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The community hospital model in Northern Sweden

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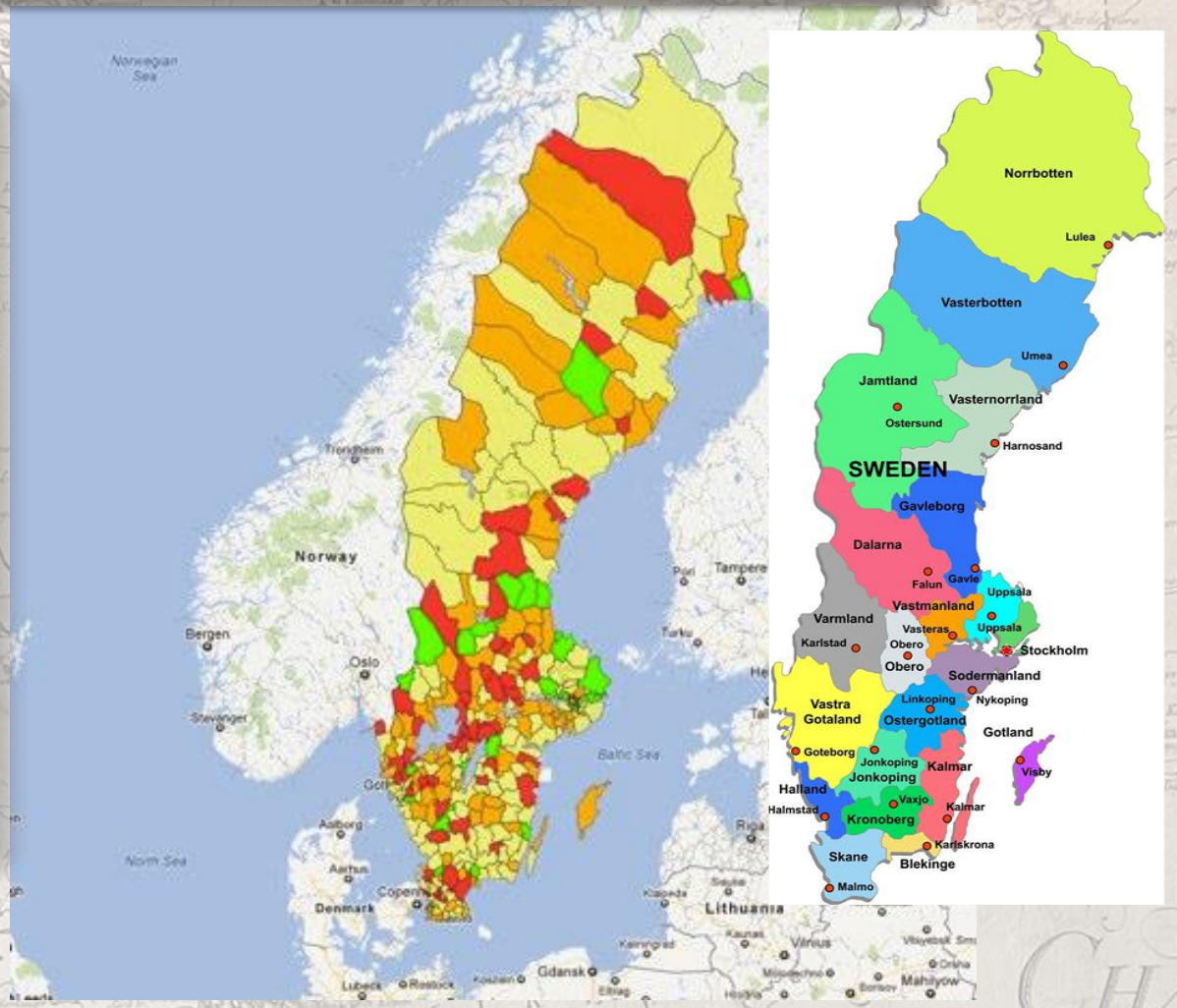
Sweden: three political levels:

- **Parliament and Government**
- **County Councils/Regions**
- **Communes/ municipalities**



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Overview of Swedish Healthcare System

- The Swedish healthcare system aims to provide equal access to services for all residents.
- Funded primarily through taxes.
- Services include primary care, hospital care, and municipal care.

Primary Care in Sweden

- **Definition:** First point of contact for patients. Provides general medical care, preventive services, and rehabilitation.
- **Providers:** PCCs with general practitioners (GPs), nurses, and other healthcare professionals.
- **Responsibility:** Managed by the regional councils (Regioner).
- **Services include** Health consultations, chronic disease management, minor surgeries, maternal care, and pediatric care.

