Health Care System reform and short term savings opportunities
Iceland Health Care System project

7 October, 2011
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 meet 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 MISK 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

Steering Group
- Identifying key areas for short term savings and long term reform
- Prioritize which areas need to be further analyzed
- Enable the Steering Group in identifying hypothesis for savings and reform
- Support the Data Group in data gathering for the Steering Group and identifying key issues with current processes and systems for planning & performance management
- Data gathering for the Steering Group
- Problem solving around data issues and identification of key data gaps

Advisory Group
- Speaking partner for BCG

Data Group

BCGs role has been to enable the different groups!
Participants in key groups

**Steering Group**
- Anna Lilja Gunnarsdottir (Permanent secretary, Ministry of Welfare)
- Anna Sigrun Baldursdottir (Political advisor to the minister, Ministry of Welfare)
- Björn Zöega (CEO, Landspítali)
- Maria Heimisdottir (Chief of Finance and Information, Landspítali)
- Thorvaldur Ingvarson (CEO, Akureyri hospital)
- Stefan Thorarinsson (Chief of Medicine, East Health Directorate)
- Steinunn Sigurðardóttir (Chief of Medicine, West Health Directorate)
- Kristján Guðmundsson (Director General, Operations, Glaesibaer Health Care Center)
- Sveinn Magnússon (Director General, Operations, Ministry of Welfare)
- Fjola Agustsdottir (Special Advisor, Ministry of Welfare)

**Advisory Group**
- Hrönn Ottósdóttir (Director General, Economic Analysis, Ministry of Welfare)
- Vilborg Ingólfsdóttir (Director General, Quality, Ministry of Welfare)
- Jón Baldursson (Special Advisor, Ministry of Welfare)
- Halldor Jonsson (Special Advisor, Ministry of Welfare)

**Data Group**
- Hrönn Ottósdóttir (Director General, Economic Analysis, Ministry of Welfare)
- Hrafnhildur Gunnarsdóttir (Special Advisor, Ministry of Welfare)
- Margrét Björk Svavarsdóttir (Special Advisor, Ministry of Welfare)
- Kristlaug Helga Jónasdóttir (Project Manager, Landspítali)
- Guðrún Kr. Guðfinnsdóttir (Project Manager, Directorate of Health)
- Svanhildur Þorsteinsdóttir (Health Geographer, 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
Agenda

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

**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

**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

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

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

**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.

- Westfjords region: -2%
- Northern region: 1%
- Eastern region: 0%
- Western region: -0.3%
- Capital region: 2%
- Southwest Peninsula region: 3%
- Southern region: 1%


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

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Obesity is increasing rapidly in Iceland

Obesity is more common in rural areas

5th most obese country

% of population obese

<table>
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<td>Japan</td>
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Obesity and overweight has increased rapidly

% of Icelandic population

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<thead>
<tr>
<th>Year</th>
<th>Obese</th>
<th>Overweight</th>
<th>Normal weight</th>
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<tr>
<td>1990</td>
<td>8%</td>
<td>36%</td>
<td>56%</td>
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<tr>
<td>2002</td>
<td>12%</td>
<td>40%</td>
<td>48%</td>
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<tr>
<td>2007</td>
<td>20%</td>
<td>43%</td>
<td>37%</td>
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<tr>
<td>2009</td>
<td>21%</td>
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Obesity rates higher in rural areas than in Capital area

13% obesity amongst females in capital area

20% obesity amongst females in rural Iceland

Source: OECD health at a glance, Smoking, obesity and education of Icelandic women by rural-urban residence, Steingrimsdottir et al 2010, BCG analysis
Current structure consists of 7 health care regions
All with one main/regional hospital, additional general hospital institutions and primary care

1) 636 beds at Landspílahúsi and 18 at St. Jósefskóla
2) Also serving as regional hospitals
Note: Number of nursing beds that are paid for by Ministry of Welfare
Source: Ministry of welfare data

