HIMSS18 Eurasia

EMRAM Educational Conference & Health IT Exhibition

Presented by

Republic of Turkey Ministry of Health

HIMSS

Presentation Title
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Pullman Hotel Yenibosna
ISTANBUL, TURKEY

www.himsseurasia.com
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Agenda

- The challenges
- Focus of the innovation
- Cross sector collaboration
- Automatization

@ Speaker twitter handle

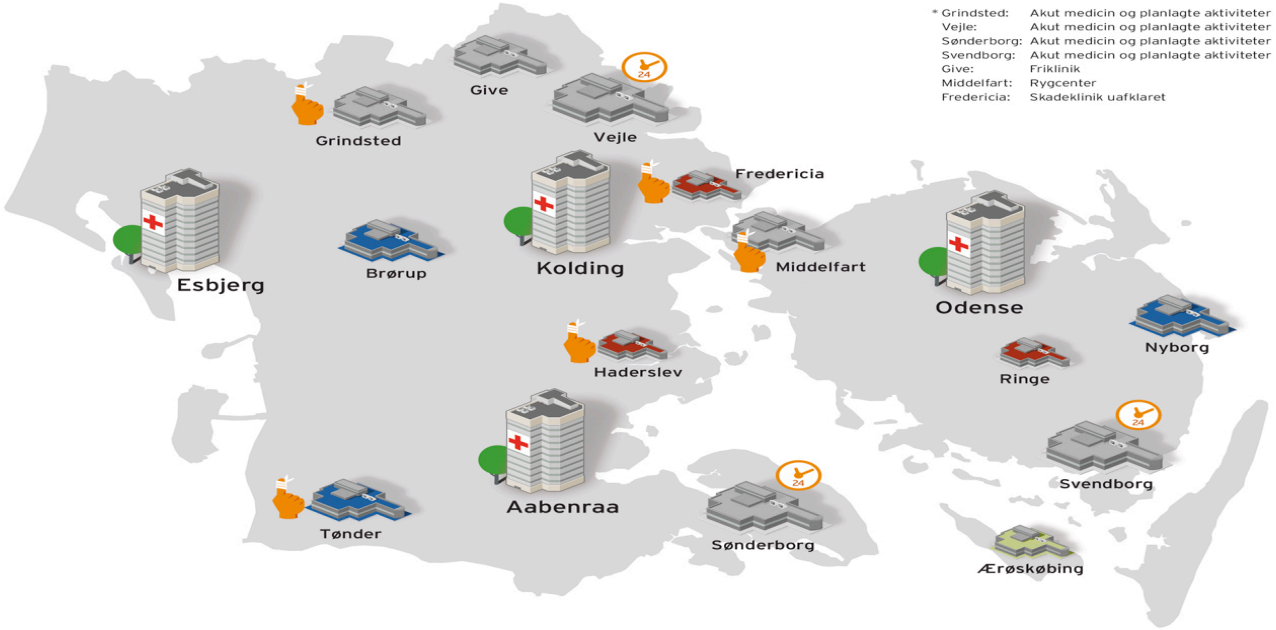
Odense University Hospital (OUH)
- one of three main centres in Danish health care

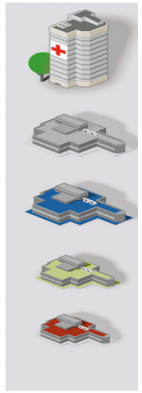
- 1 of 3 major national health care centres
- Covers approximately 1.6 million citizens
- Highly specialised
  - Covers all surgical and medical areas in 50 clinical departments
- Approx. 10,000 employees; 1,400 doctors and 4,000 nursing and care personnel
- The hospital's operating budget is approx. €830 million a year (2013)
- Approximately 100,000 patients are hospitalised at OUH every year
- OUH has 1,000 beds
- Hospitalised patients spend an average of 3.1 days in hospital.

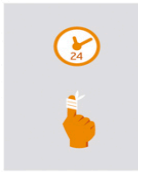
Patient Satisfaction:

OUH performs surveys of patient satisfaction following hospital treatment. In general, the level of satisfaction is high. In the latest survey more than 90 % of the patients stated that they were "satisfied" or "very satisfied" with the treatment they received in Odense and Svendborg.

