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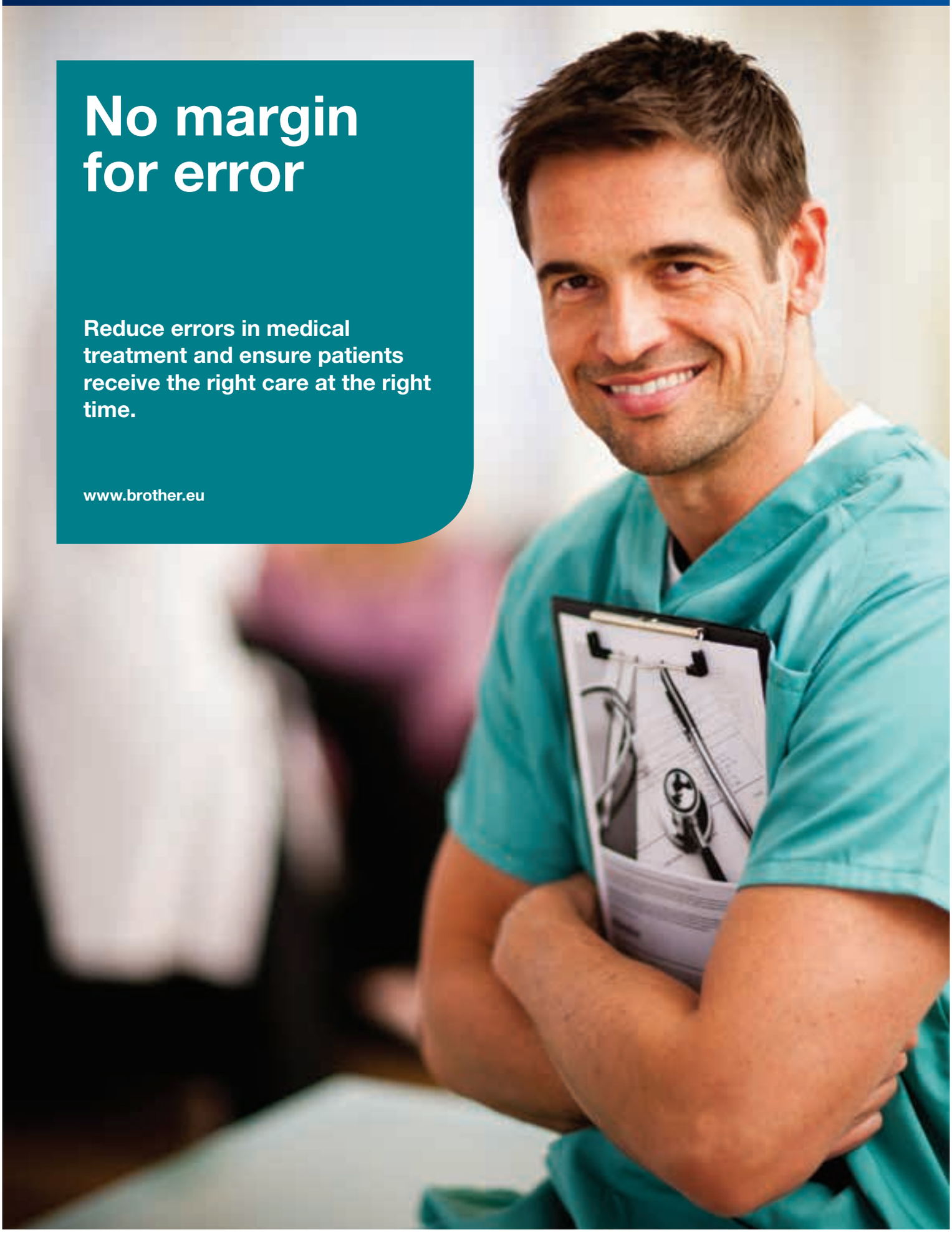

No margin for error

Reduce errors in medical treatment and ensure patients receive the right care at the right time.

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In healthcare, mistakes change lives

When mistakes are made in healthcare settings, patients can be given the wrong medicine, the wrong tests or even the wrong surgical operations. In the most serious cases, the consequences can prove fatal. All too often, these life-changing errors are down to a simple case of mistaken identity.

