



# 5G HEART

5GHEART.ORG

## 5G WEARABLE VIDEO FOR PARAMEDICS IN THE 5G-HEART PROJECT

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Driving Innovations in Healthcare  
with 5G and Smart Networks

5G HEALTH AQUACULTURE AND TRANSPORT VALIDATION TRIALS

# 5G-HEART Stakeholders



# HealthCare Challenges



**No Visual Access  
for expert**



**Lack of  
Information**



**Additional  
resources**



**Time delays**



**Rising Costs**



## Medical Person in Field



## Senior Medical Support

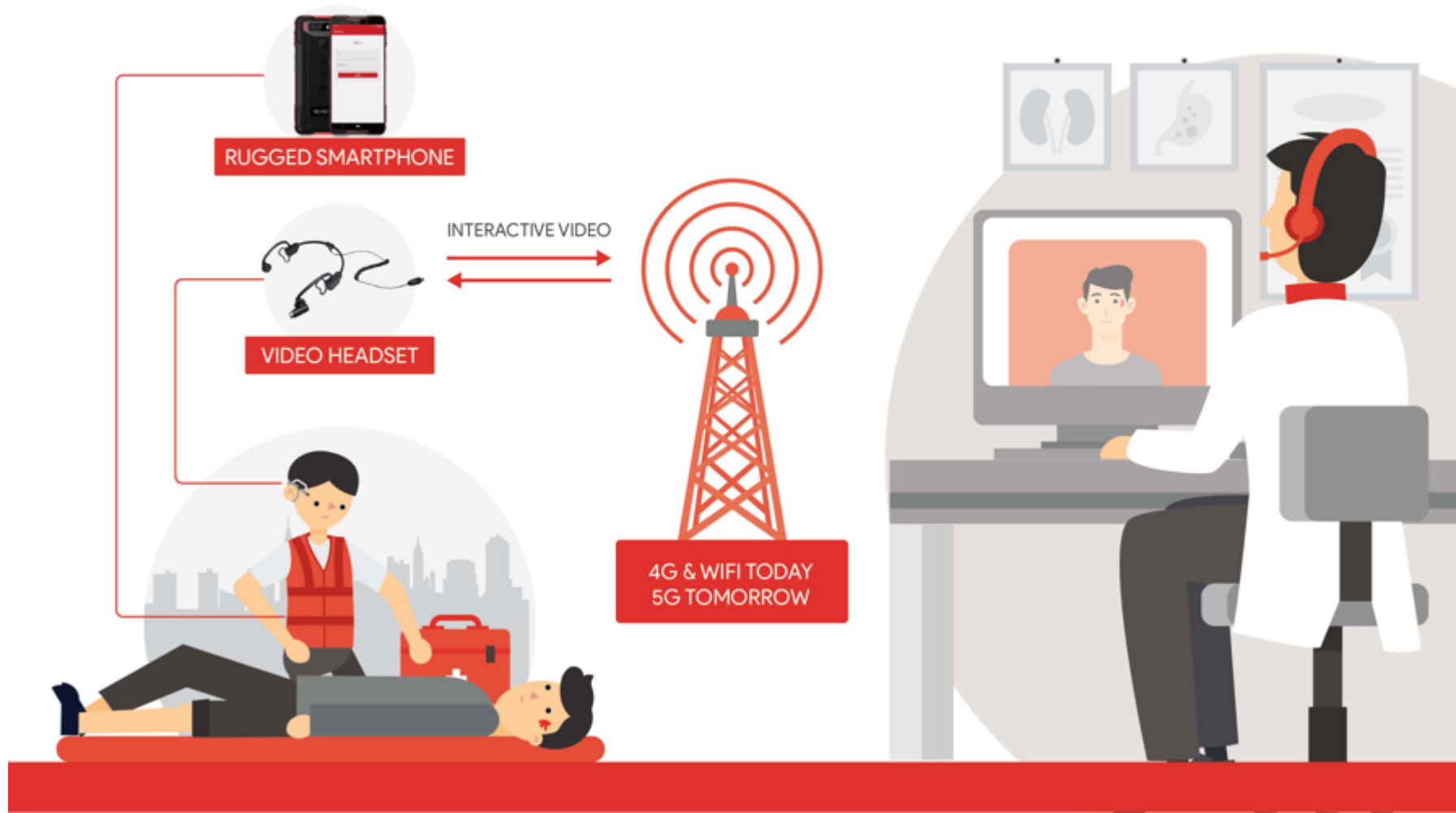


