

Helseatlas

Equitable health services – regardless of where you live?

The Norwegian health atlas

Regionalized health service research in close cooperation with medical societies

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The Norwegian health atlas project

An amusing analytical exercise or a stepping stone for clinical change?

THE NORWEGIAN HEALTH CARE SYSTEM AT A GLANCE

- 5,3 million inhabitants
- 4 regional health authorities – RHA
- 19 public hospital trusts - HT
- 50 public hospitals

Western Norway,
1.0 mill. inh.

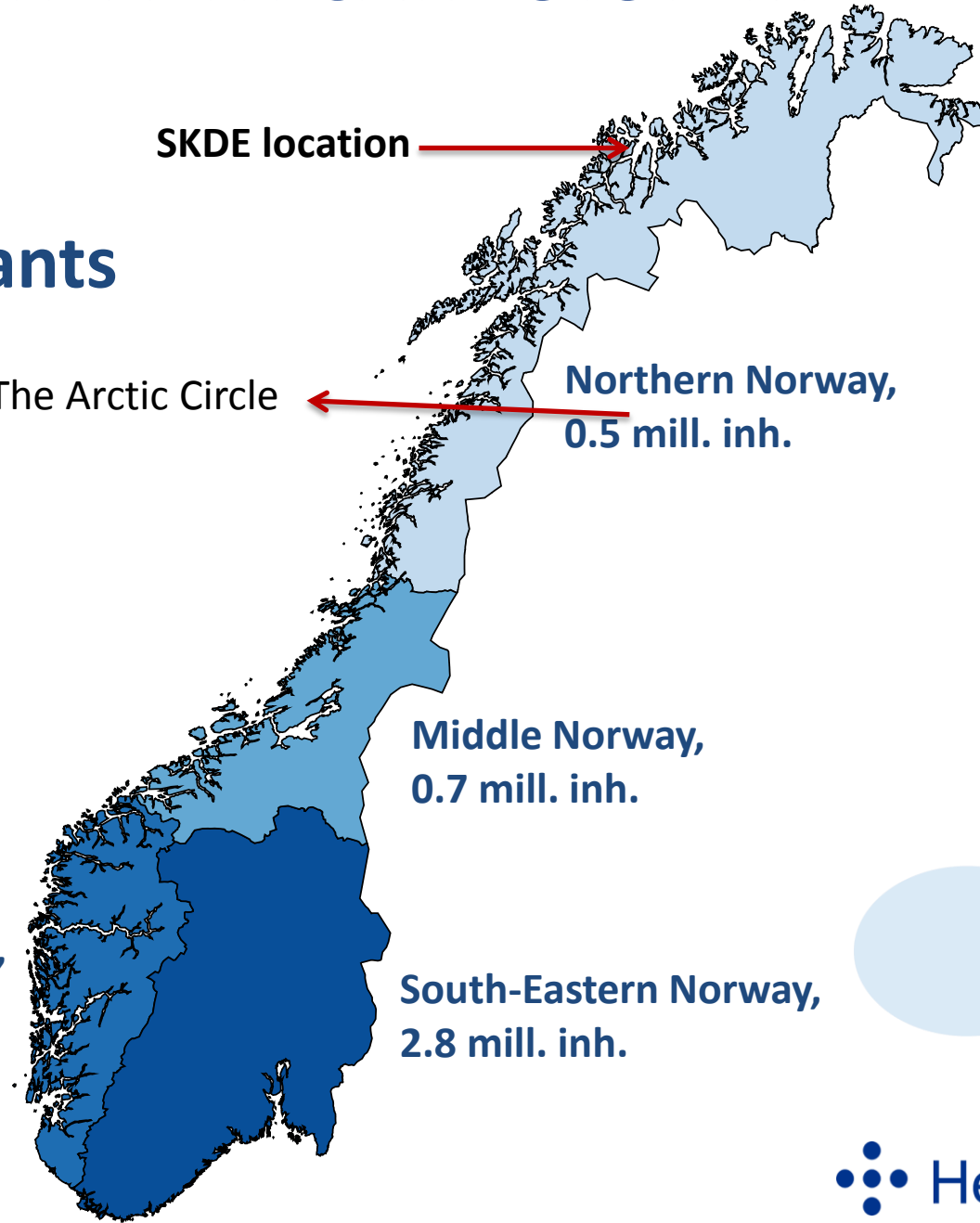
The Arctic Circle

SKDE location

Northern Norway,
0.5 mill. inh.

