Addendum to JSL notes:

A small is monitor advantageous for paramedics, especially when working away from the main ambulance environment. If partnered with an AED and drugs kit it would provide essential 'first line' monitoring and treatment.

In the UK the trend is for paramedics to be able to diagnose and administer drugs, no need to transmit data to the hospitals in advance for authority to administer drugs nor the need to wait till the patient is delivered to the A&E. This policy is very successful and has saved many lives, also cuts down on resultant 'in patient' bed occupancy days.

Equipment from different manufacturers have differing data transfer/sharing methodologies and protocols. There are steps being taken to form industry standards e.g. regarding the proposed SpO_2 data protocol. An approach being tested in the NHS is to have patient tablet PC's which wirelessly interface with patient monitors and defibs etc. These low cost tablet PC's are seen as an ideal way of acquiring patient data from a variety of sources.

The NHS has tested and will implement the tablet PC system. Computer Sciences Corporation (CSC) is partnering with Canadian based Medusa Medical Technologies to equip several authorities with Medusa's Siren electronics patient-care reporting (ePCR) and data management software.

The software will enable NHS ambulance trusts to capture electronically an expected five million patient records each year, according to CSC, which is the local service provider for the three regions. Around 1,000 paramedics out of 20,000 in the regions have already been trained on the system. East Anglia has led the way in using the system and has around 600 paramedics trained on the software.

Ambulances are fitted out with docking stations and ruggedised tablet PCs. Data is entered by tapping the screen, no digital pen is needed and the system even works with gloved fingers. The main use is to collate and trasnfer patient data but I believe that this system and others like it collate data from other devices. This is one of the reasons why Zoll has achieved some of it's recent large sales.

Disadvantages of having a monitor that follows a patient through different departments include:

1) Possible spread of infection, e.g. a unit from a 'high risk' environment could end up in a critical care area with highly susceptible patients.

2) Loss of monitors, cables and accessories, which are the primary ownership of the ambulance authorities.

3) How does the equipment get back to the original owner?

4) As an example West Midlands have 220 ambulances, if each ambulance is called out 10 times a day, you could then assume say 5 patients get seen at the A&E, therefore the authority would need in excess of 1000 spare monitors and would need to keep a stock on board the ambulance.

In view of this a monitor with data transfer is the only real option. This could be achieved by having a 'data module', parameter 'pod' or having a wireless protocol as with the Medusa system.

A monitor for paramedics needs to have ECG, SpO_2, Capnography (assuming low costs consumables), NIBP, Temperature…

An advantage of the monitor travelling with the patient would be maintaining the integrity of continuous and accurate data. For example by just moving say the ECG electrodes (diagnostic to monitoring) you will get differing waveforms and during the 'cross over' period you run the risk of interrupted monitoring and also wasting valuable treatment time and resources.

One area that will see expansion in the UK is monitoring between the Anaesthetic Room through to Operating Theatre and/or from Ward – Anaesthetic Room – Operating Theatre – Ward.

From experience testing systems for the NHS and subsequent involvement with the HME and Mennen systems I believe that modules are always problematic. With the advent of the modular concepts, the modules when installed eventually tended not to move. When they were moved they were easily damaged or lost and many of them were damaged when being interfaced with the host system, which also often resulted in damage to the host system. In addition the modules were often not where they were most needed.

With the development of the Mennen patient data module again these were not put into practice and caused similar problems to the above, coupled with the risk from patient data patient being transferred to the wrong monitor. There is also the added problem of data protection act.

The data transfer only proved viable in terms accuracy, ease of use and access when connected to a hard-wired system integrated 'turnkey' system. With such a system however there is a real need for differing levels of administration rights/access and ensuring that data cannot be edited.

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