

# Hybrid Environments, spanning community, primary and hospital care

## EUHpn Workshop, Copenhagen March 2023



UiT Norges arktiske universitet



Hammerfest kommune  
Hámmerfeastta suohkan



NARVIK  
KOMMUNE



SYKEHUSBYGG

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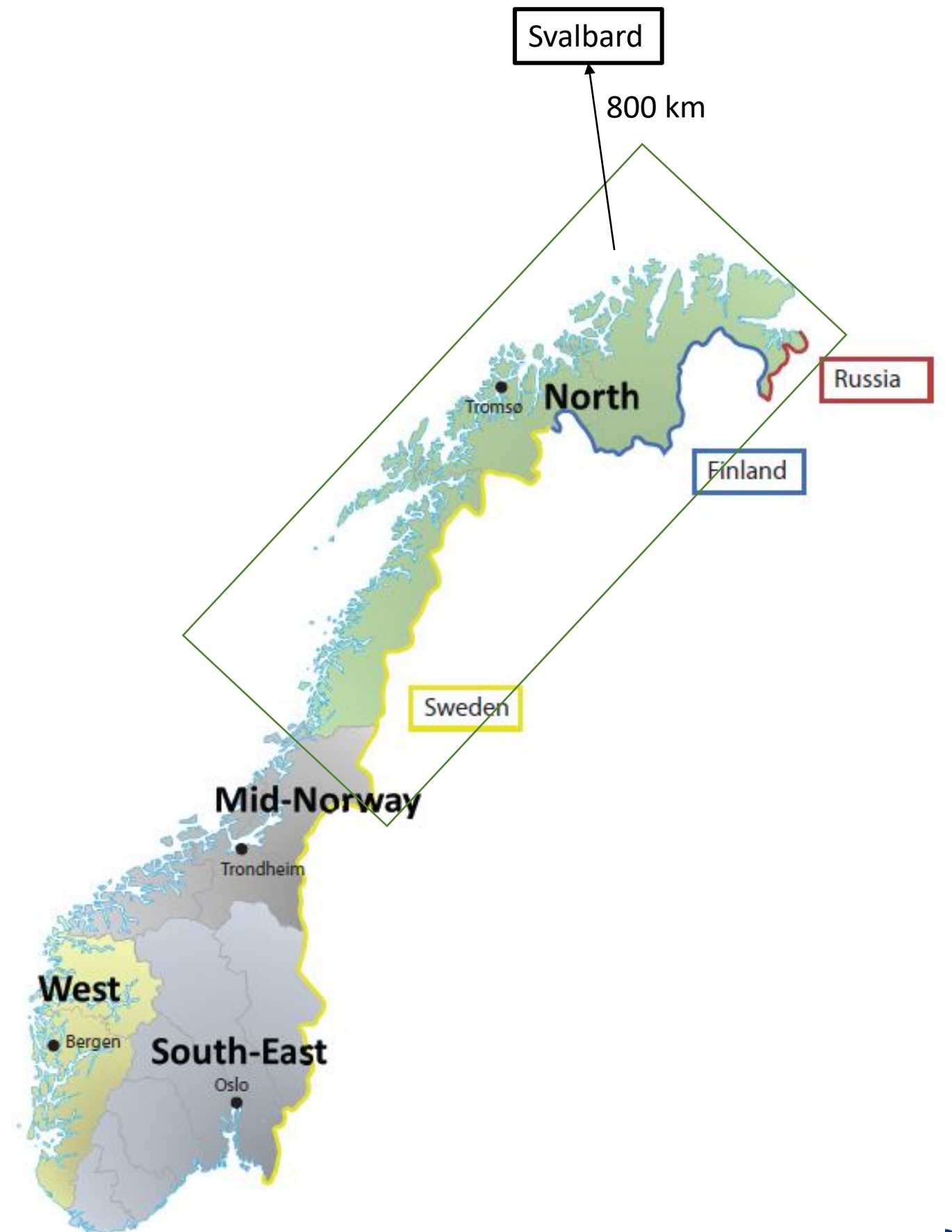