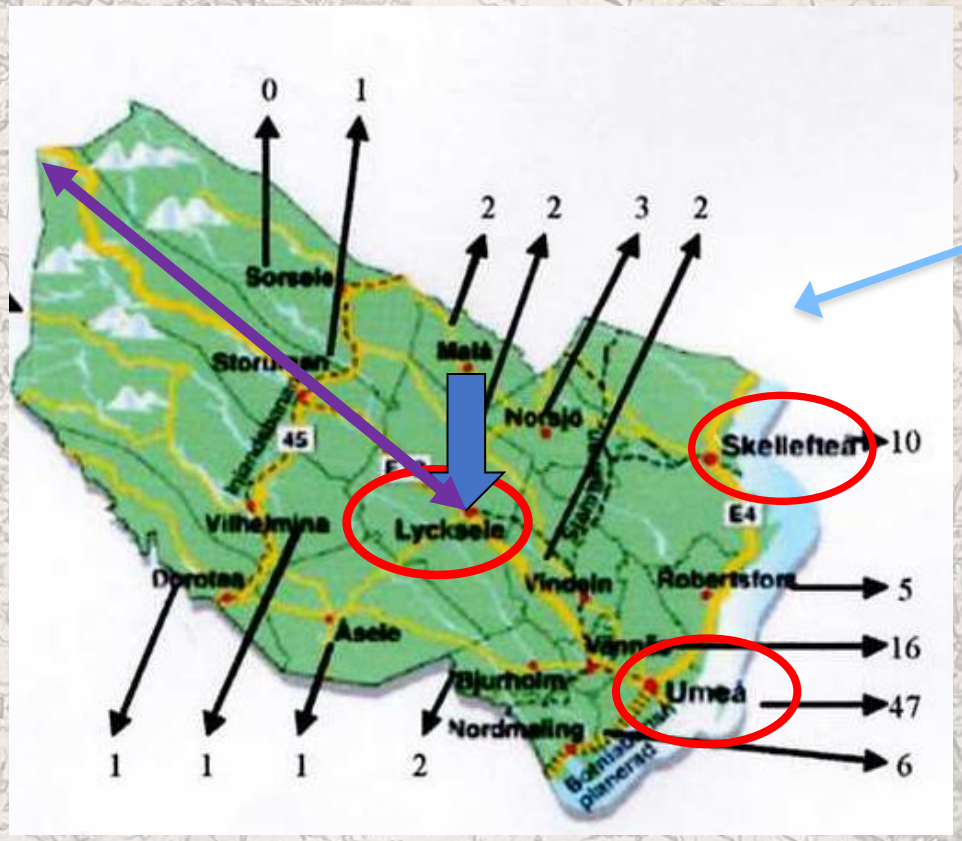
Hospital Care in Sweden

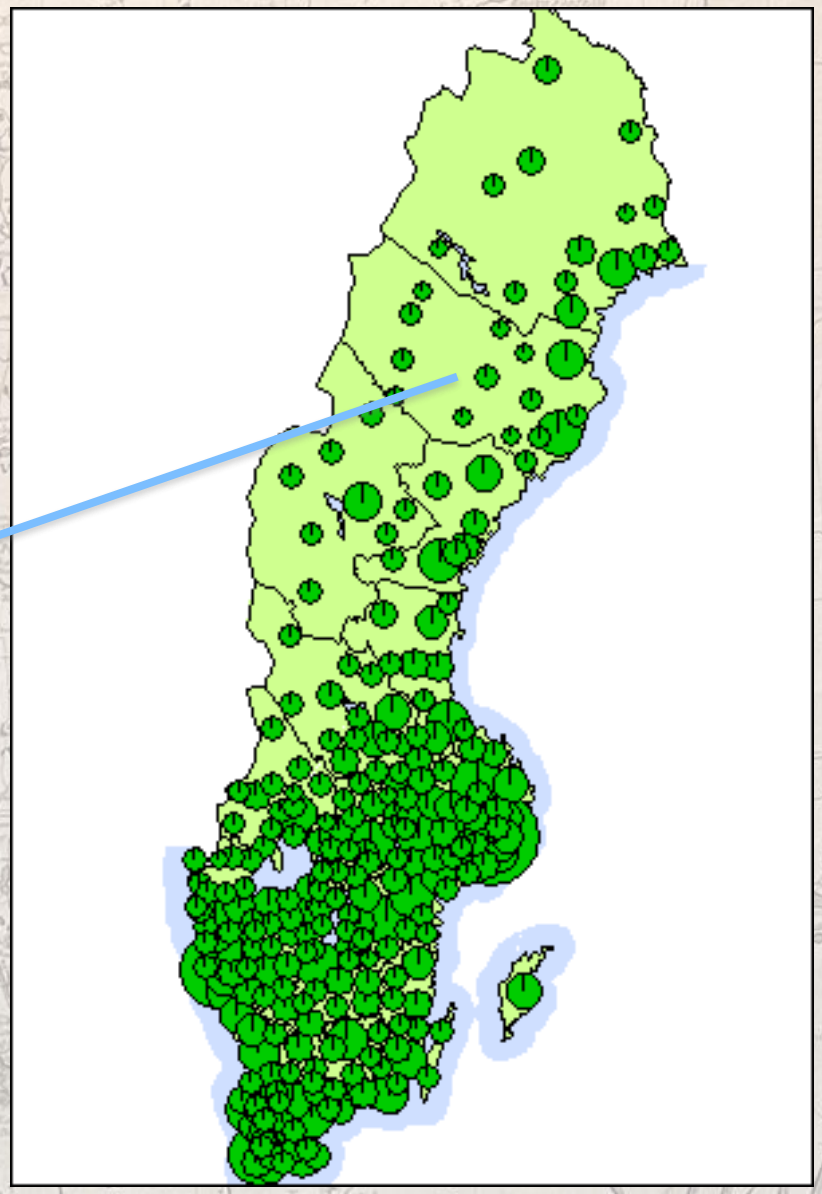
- **Responsibility:** Managed by the regional councils
- **Types of hospitals:**
  - **University hospitals:** Offer specialized care and are centers for research and education.
  - **County hospitals:** Provide a wide range of medical services.
  - **Rural community hospitals:** Offer basic hospital care in extreme rurality.

