ORIGINAL ARTICLE

Incidence of Patient Identification Errors observed before Medication and Procedure/Intervention

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ABSTRACT

Objectives: To identify the number of individuals for whom double identification check was done before administering medication and before procedure/intervention, as per Continual Quality Improvement 3j indicator of National Accreditation Board of Hospitals (4th edition) and hospital policy.

Materials and methods: The study was a concurrent, observational recording of the study population which included doctors/surgeons, nurses, and/or technicians before administration of any medication and before beginning of any procedure/intervention. The observations were recorded on a prepared checklist to find the compliance of incidence of patients' double identification.

Results: A total of 34 observations were recorded before administering medication to a patient. In 18 cases, wristbands were not being used, and identification details were incorrect in 4 cases. Of 34 cases, identifiers were illegible in 6 cases. The major area where the error was high was noncompliance to verbal confirmation of identity (ID) and checking it from the patient's file. Out of 34 observations before a procedure/intervention, 9 errors were identified in cases where the ID band was not used for verification, and identification details on the band were illegible in 5 cases. In six cases, the patient's name was not verbally confirmed with the patient or carer. Furthermore, in 10 cases, verbally confirmed name was not checked with the patient's file. Out of 34 cases, double identification was not done in 13 cases.

Conclusion: Many nurses, doctors, and technicians in clinical settings do not verify patient ID before performing a task, resulting in more than one-third of staff not conforming themselves with the double identification procedure. The study also showed that over three-fourths of the total invasive procedures are compliant to double identification. On the contrary, noninvasive procedures showed less than one-fourth compliance to double identification.

Keywords: Band, Compliance, Double identification, Identification, National accreditation board for hospitals and health care providers, Wristband.

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INTRODUCTION

Worldwide, health care facilities face a wide range of safety problems. The failure to correctly identify patients

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continues to result in medication errors, transfusion errors, testing errors, wrong person procedures, and the discharge of infants to the wrong families.[1] During medication administration, failure to identify patients correctly can lead to patients receiving incorrect medications, perhaps resulting in adverse drug events and even death Schulmeister.[2] The major areas where patient misidentification can occur include drug administration, blood transfusions, and surgical interventions and procedures.[9] The trend toward limiting working hours for clinical team members leads to an increased number of team members caring for each patient. This increases the likelihood of hand-over and other communication problems, which increases the chances of avoiding identification check of patients.[1]

A patient wristband may seem a relatively simple feature of health care, compared with the management of high-risk procedures, medicines, and a work environment of constant vigilance and emergency situations. All patients admitted to acute health care settings are issued with a patient identity (ID) wristband. The aim of a patient wristband is to uniquely identify the patient in a hospital.

Identifying a Patient with ID Band

- The hospital staff must ensure that all inpatients must wear an ID band at all times during the stay in the hospital.
- The patient's ID must be confirmed by the staff before administering any medication or carrying out any intervention or procedure.
- At least two identifiers (e.g., patient's full name and ID number) must be used to verify patient's ID.
- If the patient is found to have no ID band, neither medication should be administered, nor should any procedure or intervention be performed.
- In cases in which patient's ID band is torn or rubbed or has been removed, for any reason, it is the responsibility of the staff to ensure that it should be replaced without any delay.

Several organizations have suggested guidelines to increase the accuracy of patient identification, including the National Patient Safety Agency, the Joint Commission on Accreditation of Health care, and the World Health Organization. The Joint Commission, in the United States of America, listed "Improve the accuracy of patient identification" as the first of its National Patient Safety Goals

(NPSGs) introduced in 2003, and has since then updated it annually.[3] The Joint Commission guidelines for fulfilling this goal are as follows:[10]

- *NPSG.01.01.01*: Use at least two patient identifiers when providing care, treatment, and services. Identifiers may be the individual's name, an assigned identification number, date of birth, or other person-specific identifier. The patient's room number or physical location is not used as an identifier.
- *NPSG.01.03.01*: Eliminate transfusion errors related to patient misidentification.

