COMPLIANCE ANALYSIS OF DOCTOR'S HANDOVER PROCESS DURING SHIFT CHANGE IN MSMC- NARAYANA HEALTH CITY, BANGALORE.

Dissertation submitted to

The IIHMR University, Jaipur

For the partial fulfillment for the award of the degree of

Master of Business Administration (MBA)

In

Hospital and Health Management

By

Nema Pathania

Under the Supervision and Guidance of

Dr. Sheenu Jain

Associate Professor, IIHMR, Jaipur.

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DECLARATION BY THE STUDENT

I hereby declare that this dissertation titled, **"Compliance analysis of doctor's handover process during shift change in MSMC- Narayana Health City, Bangalore."**, is the bonafide record of my original research work. I declare that it has not been submitted to any other university or institution for the award of any degree or diploma. Information derived from the published or unpublished work of others has been duly acknowledged in the text.

(Signature)

Nema Pathania

Date: 21st June 2021

Narayana Health™

Date: 16th June 2021

COMPLETION CERTIFICATION

CERTIFICATE

This is to certify that Dr. Nema Pathania in partial fulfillment of the requirements for the award of the degree of MBA (Hospital and Health Management) from IIHMR University, Jaipur has successfully completed her internship and dissertation at Narayana Health during March 22, 2021, to June 19, 2021.

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ABSTRACT

Effective handover is among the various parameters that determine a hospital's capability to provide safe services to its patients. Handover can be defined as, "temporary or permanent transfer of responsibility and accountability for some or all aspects of care for a patient or group of patients using both verbal and written communication." The complexity of handover process provides for high scope of medical errors. These errors have the potential to lead to adverse events ranging from delay in treatment to patient death. Organizations like World Health Organization and the US Institute of Medicine have realized the current gaps in clinical handovers. In 2017 the Joint Commission floated a special Sentinel Event Alert calling attention to the patient harm that can result from poor handovers and the potential for handover improvement initiatives to improve patient safety. JCI in fact outlines specific standards for Handover Process under IPSG 2.

There can be many kinds of handovers in a hospital but for the purpose of this study we have focused on doctor-to-doctor handover during shift change. The objective of this study is to ascertain the compliance of doctor's handover documentation (specifically during shift change), identify reasons for non-compliance if any and provide evidence-based recommendations to improve the compliance.

An observational study was carried out at various patient areas of Mazumdar Shaw Medical Centre, Narayana Health City, Bangalore. Areas included in the study were, General in-patient wards, Semi-private wards, MICU, SICU, NICU and PICU. Data was collected based on facility rounds of these areas and interviews with the presiding doctors. Data was also taken from IPSG-2 audit, to check the compliance. The compliance percentage of each area was calculated and analyzed.

The potential of improper handover to cause adverse events in patient safety cannot be ignored. Hence, there is an evident need to formalize the whole process, implement the use of handover tools and training the doctors on handover best practices.

Results revealed compliance in General and semiprivate wards to be nil. SICU's and MICU's compliance were also insignificant. NICU and PICU reflected comparatively better compliance but failed to achieve the organizational benchmark of 100 percent compliance. Handover process in all areas was unstructured, informal and error prone. Factors that

contribute to this are various but the lack of standardized process, tools, and document to record handover resonate the most. The need to formalize the whole process, implement the use of handover tools and training the doctors on handover best practices is evident. These could be the key areas that the organization can work upon to improve their handover compliance.

Handover tools like I-PASS, SIGHNOUT and ANTICipate, can be studied, and implemented to provide a standardized format for recording handover. A process can be created wherein standard templates using the mentioned tools can be integrated with HMIS, providing features like auto populated fields for patient information, and other basic details required for an effective handover. This will ensure that no important information is missed and allow the doctors to efficiently manage the time spent on documenting handovers and not be burdened by it. Training of doctors participating in handover is fundamental to the improvement process. All team-members participating should have regular sessions on effective handover implementation.

Key words: Handover, Doctors' shift change, Compliance, Hospital.

ACKNOWLEDGEMENTS

It has been my privilege to have had this opportunity to complete my dissertation from Narayana Health, Bommasandra, Bangalore. In the entire duration of my association with the organization, I could gain understanding of various processes and concepts related to hospital quality. The internship gave me a better understanding on the workings of Quality Department not just on a unit level but at a corporate level.

I would like to express my gratitude to Mrs. Rashmi Shrivastava, Senior General Manager, Group Quality and New Initiatives, for providing me with this opportunity to undergo the dissertation process with such an esteemed institute.

I would like to sincerely thank my organization mentor, Mrs. Chandra Prabha, Manager Corporate Quality, for her invaluable inputs, guidance, enthusiasm, and constructive discussion as a mentor. It was her expertise that helped me to have a better grasp of the entire project. Her constant counselling and support during the entire phase of the dissertation got this project where it is now. She has not only helped me with the dissertation process but also has judiciously provided me with opportunities in other projects undertaken by the organization.

My special thanks to my colleagues and the entire hospital staff of MSMC, Narayana Health city, Bangalore for their cooperation and support.

I would also like to thank my institutional mentor, Dr. Sheenu Jain, Associate Professor, IIHMR University who has truly been understanding and supportive at every turn for the successful completion of my dissertation. Her guidance on the direction to take with the project helped me to have a better grasp of the entire project and bring it thus far.

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ABBREVIATIONS

MSMC	Mazumdar Shah Medical Center
JCI	Joint Commission Internationale
IPSG	International Patient Safety Goals
MICU	Medical Intensive Care Unit
SICU	Surgical Intensive Care Unit
NICU	Neonatal Intensive Care Unit
PICU	Pediatric Intensive Care Unit
OPD	Outpatient Department
OT	Operation Theatre
HMIS	Hospital Intensive Care Unit

CHAPTER1: INTRODUCTION

"We are products of our past, but we don't have to be prisoners of it."

— Rick Warren.

There are many factors that determine a hospital's capability to provide safe services to a patient. Handover is one such parameter that ensures a patient's right to safe treatment. The CanMEDS 2015 Framework has defined handover as a "temporary or permanent transfer of responsibility and accountability for some or all aspects of care for a patient or group of patients using both verbal and written communication."

Standardized forms, tools, or methods support a consistent and complete handover process. Incomplete handovers have the potential to cause adverse events like Physical injury to the patient, medication errors, delay in treatment and even death. Communication failures can happen at any step in handover of patient care and can result in adverse events. Of all patients who reported adverse events due to handover failure, 75% were preventable. (1)

The high scope of medical errors during handover is owed to the complexity of the process. Major healthcare organizations like, WHO and the US Institute of Medicine acknowledge the gaps in current handover system. In 2017 the Joint Commission floated a Sentinel Event Alert calling attention to the patient harm that can result from poor handovers and the potential for handover improvement initiatives to improve patient safety. JCI in fact outlines specific standards for Handover Process under IPSG 2, which must be followed by healthcare organization to prevent adverse events and ensure patient safety.

Types of Handovers:

• Among health care practitioners (for example, doctor and doctor, doctor and nurse, nurse and nurse, etc.)

• Among departments (for example, Moving a patient from intensive care unit to Operation theatre, or for Diagnostic Imaging).

•Between healthcare practitioners and patient or their attendants (For example, during discharge).

In this study we will be focusing on the handover communication between doctors. Specifically, during shift change. During shift change handover diverse information is shared. The doctor giving the handover communicates all elements of patient care to the

doctor taking over. The detailed information, however, is not required to be documented in the medical record. But the hospital may want to have documentation on key elements of handover and proof that the handover occurred.

Most healthcare organizations are grappling to produce an effective handover due to the complex nature of the process. At any given point, the number of individuals caring for one patient are many. And interestingly one individual is associated with many patients at the same time. The complexity of this leaves room for errors in communicating clinical information effectively. These errors and their ramifications pose a significant risk to not just patients but also clinicians and their organizations. Hence, handover has become an area of concern for healthcare organizations.

With the hospitals moving increasingly towards a shift-pattern of working, the need for efficient handovers is paramount. Continuity of information and continuity of care are fundamental to ensure patient safety.

