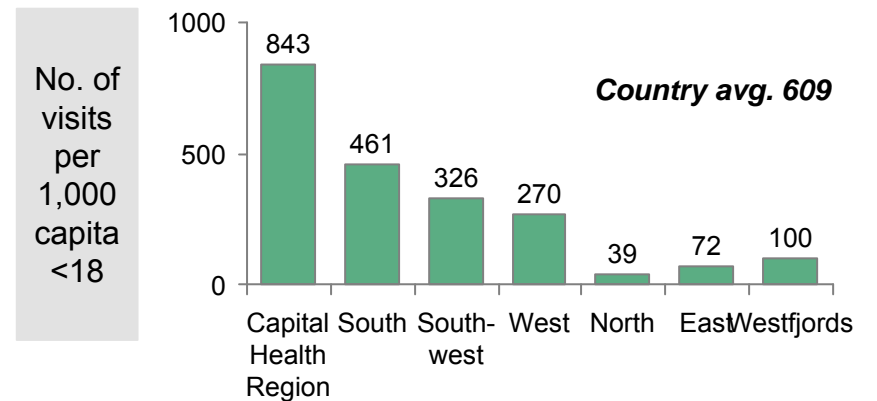
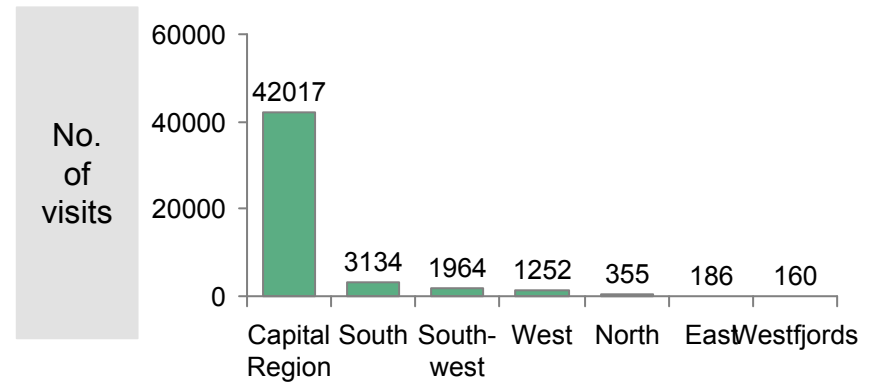
Total costs for pediatricians at ~400 MISK

Cost increase of 12% p.a. since 2008, derived from

- 6% p.a. increase in number of visits, up to ~50,000 per year
- 5% p.a. increase in cost per visit jointly absorbed by patient and IHI
 - Patient co-payment stable at 92%



85% of all pediatrician visits from people living in Capital Region



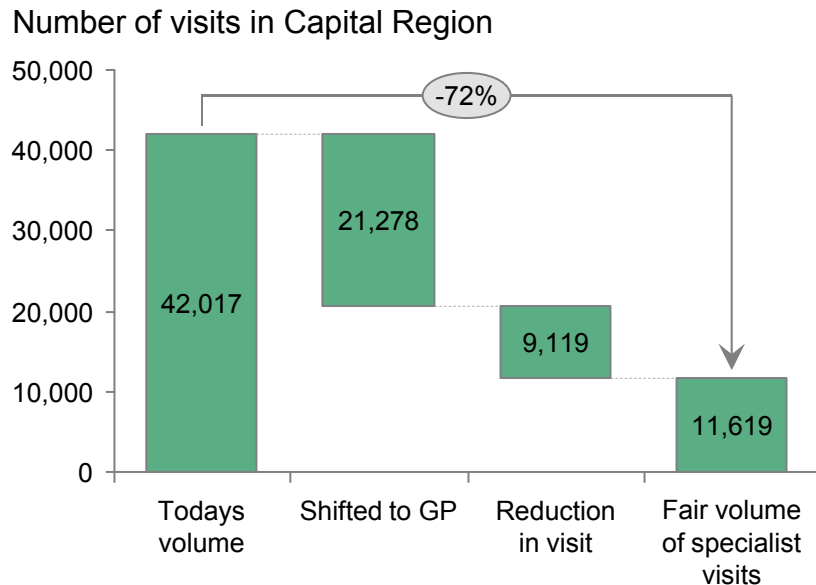
Source: Reported by Ministry of Welfare (Specialists and care outside institutions). Visits to specialists per postal code



Potential opportunity to shift pediatrician volumes to GPs

This needs to be further analyzed in great depth

A shift of pediatrician volumes to GPs....



Assumptions:

- 'Fair' volume of visits to pediatricians per 1,000 capita <18 is country average excluding capital region
 - 0.23 instead of 0.84
- With less access, the rest of the volume would decrease by 30%

... would result in 0.8 more visits to each GP per day

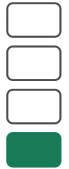
GPs	<p>Total number of GPs in Capital Region is 128 FTEs¹</p> <p>Shifting volumes would mean 167 more visits per GP and year</p> <ul style="list-style-type: none"> ~0.8 visits per day²
Pediatricians	<p>There are 35 pediatricians operating privately today</p> <ul style="list-style-type: none"> Their volumes would decline with 72%
Savings	<p>Total volumes would go down 62%</p> <ul style="list-style-type: none"> Corresponding saving in Health Insurance of 222 MISK Additional cost for more GP work needs to be calculated

This needs to be analyzed in detail – Very important to ensure that children who need to see pediatricians get to do so without delay

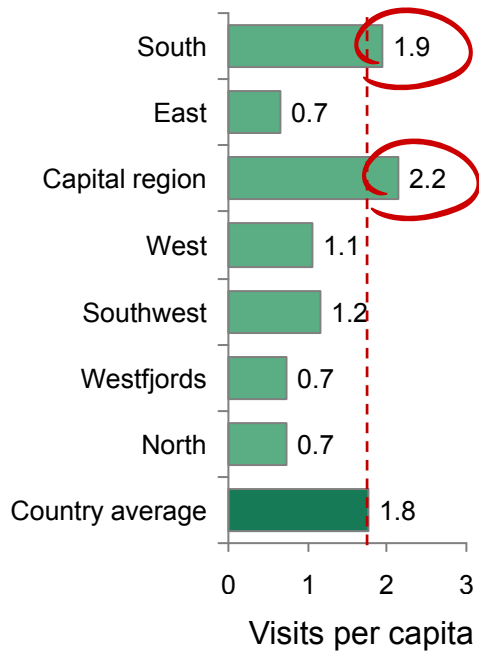
1. 6 months average for 2011. 2. Assuming each GP works 205 days per year
 Source: Iceland Health Insurance cost data 2010, BCG analysis

Variations in number of visits per capita in the regions

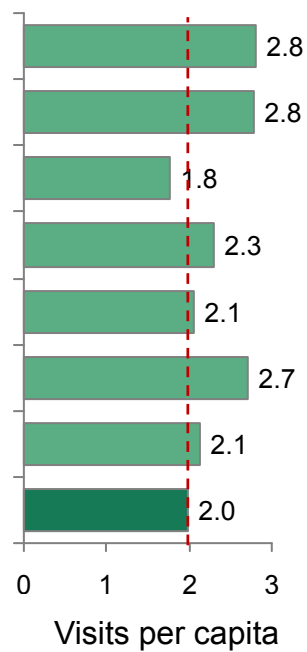
South with high overall number, Capital Region high in specialist visits



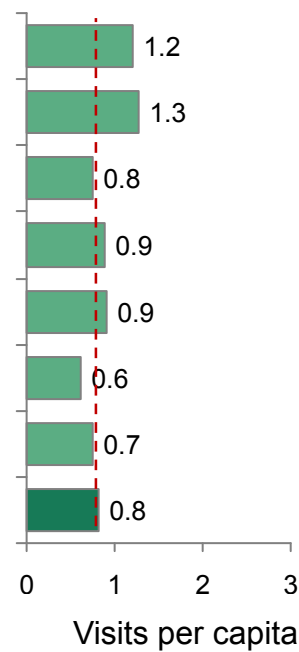
Visits to specialists¹



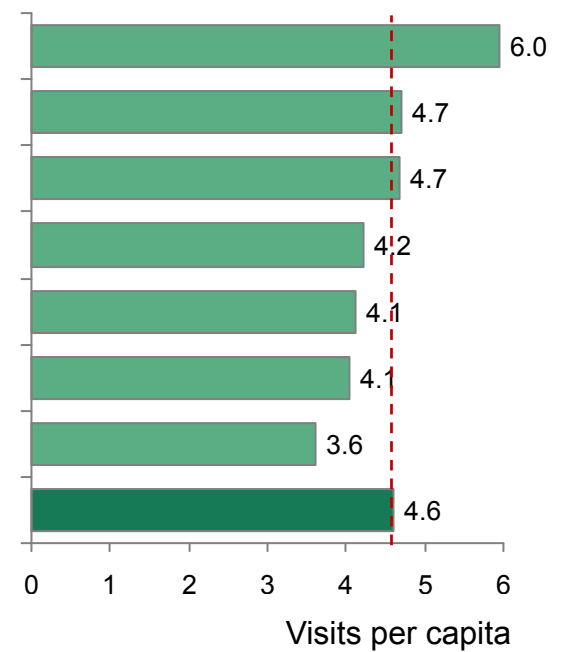
Visits to GPs²



Visits to nurses³



Total number of consultations



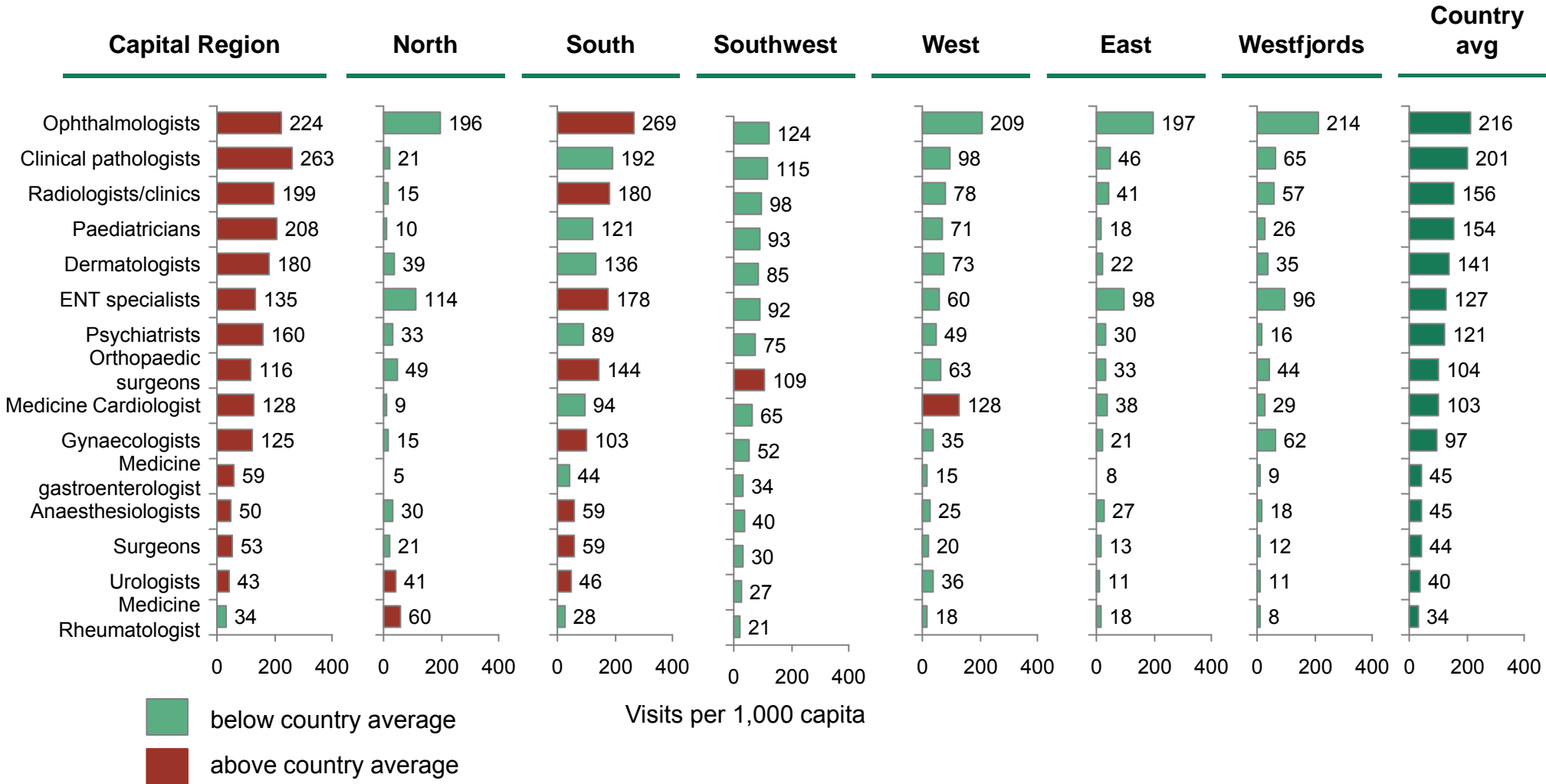
1. Visits to specialists by patient area of residence. 2. Visits to GPs by health care center location, only including actual visits. 3. Visits to nurses by health care center location, only including actual visits
 Note: Data from 2010
 Source: Ministry of Welfare, Landlaeknir

3

People in Capital region and South visit private specialists to a larger extent than others



Per capita visits for the 15 most visited specialist areas



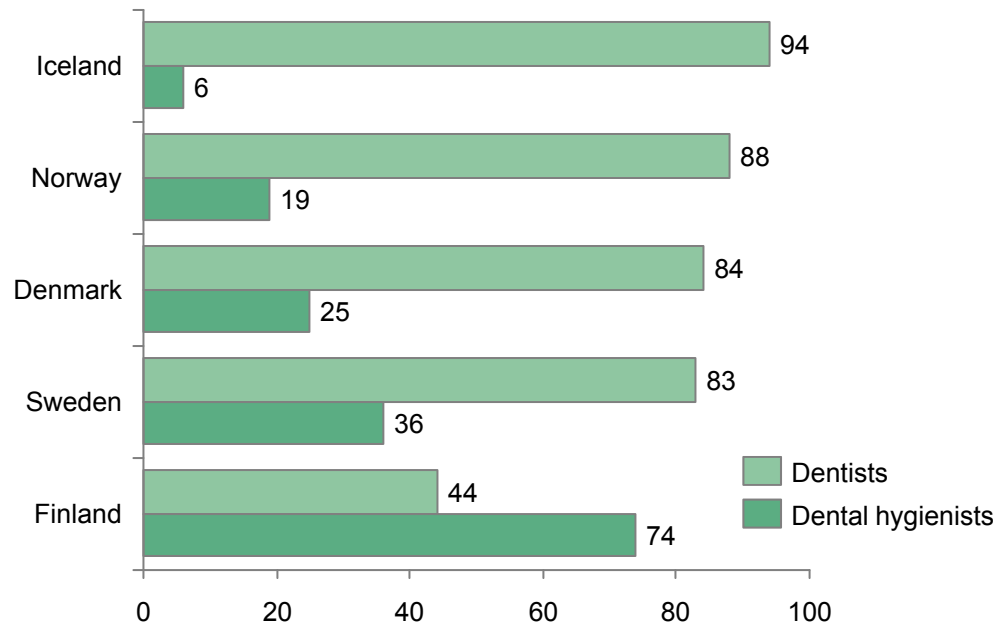
Note: data for 2010, reported number of specialist visits from people from each region
 Source: Reported by Ministry of Welfare (Specialists and care outside institutions)



Iceland has highest number of dentists in the Nordics

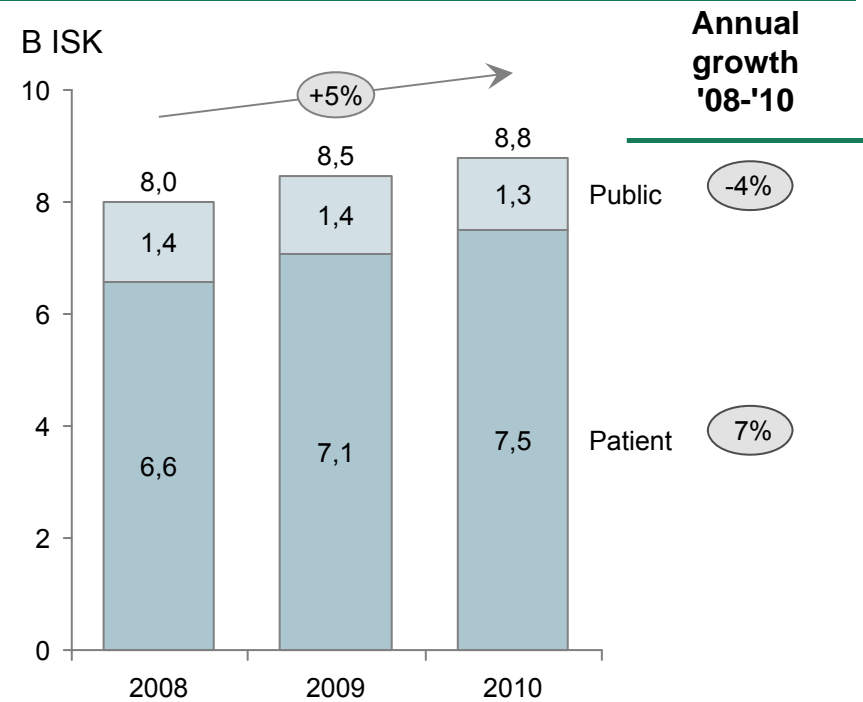
Patient expenditure has increased with 7% p.a. since 2008

Iceland has more dentists per capita than any other Nordic country



No. of dental health personnel per 100,000 population

Patient expenditure has increased 7% annually 2008-2010



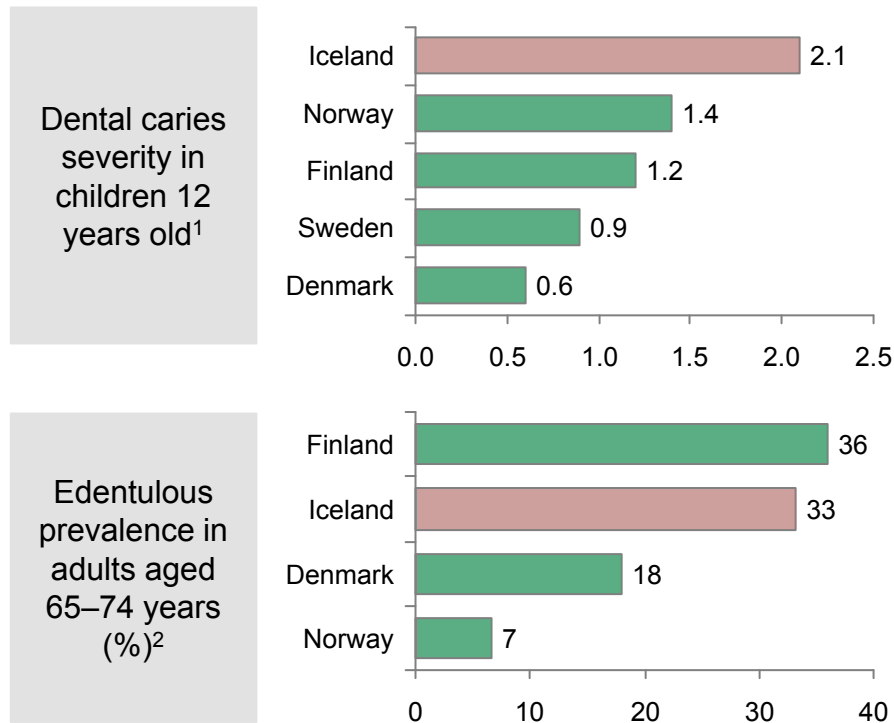
1. Quality indicator used to compare dental care. Shows mean number of decayed, missing and filled primary or permanent teeth in selected age group. 2. Edentulous prevalence is a measure of past disease and an indicator of oral health, recommended indicator by WHO (1997).
 Source: Health Statistics in the Nordic Countries with data from 2008,



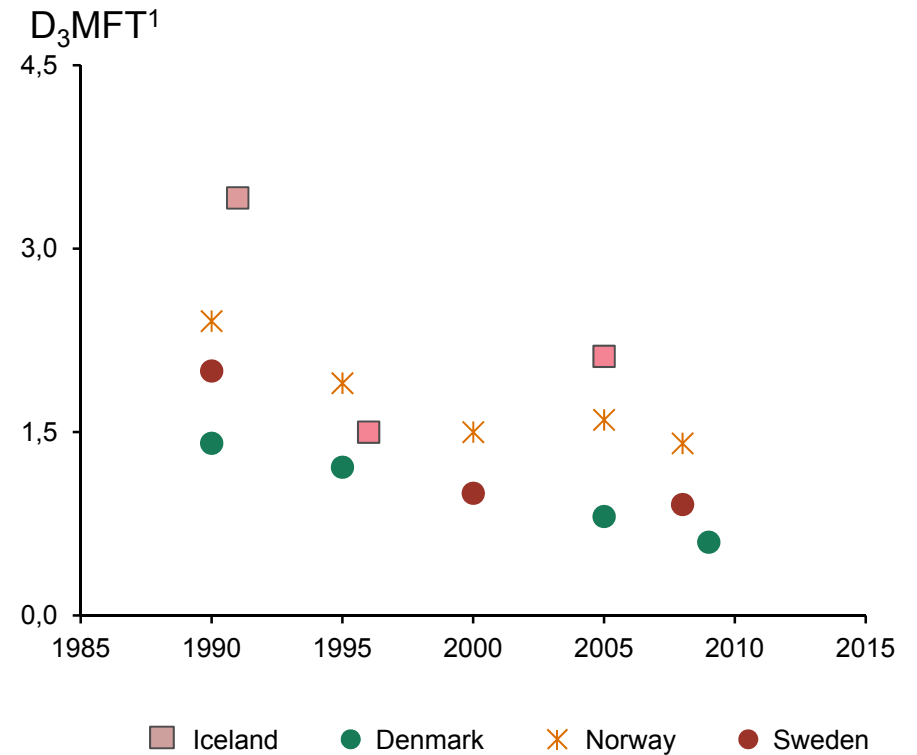
Dental outcomes are worse than Nordic peers