Municipal Care in Sweden

- **Definition:** Long-term care and social services provided to elderly and disabled individuals.
- **Providers:** Municipalities (communes) are responsible for these services.
- **Services include:**
  - **Home care services:** Assistance with daily activities, healthcare, and personal care.
  - **Residential care homes:** Long-term accommodation with healthcare and support. Short-term care.
  - **Day centers:** Provide social activities and daytime care.

Sweden: sparsely populated





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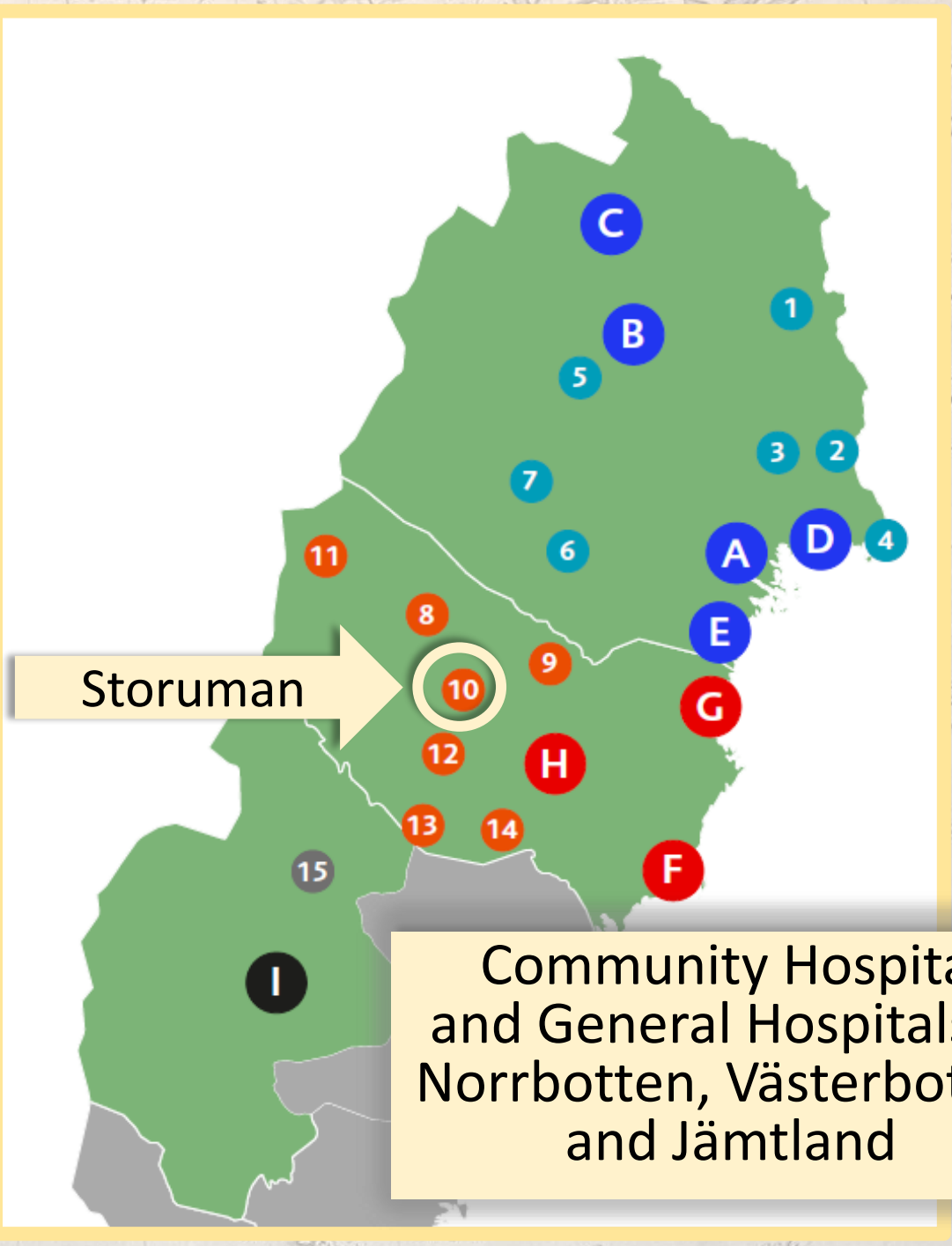
Community Hospitals

’ …a hospital where the admission, care and discharge are under the direct control of a GP. ’



Community Hospitals and General Hospitals in Norrbotten, Västerbotten and Jämtland

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Community Hospitals

- GPs– *employed by the hospital, not private!*
- District nursing service
- Diabetes, asthma/COPD nurse specialists
- Laboratory
- Child care center & antenatal clinic
- Psychologist, social worker, physioterapist, occupational therapist
- **Emergency room**
- **Ambulance**
- **Plain X-ray (+ ultrasound)**
- **Hospital ward (2-8 beds)**
- **Additional POC lab tests**