In the challenging healthcare environment where workloads are heavy and levels of patient demand are high, it's not always easy to ensure that patients and their treatments are correctly matched. However, there is a simple yet powerful way to reduce these errors. This report focuses on patient identification issues in European healthcare systems and explores how specialist healthcare labelling to identify patients, medication and biological samples can have a major impact on patient safety.

In healthcare there is quite simply no margin for error. The impact of a patient receiving the incorrect diagnosis or inappropriate treatment can be far reaching, particularly in the most extreme cases.

Take for instance the Brazilian man who had the wrong leg amputated in 2013, or the patient in London given a lung operation that should have been carried out on someone with the same name.

In 2018, a hospital in Kenya hit the headlines when a man underwent brain surgery that had been planned for another patient[1] – the error was blamed on a mix-up of identification tags. Fortunately both patients recovered, but four members of hospital staff were suspended, prompting an investigation into how the fault could have happened.

Never events

Mistakes like these, which are caused by a mismatch between the patient and their treatment, medication or procedure, fall into the category of never events. The UK's National Health Service (NHS) describes never events as serious, largely preventable safety breaches, which differ from other grave events, because even a single never event in a hospital raises a red flag.

However, never events still occur too frequently. Between April and December 2016, cases of mistaken identity in the NHS saw patients undergoing unnecessary lumbar punctures, laser eye treatment and one person who ended up with a heart monitor under their skin intended for another person.[2]

While the more severe never events, such as incorrect surgery or mistaken amputations, are very rare, when they do happen the results are clearly catastrophic. And in less serious cases, medical errors can be painful, distressing and costly.

PATIENT IDENTIFICATION ERRORS

Human mistakes are sometimes inevitable. Even the most efficiently run hospital department can fall prey to errors in patient identification, particularly in extreme circumstances, for example when busy staff are dealing with a flu epidemic or handling emergency admissions.

But patient identification errors are more widespread than many realise, and the evidence suggests that they are often caused by incorrectly or poorly labelled medication, specimens, medical files or patient wristbands.

Healthcare settings have reported numerous cases of mis-identification. These are the most common types of patient identification issues which can lead to medical mistakes:

Medication

Incorrect labels on medicine bottles present a serious risk to patients in a number of ways. If a patient is given the wrong medication, not only can their condition go untreated, the patient could experience a dangerous reaction to the drug, or suffer from unnecessary and damaging side effects.

But incorrect medical labelling is by no means uncommon. And there is certainly scope for errors to occur anywhere from the moment a clinician writes a prescription, through to the preparation and dispensing at the pharmacy, right up to the point the patient is given their medicine.

A UK government commissioned study has revealed that an estimated 237 million medication errors occur in the NHS in England every year, and avoidable adverse drug reactions (ADRs) cause hundreds of deaths.[3]

Patient files

Medical records which contain a history of a patient's healthcare, including treatments, medication, allergies, test results, X-rays and scans can sometimes be matched to the wrong patient with disastrous consequences.

In 2017, the US-based ECRI Institute analysed over 7,600 safety events related to patient record identification and found that these breaches had impacted patient care, treatment and billing [5]. The research prompted a review

Patient wristbands

Even when hospital patients are wearing wristbands which identify them by name, there is the potential for mistakes to be made. The ECRI Institute found that in a 32-month period, around 15% of patient identification errors involved physical identification of patients and most of these events took place due to missing wristbands, patient identify not being verified, or incorrect wristband identifiers [6].

Measuring the impact

The impact of medical errors can be widespread and long-lasting, leaving a trail of damage in their wake.

Clinical samples

When blood samples or urine specimens are matched with the wrong patient, the repercussions can be serious. Testing an incorrect sample can result in faulty diagnosis or inappropriate treatment for the patient. Medical conditions can be missed or false positive results given, putting patients' lives at risk.
A key issue with biological samples is that, unless they are correctly labelled at the point of provision – which could be at the bedside, in a clinic or provided by the patient – there is the possibility that samples can be mis-identified when they are sent for analysis.

17% of mistakes in blood administration in Germany over a four-year period were down to patient identification errors,4 leading in the worst cases to patients receiving the wrong blood transfusions.

