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A Descriptive Cross-Sectional Study on the Compliance of World Health Organization (WHO) Surgical Safety Checklist in Nepal Mediciti Hospital, Bhaisepati, Lalitpur

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Introduction: A Surgical Safety Checklist (SSCL) is a patient safety communication tool that is used by a team of operating room professionals (i.e. nurses, surgeons, anesthesiologists) to discuss important details about each surgical case.

Objective: To assess the overall compliance rate of each steps of surgery through surgical safety checklist in Nepal Mediciti & to evaluate the quality of implementation of the WHO Surgical Safety Checklist through percentage completion of surgical checklist in all three stages. i.e. Sign in, Time out and Sign out.

Methods: A Descriptive cross sectional Study was conducted in Medical Record Department of Nepal Mediciti sourcing from the patient record file to assess the overall compliance rate of each steps of surgery through surgical safety checklist. Random Sampling with replacement has been applied for selecting record files. This study included total 329 sample of patient's surgical safety checklist who underwent surgical procedure from Feb 2019 to April 2019.

Results: This study reveals that, highest compliance rate were achieved for the checklist pertaining to Patient Identity, Site, Procedure and Consent Confirmed (99.09 %), Patient Name, Procedure and Incision Site (99.09%), Antibiotic Prophylaxis given in 60 minutes (99.09%), Surgeon enumerates critical events (99.09%), and Nursing Team assess Sterility (99.09%). In contrast, lowest compliance rate were achieved for the checklist pertaining to implant confirmed (61.40%), recovery and management of patient (79.03%), patient place for transfer (87.54%) and SNDT of surgeon (89.97%). Overall compliance to sign-in time was 97.36%, for time-out it was = 98.20% and comparatively low was 93.79% in sign-out time. The overall compliance was calculated by considering statistical value of deviation on these three elements and it was found 96.45%.

Conclusion: The WHO safe surgical safety checklist should be understood not merely as a list of items to be checked off, and it should be implemented accordingly.

Introduction: A surgical safety checklist (SSCL) is a patient safety communication tool that is used by a team of operating room professionals (i.e. nurses, surgeons, anesthesiologists) to discuss important details about each surgical case.1

World Health Organization Surgical Safety Checklist time-out reduces announcement failures and medical difficulties and supports development of better safety attitudes.

In June 2008, the World Health Organization (WHO) developed a Safety Surgery checklist to be used globally to improve and ensure perioperative safety for patients. This checklist was designed with the intention of improving teamwork between operating room staff and ensuring the consistent use of a perioperative safety process. It includes various items around three stages:

i. sign-in (before induction of anesthesia),

ii. Time-out (before skin incision) and

iii. sign-out (before the patient leaves the operating room).

In each stage members of the team have to confirm that certain tasks have been done before the team can proceed.2

Previous research has indicated that the implementation of the SSC leads to a decrease in perioperative complications and the number of communication failures in the OT.[3,4] It has been observed that the use of the SSC is associated with the development of a better safety attitude among the operating personnel.[3] It has also been shown that there is a direct relationship between improved clinical outcomes associated not just with the introduction of checklist but with compliance to the checklist.[4] Therefore, all the benefits of the checklist are attainable only if the compliance and implementation are proper.

A study was taken place in the Tertiary New Zealand Hospital was conducted in 9th September 2011. The study was about on "Compliance and quality in administration of Surgical Checklist. The Results shows that the rate (per 100 cases) of checklist domain administration was: 99 for Sign In; 94 for Time Out; and two for Sign Out. The mean (range) domain item compliance was 56% (27–100%) for Sign In, 69% (33–100%) for Time Out, and 40% for Sign Out. Compliance with individual domain items is given in Table 2. There was 100% compliance with statement of patient identity and, although not specified by the checklist, this was confirmed by inspection of patient wristband in 98% of cases.6

Objectives of the study:

General objective is to assess the implementation status of surgical safety checklist applied in Operation Theatre unit in Nepal Mediciti Hospital.

Specific objective:

1. Calculate the percentage compliance of all elements of surgical safety checklist in all three stages. i.e. Sign in, Time out and Sign out.

Methodology: A Descriptive cross sectional Study was conducted in Medical Record Department of Nepal Mediciti sourcing from the patient record file to assess the overall compliance rate of each steps of surgery through surgical safety checklist. Random Sampling with replacement has been applied for selecting record files. This study included total 329 sample of patient's surgical safety checklist who underwent surgical procedure from Feb 2019 to April 2019. The study reviews the checklist status from medical record file of surgical cases. It involves collecting quantitative data on dichotomous independent variable:

1. Compliance
2. Non-Compliance

The compliance rate for each safety element i.e. dependent variable would be numerically calculated in percentage. Cross comparison method will be applied for digging in the insights.

Result:

SN	Compliance of Parameters Before Induction of Anesthesia (Sign-in Time)	Non-Compliance	Compliance
1	Compliance on Sign in Completed	5%	95%
2	Compliance on Patient Identity, Site, Procedure and Consent Confirmed	1%	99%
3	Compliance on Site mark Verified	2%	98%
4	Compliance on Anesthetic Machine and medicine completed	1%	99%
5	Compliance on Pulse Oximeter functionality	1%	99%
6	Compliance on Patient allergy assessed	1%	99%
7	Compliance on Airway and Aspiration risk verified	1%	99%
8	Compliance on Risk assessment on Blood loss	2%	98%
9	Compliance on Risk of Hypothermia	2%	98%
10	Compliance towards Implant Confirmed	39%	61%
11	Compliance on SNDT of anesthesia Nurse	2%	98%

Result of Overall Compliance to Sign in Time	
Compliance to Sign In Time =	**97%**
Non-Compliance to Sign In Time =	**3%**

