Benchmarking as a tool for improvement
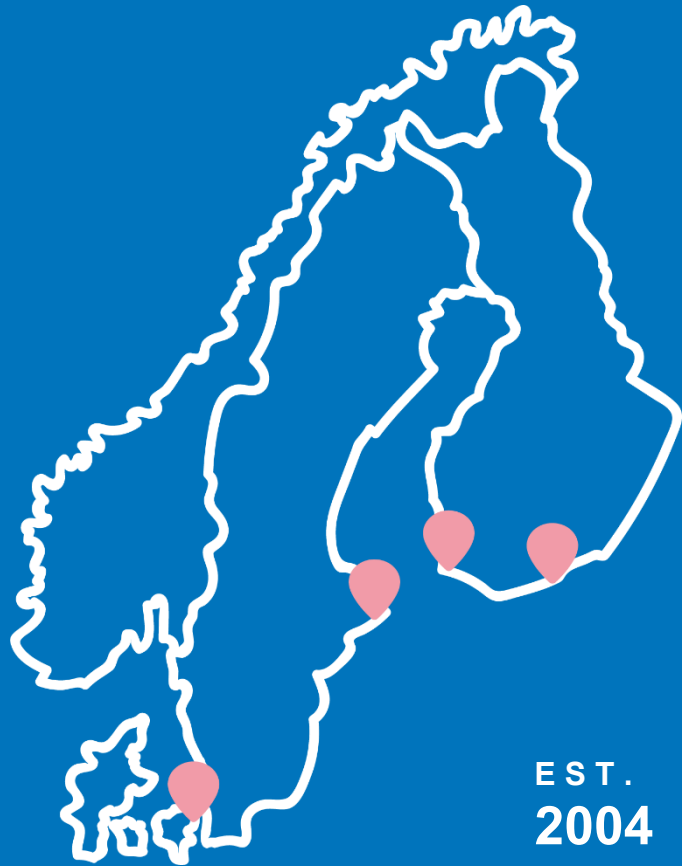
Stroke pilot Steering Committee meeting

16th of July, 2020

Nordic
Healthcare
Group

The leading social and healthcare advisory and solutions company in the Nordics

EST.
2004

Over 100 social and healthcare industry experts

ICHOM

Strategic focus on value-based social and healthcare

Official ICHOM partner since 2018

Over 2,000 customer projects

More than 200 million patient visits analyzed

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Advisory services

Operations and transformations

Service design

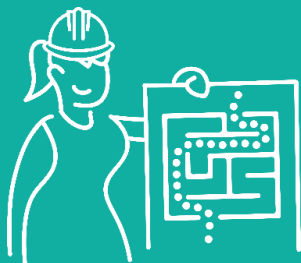# Analytical solutions
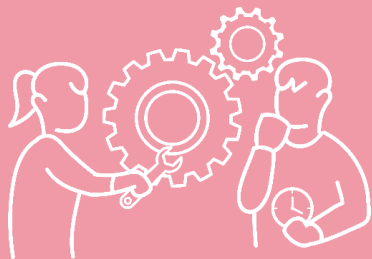
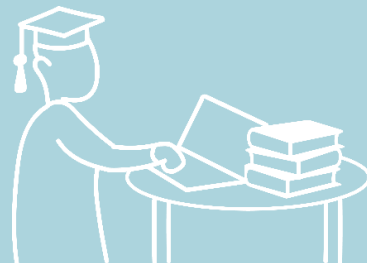## Benchmarking – data-driven peer-to-peer operations development
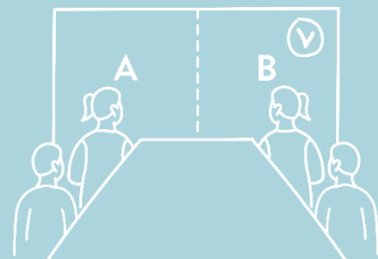
Analysis and management of public sector finances and service operations

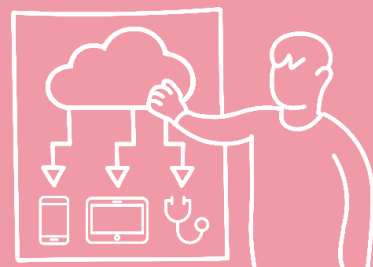## Hospital planning and simulation
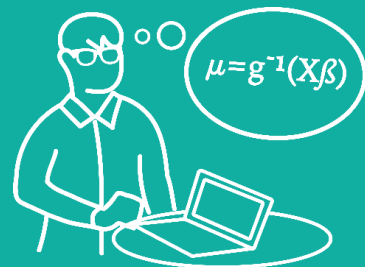
Academic research

Effectiveness and quality indicators

Strategy consulting and transaction advisory

Digitalization consulting

Advanced analytics

$\mu = g^{-1}(X\beta)$

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NHG conducts benchmarking for almost 250 units in 17 different specialities in Finland

Continuous services with the **aim to follow up and develop operations in the long-term**

Comparing operating figures with others (quality, productivity, costs, resources)

A conversational forum for professionals to compare thoughts on general problematic issues and their solutions