The process of patient identification has been explained in Flow Chart 1. The National Accreditation Board for Hospital and Health care provider (NABH) has certain accreditation standards for hospitals on particulars of Continual Quality Improvement (CQI). The organization must identify key indicators to monitor the clinical structures, processes, and outcomes, which are used as tools for continuous improvement. One of the objective element in the new 4th edition of guidelines include patient safety goals.

Health care facilities may train their workers by using policies and/or procedures based on their interpretation of the above-mentioned guidelines.[4] For example, in the studied healthcare facility, the facility specific guidelines were:

The two patient specific identifiers are: 1) First and last name of patient spelt in full (initials are not permitted) and 2) the inpatient identity (IPID) number of the hospital on his/her ID band – the two specific identifiers are matched with the individual before beginning with medication, blood collection, procedure, and/or intervention. Other identifiers which can be used are address, date of birth, and photo ID.

Flow Chart: 1 Flow chart explaining the process of patient identification using two identifiers
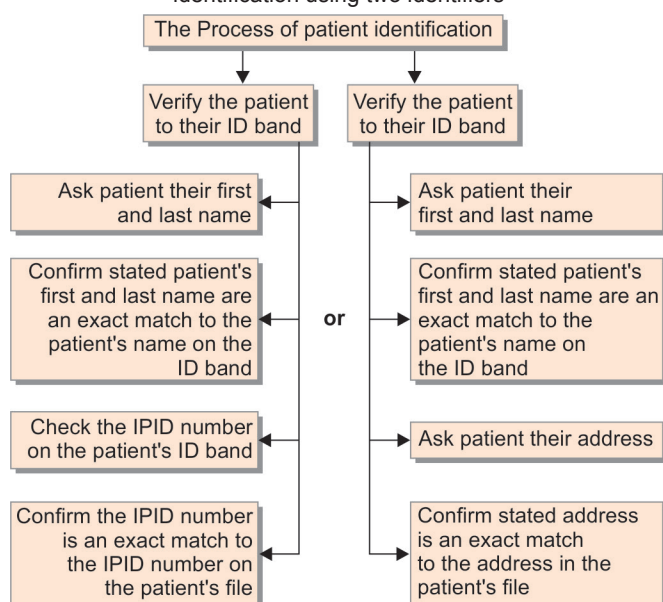
Types of Identification Bands

There are different colors of bands as per the category under which the patient falls. The different colors of bands are:

- White Band – Universal band, mandatory to be worn by all individuals admitted to the hospital. (ref. Annexure 1)
- Yellow Band/Red Band – For patients who have allergies or any history of allergy (ref. Annexure 2).
- Orange Band – For patients who need extra attention or care and/or patients who are above 65 or below 12 years of age and have potential to fall (ref. Annexure 1).
- Pink and Blue band – Identification for newborn children, pink is for girls and blue is for boys.

BACKGROUND

While in many countries wristbands are traditionally used for identifying hospitalized patients, missing bands or incorrect information limit the efficacy of this system. Color coding of wristbands facilitates rapid visual recognition of specific issues, but the lack of a standardized coding system has led to errors by staff who provide care at multiple facilities.[11] Between November 2003 and July 2005, the United Kingdom National Patient Safety Agency reported 236 incidents and near misses related to missing wristbands with incorrect information.[3] The National Patient Safety Agency's National Reporting and Learning System reported incidents, such as mismatches between patients and the documentation on their samples, records, blood transfusion samples, and products and medication (65%); missing ID bands with incorrect data on them (16%); mismatches between patients and their medical records (10%); and failures in the manual checking processes (9%) Berveley Norris.[5]

The amount of information on a wristband has steadily increased, usually with the aim of assisting delivery of care, e.g., consultant name, ward name, allergies, and address. The lack of standardization, prioritization, and space means that potential errors associated with patient identifiers include date of birth being mixed up due to differing formats and patients mixed up due to name formats. Long and multiple names may be truncated or omitted; first and second names may be presented in the wrong order; nicknames and shortened names mixed up with given full names; official names and known names mixed up; names from different cultures being wrongly translated or represented.