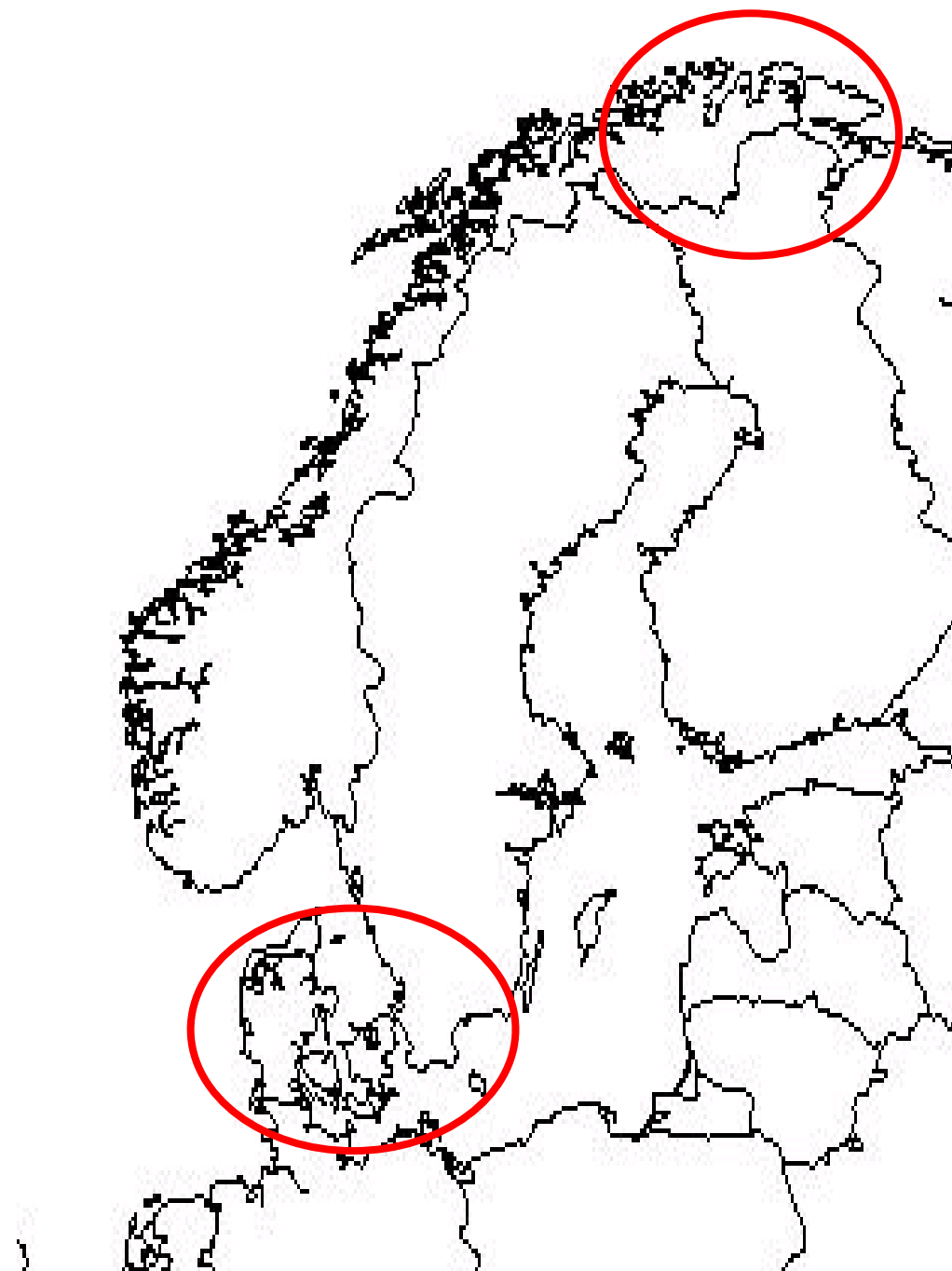
# Norwegian healthcare

# Norway

385 200 km<sup>2</sup> – 5.5 mill inhabitants

- Long distances
- Low population density





### **Finnmark**

48 618 km<sup>2</sup>

75 900 inhabitants

### **Denmark**

43 094 km<sup>2</sup>

5,9 mill inhabitants

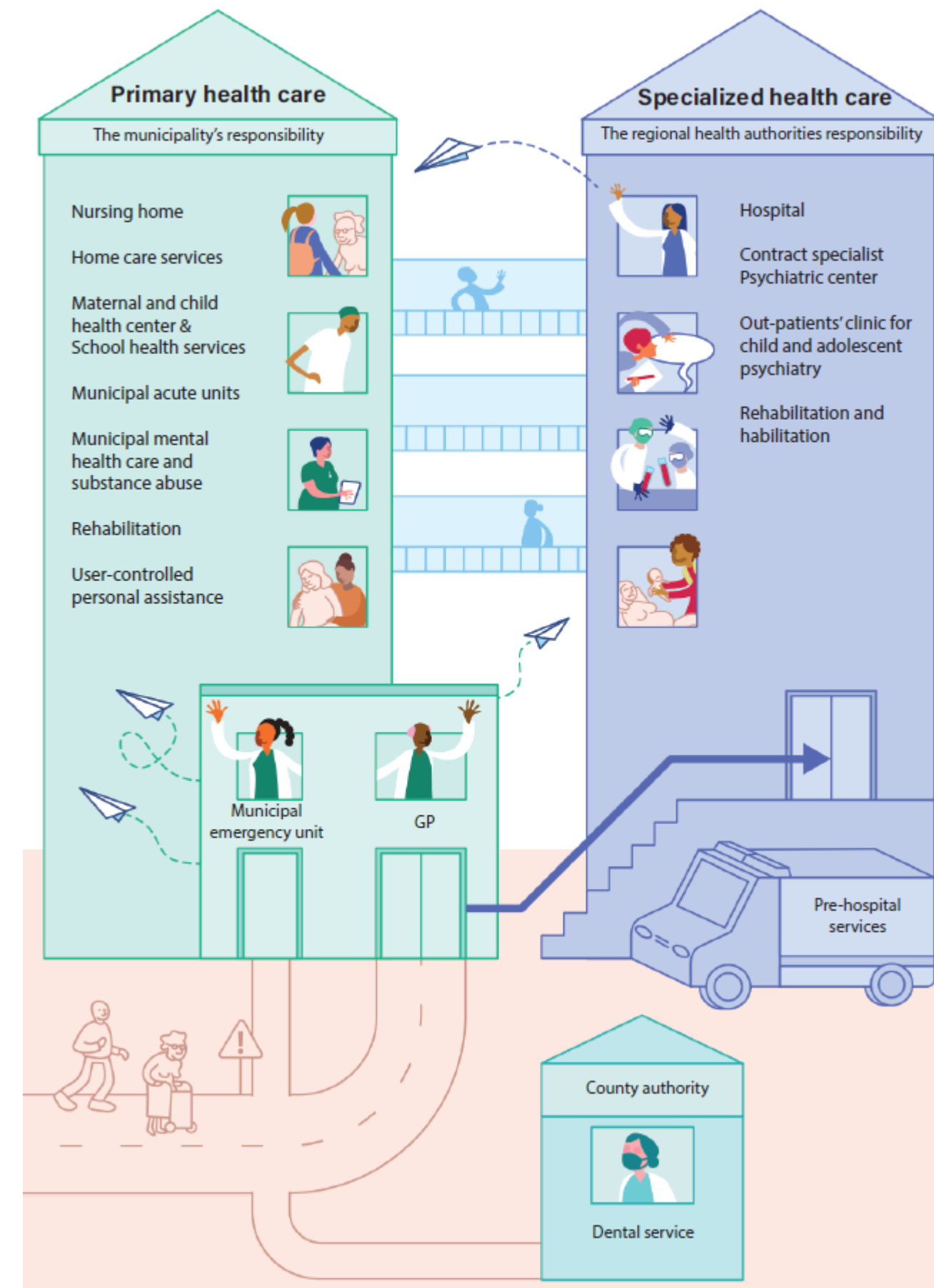
# Norwegian healthcare

## Aim

Equal and free access to healthcare services

## Two levels

Primary health care  
&  
Specialized health care



# Norway

## 4 Health regions (specialized healthcare)

Inhabitants (2022):

- *South-East*            3 076 276
- *West*                    1 127 089
- *Mid*                      739 979
- *North*                    481 926

## 356 municipalities (82 in North)

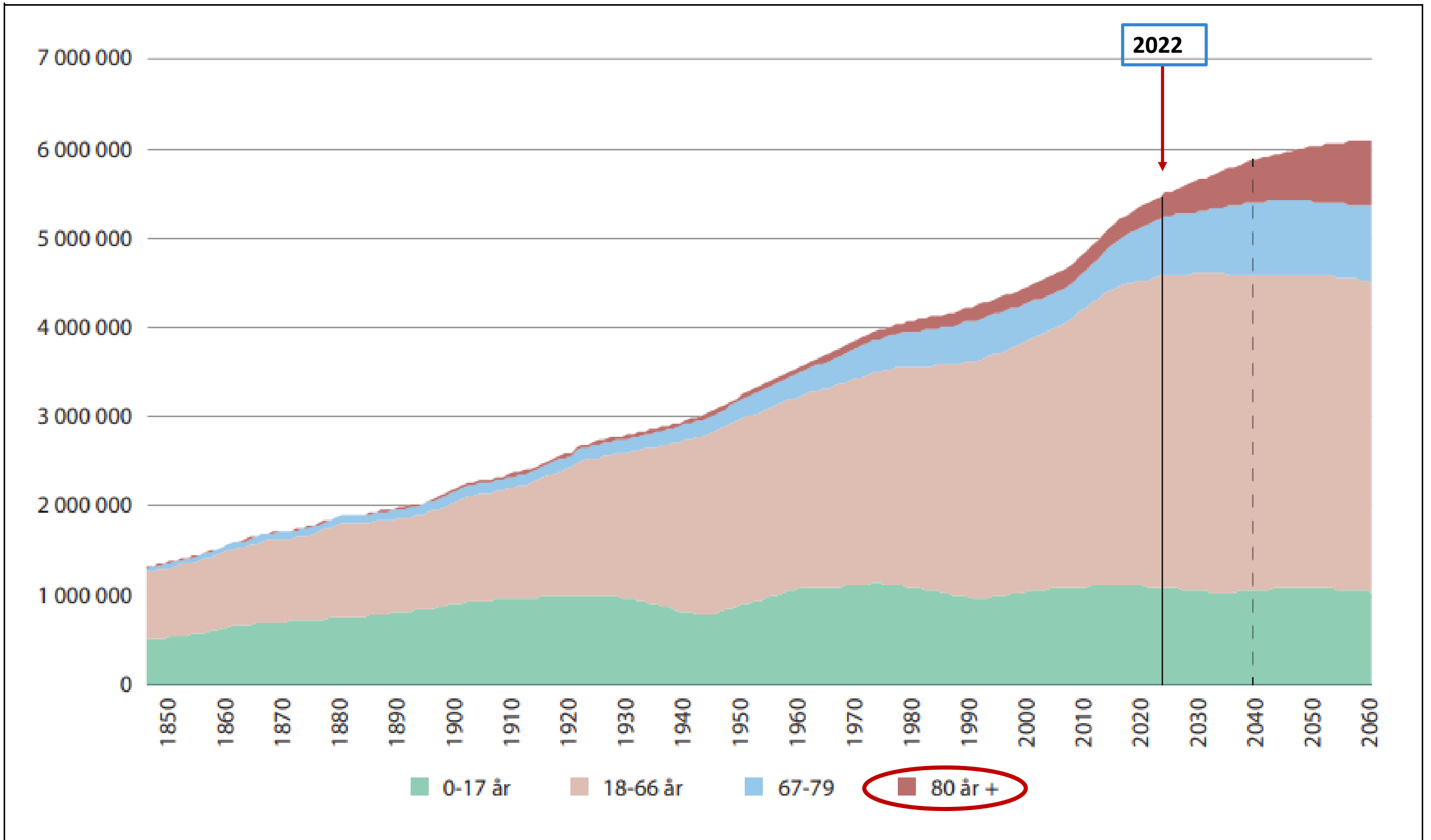
- About 50 percent have less than 5 000 inhabitants