**Public Wireless**

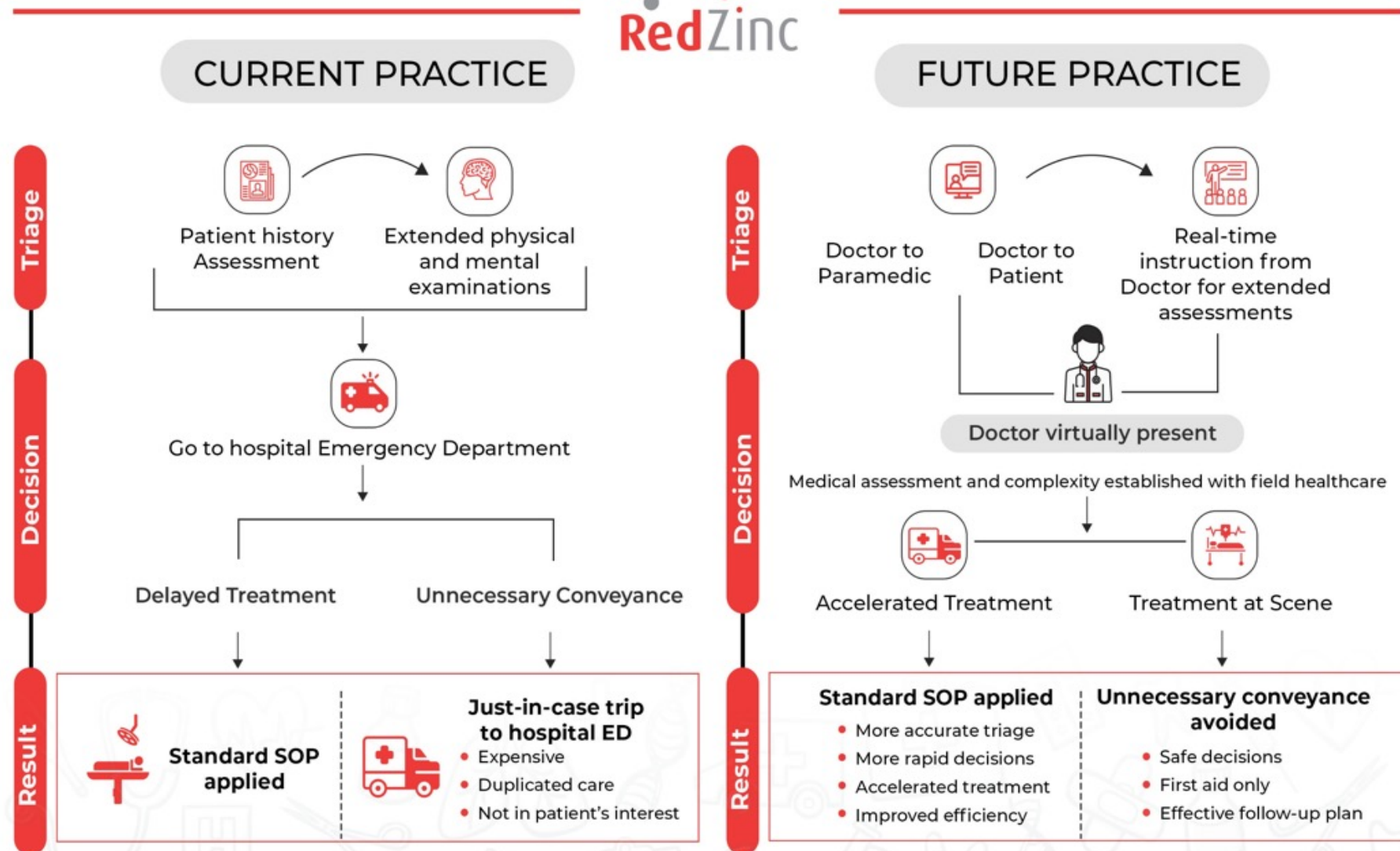


# Doctor At Hot Desk

## WEARABLE VIDEO FOR **PARAMEDICS**



Example  
Future  
Pre-hospital  
Paramedic  
Practice  
  
UK & Ireland  
Model



# Video Headset Smart Phone

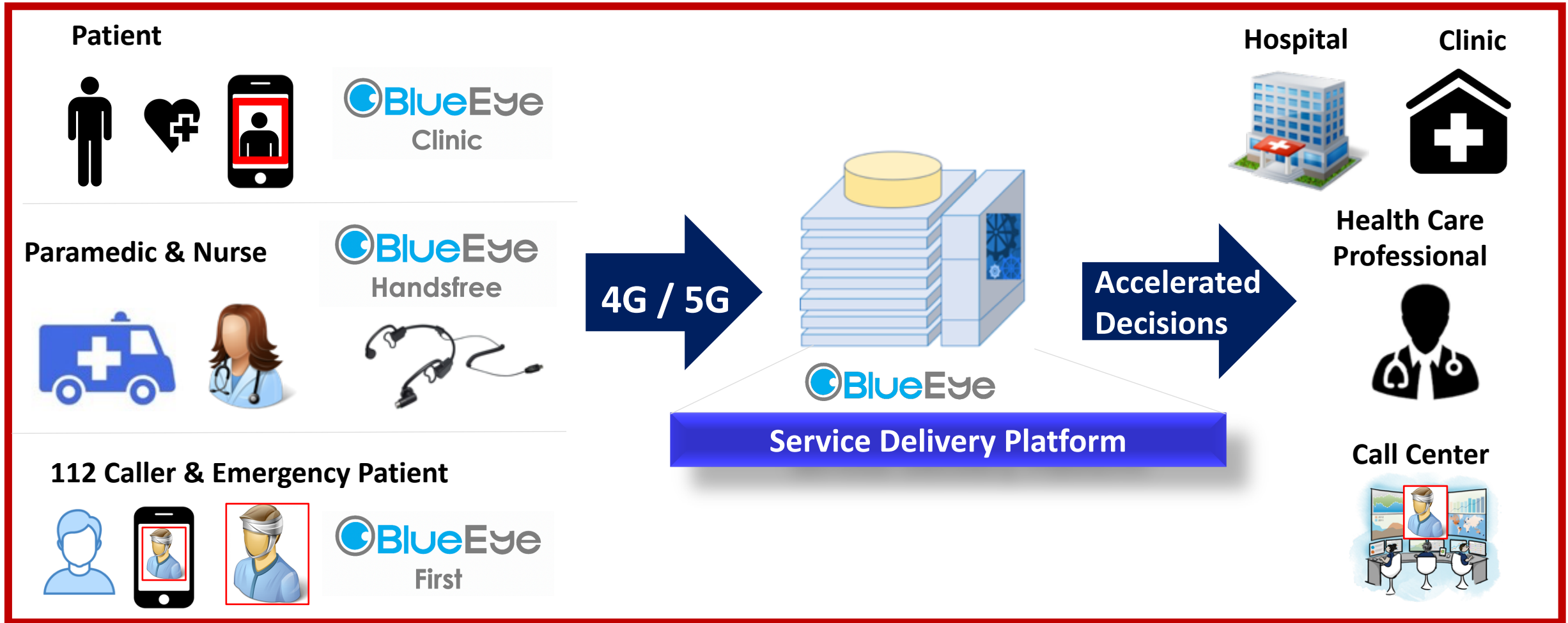


Video Headset



5G Smartphone

# Service Delivery Platform





# Benefits



- Accelerate time to decision
- Accelerate time to treatment
- Increase efficiency of pre-hospital emergency clinical process
- Improved patient outcome
- Improved pre-hospital emergency department economics



# Drivers

Camera performance outstrips 4G capacity

Constrained uplink bandwidth

Users expect high quality images

Priority is needed for emergency

# Users expect high quality images

## 4G

### Medical Image Definition

1280x720 (sometimes)  
640x480  
320x240

Limited Image Definition  
Blurring during motion of head  
Constrained Uplink Bandwidth

