



# **Patient Identification**

**Faculty of Medicine, Masaryk University  
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<b>Name and Surname:</b>	<b>Anthony Mitry</b>
<b>UCO:</b>	<b>366402</b>
<b>Email:</b>	<b>anthony.mitry@gmail.com</b>

## **Introduction**

When discussing patient identification it is in regards to a person who is going to receive medical treatment and the act of identifying that person [1, 2]. Therefore, we are going to follow what happens in identification of a patient during admission, hospital stay, and procedures.

Identification of patients occurs multiple times per day [3]. Any error during these processes may result in wrong diagnostic tests being ordered [4], wrong medication administered [5], wrong transfusions [6] or even wrong surgeries on a patient [7].

## **Patient admission**

Errors can occur during registration of the patient, which can lead to any number of mistakes from wrong medication to wrong surgeries. They can be due to human error, especially in emergency circumstances where the staff is rushing and may make simple mistakes such as spelling the patients name wrongly [8,9]. Not asking the patient if they had visited the institute and making a duplicate record. Untrained staff using the registration system can cause problems to arise [8]. Alternatively, if staff focuses only on entering the data and not verifying it, it may result in error [9]. Furthermore, it may be due to circumstantial error, when patients register with similar names, or register at the same time resulting in mixed up records [10].

## **Electronic health records**

Storing patient data electronically has number of benefits, it takes less room for storage of files, access to patient's files is faster, and transfer of files between departments is easy.

Electronic Health Record systems (EHRs) are currently in use at hospitals to improve care and quality of patients and this involves have the correct patient information. They help with reminding doctors of duplicating reports and are able to interpret patient results and provide a warning if necessary [11]

Personnel at the hospital were reported to find the use of EHRs very useful. They thought that it improved the care of patients. This was the consensus with staff that was competent of using the system [12]. However, there were negative reviews from staff that were not used to using the system {13}. This suggests better training of how to use the system effectively.

## **Patient identification wristbands**

During any hospital stay, a patient must wear a wristband on their arm for identification. Correct wristband leads to correct patient identification, which leads to the correct treatment. A report showed that from 2006 to 2007, 3000 patients have received the wrong treatment due to incorrect wristbands [14]. To decrease the error in patient care associated with wristbands, there are rules for standardizing

wristbands. There might be small differences in design of the wristbands from country to country however; they all share a similar theme. The wristband must be white/clear, the patients' information is written in black on a white background (Name, D.O.B and hospital number), wristbands should be good size, and able to fit all individuals, they should be waterproof and not interfere with medical procedures, and they should be an appropriate sized label for recognition [14, 15, 16].

Color-coding introduced into wristbands so staff can identify patients at risk more easily. However, there has been little standardization of colors by any organizations. In the UK only red is standard for allergy or patient at risk [15]. Hospitals are using other colors such as yellow for falls, green for receiving blood and yellow/black for radioactive [15]. There are multiple colors used for the same risk, which can cause confusion especially when staff works in multiple hospitals using different color schemes [16].

The American Health Association standardized three risks red for allergy, yellow for falls and purple for do not resuscitate, however not all healthcare systems adopted this scheme and it still leaves many other colors available to represent multiple risks [17, 18].

Another method used to increase patient identification is radio frequency identification (RFID) [19]. RFID integrated into objects by placing tabs on them which emit radio frequency; RFID when used with other technology can assist in locating where the patient is [19].

### **Medicine administration and identification**

If it is unable to identify patients correctly, they can end up receiving the wrong medication.

There are medical guidelines for administering medication to decrease the risk of patients receiving the wrong medication. The medication order must be correct and the drug should be in date [20].

The five rights of administration [20]:

- 1) The right medication must match the prescription with the medication
- 2) Right patient must be confirmed by medical number, name and age
- 3) The patient is administered the correct dose for their size/sex/age
- 4) The correct form and route of drug is administered
- 5) Medicine must be administered at the correct time

Double-checking is to prevent medication errors. Is when a second member or staff independently calculates the medication dose for a patient, then compares it with the first person who calculated it [20].

Nurses administer most of the medicines and they are mainly responsible for errors occurring here. Nurses are going to make mistakes at some point and it found that they only report major incidences where patients are in danger [21]. A questionnaire was developed to find out what nurses thought were the most likely causes to cause error for medication of patients and the following results in order from most likely to least likely: Distractions during administration, similar medication packaging, medicines that sounded/looked alike.[22]. Ways to decrease the error occurring were suggested such as protected drug administration time (decreased distractions), better distinct packaging between drugs, training in mathematics and pharmacy to better nurses knowledge [22].

Medication reconciliation introduced to hospitals to decrease medication errors [23]. This is where a clinical pharmacist is introduced into the hospital setting to go over patients medication lists so they won't react with any medications they are already taking [23].

In a study examining the effect of medication reconciliation it was found that there were fewer drugs used and that less patients returned to the health care due to drug related problems [24, 25, 26].

### **Computer Provided Order Entry (CPOE)**

CPOE is where a clinician enters medication orders or tests into a computer system, which then orders, directly to the pharmacy.

A study took place to test how many errors occur when sending out a CPOE. They then added a few precautions such as having to click on a tab to verify the correct patient, which had the patient's details showing. Then another measure where the clinician would have to enter the patients details to verify the order. With the added precautions error decreased by up to forty one percent [27]

### **Miscommunication errors**

Patient information sometimes delivered by telephone. Especially lab reports of tests, which are of important value, so those, that are in dangerous ranges need to be delivered as soon as possible so the patient can be treated. In a study focusing on the type of errors made were as follows from highest to lowest: Wrong name, wrong test result, wrong sample/repeated test, and refusal of the receiver to repeat the message [28, 29]. The Joint commission on Accreditation of Health Care Organization made it mandatory so that any important lab tests will require a read back from the recipient, which will decrease communication errors [28, 30].