Several research studies have discussed patient identification errors in various health care processes in health

care facilities, few of those studies have also proposed specific strategies or guidelines to decrease such errors. Lane et al. propose a hierarchical protocol for the ideal medication administration process. Their research suggests to compare the patient's ID band to the patient's chart during medication administration.[6] Spruill et al. suggest matching two patient identifiers, the patient's name and medical record number (MRN), between two specific artifacts, namely the patient's ID band and the chemotherapy product label, to decrease incidents of patient misidentification before chemotherapy administration.[7] Paparella (2012) recommends matching any two patient identifiers suggested by the Joint Commission across three specific artifacts: The patient's statements about their ID, the patient's ID band, and the medication order with respect to the medication administration process.[8] These studies focuses on specific processes (e.g., medication administration, chemotherapy), specific artifacts (e.g., patient's ID band, patient's medication chart, chemotherapy product label, medication order), or specific identifiers (e.g., patient's name, MRN).

Purpose of Study

The hospital was running in its 3rd cycle of NABH. It mandates institutionalization of the revised standards (4th edition) by July 31, 2016. One of the CQI3j indicator, "Incidence of patient identification errors," before medication and procedure/intervention was reviewed in the study, as was asked by the medical superintendent of the hospital. This indicator provides guidance to the staff to ensure the correct ID of all patients, at all times, to restrict the risk of misidentification and adverse outcomes of care.

OBJECTIVES

- To identify the number of individuals for whom double identification check was done before administering medication, as per CQI3j indicator of National Accreditation Board of Hospitals (4th edition) and hospital policy.
- To identify the number of individuals for whom double identification check was done before procedure/intervention as per CQI3j indicator of National Accreditation Board of Hospitals (4th edition) and hospital policy.

SCOPE OF THE STUDY

This CQI indicator is applicable to the following staff of the hospital:
- Doctors/surgeons
- Nurses
- Technician

METHODOLOGY

Study Area

Inpatient wards, preoperation theater (OT) room, ultrasound room, computed tomography (CT) scan room.

Study Population

Total number of patients receiving medication and/or undergoing any procedure or intervention by doctors, nurses, and technicians of wards, pre-OT room, imaging department were studied.

Study Design

Concurrent, descriptive, observational study.

Sample Design

In this study, convenient random sampling technique was used to observe doctors, nurses, technicians of inpatient wards, pre-OT room, imaging department before administration of medicines and before beginning of any procedure or intervention, during the functional hours in the daytime.

Study Time

The study population was observed over a period of 11 days from April 13 to April 25, 2016.

Tool for the Study

Prepared observational checklist (ref. Annexures 3 and 4). Microsoft Excel for analysis of data.

Methods of Measurement

An observer followed the doctors, nurses, and technicians with each patient and filled an observational checklist. Identifying the patient identification error was defined as not completing the assigned task on that patient, which conforms to the policies and guidelines laid down by the hospital.

Convenience random sample of 68 observations respectively, were captured before administering medication and procedure or intervention during the month of April 2016. The study was conducted over a period of 11 days to identify the number of individuals for whom double identification check was not done. Verifying patient ID is defined as matching the patient to the ID band. Confirmation of patient ID required the use of at least two available patient identifiers (i.e., name, IPID number). Matching the patient to the ID band could only be done by asking the patient his or her name and matching the IPID number from the file to the ID band

Table 1: Comparison of incidences characterizing the inadequate patient identification before administering medication

Criteria	N_m	E_m	Incidence of noncompliance %
ID band not used for verification	34	18	52.9
Right color band used for allergic or vulnerable patients	34	0	0
Patient identification details incorrect	34	4	11.7
Core identifiers not present/ incorrect/rubbed	34	5	14.7
Identifiers illegible	34	6	17.6
Patient's name not confirmed	34	25	73.5
Verbally confirmed named not matched with file	34	29	85.2

N_m, number of observations before administering medication; E_m, number of errors

Table 2: Comparison of incidences characterizing the inadequate patient identification before procedure/intervention