## 5G

### Medical Image Definition

HD 1280x720  
Full HD 1920x1080  
2K 2048. X 1080  
UHD-1 3840x2160

5G gives better image definition via higher bandwidth

1280x720 wearable video (1k)  
potential for 4K

Reduced image blur due to higher frame rates  
Slice with

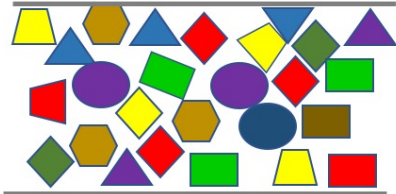
Dedicated network for Quality of Experience  
Isolation

# Priority Issue 4G vs 5G

Every packet together

4G

Everyday  
Internet Traffic



5G Differentiation & priority

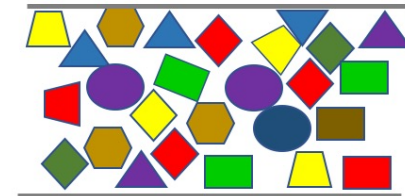
5G

Emergency Traffic



Prioritised

Everyday  
Internet Traffic



# Can we improve Triage & Operational Process

Different Skill levels

Different Locations

Center



Paramedic



In the Field



Senior Doctor



Community Nurse



In the Home



Call Center



Remote Doctor



In the Clinic



# Two Pilots in Oslo and Groningen (4G)



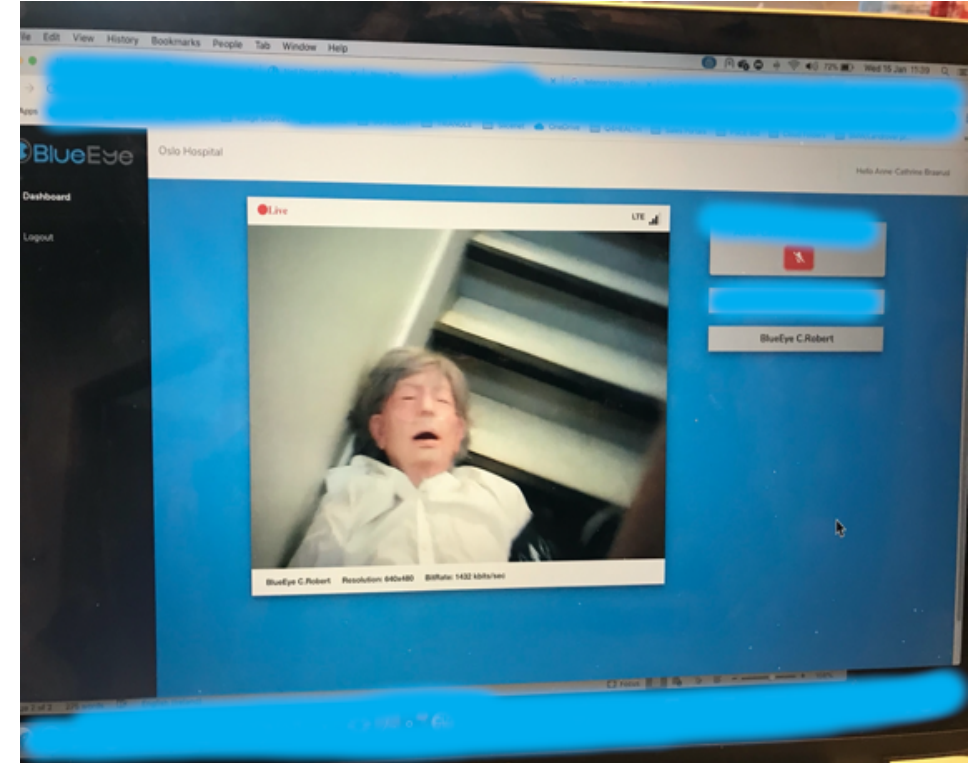
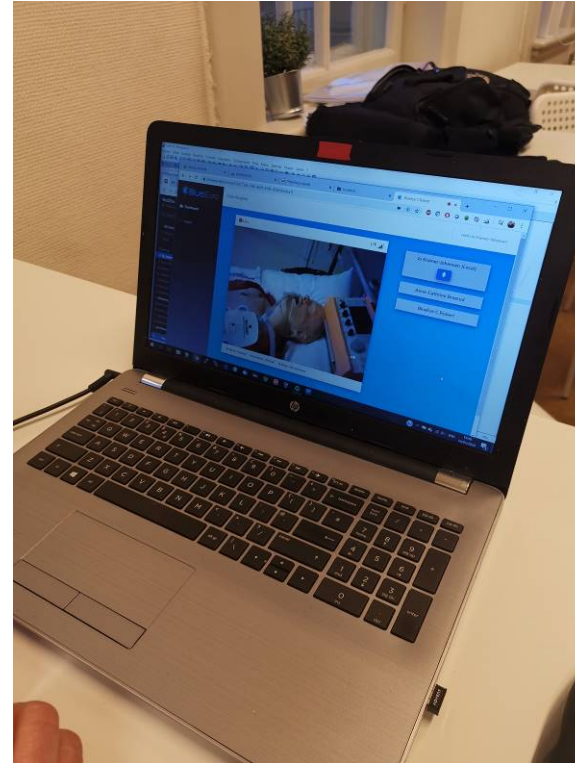