The participants gain various advantages from benchmarking...
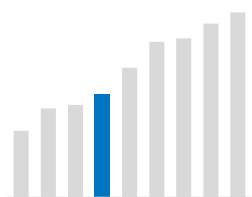
Comparison to other organisations
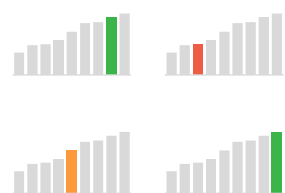
Identifying the **key development areas** and setting **targets**

Following up the development
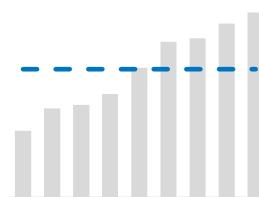
Identifying the **"right" target** performance level

Peer-to-peer conversations – **learning from others**

Benchmarking services

Specialized medical care
- Emergency care
- First aid
- Surgery
- Neurosurgery
- Obstetrics and gynaecology
- Internal medicine
- Paediatrics[1]
- Oncology
- Neurology[1]
- Respiratory medicine[1]

Primary healthcare
- Health centre outpatient care
- Health centre wards
- Oral health care
- Occupational healthcare

Social and family services
- Needs assesment for the erderly
- Home care
- Child and family services

[1] Pilot starting in 2020

Patient safety improvement – example from oral healthcare benchmarking
Diagnosis of previously underdiagnosed oral disease has been significantly improved through benchmarking

Periodontitis

- Periodontitis is common in the adult Finnish population.

- Due to minor symptoms, affected patients seldom seek dental care but require attention through the health care system.

- When detecting early signs of periodontitis, periodontal treatment, including necessary maintenance visits, is crucial in preventing the severe form of the disease and its harmful consequences for the patient's dentition and general health.

- *Benchmarking participants identified diagnosis of periodontitis as a critical improvement area*

Key results

- Measuring the recording practices regarding periodontal information revealed high variance between individual professionals.

- In addition, increased attention on periodontal diseases has been reflected in the improved treatment planning and care delivery for patients at-risk of periodontitis.

- The indicator results have facilitated discussions regarding treatment approaches, especially when the results of one professional have differed from their own expectations. In addition, the indicators have highlighted important topics regarding treatment provision, such as the undertreatment of periodontal diseases.

Oral healthcare benchmarking results

Periodontal status coverage
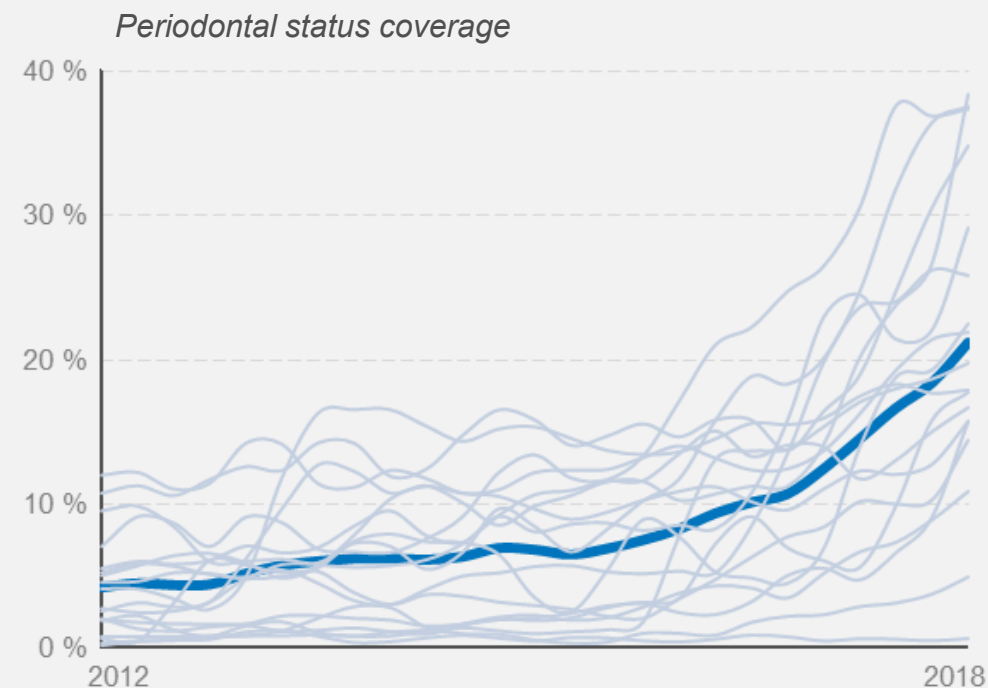
Patient-centric care – example from surgery benchmarking

Long-term development and regular monitoring led to better rehabilitation practices and lean process in hip replacements

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Hip replacements

- Hip replacement is one of the most common surgical procedures in Finnish public healthcare and successful rehabilitation is crucial for the patients ability to live normal life

- After the specialized healthcare episode 7-35 % of the patients move to primary healthcare hospital for rehabilitation and the rest go home