Caries in 12 year-olds at 50% higher level than second worst Norway

Outcomes of dental care worse than the other Nordics



Outcomes has varied considerably over time



1. Mean number of Decayed Missing and Filled Teeth (count)
 Source: A Nordic Project of Quality Indicators for Oral Health Care, 2010



Dental care only partly reimbursed for children

Least generous dental reimbursement of all Nordic countries

Dental services	Denmark	Finland	Iceland	Norway	Sweden
Provider of dental services	For adults, generally private	For adults, generally private	In general private practitioners	For adults, generally private	For adults, both private and public
	Public services for children ¹	Public services for children		Public services for children	Public services for children
Reimbursement for adults	Adults typically pay 60 %.	Partly reimbursement	X	X	Cost ceiling
Reimbursed dental services for children and adolescents	✓	✓	Partial reimbursement (in general 75%)	✓	✓
Orthodontic treatment for children and adolescents	✓	✓	Partly	Partly	✓

1. Private also allowed, reaching 12% in 2007.
 Source: A Nordic Project of Quality Indicators for Oral Health Care, 2010
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Key findings in the primary care area

Focus on Capital Region

GPs and gatekeeping

Primary care models are varying in countries – but no 'golden standard' – every system has its issues

- Iceland stands out with no gatekeeping and the mix of fee-for-service for private and fixed budget for public
- Private provision mainly after hours

Lack of GPs has historically been one argument against gatekeeping, while in fact Iceland does not appear to have fewer GPs than for example Sweden

- Although, there are concerns of future lack of GPs due to age structure of current GP population

Primary care in capital region

There is an unequal reimbursement model for private and public primary care
– Mix of fee-for-service and fixed remuneration likely limiting daytime productivity

Primary care in the Capital Region in need of reform, with organizational issues and political uncertainty holding back organization

- Central management and dual leadership of clinics, with one head nurse and one head GP often operating separately and the level of cooperation decided by each clinic
- Analysis showing large differences in productivity between clinics that is not explained by age structure of patient population

The primary care model in the capital region needs to be reviewed and reformed

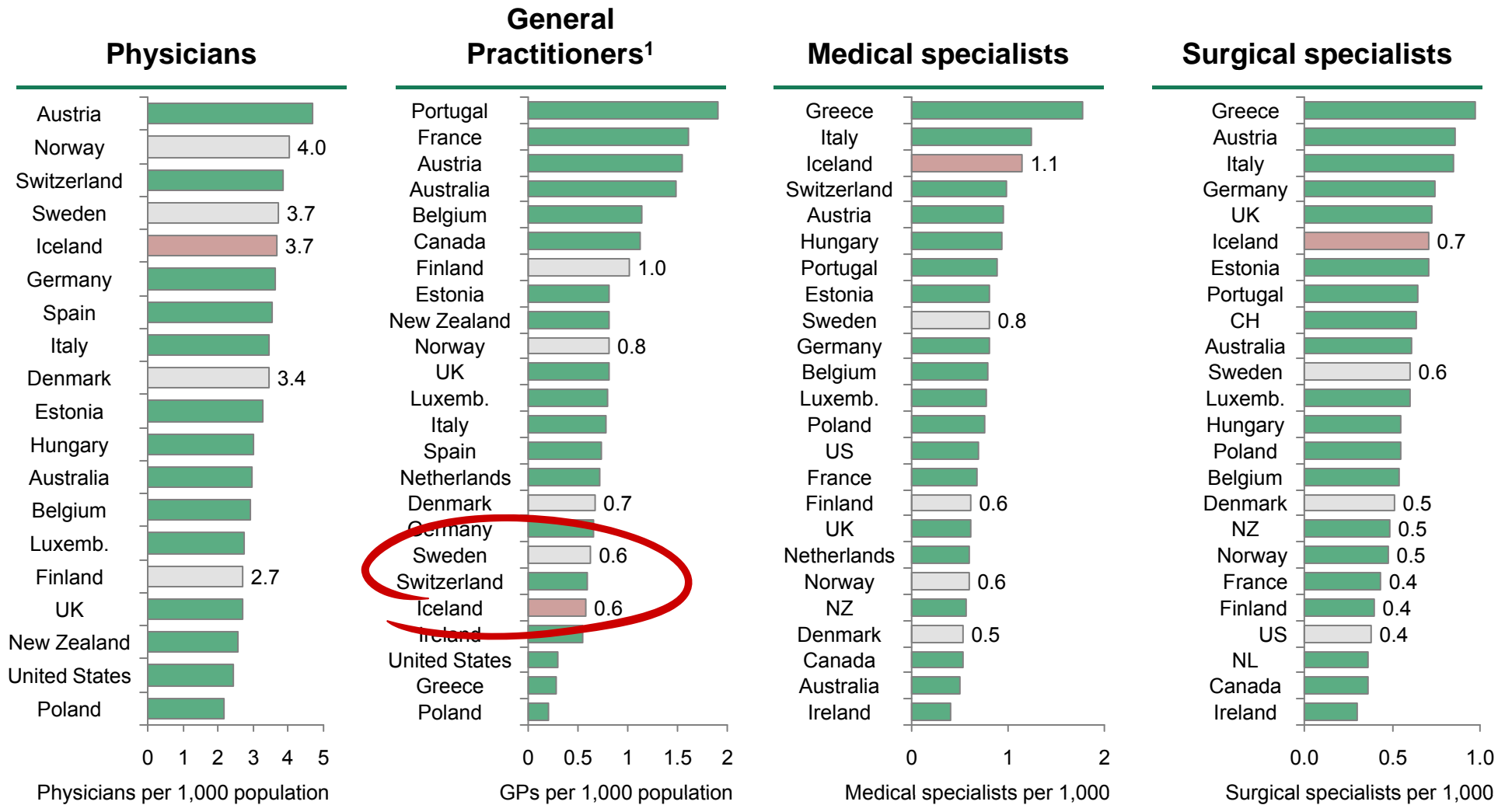
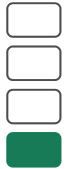


The Icelandic model stands out in three ways

	Country	GPs per 1000 pop.	Financing	Privatization	Structure	GP role
Public system	Sweden	0.6	Mix of budget, fee for service and capitation	20% private	50% of clinics >5 doctors	Mostly gatekeepers
	Denmark	0.7	Capitation with some additional fees	100% private	40% 1 doctor clinics	Gatekeeper
	Norway	0.8	Capitation (40%) and fee for service	80% private	90% 1 doctor clinics	Gatekeeper
	Iceland	0.7	Budget for public and fee for service for private	16% private (only after hours)	On average 8 doctors per clinic	No Gatekeeper
	UK	0.8	Capitation	20% private	2 doctors/clinic	Gatekeeper
	Spain	0.7	Salary & capitation	10% private	5-6 doctors/HC center	Gatekeeper
Insurance based	France	1.6	Fee for service	70% private	40% 1 doctor clinics	Gatekeeper
	Netherlands	0.7	Capitation and fee for service	100% private	80% 1-2 doctor clinics	Gatekeeper
	Germany	0.7	Fee for service	100% private	~50% of GP offices 1 doctor	No Gatekeeper

Iceland does not have fewer GPs than Sweden

Clear overweight of specialists compared to GPs in Iceland



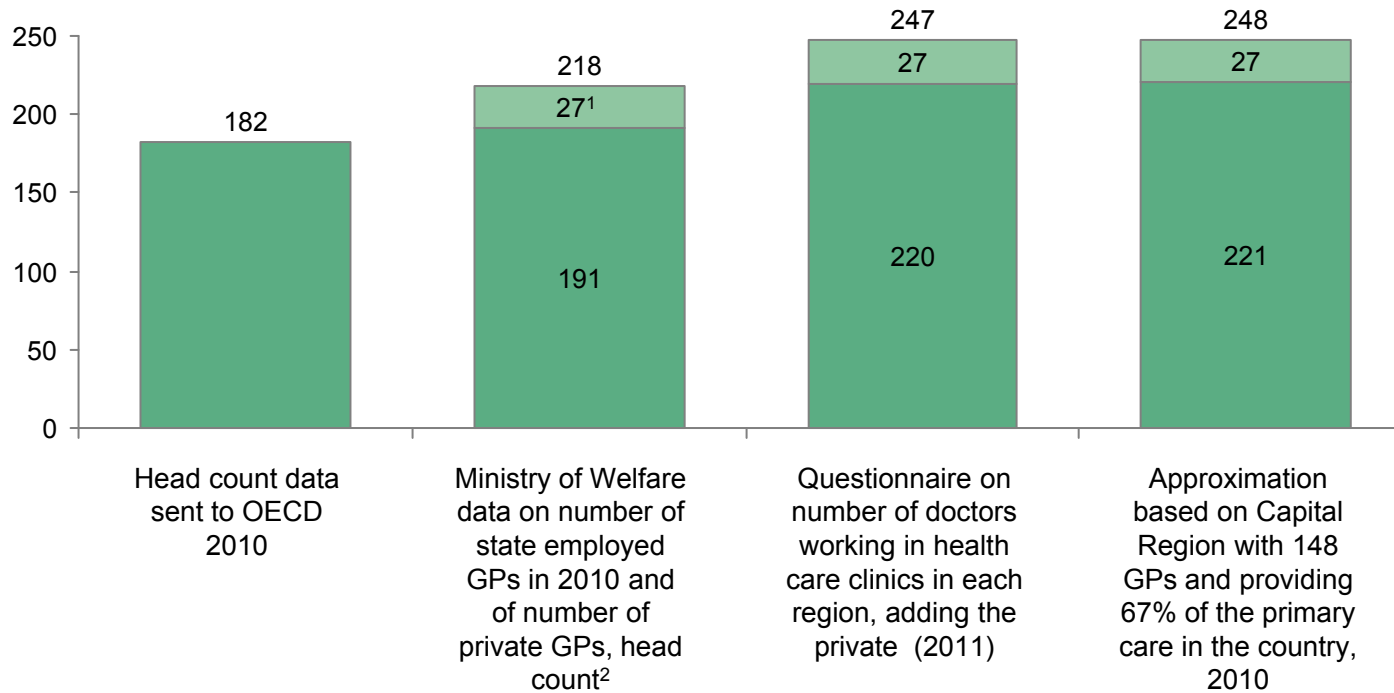
Note: Data on physicians from 2009, except for Sweden, Finland, Denmark, Australia (from 2008). Data on GPs, surgical specialists and medical specialists from 2009 for all countries except Sweden, Denmark and Netherlands (from 2008). Development of Iceland data: GPs: from 0.58 2009 to 0.57 2010, medical specialists: from 1.14 to 1.11, surgical specialists: same as 2009
 Source: OECD Statistics



Not a uniform view of number of GPs in Iceland

Estimations placing Iceland higher than Sweden in GPs per capita

Number of GPs in Iceland



The sources other than OECD might contain other doctors who are not formally GP trained working as GPs

Number of GPs per capita

0.57

0.69

0.78

0.78

Sweden:
0.62³

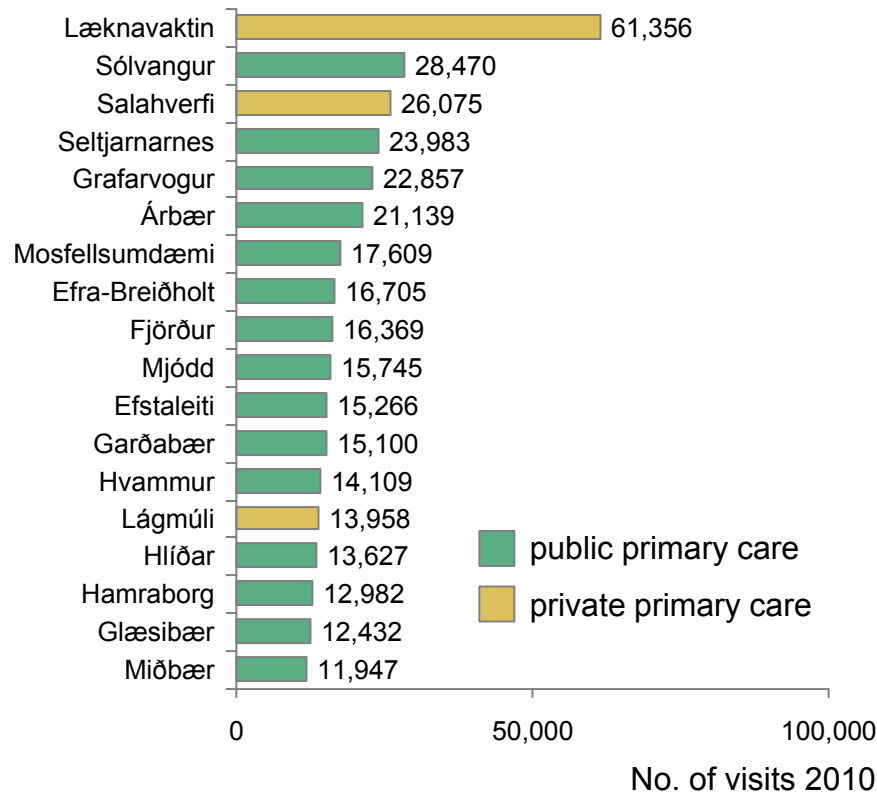
1. 12 private GPs with contract with Health Insurance, 5 GPs in Lagmuli, 10 GPs in Salasverfi (incl 3 residents).
 2. Only including practicing GPs
 3. From Socialstyrelsen 2008 data on number of allmänläkare, same number that was provided to OECD
 Source: Ministry of Welfare, Iceland Health Insurance, OECD, Heilsugaeslan Capital Region



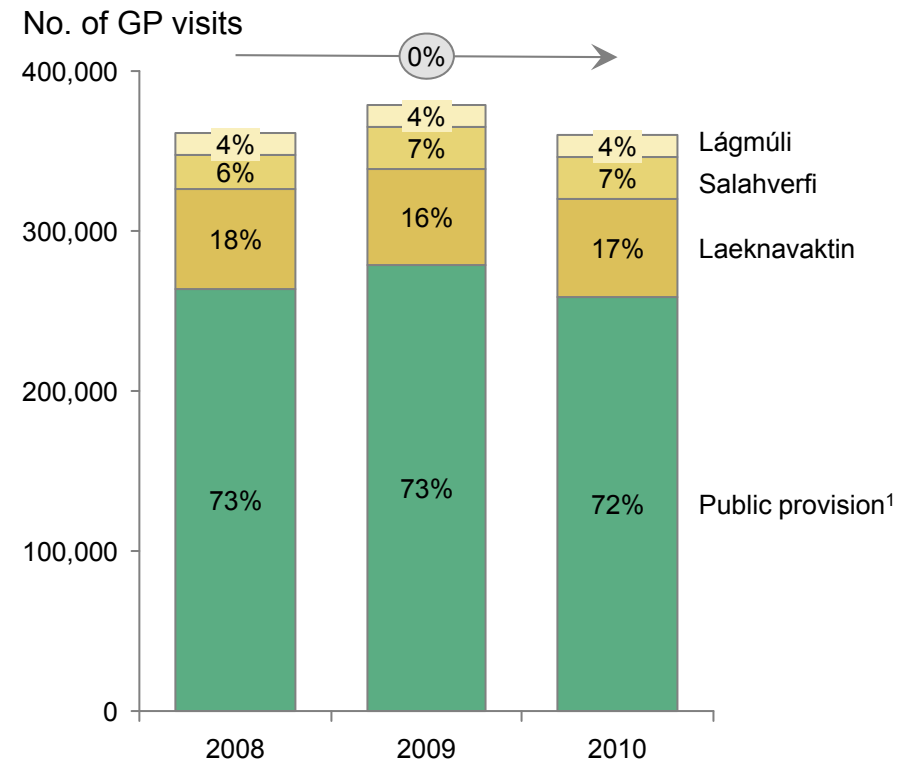
~1/4 of the GP visits in the Capital region are to private GPs

Laeknavaktin by far largest provider

Two large private clinics operating in Capital Region



Share of private provision has been stable between 2008 and 2010

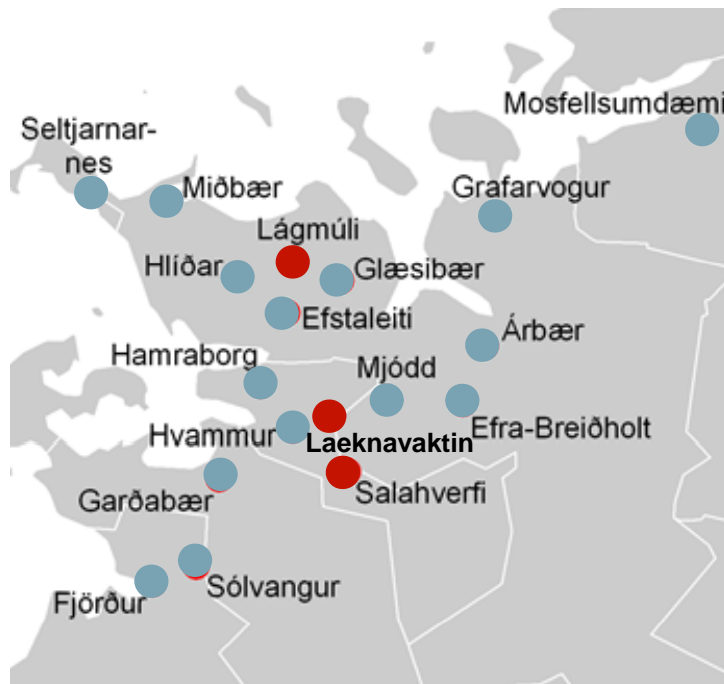


1. 15 public Health Care Clinics
 Source: Directorate of Health "Contacts with Health Centers 2005-2010" data file, BCG analysis

Reimbursement differences between daytime and after hours

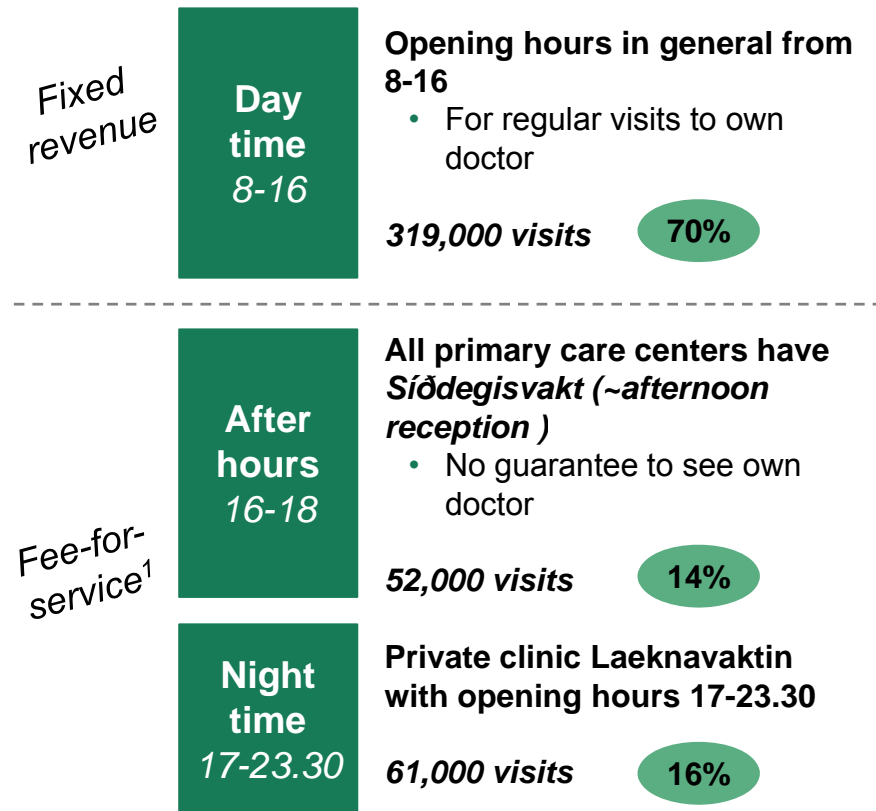
Public GPs also working under fee-for-service agreement after hours

15 public and 3 private primary care providers in Capital Region



- Private primary care provider
- Public Health Care Clinic

Reimbursement system differs between hours of the day



1. Individual doctors get fee-for-service during afternoon reception, Laeknavaktin operating on fixed budget under contract from the Ministry of Welfare, but doctors paid on fee-for-service basis.
 Note: Translation of *Síðdegisvakt* to 'afternoon reception'
 Source: Ministry of Welfare data market 2011, Directorate of Health "Contacts with Health Centers 2005-2010" data file , interviews with Heilsugaeslan and Ministry of Welfare, BCG analysis

Primary care in capital region facing lots of challenges

Organizational issues and political uncertainty holding back organization



Large health care provider in Iceland

- 2nd largest health care provider in Iceland – delivering primary care services to 2/3 of the population through 15 clinics
- Budget of 4.1 BISK 2011
 - 148 doctors and 156 nurses on payroll
- 835,000 doctor's contacts including visits, phone contacts and home visits
- Also serving 23,000 school children in 68 primary schools

Savings and reductions due to crisis

- Laying off 40 employees
- Reduction of extra payments and benefits
- Eliminating, to large extent, overtime work
- Renegotiated all contracts with suppliers
- etc.