Main hospitals
Regional hospitals generally open 24h, specialist availability vary
Places with acute beds
General internal medicine, nursing, causality care, rehabilitation and necessary support functions

\[ \sum = \frac{\text{number of hospital beds}}{2} \]

In region \( 2923 \) (2022,390,511)
total nursing beds (nursing home beds, hospital beds used for nursing, other nursing beds)
State expenditure has increased 1.5% per year since 2008
Pharma and nursing are cost drivers whereas hospital service is decreasing

<table>
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<tr>
<th>State actual 2010</th>
<th>Annual increase ’08-’10 (%)</th>
<th>Share of increase (ISK)</th>
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<tr>
<td>Hospital service</td>
<td>33.1</td>
<td>-1.7</td>
</tr>
<tr>
<td>Pharmaceuticals¹</td>
<td>14.5</td>
<td>8.2</td>
</tr>
<tr>
<td>Nursing²</td>
<td>22.0</td>
<td>3.8</td>
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<tr>
<td>Primary care</td>
<td>11.5</td>
<td>2.3</td>
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<tr>
<td>Dental</td>
<td>1.3</td>
<td>-3.1</td>
</tr>
<tr>
<td>Medical aids</td>
<td>2.7</td>
<td>12.5</td>
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<tr>
<td>Private specialists</td>
<td>5.0</td>
<td>4.1</td>
</tr>
<tr>
<td>Rehab. Disability &amp; Day care</td>
<td>3.1</td>
<td>-4.0</td>
</tr>
<tr>
<td>Governance³</td>
<td>2.5</td>
<td>6.6</td>
</tr>
<tr>
<td>Ambulance⁴</td>
<td>1.2</td>
<td>5.9</td>
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<tr>
<td>Other</td>
<td>4.1</td>
<td>-2.5</td>
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<tr>
<td>Total</td>
<td>114.0</td>
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</tr>
</tbody>
</table>

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 Landspítali Capex and Heilbrigðismál, ýmis starfsemi eand other capex costs etc

Source: Ministry of welfare reported data 2011

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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

Health care costs (% of GDP 2007)

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

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Analysis of Iceland's VBHC maturity level identifies 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 country's 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

<table>
<thead>
<tr>
<th>Disease</th>
<th>Quality indicator</th>
<th>Incidence /Prevalence</th>
<th>Registry</th>
<th>Quality ranking</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute myocardial infarction</td>
<td>Lowest post 30 days mortality in OECD 2.1%</td>
<td>~200/ year²</td>
<td>✓</td>
<td>Very High</td>
</tr>
<tr>
<td>Breast cancer</td>
<td>Next highest 5 year survival rate among OECD 88%¹</td>
<td>~600/ year³</td>
<td>✓</td>
<td>Very High</td>
</tr>
<tr>
<td>Digestive tract cancers</td>
<td>Next highest 5 year survival rate among OECD¹ 66% for colorectal cancer</td>
<td>~40/ year³</td>
<td>✓</td>
<td>Very High</td>
</tr>
<tr>
<td>Chronic renal failure</td>
<td>Highest proportion of treated patients receiving transplants in OECD</td>
<td>~150 people³</td>
<td>✓</td>
<td>High</td>
</tr>
<tr>
<td>Stroke</td>
<td>Lowest post 30 days mortality for isocemic stroke 2.3%¹</td>
<td>~500/ year²</td>
<td>❌</td>
<td>High</td>
</tr>
<tr>
<td>Knee arthroplasty</td>
<td>Revision rate 3% 7 after surgery in line with Sweden's revision rate and lower than Norway and Denmark's</td>
<td>367/ year³</td>
<td>❌</td>
<td>High</td>
</tr>
<tr>
<td>Hip arthroplasty</td>
<td>Revision rate for total hip replacement 6% after 10 years higher than Sweden’s 3%</td>
<td>~635/ year³</td>
<td>❌</td>
<td>Medium</td>
</tr>
<tr>
<td>Cataract</td>
<td>Proportion of surgeries performed as day cases is 91% lowest in Nordics</td>
<td>~2653/ year³</td>
<td>❌</td>
<td>Medium</td>
</tr>
<tr>
<td>Diabetes</td>
<td>Mortality index adjusted for prevalence is 2, avg. in Nordics</td>
<td>1.6% of population³</td>
<td>❌</td>
<td>Low</td>
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<tr>
<td>Leukemia &amp; lymphoma</td>
<td>No quality indicators found</td>
<td>17 /year³</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Spine surgery</td>
<td>No quality indicators found</td>
<td>~400 disc oper. /year³</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Schizophrenia</td>
<td>No quality indicators found</td>
<td>0.3-0.7% of pop.²</td>
<td>❌</td>
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</table>