# Population ageing & Workforce shortage

*The demand for healthcare will increase without similar increase in health care personell*

«Tid for handling NOU 2023:4»



Norwegian population in agegroups 1846 – 2060



# Health policy

- Coordination of services
- Closer to home
- Preventing instead of repairing disease
- Reducing unnecessary hospitalization

## Actions

- Collaboration
- Sharing and developing competence
- Flexible use of personell
- Task sharing
- Technology
- Prioritize



2005-2023:

Reports, white paper, national health and hospital plans

Considering these challenges:

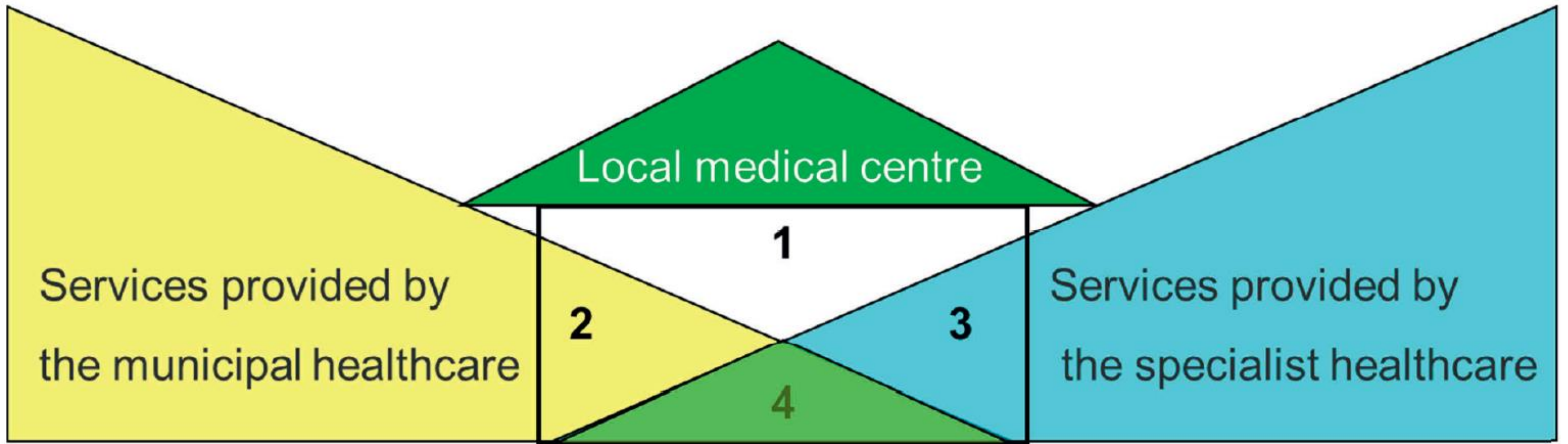
How can the buildings support a collaborative healthcare service?

3 cases: «Hybrid» environments from the Health Region North

# Local Medical Center



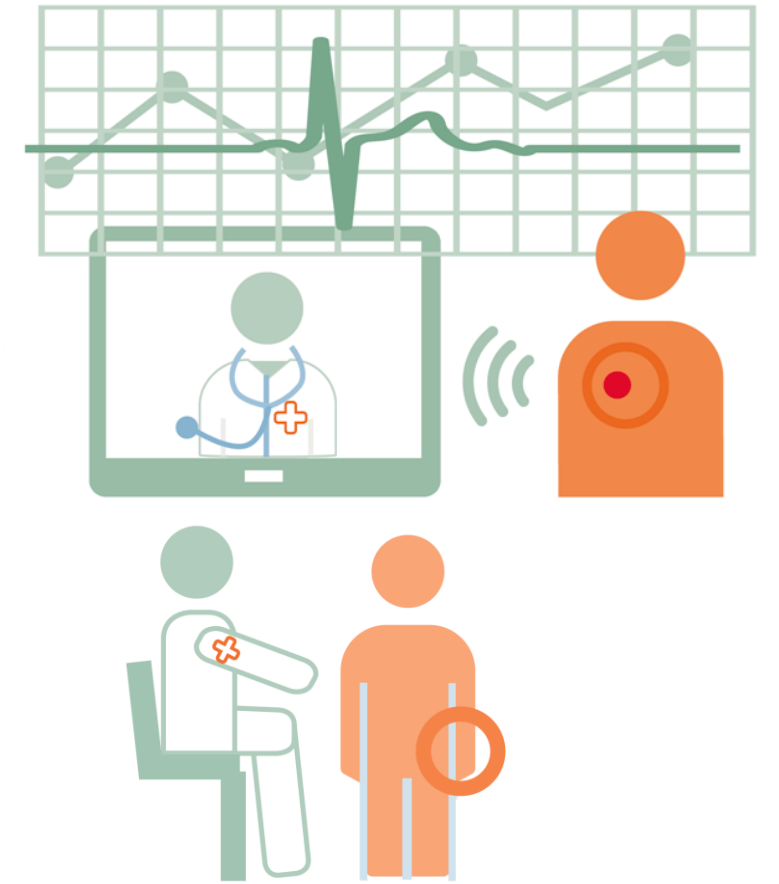
- A model for the interspection of primary and specialist healthcare services
- With a flexible and future-oriented building to meet tomorrow's health challenges