1.1 Rationale of the study

Among all research found about handover, very little literature was found on Indian hospitals. Therefore, the status of clinical handover in India is not very well understood and neither are the factors that affect it. Most healthcare organizations are currently struggling to produce effective handovers, especially during doctor's shift change. Effective handovers are fundamental to patient safety. Analyzing the compliance for handover can help healthcare organizations identify the factors that interrupt the handover process.

The organization included in the study wishes to get accredited by JCI. To full proof patient safety and comply with JCI standards for patient safety the organization needed to study their current handover practice, find the gaps, and improve the process accordingly. Identifying the process gaps to improve the handover process can prevent adverse events and patient harm that could otherwise happen. Potential risks posed by handover failures to clinicians and organizations reputation can also be mitigated by initiating a robust handover process.

Hence, the study is aimed to analyze the current compliance of doctors towards handover and its documentation during shift change at MSMC, Narayana Health City, Bangalore. To understand the reasons and factors affecting the compliance and provide recommendations for improving the process

1.2 Objectives

This study has been conducted to ascertain the compliance of doctor's handover documentation (during shift change) with the organizational benchmark. The hospital soon wishes to apply for JCI accreditation and hence wants to meet the handover standards given by them.

To meet this objective, the following steps were to be taken:

- Develop an understanding of the current Handover Process Flow, across various patient areas.
- Calculate the compliance of doctor's handover documentation with the organizational benchmark (i.e,100 percent).
- Identify the reasons for non-compliance, if any.
- Suggest measures to improve the overall compliance.

CHAPTER 2: REVIEW OF LITERATURE

Sl. No	Author(s)	Title & Year	Study Location	Methodology	Overview
1	Michelle A Raduma-Tomas, Rhona Flin, Steve Yule, David Williams	**Title:** Doctors' handovers in hospitals: a literature review **Year:** 2011	United Kingdom	E-databases Medline and Embase (via Ovid) were used to carry out a literature search. A set of inclusion criteria was developed to identify the state of doctors' handover in a hospital and the most common communication failures. 32 Papers were included in the study.	The study concluded that the existing papers did not have complete literature on where the handover communication failures occur which hampers the design of effective handover training and tools. They realized a requirement for further analysis of the handover process in hospitals.
2	J. Ahmed, S. Mehmood, S. Rehman, C. Ilyas, L.U.R. Khan.	**Title:** Impact of a structured template and staff training on compliance and quality of clinical handover	England	The researchers developed a computerized template. An 11 Point data set was created to conduct pre-and post-intervention audits.	Noteworthy improvement was observed in the overall handover practice in post-intervention period. Increasing the awareness of importance of safe clinical handover increased the

		Year: 2012		They compared the audit results to analyze the impact of intervention.	compliance of junior doctors towards handover.
3	Katarzyna Karolina Machaczek, Karen Kilner, Malcom Whitefield, Peter Allmark.	**Title:** Doctors' and Nurses' Perceptions of Barriers to Conducting Handover in Hospitals in the Czech Republic **Year:** 2013	Czech Republic	Exploratory study using self-administered questionnaire survey. Among the staff 181 doctors and 118 nurses responded to the questionnaire.	The study found that main issues with handover were, Incomplete, un readable, and out dated handover records. And handover between junior doctors. Some environmental factors that negatively affect the handover process were also identified. For example, in sufficient time, inadequate workforce planning, busy departments, and disturbances.
4	Yanika Kowitlawakul, Benjamin S.H. Leong, Adela Lua, Rana Aroos et al.	**Title:** Observation of handover process in an intensive care unit (ICU): barriers and quality improvement strategy. **Year:** 2015	Singapore	A cross-sectional descriptive study to observe nurses and doctors in real time during handovers of patients being transferred in and out of the MICU. The data were collected in a 12-	The study concluded that there were 1.26 distractions per handover and the handovers often missed out on important clinical information.

				bed MICU, at a 1000-bed tertiary hospital.	
5	Nizar Din, Shahrzad Ghaderi, Rachel O'Connel Tayo Johnson	**Title:** Strengthening surgical handover: Developing and evaluating the effectiveness of a handover tool to improve patient safety. **Year:** 2012	England	A handover Performa was created and implemented. Post intervention results were analyzed.	Improvement was noted in all measured aspects. 78% of junior doctors were self-assured in understanding the patient's condition and performing the clinical activities faster. The time spent for ward rounds was spent more efficiently.
6	Elizabeth Manais, Fiona Geddes, Bernadette Watson, Dorothy Jones, Phillip Della	**Title:** Perspectives of clinical handover processes: a multi-site survey across different health professionals **Year:** 2015	Australia	The survey was conducted to obtain information about health professionals' experiences of various handover factors.	Poor handover was noticed as a significant cause of many adverse events by health care professionals. Differences existed between health professions.
7.	Adrian J Hayes, Rosalind Pool, Cristopher Roughley et al.	**Title:** Communication and Miscommunication: Handover between Junior Doctors	United Kingdom	Thematic analysis of qualitative, in-depth, semi-structured interviews of 19 doctors.	The study found that all participants had experienced adverse incidents due to incomplete handover. They perceived that specific, vital content needed to be

		Year: 2018			communicated along with optimal background details.
8	Dr. Peter Walker	**Title:** High risks of handover; lessons to be learned **Year:** 2017	Australia	Research Article	The article describes the main drivers of breakdowns in handover, factors that contribute as the high-risk scenarios, lessons from the coroner and recommendations to perform better handovers.
9	Ahmadreza Raeisi, Mostafa Amini Rarani, Fatemeh Soltani	**Title:** Challenges of patient handover process in healthcare services: A systematic review **Year:** 2019	Iran	Systematic review and Meta analysis was taken up. 263 research papers were extracted of which 20 were included for final review.	Challenging factors like non- communication, non-coordination, no checklist, poor management, time management, etc. appeared as major hindrances. Communication was found to be the biggest challenge in handovers.
10	Xi Jessie Yang, Taezoon Park, Tien Ho Kewin Siah, Bee Leng Sophia Ang.	**Title:** One size fits all? Challenges faced by physicians during shift handovers in a hospital with high	Singapore	Recording and Analysis of handover information, quality, and shadowing of people participating in handover.	It was established by the results of the study that the lack of written information resulted in systemic information loss.

		sender/recipient ratio, **Year:** 2015			
11	Claire Humphries, suganthi Jaganathan, Jeemon Panniyammakal, Sanjeev Singh et al	**Title:** Investigating clinical handover and healthcare communication for outpatients with chronic disease in India: A mixed-methods study. **Year:** 2018	India	A mixed method design, 513 outpatients were selected as sample. Factors taken up for investigation were-Handover, healthcare communication and barriers to continuity of care.	Clinical handover training was found to be inadequate. A need for targeted system-based interventions was realized.
12	Ahmed Mikky, Mohamed Al Busafi, Issa Al Salami	**Title:** The 'SAFE PT' Handover: A Qualitative Study for Developing an Improvised Tool Facilitating Safe Patient Handover. **Year:** 2019	Oman	Interviews of stakeholders through group discussions and surveys.	The responses from interviews projected the need to improve the current handover practice. The parties involved in handover realised that the absence of a reliable tool led to an unsafe handover.
13	Maisse Farhan, Ruth Brown,	**Title:** The ABC of handover: a qualitative	London	Literature review, semi-structured interviews, and	Study identified a diversity of perceived gaps in handover such as, a lack of standardized

	Maria Woloshynowych, Charles Vincent	study to develop a new tool for handover in the emergency department. **Year:** 2012		observation of handover users.	tool or process. Adverse events like delay in investigations, treatments, etc due to handover issues were reported by participants.
14	JA Clelenad, S Ross, SC Miller, R Patey.	**Title:** There is a chain of Chinese whispers …": empirical data support the call to formally teach handover to prequalification doctors. **Year:** 2009	United Kingdom	Qualitative, focus group study, to explore the perspective of healthcare practitioners.	New doctors felt unprepared for handovers and were hence poor at it. Poor systems were found to be a barrier to effective handover. An Empirical approach to perform better handovers was suggested.
15	MN Lyons, TDA Standley, AK Gupta	**Title:** Quality improvement of doctors' shift-change handover in neuro-critical care **Year:** 2012	United Kingdom	A Quality improvement process was taken over based on prospective observational assessment of doctor's handover during shift change.	The content of clinical information shared improved after standardizing tools and training of professionals but went back to base line with a new cohort of untrained doctors.