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Community Hospitals

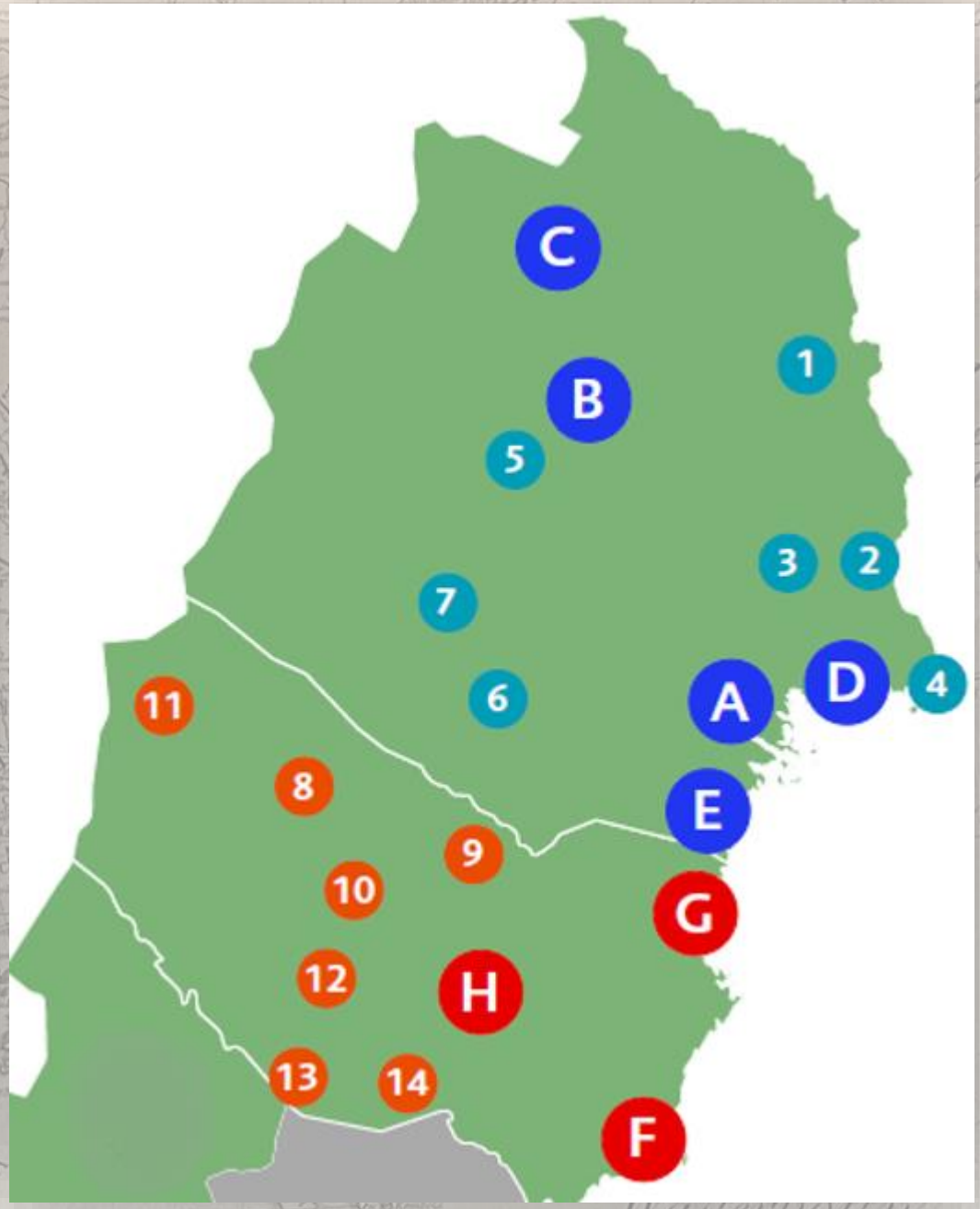
Main **inpatient** groups in Swedish rural community hospitals:

- Acute patients
- Postoperative rehabilitation patients
- Patients requiring end-of-life care in hospital

Study 1

Register study

- All hospitalisations at rural community hospitals (CHs) and general hospitals in Norrbotten and Västerbotten 2010-2014.
- Patienter living in CH areas.