Today's healthcare sector is uniquely challenged

UNDERSTANDING THE CHALLENGE

Eliminating mistakes by ensuring that patients are accurately identified and their medicines, samples and medical records are correctly labelled may seem obvious, but when medical staff are stretched to their limits it is possible to see how mistakes can be made.

Today's healthcare sector is uniquely challenged by a combination of heavy staff workloads, high levels of patient demand and the increasing complexity of medical treatments. And unlike most other working environments, when something goes wrong, it's people's lives that are at stake.

A workforce under pressure

Medical staff on the front line are tackling a growing workload. In a Europe-wide survey carried out for a November 2017 report entitled Time to Care, nurses in 10 out of 11 European countries said that their workloads had become more difficult to manage compared with five years ago, while doctors in 8 out of 11 countries held the same view.[11]

The human cost

While patient identification errors clearly have a negative impact on the patients themselves, making them susceptible to further physical and mental health difficulties, the ripple effect of a never event or a serious mistake can be significant. A patient's relatives, dependents and friends are likely to be affected by a medical error, if for instance the patient suffers continuing ill health or is unable to remain in paid employment as a result.

Healthcare professionals also feel the impact of involvement in a serious mistake arising from a failure in patient identification. Medical staff may have their employment terminated, face heavy sanctions or lose the right to practise. And there is a risk that individuals, as well as the healthcare settings they work for, could be subject to medical negligence claims as a result of errors.

The financial cost

It is difficult to quantify the full impact of patient identification failures, but the cost implications are certainly considerable. The World Health Organisation (WHO) estimates that the global cost of medication errors alone could reach 42 billion US dollars annually, not counting lost wages, productivity or healthcare costs. This amounts to almost 1% of global expenditure on health.[7]

And in European countries without a universal healthcare system, or where patients make financial contributions to their healthcare at the point of delivery, there will also be the question of how the costs for unnecessary procedures or the additional treatment to remedy mistakes will be met.

The research sets these findings in the context of shifting trends in healthcare. Throughout Europe, hospital stays have become shorter, but more patients are presenting with multiple, complex conditions and there are increasing volumes of patients in emergency and outpatients departments. It's hardly surprising that healthcare professionals are feeling the pressure.

And it's an issue that is likely to intensify in the coming years. Hospitals and other healthcare settings across Europe are experiencing difficulties recruiting and retaining enough healthcare professionals to fill the gaps. The WHO predicts a shortfall of up to two million health professionals (or 15% of the workforce) across the EU by 2020.[12]

Although the number of physicians and nurses has increased in general in the European region by approximately 10% over the past 10 years, it is unlikely that this increase will be stable and sufficient to cover the needs of ageing populations.

More patients through the doors

The winter of 2017/2018 shone a bright light on the extent to which unexpected demand can place added strain on an already overstretched healthcare sector. In the UK, NHS trusts were forced to cancel all non-urgent operations at the beginning of 2018 due to high levels of emergencies, resulting in around 50,000 cancelled operations.

While in France, the 2018 flu epidemic saw 142 hospitals put on full alert.

The Time to Care report identifies a shortage of clinical specialties such as emergency departments, intensive care and operating theatre staff, while there are challenges in handling patient complexity and not enough time for hands-on care.

The combination of funding shortages, more patient traffic and an ageing population with multiple needs makes it harder for hospitals to manage the routine administration that keeps patients safe. That is why patient identification is critical to reducing errors in hospitals across Europe, but is the technology that healthcare staff use for labelling and printing up to the task?

> **"The global cost of medication errors could reach 42 billion US dollars a year."**

ADDRESSING THE PAIN POINTS

In the demanding environment of a hospital, healthcare printing and labelling could be seen as just another task in the long list that staff need to carry out. However, it is absolutely key in ensuring accuracy of patient identification, and labels with the correct information will ultimately help to aid efficiency and cut down the workload.

But how satisfied are healthcare staff currently with the printing and labelling technology that they use in their day-to-day work? In research into healthcare technology commissioned by Brother in 2018, 50 healthcare staff in the UK, France and Germany, were asked about their experiences with patient ID and labelling.

Patient wristbands

Patient wristbands are at the core of a hospital's patient identification process. Printed when the patient is admitted, the wristband contains personal data and information that ensures the patient receives the correct treatment.