You do not have to be taking notes over the phone to have miscommunication errors. In a surgery if proper communication is not prompted then simple mistakes can occur. A study in a surgery measured all the errors that happened with labeling of specimens. The following errors were no label, empty sample container, wrong patient name, no description of site, no name [31, 32].

### **Mislabeling of specimens**

Investigation took place on patient specimen samples that were erroneous [32]. Highest error of samples was where there were many small procedures taking place and resulted in mixing of two samples [32]. The result can be devastating as patients will receive the wrong data about their condition and may even end up having further treatment for something they do not have.

### **Transfusion errors**

Blood transfusions are crucial to the patients' survival or the other way around, the wrong blood transfusion can result in death to the patient. [33]. Wrong transfusions can occur due to improper checks. If the incorrect sample is tested, then a mismatched transfusion occurs [33]. It is easy to forget simple bedside manner administration, but it happens. It can be just simply identifying the patient's details, which will stop errors from occurring [33, 34, 35.]. A method to prevent mistakes in transfusion integrates the use of barcodes. Here a patients' blood sample matched to a barcode, which then placed on the wristband. Then the same barcode placed on the transfusion, just before the transfusion the wristband. Comparison of transfusion barcodes occur, if they are, a match you get the green light, if not then an alert sounds to stop the procedure [33, 34].

### **Wrong site surgery**

Wrong site surgery is considered a never event, which means that it should never happen. However, we know wrong site surgeries are still occurring [36]. They happen in all departments and a high number of them occur in ophthalmology while the lowest occurs in the orthopedic department [37]. The reason of to why they occur is hard to pinpoint but the following have been presumed to be causes, misplacing of marking/bad marking, in a busy day with switches of staff between or even during procedures, doctors simply confusing the side on which to operate, and time out problems. Communication problems seem to play a big factor in it. [36, 37, 38, 39].

The WHO developed guidelines to prevent this from happening referred to as safe surgery [40]:

“The Universal Protocol is a three-step process in which each step is

Complementary and adds redundancy to the practice of confirming the correct patient, site and procedure.

Step 1. Verification: This consists of verifying the correct patient, site and procedure at every stage from the time a decision is made to operate to the time the patient undergoes the operation. This should be done:

- When the procedure is scheduled;
  - At the time of admission or entry to the operating theatre;
  - Any time the responsibility for care of the patient is transferred to another person;
- and
- Before the patient leaves the preoperative area or enters the procedure or surgical room.

Step 2. Marking: The Universal Protocol states that the site or sites to be operated on must be marked. This is particularly important in case of laterality, multiple structures (e.g. fingers, toes, ribs) and multiple levels (e.g. vertebral column). The protocol stipulates that marking

Must be:

- At or next to the operative site; non-operative sites should not be marked;
- Unambiguous, clearly visible and made with a permanent marker so that the mark is not removed during site preparation

(Health-care organizations may choose different methods of marking, but the protocol should be consistent in order to prevent any ambiguity. The guidelines of the National Patient Safety Agency in England recommend use of an arrow drawn on the skin and pointing to the site, as a cross could denote a site that should not be operated and introduces an element of ambiguity. The American Academy of Orthopedic Surgeons endorses a ‘sign your site’ protocol in which surgeons write their initials or name on the operative site.

- made by the surgeon performing the procedure (To make the recommendations practicable, however, this task may be delegated, as long as the person doing the marking is also present during surgery, particularly at the time of incision.
- completed, to the extent possible, while the patient is alert and awake, as the patient’s involvement is important.

Step 3. ‘Time out’: The time out or ‘surgical pause’ is a brief pause before the incision to confirm the patient, the procedure, and the site of operation. It is also an

opportunity to ensure that the patient is correctly positioned and treat any necessary implants or special equipment is available. The joint commission stipulates that all team members be actively involved in this process. Any concerns or inconsistencies must be clear at this stage. Documentation of the checks during the ‘time out’ is necessary, potentially in the form of a checklist, but the Universal Protocol leaves the design and the delivery to individual organizations. The ‘time out’ also serves to foster communications among team members.”

## **Discussion**

A problem with patient identification is in all aspects of medical care. As we saw in the registration process, patient data entry and processing can occur more than once in the system making duplicate records, they can be confused with family members who have similar names or even strangers with the same last name. Instead of focusing on just entering data, there has to be a proper system checking the identity of the patient before data entry occurs [7]. In addition, there should be multiple methods of checking a patient’s identity such as a driver’s license, date of birth and hospital number when registering a patient [10].

Wristbands also pose a risk for wrong identification of patients as we mentioned. There is no rule that patients have to wear their wristband it is only strongly advised which lead to problems if patient can remove it which does happen as patients find them irritating. In addition, the fact that there is no universal standard for wristbands and their different colors is going to keep causing patient error. A universal system needs to be in place. Multiple patient checks done; the acceptable ways are name, date of birth, photo id, and wristband. There are other places, which display patients’ details, such as outside the door; above the bed but these are not standard ways to check [10].

There are guidelines put in place but even with them errors are still occurring [21, 36]. It might be a good idea to have a refresher course. Therefore, that staff can carry out the guidelines properly.

Errors are also occurring during communication and sampling of specimens, tougher protocols delivered to minimize these errors [28, 29, 30, 31, 32]. The use of barcodes might be able to help in reducing these types of errors as all information is contained in the barcode.

## **Conclusion**

Patient identification errors are bound to happen somewhere along the line. However with more safety systems employed, such as guidelines, barcodes, EHRs we are able to catch the errors before any serious harm can come to the patient. As technology

advances and all information systems are improved, the error rate should decrease with it.

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