

Background Information

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Advantages of non-invasive medical technology

Lübeck - When recovering to full health, medical issues are of primary importance. However, it is important not to neglect the physical and mental stress caused to patients during treatment, economic aspects, and a healing process that is as fast and problem-free as possible. The use of non-invasive technology contributes to an improvement in patient well-being^{1,5,7}, and helps to avoid complications^{5,9} and act in a cost-effective^{1,14,15} manner. Dräger offers, and is continuing to develop, a multitude of non-invasive solutions for acute medicine.

Cost-efficiency: Spend less - achieve more

Each invasive intervention on the body opens a primary entry gate for germs. This increases the risk of hospital-acquired infections¹⁴, which prolong stays in hospital and cause high follow-up costs^{6,12,13}. The figures speak for themselves: according to a study published in 2000, hospital-acquired infections caused annual costs of 29 billion dollars in US hospitals³. Where medically acceptable, the use of non-invasive applications can counter this and contribute to cost-efficiency in hospitals¹².

Non-invasive procedures often also accelerate the healing process and, therefore, reduce the workload of the nursing staff. For example, non-invasive ventilation can reduce occupancy times in expensive intensive care beds, as the weaning period from the ventilation device is shorter². The costs for a patient using non-invasive ventilation in Europe are less than half those for a patient breathing through a tube¹².

Non-invasive applications also have advantages over invasive procedures in the field of monitoring and screening⁵. Non-invasive arterial blood pressure measuring¹⁰ and non-invasive bilirubin measuring for newborn babies, for example, are considerably quicker to use. This is because no canula must be inserted and no blood removed. In addition, time-consuming and cost-intensive blood tests in laboratories can be avoided during screening¹¹. Another plus point: almost no consumables are used, meaning acquisition costs for non-invasive applications can be written off significantly faster than for invasive measurement devices. The fact that nursing staff only require a short period of

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training in order to use non-invasive monitoring and screening instruments also contributes to cost-efficiency.

Patient well-being: satisfaction is no minor matter

For many people, stays in hospitals mean enormous physical and mental stress. For this reason, it is important to avoid as much stress and pain as possible, in order to achieve a quick and problem-free recovery. Non-invasive methods can help relieve the physical and mental stress put on patients. In the field of non-invasive ventilation, for example, many various phases do not require the patient to wear a mask. This allows him/her to communicate with doctors, nurses and visitors - if somewhat restricted - and to eat and drink something every now and again^{1,6}. Unlike invasive ventilation, it is not necessary to sedate the patient, who can remain fully conscious⁴.

Because the treatment time is often shorter when using non-invasive procedures^{2,8}, it also helps improve patient well-being. For example, a non-invasive blood pressure monitoring device can be used faster than an invasive device¹⁰. This allows for a quicker diagnosis and the faster implementation of suitable measures, thus helping the patient to recover promptly.

The subject of patient well-being is particularly important on infant wards. Here, the use of non-invasive screening devices for measuring the transcutaneous bilirubin value (TcB) offers a gentle, pain-free and accurate¹¹ alternative to the conventional jaundice test procedure. This can reduce the necessity for painful blood withdrawal by 40 percent¹¹. In addition, the results are available immediately. This means that parents are saved the anxious wait for laboratory results.

Avoiding complications: only accept desired effects

One of the most frequent hospital-acquired infections in the USA and Europe is the risk of a ventilator-associated pneumonia (VAP), which can be caused by invasive ventilation⁹. In the case of non-invasive ventilation, the number of possible complications falls by 62 percent⁸, whereby the mortality rate is also significantly lower than for patients breathing through a tube⁷. Non-invasive ventilation also eliminates the side effects suffered by patients breathing through tubes, such as the administration of sedatives for pain-relief purposes.

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In patient monitoring, such as continuous arterial blood pressure measurement, complications like the build up of haemorrhages or haematomas can be avoided.

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