

# Health care in Norrbotten

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Assuring a high quality and efficiency of medical care  
in a sparsely populated region of Sweden



NORRBOTTEN  
COUNTY COUNCIL  
SWEDEN



# Sweden not Switzerland

- Area km<sup>2</sup>: 449 964 – 41 285
- Population: 9 325 429 – 7 785 800
- Inhabitants per km<sup>2</sup>: 20,6 – 188,3



# Sweden – a decentralized health care system

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- 21 county councils and regions are responsible for health care services.
- Hospital care, primary care, psychiatric care and dental care.
- Long term care for the elderly is financed and organized by the municipalities.
- Each county council and region is governed by a political assembly.
- Elections are held every fourth year.
- Within the framework of national legislation the county councils and regions have substantial decision-making powers and obligations toward their citizens.
- The Swedish health care system is, in short, a decentralized system.

# Norrbotten

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- Norrbotten makes up one quarter of the area of Sweden. The region has a population of around 250 000
- The county council has 7 200 employees, 5 200 of whom work in the care professions
- 5 hospitals, 36 primary care centers (4 privately held), 44 dental care centers





LKAB iron ore mine Kiruna



Klubbviken Luleå

# Switzerland – Norrbotten

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- Area: 41 285 km<sup>2</sup>
- Population: 7 785 800
- Inhabitants / km<sup>2</sup>: 188,3
- Hospitals: 180
- Primary care centers: ?



- Area: 98 911 km<sup>2</sup>
- Population: 249 677
- Inhabitants / km<sup>2</sup>: 2,5
- Hospitals: 5
- Primary care centers: 36



# Norrbotten county council organisation

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county council chief executive