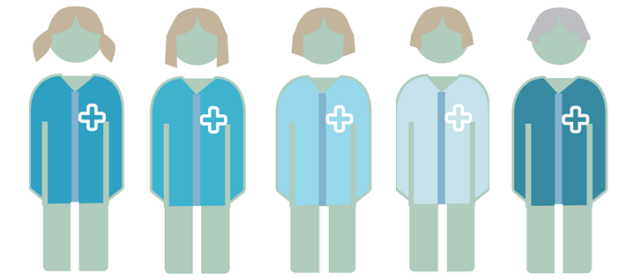
- 1 Administration and system-related activity
  - 2 Municipal services and/or inter-municipal cooperation
  - 3 Decentralized specialist healthcare services
  - 4 Cooperation between municipal healthcare services and specialist healthcare services
- (Lappegård, 2016:98)

## Goals and focus:

- Decentralized specialist health services where the service is offered as close as possible to the patients is an important goal
  - 80 % of all outpatient consultations in Helgeland Hospital Trust
- Increased specialization and limited access to health personnel provide both challenges and opportunities
  - Sustainability, innovative ways of working
- Development of services in collaboration with the municipalities



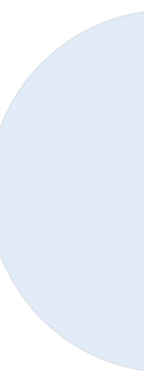
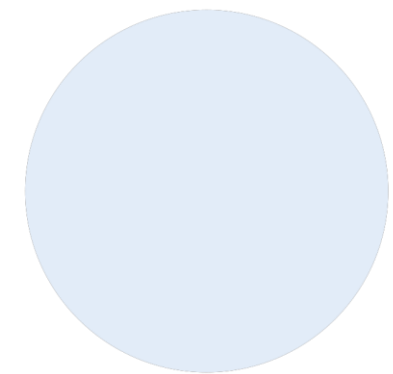
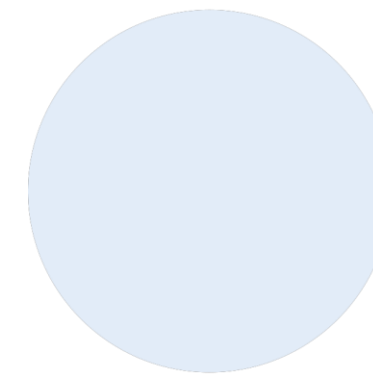
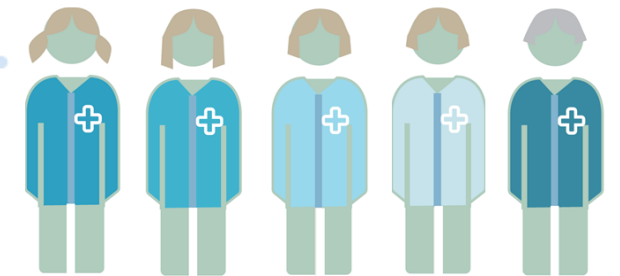
# A variety of fields for somatic outpatient clinic:



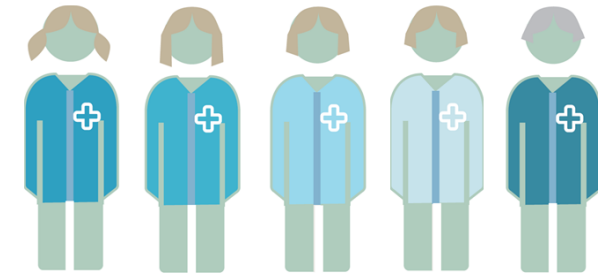
- Cardiovascular disease:
  - Cardiac Outpatient Clinic: AEKG, EKKO, control pacemaker and control of heart failure patients
- Medical imaging:
  - Conventional X-ray, ultrasound and computed tomography. Used electively by outpatient clinics and GPs in emergency situations by the emergency room
- Dialysis:
  - Operated by the delivery room. 5 dialysis stations.
- Pediatrics:
  - Midwife-led delivery room and maternity ward. Ambulated by pediatrician.

# Further specialist health services ant outpatient clinics

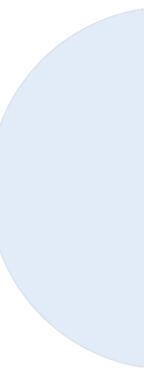
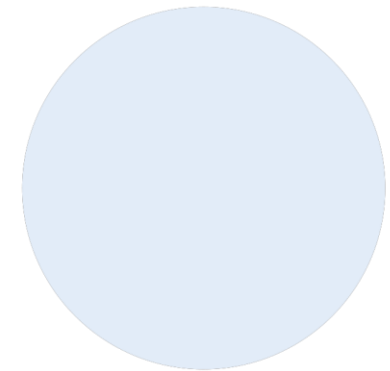
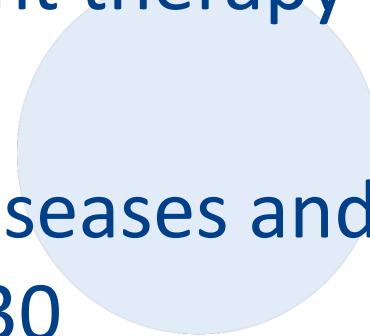
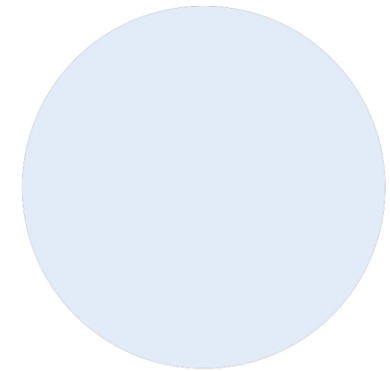
- Chemotherapy / Infusion Clinic:
  - Cytostatics, infusion therapy and medications for other degenerative disorders and special syndromes
- Gynecology:
  - Regular gynecological examinations, ultrasound
- Otorhinolaryngology:
  - endoscopies and consultations
- Audiograph
- Neurology
  - Neurological examinations and consultations
- Blood transfusion and blood donor station



# Further...



- Orthopedics:
  - Consultations with assessment, treatment, control after surgery and telemedicine
- Surgery
  - Outpatient surgery and minor surgery
- Skin
  - Regular consultation and administration of light therapy
- Eye
  - Examination and treatment of common eye diseases and minor procedures. Established by the year 2030

