

Memorandum concerning establishment of a blood transport system at Herlev Hospital

Date: 28 April 2011

1. Introduction

The purpose of this memorandum is to put forward a recommendation of whether it is appropriate to establish a transport system for the transport of blood samples from the emergency and acute care departments to the main laboratory at Herlev Hospital.

The memorandum is based on the article with the same subject made by PhD students at the department of Internal Service and Logistics. The note involves furthermore experiences from respectively Odense University Hospital and Vejle Hospital.

The conclusion of the memorandum is that establishing transport system for the transport of blood samples as described above is recommended. The main arguments are:

- Increase of patient security through less human errors.
- An estimated yearly saving of approx Dkr. 290.000 after 2 years of transport of blood samples and the basis for efficiency improvements in department A and K.
- A more efficient and fast process in relation to transport of blood samples.
- Additional potential savings through fewer days of hospitalization.

2. Establishment of a blood transport system.

The use of a transport system for the transport of blood samples at Herlev Hospital has been discussed for some time. A primary concern has been whether the analysis results of the blood samples were influenced by the transport, like it has been discussed whether the use of a transport system makes financial sense.

3. Technology.

It appears from the mentioned article that the quality of blood samples is the same as by manual courier transport and even in certain cases better. This is confirmed by Professor MD DMSc Ivan Brandslund at Vejle Hospital.

It is provided that no major modifications are to be made in department A and K in relation to installation of the system.

The advantages of using the transport system are:

- Blood samples can be sent immediately and there is no need to wait for a hospital porter/courier to transport them.
- The transport time is very short¹ because the blood tube is sent immediately from the launching unit and doesn't stop during transit. This is important for both the

¹ At Odense University Hospital a blood sample in the transport system is transported 150 meters in approx 25 seconds. The maximum speed of the system is 300 meters in 43 seconds.

efficiency and the quality of blood samples, which in general have to be analyzed as soon as possible after they are drawn.

- The fact that it is possible to register when a blood tube is sent through the system gives a high level of traceability just as you can register when the tube is received.
- The blood samples arrive at the laboratory one at a time and not several tubes, which is the present case, as the hospital porter/courier does not only carry one blood sample to the laboratory. This will even out the strain in the laboratory and is estimated in the long term to contribute to an efficiency improvement of the analysis processes in the laboratory.
- The analysis results of blood samples will arrive earlier, which increases the quality of the sample and shortens the treatment time.

All of the above mentioned advantages minimizes the risk of human errors and thus increases the patient security.

4. Financial situation.

The potential savings are estimated to be within the reduced use of hospital porter/couriers and an increased efficiency (because of no waiting time and faster transport time). The last mentioned point is not financially estimated, but it is evident that the staff in both the emergency and acute care departments and in the laboratory overall can work more efficiently when they do not have to wait for a hospital porter/courier, but is able to send the blood tubes when they are ready for it. At the same time it shortens – in a wide sense – the patient's hospitalization time if the transport of every blood sample could be reduced with e.g. one hour.

In relation to hospital porter/courier is it the opinion of the Internal Service and Logistics Department that it will be possible yearly to save a position of one full porter/courier position equaling approx Dkr. 290.000. In addition to this there will also be potential savings through the increased efficiency in both the Emergency and acute care departments, as well as in the laboratory. These potential savings are not yet analyzed. Similar are the potential saving concerning fewer hospitalization days not yet analyzed. The last mentioned point is considered to have a significant potential.

From the above savings must be subtracted the costs for the maintaining the system. These costs are from the supplier stated to be approx Dkr. 15.000 yearly covering two yearly maintenance checks.

The establishment and use of the system can with advantage be used to collect experiences for the establishment of further transport systems and for assessing the use of the technology in relation to the expansion of Herlev Hospital. Establishment of further systems can be completed and implemented without any difficulties.

5. Recommendation.

In conclusion it is recommended that Herlev Hospital establishes a blood transport system between the emergency and acute care departments and the laboratory. The

case is a relative minor investment, which will break even after approx 2 years. In addition is the increased efficiency in both the emergency and acute care departments from where blood samples can be sent immediately to the laboratory where the analytic flow and strain is evened out receiving only one sample at a time. Finally the shorter transport time contributes to both increased efficiency and a faster analysis of the samples.

As requested by the Building and Technical Department the supplier of TEMPUS600[®] has checked out the possible routes from emergency and acute care departments to the laboratory. There are several possibilities for installation of the pipe. With support from the Building and Technical Department the final route is to be decided after signing of a supply agreement.

The Internal Service and Logistics Department recommends that the installation of a blood transport system is supplemented with an analysis of the processes in the laboratory to secure that these are optimized concurrently with the changed flow of blood samples.