secretariat

staff

surgical  
specialties

medical  
specialties

diagnostic  
specialties

primary  
health care

adult  
psychiatry

national  
dentistry

culture &  
education

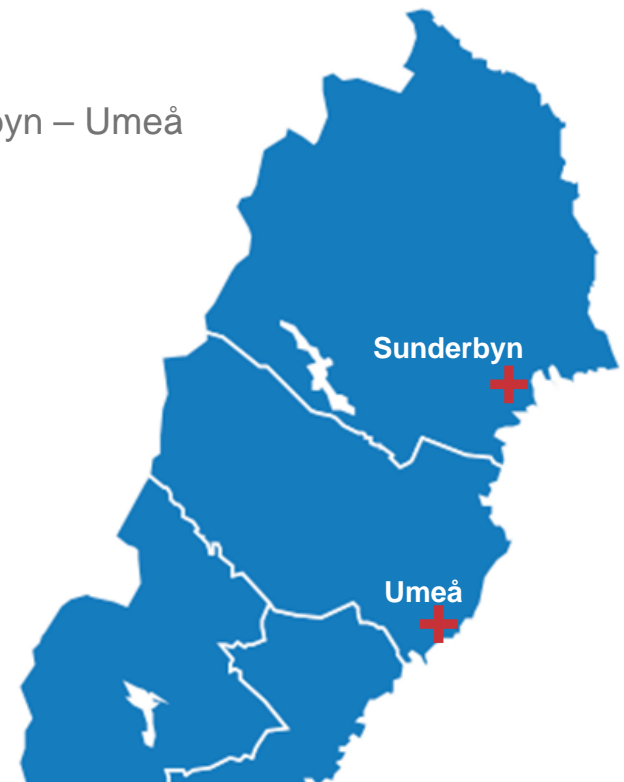
service  
department

county  
technology

# The concept of health care in Norrbotten

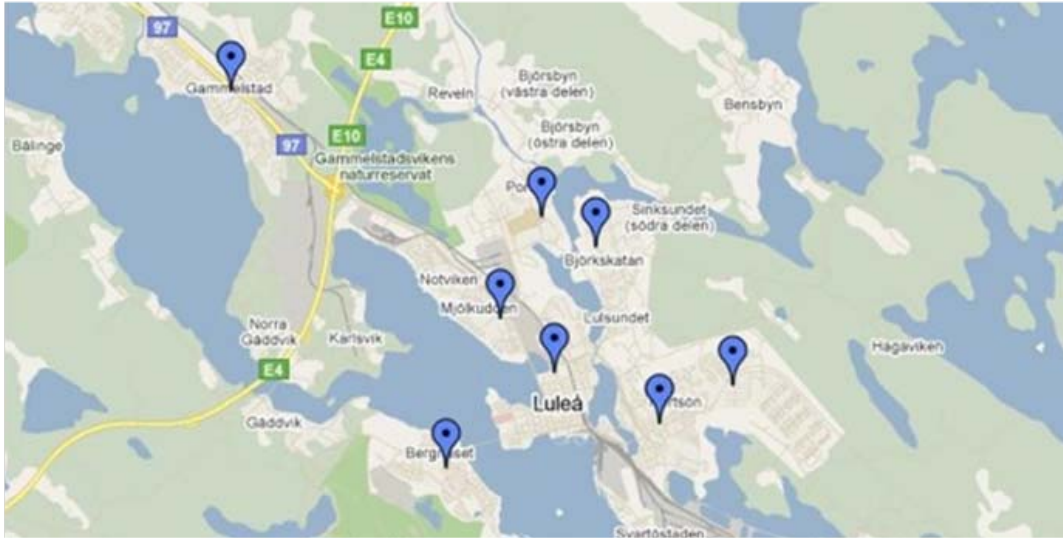
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- **Primary care as a fundament – 36 primary health care centers**  
Service around the clock – "first line"  
Hospital beds, radiology and ambulances in some rural communities
- **Five hospitals – each with different focus**  
Sunderby hospital – county hospital with most specialties except neuro-surgery, thorax and burn treatment  
Two hospitals oriented towards planned orthopaedics and general surgery  
Emergency departments and intensive care units at all hospitals
- **Comprehensive system for transportation**  
28 ambulances (23 round the clock + 5 daytime) + 1 ambulance Sunderbyn – Umeå  
Ambulance helicopter stationed in Gällivare  
Two aircraft stationed in Umeå (cooperation within the northern region)
- **Extensive solutions for communication and IT**  
One mutual system for patient records – VAS  
Enables safe and "seamless-care"



# Örnäsets primary care center Luleå

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# Örnäsets primary care center Luleå

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- 10000 inhabitants
- 5 doctors and 1 fellow doctor (190)
- 7 nurses, 2 midwives and 1 biomedical nurse (630)
- 3½ paramedics physiotherapist/occupational therapist/behaviourist (115)
- 4 medical secretaries (100)
- 3 nurse assistants (200)
- 1 healthcare officer (30)
- The employees have totally worked >300 years at the primary care centre

# The Svensson family

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- 500 meter east of Örnäsets primary care center lives the Svenssons (the average family)



# The Svensson family

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- Father Sven 55 years old.
- Insulin-dependent diabetes.
- Yearly doctor-visit, the same with diabetic-nurse.
- Contact with physiotherapist due to diabetic-shoulder-problem.
- Gets a wound on a leg, meets nurse och nurseassistent, don't heal and referral to hospital for team-assesment by surgeon, ortopedian and infection-doctors.
- Follow-up at primary care center with extra glucose check at the laboratory.

# The Svensson family

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- Mother Lisa, 51 years old.
- Years of recurrent upper respiratory tract infections.
- After contact with nurse and succesful stop-smoking-program much better.
- Contact with midwife every third year for gynecological health control.

# The Svensson family

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- Daughter Signe, 19 years old.
- Basket-player.
- Many sports-injuries and problem with knees and back, many contacts with doctor and physioterapist.
- Once a year contact with midwife or youth clinic for contraceptives.

# The Svensson family

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- Son Vincent, 17 years old.
- Seldom in contact, last year one phone call and one doctors visit when coughing for two weeks.
- Two years ago severe acne, better after pharmacological prescription and 4 visits to behaviourist.

# Patient with acute stroke in Arjeplog

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- Call to 112 – all ambulances are directed by SOS Alarm.
- Ambulance from primary care center collects patient.
- Arrival at Piteå hospital (230 km) thrombolysis within 45 min of arrival.
- Stroke-units at all hospitals and joint protocol for treatment of acute stroke.
- Average length of stay in hospital: 8 days mild / 12 days severe.