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Results

Rural population

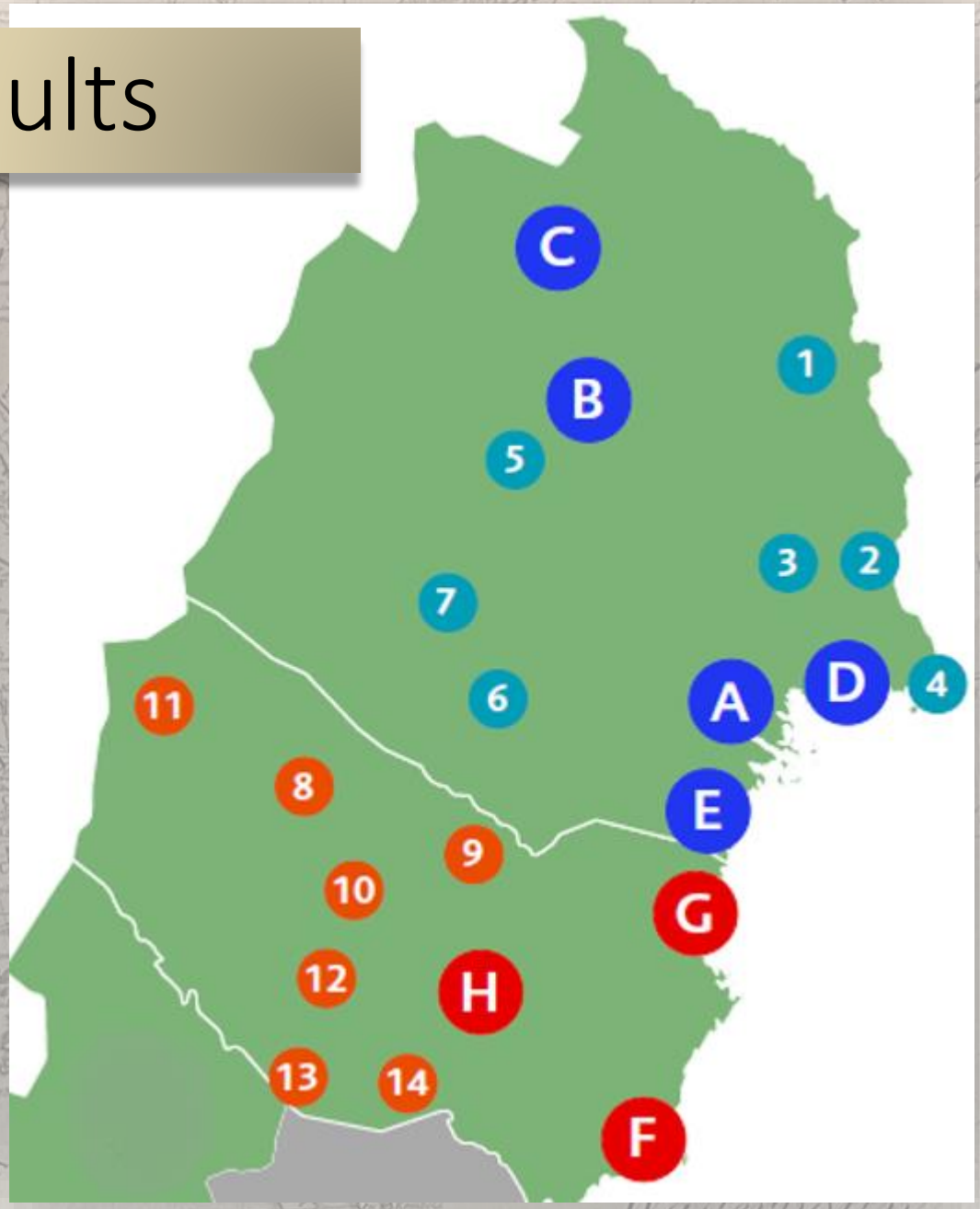
Totally 76 837 hospitalisations

CHs (1-14)

16 133

General hospitals (A-H)

60 704



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Studie 1

Results

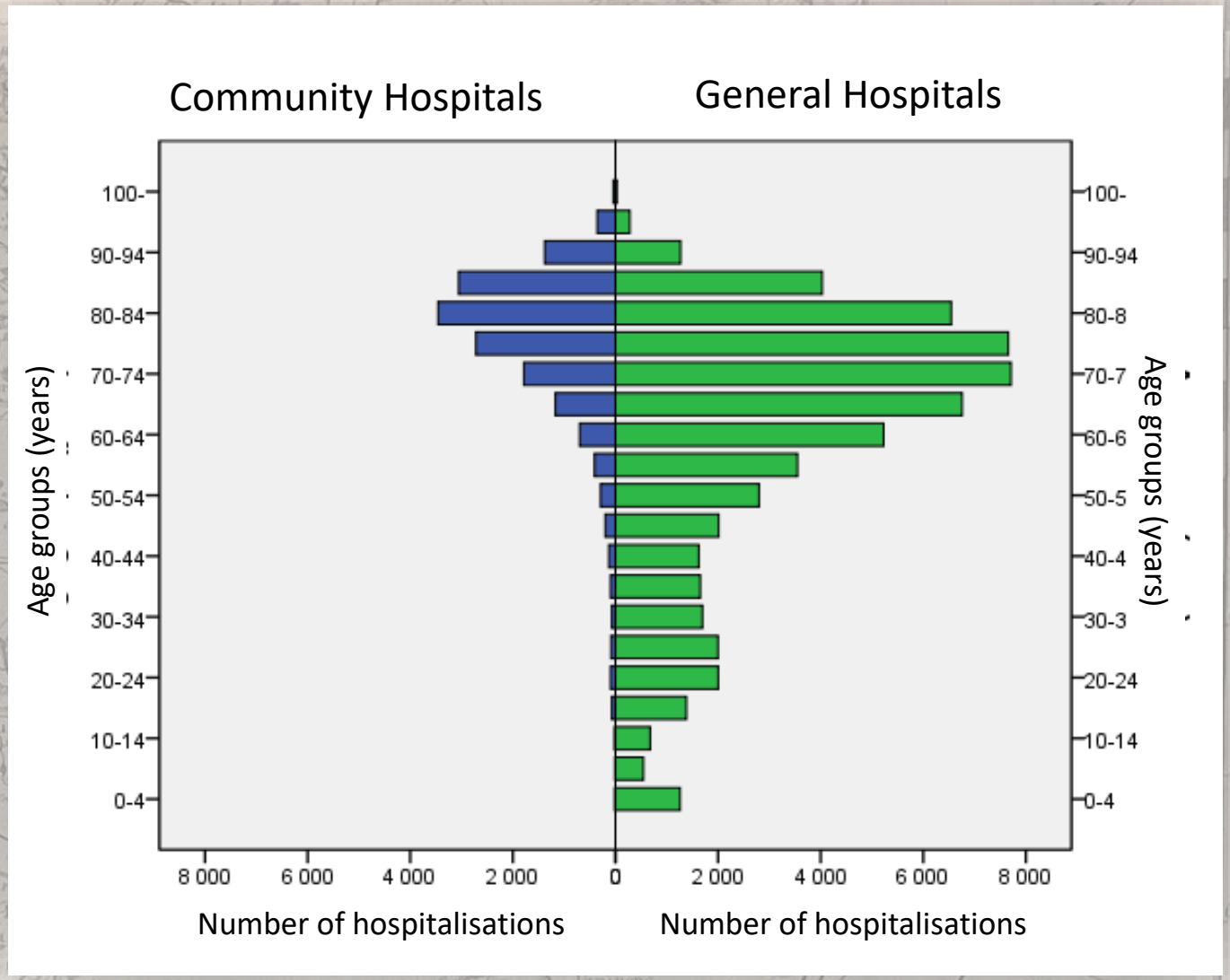
Age

CHs

Median age 80 years

General hospitals

Median age 68 years



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Study 1

Main diagnoses

Table 5: OR (95%CI) adjusted for age and sex for patients to be admitted to CH vs GH according to the most frequent main diagnoses found in CHs. Percentage of total main diagnoses.