- One central hospital was "inspired" by the benchmarking results of hip replacement surgery in 2010 and decided to re-design the care path – first inside the hospital and then together with primary healthcare. They e.g. re-designed the methods of anesthesiology to enable starting the rehabilitation the same day as the operation, planned criteria for discharge, increased the use of physiotherapy in the ward and shortened the waiting time for the procedure by aligning the process with primary healthcare

Key results

- The central hospital learned from the benchmarking results and improved their treatment practices which led e.g. to 68% decrease in post-operative length of stay in hip replacements as the patients can be discharged earlier due to better rehabilitation practices – some even the same day after the procedure

- Several hospitals have improved significantly their length of stay results

- Shorter in-hospital length of stay is more convenient for patients and scarce ward capacity can be used for treatment of other patients

Surgery benchmarking results

Post-operative length of stay (days) in elective hip replacement episodes
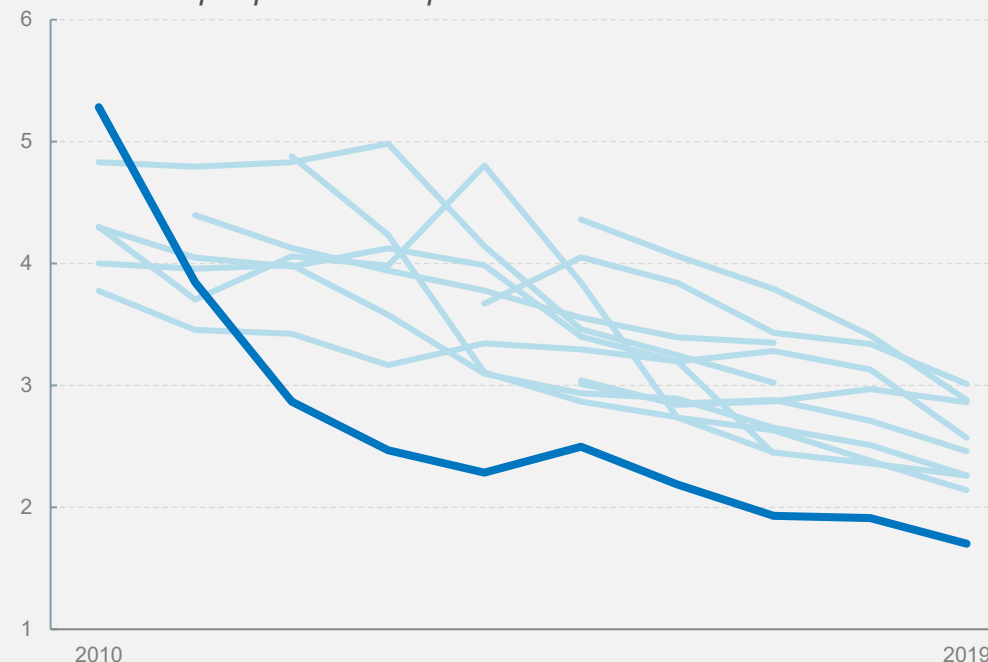
Quality improvement – example from emergency care benchmarking

Benchmarking emergency care readmission rate led to improved discharge practices and more patient-centric care
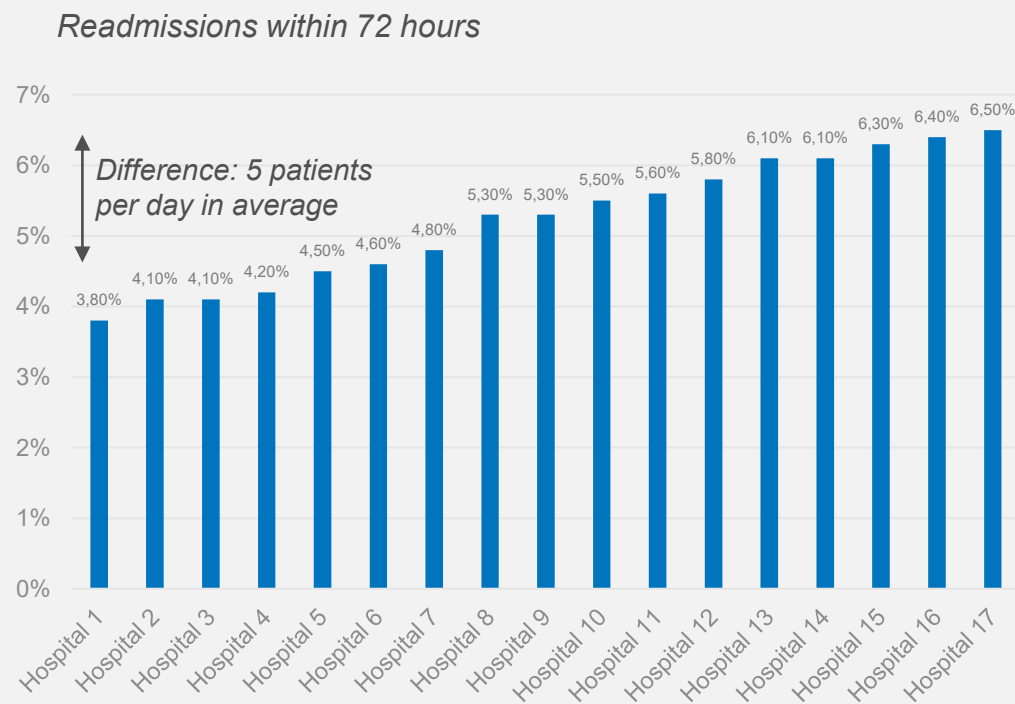
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Emergency care readmissions