Source: OECD, Iceland HCS-Final report-short version.pptx

See appendix for additional detail
Reallocated is needed within the HC budget for 2012

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

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

- Prosthetic replacement of knee: 68 weeks
- Cataract surgery: 30 weeks
- Prosthetic replacement of hip joint: 21 weeks
- Repair of septum of nose: 18 weeks
- Repair of gastro-oesophageal reflux: 18 weeks
- Tonsillectomy and/or adenoidectomy: 12 weeks
- Heart valve surgery: 11 weeks
- Operations for incontinence or prolapsed uterus: 9 weeks
- Repair of inguinal or femoral hernia: 6 weeks
- Cholecystectomy or lithotripsy of biliary tract: 6 weeks
- Partial or total thyroid excision: 6 weeks
- Hysterectomy: 5 weeks
- Extracorporeal shock wave lithotripsy of pelvis of kidney: 3 weeks
- Coronary anastomosis surgery: 3 weeks
- Removal of calculi from kidney and pelvis of kidney/operated: 2 weeks
- Partial excision of mammary gland: 0 weeks

Waiting times at Karolinska in Stockholm

- Prosthetic replacement of knee: 18 weeks
- Cataract surgery: 12 weeks
- Prosthetic replacement of hip joint: 40 weeks
- Repair of septum of nose: 12 weeks
- Repair of gastro-oesophageal reflux: 12 weeks
- Tonsillectomy and/or adenoidectomy: 4 weeks
- Heart valve surgery: n/a
- Operations for incontinence or prolapsed uterus: 24 weeks
- Repair of inguinal or femoral hernia: 24 weeks
- Cholecystectomy or lithotripsy of biliary tract: 12 weeks
- Partial or total thyroid excision: 12 weeks
- Hysterectomy: 24 weeks
- Extracorporeal shock wave lithotripsy of pelvis of kidney: 5 weeks
- Coronary anastomosis surgery: 12 weeks
- Removal of calculi from kidney and pelvis of kidney/operated: 3 weeks
- Partial excision of mammary gland: 0 weeks

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 cancersjukvården kvalitet och effektivitet 2011

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### Overview of key hypothesis on efficiency

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<th>Key hypothesis</th>
<th>Strength of hypothesis</th>
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<tbody>
<tr>
<td>1 Unequal and inefficient elderly care provision</td>
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<tr>
<td>2 <strong>Un-optimal hospital structure</strong> e.g. elective care, emergency care etc</td>
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<tr>
<td>3 Capitation for public and fee for service model for private providers in combination with lack of gate keeping causing issues</td>
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<tr>
<td>• Large use of private GPs after hours</td>
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<tr>
<td>• Overuse of private specialized care</td>
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<tr>
<td>• Likely overuse of emergency rooms</td>
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<td>4 Over hospitalization resulting in long average length of stay</td>
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<tr>
<td>5 Drug spend too high in selected areas</td>
<td></td>
</tr>
<tr>
<td>6 Potential to optimize care service further with Lean approach</td>
<td></td>
</tr>
<tr>
<td>7 Lack of planning, performance management, e-Health and in some areas of prevention</td>
<td></td>
</tr>
</tbody>
</table>
**Elderly care should be equal, of high quality and efficient**