Table 1: Overall Compliance on Sign-in Time

SN	Compliance of Parameters Before Skin Incision (Time-Out Time)	Non-Compliance	Compliance
1	Compliance of Introduction of Team Members	4%	96%
2	Compliance of Patient Name, Procedure and Incision Site	1%	99%
3	Compliance of Antibiotic Prophylaxis given in 60 minutes	1%	99%
4	Compliance of Surgeon enumerates anticipated critical events	1%	99%
5	Compliance of Anesthetist assess any patient specific concerns	3%	97%
6	Compliance of Nursing Team assess Sterility	1%	99%
7	Compliance of Nursing Team assess equipment Concerns	5%	95%
8	Compliance of Display of essential imaging	2%	98%
9	Compliance of Placement and Functionality of cautery plate	1%	99%
10	Compliance of SNDT of Anesthesiologist	9%	91%
11	Compliance of Time out completed	6%	94%

Result of Overall Compliance to Sign in Time out	
Compliance to Time-Out =	**98%**
Non-Compliance to Time-Out =	**2%**

Table 2: Overall Compliance on Time-out Time

SN	Compliance of Parameters Before Skin Incision (Sign-Out Time)	Non-Compliance	Compliance
1	Count of Sign out Time completed	9%	91%
2	Count of Confirm on the name of the procedure	2%	98%
3	Count of Confirm on completion of instruments, sponge, and needle count	2%	98%
4	Count of Confirms on specimen labelling	4%	96%
5	Count of Confirms the equipment problems to be addressed	7%	93%
6	Count of recovery and management of patient	21%	79%
7	Count of Patient place for transfer confirmed	12%	88%
8	Count of SNDT of surgeon	10%	90%

Result on Overall Compliance to Sign-Out Time	
Compliance to Sign-Out Time =	**94%**
Non-Compliance to Sign-Out Time =	**6%**

Overall Compliance to WHO Surgical Safety Checklist	**96%**
Overall Non-Compliance to WHO Surgical Safety Checklist	**4%**

Table 3: Overall Compliance on Sign-out Time

Discussions: Surgery is an integral part of healthcare system all over the world. Literature has shown that at least half of the surgical complications are avoidable. Various studies conducted in the Western world have shown that introduction and implementation of the SSC has significantly reduced surgical complications and improved patient outcomes. The use of the SSC not only improves patient safety but also introduces a safety culture among the OR team members. For a checklist to be effective, compliance is of vital importance. 5

329 cases were audited during study period. The case mix of surgical specialties is shown in the table below:

Table 4: Surgical Specialty Case

Out of total 329 surgical cases, 129 cases were audited from GI surgery and 87 cases from Obstetrics and Gynecology.

Highest compliance rate were achieved for the checklist pertaining to Patient Identity, Site, Procedure and Consent Confirmed (99.09 %), Patient Name, Procedure and Incision Site (99.09%), Antibiotic Prophylaxis given in 60 minutes (99.09%), Surgeon enumerates critical events (99.09%), and Nursing Team assess Sterility (99.09%).

Surgical Specialty	No. of cases
Spine Surgery	1
Cardiac Surgery	2
Nephro-Surgery	3
Plastic Surgery	3
General Surgery	4
Neuro-Surgery	17
Ortho Surgery	26
Uro-Surgery	27
ENT Surgery	30
Obstetrics and Gynecology	87
GI Surgery	129
Total	**329**

In contrast, lowest compliance rate were achieved for the checklist pertaining to implant confirmed (61.40%), recovery and management of patient (79.03%), patient place for transfer (87.54%) and SNDT of surgeon (89.97%).

Overall compliance to sign-in time was 97.36%, for time-out it was = 98.20% and comparatively low was 93.79% in sign-out time. The overall compliance was calculated by considering statistical value of deviation on these three elements and it was found 96.45%.

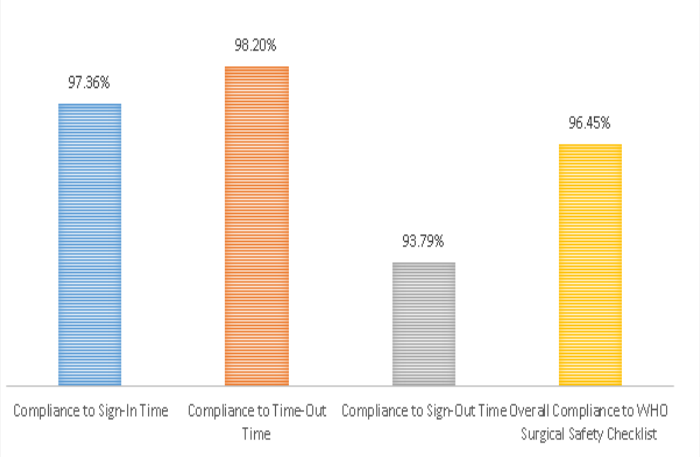

Figure 1 Percentage of Compliance in each stage of Surgical Safety Checklist

Conclusion: This study support the WHO's recommendation to use the Surgical Safety Checklist in all operative procedures. The worksheet should be understood not simply as a list of items to be checked off, but as an instrument for the improvement of communication, teamwork, and safety culture in the operating room, and it

should be implemented accordingly.

Delimitations of the study: Study only aims to explore the status of compliance on surgical safety checklist. This only presents the descriptive scenario. Since the study is only cross sectional, the real impact of surgical safety checklist implementation in reducing the near miss incidents in OT and correlation of SSC in reducing complication rate in surgical patients couldn't be traced. Also because random sampling was applied for sampling, one could observe most of surgery falls under GI, General, Obs & Gynae, ENT, Uro & Ortho section. While cardiac, nephro, plastic and spine are less in count. Either these later surgeries are carried less or selection of less numbers is a mere result of random sampling process.

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