- Readmissions may be planned or unplanned visits but for patient it is always an extra visit.
- In the previous studies readmissions have been related to higher mortality rate (McCaig and Ly, 2000) and admission rate (Beattie and Mackway-Jones, 2004).
- Readmissions have not been routinely monitored in Finnish EDs before Emergency Care Benchmarking

Key results

- Large variation was identified between different EDs in readmission rates but also within ED between different physicians. An ED readmission rates differed between 1% and 12%.
- Those physicians who had low readmission rate had a structured way (checklist) to discuss with the patient about all the relevant guidance and ensure patient had understood everything
- The ED learned from the benchmarking results and started educating physicians to structured discharge practices

Emergency care benchmarking results

Readmissions within 72 hours

Difference: 5 patients per day in average

Hospital	Rate
Hospital 1	3,80%
Hospital 2	4,10%
Hospital 3	4,10%
Hospital 4	4,20%
Hospital 5	4,50%
Hospital 6	4,60%
Hospital 7	4,80%
Hospital 8	5,30%
Hospital 9	5,30%
Hospital 10	5,50%
Hospital 11	5,60%
Hospital 12	5,80%
Hospital 13	6,10%
Hospital 14	6,10%
Hospital 15	6,30%
Hospital 16	6,40%
Hospital 17	6,50%

More information

Tomi Malmström, Vice President, Analytics

tomi.malmstrom@nhg.fi, +358 50 323 4775
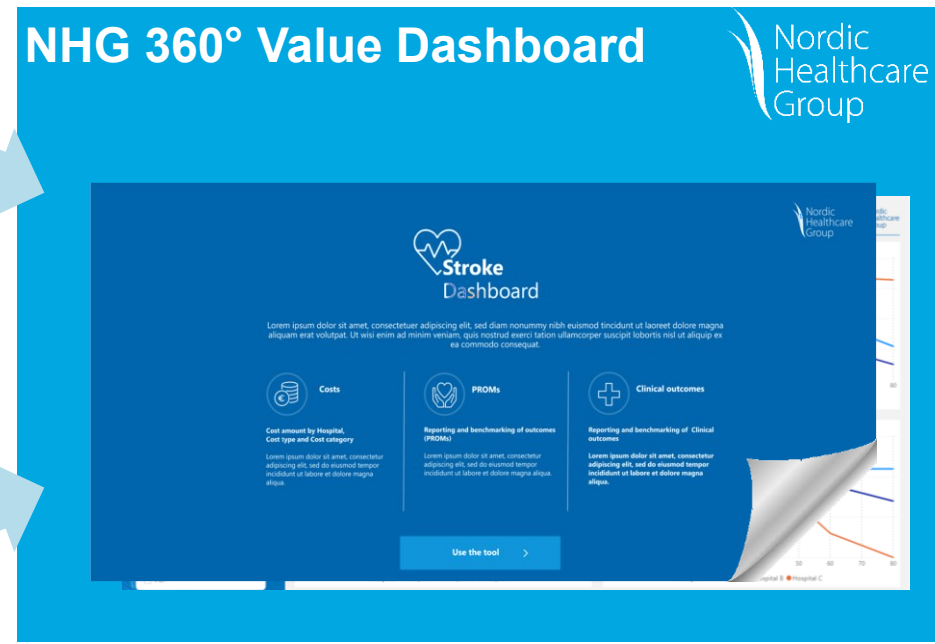
Anna Torvinen, Development Manager, Analytics

anna.torvinen@nhg.fi, +358 400 495 979

NHG's responsibility is to design and build the 360° Value Dashboard for benchmarking the outcomes and costs
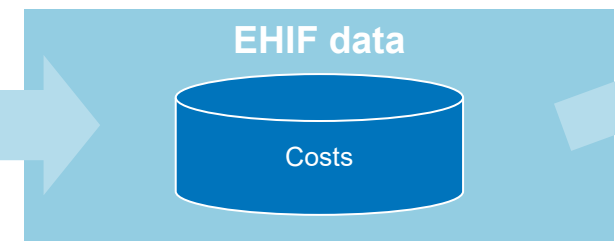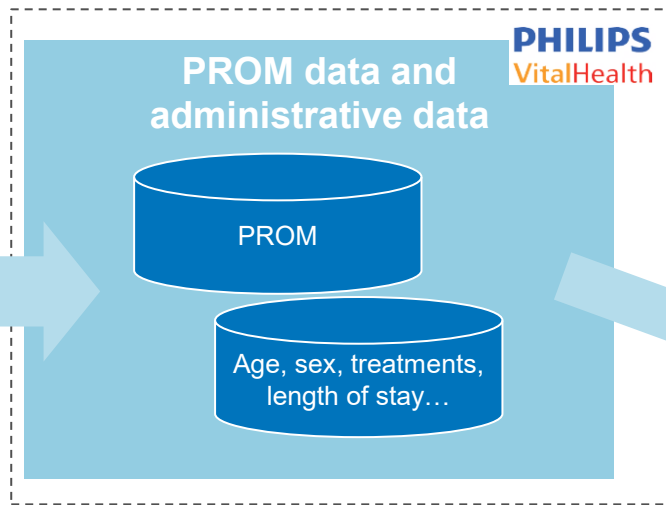
What is case-mix adjustment?