Middle Norway,
0.7 mill. inh.

South-Eastern Norway,
2.8 mill. inh.



Why health atlas in Norway?

- **Health care is mainly publicly funded (85%), health expenditure 10.5% of GDP in 2016**
- **Broad political consensus and a legal requirement** for equitable health services – regardless of where you live, gender, age and race.
- **Increasing legalized patient rights**
 - The right to receive treatment
 - The right to choose which hospital to receive elective treatment
 - The right to be diagnosed within a certain waiting time
 - Patient centered Clinical pathways
 - For all possible cancer cases from 2015
 - For all psychiatric referrals from 2019
- **Considerable expectations from the public to the performance from the health care system**
 - “Impossible” to change the structure of hospitals
 - Challenging to initiate changes and restrictions

Why health atlas in Norway?

- **Analysis of small area variation – a powerful approach to study over- and undertreatment**
 - Brownlee et al, Evidence for overuse.....Lancet 2017
 - Glasziou et al, Evidence for underuse Lancet 2017
 - Saini et al, Drivers of poor medical care.... Lancet 2017
- **Initial aim for the Norwegian Atlas project**
 - Reveal unwarranted variation
 - Engage clinicians, politicians and management

Published health atlases in Norway

www.helseatlas.no/en

January 2015 - Day Surgery Atlas

September 2015 - Child Healthcare Atlas

December 2016 - Neonatal Atlas

June 2017 – Elderly Healthcare Atlas

September 2017 - COPD Healthcare Atlas

October 2018 - Update of Day Surgery Atlas

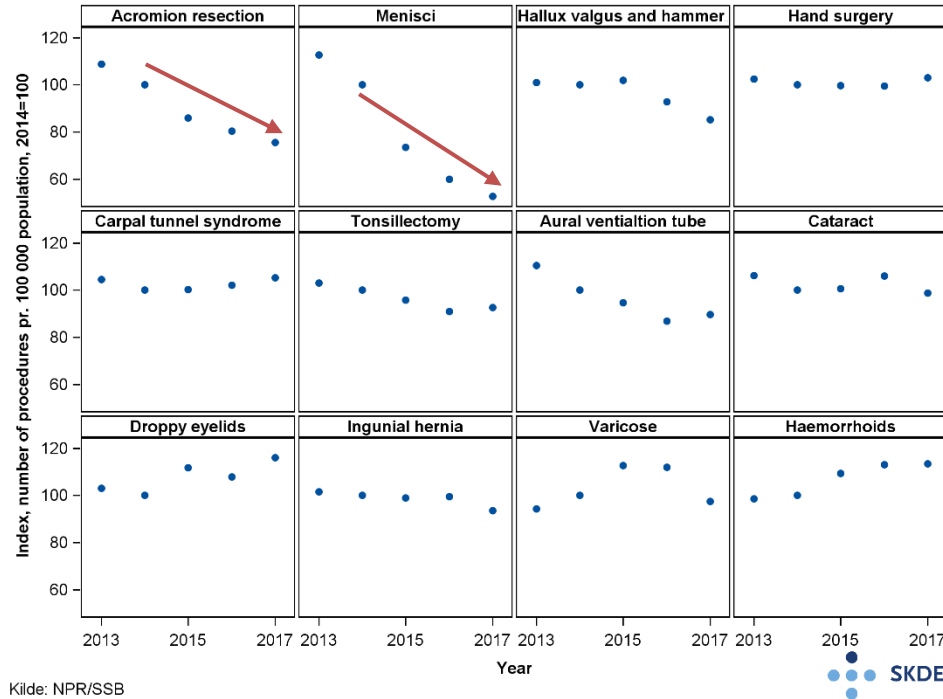
December 2018 - Atlas of Orthopaedics

January 2019 - Gyneacology Atlas

April 2019 - Maternity Healthcare Atlas

Update day surgery – change “without governance”

Index, surgery rate



Ratio of variation



- Ongoing clinical debate on limited effect of acromion resection and degenerative meniscus surgery – too much is done
- Massively reduced activity
- However, the geographical variation is increased for these operations

Impact of health atlas in Norway since 2015

- 2015 – Variation not mentioned in governance documents
- 2016 – Unwarranted variation focused in «every» commissioning letter and «every» policy lecture by the Minister of Health
- 2017 – Governance by indicators to reduce unwarranted variation
- 2018 – The introduction of Choosing Wisely in Norway
- 2019 – Ministry of Health and Care services proposes to reduce the volume of 17 day surgery procedures – Inspired by the NHS/NICE