# Patient with acute stroke in Arjeplog

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- Coordinated care planning before dismissal from hospital, involving hospital staff and nursing staff from municipality, social services and primary care center.
  - Rehabilitation mainly in primary care, severe cases in hospital based rehabilitation.
  - Follow up visit at home 3 weeks after admission from hospital, involving municipality, primary care.
  - Follow up by primary doctor when suitable from case to case.
- Examples of outcome:
    - Thrombolysis treatment after stroke 9,3 %
    - Anticoagulant therapy for stroke patients with atrial fibrillation 75,5 / 70,4 % (women/men)
    - Readmission for stroke within 365 days 10 / 11 % (women/men)



# Ambulance statistics 2009

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Ambulance

25 500 missions 1 755 000 km



Helicopter

375 missions



Aircraft

1100 patients



275

# Ambulance statistics 2009

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- 92 % of the population reached within 30 minutes.
- Average time from alarm to arrival 13 minutes.
- All ambulances manned by one registered nurse + one paramedic.
- Ambulances equipped according to EC-standards (EN 1789).
- Also equipped to transmit vital signs to nearest hospital (puls, BP etc).

# Airborn ambulance resources

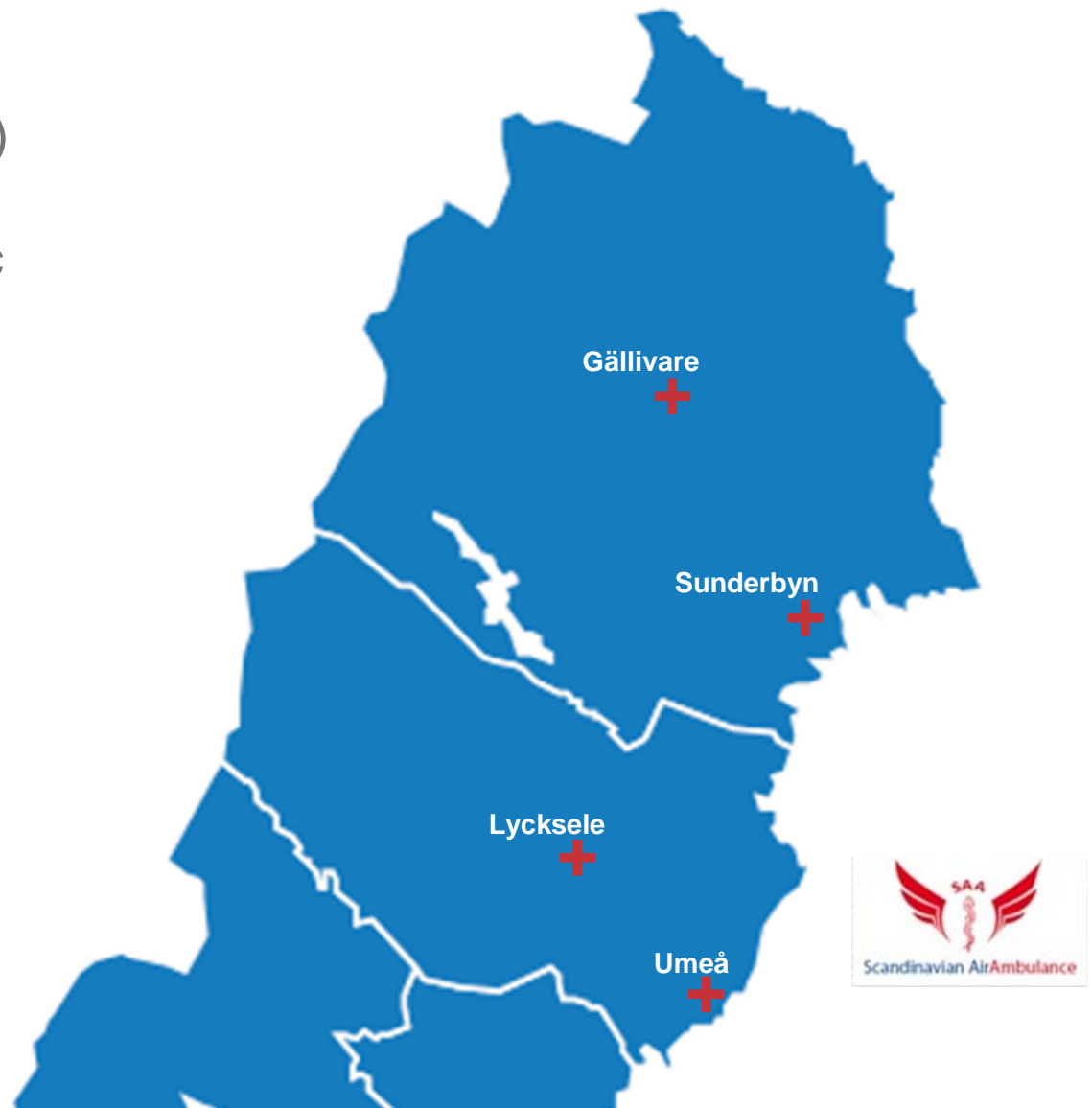
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- Helicopter