CHAPTER 3: METHODOLOGY

The study was carried out at various patient areas of Mazumdar Shaw Medical Center, Narayana Health City, Bangalore.

3.1 Research Questions:

- What is the compliance of doctor's shift handover documentation in various departments of MSMC, Narayana Health City, Bangalore?
- What are the reasons for non-compliance, if any?
- How can the process be improved to improve the compliance?

3.2 Research Design:

An observational study was conducted to analyze the extent of compliance in doctors towards patient handover during shift change in MSMC, Bangalore. Observations recorded on examination of patient files for two months was used. To understand the current handover practices, barriers, and perspective of doctors towards handover documentation, a cross-sectional survey was done which included facility rounds and semi-structured interviews with the doctors.

3.3 Study Site:

The study was taken up at Mazumdar Shaw Medical Center, Narayana Health City, Bangalore which is a comprehensive cancer center with state-of-the-art technologies. It is a 607 bedded facility which is perhaps the largest cancer center in the world.

3.4 Duration of The Study:

The study was conducted for a period of three months (April – June 2021).

3.5 Sampling Method:

A non-probability convenient sampling method was used. The patient files and doctors conveniently available were included in the study.

3.6 Sample Size:

a. For cross-sectional survey done to evaluate the current handover practices and perception of doctors towards handover process, 30 resident doctors were interviewed.

b. To analyze the compliance of doctors towards handover documentation, 411 samples were included.

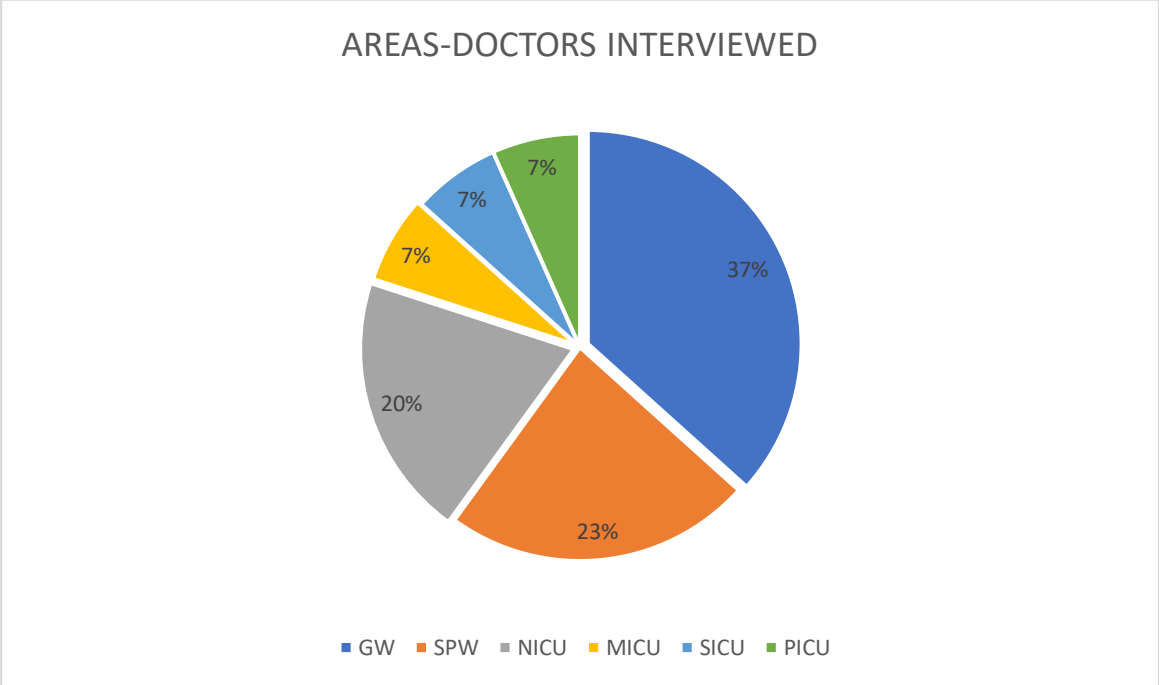

Figure 3.1, Areas covered for doctors' interviews.

A total of 30 doctors were interviewed in a semi-structured way. The interviewer recorded the responses given by doctors. 11 doctors were from General Ward, 7 from Semi-private, 6 from MICU, and 2 each from SICU, PICU and NICU.

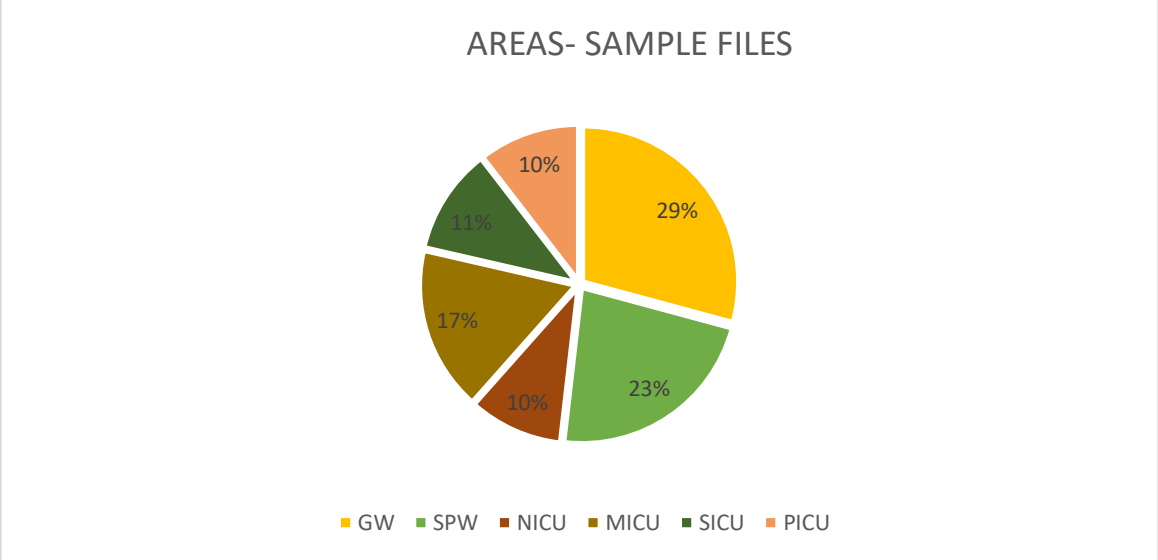

Figure 3.1, Areas covered for sample files audit.

Total of 411 files were audited for collecting the date on compliance of doctors with handover documentation during shift change. In two months, 120 files from General ward, 93 from semi-private ward, 40 from NICU, 70 from MICU, 45 from SICU and 43 from PICU. The files were chosen based on convenience and availability.

3.7 Study Population:

Inclusion Criteria –

- Handover records from General in-patient wards, MICU, SICU, NICU, PICU.
- Doctors assigned to the above-mentioned areas

Exclusion Criteria –

- Handover records from areas other like OPD, OT, Dialysis, Etc.
- Doctor assigned to areas other than General & Semi-private wards, MICU, SICU, NICU and PICU.

3.8 Study Tools:

The data for the study was collected through:

- Facility rounds- Where the existing process was observed in person.
- Semi-structured interview with the resident doctors. JCI measurable elements were used as a guideline while interviewing the doctors. (Annexure 1)
- IPSG-2 checklist to check compliance. A part of checklist contains specific question on doctor's handover documentation compliance during shift change. The responses recorded on this element were used to analyze compliance. (Annexure 2)

3.9 Data Analysis method:

a. Cross-sectional survey: The observations made from facility rounds and semi-structured interviews with doctors were recorded as it is. 30 doctors were interviewed overall, subject to availability.

b. The data received from IPSG-2 audit checklist responses was analyzed using Microsoft.

excel.

3.10 Ethical Considerations:

All participants were made aware of the purpose of the study. Complete anonymity of participants was maintained throughout the study duration. The data gathered during the study phase was kept confidential and not utilized for any other unjustified reason.