- Case-mix adjustment takes into account the difference in patient mix

  - E.g. some hospital might have population with more chronical ilnesses or older people

- When benchmarking the outcomes of the treatment it is important to take the different patient mix into account

- In NHG's experience case mix explains some part of the differences, but not all

Example from NHG's surgery benchmarking and age-adjustment

Number of ortopedic operations per 1000 citizens

Max-min = 9
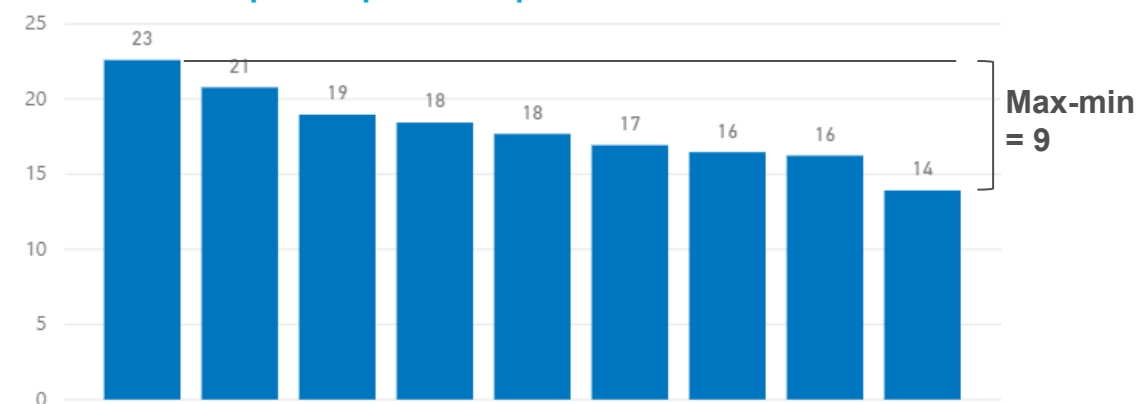
Age-adjusted number of ortopedic operations per 1000 citizens

Max-min = 5

Stroke Dashboard

Latest data: **1.6.2020**

Hospital
All

Patient
All

Healthcare professional
None

Select time period (week)
< 15.6. - 21.6. >

Casemix
On | Off

Exclude unfinished patient journey
All

Patient cohort
None

Age
All

Sex
Female | Male

Stroke severity
All

Treatment variables
All

Multiple filters

Patient level outcomes

Outcomes (summary)
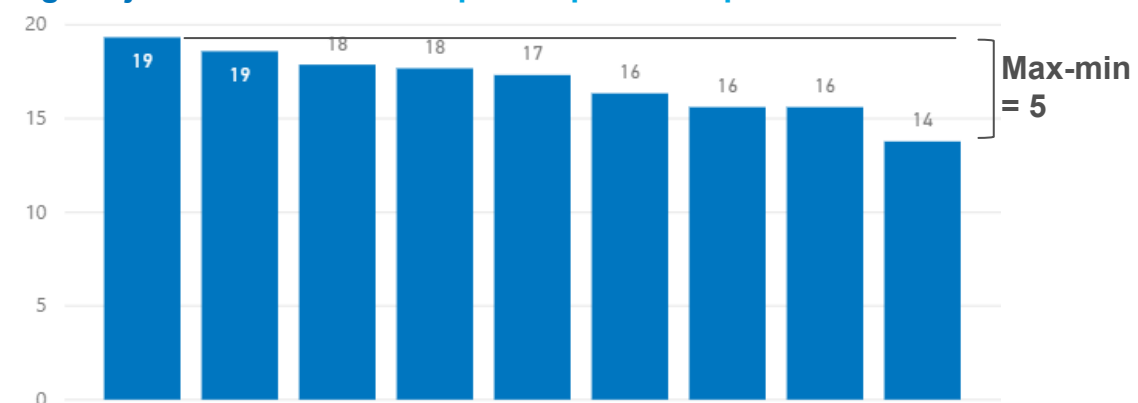
	Patient quality of life														Integration of care					
	Average PROMIS-10 score at 90 days	Average PROMIS-10 score at 1 year	Percentage of patients returning to work	Paid social tax per patient	Average score of self-sufficient	Average smRSq score	Percentage of patients alive 90 days	Percentage of patients alive 1 year	QALY and patient journey cost ratio (1 year)	Average score of ambulation	Average score of toileting	Average score of dressing	Average score of feeding	Ability to communicate	Percentage of patients with recurrent stroke	Percentage of patients without complications	Percentage of patients with anticogulant	Average number of follow-up visits	Coverage of rehabilitation	Level of rehabilitation
All	8	10	80	5	2	5	80	80	xx	5	5	5	5	5						
Hospital A	8	10	80	5	2	5	80	80	xx	5	5	5	5	5						
Patient 1	8	8	Y	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Patient 2	8	8	N	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Patient 3	3	3	Y	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Patient 4	5	5	N	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Patient 5	3	3	Y	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Patient 1	9	9	N	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Patient 2	9	9	Y	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Patient 3	2	2	N	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Patient 4	3	3	Y	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Patient 5	5	5	N	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Hospital B	8	10	80	5	2	5	80	80	xx	5	5	5	5	5						
Hospital C	8	10	80	5	2	5	80	80	xx	5	5	5	5	5						
Hospital D	8	10	80	5	2	5	80	80	xx	5	5	5	5	5						