<table>
<thead>
<tr>
<th>Equal</th>
<th>High quality</th>
<th>Efficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>• 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</td>
<td>• Limited performance management of quality in elderly care</td>
<td>• Likely to be some efficiency improvements given the lack of structured planning and performance management</td>
</tr>
<tr>
<td></td>
<td>• Recent report indicated that there are large quality issues in selected areas of elderly care</td>
<td></td>
</tr>
</tbody>
</table>
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

<table>
<thead>
<tr>
<th>Number of beds per region and type of bed</th>
<th>High RAI score in Capital region show high care need</th>
</tr>
</thead>
<tbody>
<tr>
<td>West</td>
<td>0.98</td>
</tr>
<tr>
<td>South</td>
<td>1.00</td>
</tr>
<tr>
<td>North</td>
<td>0.98</td>
</tr>
<tr>
<td>East</td>
<td>0.99</td>
</tr>
<tr>
<td>Southwest</td>
<td>1.03</td>
</tr>
<tr>
<td>Iceland total</td>
<td>1.03</td>
</tr>
<tr>
<td>Westfjords</td>
<td>1.00</td>
</tr>
<tr>
<td>Capital Region</td>
<td>1.06</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Number of beds per region and type of bed</th>
<th>Sum of RAI index per region</th>
</tr>
</thead>
<tbody>
<tr>
<td>West</td>
<td>0.98</td>
</tr>
<tr>
<td>South</td>
<td>1.00</td>
</tr>
<tr>
<td>North</td>
<td>0.98</td>
</tr>
<tr>
<td>East</td>
<td>0.99</td>
</tr>
<tr>
<td>Southwest</td>
<td>1.03</td>
</tr>
<tr>
<td>Iceland total</td>
<td>1.03</td>
</tr>
<tr>
<td>Westfjords</td>
<td>1.00</td>
</tr>
<tr>
<td>Capital Region</td>
<td>1.06</td>
</tr>
</tbody>
</table>

Same tendency for other elderly care

<table>
<thead>
<tr>
<th>Other nursing beds¹</th>
<th>Day care</th>
<th>Home nursing</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No. of beds per 1,000 capita 75+</td>
<td>Individuals per 1,000 75+</td>
</tr>
<tr>
<td>West</td>
<td>63</td>
<td>44</td>
</tr>
<tr>
<td>South</td>
<td>40</td>
<td>40</td>
</tr>
<tr>
<td>North</td>
<td>0</td>
<td>37</td>
</tr>
<tr>
<td>East</td>
<td>43</td>
<td>43</td>
</tr>
<tr>
<td>Southwest</td>
<td>0</td>
<td>33</td>
</tr>
<tr>
<td>Iceland total</td>
<td>27</td>
<td>35</td>
</tr>
<tr>
<td>Westfjords</td>
<td>14</td>
<td>59</td>
</tr>
<tr>
<td>Capital Region</td>
<td>16</td>
<td>33</td>
</tr>
</tbody>
</table>

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

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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**
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 visits
- 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
  - Vestmannaeyjar – staffed with primary care physician during daytime and with 3 on-call during off hours
  - Ísafjörður – 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

Opportunity to reduce ambulances and optimizing emergency response level

Overcapacity 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

Educational level of ambulance staff
- Low level of education
  - 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 personnel
- 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

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 MISK/year for a G2

Note. Capital Region excluded
Source: Ministry of Welfare, interviews, BCG analysis
### 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

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 an optimal provision of the right volume of care

---

**Private specialists**
- Cataract surgeries
- Cardiologists
- Pediatricians
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
Increase in number of visits driver of health insurance cost
On individual specialty level, cost per visit driving up costs for some specialist areas