Conclusion so far

- The Norwegian Health atlas project has succeeded in engaging politicians and policy makers in discussing variation!
- The Health atlas has a firm standing among peer clinical environments
 - We are requested to make atlas within new areas
 - The Norwegian medical association wants to monitor the Choosing Wisely campaign through an atlas concept in collaboration with SKDE
- Thus we have succeeded in engaging clinicians, politicians and senior management in discussions about variation

BUT – there are no signs of systematic reduced variation

Thus

- Politicians, policymakers and senior management need more and updated information to be able to govern towards less variation and most often less overtreatment
- We need to understand why there is unwarranted variation – the explanations might be more complex than we think
- We need to understand the consequences of unwarranted variation

There is an acute need for new knowledge – this requires research

Research on health atlas topics in Norway

- Increasing availability of research funds for grant applications
 - Within the hospital trust system – separate programs
 - The Research Council of Norway – separate programs
 - EU grants – challenging application procedure
- Health care research – traditionally a field for health economists with little proximity to health care workers

Research on health atlas topics in Norway

- A small country – 5,3 mill inhabitants
- Every person accounted for – 11 digit individual ID number to connect all records
- A transparent society, rather small and known sociodemographic variations in health
- Large mandatory health registries
 - Public health registries (births, deaths, prescriptions, infections etc.)
 - Cancer Registry of Norway – complete since 1953
 - National patient registry – all contacts with secondary health care
 - Primary Health care data, Municipality data
 - 51 national medical quality registries
- Statistics Norway with education, income, demography, geography, use of public resources

**ALTHOUGH BUREAUCRATIC AND TIME CONSUMING PROSESSES
- ALL THESE DATA CAN BE JOINED BY INDIVIDUAL ID**

Health Atlas data vs Research data

	Health Atlas Data Few necessary datasources	Research data Large number of datasources needed
Time to produce results	Fairly quick (months)	Slow (years-access to data)
Data presentation	Rapid modern web based technology	Slow peer review processes
Stakeholders	<ol style="list-style-type: none">1. Policymakers2. Governance units3. Hospital trust managers4. Health care professionals	<ol style="list-style-type: none">1. Health Care professionals2. Hospital trust managers3. Governance units4. Policymakers

Impact of health atlas on research activity

- 2015 – Single paper projects developed as joint venture with clinicians
- 2016 – Health Atlas unit ordered by decision makers to develop grant based health care research projects
- 2017 – First Post Doc research project developed, grants obtained and collaboration with Dartmouth secured
- 2018 – 4 PhD projects developed and grants obtained for research start in 2019-2020