The future somatic hospitals in the Region of Southern Denmark







Emergency hospital

Specialist hospital

Same day hospital

Island hospital

Functions are moved elsewhere or shut down. The hospital will then be sold

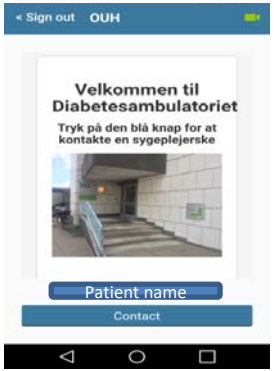
24 hour ER function

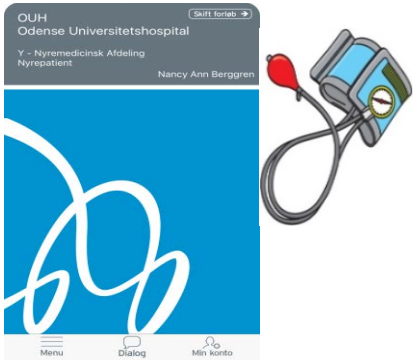
Day and night ER function

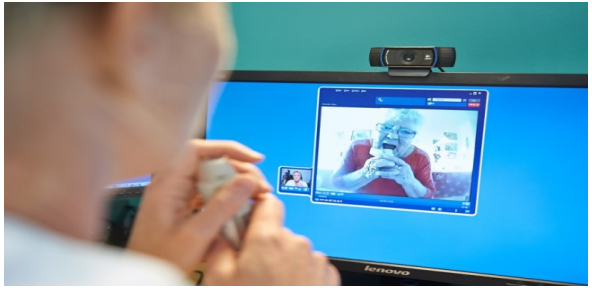
In 2022

20% less beds
8% smaller budget
…and more patients

From *in-bed or ambulatory* to *in-home and on-the-go*







Focus of Innovation in CIMT

Cross sector collaboration

Telemedicine solutions

Patient empowerment

Process optimisation

Integrated care and telemedicine

- Examples
  - The geri-briefcase
  - Shard care platform
  - Video interpretation