3.11 Limitations of the study:

There may be potentially important variables and barriers that are not included in the study due to limitations of time and availability of doctors. The representative sample population and sample size were chosen based on convenience hence their precision cannot be guaranteed. Blinding was not taken up due to limitation of resources hence recall bias and interviewer bias could have happened.

CHAPTER 4: RESULTS

The first step in the study was to analyze the existing status of doctor's shift handover process. For the purpose, Facility rounds were made to study patient files and interview the doctors.

Areas of focus for this study were: General Patient Wards, Semiprivate and Private Wards, MICU, SICU, NICU and PICU. These areas were selected as these are the main areas where doctor to doctor shift handoff process usually occurs.

4.1 Existing handover process flows:

The existing handover process of the following patient areas was analyzed-

1. All general wards semiprivate and private wards and SICU
2. NICU & PICU
3. MICU

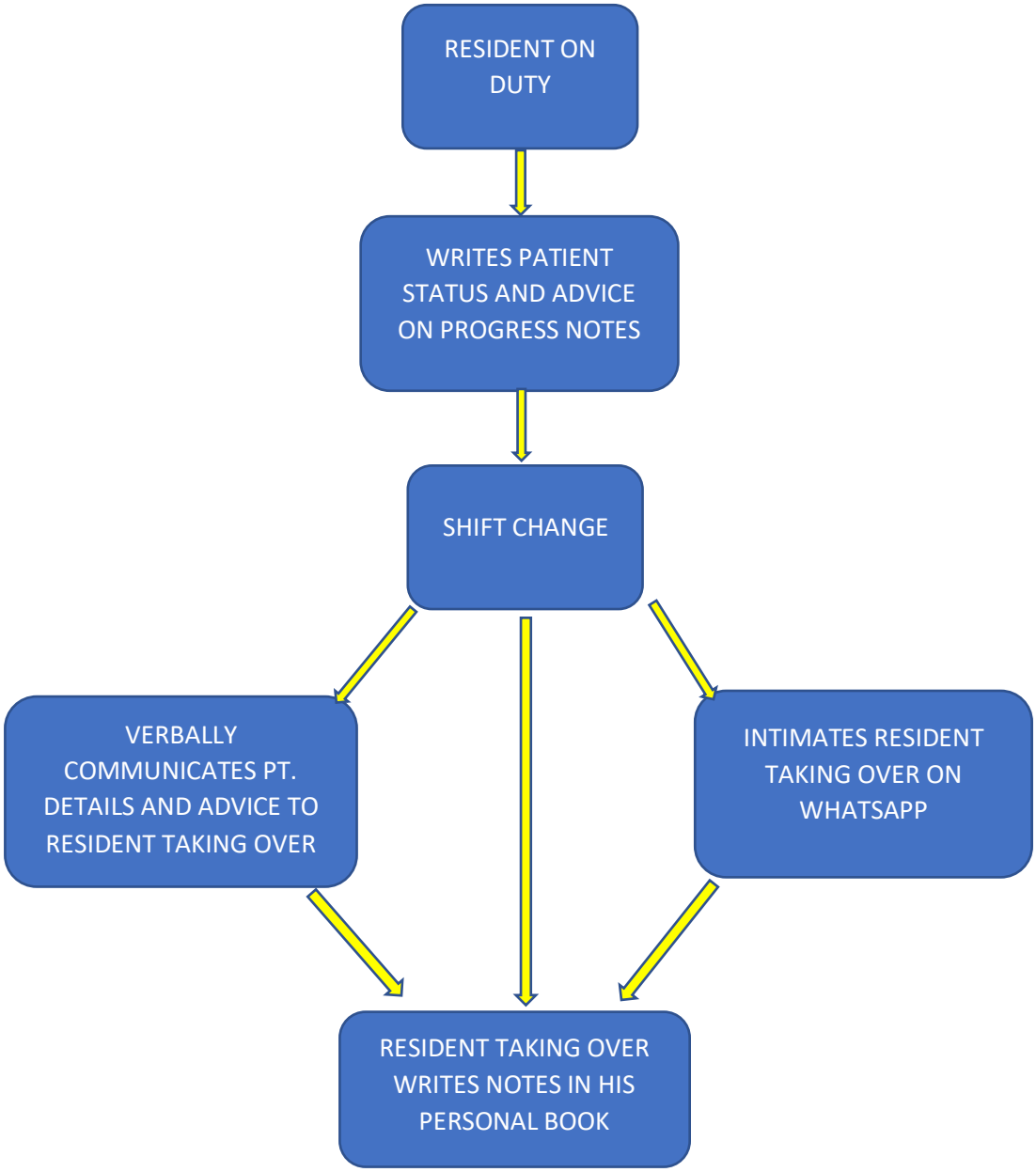

Figure 4.1: Process flow of handover process in General wards, Semi-private wards, and SICU