Main diagnoses (ICD-10)	%	OR adjusted for age and sex
Heart Failure (I50)	6.0	2.36 (2.15-2.59)***
Pneumonia (J18)	5.0	3.32 (2.77-3.98)***
Atrial fibrillation and flutter (I48)	2.5	1.01 (0.90-1.14)ns
Abdominal and pelvic pain (R10)	2.5	2.73 (2.39-3.13)***
Type 2 diabetes mellitus (E11)	2.2	5.82 (4.87-6.97)***
Urinary tract infection (N30)	2.0	38.13 (24.96-58.25)***
Orthopedic aftercare (Z47)	1.9	4.52 (3.74-5.46)***
Chronic obstructive pulmonary disease (J44)	1.9	2.55 (2.18-2.99)***
Dizziness and giddiness (R42)	1.9	2.28 (1.95-2.67)***
Constipation (K59)	1.9	3.32 (2.77-3.98)***
Dementia diagnosis (F00, F01, F02, F03,F05.1)	1.9	4.37 (3.59-5.32)***

ns = non significant, *** = $p<0.001$

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The 10 most prevalent main diagnoses for hospitalisation in Sweden for patients > 80 years:

1. Heart Failure: 15%
2. Pneumonia: 13%
3. Urinary Tract Infection: 12%
4. Chronic Obstructive Pulmonary Disease (COPD): 10%
5. Stroke: 8%
6. Acute Myocardial Infarction (Heart Attack): 7%
7. Hip Fracture: 6%
8. Dehydration and Electrolyte Disorders: 5%
9. Dementia and Related Disorders: 5%
10. Cancer: 4%

Main diagnoses (ICD-10)	%
Heart Failure (I50)	6.0
Pneumonia (J18)	5.0
Atrial fibrillation and flutter (I48)	2.5
Abdominal and pelvic pain (R10)	2.5
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Orthopedic aftercare (Z47)	1.9
Chronic obstructive pulmonary disease (J44)	1.9
Dizziness and giddiness (R42)	1.9
Constipation (K59)	1.9
Dementia diagnosis (F00, F01, F02, F03,F05.1)	1.9

Palliative care

Diagnoses

Table 6: The three most prevalent diagnosis groups for in-hospital deaths in community hospitals and general hospitals.

ICD-10 diagnosis group		Community hospitals n=16'133	General hospitals n=60'704	Total n=76'837
		n (%)	n (%)	n (%)
I	Circulatory System	201 (27.8)	469 (33.6)	670 (31.6)
C	Neoplasms	238 (32.9)	277 (19.8)	515 (24.3)
J	Respiratory System	104 (14.4)	165 (11.8)	269 12.7)

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Study 2

To describe the care measures for inpatient treatment of patients with heart failure at rural community hospitals and compare these with those at a regional hospital.

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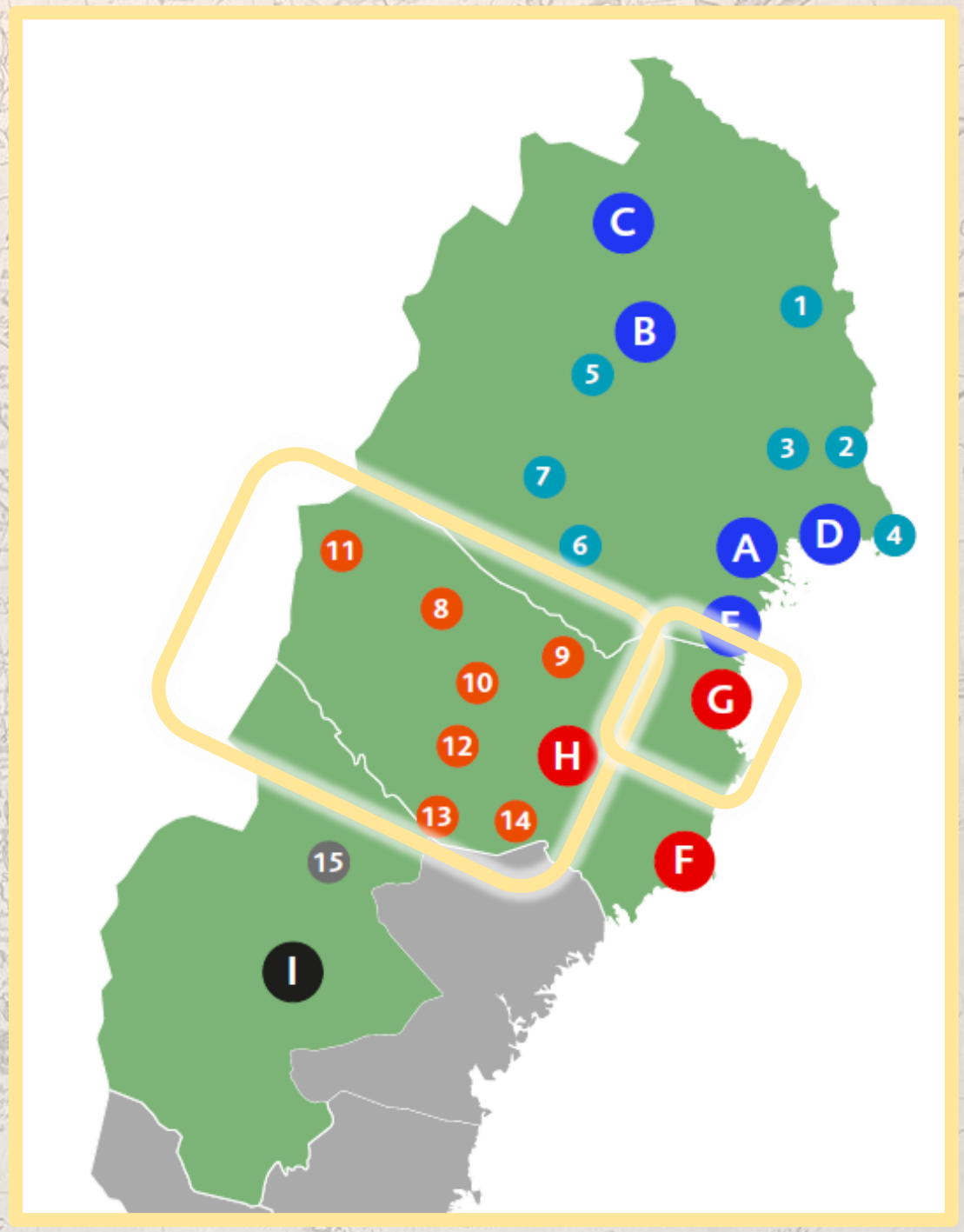
Study 2