Usual care

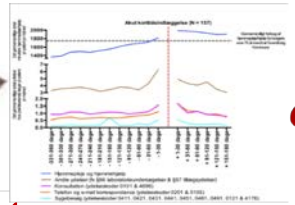
Secondary care physician

Primary care physician

Home carer

Deteriorating Health

Secondary care physician



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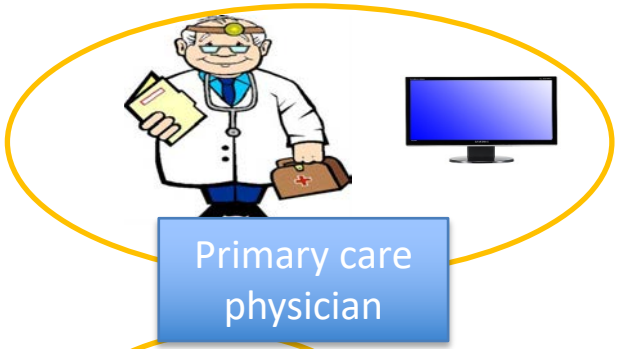
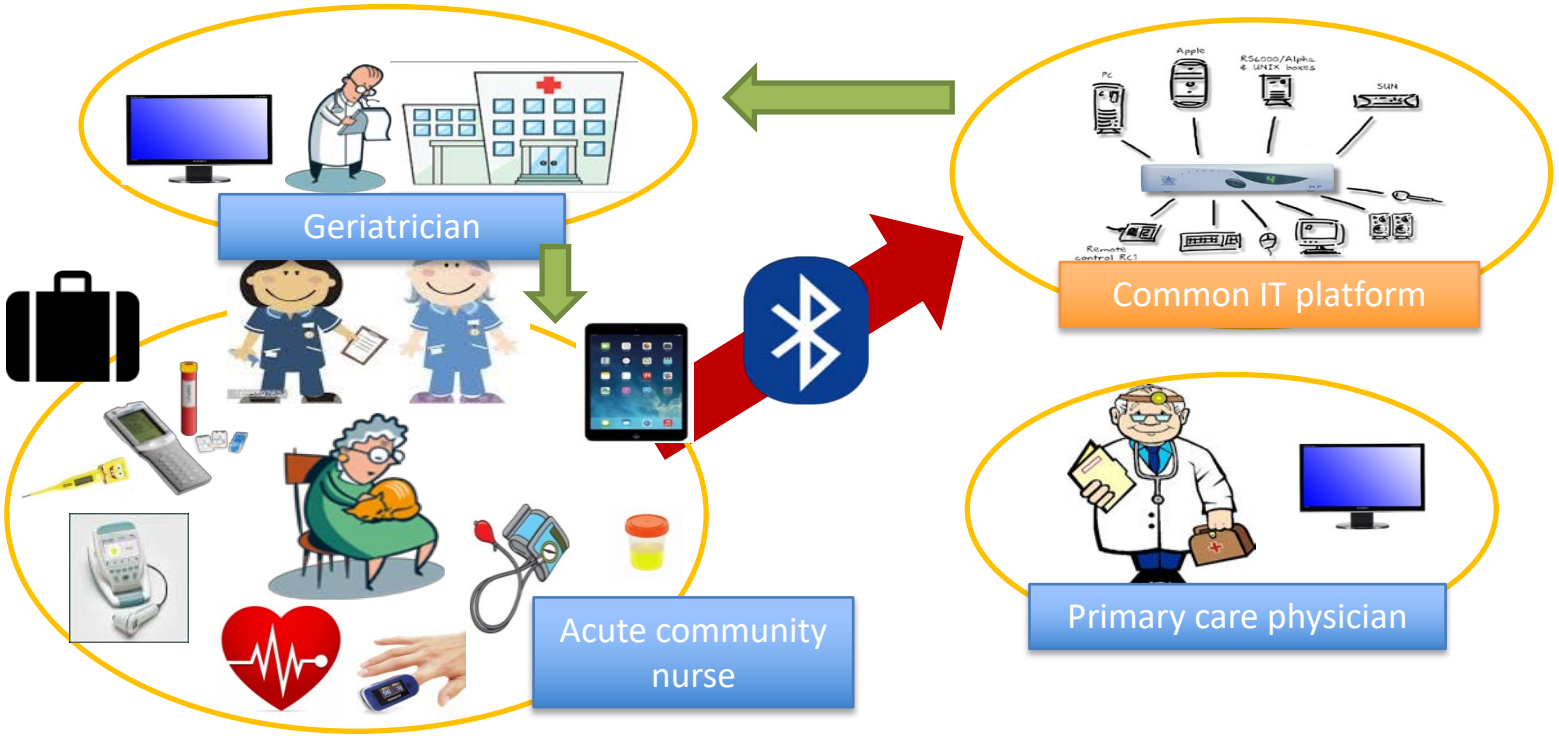