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Latest data: **1.6.2020**

Hospital
All

Patient
All

Healthcare professional
None

Select time period (week)
< 15.6. - 21.6. >

Casemix
On   Off

Exclude unfinished patient journey
All

Patient cohort
None

Age
All

Sex
Female   Male

Stroke severity
All

Treatment variables
All

Patient quality of life

PROMIS-10 / smRSq
Average PROMIS-10 score at 90 days and 1 year post index admission

Average PROMIS-10 score at 90 days	Average PROMIS-10 score at 1 year
8	**10** +20 %

Results of an indicator and benchmarking of development project results

Change view: hospital | healthcare professional
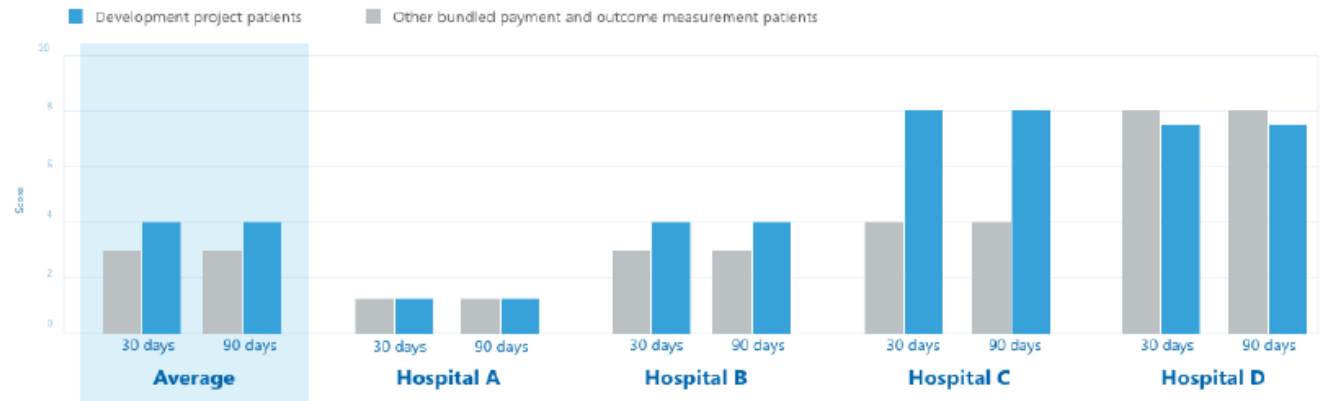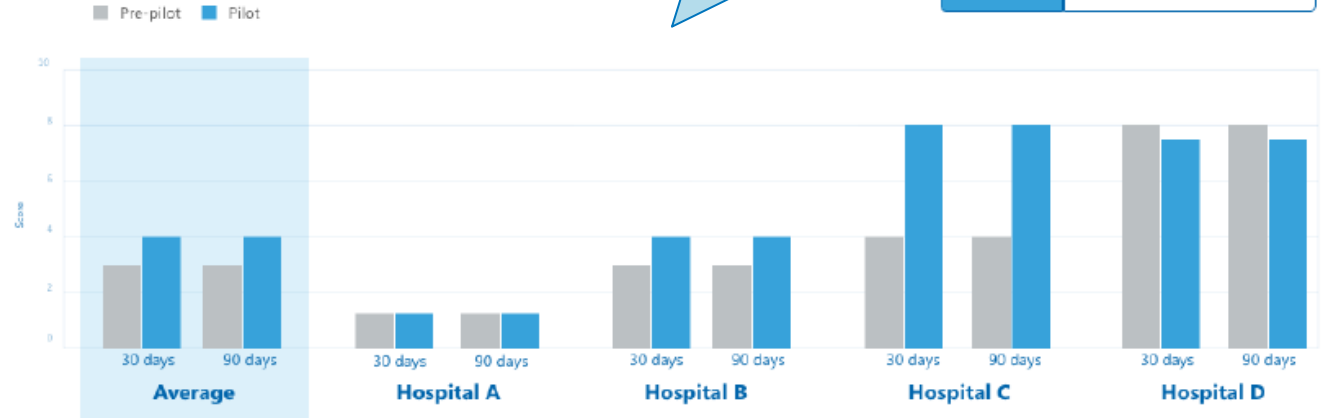
■ 90 days ■ 1 year