Register study

- All hospitalizations with main diagnosis ”Heart Failure” at community hospitals in Västerbotten and at Skellefteå County Hospital 2015-2019.



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Study 2

Methods

- Primary diagnosis: heart failure, age > 18 years. Exclusion of those residing in assisted living facilities and those who died within 6 months after the hospital stay.
- Hospital stays at community hospitals were compared with those at a general hospital regarding recorded care measures and documentation in patient records.

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Studie 2

Resultat

Tabell 3: Jämförelse mellan sjukstugor och ett sjukhus avseende registrerade vårdåtgärder vid vård av patienter med hjärtsvikt.

	Sjukstugor n=156	Sjukhus n=703	*p*-värde[a]
Blodprover/dag, medel (SD)	2.82 (3.43)	8.97 (5.65)	*p*<0.001
Intravenös behandling, n (%)	152 (97.4)	693 (98.6)	*p*<0.05
Fysioterapeut, n (%)	19 (12.2)	135 (19.2)	*p*<0.001
Arbetsterapeut, n (%)	15 (9.6)	95 (13.5)	*p*<0.05
Dietist, n (%)	7 (4.5)	2 (0.3)	*p*<0.001
Antal läkaranteckningar/dag, medel (SD)	1.12 (0.64)	1.14 (0.78)	*p*=0.38
Antal unika läkare, n, median (IQR)	2 (1)	4 (4)	*p*<0.001
Antal omvårdnadsanteckningar/dag, medel (SD)	3.20 (1.31)	1.64 (1.02)	*p*<0.001

a Modell justerad för ålder och kön.

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Studie 2

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a Modell justerad för ålder och kön.

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Study 2

Radiology

- In community hospitals:
  - No radiology or echocardiography.
- In Skellefteå County Hospital:
  - Chest X-ray in 7% of all hospitalizations.
  - Echocardiography in 20 % of hospitalizations.

Results

"Rural" population

N=156
86 years

Community Hospitals
8-14

N=102
75 years

General Hospital H
Lycksele

"Urban" Population

N=703
81 years

General Hospital G
Skellefteå

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Aims Study 3

To explore rural hospital doctors' experiences of providing care in rural hospitals in Southern New Zealand

Aims Study 4

To explore rural general practitioners' experiences of providing care in rural community hospitals in northern Sweden