<table>
<thead>
<tr>
<th>Specialty</th>
<th>No. of visits</th>
<th>Total cost</th>
<th>Cost per visit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Radiologists/clinics</td>
<td>580</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Clinical pathologists</td>
<td>536</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Anaesthesiologists</td>
<td>414</td>
<td>-1%</td>
<td>11%</td>
</tr>
<tr>
<td>Paediatricians</td>
<td>359</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Ophthalmologists</td>
<td>342</td>
<td>-8%</td>
<td>0%</td>
</tr>
<tr>
<td>Orthopaedic surgeons</td>
<td>316</td>
<td>-3%</td>
<td>11%</td>
</tr>
<tr>
<td>Psychiatrists</td>
<td>281</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Ear, nose and throat specialists</td>
<td>268</td>
<td>-6%</td>
<td>0%</td>
</tr>
<tr>
<td>Medicine Cardiologist</td>
<td>229</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Dermatologists</td>
<td>171</td>
<td>-6%</td>
<td>0%</td>
</tr>
<tr>
<td>Medicine Gastroenterologist</td>
<td>152</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Surgeons</td>
<td>136</td>
<td>-7%</td>
<td>10%</td>
</tr>
<tr>
<td>Gynaecologists</td>
<td>115</td>
<td>3%</td>
<td>10%</td>
</tr>
<tr>
<td>Urologists</td>
<td>105</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>In Vitro fertilisation</td>
<td>78</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Plastic surgeons</td>
<td>72</td>
<td>-3%</td>
<td>0%</td>
</tr>
<tr>
<td>Treatments for lens disorders</td>
<td>61</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Neurologists</td>
<td>56</td>
<td>-6%</td>
<td>0%</td>
</tr>
<tr>
<td>Medicine Rheumatologist</td>
<td>45</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Paediatric psychiatrists</td>
<td>38</td>
<td>-6%</td>
<td>0%</td>
</tr>
<tr>
<td>Medicine and pulmonologist</td>
<td>32</td>
<td>-3%</td>
<td>0%</td>
</tr>
<tr>
<td>Laser treatment, skin</td>
<td>25</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Medicine Endocrinologist</td>
<td>22</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Total</td>
<td>4507</td>
<td>3%</td>
<td>-1%</td>
</tr>
</tbody>
</table>

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 with 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
Key findings in the primary care area
Focus on Capital Region

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

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

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

Reimbursement system differs between hours of the day

Opening hours in general from 8-16
- For regular visits to own doctor
  - 319,000 visits (70%)

Day time 8-16

After hours 16-18
- No guarantee to see own doctor
  - 52,000 visits (14%)

All primary care centers have Síðdegisvakt (~afternoon reception)

Night time 17-23.30
- Private clinic Laeknavaktin with opening hours 17-23.30
  - 61,000 visits (16%)

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’

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 scorecard 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?"

Source: Interviews with Heilsugaeslan, BCG analysis
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### Variances in productivity of the HCCs in the Capital Region

**Comparison of visits in the Capital Region**

#### 2010 effort per physician in the clinics

<table>
<thead>
<tr>
<th>Visits</th>
<th>Phone calls</th>
<th>House calls</th>
<th>Total weighted effort</th>
</tr>
</thead>
<tbody>
<tr>
<td>Árbaer</td>
<td>3,077</td>
<td>2,923</td>
<td>4,291</td>
</tr>
<tr>
<td>Sölvangur</td>
<td>3,276</td>
<td>2,950</td>
<td>4,248</td>
</tr>
<tr>
<td>Fjörður</td>
<td>3,124</td>
<td>3,361</td>
<td>6,485</td>
</tr>
<tr>
<td>Seljarnames</td>
<td>2,893</td>
<td>2,266</td>
<td>5,159</td>
</tr>
<tr>
<td>Glæsibær</td>
<td>2,996</td>
<td>3,076</td>
<td>6,072</td>
</tr>
<tr>
<td>Hamraborg</td>
<td>2,579</td>
<td>2,814</td>
<td>5,393</td>
</tr>
<tr>
<td>Hliðar</td>
<td>2,699</td>
<td>2,987</td>
<td>5,686</td>
</tr>
<tr>
<td>Mjóðd</td>
<td>2,495</td>
<td>3,361</td>
<td>5,856</td>
</tr>
<tr>
<td>Mosfellsumdæmi</td>
<td>2,705</td>
<td>1,508</td>
<td>4,213</td>
</tr>
<tr>
<td>Efstaleiði</td>
<td>2,959</td>
<td>1,323</td>
<td>4,282</td>
</tr>
<tr>
<td>Garðabaer</td>
<td>2,302</td>
<td>2,266</td>
<td>4,568</td>
</tr>
<tr>
<td>Hvammur</td>
<td>2,250</td>
<td>3,071</td>
<td>5,321</td>
</tr>
<tr>
<td>Efra-Breiðholt</td>
<td>2,210</td>
<td>3,027</td>
<td>5,237</td>
</tr>
<tr>
<td>Grafarvogur</td>
<td>2,463</td>
<td>2,177</td>
<td>4,640</td>
</tr>
<tr>
<td>Miðbær</td>
<td>2,021</td>
<td>2,038</td>
<td>4,059</td>
</tr>
</tbody>
</table>