Organizational difficulties hindering improvements

- Overall vision unclear and political uncertainties
- Disgruntled physicians due to reduced income
- Frictions between professional groups - and between management and physicians
- Organizational model potentially not optimal
- Historically lack other score card measures than financial: focus on waiting-times, patient satisfaction, employee job satisfaction
- Stagnation of improvement efforts - debates within the organization - *"can best practices be applied when operating 15 clinics?"*

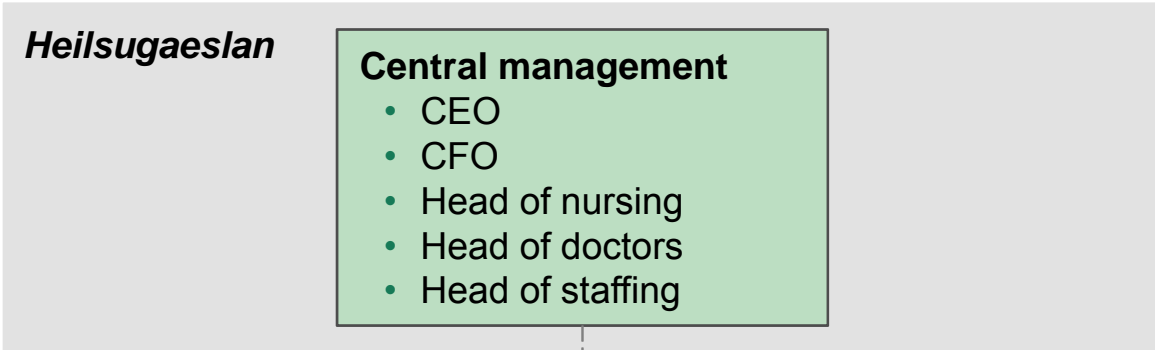
Today, central management and dual leadership of clinics

Role of nurses decided on individual clinic level

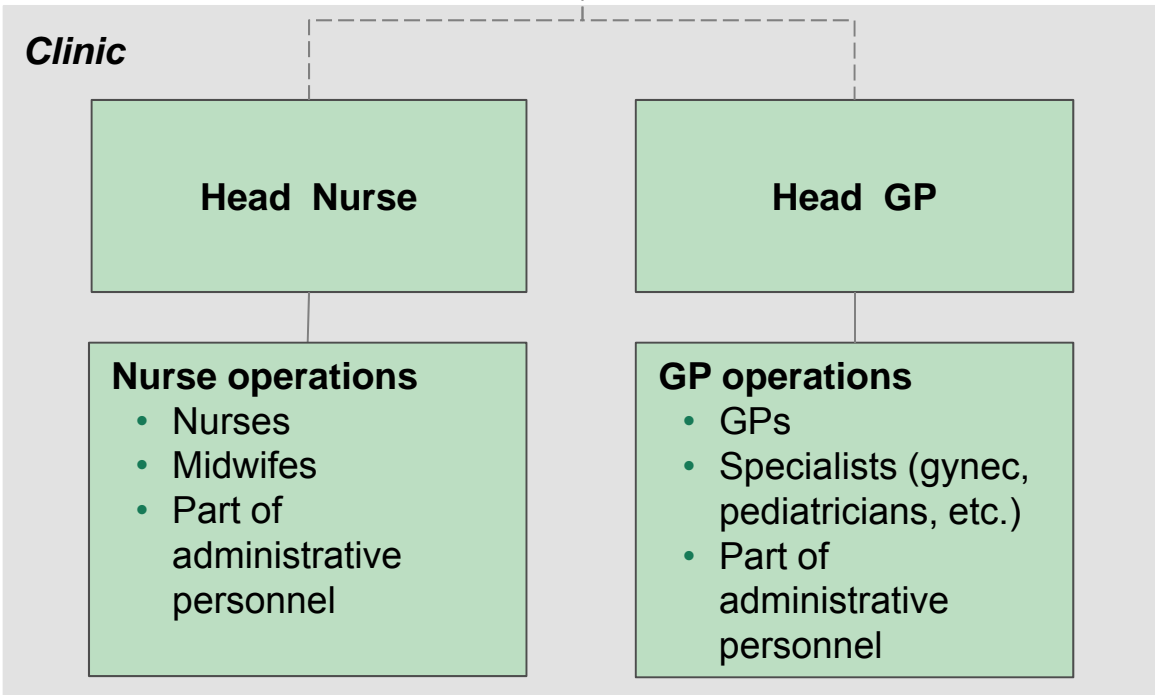


Capital Region

Usually no single manager of clinic, decisions made centrally



Dual frontiers of leadership of the two professional groups



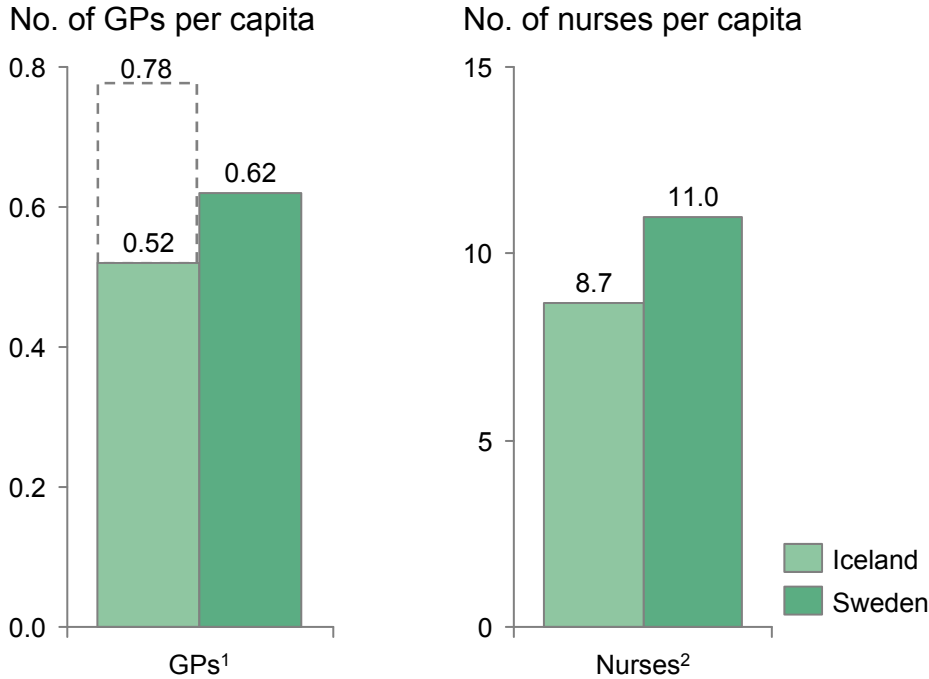
Level of cooperation btw. nurse and GP based on individuals and personal styles

Source: Ministry of Welfare, expert interviews, BCG analysis
Iceland HCS-Final report-extended version.pptx

Current cooperation model of doctors and nurses should be reviewed to see if more optimal solution can be found



Similar amount of GPs but fewer nurses in Iceland than in Sweden



This needs to be detailed furthered to understand potential future models for Iceland

Potential opportunity to increase efficiency by redefining roles

Nurses in both countries performing typical tasks, such as;

- Vaccinations
- Wound care
- House calls
- Phone reception
- In Sweden; nurses usually have reception for chronically ill patients, such as diabetes and asthma patients

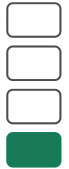
Lack of structure and ad hoc setup of nurse versus GP responsibility in Iceland

- Basically up to each clinic how much the two professions should work together

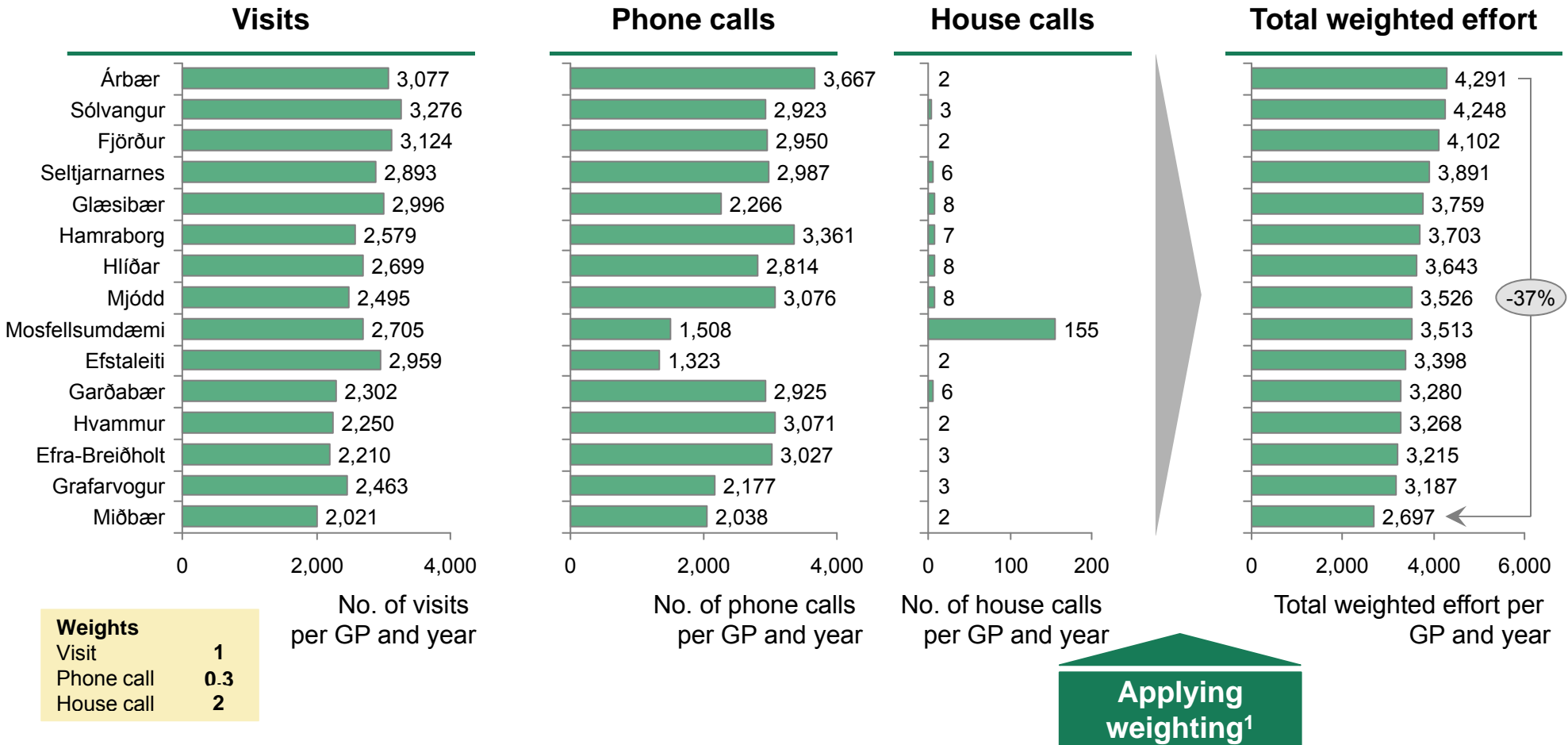
1. Data for Sweden based on Socialstyrelsen data from 2008, Iceland data based on estimates, see previous slide.
 2. Data for Sweden based on Socialstyrelsen data from 2008, number of nurses in Iceland 2,760 according to Nurse Association (in line with OECD data)
 Note: Swedish data is from 2008, Iceland data from 2010
 Source: Ministry of Welfare, Iceland Health Insurance, OECD, Heilsugaeslan Capital Region, Socialstyrelsen, The Icelandic Nurse's Association, BCG analysis

Variations in productivity of the HCCs in the Capital Region

Comparison of visits in the Capital Region



2010 effort per physician in the clinics



Weights	
Visit	1
Phone call	0.3
House call	2

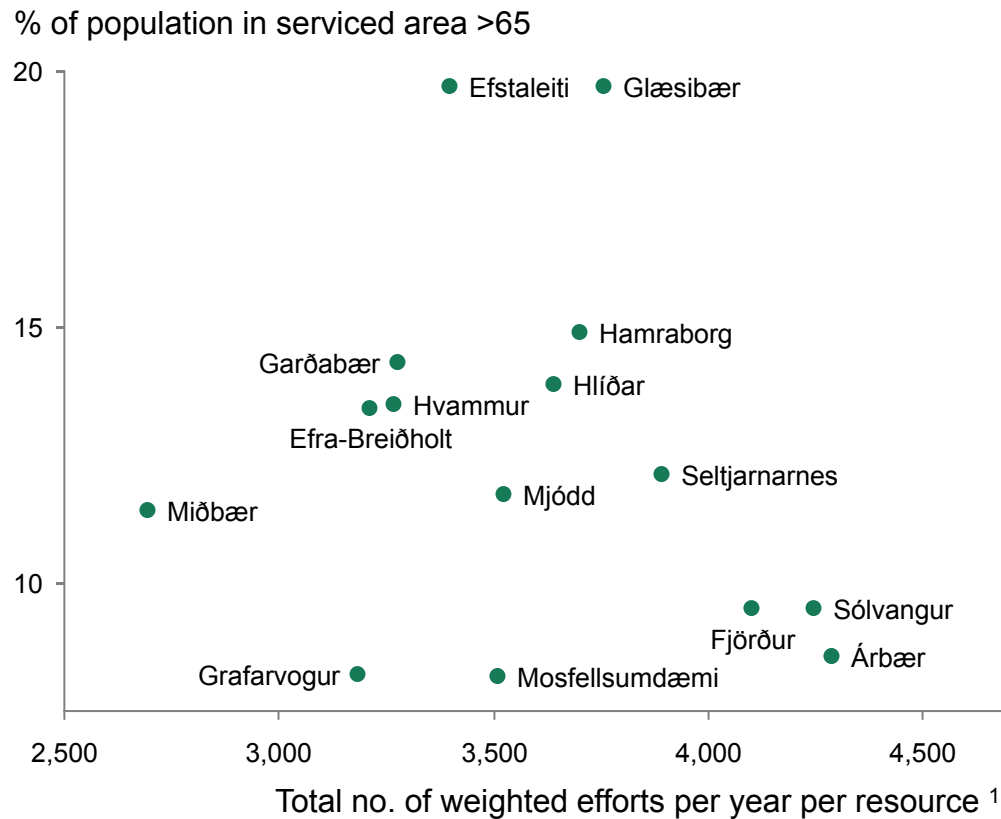
1. Visits have weight 1, phone calls 0,33 and house calls 2
 Note: 2010 data
 Source: Heilsugaeslan Reykjavik, data sent 29 Sept 2011 on visits and number of FTEs



Socioeconomic factors might explain some of the difference

However no signs of productivity of clinic and age of population

No signs of correlation between productivity of clinic and age of patient population



Lacking data points for further comparison

For complete comparison of productivity of health care clinics, need to look at other risk- and socioeconomic factors, e.g:

- Unemployment
- Obesity
- Share of population born outside Iceland
- Average income
- Educational level
- etc.

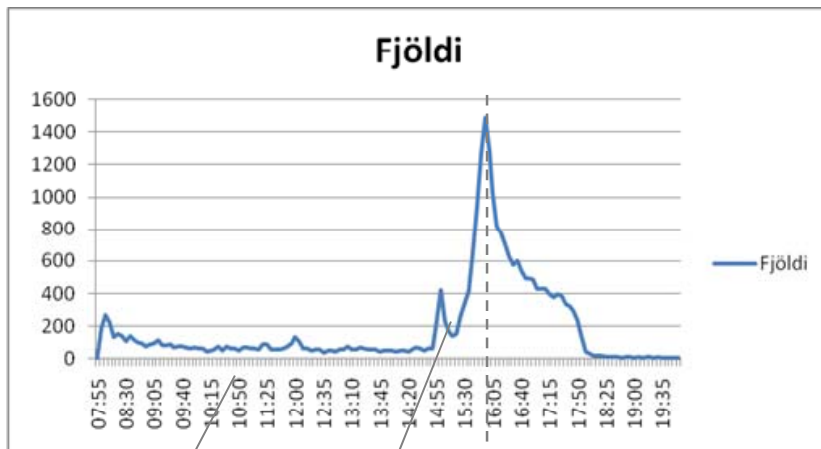
1. Including visits to GPs, phone calls by GPs, house calls by GPs weighted according to model described
Source: Heilsugaeslan Reykjavik, data sent 29 Sept 2011 on visits and number of FTEs



Unclear what incentives the reimbursement model is giving

Study showing patients referred to afternoon reception

Afternoon reception part of primary care service offering



25% of referrals to afternoon reception before 15.00

25% of referrals to afternoon reception 15.00-16.00

Study showing that people are often referred to the afternoon reception, before it starts

- Easy for clinics to refer patients to afternoon hours
- Many patients find it convenient to come in afternoon

Remuneration structure counter-incentivizing daytime productivity

Problems with incentives when doctors salary made up of both fixed part and fee-for-service

- Limited incentives during daytime to increase productivity
- 16-18 operating under fee-for-service agreement

Significant part of salary made up from fee-for-service

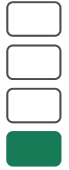
- On average ~24% of doctors salary in Capital Region in 2010

This needs to be investigated further to understand patients types, patient flows and the incentives the current reimbursement model is giving

Note: Graph based on data from measuring all public clinics in Capital Region except Mosfellsbaer, January-June 2010
Source: Ministry of Welfare data, Heilsugaeslan, interviews with Heilsugaeslan and Ministry of Welfare, BCG analysis

Laeknavaktin large private provider in Capital Region

After hour service as complement to ER



Organization & financing	<p>Laeknavaktin is owned by ~70-80 GPs and are operating under a service agreement with the Ministry of Welfare</p> <p>Current agreement saying Laeknavaktin should provide X visits on fixed fee of Y</p> <ul style="list-style-type: none"> Individual doctors paid an hourly salary plus a fee-for-service that make up larger part of the compensation
Service	<p>Læknavaktin operates weekdays at. 17:00 to 23:30 and on weekends at. 09:00 to 23:30</p> <p>Received 61,356 visits in 2010</p> <ul style="list-style-type: none"> An estimated 3-4% are referred to Landspítali emergency ward
Patient payment	<p>Cost per visit</p> <ul style="list-style-type: none"> Children 0-18 years for free 18-67 2,600 ISK/visit (w/o rebate card) ~16 EUR Retirees 1,300 ISK/visit (w/o rebate card) ~8 EUR



Budget allocation mainly based on staffing

Not possible to weigh in patient diagnosis in budgeting process

70%	Staffing	Decisions on staffing made in cooperation between clinics and central office Budgeting is based on calculating all salaries, taking into account known changes in pay due to wage agreements and other reasons
	Fee-for-service	Fee-for-service allocation based on formula that calculates each areas need, factoring in: <ul style="list-style-type: none"> population in that area, no. of doctors to cover population, historical throughput, opening hours Small adjustments may be made by the board based on qualitative assessments
30%	Consumables	Allocation based on calculation of effort and number of tasks performed at each clinic during the previous year
	Medical tests	Fixed sum (2.2 MISK in 2011) allocated for each doctor at clinic
	Rent	Clinics have different rental agreements and gets funding accordingly
	Other	Expenses for re-education, including travel abroad, based on number of employees at each clinic, primarily the number of doctors Clinics making house calls receives additional funding for travelling All funding for services provided by third parties funded accordingly

Source: Interviews with Heilsugaeslan
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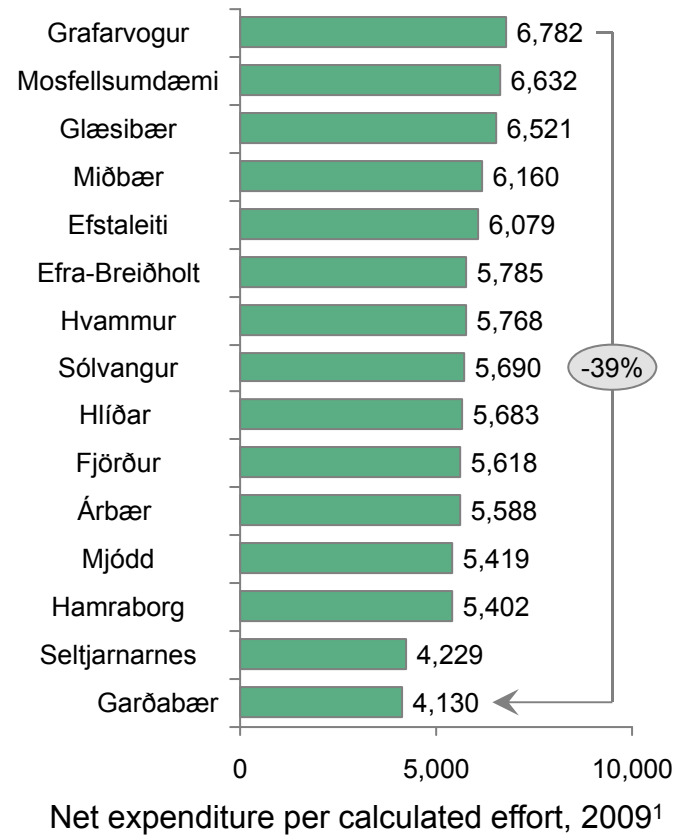
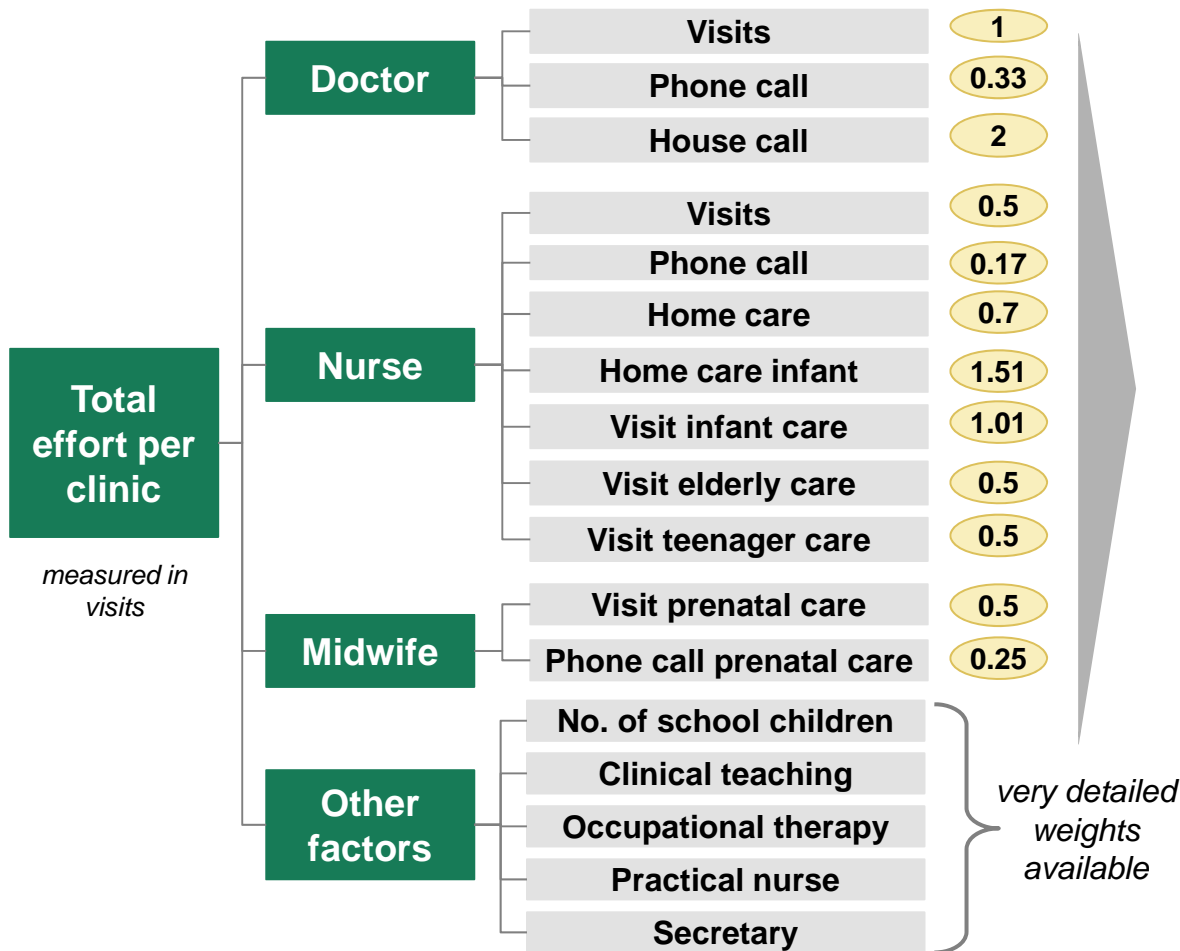
Heilsugaeslan model also showing differences

40% productivity difference even when adjusting for house calls, teaching effort, etc.