Primary care physician

Home carer

Acute community nurse + GERI briefcase

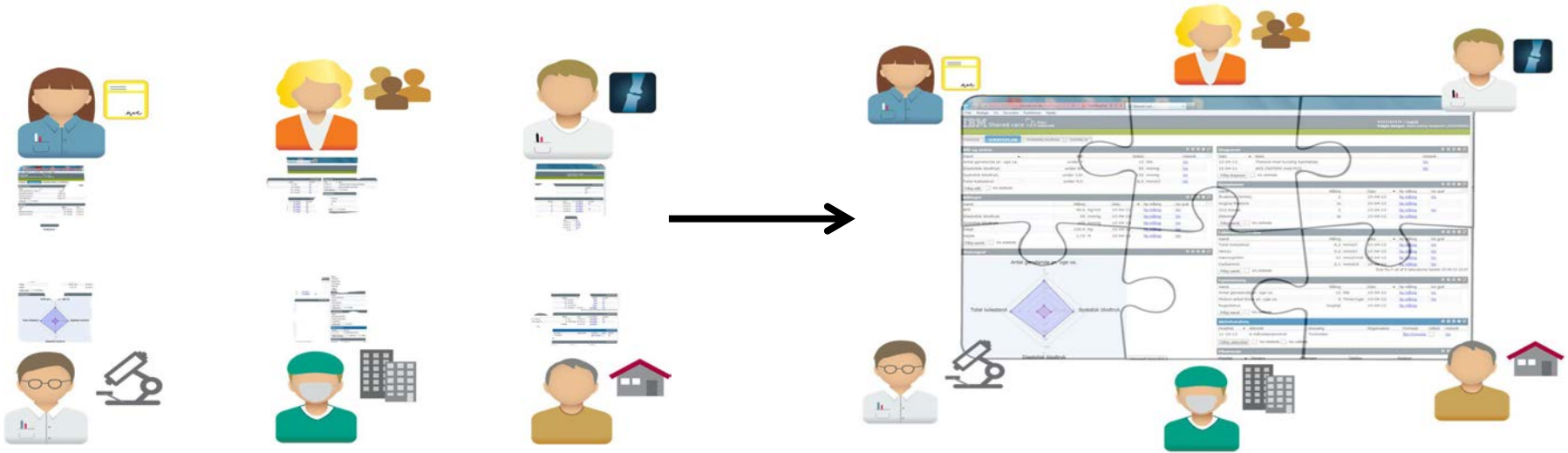
Subacute admission to out-patient clinic and communication with the home carers



Shard Care platform

The Shared Care Platform.

The Shared Care platform ensures a cross-sectorial collaboration between the municipality, the general practitioners and the hospital.



Video conference

- Video conferencing systems are used in both clinical and administrative somatic and psychiatric departments

  Video conference in the Region of Southern Denmark is used for a variety of tasks:

  Meetings between colleagues from different hospital units and with people outside of the region.

  Video interpretation - foreign language interpretation via video

  Discharge consultations between hospitals and municipalities/special units

  Medical conferences between hospitals to coordinate joint treatment efforts in specialized patient treatment plans

  Remote education sessions

First tele-hospice in Denmark

New technologies = Great potential

Artificial intelligence and big data

Robot and drone technology

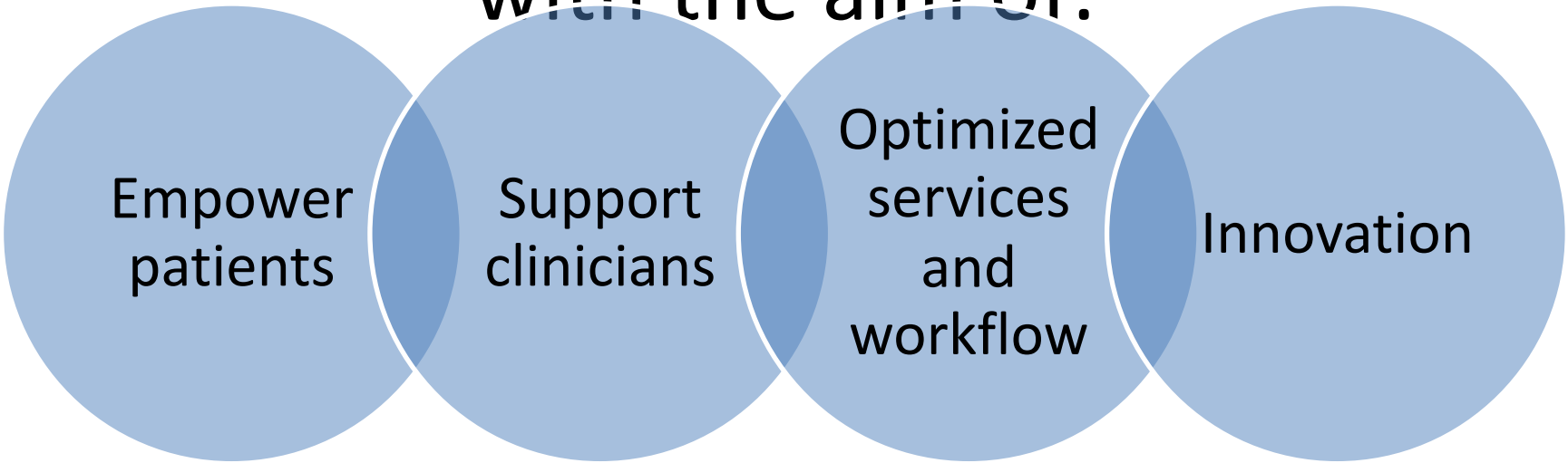
Internet of things, apps, wearables and sensors