# Candidate Pilot Use Cases discussed in Oslo

## 4 Use cases

1. Mass casualty supervisor support (>2 patients)
2. Chronically ill child- chronic disease with child known to hospital.
3. Cancer Drug Follow up at home
4. Paramedic to Paramedic for fentanyl delivery.

# Oslo Early Pilot : Injured Frail/Elderly Patient



# Oslo scenario with pneumothorax



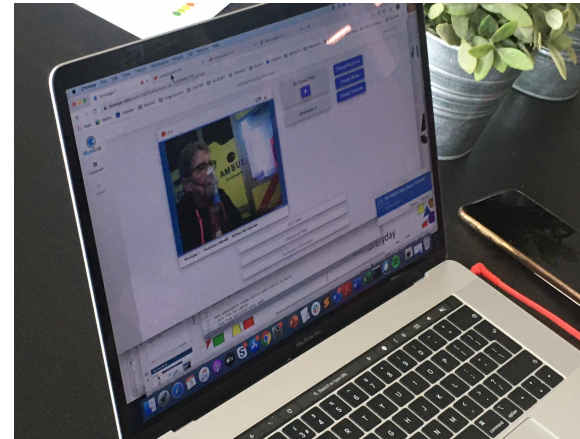
# Groningen Use Case

## Burn Use case

1. Burns Patient
2. Actor & Manikin
3. 4 levels of burn severity

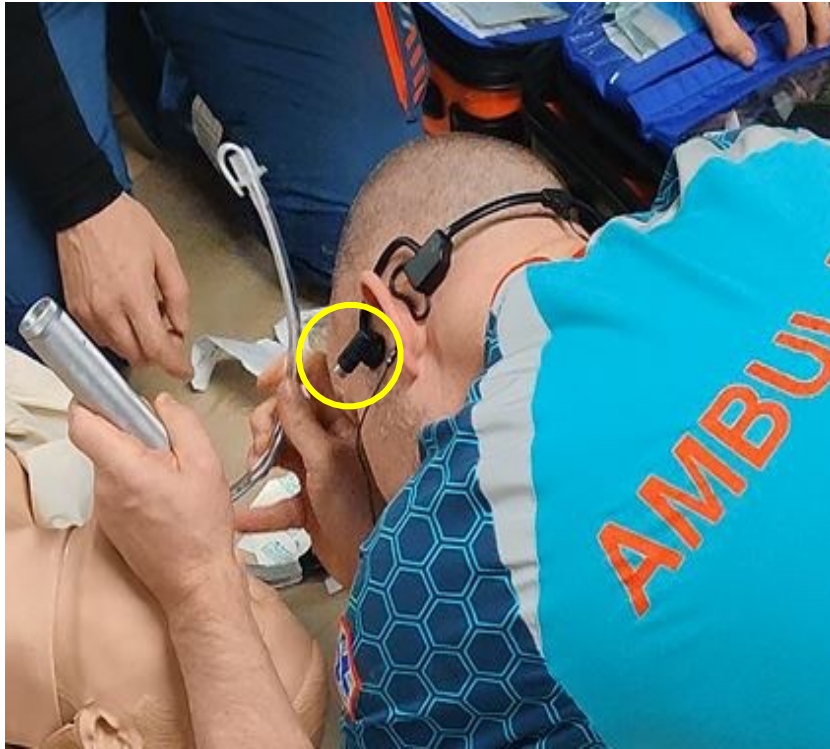


# Burn Scenario





# Burn Scenario



# Thanks to partners in the pilots





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