According to the research, patient wristbands are printed in a range of locations around a hospital, typically at the office or reception desk, in a consulting room or at the bedside. In 64% of cases, administrative staff are responsible for wristband printing, while 36% of those responsible are nurses.

Durability issues

While the wristbands are designed to be worn by a patient throughout the duration of their stay, some hospital workers stated that the wristband printing was not sufficiently durable. “They fade after a week.” (Hospital, Germany). Others pointed out that the wristbands needed to be able to withstand contact with soaps, gels and other liquids.

As patient wristbands are usually applied on or soon after admission of the patient, this is usually one of a number of tasks being carried out by the person responsible, so speed and ease of printing are clearly priorities too.

Medicine labels

Generally, medicine labels need to be printed by trained professionals, such as pharmacists and staff in hospital pharmacies and dispensaries. Along with the patient information, a label will contain details such as the drug name, dosage and associated warnings.

Time-consuming;
Printing often takes place while a patient or medical professional is waiting, and survey respondents mentioned that needing to replace the paper rolls or adjust the printer settings can take too much time, causing issues. “Sometimes the calibration goes wrong and it prints blank pages so we have to re-calibrate it.” (Pharmacy, UK).

The research indicates that health professionals want technology that is simple to maintain as well as to use, so that staff do not have to spend time working out how to change consumables or alter settings.

Patient file labels

Designed to contain a patient’s medical records and paperwork, patient files are likely to be shared between multiple departments, and the file label needs to be durable enough to stay attached for some time.

Patient file labels are vital in ensuring that a patient’s treatment pathway is followed smoothly, and they are typically printed in administrative departments, to be attached to files that are used in hospitals, clinics and care homes. 64% of patient file labels are printed in administrative offices, 26% in reception areas and 10% in clinical rooms.

Difficult to use;
These labels are likely to be used in a variety of settings and by a number of users, and respondents’ frustrations tended to centre around quality issues, such as lack of durability, or fiddly consumables that are difficult to fit. Overall, it appears that staff want the labelling to be a seamless process and one that will not add tasks to an already busy schedule. In short, healthcare staff want to spend less time on printing technology and more time with patients.

So what would the healthcare industry be able to achieve from a better approach to medical labelling and patient identification?

Make more time for patients

The 2017 European healthcare report, Time to Care, highlights the lack of time healthcare teams have to spend with their patients. Health professionals have typically spent years training for a career in patient care and they don’t want their time taken up by patient identification technology. The printer should work when it’s needed.

Ease of use;
Hospitals need printing technology that is not only easy to use, but easy to maintain. A clinician on a busy shift in the emergency department would not need to fit consumables or calibrate printers if they could simply drop in a new roll of labels and press print.
In some hospital departments and clinics there is a need to print a range of different labels for medicine bottles, sample containers and patient wristbands within minutes. If medical teams are able to print wristbands and labels from one single machine, this can save valuable time that is better spent with patients.

Get the freedom to move

As the Brother healthcare survey shows, label printing can take place in many different areas of a hospital, as well as in clinics, pharmacies, GP surgeries and care homes. A label printer is likely to be used by an admissions nurse, an administrator or a physician as they move around during their working day.