Precision Medicine

Arugmented, Mixed and virtual reality

A robot and drone strategy

A robot and drone strategy for OUH with the aim of:



Types of robots

- Robots used directly in treatment of patients e.g. operations robots, exoskeletons, og protégés for replacement, rehabilitation robots.
- Robots used indirectly in treatment e.g. robots to support ward rounds, communication, guiding, automatize beds etc.
- Logistic og service robots, all types of robots that take care of logistics tasks, from mixing medicine, transport, disinfection etc.
- Robots used outside the hospital, e.g. for communication with citizens in there own home.

Types of drones

- **Logistic, shot distances**
  Transport over short distances e.g. between departments or between a department and the lab.

- **Logistic, long distances**
  Transport between hospitals, between hospital and primary care or from the patients home to hospital. Transport for accidents to hospital.

- **Inspection**
  Flying over a accident area creating a overview for the emergency department and rescue team.

Centre for Robot-Assisted Syrgery

Rehabilitation Robots

Physical Interaction with training robots

SDU UNIVERSITY OF SOUTHERN DENMARK

The user interact naturally with our robots
because they react faster than human senses.

Obtrusive Programs

What are you doing?

LET GO!!!

"Social" interaction
(Ascribing agency to the Robot)

Unobtrusive Programs

Working out

Standing up

Interaction with forces of nature.
(Focusing on their own motion)

Project ROPCA

Ultrasound robot

Ultrasound

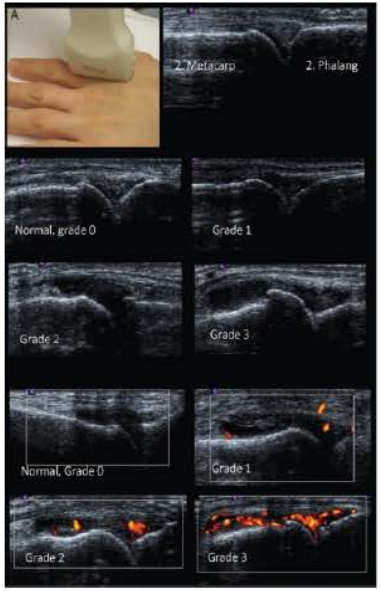
Ultrasound is a big part of clinical practice

Both in medical and surgical specialities

Diagnosis, disease monitoring and procedures

Automated interpretation

Automated interpretation



Screening for early disease
Current disease activity
Disease monitoring over time
Treatment effect