Every factor has a weight to make comparable with doctors visits

Weights

Comparison of cost per visit shows a 39% difference in 2009



1. No data available for teaching effort 2010. Fees collected from patients included, but excluding costs for medical tests
Source: Heilsugaeslan Reykjavik

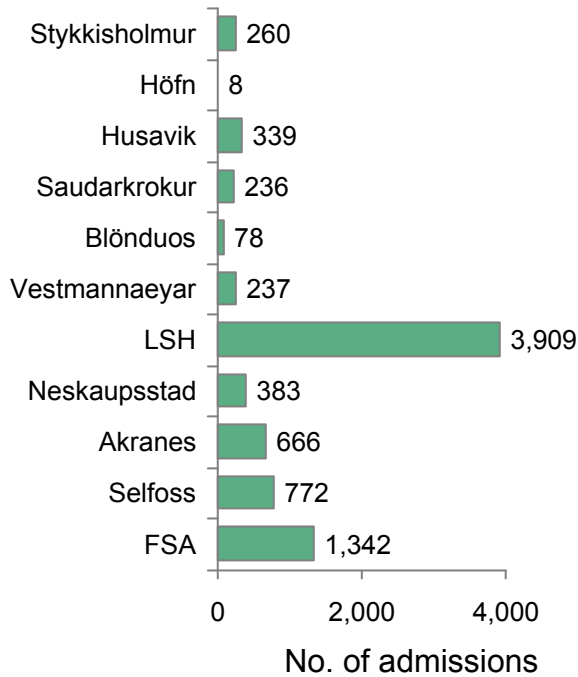


Differences in ALOS needs to be investigated further

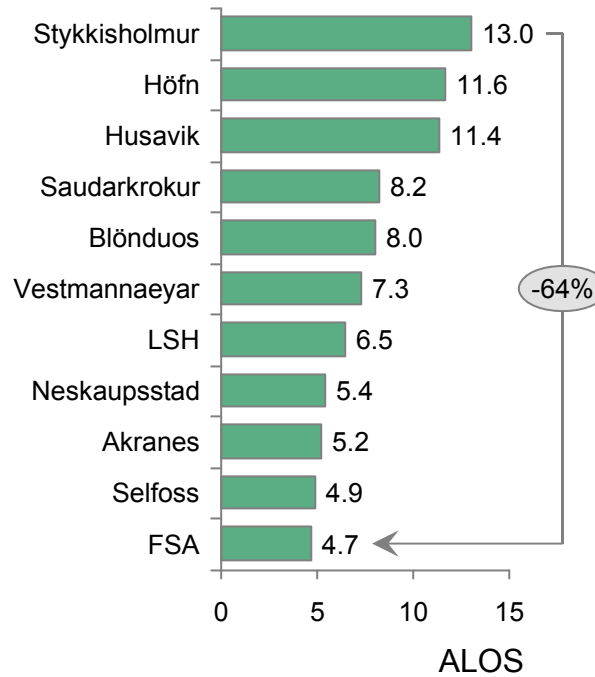
Small volumes makes comparison sensitive, but there are large differences between hospitals

Average length of stay

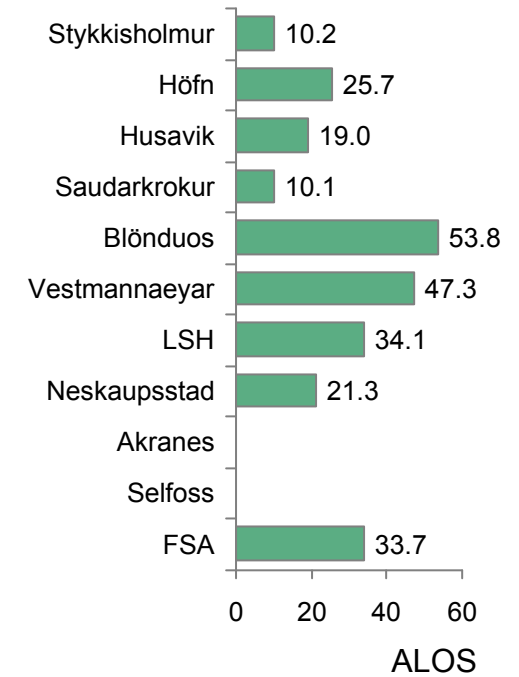
General medicine, number of admissions



General medicine



Rehabilitation



Countryside hospitals sometimes used as rehabilitation wards for other hospitals

Source: Data collected from each institution by Data Group during September 2011, BCG analysis

Iceland HCS-Final report-extended version.pptx

Key findings of direct expenditure and pharma

Overall pharma spend development

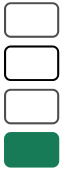
- Excluding VAT Iceland currently has lower spend per capita measured in EUR than Sweden and Denmark
- Overall pharma spend has increased by 7% per year 2008-10 measured in ISK but been reduced by 6% per year measured in EUR
 - Outpatient: 2% per year
 - Inpatient: 9% per year (dominated by S-labelled)
 - Outpatient co-payment: 12% per year
- Inpatient pharma spend, increased 9% per annum despite reforms

Spend on neurological drugs is still high driven by high consumption

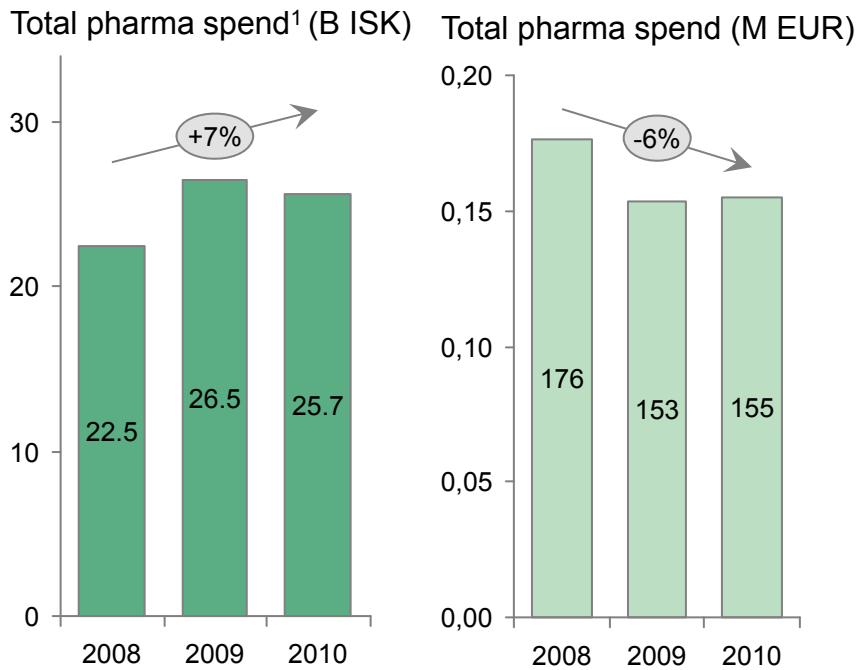
- 44% higher Defined Daily Dosage per capita in psychoanaleptics driven by 173% higher consumption of ADHD drugs
- 48% higher consumption of psychoeoptics primarily for antianxiety medication and sedatives
- If Sweden's level of consumption would be achieved, a yearly reduction in spend of 2 B ISK would be feasible

Iceland has lowered its relative pharmaceutical spend

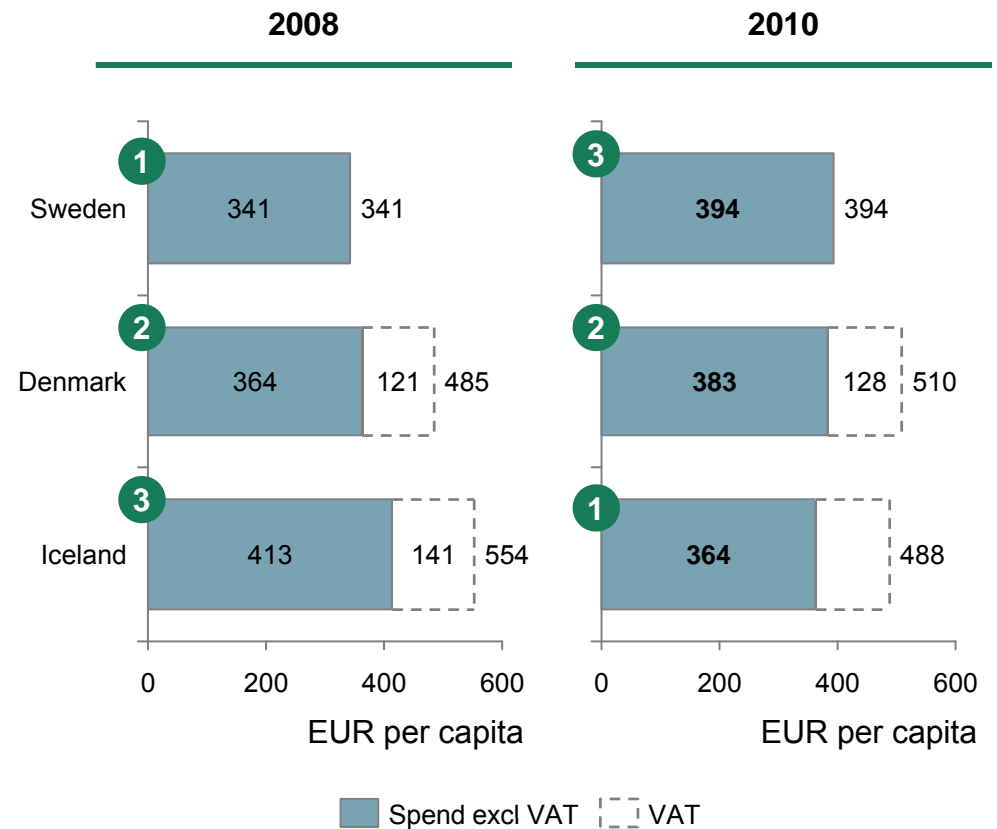
Now lowest in Nordics due to deflation of currency and reforms



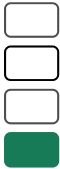
Spend in ISK have increased 14% since '08 but declined 12% converted to EUR



Excluding VAT Iceland currently have lower EUR spend than Sweden and Denmark



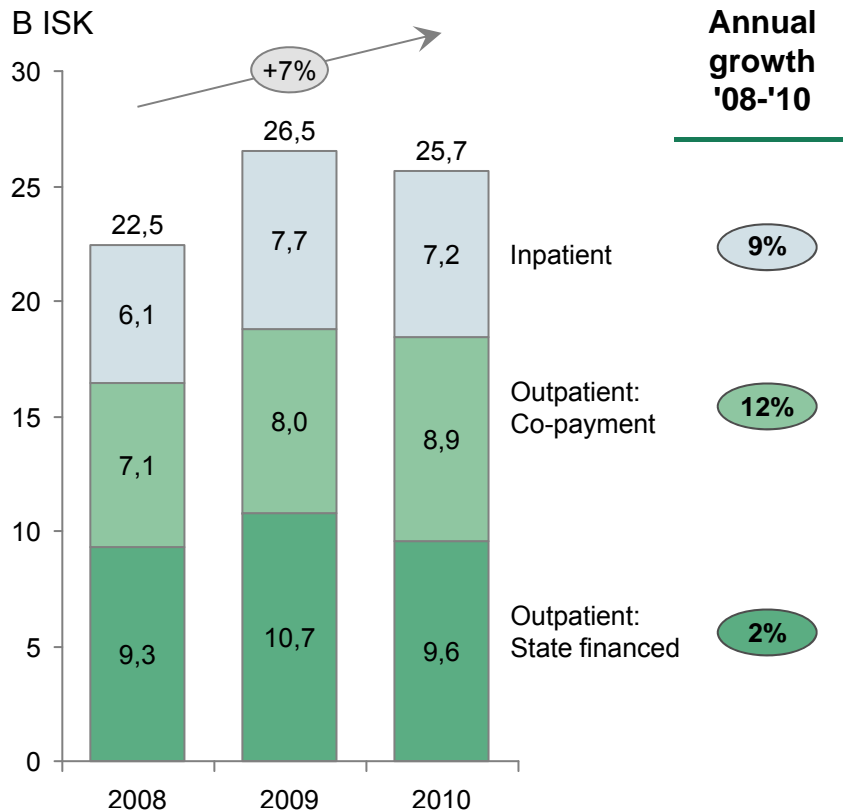
1. Data refer to total spend i.e inpatient and outpatient, state spend and patient co-payment
 Note: Original data in local currencies. Used OANDA's 2008 and 2010 yearly average fx rate
 Source: Swedish national board of health and Welfare, Icelandic Medicines agency, Danish medicines agency



State spend on outpatient have successfully been curbed

A result of increased co-payment and reforming reimbursement

Highest increase in patient co-payment



New system for selecting drugs to reimburse has realized most of the savings

State expenditure has remained low due to implementation of new system where only the low cost drug analog are reimbursed

- Monthly revision of pharmaceuticals eligible for reimbursement

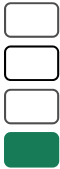
Patient co-payment was increased 10% 2009 to ~6000 ISK per ordination

- Had not been adjusted since 2000 despite high inflation
- There is currently a proposal in the Parliament to convert to yearly ceiling of co-payment rather than per ordination basis
 - Not expected to decrease co-payment overall but protect high consumers

Inpatient costs have also been reviewed

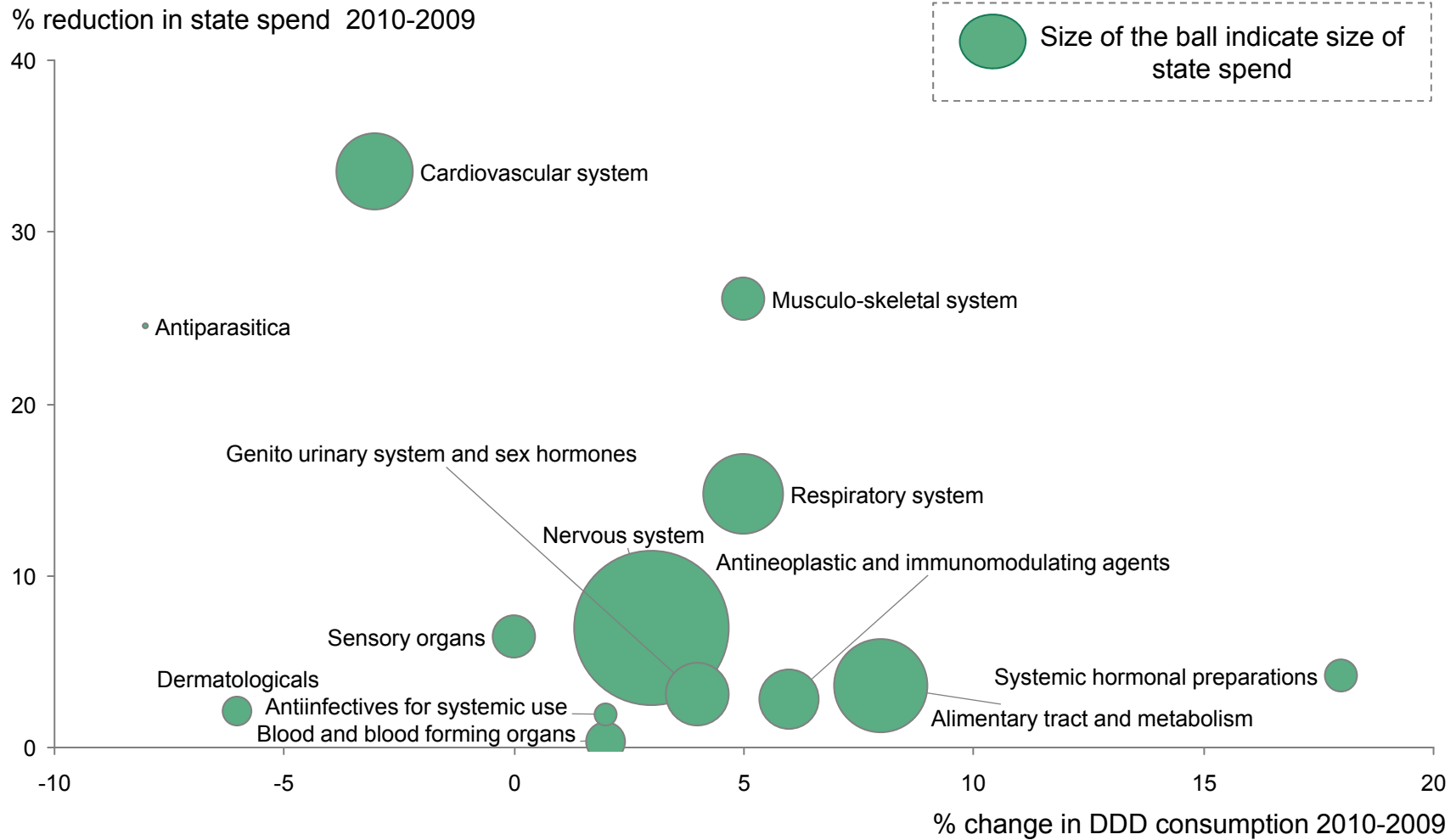
- S-labelled represent 4.9 B ISK (68 %) increasing at a high rate
- List price for pharmaceuticals must be lower than in the rest of Nordics
- Landspítali reduced prices 1% '09-'10 however DDD was also reduced 10%

1. Defined Daily Dosage
 Source: Ministry of Welfare, expert interview, Icelandic Medicine Agency
 Iceland HCS-Final report-extended version.pptx

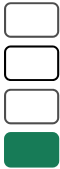


State outpatient spend reduced primarily for cardiovascular

Lower impact in dermatological and sensory organs ATC

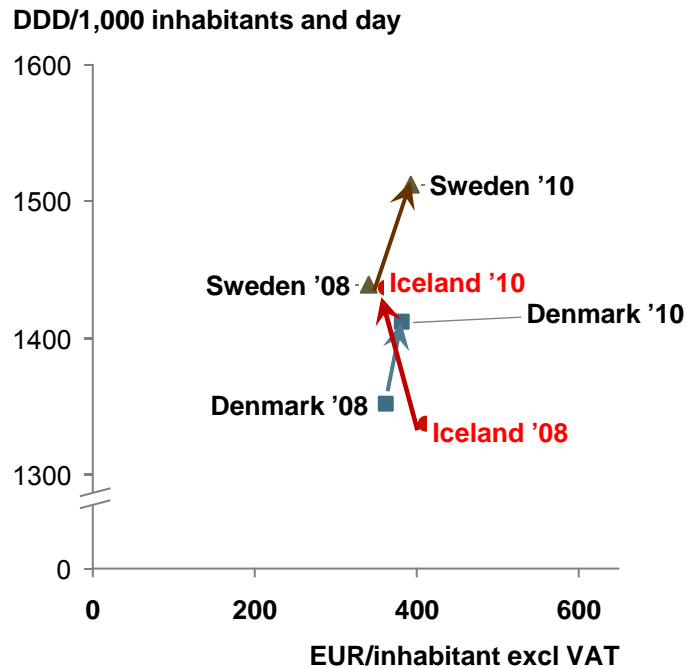


Note: DDD refer to Defined Daily Dosage
Source: Ministry of Welfare, Icelandic Medicinal Control Agency
Iceland HCS-Final report-extended version.pptx



Efforts to curb expenditure not addressing all root causes

Since 2008 Iceland has lowered its pharmaceutical spend despite increasing usage



Note: Iceland's pharma spend has increased 14% p.a since 2008 but due to the deflation of the currency costs in EUR have been decreased

The previously high cost level was driven by three factors

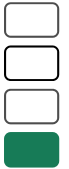
	Root cause	Addressed '08-'10
A	Limited availability of generic drugs	Yes, but EU policy needed
B	Higher inpatient and outpatient drug prices	Yes (primarily for outpatient)
C	Overall higher dosage in cost intensive disease areas	No

There is still be room for cost reduction

Note: Original data in local currencies. Used OANDA's 2008 and 2010 yearly average fx rate
 Source: Swedish national board of health and Welfare, Icelandic Medicines agency, Danish medicines agency