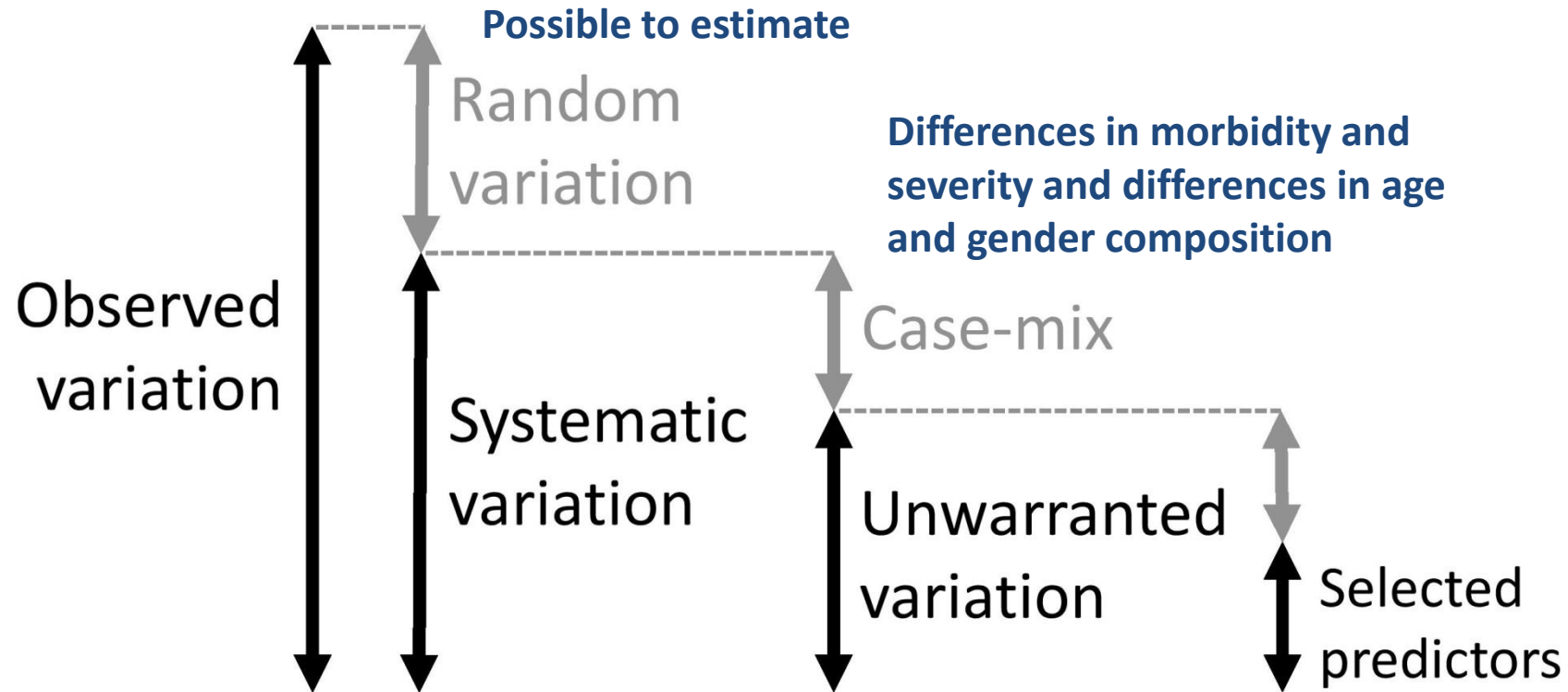
Research at SKDE

- Used to be single papers based on cooperation with clinicians
- Some examples:
 - Rosenlund et.al: “Regional variation in hospitalizations and outpatient appointments for diverticular disease in Norway: a nationwide cross-sectional study” (2018)
 - Kvernmo et.al: “Treatment of wrist fractures 2009–14” (2017)
 - Olsen et al: “Norwegian patients with colon cancer start their adjuvant therapy too late” (2016)
 - Aahlin et al: “Major postoperative complications are associated with impaired long-term survival after gastro-esophageal and pancreatic cancer surgery: a complete national cohort study” (2016)
 - Nymo et al: “The effect of centralization on short term outcomes of pancreatoduodenectomy in a universal health care system” (2018)

Our current areas of research and some examples

- Collaboration with psychiatry – A PhD study of variation in diagnosis and treatment for CHD in patients with schizophrenia or bipolar disorders
- A post doc project studying variation in the use of specialist health care among elderly cancer patients and among cancer patients at the end of life. Based on linked personal data from national health and administrative registries, the aim is to develop an explanatory multilevel model accounting for patient characteristics, family factors, and factors in hospitals and municipalities
- A PhD project studying unwarranted variation and selected predictors in use of health care services within child care in the capital area, atrial fibrillation and ablation, and cancer pathway
- A large multi PhD regional project studying explanatory factors for variation within patients choices of hospital in orthopedics and also explanatory models for hospitals choice of treatment models and the consequences of these choices for later use of patient recourses
 - Clinical focus on CHD, hip fractures and cerebral insults

