

## Axis cameras facilitate faster and better healthcare.

Faster and more effective healthcare using IP cameras and wireless communication in Danish ambulances.



**Organization:**  
Region Nordjylland

**Location:**  
Denmark

**Industry segment:**  
Healthcare

**Application:**  
Mobile camera solution for faster, more efficient and qualitative healthcare.

**Axis partner:**  
Radiocom, part of VHF Group

### Mission

Region Nordjylland in Denmark wanted sick and injured people to more quickly get the right treatment and care, which can be vital. To be able to make a more qualified assessment of the healthcare needs of patients, Region Nordjylland made the decision to install a mobile video streaming solution between ambulances and hospitals. Installing cameras in ambulances involves major technological challenges. These include a sufficiently fast connection as well as the need for high frame rate and image quality so that hospital staff can make a correct assessment of a patient's condition in the ambulance.

### Solution

Radiocom, a supplier of radio communication equipment for wireless communication, installed Axis network cameras in the ceilings of eleven ambulances. The cameras are small, simple to install and maintain, reliable and roust to withstand shaking and vibration.

They have HDTV quality and can reproduce sharp images from recordings at very high frame rate. The mobile video streaming solution is secure and reliable and while in operation can easily change between different types of network to ensure optimum bandwidth.

### Result

Sick and injured patients get the right type of care more quickly, and by means of the video link in real time, doctors and hospitals can make an initial medical assessment of patients in the ambulance. They can give advice to ambulance personnel about what care is needed, which hospital is closest, as well as helping with advice so that ambulance personnel can start to treat a patient in advance, prior to arriving at hospital. Sometimes a case can be resolved at an early stage in the ambulance and the patient can go home. This results in time savings for patients and Region Nordjylland, as well as cost savings and a reduced number of unnecessary hospital visits.



## IP-based communication a matter of life and death

Region Nordjylland in northern Denmark is responsible for the healthcare of approximately 600,000 inhabitants. The region has several general hospitals and some hospitals offering specialist care. Distances to hospital can be long by Danish standards. Sometimes patients are taken to a specialist hospital when they could have been treated by their local hospital, and sometimes they go to hospital unnecessarily.

Region Nordjylland wanted to improve patient care and patient safety. The sick and injured should get the necessary care more quickly, while the amount of unnecessary hospital visits should be reduced. Region Nordjylland wanted to install mobile video streaming between ambulances and hospitals in the region.

Initially, the video streaming solution would primarily be used for ambulances carrying children and stroke patients. It may be difficult to assess whether a stroke is serious, so if a stroke is suspected then it is vitally important to get medical care in time. The time factor is critical.

The video streaming solution is designed for ambulances on the outskirts of cities, where the distance to hospital is greater.

A mobile video streaming solution involves major technological challenges. These include a sufficiently fast connection to provide high frame rate and image quality. Doctors and other healthcare staff must be able to remotely make a correct assessment of the state of health of patients in the ambulance, make decisions on which hospital and what type of treatment the patient needs as well as what should be prepared for the arrival of the ambulance.

There must not be any malfunctions, and it must be possible to transfer the images simply and quickly via 3G or 4G, without interruption.

The network cameras should have low weight, since they were fitted in the ceiling inside the ambulances. They should be easy to install, program, operate and maintain. In addition, the cameras should be able to zoom into different parts of a patient's body to allow close-up images when required. The network cameras should also allow easy integration into existing IT systems.

One of the challenges was also getting doctors and nurses to use the solution since it involves a new way of working.

"This is a new type of solution and a new way of working. We are at the cutting edge of the technological development, but it takes time to change human behavior," says Søren Aagaard Christiansen, Senior Consultant, Region Nordjylland.

### Safe and reliable solution

Radiocom, a supplier of radio communication equipment for wireless communication, installed AXIS M5014 PTZ Network Cameras in the ceilings of eleven ambulances. The network cameras have HDTV quality, low weight and discreet design, and are simple to install and maintain.

"Axis network cameras are of high quality and are easy to use," says Mikael Hansen, Managing Director at Radiocom.



The cameras are small - are the same size as the palm of a hand - reliable and robust. They can reproduce fine detail in images, even during bumpy ambulance journeys caused by potholes in the road, for example, and provide recordings at high frame rate. There are clearly visible buttons so patients can see whether a camera is switched on or off.

Doctors and other healthcare staff can remotely view a full body image of patients and zoom in to individual parts of the body. They have a simple and convenient single sign-on solution and can look at images from the various ambulance cameras on their hospital intranet.

The mobile video streaming solution is secure and reliable, and while in operation can easily change between different types of network to ensure optimum bandwidth.

### **The right care at the right time**

Region Nordjylland has been supplied with a reliable IP-based video communication system that increases the quality of healthcare and safety for the patients.

"It has worked well and is a very good solution. We see great opportunities in video streaming for ambulances and hospitals," says Søren Aagaard Christiansen.

Doctors and other healthcare staff have been given new opportunities to make remote medical assessments of patients while they are in the ambulance.

Doctors can help ambulance personnel with advice, so that they can start treatment of the patient in advance, prior to arriving at hospital, make decisions on whether a certain type of specialist care is required and which hospital has the best resources for admitting the patient, for faster and better healthcare.

It can be of vital importance for stroke patients to get the right care in time. Sometimes the case can be resolved straightaway in the ambulance and the patient can go home.

The video streaming solution results in time savings for patients and Region Nordjylland, as well as cost savings and a reduced number of unnecessary hospital visits.

For major accidents, patients can be taken to different hospitals in a structured way, adapted according to an individual's injuries and according to which hospitals have the best resources for admitting the injured.

"Video streaming in ambulances is really good from a patient perspective. It's the future - where the doctor can watch over a patient in the ambulance," says Søren Aagaard Christiansen.

Mikael Hansen at Radiocom thinks that more ambulances will be installed with network cameras in the future, as well as in other types of emergency vehicle, which will contribute to a safer and smarter world. "The cameras can save lives", says Mikael Hansen.

**"Video streaming in ambulances is really good from a patient perspective. It's the future - where the doctor can watch over a patient in the ambulance."**

**Søren Aagaard Christiansen,  
Senior Consultant, Region  
Nordjylland.**



# About Axis Communications

Axis offers intelligent security solutions that enable a smarter, safer world. As the market leader in network video, Axis is driving the industry by continually launching innovative network products based on an open platform - delivering high value to customers through a global partner network. Axis has long-term relationships with partners and provides them with knowledge and ground-breaking network products in existing and new markets.

Axis has more than 2,500 dedicated employees in more than 50 countries around the world, supported by a global network of over 80,000 partners. Founded in 1984, Axis is a Sweden-based company listed on NASDAQ Stockholm under the ticker AXIS.

For more information about Axis, please visit our website [www.axis.com](http://www.axis.com).