OUH
Odense
University Hospital

WORLD ARTHRITIS DAY 12 OCTOBER

SDU

Drones in Health

Drones in Health

Next Step

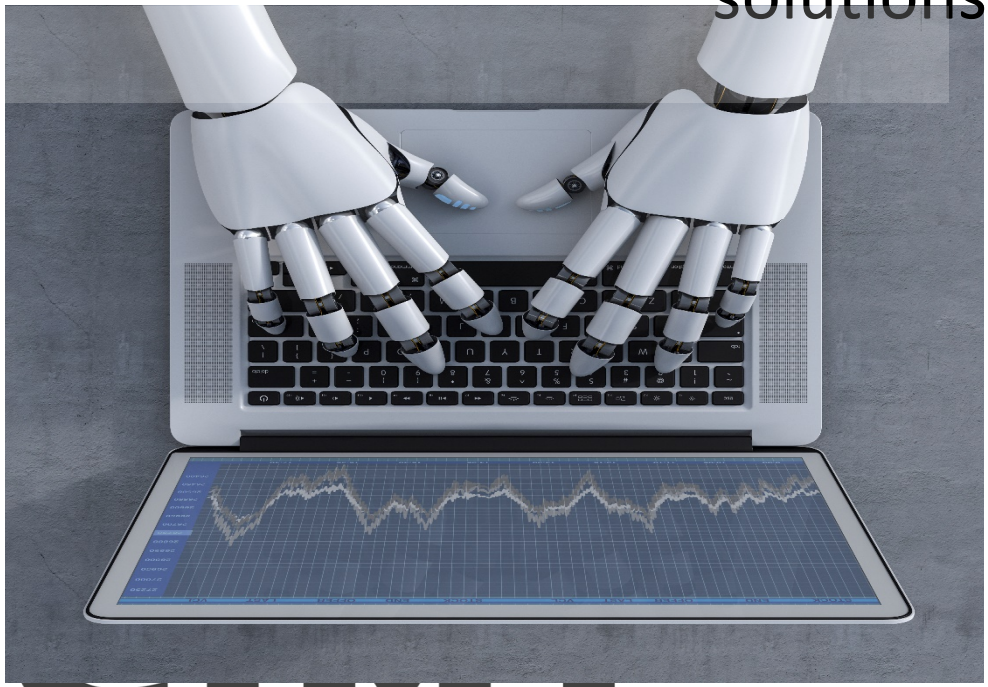
Application ideas

Ambulance drone, TU Delft, Alec Momont

- Flying AED
- Fast delivery of medicine/blod/blod samples/aid – short/long distance/indoor/outdoor
- Indoor transportation
- Filming place of accident for better preparation at ER
- Wayfinding – get guidance to place of treatment
- Rehabilitation walks

Artificial Intelligence

Artificial Intelligence (AI) is a part of future solutions



Region Southern Denmark are planning to continue with new projects within artificial intelligence

Centre for Innovative Medical Technology

SDU UNIVERSITY OF SOUTHERN DENMARK

OUH
Odense University Hospital
Svendborg Hospital

Region of Southern Denmark

Up-coming AI projects in Region Southern Denmark

Early cancer detection

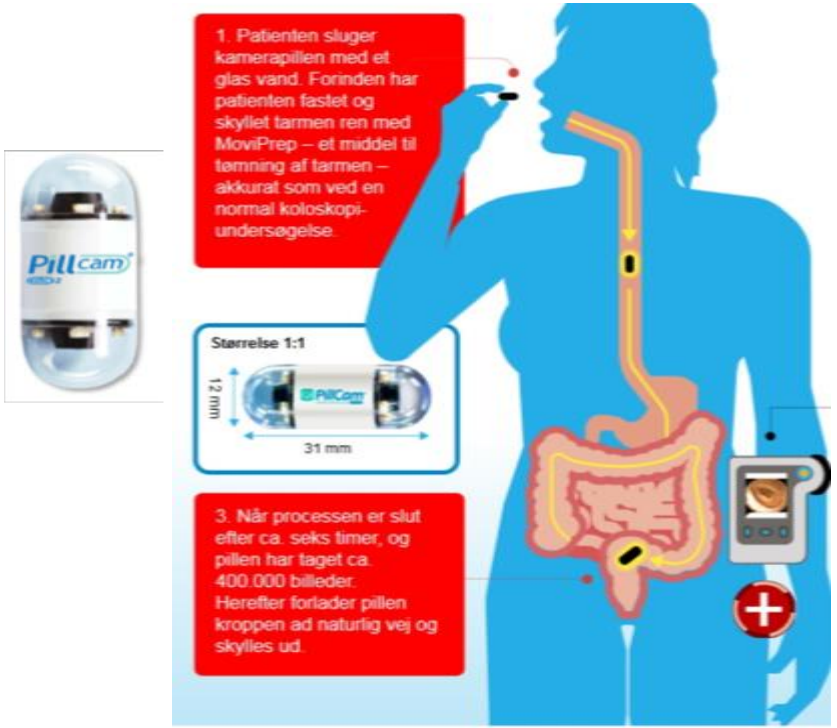
The Region of Southern Denmark and The Danish Cancer Association has selected SAS AI capabilities as the corner stone in a new project using biochemical blood tests collected over the past 10 years for 7000 patient cases in combination with patient administrative data in order to detect patterns for early cancer predictions. The algorithms that the AI system will learn from itself (machine learning), will hereafter be used to predict the likelihood of a cancer diagnosis for every new patient in the future