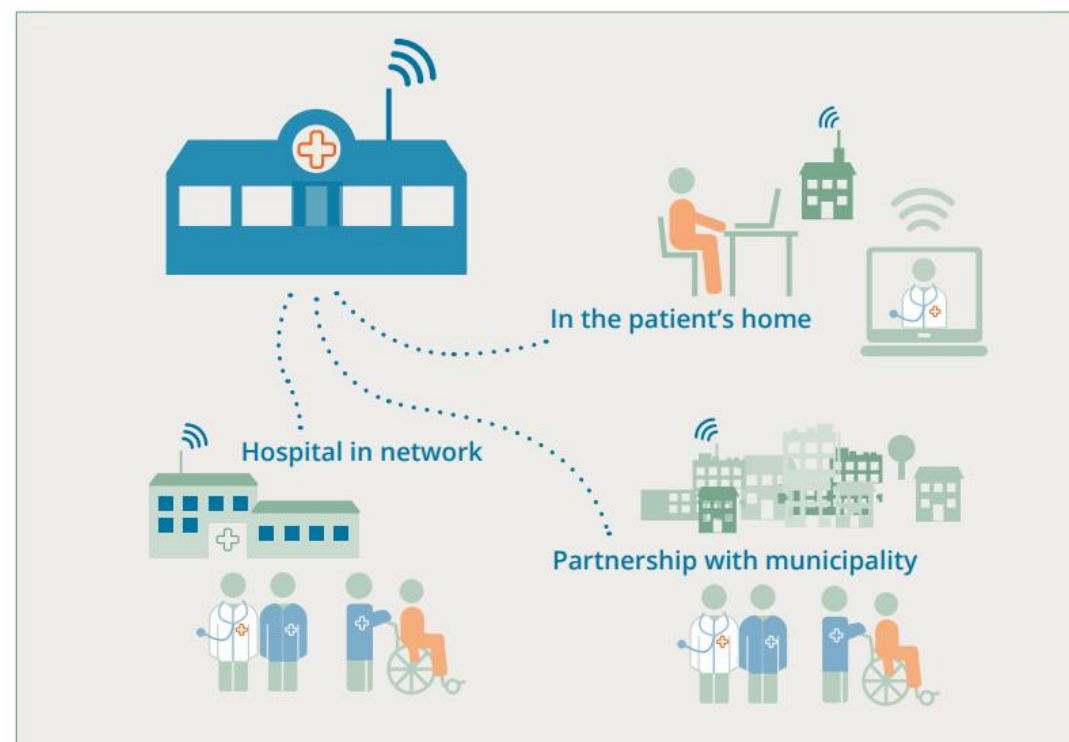




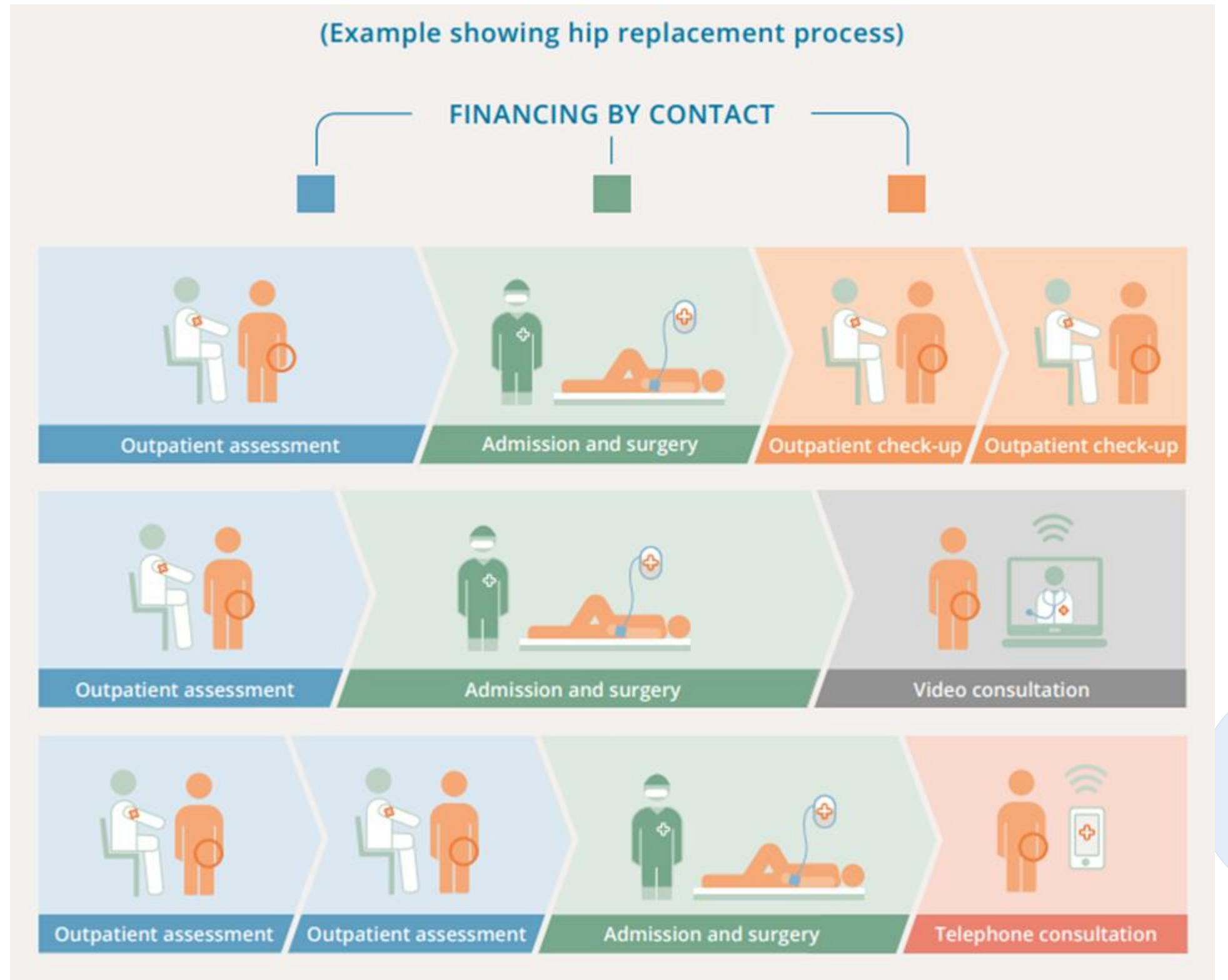
# Intermediate inpatient unit

- Intermediate
  - Collaboration and coordination with the municipalities
  - Developed for services for patients prior to and after, or instead of, hospitalization. A total of 10 beds, 2 of which are municipal acute ward (care beds).

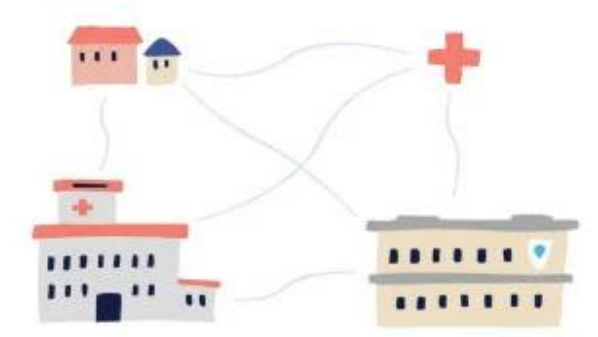
Outreaching hospitals



# Technology and Innovation:



# Technology and Innovation:



# New patient pathway:

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- Health Room Helgeland: A new service model for equal medical follow-up, treatment, and emergency care
- Objectives:
  - Develop a new service model that ensures patients access to equal medical follow-up, treatment, and emergency care in a local Health Room or at home
  - Involve close collaboration between the municipalities' primary health care and the specialist health care through follow-up of patients and knowledge transfer to local health personnel
  - Provide decision support, professional guidance, and training via digital solutions and distance follow-up from other health personnel, either from the hospital or from other municipalities
  - Create digital communities that provide an experience of being part of a larger professional network
  - User-centered, close to practice, and co-creative development process