Geographical variation in the use of health care services



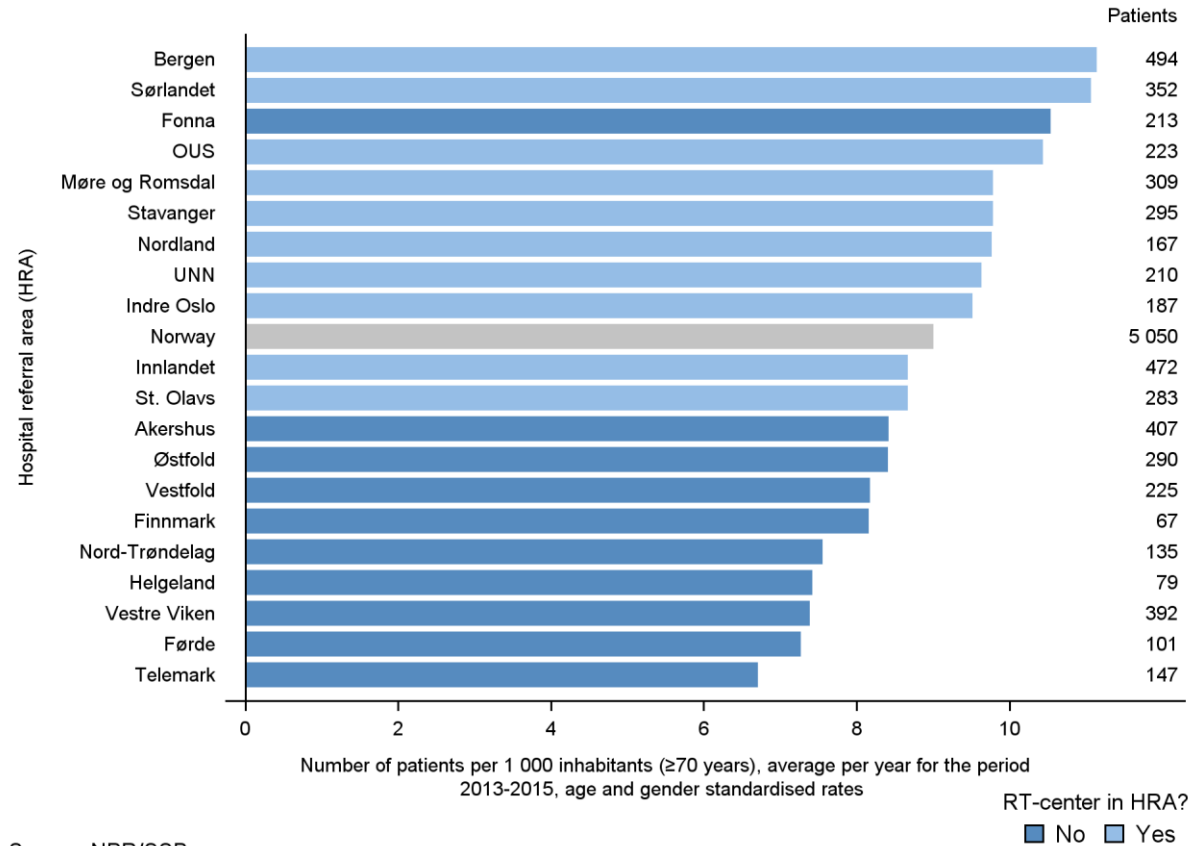
Three projects and patient populations:

1. Children in the capital area (Organization, SES)
2. Atrial fibrillation and ablation (SES, distance)
3. Cancer pathway (Organization, SES)

- Socioeconomic status (SES)
- Distance
- Organization

Radiotherapy by HRA

Elderly ≥ 70 years



Source: NPR/SSB

Undiagnosed cardiovascular disease (CVD) prior to cardiovascular death in individuals with severe mental illness

- Individuals with schizophrenia and women with bipolar disorders are more likely to die due to undiagnosed CVD, despite increased risk of CVD and many contacts with primary and specialized somatic care.
- Strengthened efforts to prevent, recognize, and treat CVD in individuals with SMI from young age are needed

| Heiberg et al, Acta Psych Scand, 2019

Total and cause-specific standardized mortality ratios in patients with schizophrenia and/or substance use disorder

- Mortality in patients with schizophrenia and/or substance use disorder corresponded to more than 10,000 premature deaths
- **This persistent mortality gap highlights the importance of securing systematic screening and proper access to somatic health care, and a more effective prevention of premature death from external causes in this group**

I Heiberg, [PLoS One.2018](#)

Equitable health services – regardless of where you live?

The Norwegian healthcare atlases compares the population's use of health services using interactive maps, reports and fact sheets.

[Read More](#)



GYNAECOLOGY, 2015-2017



INTERACTIVE MAP



REPORT



FACT SHEETS



DAY SURGERY ATLAS 2013-2017



INTERACTIVE MAP



REPORT



FACT SHEETS

Thank you for your attention !



COPD HEALTHCARE ATLAS, 2013-2015



INTERACTIVE MAP



REPORT



FACT SHEETS



ELDERLY HEALTHCARE ATLAS, 2013-2015



INTERACTIVE MAP



REPORT



FACT SHEETS



NEONATAL ATLAS, 2009-2014



INTERACTIVE MAP



REPORT



FACT SHEETS



CHILD HEALTHCARE ATLAS, 2011-2014



INTERACTIVE MAP



REPORT



FACT SHEETS



DAY SURGERY ATLAS, 2011-2013



INTERACTIVE MAP



REPORT



FACT SHEETS