Criteria	N_p	E_p	Incidence of noncompliance %
ID band not used	34	9	26.4
Patient identification details incorrect	34	1	2.9
Core identifiers not present/ incorrect/rubbed	34	3	8.8
Identifiers illegible	34	5	14.7
Patient's name not confirmed	34	6	17.6
Verbally confirmed named not matched with file	34	10	29.4
Identification check not done before transfer	34	9	26.4
Double identification not done before procedure	34	13	38.2

N_p, number of observations before procedure/intervention; E_p, number of errors

attached to the patient's wrist. Various other parameters were identified, such as

- Method of patient verification
- Color of ID band used
- Identification details on the band
- Legibility of identification details
- Presence of core identifiers on the band
- Verbal confirmation of patient's name
- Identification check before transfer to procedure room
- Type of procedure
- Double identification before medication
- Double identification before procedure

Inclusion Criteria

- Doctors/surgeons
- Nurses
- Technician
- Patients of wards
- Imaging department
- Pre-OT room
- Dialysis ward

Exclusion Criteria

- Intensive care unit
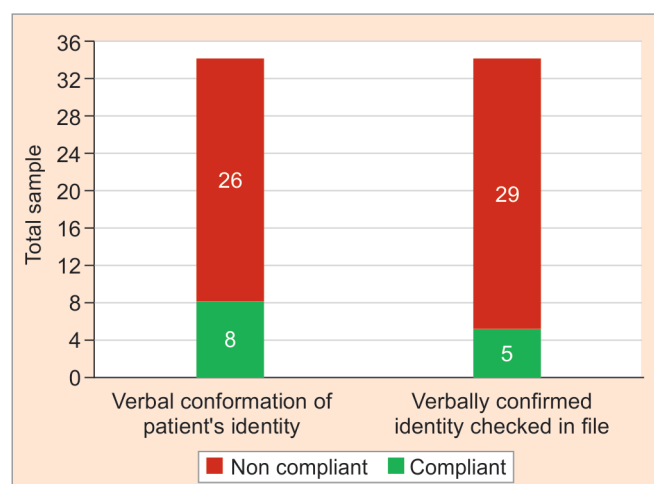- Blood sample laboratory

RESULTS

Total observation before administration of medication has been taken as N_m and before procedure/intervention as N_p. Errors observed for both are E_m and E_p respectively. When results were calculated, it was found that before administering medication to a patient, identification wristbands were used for 16 patients, and in remaining 18 number of cases, ID band was not used, which accounts for 52.9% incidence. There were few errors observed in cases of identification details on the band (Table 1).


**Graph 1:** Identity confirmation before medication

However, major areas where the scope of error was high were verbal confirmation of identity and checking it from the patient's file. The incidence here is as high as above 70% (Table 1 and Graph 1).