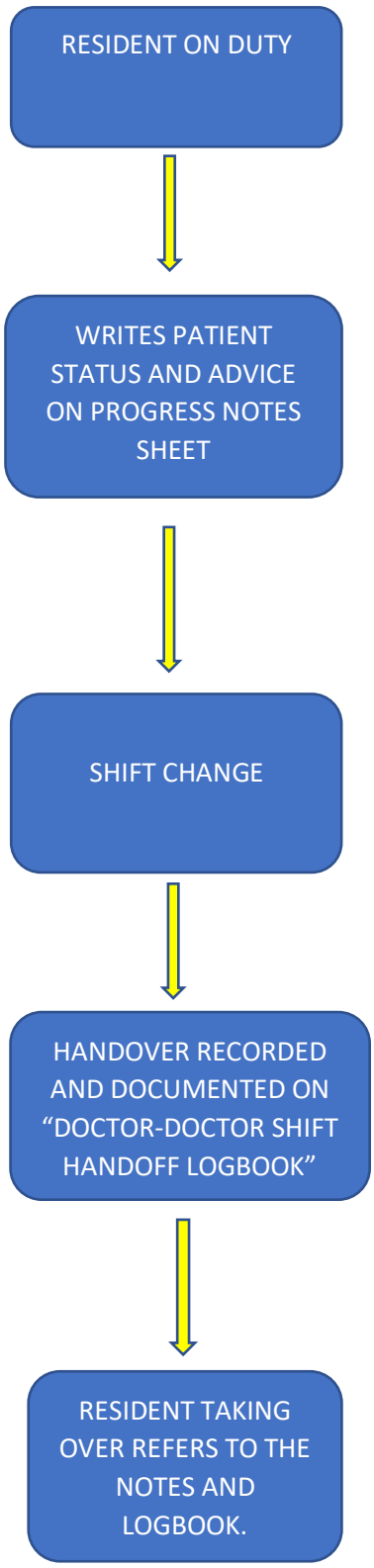

Figure 4.2: Process flow of handover process in NICU & PICU

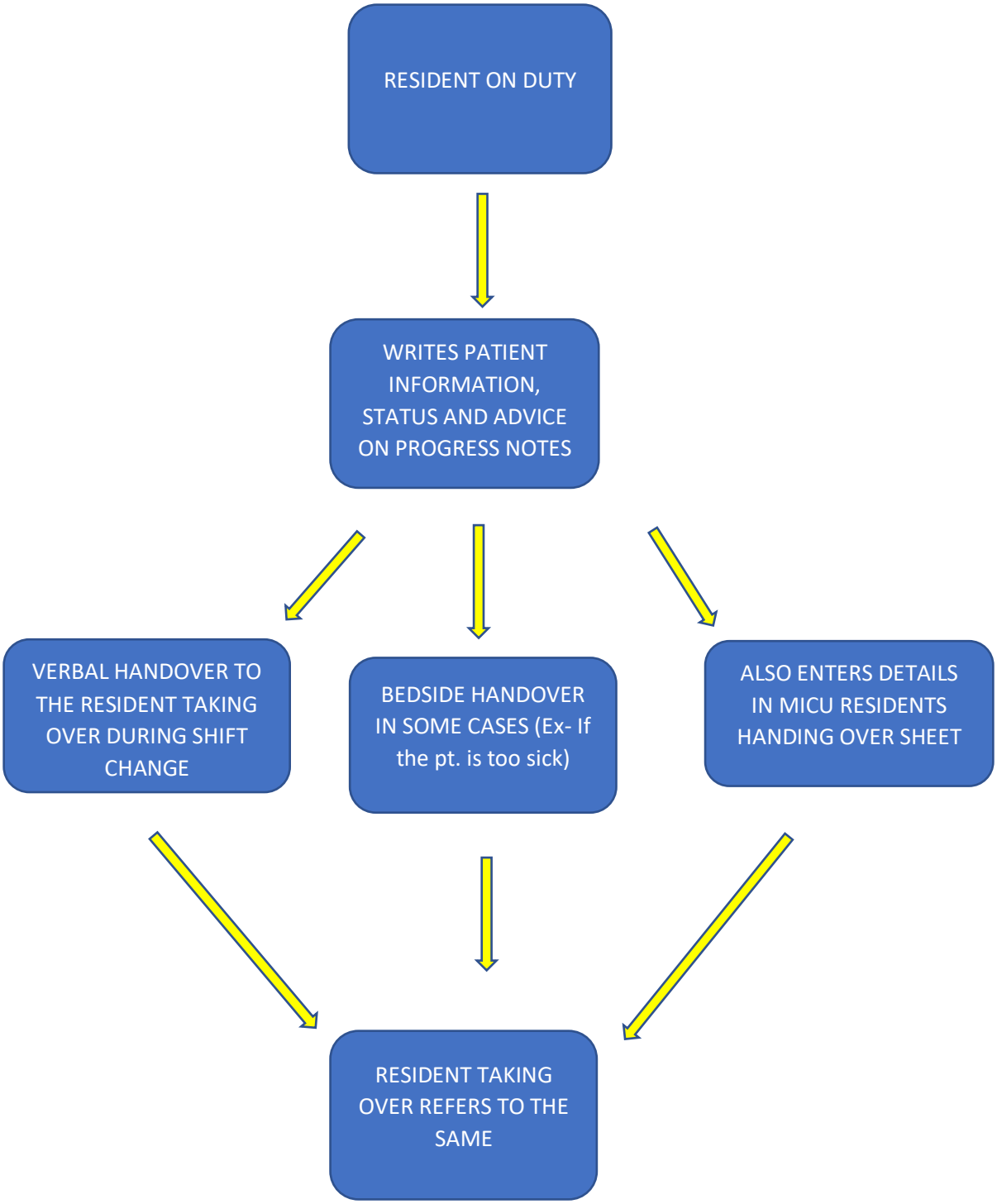

Figure 4.3: Process flow of handover process in MICU

4.2: Semi-structured doctor interviews:

The doctors were interviewed around the measurable elements for handover described by JCI. All patient files on the day of facility round were analyzed and all doctors in charge were interviewed.

Table 4.1: Status of Measurable elements at Wards and ICU's

	Is standardized critical content being communicated between health care practitioners during handovers of patient care?	Are standardized forms, tools, or methods that support a consistent and complete handover process being utilized?	Data from adverse events resulting from handover communications are tracked and used to identify ways in which handovers can be improved?
GENERAL WARD	NO	NO	NO
SEMIPRIVATE WARD	NO	NO	NO
MICU	NO	YES	NO
SICU	NO	NO	NO
NICU	YES	YES	NO
PICU	YES	YES	NO

Consequently, it was observed that General Ward, Semiprivate Ward, and SICU lacked in both fields. These areas neither had a standardized critical content sharing practice nor any standardized documents or tools for documenting the handover process. It was found that there is no process in place to specifically track adverse events resulting from handover issues.

4.3: Handover Documentation compliance:

The next step in the study was to measure the handover process compliance in the above-mentioned process. IPSG-2 audit data for the month of March and April was available. This data specifically has information on the documentation compliance of doctor's shift handover. The organization's benchmark for handover documentation compliance is 100%.

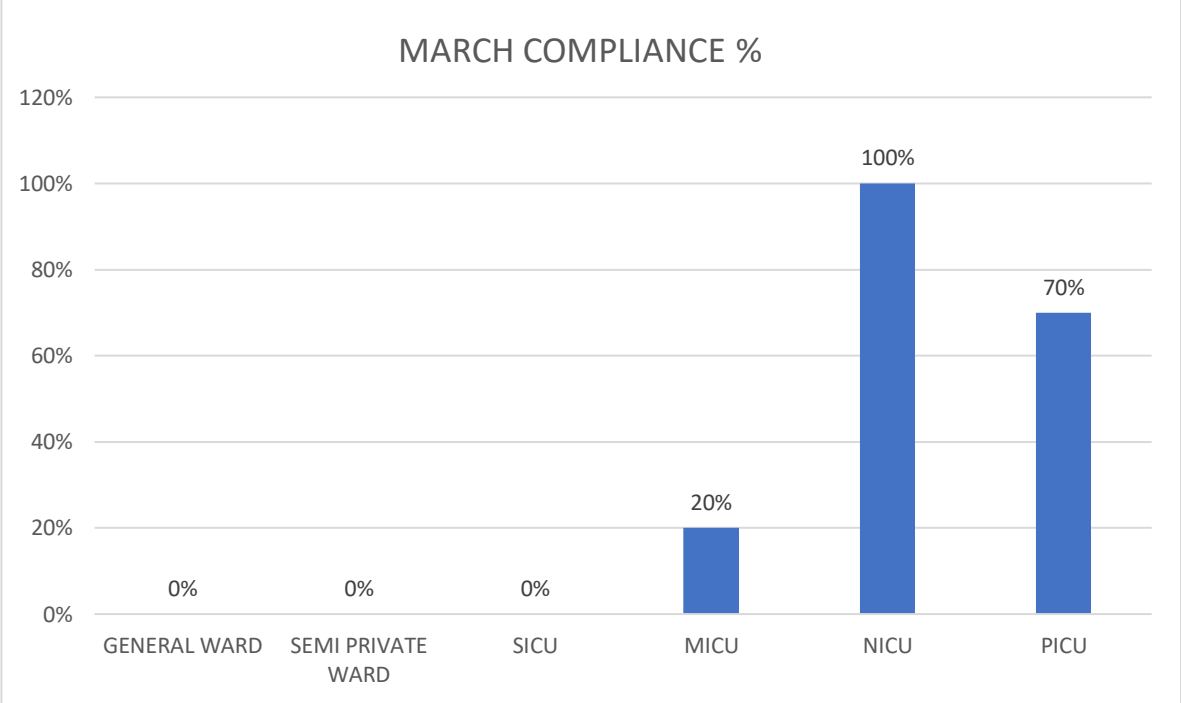

Figure 4.1: Handover Compliance (March,2021)

The graph above depicts the doctor's shift handover documentation compliance percentage. It can be observed that the General ward, Semiprivate Ward and SICU show zero percent compliance, which implies that there is no documented evidence of the shift handovers between doctors.

20 percent compliance in the month of March can be observed for MICU.

70 percent for PICU and 100 percent for NICU. These departments use a doctor-doctor handoff logbook to record the documented evidence of doctors' shift handover.