High dosage in nervous system drive costs

Nervous system has by far the largest share of the pharmaceutical sales



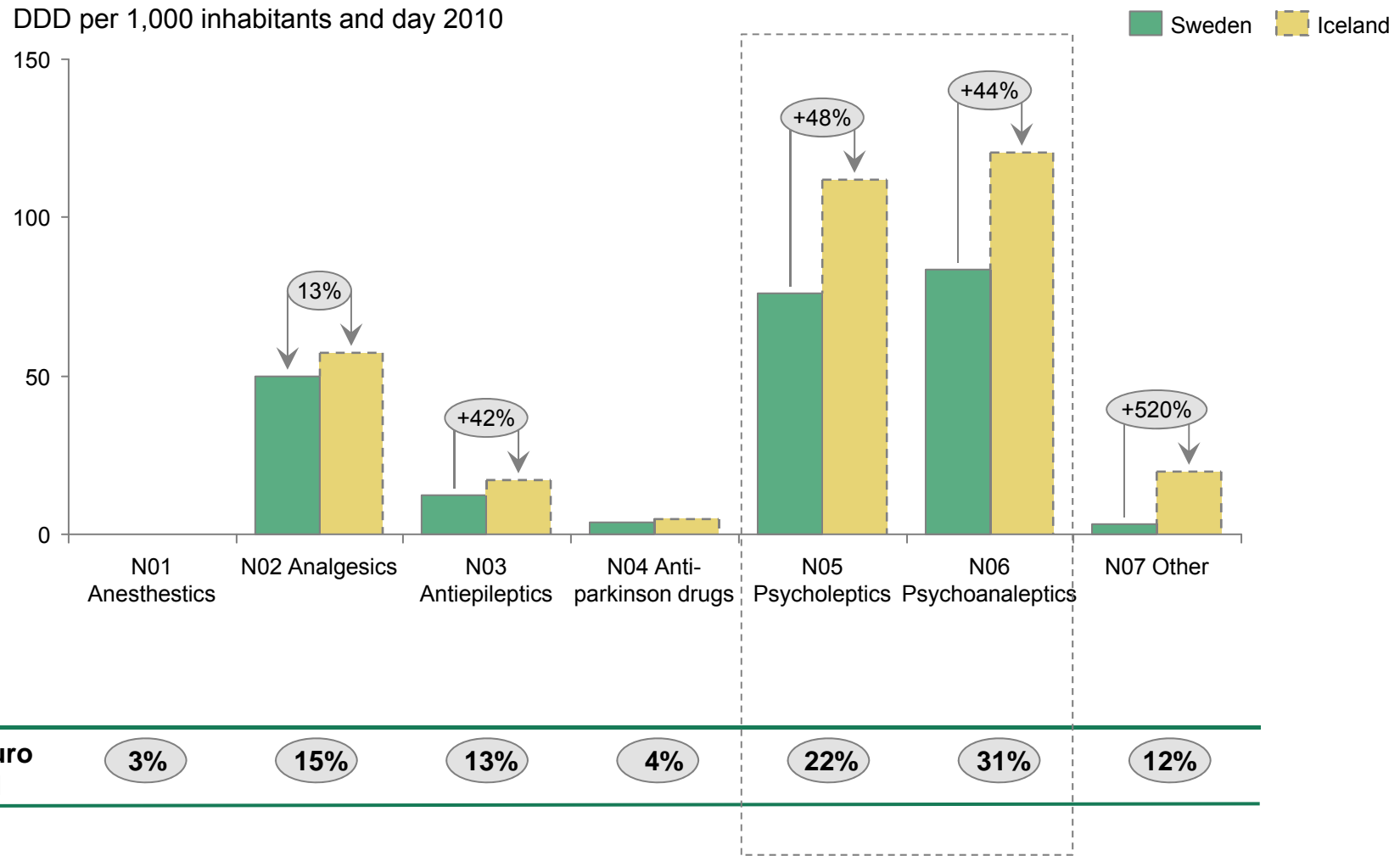
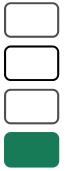
1. A: Alimentary tract and metabolism. B-Blood and blood forming organs. C-Cardiovascular system. G-Genito urinary system and sex hormones. H-Systemic hormonal preparations, excluding sex hormones and insulins. J-Anti-infectives for systemic use. M-Musculo-skeletal system. N-Nervous system. R-Respiratory system

Note: All prices and spend is excluding VAT from 2010

Source: Swedish national board of health and Welfare, Icelandic Medicines agency, Danish medicines agency

Efforts should focus on psycholeptics and psychoanaleptics

Represent >50% of spend and dosage differ dramatically between Sweden and Iceland

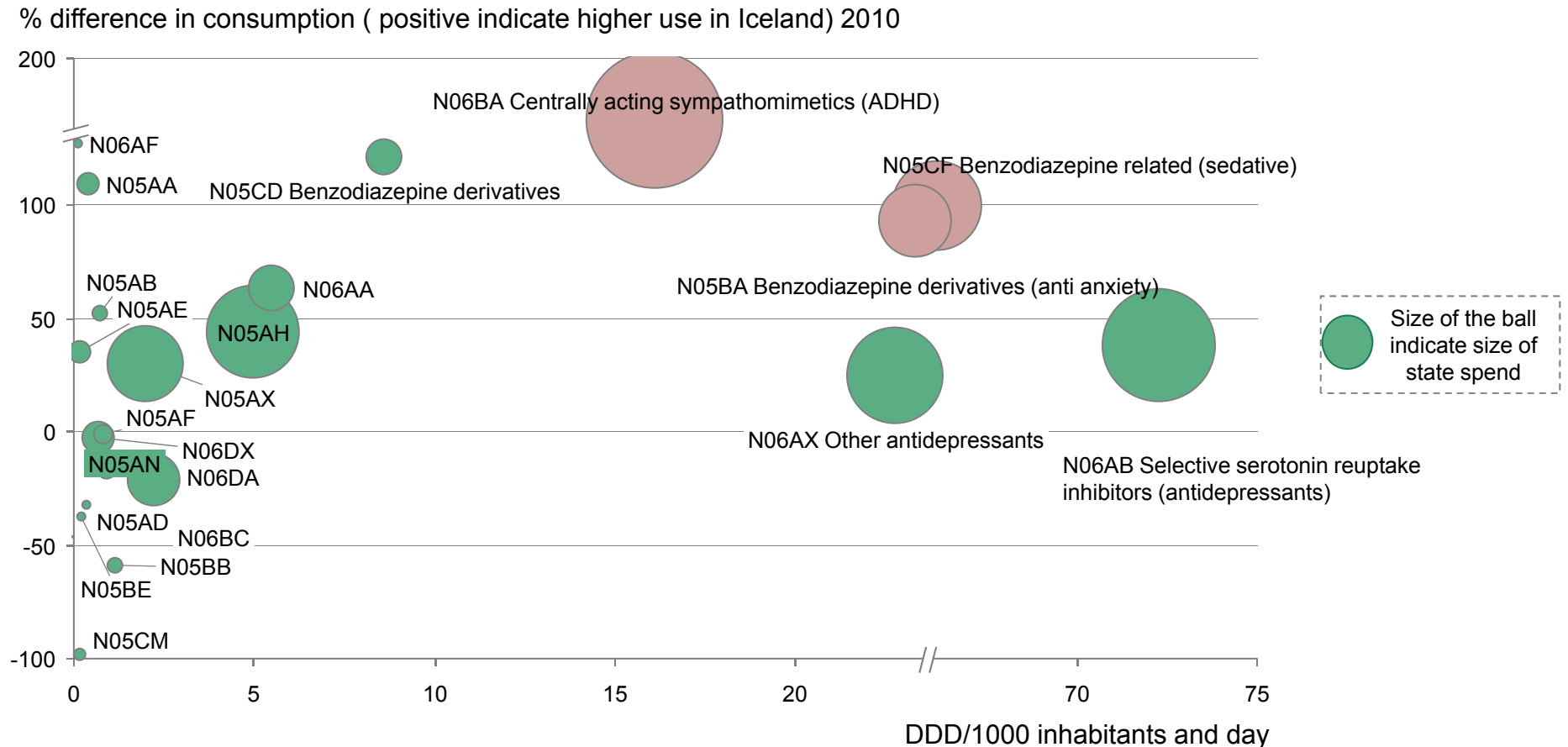
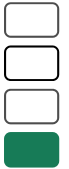


Source: Swedish National Board of Health and Welfare, Icelandic Medicines agency

Iceland HCS-Final report-extended version.pptx

Within the two areas three categories stand out

Large spending, high dosage and very large difference in dosage compared to Sweden



173% higher dosage for ADHD medication

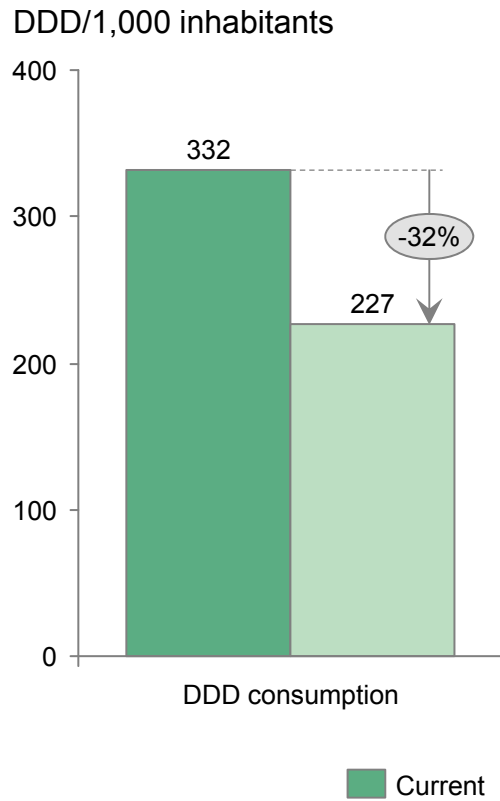
Not adjusted for prevalence as prevalence data of the these conditions typically mostly reflect treatment patterns and cultural aspects
 Source:Swedish National Board of Health and Welfare, Icelandic Medicines agency



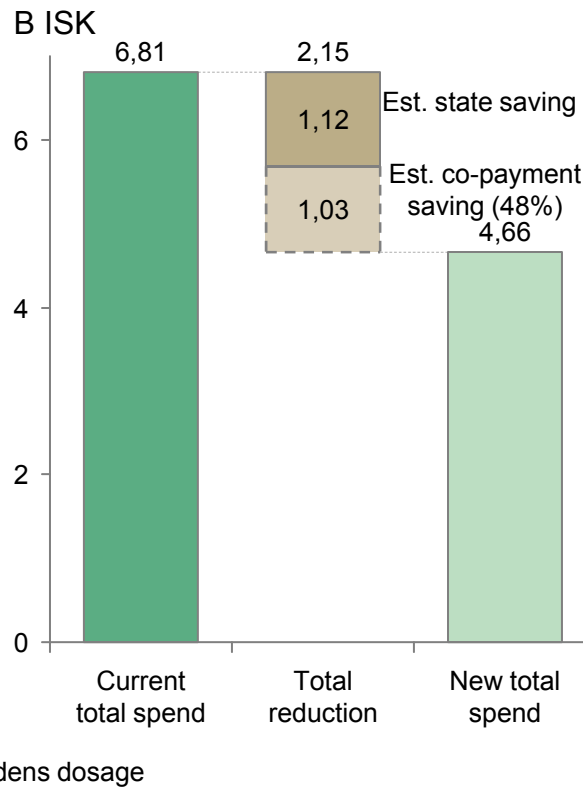
Reducing DDD use to Sweden's level could save 2 B ISK

Of which 1 B ISK is estimated to be state savings

Adjusting consumption in neurology to Sweden's level...



...could realize 2 B ISK in savings on total expenditure

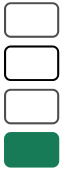


Of which 1 B ISK is estimated to be co-payment

- Neurology pharmaceuticals are primarily outpatient medication and subject to patient co-payment
- On average, for all disease areas, co-payment for outpatient is 48%
 - However, co-payment for neurology is likely lower than average as the price per dose is higher and patients only pay up to a fixed amount regardless of the cost of pharmaceutical

Iceland with overcapacity in CT and MR machines

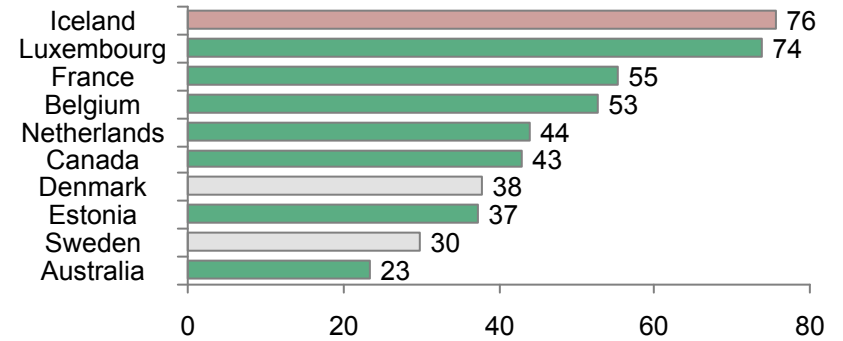
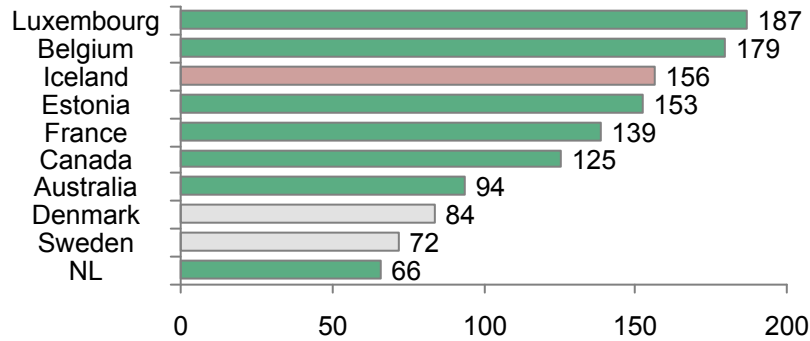
High number of exams per capita but still low utilization



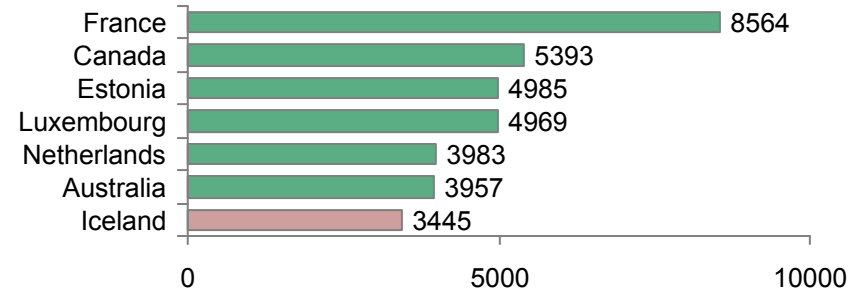
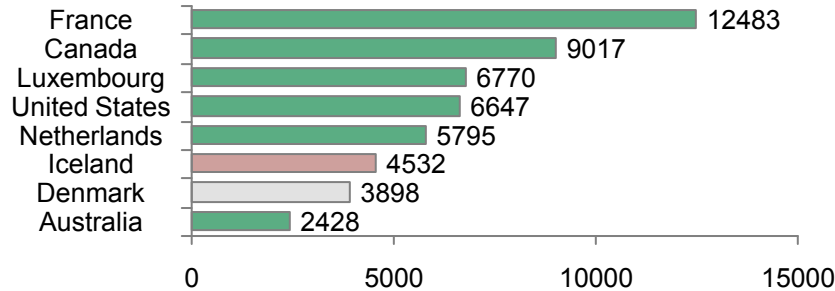
CT

MR

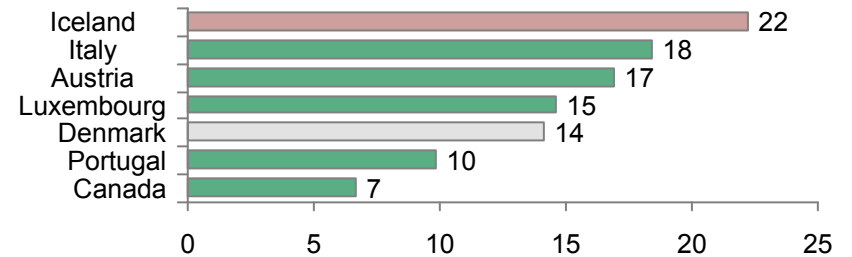
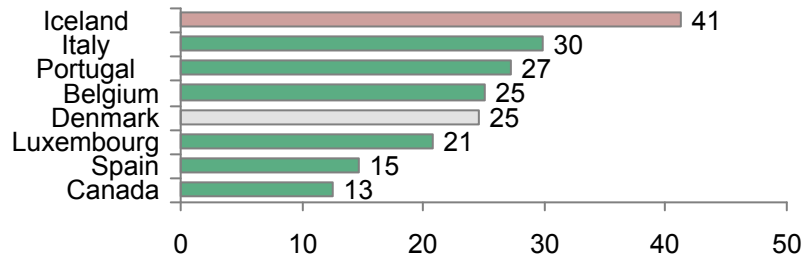
Exams per capita
(scans per 1,000)



Scans per camera



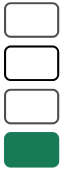
Equipment density
(MR/CT per 1,000,000)



Note: Other OECD countries not reporting CT and MR use
Source: OECD Statistics, Sweden: Strålsäkerhetsmyndigheten, SCB, WHO

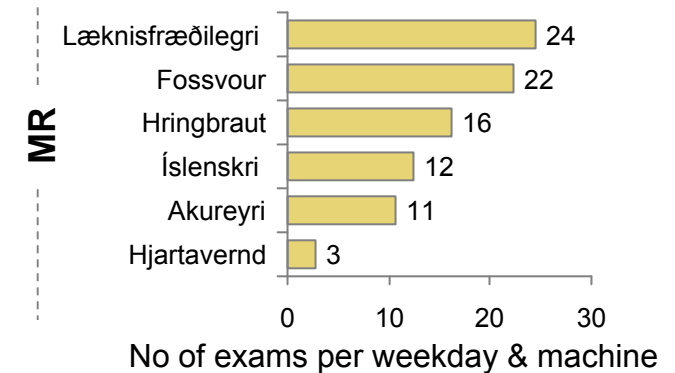
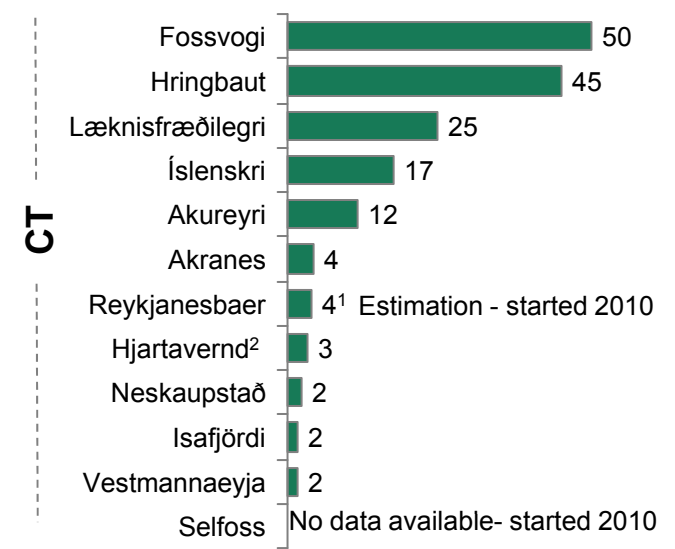
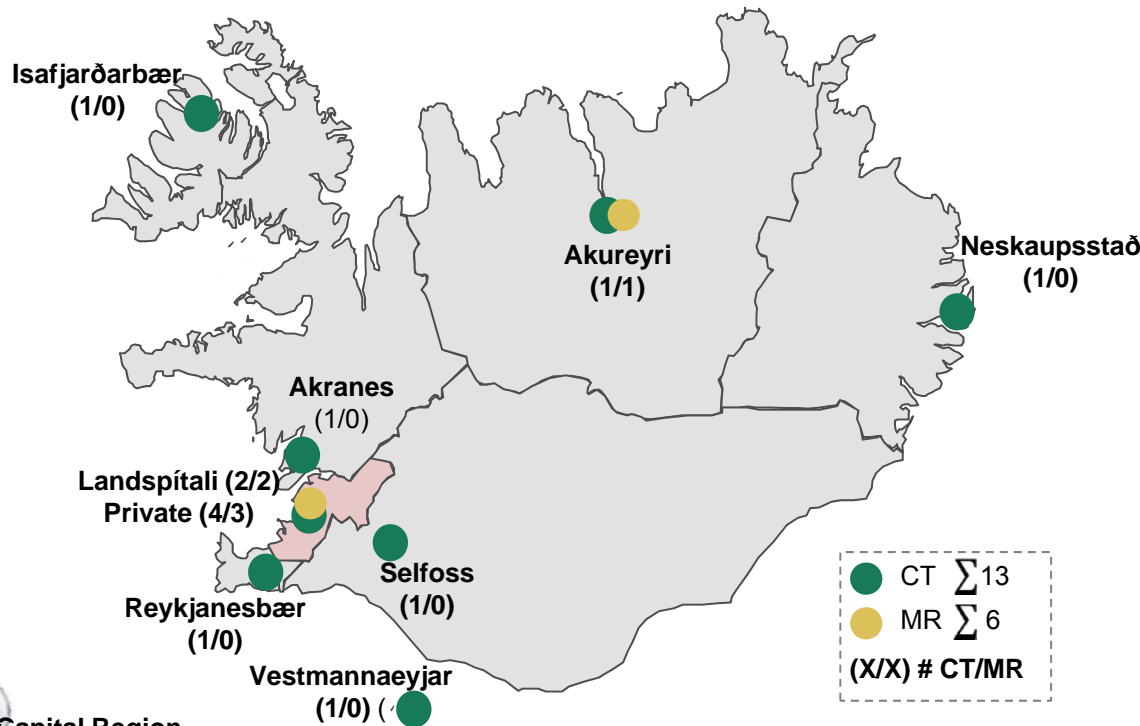
Low usage of some MR /CT machines

Several of the machines have been donations to the hospitals



There are 13 CT and 6 MR concentrated in capital region...

..with large differences in utilization '08

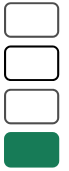


Capital Region

Landspítali:	MR	CT
Fossvogi	1	1
Hringbraut	1	1
Private:		
Læknisfræðilegri Myndgreiningu,	1	2
Íslenskri Myndgreiningu	1	1
Hjartavernd	1	1

1. 2011 estimation. 2. Hjartavernd mainly research institution.
 Note: Location of scanners 2011 data number of scans per machine from 2008.
 Source: Icelandic Radiation Safety Authority, Ministry of Welfare, BCG analysis
 Iceland HCS-Final report-extended version.pptx

Lean: There has been extensive cost cutting in hospitals, but unclear if Lean process has been implemented



BCG lean methodology focuses not only on efficiency

Unclear to what extent lean work methods have implemented

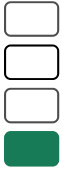


"As far as I know very little Lean work has been done in the hospitals"

Ministry of Welfare representative

"We have implemented Lean in smaller areas of the hospital but not on a broad front!"