	Average	Hospital A	Hospital B	Hospital C	Hospital D
90 days	3	5	3	3	5
1 year	4	8	4	4	5

Score by Patient

Patient	90 days average score	1 year average score
Patient 1	5	5
Patient 2	6	6
Patient 3	8	8
Patient 4	5	5
Patient 5	4	4
Patient 1		
Patient 2		
Patient 3		
Patient 4		
Patient 5		

■ Development project patients   ■ Other bundled payment and outcome measurement patients

	Average	Hospital A	Hospital B	Hospital C	Hospital D
Development project patients	3	5	3	3	5
Other patients	4	8	4	4	5

Stroke Dashboard

Nordic Healthcare Group

Latest data: **1.6.2020**

Hospital
All

Patient
All

Healthcare professional
None

Select time period (week)
< 15.6. - 21.6. >

Casemix
On | Off

Exclude unfinished patient journey
All

Patient cohort
None

Age
All

Sex
Female | Male

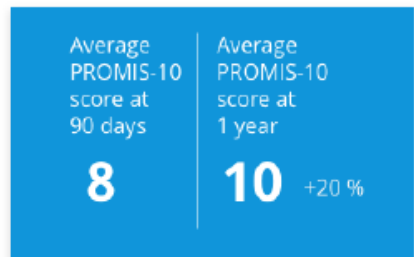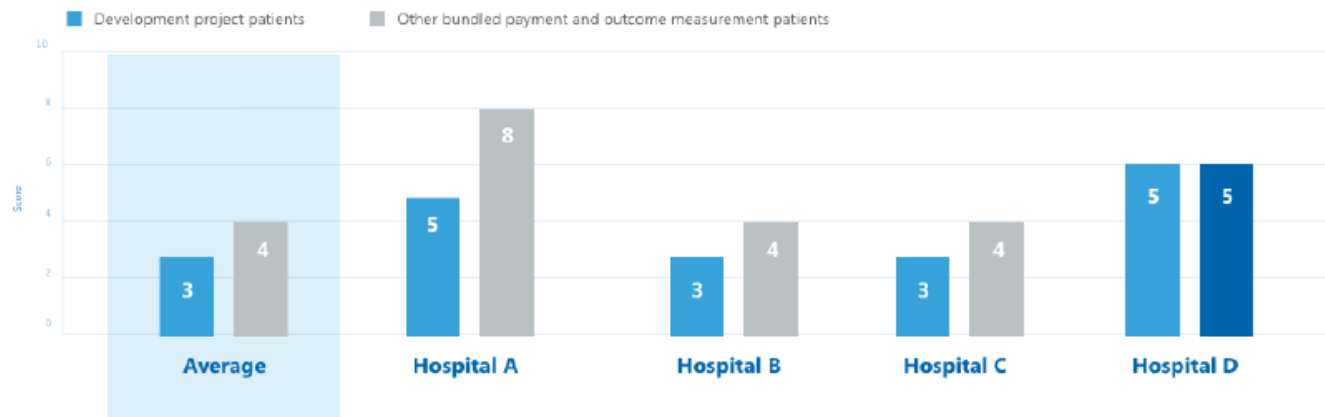Stroke severity
All

Treatment variables
All

Quality indicators

% of ischemic stroke patients
who have undergone intravenous thrombolysis and / or mechanical thrombus removal of patients without heart attack

■ Pre-pilot   ■ Pilot

Results of an indicator and benchmarking of development project results

Average
- Development project patients: 30 % / 40 %
- Other bundled payment & outcome measurement patients: 30 % / 40 %

Hospital A
- Development project patients: 10 % / 10 %
- Other bundled payment & outcome measurement patients: 10 % / 10 %

Hospital B
- Development project patients: 30 % / 40 %
- Other bundled payment & outcome measurement patients: 30 % / 40 %

Hospital C
- Development project patients: 40 % / 80 %
- Other bundled payment & outcome measurement patients: 40 % / 80 %

Hospital D
- Development project patients: 80 % / 70 %
- Other bundled payment & outcome measurement patients: 80 % / 70 %