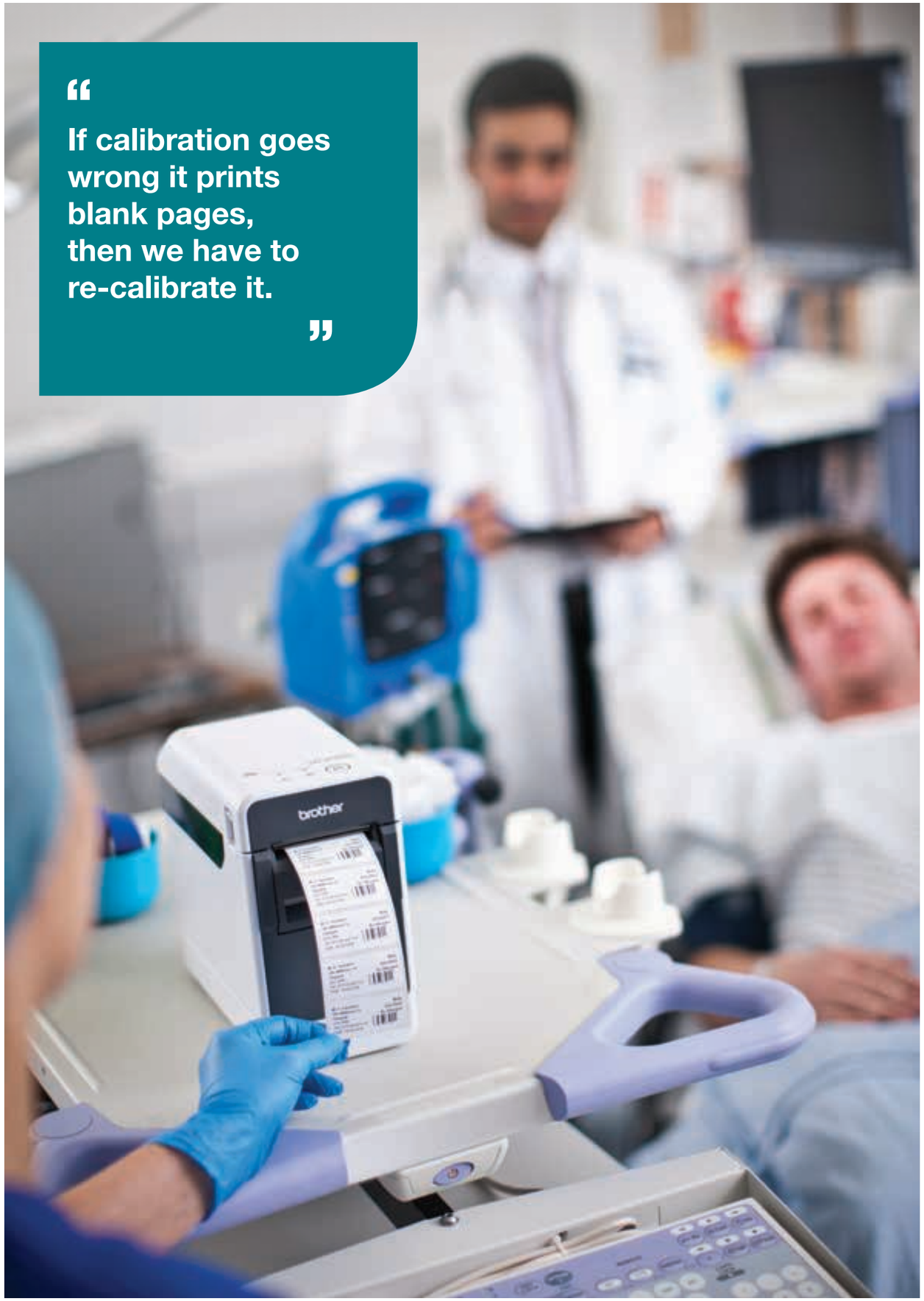
Portability;
Healthcare settings of all sizes need access to a printing solution that can be used wherever it is needed, at the reception desk, consulting room or on the ward trolley. With a portable printer, staff have the freedom to put the machine to work in almost any area of a hospital. Hospitals should also consider whether additional portability could be achieved with a printing solution that has Wi-Fi and Bluetooth connectivity, for instance, or can be battery operated.

Hospitals need a labelling system which will enable a busy nurse to print a patient wristband quickly and easily by the bedside, and a phlebotomist to label a blood sample as soon as it is collected. The immediacy of labelling will help hospitals to eliminate mistakes and put the essential printing technology into the hands of those who need it, where they need it.

Peace of mind

Patient safety is the main consideration for any healthcare professional. However, errors can creep in when something unexpected happens that causes distractions; a nurse is called away to deal with an urgent case, for instance, or a clinician is interrupted to give advice.

But with accurate information on wristbands and labels, mistakes and never events occurring as a result of patient identification failures can be avoided.



> If calibration goes wrong it prints blank pages, then we have to re-calibrate it.

Accuracy;
Hospitals need accurate, barcoded wristbands so that clinicians can be safe in the knowledge that the right patient is receiving the right procedure, and maternity staff are in absolutely no doubt which new-born infant belongs to which parent.