Hospital CFO



Purchasing: Potential savings in centralizing purchasing

Current purchasing landscape

Landspítali negotiate tendering agreements with suppliers

- Other care providers are free to join in on contracts but it is not a general rule
- Currently Landspítali has closer collaboration with some regional hospitals
 - Collaboration still taking form but intention is that Landspítali to a large degree will manage joint purchasing

Moving forward there are initiatives which could lower cost

1 Centralize purchasing through Landspítali organization

- Savings from standardization and consolidation
- Scale effect potential
- Would free up resources in smaller institutions

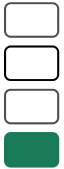
"I believe handling smaller units purchasing would be relatively easy for our organization at Landspítali. Our operations are increasingly professional and we are optimizing methods and processes"

- Purchasing department Landspítali

2 Join Nordic tendering agreements

- Thorough price comparison required
- Feasible with new law passed 2010
 - first initiatives already taken by Landspítali

7 Good data gathering, budgeting and performance management is lacking



Iceland situation

Quotes from the organization

A
Data sourcing and analysis

- No clear accountabilities for data delivered
- Limited input guidance for the institutions in how to code
 - allocation principals for financials varying
 - coding of procedures and care volumes varying
- Limited user friendliness of input interface
- Large degree of manual analysis of data needed when extracting data from system

"There is no protocol for how to enter data in a correct way and mistakes are constantly made"

"I spend 20% extracting data and then 80% adjusting it and analyzing it in excel"

B
Budget and planning

- Budget is only set one year at a time and is communicated late to each institution
- As the input data is of poor quality it is very difficult to develop a good budget which incentivizes the organizations

"We can't build good budget as we don't know what things really cost"

"There is no standard reports that everyone uses"

C
Performance management

- No joint report structure that everyone uses so each unit has their own model
- Limited transparency on data between units hence no pressure to make sure input data is correct
- Bi-weekly follow-ups with the large institutions and 2/year with the smaller institutions

"There is no real accountability for the numbers in the organization"

D
Organization and skill level

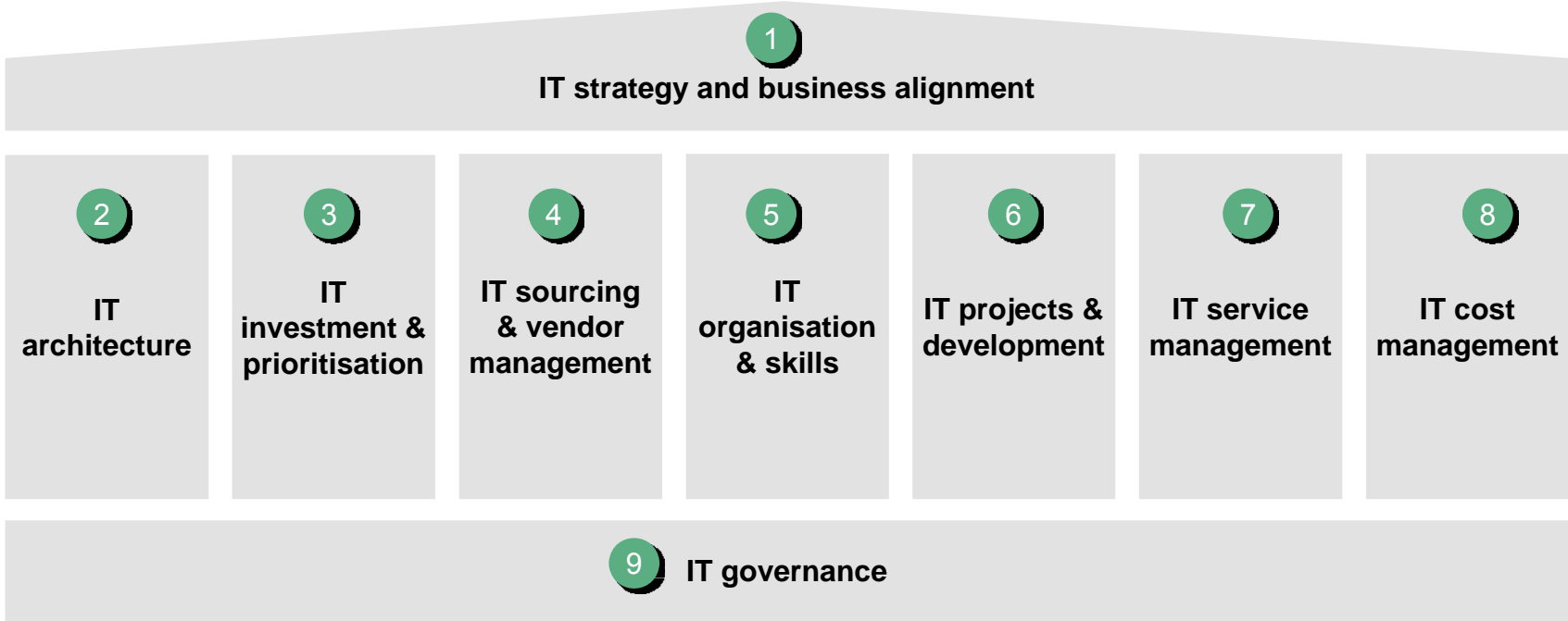
- Given new organizational model roles and cooperation model not completely defined yet
- Lack of financial and IT skill throughout all organizations

"There is a lack of IT and finance skills in the organizations"

We have used BCG IT health check framework to do a quick outside in assesment



BCG IT health check framework



Health check provides a methodology for discussing your starting point and key issues – initial view is based on selected interviews

e-Health: Iceland system lacking central strategic alignment and integration between regions



1 IT strategy and business alignment

- Limited/no strategic direction on national level

2 IT architecture

- Gaps in architecture for payors, providers and patients e.g. current EPR is the same in each region but regions not linked
- Difficult for payor to gather data, no patient interfaces
- Strategic question: "continuing clean up" vs "invest in proven system"

3 IT investment & prioritisation

- E-health has not been a prioritized investment area
- Unclear how prioritizations are made

4 IT sourcing & vendor management

- Selective use of outsourcing, e.g. technical infrastructure, maintenance of medical equipment. ~30% outsourced today

5 IT organisation & skills

- Varied skill level across country organizations due to size

6 IT projects & development

- Difficult to run new initiatives with current savings target and budget constraints

7 IT service management

- IT service management decentralized

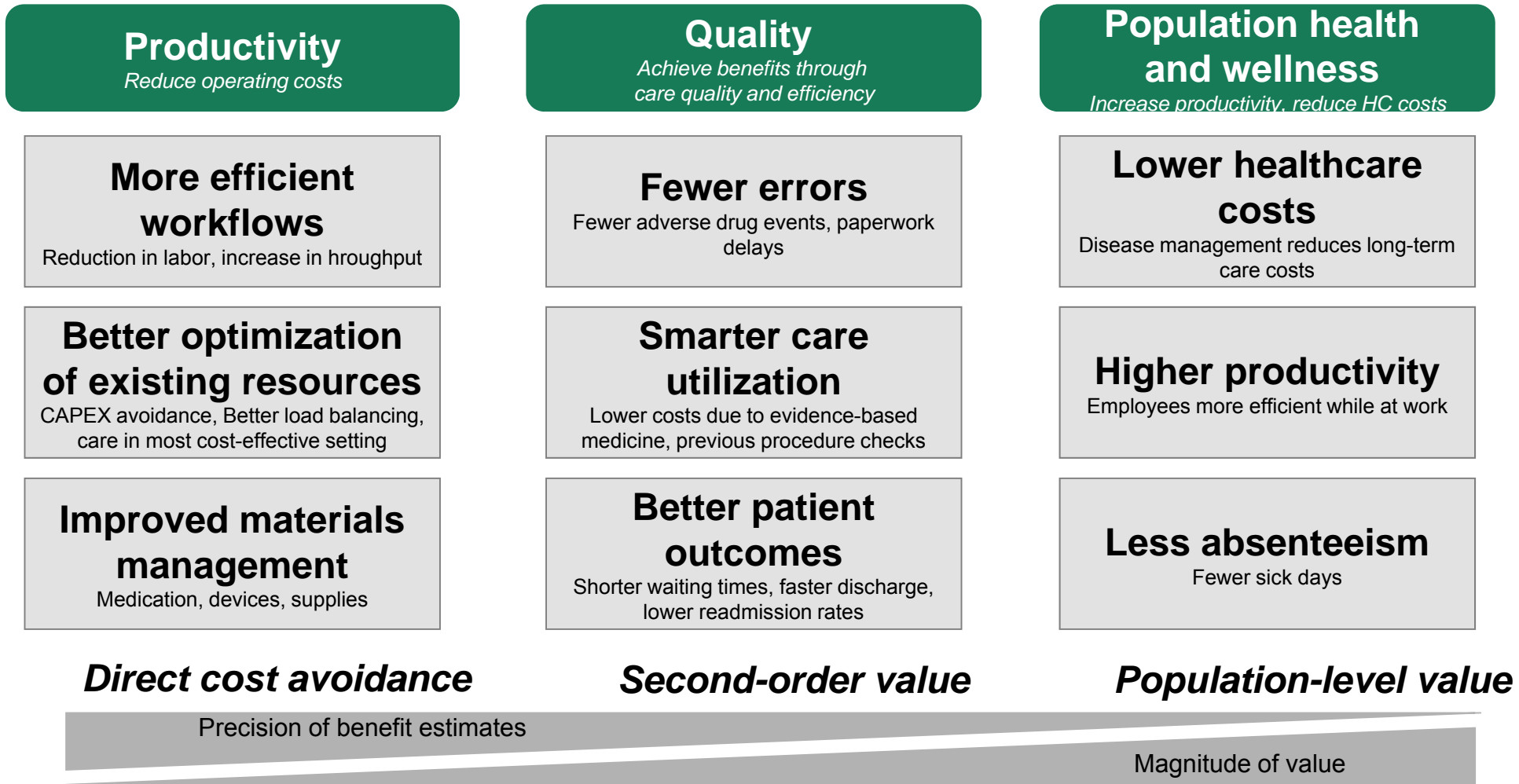
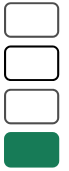
8 IT cost management

- Cost transparency high at Landspítali, not at all same level in other units

9 IT governance

- IT governance model unclear

7 Three drivers for value creation of health care IT will be taken into account for the development of the business case



Swedish example: Vårdguiden

Provides medical advice and guidance on optimal care facility to turn to



Operate thorough 3 channels



24 h telephone line with trained nurses

- For medical advice
- Direction on opening hours and capabilities of care facilities
- Also available for other languages



Webpage with medical advice and care access information

- Medically reviewed advice on specific disease
 - diagnosis, treatment and pharmaceuticals
- Information available in a number of languages
- Personal stories e.g stop smoking blogs



Magazine distributed to households 4 times a year

- Purpose is to promote health issues and provide advice on self care
- Includes comprehensive list of care facilities including opening hours, phone numbers etc
- Distributed since 2002

Agenda

Description of the Icelandic health care system

Current performance of the system

Key changes needed to secure a better system in the future

Iceland needs to balance short and long-term initiatives



Short term savings target for 2012

To afford escalating costs in S-labelled drugs (0.8 B ISK), treatment abroad (0.6 B ISK) and private specialists (1.1 B ISK) reductions of the other budget post amounting to 2.2 B ISK is required

Translating budget savings into resources could hypothetically mean¹

- Cutting 28% of outpatient pharmaceutical budget, or
- Completely stop reimbursing medical aids
- Laying off 157 doctors, corresponding to 12% of total number of doctors and surgeons, or
- Laying of 314 nurses, corresponding to 12% of all nurses



Long term reform need

The current system has a number of areas where it's not performing in an optimal which will require more mid- to long-term initiatives to address

Some will require substantial investment e.g. E-health and some less so but larger change programs e.g. primary care reform, reform of private specialized care provision

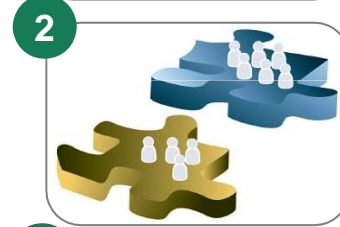
Five type of levers to improve Health Care System



1

Structural levers

- Levers governing structure among payors and providers



2

Market rule levers

- Levers for adjusting competition between providers through adjusting rules of the market; demand, supply, etc.



3

Patient flow levers

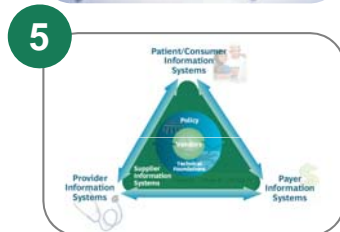
- Levers directing patient flow between providers directly or indirectly



4

Direct expenditure levers

- Levers for adjusting spend levels for providers and payors


















5

Other levers

- Levels to improve quality governance, use of eHealth and prevention

Improvement levers with different effects

	Trend / lever	Description	Example	Short term financial effect
1 Structural levers	Payor restructuring	<ul style="list-style-type: none"> Mergers of payors to increase synergies Shifting owners of care budget e.g. GPs become payor 	<ul style="list-style-type: none"> UK Norway, Denmark 	
	Provider restructuring	<ul style="list-style-type: none"> Mergers of large hospitals situated fairly close Resizing/re-profiling of hospitals 	<ul style="list-style-type: none"> Sweden / Norway Netherlands 	
2 Market rule levers	Reimbursement changes	<ul style="list-style-type: none"> Adjust reimbursement levels and create incentives for efficiency Introduce DRGs 	<ul style="list-style-type: none"> Sweden 	
	Competition among provider (and payors)	<ul style="list-style-type: none"> Providers competing over patients through e.g. increased freedom of choice for patient 	<ul style="list-style-type: none"> Sweden, Norway 	
	Only contract specific providers	<ul style="list-style-type: none"> Certification or authorization of providers with right to reimbursement etc. 	<ul style="list-style-type: none"> Sweden 	
	Gate keeping	<ul style="list-style-type: none"> Gate keepers used to direct patients through system, e.g. family doctor 	<ul style="list-style-type: none"> Most tax-based systems, e.g. Demark 	
3 Patient flow levers	Increase care integration	<ul style="list-style-type: none"> Incentives and processes in place to improve care integration 	<ul style="list-style-type: none"> Sweden 	
	Patient guidance e.g. disease management	<ul style="list-style-type: none"> Programs profiling risk groups with personalized guidance in the HC system to decrease care needs 	<ul style="list-style-type: none"> US Sweden 	
4 Direct expenditure levers	Drug & medtech purchasing and prescription	<ul style="list-style-type: none"> Professionalize drug & medtech purchasing and change prescription guidelines 	<ul style="list-style-type: none"> UK 	
	Limit coverage/increase co-pay	<ul style="list-style-type: none"> No payment/co-payment of certain products or services 	<ul style="list-style-type: none"> Sweden 	
	Hospital operational improvements/cost cutting	<ul style="list-style-type: none"> Improve efficiency resulting in lower LOS, higher throughput Increase waiting times, reduce staffing levels, postpone investments, reduce service levels etc 	<ul style="list-style-type: none"> Belgium France Sweden 	 
5 Other levers	Prevention	<ul style="list-style-type: none"> Reducing obesity, reduce smoking and drinking, getting patients to take the right drugs, etc. 	<ul style="list-style-type: none"> Nordics 	
	Quality focus	<ul style="list-style-type: none"> Use of data and outcomes measurement leading to improved care 	<ul style="list-style-type: none"> Sweden 	
	E-Health	<ul style="list-style-type: none"> Introduction of e-health solutions to make care more efficient 	<ul style="list-style-type: none"> US 	

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Iceland needs a strategic plan to address long term

● First order of priorities

The system today

Areas for further investigation

Structural levers

- Current hospital structure not developed top down based on patient needs
- Unequal and likely inefficient elderly care with limited quality performance mgmt

- Top down structure redesign
 - Quick fixes e.g. ambulances
 - Long term design
- Elderly care review

1c
3
2

Market rule levers

- Current reimbursement model gives the wrong incentives
- Overall lack of strong GP system
- Privatization strategy not thought through

- Primary care reform incl. reimbursement
- Review of private specialist model

1a

Patient flow levers

- Pockets of innovation in integrating care e.g. home care

- Review of overall reimbursement of public specialized care
- Continue to improve integration model

Direct expenditure levers

- Unclear purchasing strategy
- Further improvements in drug spend management

- Implement best practice purchasing
- Launch drug spend savings in nervous system drugs

1d

Other levers

- Weak central planning function
- Very weak E-health
- Areas for improved preventive efforts e.g. obesity
- Limited Value Based Health Care focus

- Re-design central planning & performance mgmt
- Develop E-health strategy
- Launch aggressive obesity prevention
- Continued focus on building registries

1b

Proposal for next steps: Primary care & private care

Primary focus is capital region

Proposed next step

- Further detail analysis of current situation
 - Further detail internal challenges in the public primary care organization through interviews and analysis
 - Analyze current patients flows by patient type for both private and public (diagnostics, age, frequency)
- Gather international examples of primary care reform
- Develop own proposal for future reform of primary care in the capital region
- Launch initiative
- Evaluate results of model after 6 months
- Investigate relevance of capital model for other regions in Iceland

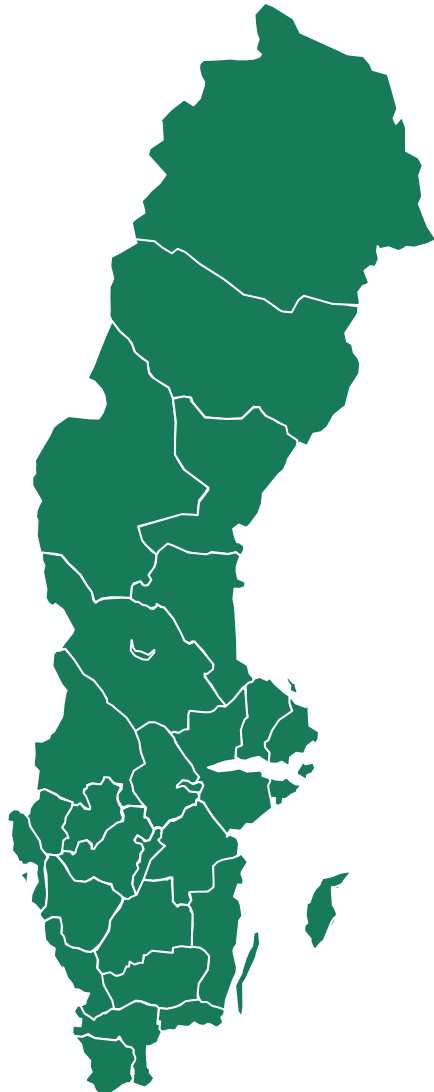
Timeline

- | | |
|--|----------|
| • Initial analysis & international examples Nov-Dec | Nov-Dec |
| • Model development & gather input from stakeholders | Jan-Mar |
| • Launch model | April |
| • Evaluation of model | Jan 2012 |

Team

- Steering Group consisting of representatives from Ministry of Welfare, Landspítali and the primary care sector in the capital region
- Working group: Strong project leader with unbiased view, team of key primary care people and selected specialist

Example: Swedish primary care reform "Vårdval"



Patient choice

- Even though patient choice already exist in most of the counties its under this umbrella most of the ongoing reforms are undertaken. The aim is to **improve the functionality of patient choice**

Financing

- **Redo the financing** to follow the patients choice of GP practice. This can either be done in a performance based system (fee-for-service) or a capitation based system

Role of GP

- **Strengthen the gatekeeping** function by incentivizing the GPs to become first point of contact (through increasing opening hours, broadening the service and expertise offering)

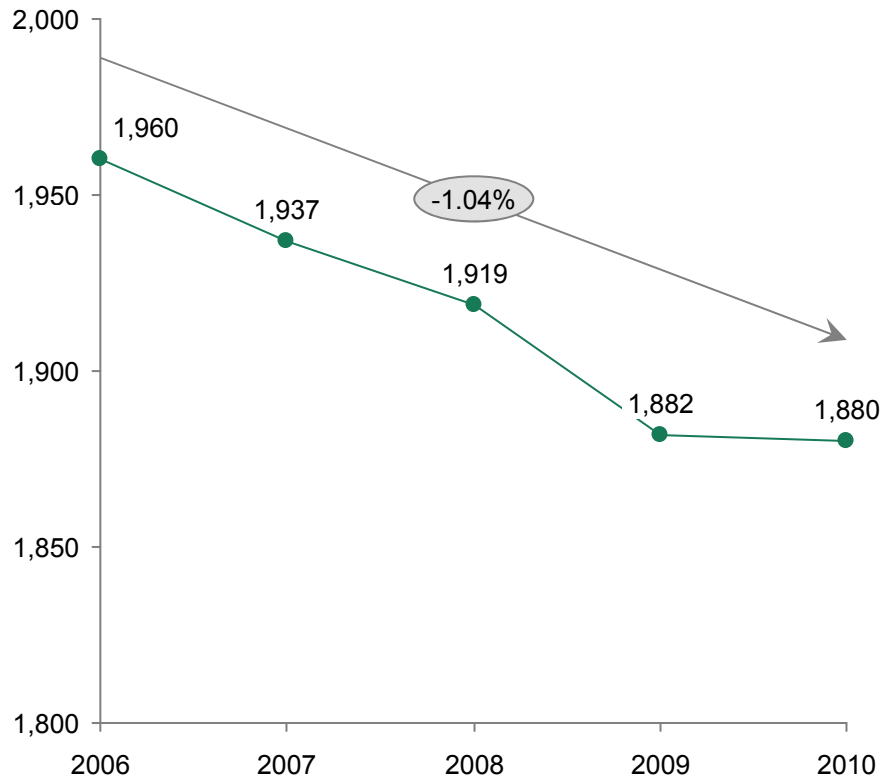
Ownership

- **Increase** number of suppliers through more **private provision**

Effects from Vårdval Stockholm: More visits at lower cost

Real cost for primary care/inhabitant sinking 1 % yearly

Cost per inhabitant, prices fixed on 2010 level



28 % more visits has only increased total cost by 2.8 %

- GP visits have increased by 28 % 2006 – 2009
- Total cost have increased by 2.8 %
- Decreased cost per patient and GP visit
- 37 new GP centers have opened, many of them within low and middle income areas
- In 2006 the inhabitants in high income areas did the most GP visits but in 2009 it was instead the inhabitants in low income areas
- Patients with diseases demanding a lot of care have increased their GP visits more than the average citizen
- Quality perceived by patients have increased
- GP centers have increased their share of the total primary care visits and the primary care visits to ERs have decreased
- Decreased prescription of antibiotics per GP visit
- As before the reform, most resources are used in low income areas but the differences between the areas have decreased

Source: Utvärdering Vårdval Stockholm 2010, Karolinska Institutets Folkhälsoakademi