Results for patient identification before a procedure/ intervention were also observed in which nine errors were identified in cases where ID band was not used for verification. Identification details on the band were illegible in 5 cases out of 34 observations (Graph 5). In six number of cases, it was observed that the patient name was not verbally confirmed with the patient or carer. Furthermore, 10 cases were such where verbally confirmed name was not checked with the patient's file (Graph 6). Out of 34 number of invasive and noninvasive procedures, double identification was not done in 13 cases (Table 2).
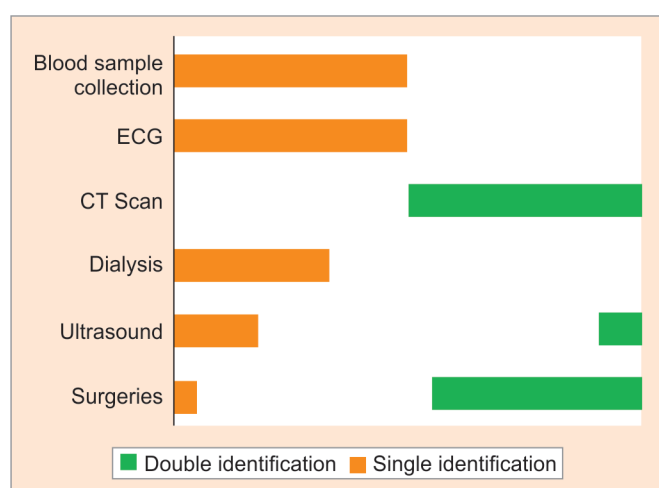
When bifurcation of invasive and noninvasive procedures is done, it was seen that in 90% of invasive procedures which includes surgeries and biopsies, a double identification check was done (Graph 2). Here, the identification procedure was carried out in the pre-OT room,
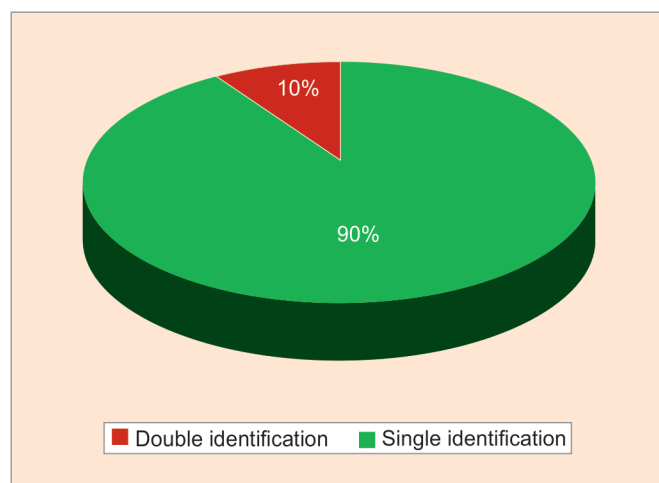
Graph 2: Invasive procedure
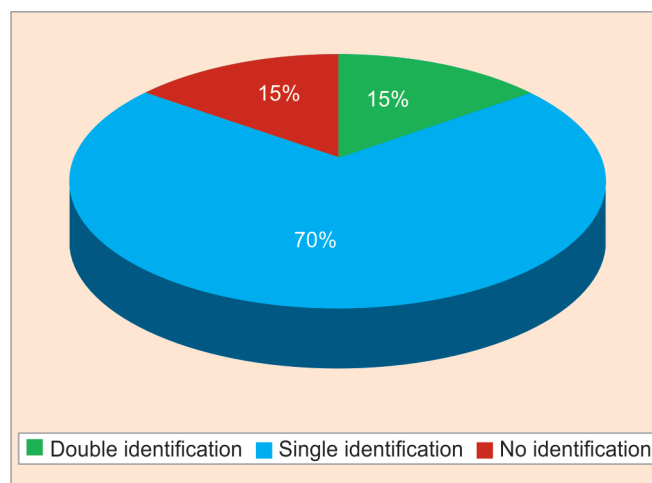
Graph 3: Noninvasive procedures

Graph 4: Compliance to identification check of different procedures

where patient's identity is confirmed using two identifiers (i.e., patient's name and IPID number of the patient). Whereas in noninvasive procedures the incidence of double identification was 15%, single identification check was done 70% of the time (Graph 3).

Incidence for identification check of different procedures has also been identified (Graph 4).

Here, incidence for double identification was 0% in procedures like blood sample collection, electrocardiography, and dialysis. On the contrary, incidence of double identification was 90.5% for surgeries and 100% for CT scan.

LIMITATIONS

Our sample size was fairly small (n = 68). This was due to the limited time we had for this study and limited financial support. This study can also be conducted with a large sample size and for a longer duration, and perhaps the result can then be generalized (for 1000 screening population, NABH recommends 278 sample size) (Annexure 5).

Other limitations also include the study exclusion criteria which are as follows:
- Intensive care unit
- Blood sample laboratory

CONCLUSION

The process of patient identification is a prerequisite for providing successful and safe health care. In summary, it was concluded that many nurses, doctors, and technicians in clinical settings do not verify patient identity before performing a task, which resulted in more than one-third of staff not conforming themselves with the double identification procedure prior to medication administration. Our study also shows over three-fourths of the total invasive procedures are compliant to double identification. On the contrary, noninvasive procedure shows less than one-fourth compliance to double identification.