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New Zealand

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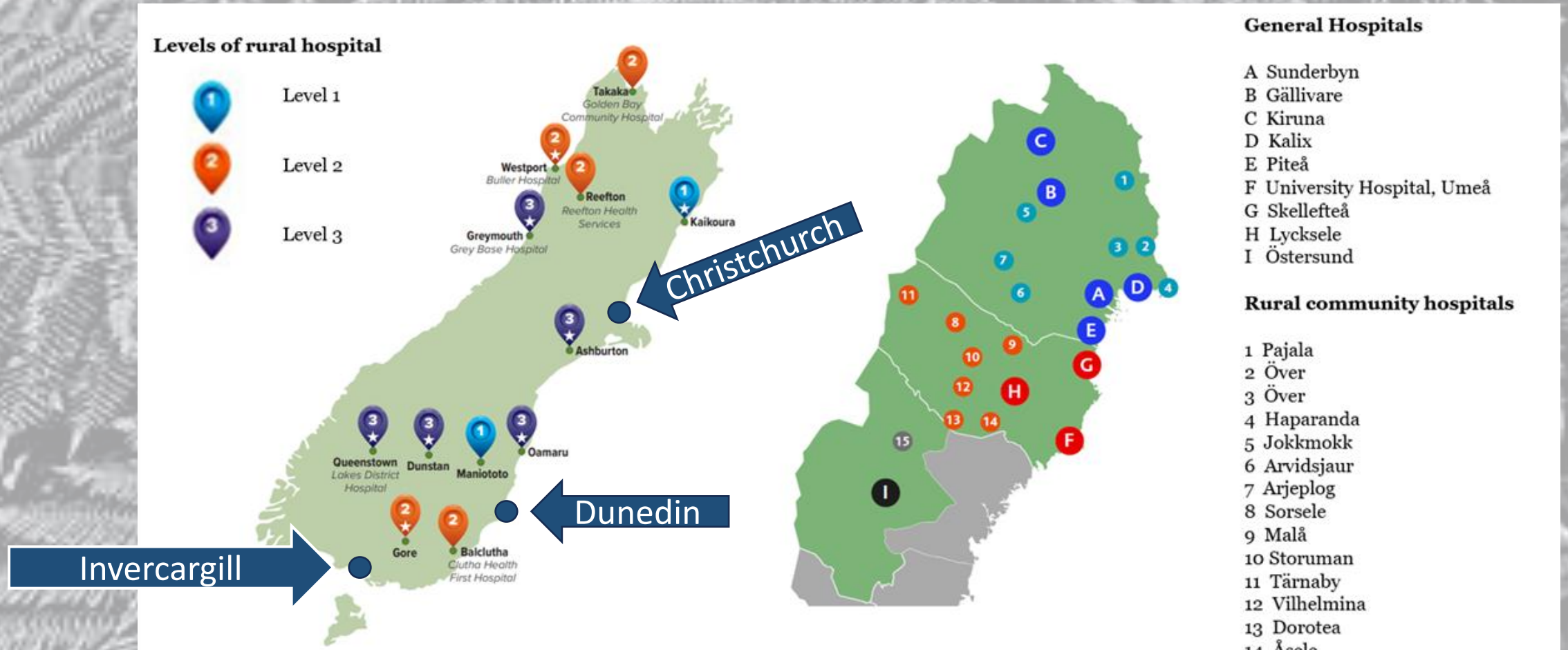

Figure 4: Map over South Island, New Zealand (left), and Northern Sweden (right). The NZ map indicate all rural hospitals in South Island, colours indicate hospital level 1-3. The Swedish map indicate hospitals with larger dots and community hospitals with smaller dots. Blue dots indicate Region Norrbotten, red dots indicate Region Västerbotten, and grey/black dots indicate Region Jämtland.

Methods Study 3 and 4

- Semi-structured interviews
- Questions Regarding:
  - The role of the local CH/rural hospital (RH) in the healthcare organization, the local community, and for patients/relatives
  - Doctors' perceptions of their duties and working conditions
  - The future role of the local CH/RH
  - Qualitative content analysis with an inductive approach

Study 3 and 4

Results

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Paper III	
Sub-theme	**Theme**
Providing care close to home and family	Applying a holistic perspective to care
Seeing the whole patient	
Weighing distance issues, between to keep or to refer patients	Striving to maintain patient safety in sparsely populated rural areas.
Handling issues related to sparse population	
Working in small teams in flat organizations	Cooperating in different teams around the patient
Consulting hospital specialists	

Paper IV	
Sub-theme	**Theme**
Maintaining intermediate level of hospital care	Being the hub in the patient's health care pathway
Providing local service and feeling of safety in the community	
Being an interface between different providers of health care and nursing care	
Striving to see and understand the patient in their context	Offering person-centred care far from hospital
Facing advantages and disadvantages in rural working conditions	
Making medical decisions and action far from hospital	

Conclusions:

- *Community hospitals admit and treat the oldest patients for the old patients diseases, that elsewhere would have been admitted to a general hospital.*
- *In community hospitals, there are less biomedical and radiological investigations performed compared with general hospitals, also for comparable patient groups.*

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Conclusions, continued:

- Doctors describe that proximity, better patient familiarity, and a holistic view of the patient can be seen as advantages for CHs/RHs compared to hospitals in the care of elderly patients with multiple illnesses.
- The local community hospital is described as playing a central role in the care chain of elderly patients, providing primary care and hospital care for selected patient groups, and with close contact with general hospital care and municipal care.

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EDUCATION FOR HEALTH
Change in Learning & Practice

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GENERAL ARTICLE

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Umeå University's proposed "Rural Stream" – An effective alternative to the longitudinal integrated clerkship model for small rural communities?

Dean Carson[1], Patrik Wennberg[2], Magnus Hultin[3], Jenny Andersson[2], Mante Hedman[2], Peter Berggren[4]

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region västerbotten

Rural Stream in Storuman

Rural Stream in Storuman/Lycksele/UmU	LICs (Longitudinal Integrated Clerkship)
Short recurrent placements (T5-T11)	One long continuous stay 1 year
Curriculum the same as for the other medical students, with a flexibility for opportunistic learning opportunities in the rural context	"The curriculum walks through the door"
Students can meet the same patients across different semesters	Students can meet the same patients during the year
Interprofessional teamwork locally	Interprofessional teamwork locally

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region västerbotten

Glesbygdsmedicinska spåret

- **Advantages:**
  - Students become familiar and feel "at home"
  - Students meet patients before the supervisor and practice making their own medical assessments
  - Students encounter more patients compared to their classmates
- **Challenges:**
  - Storuman is small, sometimes it is difficult to find relevant patients for student reception – especially in Pediatrics, Gynecology, and Psychiatry.

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region västerbotten

Glesbygdsmedicinska spåret

Thank you for listening

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