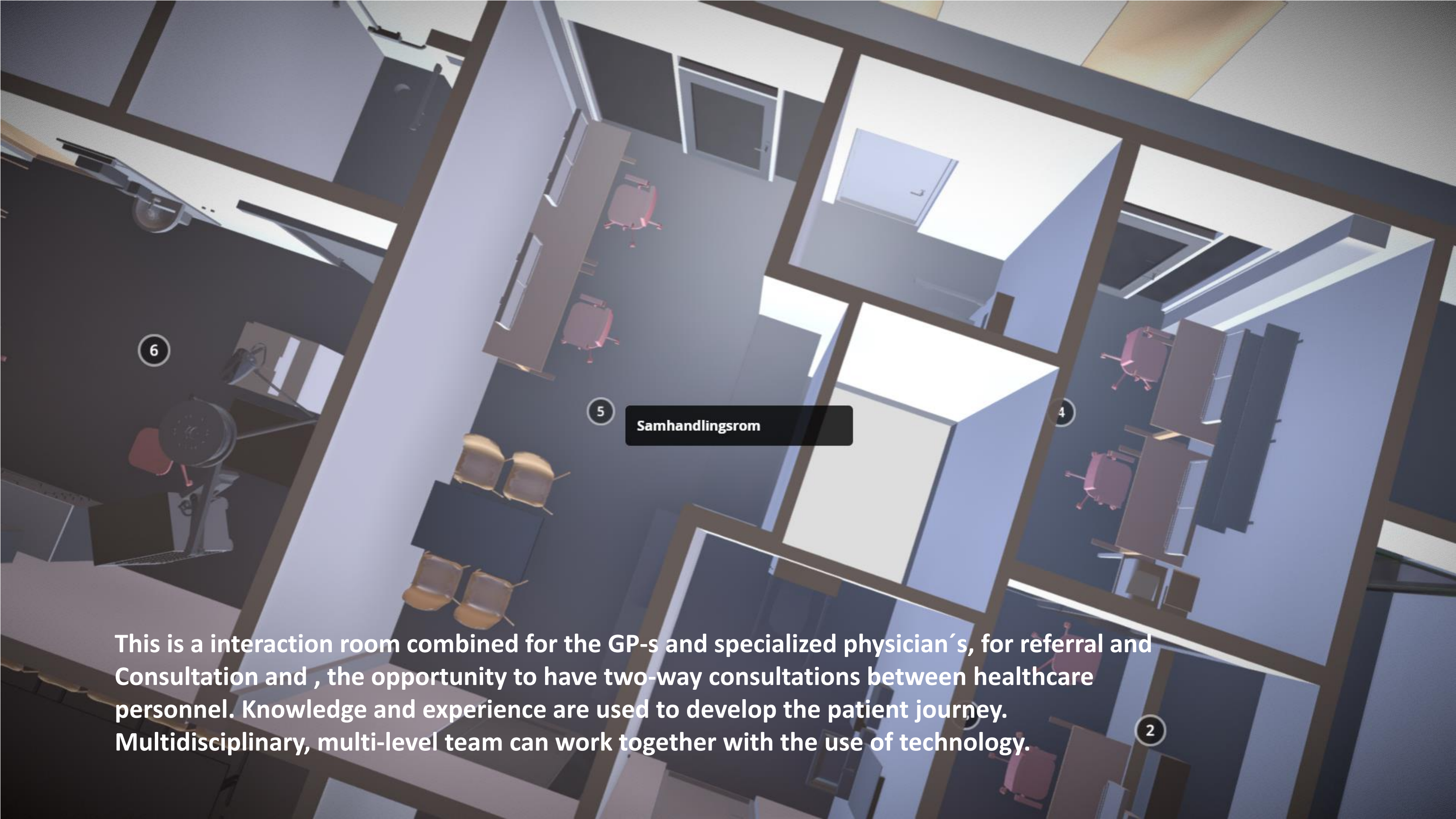
# Service Model

- Health Room: an actual room in a local community, containing medical equipment and technology
- Provides patients, relatives, primary health care personnel, and specialist health care personnel new ways of interacting
- Flexible solutions for access to expertise and equipment
- Close collaboration between municipalities' primary health care and specialist health care through follow-up of patients and knowledge transfer to local health personnel
- Decision support, professional guidance, and training via digital solutions and distance follow-up
- Digital communities for local health care personnel to participate in

## Partners;

- Helgeland Hospital Trust
- Municipalities of Brønnøy, Vefsn, and Dønna
- SINTEF
- CheckWare





5 Samhandlingsrom

This is a interaction room combined for the GP-s and specialized physician's, for referral and Consultation and , the opportunity to have two-way consultations between healthcare personnel. Knowledge and experience are used to develop the patient journey. Multidisciplinary, multi-level team can work together with the use of technology.