Stationed in Gällivare and Lycksele (neighbouring county)  
Manned around the clock with anesthesiologist and anesthetic nurse

- Ambulance aircraft

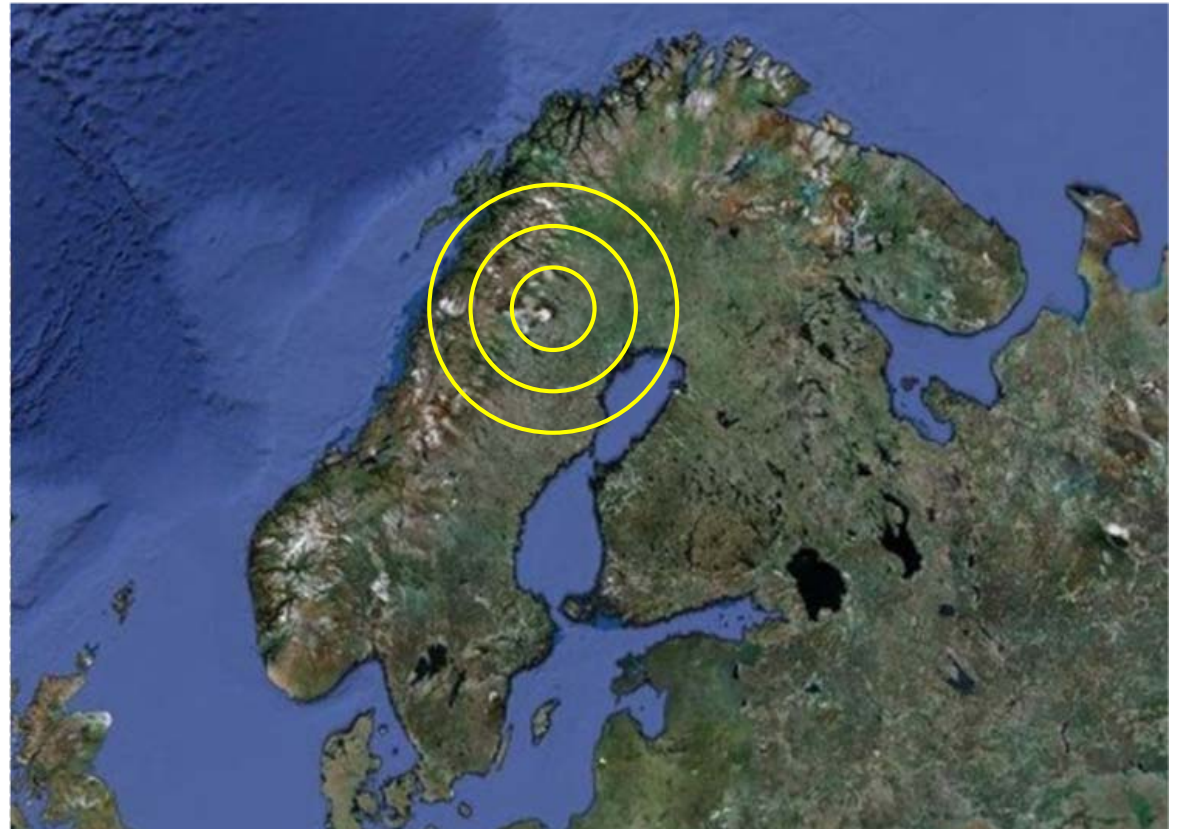
Two planes stationed in Umeå (neighbouring county)  
Used for longer distances  
Equipped for advanced care and manned by nurse (occasionally doctor)