#### 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.
Key findings of direct expenditure and pharma

- 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

Overall pharma spend development

- 44% higher Defined Daily Dosage per capita in psychoanaleptics driven by 173% higher consumption of ADHD drugs
- 48% higher consumption of psychoeptics 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

Spend on neurological drugs is still high driven by high consumption
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

10.726.5
22 5
10
22
510
488
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
Good data gathering, budgeting and performance management is lacking

Iceland situation

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

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

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

Quotes from the organization

"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"

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

"There is no standard reports that everyone uses"

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

"There is a lack of IT and finance skills in the organizations"
### e-Health: Iceland system lacking central strategic alignment and integration between regions

<table>
<thead>
<tr>
<th></th>
<th>IT strategy and business alignment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>• Limited/no strategic direction on national level</td>
</tr>
</tbody>
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<table>
<thead>
<tr>
<th></th>
<th>IT architecture</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>• Gaps in architecture for payors, providers and patients e.g. current EPR is the same in each region but regions not linked</td>
</tr>
<tr>
<td></td>
<td>• Difficult for payor to gather data, no patient interfaces</td>
</tr>
<tr>
<td></td>
<td>• Strategic question: &quot;continuing clean up&quot; vs &quot;invest in proven system&quot;</td>
</tr>
</tbody>
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<table>
<thead>
<tr>
<th></th>
<th>IT investment &amp; prioritisation</th>
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<tbody>
<tr>
<td>3</td>
<td>• E-health has not been a prioritized investment area</td>
</tr>
<tr>
<td></td>
<td>• Unclear how prioritizations are made</td>
</tr>
</tbody>
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<table>
<thead>
<tr>
<th></th>
<th>IT sourcing &amp; vendor management</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>• Selective use of outsourcing, e.g. technical infrastructure, maintenance of medical equipment. ~30% outsourced today</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>IT organisation &amp; skills</th>
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<tbody>
<tr>
<td>5</td>
<td>• Varied skill level across country organizations due to size</td>
</tr>
</tbody>
</table>

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<thead>
<tr>
<th></th>
<th>IT projects &amp; development</th>
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<tbody>
<tr>
<td>6</td>
<td>• Difficult to run new initiatives with current savings target and budget constraints</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>IT service management</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>• IT servicer management decentralized</td>
</tr>
</tbody>
</table>

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<thead>
<tr>
<th></th>
<th>IT cost management</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>• Cost transparency high at Landspítali, not at all same level in other units</td>
</tr>
</tbody>
</table>

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<thead>
<tr>
<th></th>
<th>IT governance</th>
</tr>
</thead>
<tbody>
<tr>
<td>9</td>
<td>• IT governance model unclear</td>
</tr>
</tbody>
</table>

Source: Interview with CIO Landspítali, interview with Western Health region
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