# The new UNN Narvik

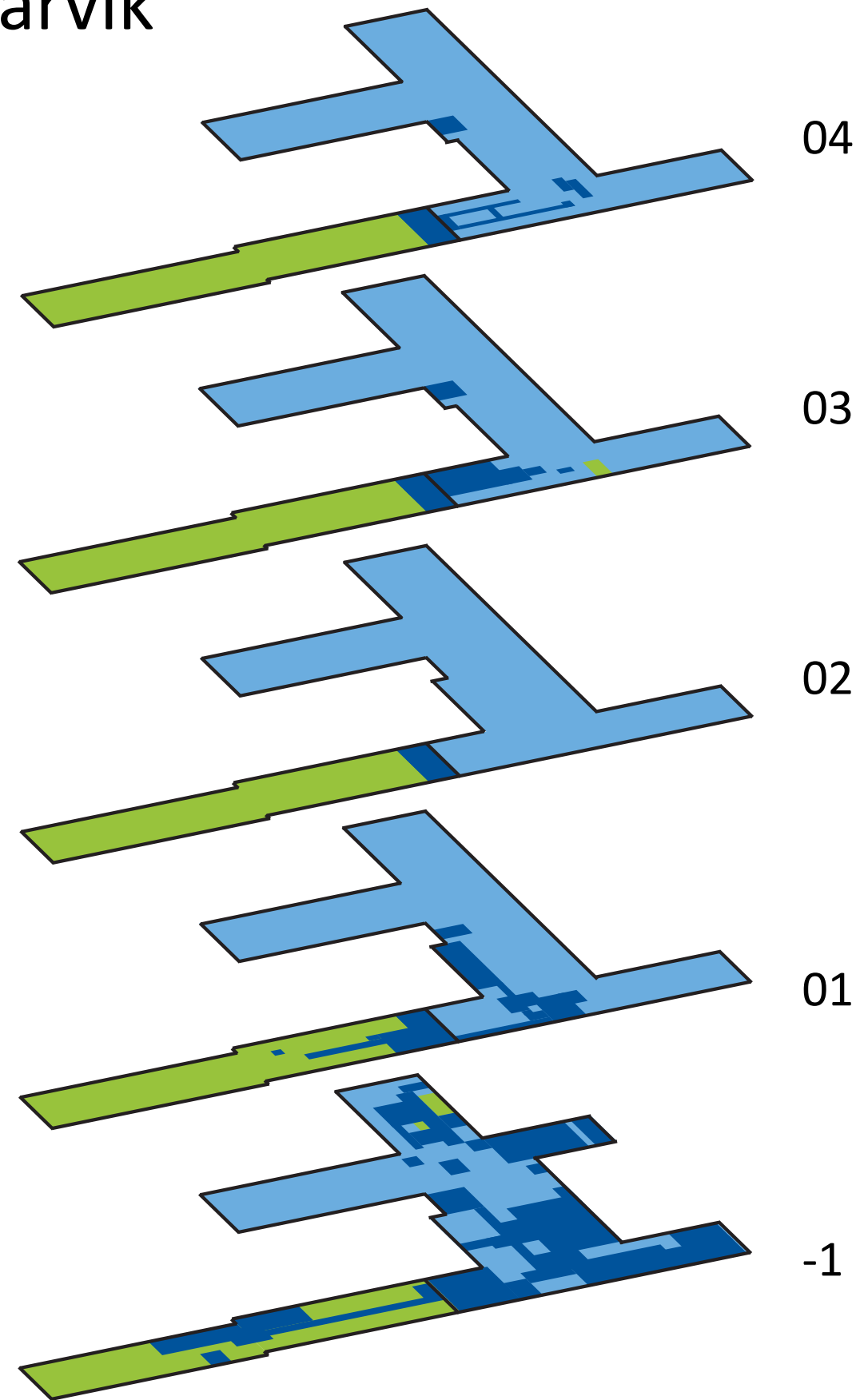
University Hospital of North Norway

- 35 000 m<sup>2</sup>
- Cohabitation UNN and Narvik Municipality
- Local hospital for Ofoten and part of Midt-Troms
- Population of 27 000 in hospital area
- Common project management
- Ready for occupation by fall 2024



# Floor plans Nye UNN Narvik

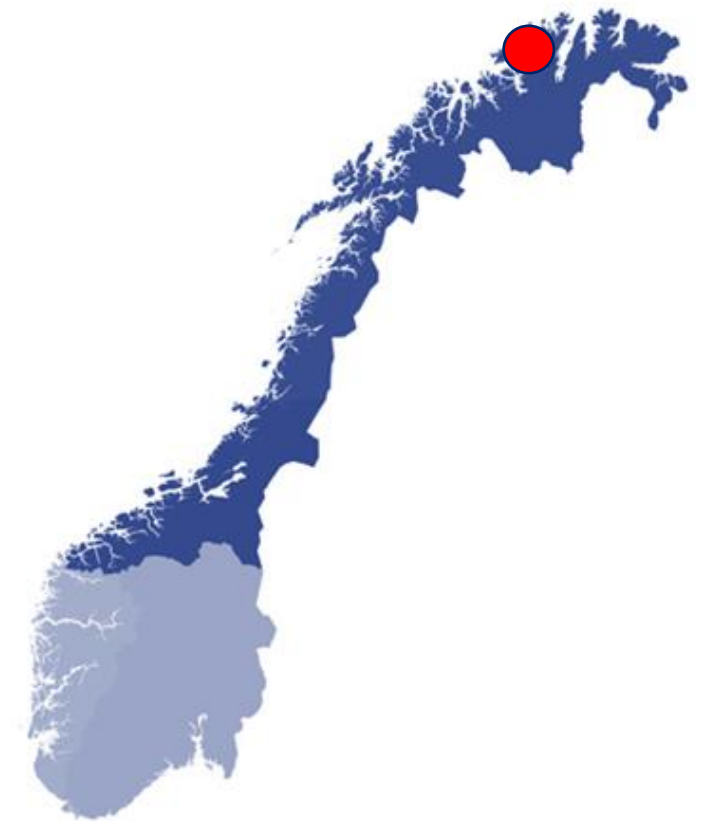
-  Hospital
-  Primary care
-  Shared space









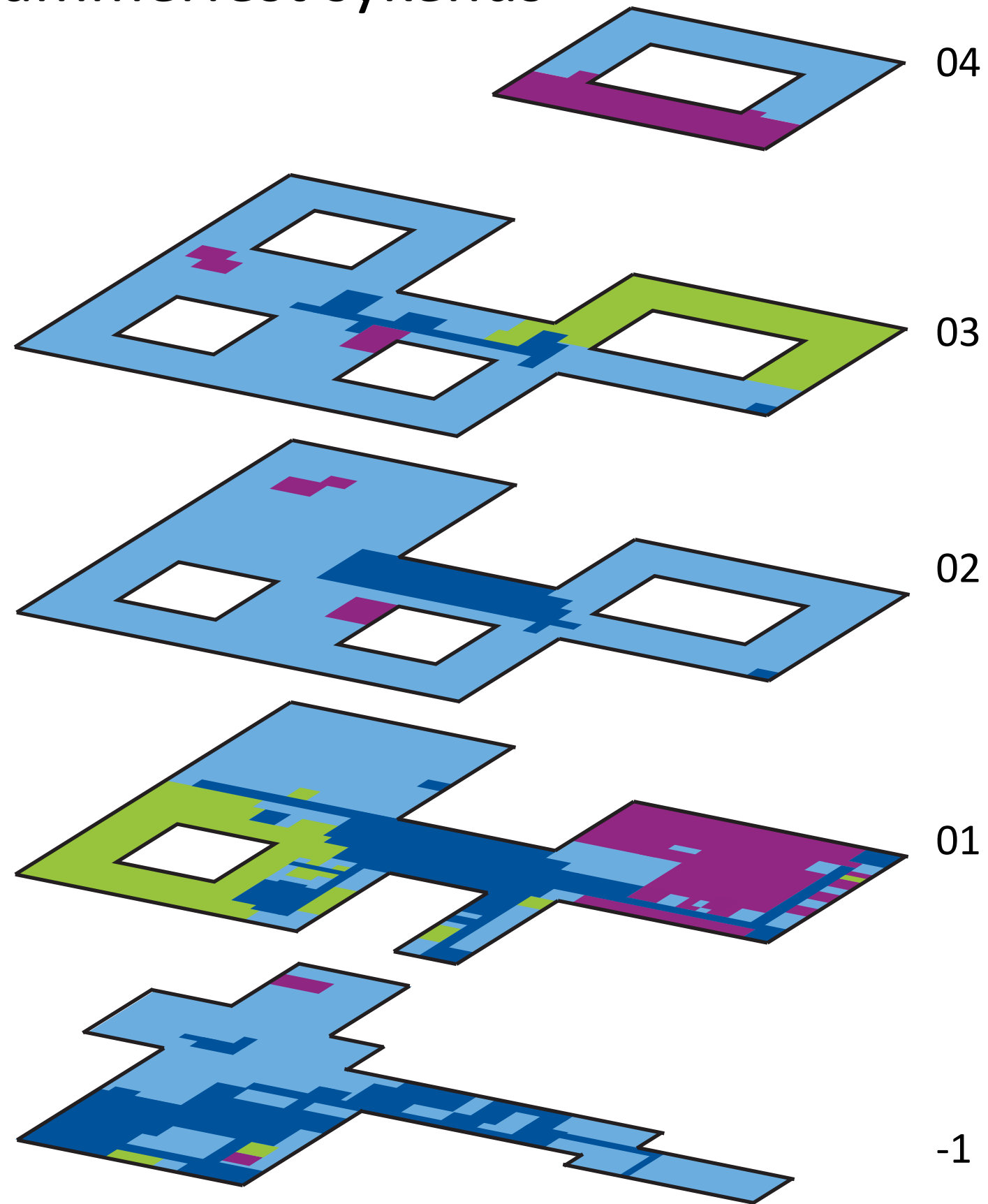
# The new Hammerfest Hospital

- 34 000 m<sup>2</sup>
- Cohabitation FIN HF, SANO, Hammerfest Municipality and UiT-The Arctic University of Norway
- Local hospital
- Population of 48 000 in hospital area
- Common project management
- Ready for occupation by fall 2024