Although patient identification errors are infrequent, they may result in serious adverse events and are preventable. Improved training and better use of technology may improve the way health care workers verify patient identity, and additional research on these methods is warranted.

RECOMMENDATIONS

Additional training is one approach to improve the frequency and accuracy of health care workers verifying patient identity. Additionally, a bar-coded wristband can provide two forms of identification in one easy-to-access place by encoding the patient name and identification number. The bar-code frequently serves as a key to a database. When it is read, the scanner decodes the symbol and instructs a computer to look up or update the specific record that corresponds to that patient.

Combination of technology and training might overcome the limitations of the human mind during the time
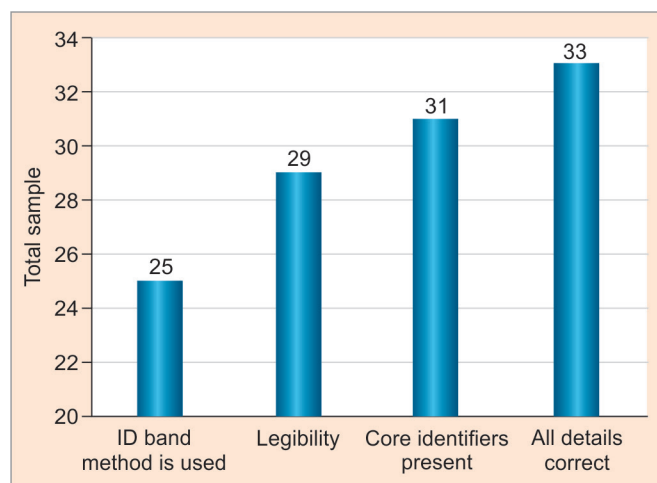
Graph 5: Identification details of the ID band before procedure/intervention
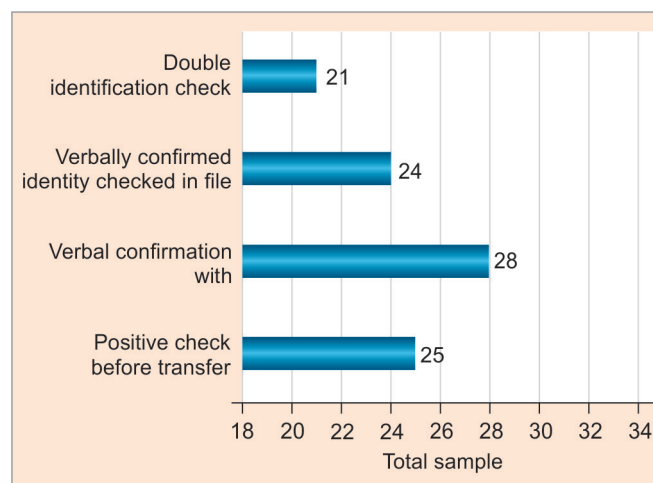
Graph 6: Identification check before procedure

of verification procedures. In light of the critical requirement that a patient's identity band details be accurate and legible, it may be sensible to develop specific procedures for verifying all identity bands. This needs to be done immediately after they are applied by an individual other than the one who applied the band, to improve the results for the upcoming CQI3j indicator of NABH.

ANNEXURES

Annexure 1

Picture 1: White band, all the necessary details printed on the band

Picture 2: Orange band, for patients who are vulnerable, all the necessary details printed on the band

Annexure 2

Picture 3: Yellow band, for patients who are allergic, all the necessary details printed on the band

Annexure 3

Observation Checklist-1
Identification before medication

1.	What is the method used to identify the patient?	ID Band
		Photo ID
		Address
		None
2.	If ID band: Is it a single band (one only)	Yes
		No