AI for diagnostic prediction

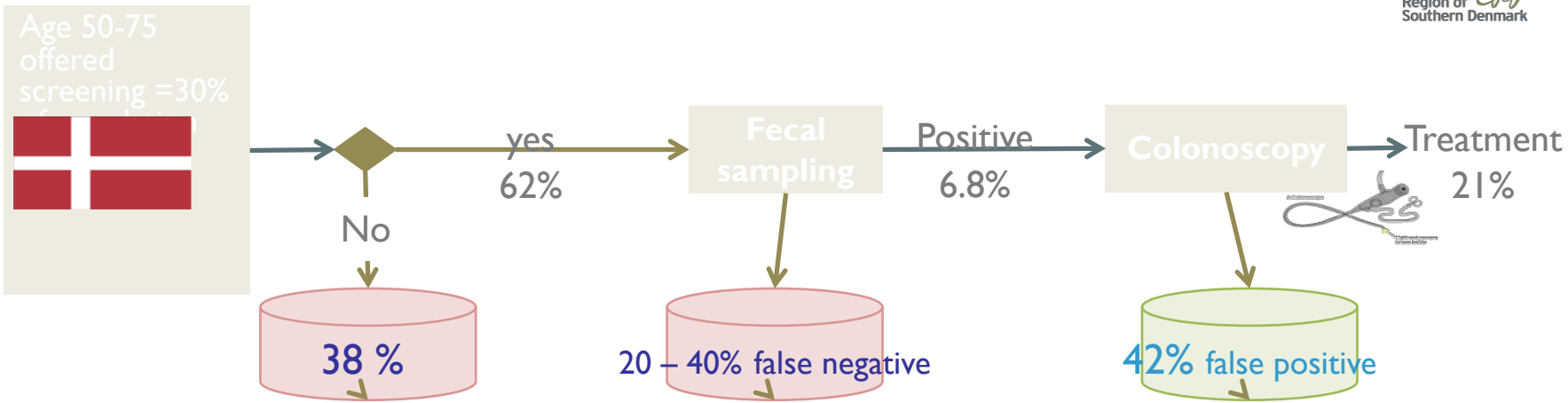
In The Region of Southern Denmark the hospital management has visions to shorten the diagnostic-time for each patient and to optimize the quality of patient treatment in their emergency reception.
Today 30% of the patients are incorrectly diagnosed. The overall purpose is to streamline the diagnostic process to be able to handle more patients, secure high quality and make all diagnostic work transparent and well-documented.

Camera pill for screening of colorectal cancer

- Colorectal cancer is one of the most common cancers in Denmark.
- National screening since 2014 for citizens aged 50 to 74.
- You swallow a mini camera that takes pictures of the colon while passing unnoticed through the body.



