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**2011 eHealth Insider  
Award Winner  
“Best Use of  
Telehealth and Telecare”**

## **IOCOM TELEHEALTH**

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# **STROKE OF GENIUS**

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“If we pick up 10% of the patients with stroke – 600 – and 15% of them these are able to live independently as a result, this will save the NHS £2.7m a year.”

**The NHS in the East of England won the ‘best use of telehealth and telecare’ category of the E-Health Insider Awards 2010 in association with BT, sponsored by the BCS Primary Health Care Specialist Group. Its winning project was a videoconferencing-based system to deliver timely care to stroke victims; and save lives and money in the process.**

When somebody has a stroke, their getting the right treatment quickly can mean the difference between independence and life-long disability.

This is now accepted science and accepted practice in the NHS. But for the East of England, the business of delivering it proved difficult.

Much of the region is rural with poor roads and long distances between the specialist centres that have the necessary diagnostic skills and equipment to decide which patients will respond to the treatment – and which would be harmed by it.



Now, thanks to some elegant use of technology, NHS East of England and the East of England Stroke Networks have found a highly cost effective solution using telemedicine. It’s a scheme that won them the ‘best use of telehealth and telecare’ in the E-Health Insider Awards 2010 in association with BT.



*(Please see reverse side for the rest of the article)*

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## The problem

Diana Day, stroke nurse consultant for East of England Stroke Networks, explains the background.

Strokes are caused by blockage of blood to the brain. It is now recognised that treating patients with drugs that dissolve clots – thrombolytic agents – within three hours of the onset of symptoms can improve patients' chance of recovery significantly.

Not all patients are suitable, however; including those with a bleed within the brain. Deciding who will benefit from thrombolysis requires specialist scans and specialist interpretation of the images.

"We thought it would be relatively simple task to do this using telemedicine across the East of England," says Day. "We suggested putting a cart – a computer in a cabinet – in every A&E in the region.

"Then we would have one rota of stroke consultants on call across the patch who would be able to review the patient, discuss the case and view the brain images and advise the local medical team in the A&E."

Ideally, the consultant needed to be able to see the patient and talk to them - not just for communication but also to assess symptoms such as speech slurring and facial droop. Ideally, patients also needed to be able to see and speak to the consultant.

As a result, the team envisaged combining video, audio and PACS (digital x-rays), with everything working over a 3G network. The reality of this demand will be immediately apparent to anybody working in IT.

## The solution

Anthony Whitaker, ICT strategy and special project manager for NHS East of England, spells it out.

"We did not have the capability to do that," he says simply.

"PACS are hospital systems that are typically centred on the hospital and need significant bandwidth. They can connect to their own consultants outside the hospital; but to connect to any consultant in their home would be amazingly complex."

Issues also arose about logging into a number of different systems at different locations and the associated information governance considerations.

A PACS-based solution was not going to work, Whitaker felt. So he and his colleague Jim Bibby, ICT strategy and special projects lead, turned the idea around - basing it instead on video conferencing technology.

"We talked first to colleagues in BT's N3 department and then approached Iocom through their UK suppliers St Vincent's Healthcare Consulting and we came up with an idea to run the system through video conferencing," says Whitaker.

In essence, they devised a scheme in which there was a shared desktop that would allow a consultant at home to view the PACS image without downloading it.

"It gets over the governance issues," says Whitaker. "Staff in A&E are only revealing images of specific patients with a consultant on a specific contract. The video conferencing system encrypts all data so there is no danger of anyone being able to breach it."

At the hospital side, A&E staff would use a cart equipped with a high-resolution screen, a camera and microphone. At the consultant's home, there would be a laptop with a webcam and microphone and the software that enables the desk top sharing and two-way communication.

## Overcoming technophobia

With the idea in place, Whitaker and Bibby worked with Parity

Medical to develop a bespoke computer cart. "It's very solid," says Whitaker.

"It fires up with one button, so there is not a lot for staff to do to get it working. It has a high quality screen, a high quality Sony pan/tilt/zoom lens and a microphone.

"The consultant can control the camera remotely and zoom in on the patient's face or can ask A&E staff to do it."

The cart can be wireless – there is a battery with a five-hour life – so it can be taken right up to the patient's bedside. There are also some additional software gizmos, such as a web-based diary listing the on-call consultants.

An initial trial took place in 2009-10. It lasted four months and involved 45 patients at four acute trusts and it worked like a dream.

"This was really a proof of concept," says Day. "I was worried that patients would not like being seen over a computer but they loved it."

"I was worried about staff too, as nurses are notoriously technophobic. But they picked it up quickly. Consultants were also pleased with the system, which enabled the much larger rota we had initially envisaged."

## Realising the benefits

With the information governance and legal contracts now in place, the system is being rolled out across the region.

Each trust is being invited to join as a partner, so they are responsible for management issues such as on call rotas and how the system develops.

It went live in November 2010 in six hospitals and by February should be in place in all 17 trusts in the region. Not all will join the rota; some will use the system within their hospital. Even so, says Day: "It will be the largest stroke telemedicine service in the UK."

It is set to save significant sums too. "Across the East of England, we have about 6,000 strokes each year and between 10 and 15% of them are potentially suitable for thrombolysis," Day says.

"In the past, we have managed about 1%, as out of hours services at many centres were not available. Thanks to this technology, many more patients can be treated.

"For each patient who is able to live independently after their stroke as a result of timely thrombolysis, we save the NHS £30,000 in the first year.

"If we pick up 10% of the patients with stroke – 600 – and 15% of them these are able to live independently as a result, this will save the NHS £2.7m a year."

In all, the stroke networks' budget for developing the system was £250,000. Each cart, including the software, costs £8,500 and the laptops for the consultants' homes cost £1,500; the rest went on the pilot, licences, servers and training.

## More, please

Whitaker is already getting calls from consultants in other specialties who like the idea and want to try it out – for example in cardiology or neurology.

"It is really quite a simple system," he says. "It is not much more than an adaptation of video conferencing. For this sort of out of hours emergency service it is ideal."

Both Day and Whitaker are thrilled with the award and say the success of the scheme is down not just to them but the whole team including the consultants and private companies involved.

Whitaker says: "I started out wanting to buy a service but we ended up building one. It's user friendly and affordable."