# Co-operation within the whole northern region

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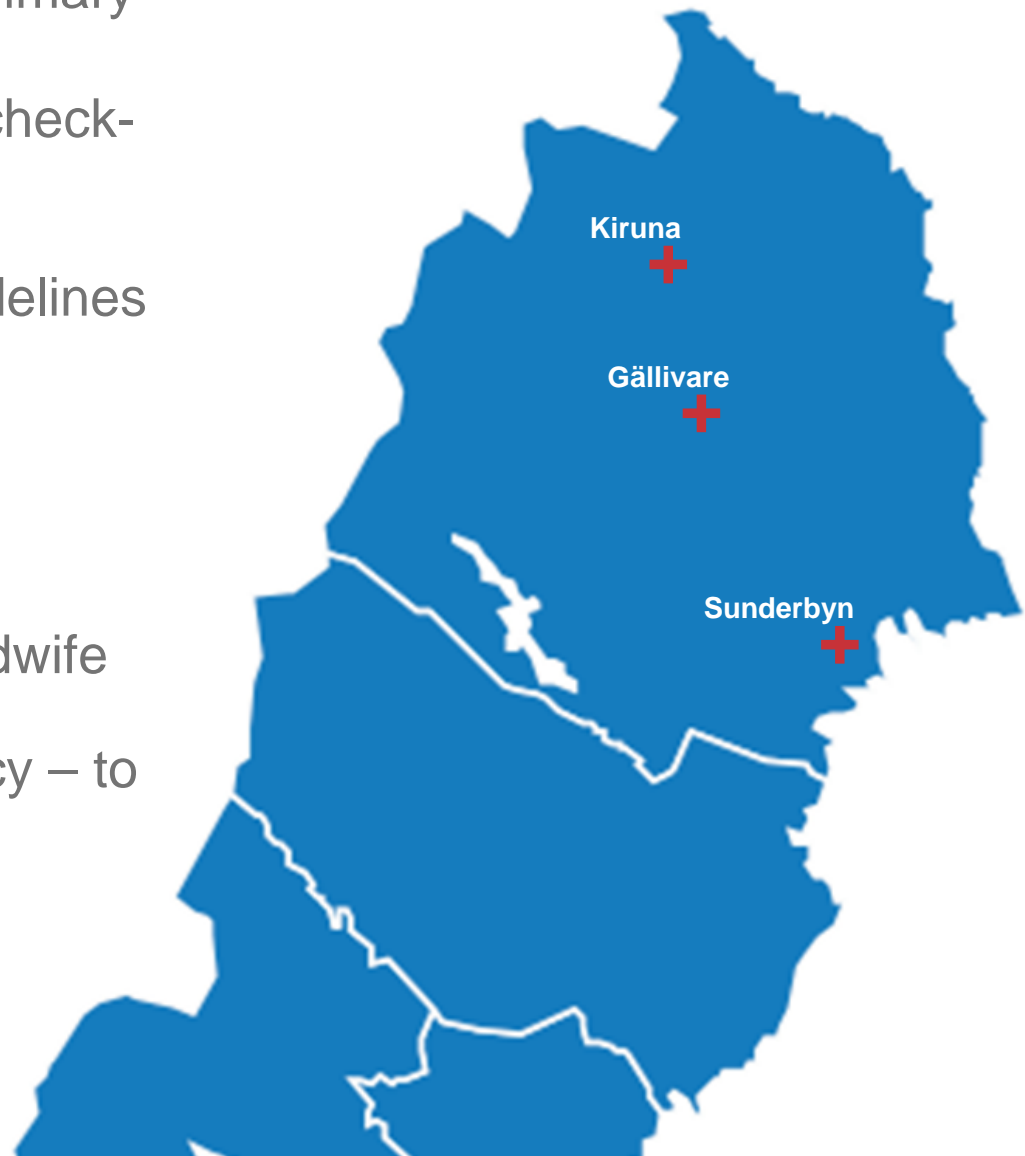
- Ambulances and helicopters from Västerbotten (southern neighbour)
- Rescue-helicopter from Bodö, Norway
- Ambulances from Finland
- Rescue-service
- Maritime-authority



# Pregnant woman in Kiruna

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- Midwives (not doctors) at the primary care centers handles normal pregnancies and post partum check-ups
- Care according to medical guidelines – prepared by obstetricians
- Well-informed mothers
- Ultrasound (week 17 of the pregnancy) at hospital by a midwife
- Complications during pregnancy – to the obstetrician at the hospital



# Pregnant woman in Kiruna

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- Joint obstetric patient record – Partus, same in the whole county.
- Delivery unit in Gällivare, average length of stay at maternaty ward 42 hours, patient hotel available.
- All newborns examined by pediatrician, OAE-test (hearing), PKU-test & POX-screening.
- Mother and child gets continuous care/checkups at primary care center.
- Examples of outcomes:
  - Sectio-caesarean rate 14 %
  - Neonatal mortality rate 2,7 (deaths/1000 live births)
  - Newborns with low Apgar-score – 1,14 %