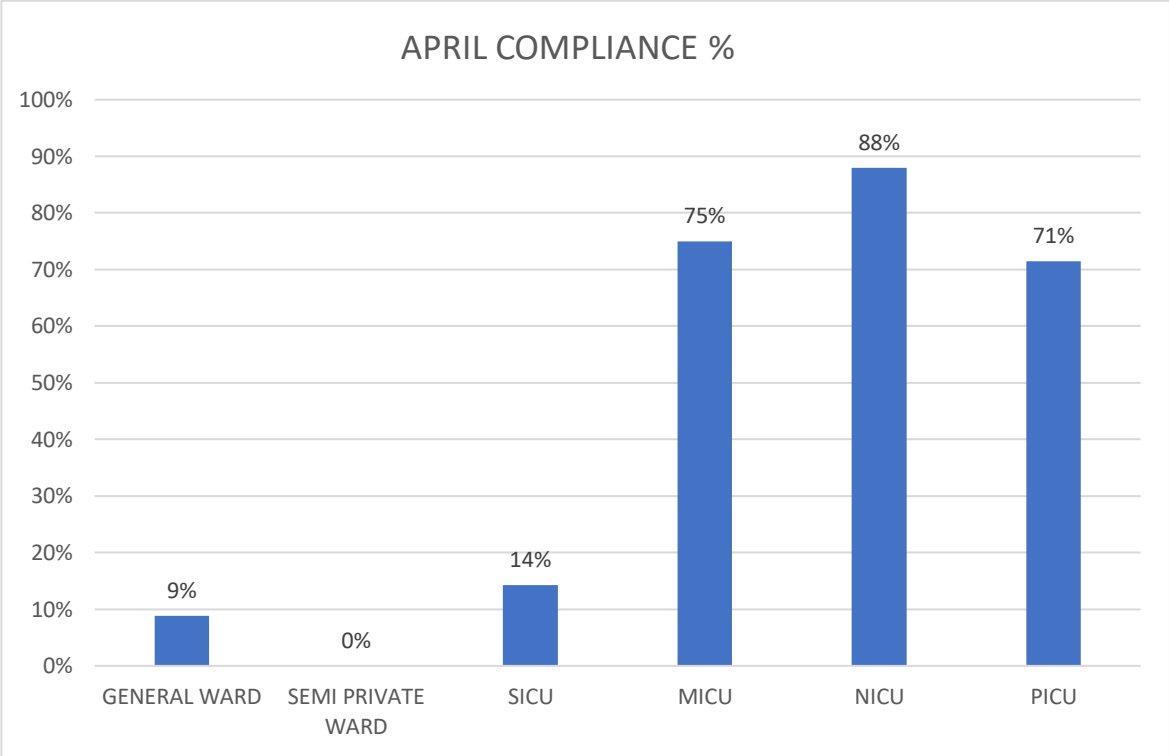

Figure 4.2: Handover Compliance (April,2021)

The graph above depicts the doctors shift handover documentation compliance for the month of April. General ward has 9 percent documentation on handover and semiprivate ward has no documentation.

SICU, MICU, NICU and PICU has 14, 75, 88 and 71 percent compliance for handover documentation respectively, for the month of April.

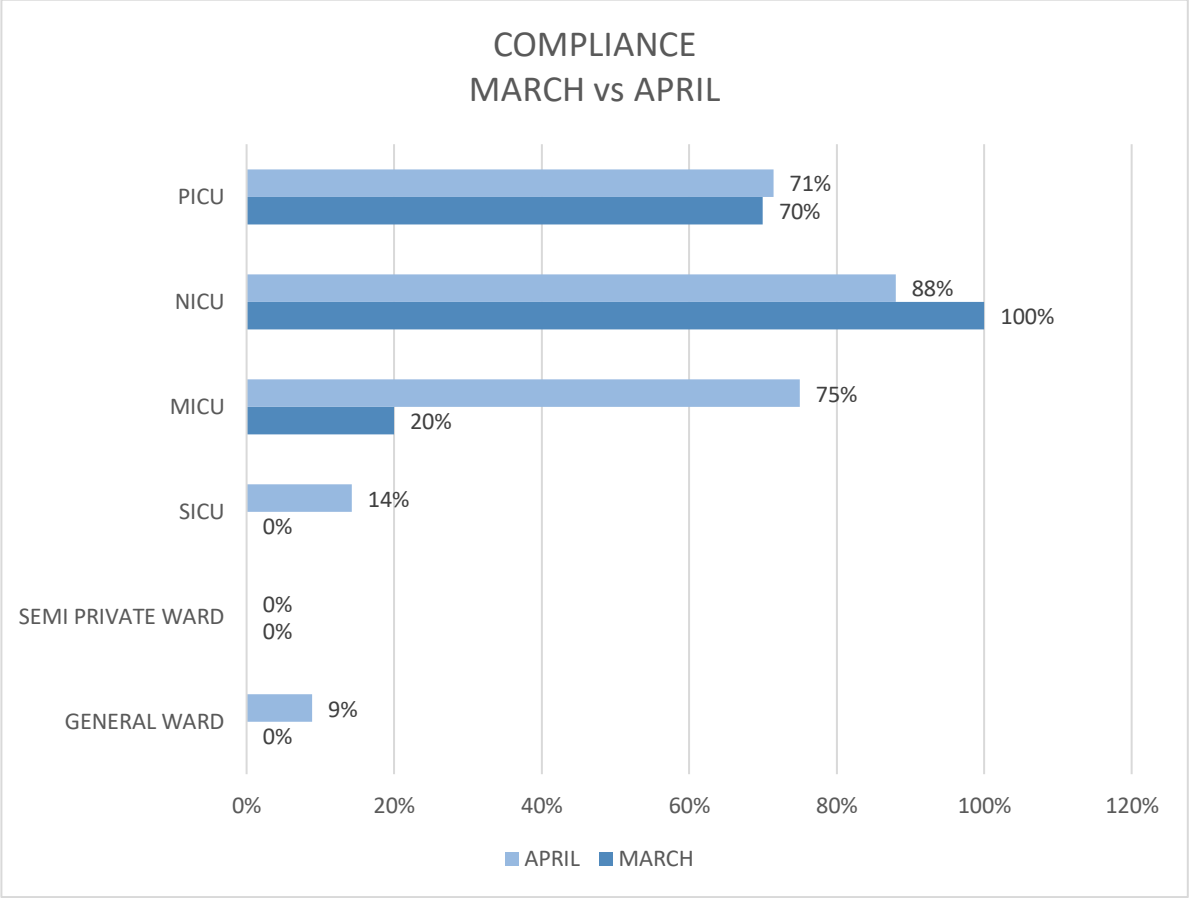

Figure 4.3: Handover Compliance (March vs April,2021)

The above figure draws a comparison between the doctor's handover process compliance for March and April 2021. General ward's compliance increased to 9 percent in March. Semiprivate ward's compliance is zero percent for both March and April.

Compliance in SICU increased from 0 to 14 percent in April.

The compliance in NICU went down from 100 percent to 88 percent. MICU'S compliance increased from 20 percent in March to 75% in April. PICU's compliance increased by 1 percent.

Although some increase in compliance in many areas can be noticed in April, yet there is an evident need for a process or intervention of some sort in these areas to bring the compliance of handover documentation to a satisfactory level.

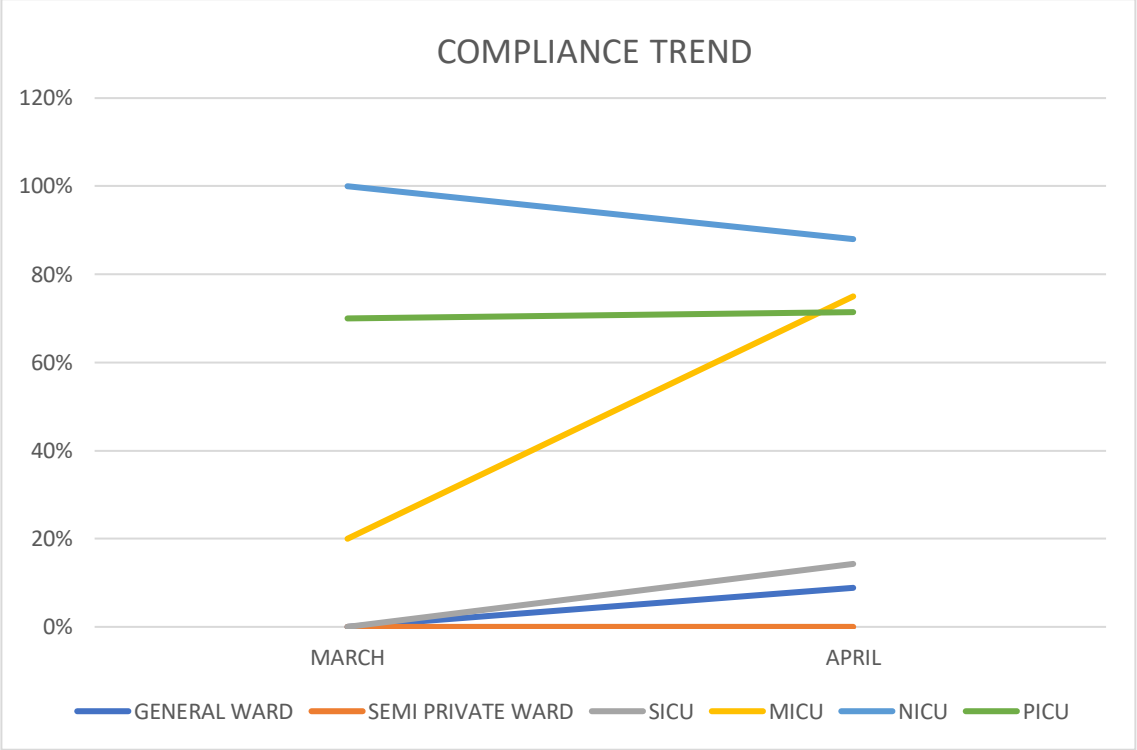

Figure 4.4: Handover Compliance Trend (March-April,2021)