<table>
<thead>
<tr>
<th>Number</th>
<th>Lever Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Structural levers</td>
<td>Levers governing structure among payors and providers</td>
</tr>
<tr>
<td>2</td>
<td>Market rule levers</td>
<td>Levers for adjusting competition between providers through adjusting rules of the market; demand, supply, etc.</td>
</tr>
<tr>
<td>3</td>
<td>Patient flow levers</td>
<td>Levers directing patient flow between providers directly or indirectly</td>
</tr>
<tr>
<td>4</td>
<td>Direct expenditure levers</td>
<td>Levers for adjusting spend levels for providers and payors</td>
</tr>
<tr>
<td>5</td>
<td>Other levers</td>
<td>Levels to improve quality governance, use of eHealth and prevention</td>
</tr>
</tbody>
</table>
## Improvement levers with different effects

<table>
<thead>
<tr>
<th>Trend / lever</th>
<th>Description</th>
<th>Example</th>
<th>Short term financial effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Structural levers</td>
<td></td>
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</tbody>
</table>
| Payor restructuring | • Mergers of payors to increase synergies  
• Shifting owners of care budget e.g. GPs become payor | • UK  
• Norway, Denmark | |
| Provider restructuring | • Mergers of large hospitals situated fairly close  
• Resizing/re-profiling of hospitals | • Sweden / Norway  
• Netherlands | |
| Market rule levers | | | |
| Reimbursement changes | • Adjust reimbursement levels and create incentives for efficiency  
• Introduce DRGs | • Sweden | |
| Competition among provider (and payors) | • Providers competing over patients through e.g. increased freedom of choice for patient | • Sweden, Norway | |
| Only contract specific providers | • Certification or authorization of providers with right to reimbursement etc. | • Sweden | |
| Gate keeping | • Gate keepers used to direct patients through system, e.g. family doctor | • Most tax-based systems, e.g. Denmark | |
| Patient flow levers | | | |
| Increase care integration | • Incentives and processes in place to improve care integration | • Sweden | |
| Patient guidance e.g. disease management | • Programs profiling risk groups with personalized guidance in the HC system to decrease care needs | • US  
• Sweden | |
| Drug & medtech purchasing and prescription | • Professionalize drug & medtech purchasing and change prescription guidelines | • UK  
• Sweden | |
| Direct expenditure levers | | | |
| Limit coverage/increase copay | • No payment/co-payment of certain products or services | • Sweden | |
| Hospital operational improvements/cost cutting | • Improve efficiency resulting in lower LOS, higher throughput  
• Increase waiting times, reduce staffing levels, postpone investments, reduce service levels etc | • Belgium  
• France  
• Sweden | |
| Other levers | | | |
| Prevention | • Reducing obesity, reduce smoking and drinking, getting patients to take the right drugs, etc. | • Nordics | |
| Quality focus | • Use of data and outcomes measurement leading to improved care | • Sweden | |
| E-Health | • Introduction of e-health solutions to make care more efficient | • US | |
Iceland needs a strategic plan to address long term

### The system today

<table>
<thead>
<tr>
<th>Structural levers</th>
<th>Market rule levers</th>
<th>Patient flow levers</th>
<th>Direct expenditure levers</th>
<th>Other levers</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Current hospital structure not developed top down based on patient needs</td>
<td>• Current reimbursement model gives the wrong incentives</td>
<td>• Pockets of innovation in integrating care e.g. home care</td>
<td>• Unclear purchasing strategy</td>
<td>• Weak central planning function</td>
</tr>
<tr>
<td>• Unequal and likely inefficient elderly care with limited quality performance mgmt</td>
<td>• Overall lack of strong GP system</td>
<td>• Privatization strategy not thought through</td>
<td>• Further improvements in drug spend management</td>
<td>• Very weak E-health</td>
</tr>
</tbody>
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### Areas for further investigation

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<tr>
<th>1c</th>
<th>3</th>
<th>2</th>
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<tbody>
<tr>
<td>• Top down structure redesign</td>
<td>– Quick fixes e.g. ambulances</td>
<td>– Long term design</td>
</tr>
<tr>
<td>• Elderly care review</td>
<td>1a</td>
<td>1b</td>
</tr>
<tr>
<td>• Primary care reform incl. reimbursement</td>
<td>• Review of overall reimbursement of public specialized care</td>
<td>• Re-design central planning &amp; performance mgmt</td>
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