# VAS – care administration system

medical records

registration of arrival

inpatient care

outpatient care

prescriptions



laboratory tests

x-ray

planning of surgery

referrals

medical certificates

# Woman in need of hip-replacement from Kalix

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- Referral from primary care to orthopaedic-specialist
- First visit to Sunderby hospital – all pre-op tests are made including visit to physiotherapist
- Operation at unit for planned orthopaedics in Piteå
- Length of stay in hospital: 5 days
- Rehabilitation & physiotherapy in primary care
- Follow up visit in hospital: to physiotherapist after 3 – 4 months



# Woman in need of hip-replacement from Kalix

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- Accessibility and quality of care improved by concentration of planned surgery  
Total hip replacement arthroplasty (10-year implant survival) 95,7 % / 91,5 % (women/men)  
Re-operation within 2 years 1,8 %  
Patient-reported outcome in total hip replacement arthroplasty by index EQ-5D



# Quality of care & competence

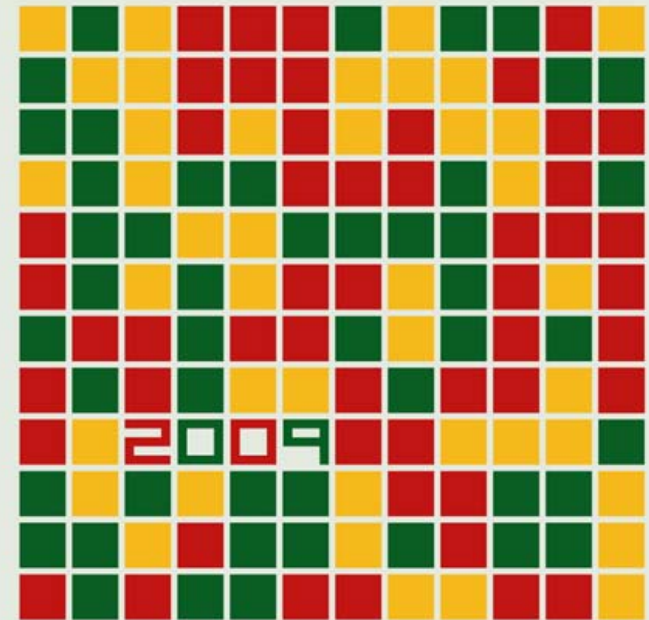
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- Driving force behind structural changes
- National quality registries for more than a decade
- Individual based data on diagnoses, treatment and outcomes
- Yearly "Regional comparisons" since 2006
- Diabetes, cataract surgery, prostate cancer, heart surgery, stroke, hip fracture, gynecological cancer, knee replacement etc, etc

## Quality and Efficiency in Swedish Health Care

Regional comparisons 2009

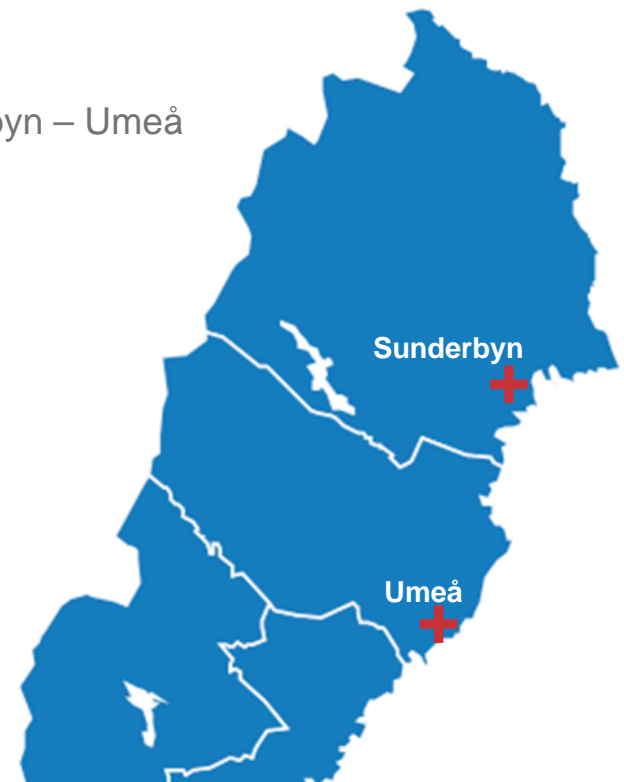
County Council Comparisons – Figures  
Description of Indicators



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# Thank You

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