Latest data: **1.6.2020**

Hospital
All

Patient
All

Healthcare professional
None

Select time period (week)
< 15.6. - 21.6. 📅 >

Casemix
On | Off

Exclude unfinished patient journey
All

Patient cohort
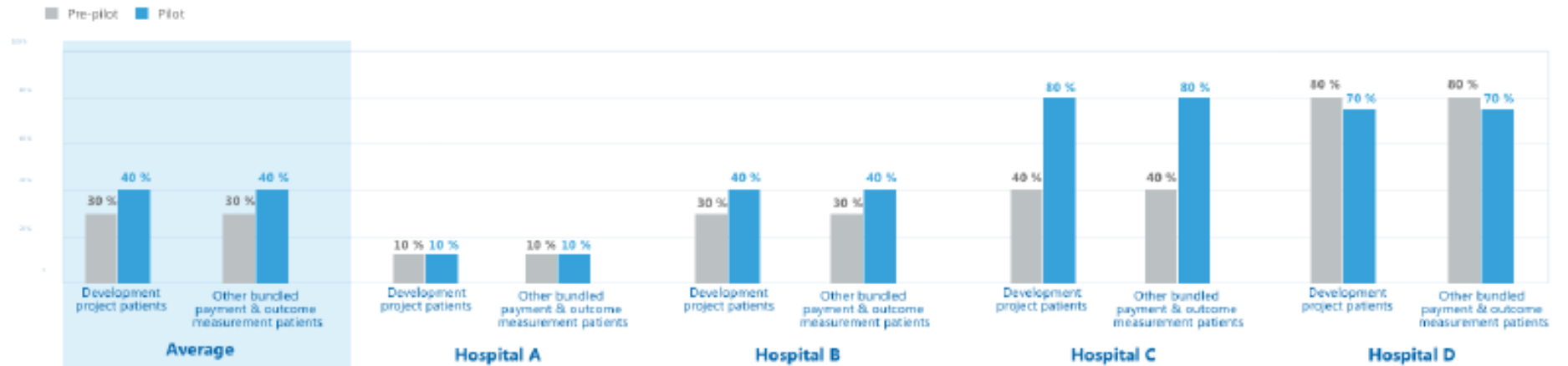None

Age
All

Sex
Female | Male

Stroke severity
All

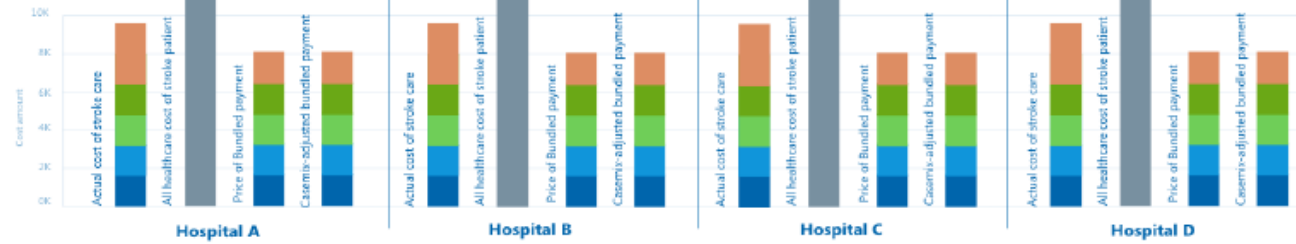Treatment variables
All

Costs

Costs ⬤ Cumulative costs

Cost amount by Hospital, Cost type and Cost category

- Acute care
- Complications
- Follow-up treatment
- Nursing care
- Rehabilitation

Hospital A   Hospital B   Hospital C   Hospital D

(bar chart axis labels: Actual cost of stroke care, All healthcare cost of stroke patient, Price of Bundled payment, Casemix-adjusted bundled payment)

> Costs of the care

Cost amount by Hospital, Cost type and Cost category

	Acute care	Complications	Follow-up treatment	Nursing care	Rehabilitation	Total
Hospital A	4000	4000	4000	4000	4000	20 000
Actual cost	4000	4000	4000	4000	4000	20 000
Bundled EHIF	4000	4000	4000	4000	4000	20 000
Bundled tenderer	4000	4000	4000	4000	4000	20 000
Hospital B	4000	4000	4000	4000	4000	20 000
Actual cost	4000	4000	4000	4000	4000	20 000
Bundled EHIF	4000	4000	4000	4000	4000	20 000
Bundled tenderer	4000	4000	4000	4000	4000	20 000
Hospital C	4000	4000	4000	4000	4000	20 000
Actual cost	4000	4000	4000	4000	4000	20 000
Bundled EHIF	4000	4000	4000	4000	4000	20 000
Bundled tenderer	4000	4000	4000	4000	4000	20 000
Hospital D	4000	4000	4000	4000	4000	20 000
Actual cost	4000	4000	4000	4000	4000	20 000
Bundled EHIF	4000	4000	4000	4000	4000	20 000
Bundled tenderer	4000	4000	4000	4000	4000	20 000
Total	4000	4000	4000	4000	4000	20 000

Cost amount by Hospital, Patient and Service Type

	Cost
Hospital A	2 000
Patient 1	1 500
Acute care	1 000
Thrombectomy	500
CT scan	500
Rehabilitation	500
Patient 2	1 500
Hospital B	5 940
Hospital C	4 000
Hospital D	1 200

> Patient level costs

Costs and outcomes per partner

Partner	Average cost per patient journey	Functional status Average per patient Before	After	€ / functional status increase
Partner A	100 €	1	2	100 €
Partner B	50 €	1	1	No increase
Partner C	200 €	1	9	25 €
Partner D	100 €	1	6	100 €
Partner E	150 €	1	4	No increase
Partner F	200 €	1	8	25 €
Partner G	150 €	1	6	100 €
Partner H	100 €	1	5	No increase
Partner I	50 €	1	4	No increase
Partner J	100 €	1	3	25 €

> Costs and outcomes per partner

More information

Anna Torvinen, Development Manager, Analytics
anna.torvinen@nhg.fi, +358 400 495 979