Danish FIT Screening



No of polyps detected in total

OC1

Total: 434

< 6mm: 216

6-9 mm: 115

> 9 mm: 93

Unknown 10

CCE

- Total: 483
- < 6mm. 141
- 6-9 mm: 183
- >9 mm: 159
- Unknown 4

SATC·C | ADVANCED ADENOMAS EARLY COLORECTAL CANCER

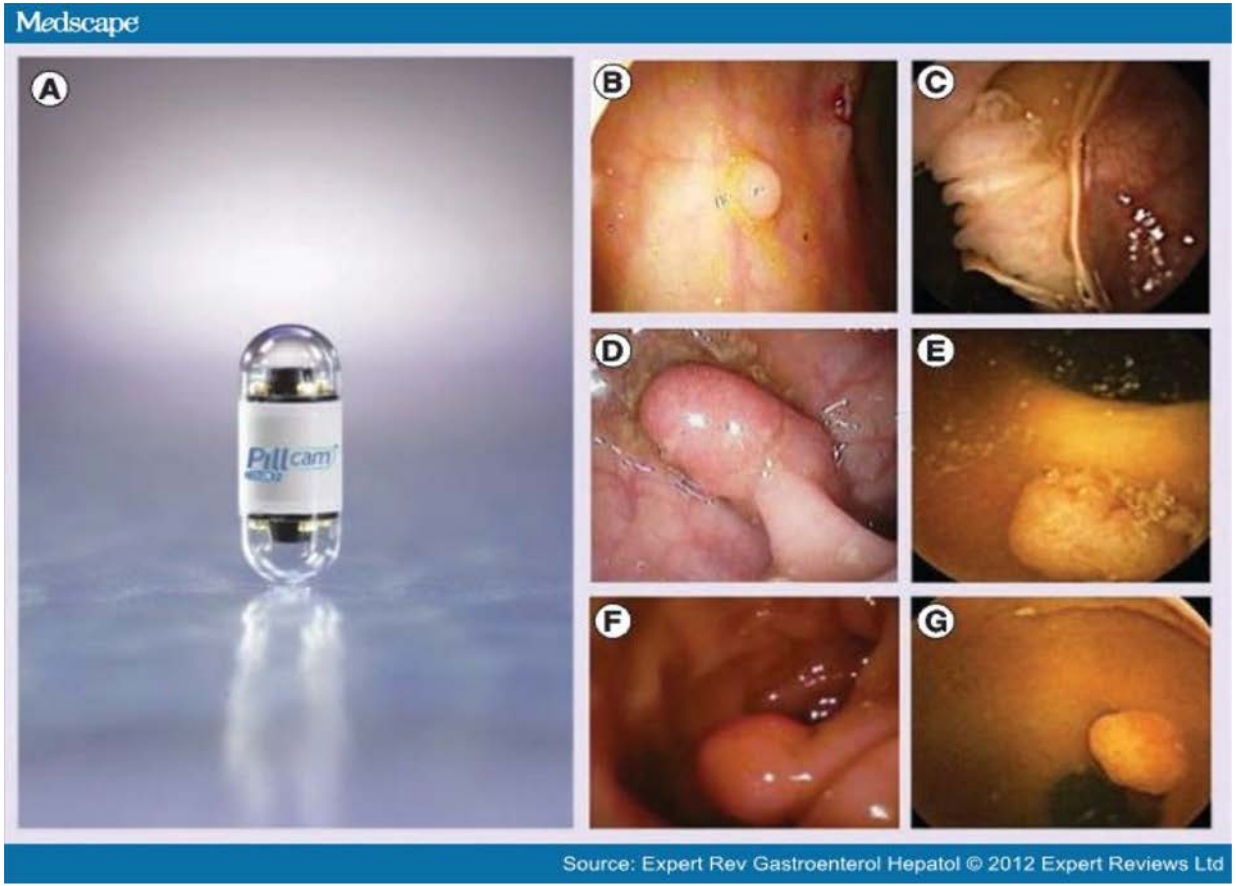
DEPARTMENT OF SURGERY · ODENSE UNIVERSITY HOSPITAL

AI as diagnostic tool

New developed algoritime for polyp detection

Performance Network	Accuracy %	Sensitivity %	Specificity %
Our modified AlexNet	96.4	97.1	93.3
AlexNet	74.1	92.3	82
GoogleNet	51.2	13.2	99.4
ResNet50	69.7	80.7	99.3
VGG16	63.5	42.4	85.6
VGG19	82.7	68.8	90.2

Future robot technology og AI in health care



Amara’s Law

We tend to overestimate the effect of a technology in the short run and underestimate the effect in the long run.

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Thank you!

SPEAKER NAME
Title, Organisation

@ Speaker twitter handle

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