# Floor plans Nye Hammerfest sykehus

-  Hospital
-  Primary care
-  University
-  Shared space



# Shared areas and function

- All technical rooms and all house services
- Reception and service center
- Lunch area
- Outdoor area and parking house
- Foodsupply
- Meeting and conference rooms
- Gym area
- Dedicated integrated areas for students
- Possibility to convert areas to emergency beds in larger crisis

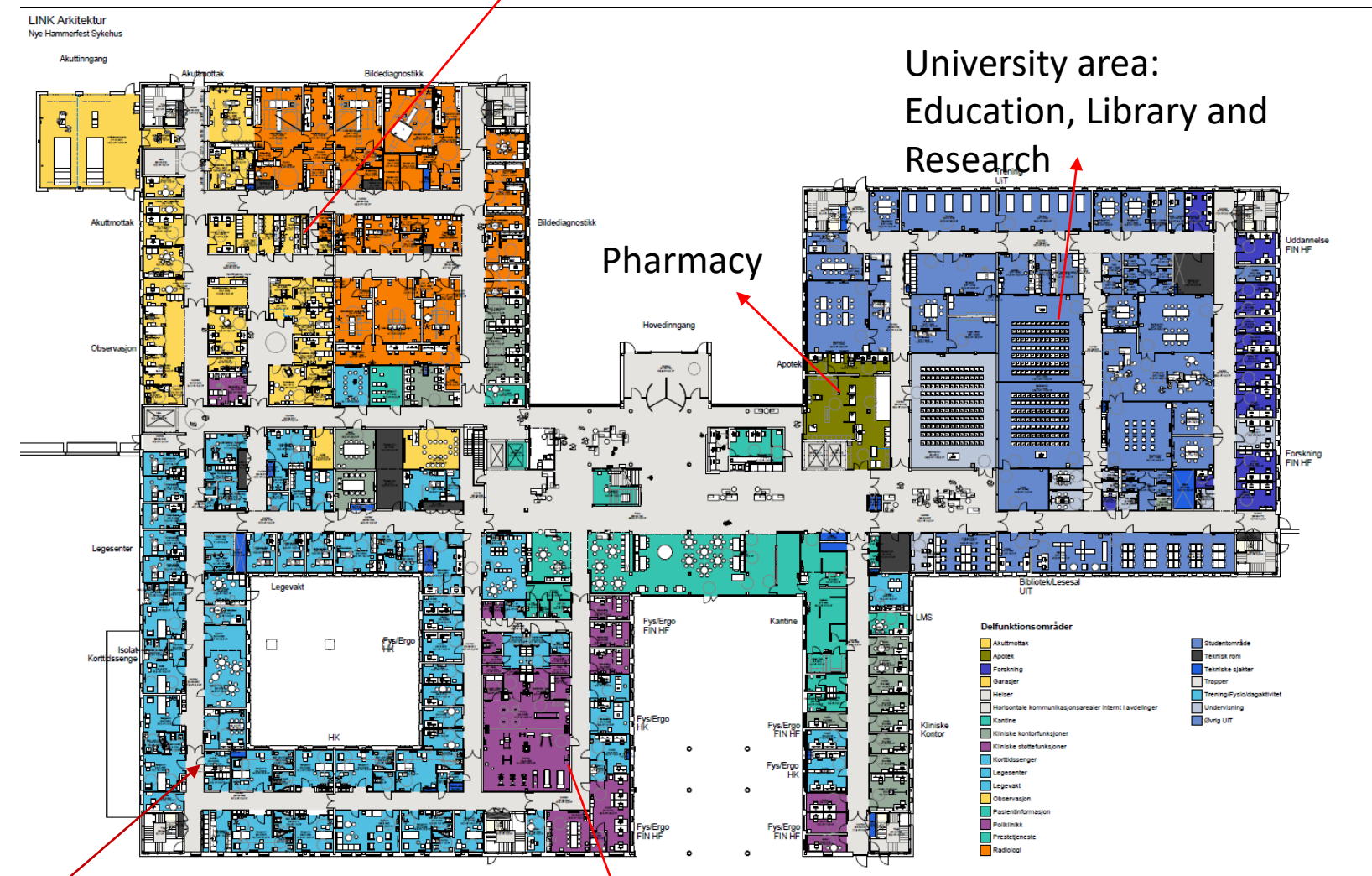
Health Trust Emergency and X- ray rooms

University area:  
Education, Library and  
Research

Pharmacy

Primary care Medical – and  
Emergency center

Shared Physioterapy  
area- Primary care and  
Health trust



Function	Sør-Helgeland DMS	Narvik	Hammerfest
Ambulance services		x	x
Emergency Department	x	x	x
Emergency room (legevakt)	x	x	x
Maternity unit	X (fødestue)	3 delivery rooms	3 delivery rooms
Surgical theatres		5	6X (antall)
Radiology		x	x
Daycare for dialysis, obesity, cytostatica, immunotherapy, heartfailure, diabetics		x	x
Hospital and pasient hotel beds		34+14	68 + 13 + (25 emergency)
Mental health outpatient adults and children		x	x
Substance abuse treatment		x	
Pharmacy		x	x
University area			3000 m2

	Sør-Helgland DMS	Narvik	Hammerfest
Research laboratory and shared researched area for Health Trust and university			X
Primary care medical center with student offices for education		X	X
Primary care emergency center		X	X
Short term nursing home - municipality		40 beds	32 beds
Pediatric beds, neonatal intensive beds, Children habilitation			5 + 2 beds(antall)
Shared physiotherapy		X	X
Ophthalmologist outpatient clinic			X
Ear, nose, throat outpatient clinic		X	X
Flexibile beds in the university and primary medical center in case of major accidents			X

# Future collaboration and interactions

Dependent on visionary leaders:

- Seamless patient care (mobile health professionals not patients)
- Collaboration in critical situations (major accidents, pandemics, etc,)
- Student as a younger colleagues and resources by participating in daily clinical work.
  
- Common storage and supply (medical- and technical equipment, pharmacia, textiles), enhancing mobility between organisation.
- Security
  
- University library relevant for rural practice.
- Simulation area
  
- Competence sharing in a larger professional enviroment.
- Desentralized educational programs in several health care professions.
- Research collaboration between levels of health services.

# Summary

Sør- Helgeland, Narvik and Hammerfest are three different «answers» to health ( and education ) demands in rural areas in Norway.

- Efficient and sustainable buildings
- Economical factors for all partners
- Flexible in emergency situations and major crisis
- Possible to expand the health trust area if necessary in short periods or permanent
- Stronger together

**Thank you for your  
attention!**