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Appendix

- Region deep-dive
- VBHC

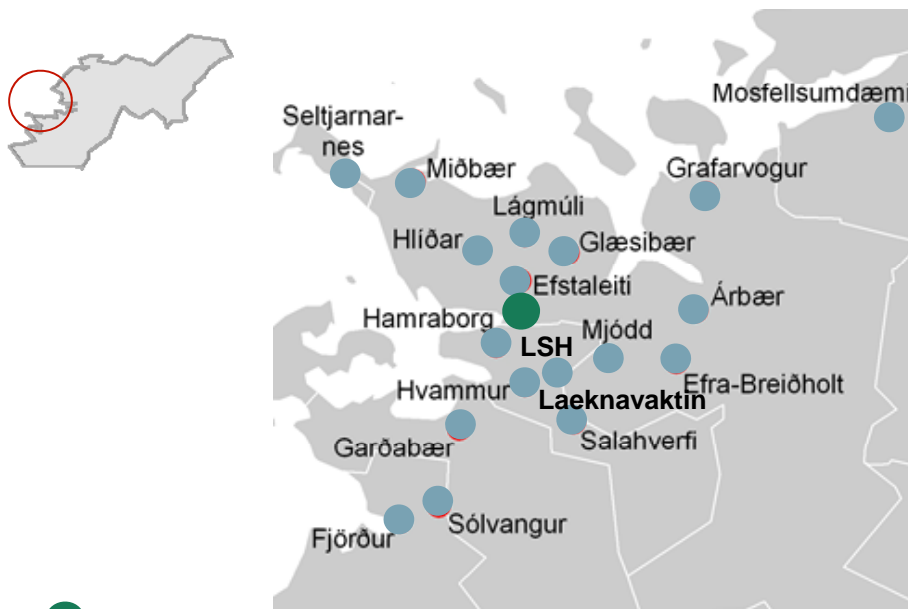
Appendix

- Region deep-dive
- VBHC

Details on care provision by region

Capital Health Region

Distribution of health care provision in Capital region



- Regional hospital
- Health Care Institution
- Primary Care Clinic
- Nursing home

for visibility, nursing homes excluded in the map

Key facts

Capacity

Hospital beds: 714 (654 LSH)

Elderly care:

- Nursing home beds (RAI): 1366
- Hospital beds used for nursing (RAI): 0
- Other long term nursing beds: 186
- Home care provision: ~275,000 visits, ~4,100 individuals served

Emergency rooms: 1 (LSH) (+1 Laeknavaktin)

Ambulances: 14

Volumes

Surgeries¹ : ~12,500

- Top 3: 19% muscles and bones, 15% digestive system and spleen, 12% female genitals

Deliveries: 3,420

Resources²

Physicians (AWU): 592

- Of whom practicing at Health care clinics (AWU): 125

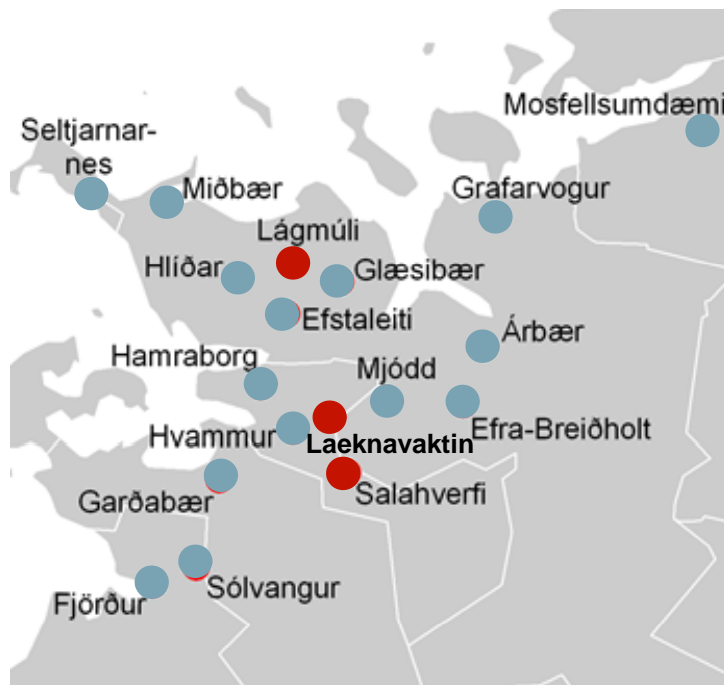
Nurses (AWU): 1,232

Other medical personnel (AWU): 879

1. Only including surgeries done in OR. 2. Public Health care resources
 Note: Capacity and resource data from 2011, except no. of ambulances (2009). Volume data from 2010
 Source: Ministry of Welfare data market 2011, slide checked and confirmed by each institution

Opening hours of primary care centers in Capital Region

Distribution of health care provision in Capital region



- Private primary care provider
- Health Care Clinic

Note: not counting the facilities offering adult day care
 Source: Ministry of Welfare data market 2011

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Operating hours of Primary Care centers

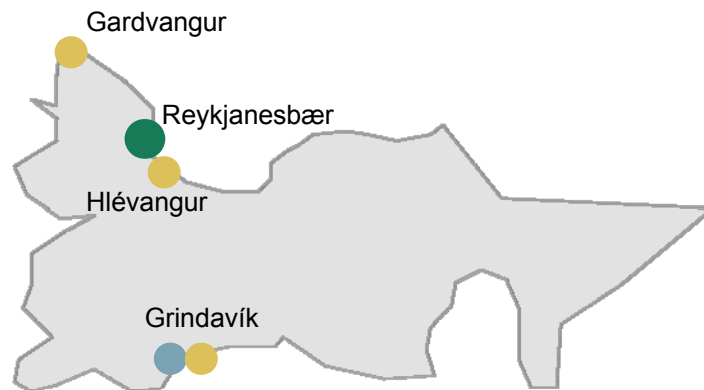
Public	Arbaer, Efra-Breidholt, Efstaleiti, Fjordur, Glaesibaer, Midbaer, Mjodd, Seltjarnarnes
	<ul style="list-style-type: none"> Weekdays: 8:00 - 16:00. Afternoon reception : 16:00 - 18:00 all weekdays.
	Gardabaer <ul style="list-style-type: none"> Weekdays: 8:00 - 17:00. Afternoon reception : 16:00 - 18:00 all weekdays.
	Grafarvogur <ul style="list-style-type: none"> Weekdays: 8:00 - 17:00. Afternoon reception Monday-Thursday: 16:00 - 18:00.
	Hamraborg <ul style="list-style-type: none"> Weekdays: 8:00 - 16:00. No afternoon reception from 10 June to 31 Aug on Fridays. Other weekdays: 16:00 - 17:00.
	Hlidar <ul style="list-style-type: none"> Weekdays: kl. 8:00 - 17:00. Afternoon reception kl. 16:00 - 18:00, except Fridays 16:00 - 17:00.
	Hvammur <ul style="list-style-type: none"> Weekdays: 8:00 - 16:00. Afternoon reception 16:00 - 18:00 Monday-Thursday
	Mosfell <ul style="list-style-type: none"> Weekdays: 8:00 - 17:00. Physician on call from 17.00 and on weekends
	Solvangur <ul style="list-style-type: none"> Weekdays: 8:00 - 17:00. Evening reception: 16:00 - 20:00 all weekdays
Private	Salahverfi <ul style="list-style-type: none"> Weekdays: 8:00 - 16:00. Afternoon reception : 16:00 - 18:00 all weekdays.
	Lágmúli <ul style="list-style-type: none"> Weekdays: 8:00 - 16:00. Afternoon reception 16:00 - 18:00 Monday-Thursday
	Laeknavaktin <ul style="list-style-type: none"> Weekdays: 17-23.30, weekends: 9.00-23.00

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Details on care provision by region

Southwest Peninsula Health Region

Distribution of health care provision in Southwest region



- Regional hospital
- Health Care Institution
- Primary Care Clinic
- Nursing home

1. 18 beds in Reykjanesbaer and 25 in Grindavík (counts as healthcare facility)

2. Public Health care resources

Note: Capacity and resource data from 2011, except no. of ambulances (2009). Volume data from 2010
Primary care also available in Health Care Institutions and Regional Hospitals

Source: Ministry of Welfare data market 2011, slide checked and confirmed by each institution

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Key facts

Capacity

Hospital beds: 33

Elderly care:

- Nursing home beds (RAI): 71
- Hospital beds used for nursing (RAI): 43¹
- Other long term nursing beds: 0
- Home care provision: ~26,000 visits, ~340 individuals served

Primary care physicians on call: 2

Emergency rooms: 1 (Reykjanesbær)

Ambulances: 4

Volumes

Surgeries: No surgeries

Deliveries: 172

Resources²

Physicians (AWU): 21

- Of whom practicing at Health care clinics (AWU): 15

Nurses (AWU): 50

Other medical personnel (AWU): 58

Details on care provision by region

Northern Health Region

Distribution of health care provision in Northern region



- Regional hospital
- Health Care Institution
- Primary Care Clinic
- Nursing home

1. Coded as Z: General qualifiers pertaining to all other chapters
 Note: Capacity and resource data from 2011, except no. of ambulances (2009). Volume data from 2010
 Primary care also available in Health Care Institutions and Regional Hospitals
 Source: Ministry of Welfare data market 2011, slide checked and confirmed by each institution

Key facts

Capacity

Hospital beds: 152 (131 FSA)
Elderly care:

- Nursing home beds (RAI): 252
- Hospital beds used for nursing (RAI): 108
- Other long term nursing beds: 98
- Home care provision: ~17,400 visits, ~450 individuals served

Primary care physicians on call: 8
Emergency rooms: 1 (Akureyri)
Ambulances: 18

Volumes

Surgeries: ~4,400 (4,300 in FSA)

- Top 3: 22% muscles and bones, 19% other¹, 9% female genitals

Deliveries: 515

Resources

Physicians (AWU): 88

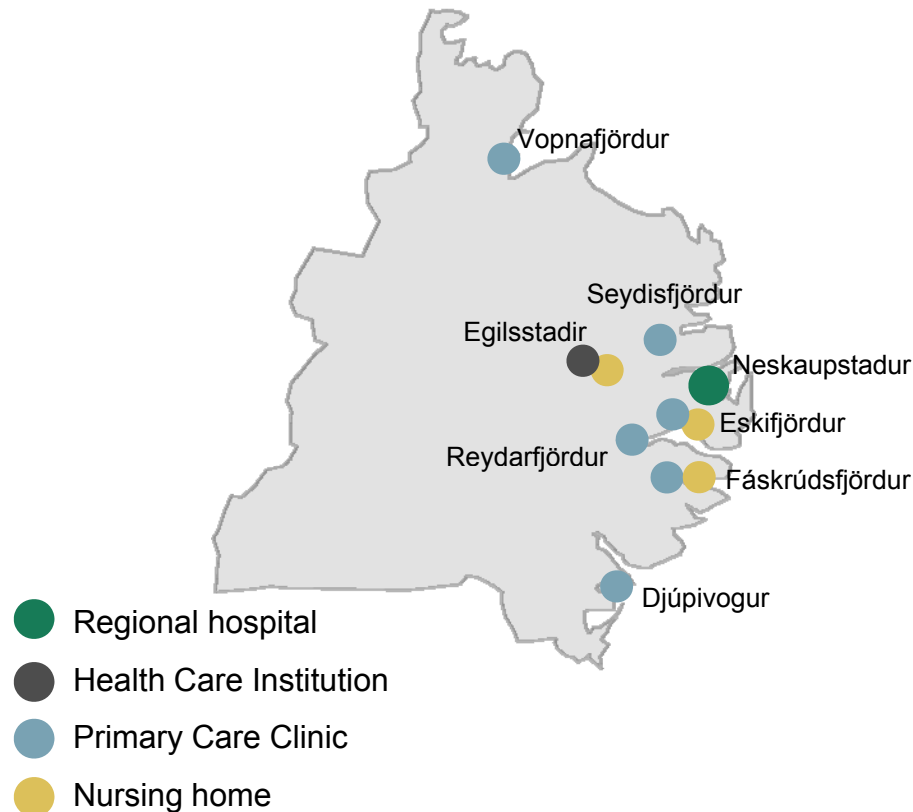
- Of whom practicing at Health care clinics (AWU): 29

Nurses (AWU): 220
Other medical personnel (AWU): 210

Details on care provision by region

Eastern Health Region

Distribution of health care provision in Eastern region



1. Public Health care resources. 2. Including 3 beds in Egilsstaðir, 24 in Neskaupstaður, 18 in Seyðisfjörður and 11 in Vopnafjörður. 3. 'Procedures coded as W: Procedures affecting several organ system.

Note: Capacity and resource data from 2011, except no. of ambulances (2009). Volume data from 2010
Primary care also available in Health Care Institutions and Regional Hospitals

Source: Ministry of Welfare data market 2011, slide checked and confirmed by each institution

Key facts

Capacity

Hospital beds: 27

Elderly care:

- Nursing home beds (RAI): 32
- Hospital beds used for nursing (RAI): 58²
- Other long term nursing beds: 27
- Home care provision: ~5,700 visits, ~310 individuals served

Primary care physicians on call: 10

Emergency rooms: 1 (Neskaupsstaður)

Ambulances: 11

Volumes

Surgeries: ~600

- Top 3: 42% scopes, 27% other³, 13% digestive system and spleen

Deliveries: 87

Resources¹

Physicians (AWU): 17

- Of whom practicing at Health care clinics (AWU): 11

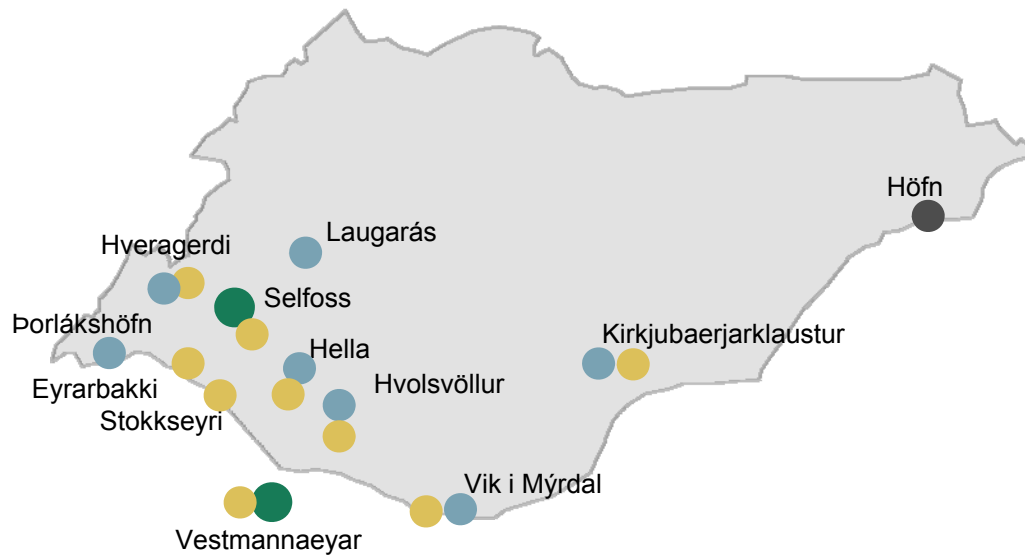
Nurses (AWU): 46

Other medical personnel (AWU): 57

Details on care provision by region

Southern Health Region

Distribution of health care provision in Southern region



- Regional hospital
- Health Care Institution
- Primary Care Clinic
- Nursing home

Note: Capacity and resource data from 2011, except no. of ambulances (2009). Volume data from 2010
 Primary care also available in Health Care Institutions and Regional Hospitals
 Source: Ministry of Welfare data market 2011, slide checked and confirmed by each institution

Key facts

Capacity

Hospital beds: 48

Elderly care:

- Nursing home beds (RAI): 175
- Hospital beds used for nursing (RAI): 69
- Other long term nursing beds: 129
- Home care provision: ~17,400 visits, ~450 individuals serviced

Primary care physicians on call: 9

Emergency rooms: 2 (Selfoss, Vestmannaeyar)

Ambulances: 11

Volumes

Surgeries: ~680

- Top 3: 22% ENT, 19% teeth, jaw and mouth, 15% female genitals

Deliveries: 136

Resources

Physicians (AWU): 34

- Of whom practicing at Health care clinics (AWU): 28

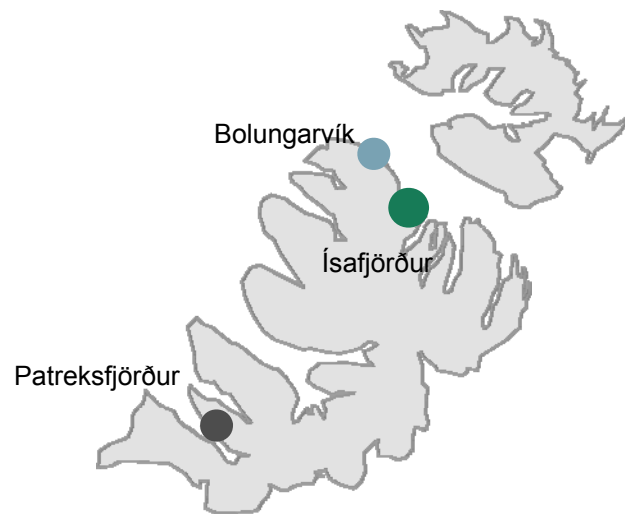
Nurses (AWU): 70

Other medical personnel (AWU): 140

Details on care provision by region

Westfjords Health Region

Distribution of health care provision in Westfjords region



- Regional hospital
- Health Care Institution
- Primary Care Clinic
- Nursing home

1. Including 11 beds in Patreksfjörður, 25 beds in Ísafjörður and 13 in Bolungarvík. 2. Due to system change in 2010 and lack of uniform data collection, no data on surgeries for 2010 could be provided
 Note: Capacity and resource data from 2011, except no. of ambulances (2009). Volume data from 2010
 Primary care also available in Health Care Institutions and Regional Hospitals
 Source: Ministry of Welfare data market 2011, slide checked and confirmed by each institution

Key facts

Capacity

Hospital beds: 18
Elderly care:

- Nursing home beds (RAI): 0
- Hospital beds used for nursing (RAI): 49¹
- Other long term nursing beds: 0
- Home care provision: ~24,300 visits

Primary care physicians on call: 4
Emergency rooms: 1 (Ísafjörður)
Ambulances: 6

Volumes

Surgeries: n/a¹
Deliveries: 55

Resources

Physicians (AWU): 8

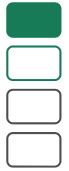
- Of whom practicing at Health care clinics (AWU): 3

Nurses (AWU): 24
Other medical personnel (AWU): 38

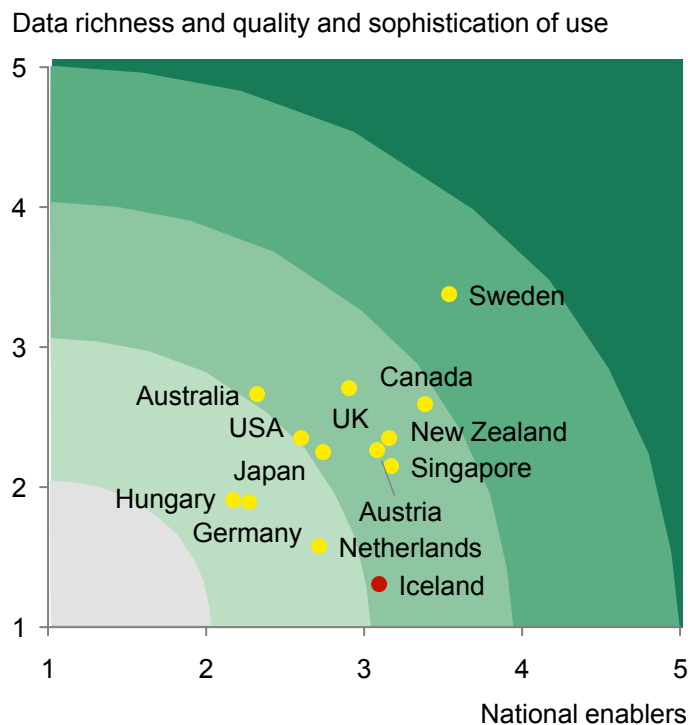
Appendix

- Region deep-dive
- VBHC

Analysis of Iceland's VBHC maturity level identify lack of data collection and sophistication of use



Average on national enablers for outcome data collection but scores low on data richness and sophistication of use



A countries maturity level guides areas for national focus

Scores high on important infrastructure enablers

- High clinical IT usage and reasonable level of interoperability
- Unique identifiers personal numbers
- High use of standards however not always consistently
- No patient consent required

Lower score on national commitment enablers

- Little governmental strategic direction
- Medium-high engagement among physicians
- Very little reporting to public on outcome data and there is fiscal interest from the public
- Registry for cancer nationally funded

Currently few registries and low richness in outcome data

- Two national with low data richness
- A number of Landspítali registries with higher data richness score primarily used for clinical improvement work
 - However with little impact on clinical guidelines and reimbursement, accreditation