The above figure presents the trend of compliance changes between March and April 2021. There is no significant improvement noticed in the compliance documentation. The trend analysis portrays a consistent compliance failure in General Ward, Semi-private Ward, and SICU. The consistency in compliance percentage is maintained in PICU. NICU shows a slight decreasing trend in compliance over two months. The most significant change is compliance though can be observed in MICU, this implies some change in protocol during the two months that led to improved compliance.

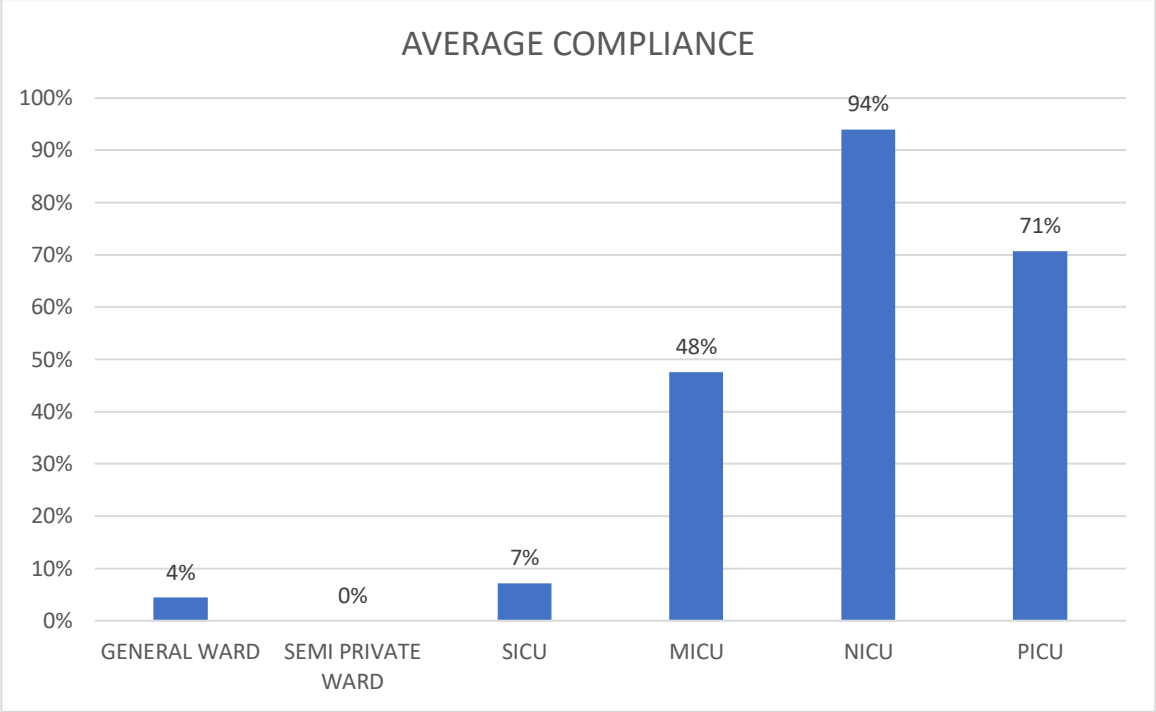

Figure 4.5: Handover Compliance (Average, March & April,2021

Average compliance of doctor's shift handover process can be studied from the above graph. It is evident from the analysis that no area achieves the organizational benchmark of 100 percent compliance towards handover documentation. Where NICU and PICU have scope for improvement, other areas like General Ward, Semi-Private Ward, SICU barely have any compliance towards handover.

A need for improvement in most areas is evident. Most patient areas in the hospital are failing to conduct a complete handover and its documentation.

CHAPTER 5. DISCUSSION

IPSG-2 audit data was collected and analyzed for March and April. The areas studied in this analysis were General Ward, Semi-private ward, SICU, MICU, NICU and PICU. Compliance of all these areas for documentation of doctor-doctor shift handover was analyzed and was found to be unsatisfactory overall.

In areas like the General and Semi-private wards, the compliance was almost nil. There was no standard process in place to document the handover during the doctor's shift change. No specific document was being used to record the process. The handovers were mostly verbal or recorded by doctors in their own notebooks.

SICU's and MICU's compliance were also insignificant due to similar reasons. Although in MICU a system was established in the month of April to improve the handover process. An "MICU doctor's handover sheet" was introduced by the department that attempted to record the basic handover information. The increase in MICU's compliance for the month of April can be owed to the implementation of this sheet. The sheet though did capture many important aspects of handover but did not include information of doctor taking over or the signatures of both involved parties.

NICU and PICU reflected better compliance than other areas. Both units have their logbook provision that helps them capture most of the required information. The non-compliance here could be due to environmental and human factors and not a defect of method or process per se.

Analyzing the average compliance of both months it is evident that the compliance of all areas observed is unsatisfactory. Results revealed a handover process which was unstructured, informal and error prone. Factors that contribute to this are various but the lack of standardized process, tools, and document to record handover resonate the most.

The root cause analysis for non-compliance towards handover documentation has been done using Ishikawa diagram. The inputs for the diagram come from the data that was collected during facility rounds and interview with the doctors.