A pharmacist has to be sure they are providing the correct medicine to a patient. An efficient, durable labelling solution will reduce the possibility of error and increase accuracy in the delivery of the medication which has been prescribed.

When a patient provides a blood sample in advance of a transfusion, or a urine sample for testing, hospitals have to be sure that they have matched the right sample to the right patient. A portable label printer, which can be used to identify the sample as soon as it has been taken, will eliminate potentially dangerous mistakes and ensure that the patient receives the treatment they need.

Meet legal requirements

Healthcare settings in Europe must adhere to legislation on patient identification, in particular the use of labelling and barcodes.
In addition, healthcare and medical organisations have set out standards and best practice to follow.

National and international legislation is also usually combined with internal procedures which are specific to the healthcare setting or trust, and healthcare staff who are involved in medical labelling receive internal training at their workplace.

Compliance;
Hospitals are legally required to have clear patient identification procedures which include the printing and labelling of wristbands, medicine bottles and sample containers. With specialist healthcare printers which can print good quality, hard-wearing labels with antimicrobial coating, hospitals can be sure they are meeting these legal requirements.

As barcodes on labels are mandatory, healthcare professionals need to be able to print and scan barcoded labels which provide consistent accuracy in verifying a patient's identification, their medication, dose and time.

Brother's TD-2130NHC offers auto calibration as standard, so staff don't need to waste time adjusting settings.

To mitigate patient identification errors, legal guidelines have been drawn up for countries across Europe

Regulating medical labelling

In the UK, the Medicines and Healthcare products Regulatory Agency (MRHA), sponsored by the Department of Health and Social Care, regulates medicines, medical devices and blood components for transfusion. While regulations vary across different countries and institutions, The MHRA describes best practice for the labelling of medicines, so that they can be used safely by patients and healthcare professionals.

The UK Royal Pharmaceutical Society and Pharmacy Forum of Northern Ireland jointly published a statement of professional guidance on dispensing labels for medicine use, designed to cover identification and specific dosage instructions for individual patients.

European regulations for the use, packaging and labelling of medication are set by the European Medicines Agency (EMA). The agency is also responsible for the scientific evaluation, supervision and safety monitoring of medicines in the EU.

Laws on the use of barcodes

To increase the accuracy and security of healthcare labelling, barcodes are widely used, and GS1, the organisation which governs the use of barcodes worldwide, has set standards for barcodes in healthcare across Europe.

In 2014, the Department of Health mandated that all NHS Trusts in England must adopt standards set by GS1, and the deadline for NHS compliance is 2019/2020.

A key requirement for the healthcare sector is to adopt GS1 two-dimensional barcoding on patient wristbands and medical charts, so that patients can be scanned and tracked electronically from the moment they are admitted into hospital until they are discharged, helping to eliminate treatment errors.

Quick Response (QR) codes, the newest form of two-dimensional barcode, can hold much more data. These are widespread in the retail sector and are increasingly being used in healthcare labelling, notably for patient file and medication labelling.

CONCLUSION

According to the WHO, the simplest definition of patient safety is the prevention of errors and their adverse effects on patients. Yet too many healthcare errors are still happening, and many of these are as a result of failures in patient identification.

While legal guidelines have been set out to mitigate patient identification errors, these can only improve the situation so far. What healthcare settings need is a clear patient identification strategy, backed up by technology that can print fast, efficient and durable labelling.

The healthcare sector faces considerable challenges, and these are unlikely to be diminished in the years to come, as a pressured workforce gears up to continue caring for a growing and ageing population. It is essential that healthcare professionals have access to an easy, streamlined way to identify their patients and their medication.

Specialist healthcare printing can enable medical settings to keep track of each and every patient, blood sample, medicine bottle and medical file, putting healthcare teams' minds at rest that they are keeping their patients safe and delivering the best possible care.

Accurate printing and labelling is at the heart of quality healthcare and patient safety.

Brother portable printer ranges provide the perfect solution for patient identification. Our products are specifically designed to streamline healthcare workflows and maintain optimum accuracy for patients throughout their journey.

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Contact:

www.brother.eu

Brother International Europe Ltd
Brother House, 1 Tame Street, Audenshaw,
Manchester M34 5JE
Tel: +44(0)161 330 6531
Fax: +44(0)161 330 5520