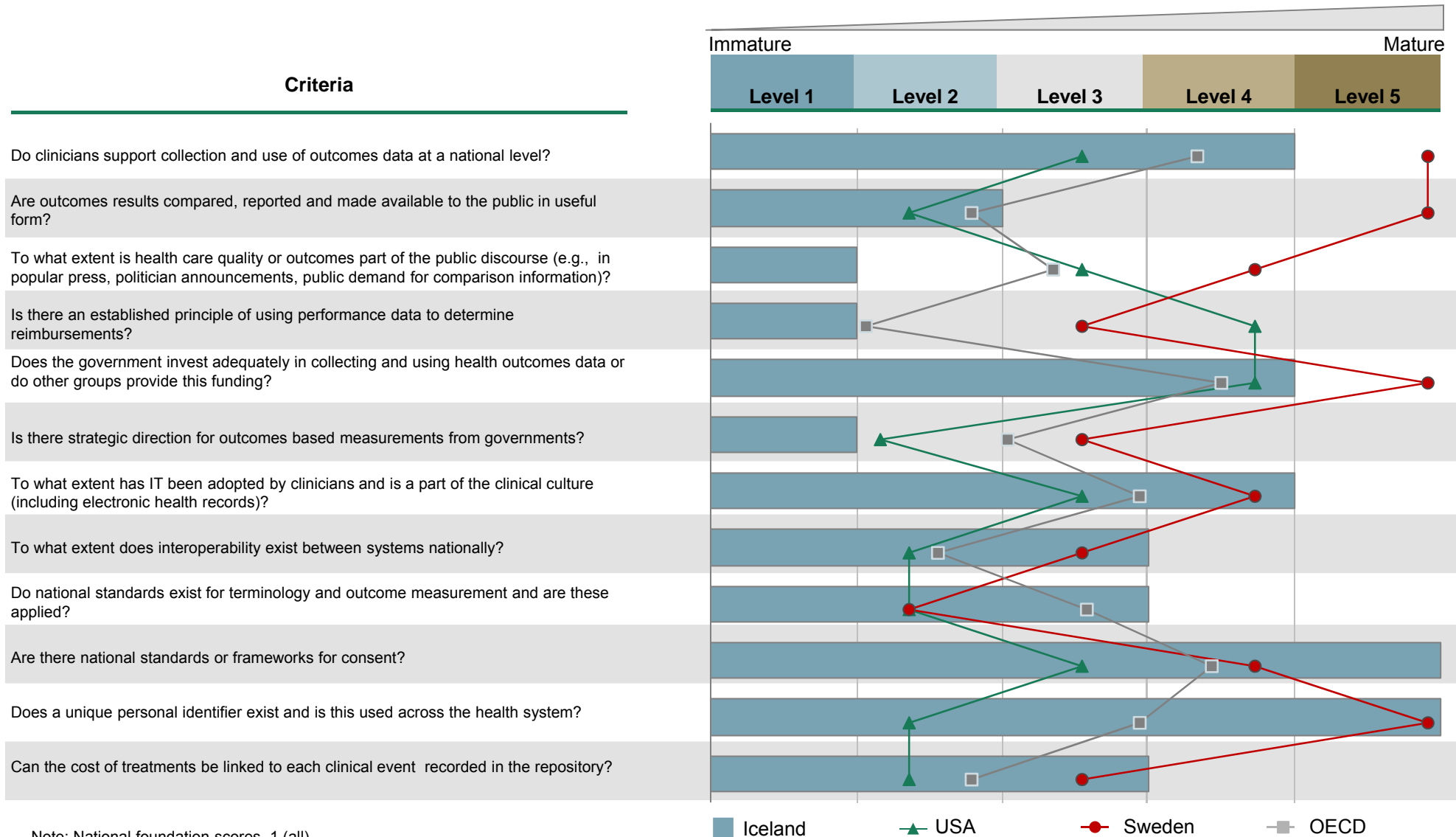
Data is currently primarily used in research applications

- Low level of reporting to clinicians, public and payers
- IceBio registry is an exception with a platform used as a clinical tool and data shared with clinicians on a monthly basis

Note: National enablers is average of scores for 1a3-6, 1b (all), and 2a6; Data richness and quality and sophistication of use is average of 2a (all), 2b (all), 2c1-3, and 3 (all, except 3.5). Note clinician engagement is not included in this overall assessment. Singapore data is desk base research only interviews scheduled for 26th August -2nd September, Austria Data is still not finalised
Source: BCG interviews and analysis 2011

National enablers scores

Iceland score high on many of the national enablers but a strategic direction is missing

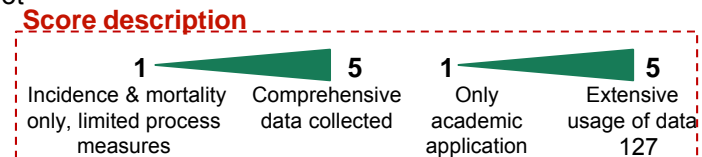


Note: National foundation scores, 1 (all)
Source: BCG analysis

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There are registries for six conditions within BCG framework

	Disease	Registry	Description	Score Data Richness	Score Application
1	Acute myocardial infarction	✓	<ul style="list-style-type: none"> Administered by Heart Association Sprung out of OECD large MONICA research project 	3.0	1.4
2	Breast cancer	✓	<ul style="list-style-type: none"> Icelandic Cancer Registry nationally funded Initiated 1954 by the Icelandic Cancer Society 	3.1	1.4
3	Digestive tract cancers	✓	<ul style="list-style-type: none"> Icelandic Cancer Registry nationally funded Initiated 1954 by the Icelandic Cancer Society 	3.1	1.3
4	Chronic renal failure	✓	<ul style="list-style-type: none"> Local registry at Landspítali if or patients receiving dialysis 	2.9	1.2
5	Stroke	✗	<ul style="list-style-type: none"> No registry A registry was started 1996-1997 but is not in use 	N/a	N/a
6	Knee arthroplasty	✗	<ul style="list-style-type: none"> Local registry at Landspítali Available only in paper form 	N/a	N/a
7	Hip arthroplasty	✗	<ul style="list-style-type: none"> Local registry at Landspítali Available only in paper form 	N/a	N/a
8	Cataract	✗	<ul style="list-style-type: none"> No registry A list of patients which have undergone surgery is kept 	N/a	N/a
9	Diabetes	✗	<ul style="list-style-type: none"> No Data protection authority declined Landspítali application 	N/a	N/a
10	Leukemia & lymphoma	✓	<ul style="list-style-type: none"> Icelandic Cancer Registry nationally funded Initiated 1954 run by the Icelandic Cancer Society 	3.1	1
11	Spine surgery	✓	<ul style="list-style-type: none"> IceSpine initiated 2011, funded by Landspítali Platform purchased from SweSpine, 	3.7	1
12	Schizophrenia	✗	<ul style="list-style-type: none"> Initiatives have been made at Landspítali but not formalized 	N/a	N/a



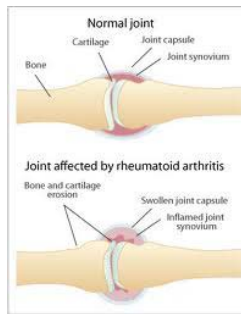
Source: Registry owner interviews, publications, BCG analysis
Iceland HCS-Final report-extended version.pptx

Best Practice: The IceBio registry

Interactive and used for learning and clinical development

Registration of Rheumatoid Arthritis patients receiving biologic drugs

- Only patients seeing an rheumatologist are included in the registry



Based on DanBio registry in Denmark

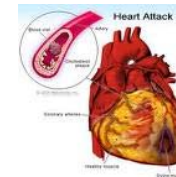
- Started 2002 with platform from DanBio however data from previous paper registry has been inferred and tracking of patients since 1998 is possible
- Interactive tool where patients before consultation fill out form about their perceived health
- Lab data is inferred and a Stas 28 disease score is calculated and tracked over time
- During the consultation the patient and doctor discuss development of the score and decide on treatment plan
- Patients and doctors are very satisfied with the tool as it standardize care and has proved to improve patient compliance

Source: Interviews, BCG analysis

Iceland HCS-Final report-extended version.pptx

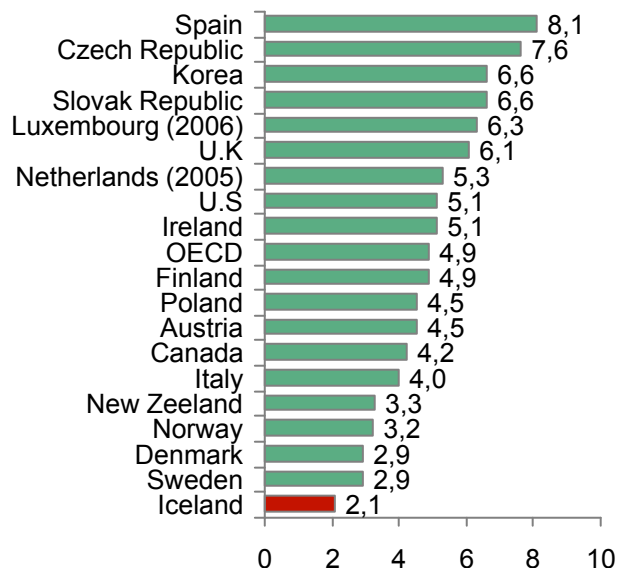
Score

		Score
Data richness	High sophistication of data captured	4
	Registry just started to be populated	2
	Strategy data collection & validation	3
	Strong clinical engagement	4
Application	Data primarily used in clinical setting not influencing policy or reimbursement yet	1
	Average: 3.7	

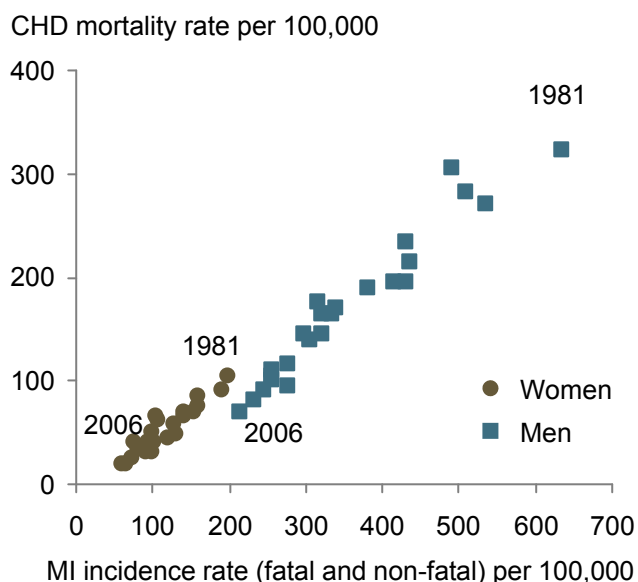


1 Quality of myocardial infarction treatment in Iceland

Lowest post 30 days mortality



Significantly improved survival and incidence rate 1981-2006



Hypothesis on quality driver

Strong public, clinical and governmental engagement to improve care

- Icelandic heart association founded 1964
 - Active in a number of large international research project and developed a "risk calculator" assessing individual risks of coronary disease

Preventive measures and increased awareness reduced risk factors across population

- Study 2010 concluded 75% of mortality decrease was attributable to reductions in cardiovascular risk factors (total serum cholesterol, smoking and blood pressure levels)
- Remaining 25% was attributed to treatments of individuals including secondary prevention and heart failure treatment

Registry data availability

- Yes-administered by the Icelandic Heart Association
- Limited sophistication of data

Incidence

- Incidence: ~200 cases /year

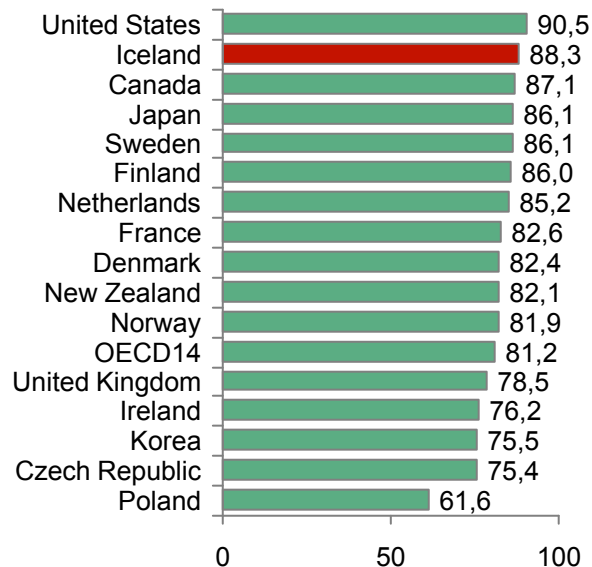
Source: OECD, "Analysing the Large Decline in Coronary Heart Disease Mortality in the Icelandic Population Aged 25-74 between the Years 1981 and 2006", Aspelund et al 2010

Iceland HCS-Final report-extended version.pptx

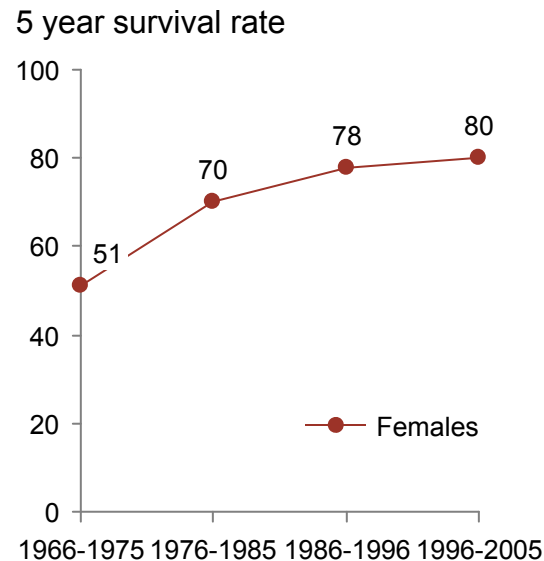


2 Quality of breast cancer treatment in Iceland

Iceland top OECD countries on survival (age adj)



Significantly improved survival since 70s (not age adj)



Hypothesis on quality driver

"No waiting time" policy for cancer diagnosis and treatment

- No waiting time for specialist appointment
- Prioritized group for treatment and no delay between diagnosis and treatment

Screening process in place since 1987

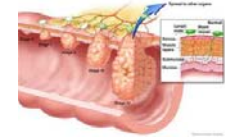
Registry data availability

- Yes- Cancer registry since 1954
- Limited sophistication of data
- Incidence and survival rate primarily

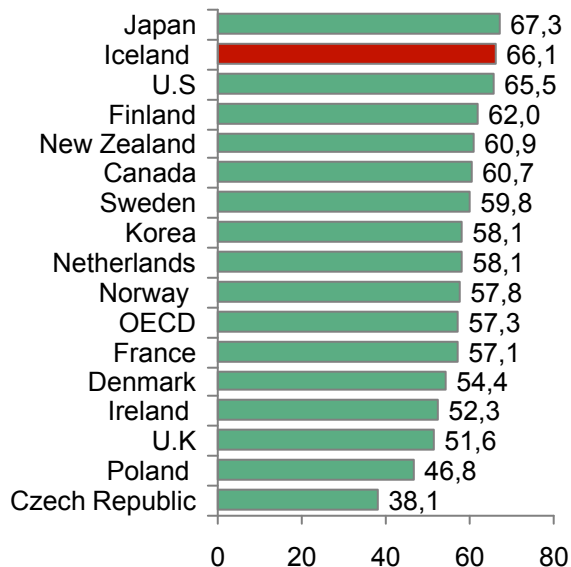
Prevalence/ Incidence

- Prevalence: 2434 patients (0.78% of population)
- Incidence: ~600 cases /year

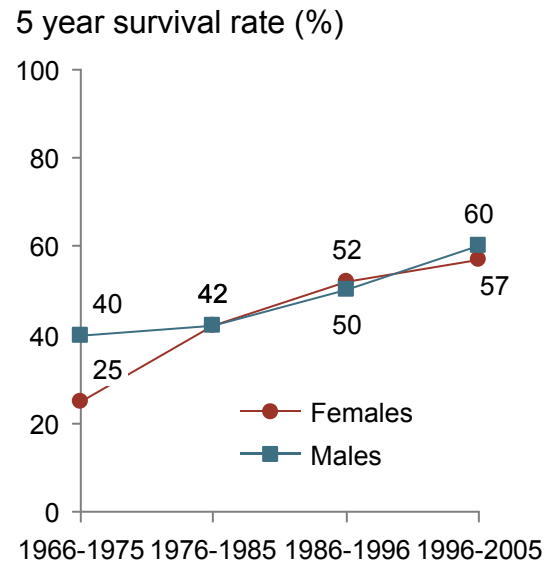
3 Quality of digestive tract cancer treatment in Iceland



Iceland top OECD countries on 5 year survival (age adj)



Significantly improved survival since 70s (not age adj)



Hypothesis on quality driver

"No waiting time" policy for cancer diagnosis and treatment

- No waiting time for specialist appointment
- Prioritized group for treatment and no delay between diagnosis and treatment

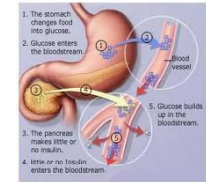
Registry data availability

- Yes- Cancer registry since 1954
- Limited sophistication of data

Prevalence/ Incidence

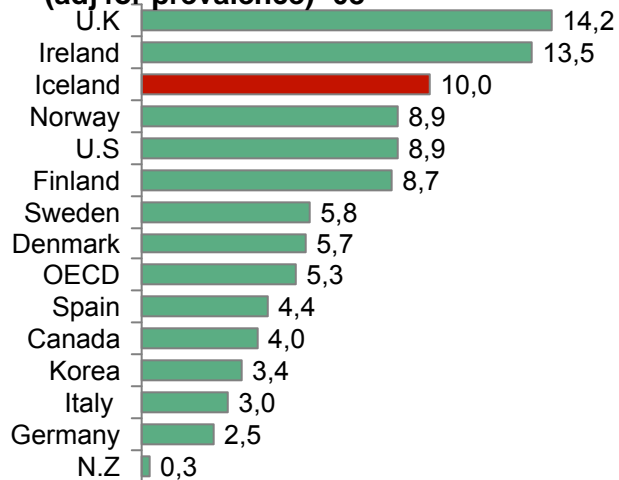
- Prevalence: 695 patients (0.23% of population)
- Incidence: ~41 cases /year

9 Quality of diabetes treatment in Iceland

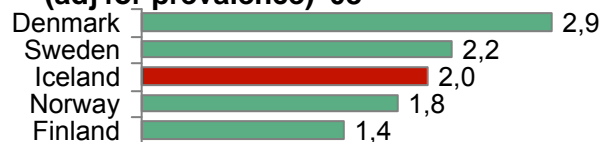


High number of acute admissions¹ and mortality

Acute complications admission/100,000 (adj for prevalence) '08



Mortality per 100,000 (adj for prevalence) '08

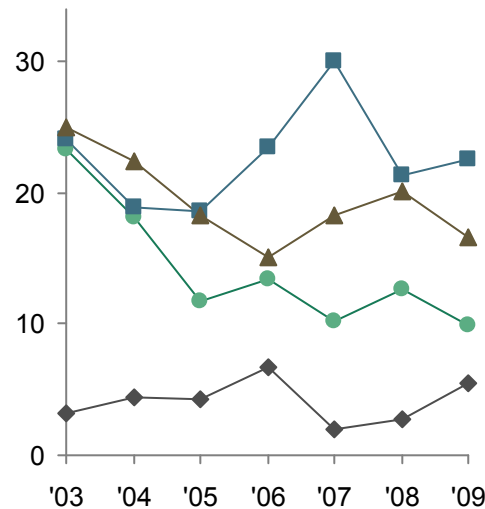


Registry data availability

- Child registry only
- Attempts made by lead physician

Large year-to-year difference Positive trend for short term complications

Admissions per 100,000



- Acute complications admissions
- Long-term complications
- ▲ Uncontrolled diabetes
- ◆ Lower extremity amputation

Prevalence

- Prevalence: 1.6% of population
- OECD average: 6.3%

Very low

Hypothesis on low quality

Lack of awareness of poor results

- Different divisions appear to measure quality in different ways and often appear to have different views on their performance
- A sense of urgency is missing as the performance appears fine if not adjusted for the low prevalence
- Lack of agreement on what to measure
- Landspítali measure retina complications with good results

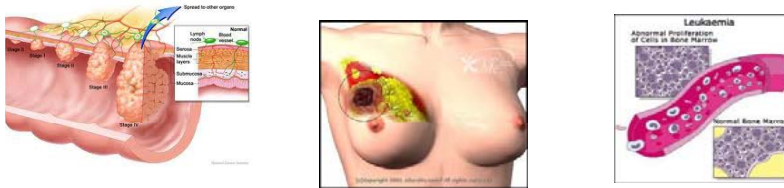
As the disease is treated and managed across the country a national approach for quality evaluation is required

1. All data is indexed and adjusted for prevalence
Source:OECD, Nordic statistics 2008

Registry Example: The Icelandic Cancer Registry

High coverage but low sophistication of data

Registration of diagnosed cancer patients



Oldest registry initiated 1954 primarily tracking incidence & mortality

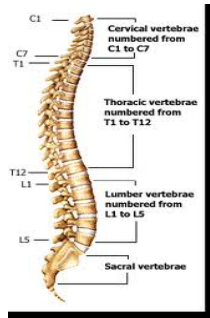
- Half of the budget is national funding and the other half is from the Cancer Society (~40 M ISK in total)
- Run with 6 FTE
- Register data from pathology and receives information from all death certificates mentioning malignant disease from Statistics Iceland
- Ongoing discussion with Swedish counterpart to leverage INCA platform where parameters including patient experience and adverse events is recorded
- Expected to pilot INCA for lung cancer under 2012
- Mortality tracked for +40 years and notable improvements are observed

			Score
Data richness	Low sophistication of data captured	<ul style="list-style-type: none"> • Register diagnosis and mortality • Does not capture patient perspective • Few process measures included • No risk adjusters in registry • Treating physician recorded 	1
	High coverage & long history	<ul style="list-style-type: none"> • High coverage ~100% • Data collected 50 years • Trending of specific patients possible 	5
	Good strategy for data collection & validation	<ul style="list-style-type: none"> • Mainly electronic data collection • Fully standardized • Data is regularly cross checked and validated but not in real time 	4
Application	Strong clinical engagement	<ul style="list-style-type: none"> • Little is required from clinicians • Actively supported and used for publications 	5
	Data used mainly for research and international comparison	<ul style="list-style-type: none"> • National data published yearly • ~20 publications per year with international focus • No impact on guidelines/ reimbursement /policy decisions 	1
Average: 3.1			

Registry Example: IceSpine

Sophisticated platform but lack data as it was initiated 2011

Registration of spine surgery



Registry based on Swedish platform initiated 2011

- Platform purchased from SweSpine with funding from Landspítali
- Fully operative Jan 1st 2012
- Intended as a national registry but currently only Landspítali perform surgeries
 - If Akureri would resume spine surgical practice the platform would be extended

Score

Data richness	High sophistication of data captured	<ul style="list-style-type: none"> • Register complications, re-operations, care induced illness etc. • Will capture patient perspective • Key process measures stored • Risk adjusters including smoking, type of work captured 	4
	Registry just started to be populated	<ul style="list-style-type: none"> • Low penetration this year but 100% expected 2012 • Trending of specific patients will be possible 	2
	Strategy data collection & validation	<ul style="list-style-type: none"> • Manually by operating surgeons • All data according to standards • No real time input controls 	3
	Strong clinical engagement	<ul style="list-style-type: none"> • Initiated by leading clinicians • Governed by orthopedics department • Funded by Landspítali 	4
Average:			3.7
Application	No data yet thus no usage of statistics	<ul style="list-style-type: none"> • Intended to be used for outcome comparison with Nordic's particularly Sweden • Individual physicians will be able to compare their own results 	1