3.	If No: What is/are the color of the other band/bands?	Orange
		Yellow
4.	If orange: Is the patient vulnerable?	Yes
		No
5.	If Yellow: Is the patient allergic?	Yes
		No
6.	What core identifiers are present on the identification band?	Patient's name
		Age
		Sex
		UHID number
		IPID number
		Date of admission
7.	Are the patient identification details on the band correct?	Yes
		No
		Unable to verify
8.	Are the identifiers in black text on a white background?	Yes
		No
9.	If yes, are all the identifiers on the band legible?	Yes – hand written
		Yes – typed
		No
10.	Is the patient conscious or unconscious?	Conscious
		Unconscious
11.	Is the patient's identity confirmed verbally with the patient or carer?	Yes with patient
		Yes with carer
		No
12.	Is the verbally confirmed name of the patient checked with the patient's file?	Yes
		No

Annexure 4

Observation Checklist-2
Identification before procedure/intervention

1.	What is the method used to identify the patient?	ID Band
		Photo ID
		Address
		None
2.	If ID band: Is it a single band (one only)	Yes
		No
3.	If No: What is/are the color of the other band/bands?	Orange
		Yellow

4. If Orange: Is the patient vulnerable?	Yes
	No
5. If Yellow: Is the patient allergic?	Yes
	No
6. What core identifiers are present on the identification band?	Patient's name
	Age
	Sex
	UHID number
	IPID number
	Date of Admission
7. Are the patient identification details on the band correct?	Yes
	No
	Unable to verify
8. Are the identifiers in black text on a white background?	Yes
	No
9. If yes, are all the identifiers on the band legible?	Yes – hand written
	Yes – typed
	No
10. Is the patient's identity confirmed verbally with the patient or carer?	Yes with patient
	Yes with carer
	No
11. Is the verbally confirmed name of the patient checked with the patient's file?	Yes
	No
12. What is/are the type of procedure/(s) that the patient is required to undergo?	Invasive procedure
	Non-Invasive procedure
13. Is patient identification check done before transferring the patient to the procedure room?	Yes
	No
14. Is patient identification check done with two identifiers before initiating the procedure?	Double Identification
	Single Identification
	None

Annexure 5

c. Sample size annexure

Screening population	Sample size*
50	44
100	79
150	108
200	132
500	217
1000	278
2000	322
5000	357
10000	370
20000	377

*For the recommended sample size, all the samples should be take n on continuous basis.

Picture 4: Sample size recommended by NABH (4th edition) for capturing CQI3j indicator

REFERENCES

1. WHO Collaborating Centre for Patient Safety Solutions. Patient identification. Patient Safety Solutions 2007;1(2):1-4.
2. Schulmeister L. Patient misidentification in oncology care. Clin J Oncol Nurs 2008 Jun;12(3):495-498.
3. Junghee J, Jenna LM, Lori AC, Philip LH. Re-examining the requirements for verification of patient identifiers during medication administration: no wonder it is error-prone. IIE Trans Healthc Syst Eng 2013;3(4):280-291.
4. Singh S, Gupta SK, Arya S, Aggarwal V. To formulate a selective patient safety-related policy for a tertiary care hospital. Int J Res Foundation Hosp Healthc Adm 2014;2(2):94-102.
5. NPSA 2005. London: Safer Practice Notice: Wristbands for hospital inpatients improves safety, National Patient Safety Agency; November 2005.
6. Lane R, Stanton NA, Harrison D. Applying hierarchical task analysis to medication administration errors. Appl Ergon 200 Sep;37(5):669-679.
7. Spruill A, Eron B, Coghill A, Talbert G. Decreasing patient misidentification before chemotherapy administration. Clin J Oncol Nurs 2009;13(6):716-717.
8. Paparella SF. Accurate patient identification in the emergency department: Meeting the safety challenges. J Emerg Nurs 2012;38(4):364-367.
9. Henneman PL, Fisher DL, Henneman EA, Pham TA, Campbell MM, Nathanson BH. Patient identification errors are common in a simulated setting. Ann Emerg Med 2010 Jun;55(6):503-509.
10. Murphy J. Joint Commission National Patient Safety Goals, 2014. Topics Patient Saf 2014;14(1):1-4.
11. Marquard JL, Henneman PL, He Z, Jo J, Fisher DL, Henneman EA. Nurses' behaviours and visual scanning patterns may reduce patient identification errors. J Exp Psychol Appl 2011 Sep;17(3):247-256.