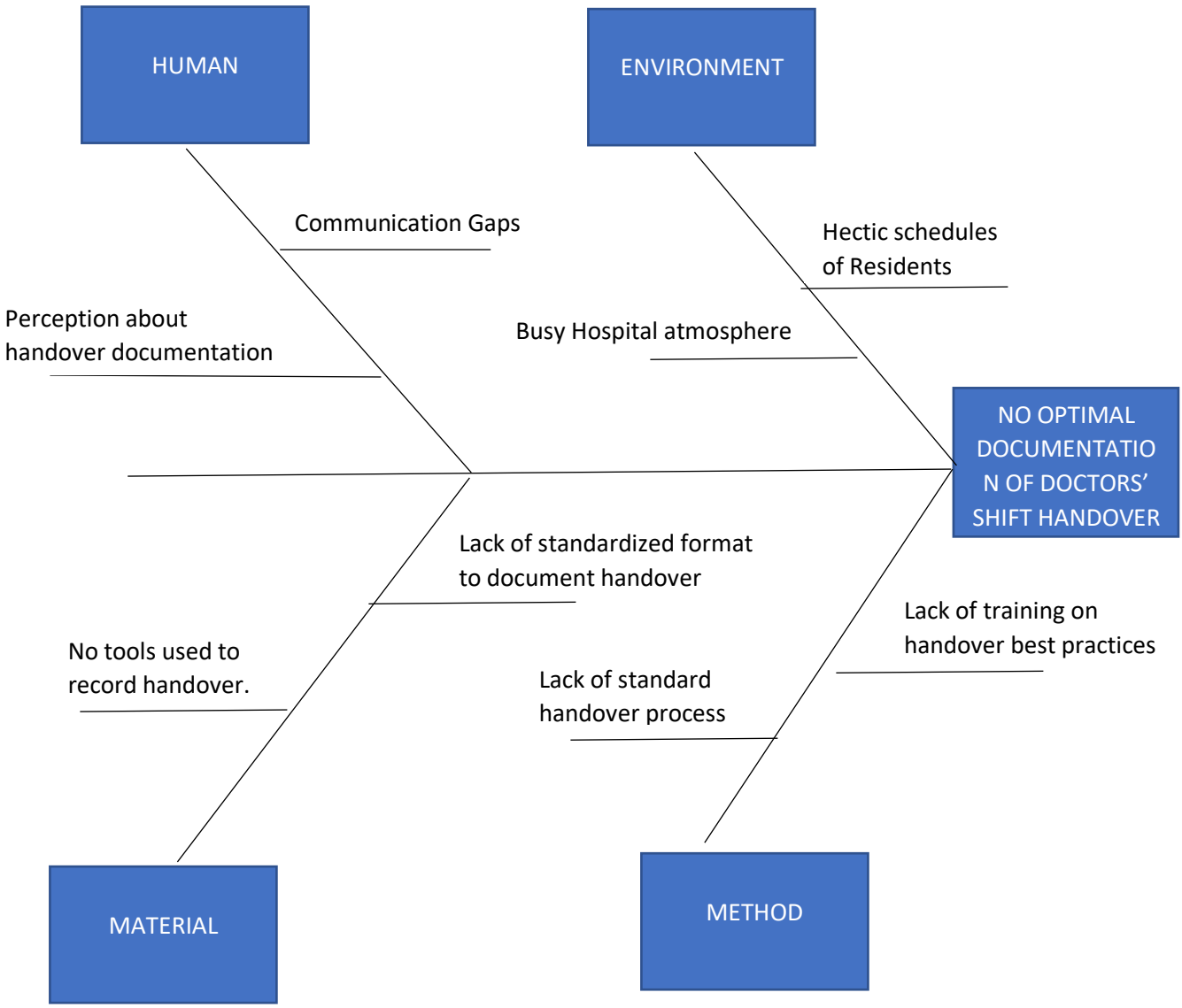

Figure 5.1: Ishikawa diagram showing root causes for handover non-compliance.

The potential of improper handover to cause adverse events in patient safety cannot be ignored. Hence, there is an evident need to formalize the whole process, implement the use of handover tools and training the doctors on handover best practices.

CHAPTER 6: RECOMMENDATIONS

The handover process can vary for different types of handovers and for different departments, but an attempt should be made to standardize the overall structure and documentation of the process. Training the doctors and generating awareness amongst them towards evidence based best practices for handover must also be done.

6.1 Standardized format to record handovers:

A. Include space for handover details in the progress notes sheet.

- The hospital like most other uses progress notes sheet to document doctor's daily assessment of the patient and to enter specific advice for nursing staff and other doctors looking after the patient. One way to standardize the handover process could be to modify the progress notes sheet in a way that in includes space for other handover details that are essential to be recorded along with involved doctors' credentials. This could prove to be an efficient process, as it is easy to implement, and doctors time spent on filling a separate handover document could be saved.
- Progress sheet currently in use consists of the title "Progress Sheet" and free space to record information. This sheet could be updated to include specific subheadings (Patients details, Status, Advice and Space for handover details like information on doctors taking over and doctors signing off etc.).

B. Handover logbook.

A logbook where the doctor signs off at the end of his/her shift could be easy to maintain.

This process already exists in some departments of MSMC like NICU, SDNICU, etc. The handover logbook already in place has a provision to enter information like patient's demographic details, a brief treatment summary, patient's current condition, action list, outgoing and incoming doctor's details.

The same could be customized for other departments. This would ensure a standardized process for handover that captures the patient details accurately and gives a documented evidence for accountability.

C. Use of handover tools like I-PASS, SIGNOUT and ANTICIpate. (1)

Several tools are available to present the key data elements in a systemic structured format.

I-PASS among them is one of the most well-studied tools.

Figure 6.1: Components of I-PASS

I	Illness severity	Identification of patient stability/acuity (i.e., stable, "watcher," unstable)
P	Patient summary	Summary statement; events leading up to admission/transfer; hospital course; assessment; plan
A	Action list	To-do list; timeline and ownership
S	Situation awareness and contingency planning	Know what is going on; plan for what might happen
S	Synthesis	Know what is going on; plan for what might happen

Figure 6.2: Components of SIGNOUT

S	Sick/ DNR
I	Identifying Data
G	General Hospital Course
N	New events of the day
O	Overall health status/ clinical condition
U	Upcoming possibilities with a plan
T	Tasks to complete overnight with plan, rationale.

Figure 6.3: Components of ANTICipate

A	Administrative Data
N	New information (clinical update)
T	Tasks (what needs to be done)
I	Illness (patient condition)
C	Contingency planning/code status.

6.2. Strengthen overall handover process:

Capitalize on Information technology to optimize handover process.

Handover templates can be integrated with the Electronic Medical Records or the HMIS. These templates could use features like auto populated fields for patient information, and other basic details on the patient. This would give Doctors more time to focus on entering the other specific details. Doctors will only have to enter expected issues and specific advice on patient condition with their credentials. Specific sub-headings for must needed handover information can be included in the template. This will ensure that no important handover information is left out.

Templates could also be in the form of above-mentioned tools (I-PASS, SIGNOUT, ANTICIpate).

This would not only improve the compliance but also give hospital a digital record of the handover process which is any day a good detail to have.

6.3 Training of doctors:

Health care professionals often lack concrete training in effective handovers. What they know about handovers and the practice they follow is usually the one they observed their peers or seniors' practice. Training is effective in increasing the quality of handover not just for new doctors but also experienced professionals. The participants in handover should be trained to ensure that the hospital policy and procedure is being followed during handover. There should be a designated place for handover process that is free from interruptions. Unambiguous transfer of responsibility should be avoided. This helps in optimizing the environment in which handover will be done.

6.4 Improving the Perception of Doctors towards handover documentation:

To improve this IPSG 2 Drive has been implemented. IPSG 2 Drive is a program in which designated program champions audit handover documentation weekly. Every Thursday the data is communicated to the unit quality. Unit quality team then analyses the data and when non compliances are found the doctors are counselled and made aware of the importance of recording handover effectively. Their issues with the documentation recording are also taken into note. And all these findings are eventually discussed in the committee meeting so a substantial solution can be created.

CHAPTER 7: CONCLUSION

Handover process is complex one and the hindrances can be various due to that. It has the potential to cause patient harm if not done properly. Therefore, handovers have become an area of concern for healthcare organizations and patent safety experts. As seen in this study most areas of the hospital fail to conduct a satisfactory handover. There is a clear lack of a defined process or tool to take down handovers. Many Doctors are not aware of the precise information that needs to be documented. The necessity to improve the process is evident and measures need to be taken to prevent adverse events due to poor handover communication. The key areas that can be worked upon to improve the effectiveness of handovers in this organization are, the process/protocol for handover, Tools for handover and Training of the doctors participating in handover. The organization can improve their handover effectiveness by implementing tools like I-PASS, SIGHNOUT and ANTICipate. A standardized process needs to be created, possibly integrated with the HMIS to facilitate the ease of recording handover information. This will allow the doctors to efficiently manage the time spent on documenting handovers and not be burdened by it. Training of doctors participating in handover is fundamental to the improvement process. Both junior doctors and experienced professionals can benefit from it. Effective handovers which are complete in all ways are a must for all healthcare organizations.

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ANNEXURE 1

GUIDELINE USED FOR DOCTOR'S SEMI-STRUCTURED INTERVIEW

DOCTOR'S HANDOVER						
AREA	**SPECIALITY**	**RESIDENT DOCTOR**	**Is standardized critical content being communicated between health care practitioners during handovers of patient care?**	**Are standardized forms, tools, or methods that support a consistent and complete handover process are utilized?**	**Data from adverse events resulting from handover communications are tracked?**	**REMARKS**

ANNEXURE 2

IPSG-2 CHECKLIST

AREA-	SAMPLE 1	SAMPLE 2
Critical result verification - Lab		
Critical result verification - Radio		
Critical test result - POCT		
Verbal order documentation in verbal order sheet		
Verbal order acknowledgement by the prescriber within 24 hours		
Handover documentation during shift change (Doctor)		
Handover documentation during shift change (Nurse)		
Handover documentation during transfer within the hospital (Nurse)		
Handover documentation during transfer within the hospital (Doctor)		
Handover documentation for diagnostic transfer (Nurse)		

*Element taken for compliance calculation for the purpose of this study highlighted in yellow.