

## Research Article

# Patient safety with special reference to adverse events taking place in the cases discussed in mortality and morbidity meets

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## ABSTRACT

**Background:** There is an increasing belief that an institution's ability to avoid patient harm will be realized when it creates a culture of safety among its staff members. Aims to study the cases discussed in mortality meets.

**Methods:** Critical analysis of cases discussed in mortality and morbidity meet were done for one year by using WHO Structured questionnaire on patient safety (RF-1 & RF-2 forms) along with their record review and interview to the concerned staff.

**Results:** 62 mortality and morbidity meetings were conducted during the study period of one year. Cardiac/Respiratory arrest was the most common adverse event studied (67.7%) followed by unexpected death (48.4%). 52.7% of studied adverse events showed signs of healthcare team responsible for causing adverse events, mainly related to the therapeutic care (64.8%). 47% of adverse events were categorized preventable.

**Conclusions:** Mortality and Morbidity Meets should be made mandatory in all hospitals.

**Keywords:** Mortality and Morbidity Meets, Patient safety, Preventable

## INTRODUCTION

Patient safety is an issue for all countries that deliver health services, whether they are privately commissioned or funded by the government.<sup>1</sup>

There is an increasing belief that an institution's ability to avoid patient harm will be realized when it creates a culture of safety among its staff members.<sup>2</sup> When so many people and different types of health-care providers are involved, this makes it very difficult to ensure safe care, unless the system of care is designed to facilitate timely and complete information and understanding by all the health professionals.<sup>1</sup>

The objective was to study the cases discussed in mortality meets.

## METHODS

Every second week there was a mortality meet held in the auditorium of Sheri Kashmir Institute of Medical Sciences (SKIMS), discussing the preventable deaths of the patients in the hospital. The cases for the presentation were selected by the mortality meet committee comprising of various head of departments. The researcher attended the mortality meets from 1<sup>st</sup> January 2013 to 31<sup>st</sup> December 2013 for the period of one year to note down the details of the patients and the adverse events discussed in the meet. The patients who were

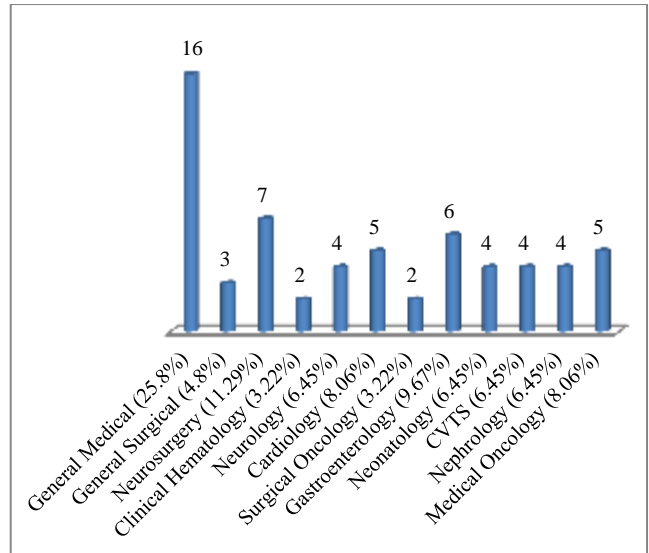
discussed in mortality meets were taken as screened for having an adverse event present. The researcher also reviewed medical records of the cases discussed in the mortality meets. To study the adverse events, a WHO (World Health Organization) structured questionnaire on patient safety consisting of Review Form-1 (RF-1) and Review Form-2 (RF-2) was used. Every case discussed in the meet can have one or more adverse events present at same time. A RF-1 form was filled for each case discussed in mortality meet to know the number of adverse event present. A separate RF-2 form was filled for every adverse event screened. SPSS V20 has been used to analyze the Data.

**RESULTS**

A total of 62 Mortality Meeting were conducted during the study period. Mostly cases studied were from General Medicine (25.8%) followed by Neurosurgery (11.29%) and gastroenterology (9.67%) departments. Most common age involved was 41-60 years (37.1%) with a gender dominance of females (51.6%) who came from emergency care (69.4%) and the duration of stay was 0-10 days (72.6%) (Figure 1 & Table 1).

**Table 1: Profile of cases studied in Mortality meets.**

Characteristic	Variable	Frequency (n)	Percentage (%)
Age	0-20 years	7	11.3
	21-40 years	12	19.4
	41-60 years	23	37.1
	61-above years	20	32.3
Gender	Male	30	48.4
	Female	32	51.6
Type of Admission	Elective Admission	19	30.6
	Emergency Admission	43	69.4
Duration of Stay	0-10 Days	45	72.6
	11-20 Days	11	17.7
	21 & Above Days	6	9.7

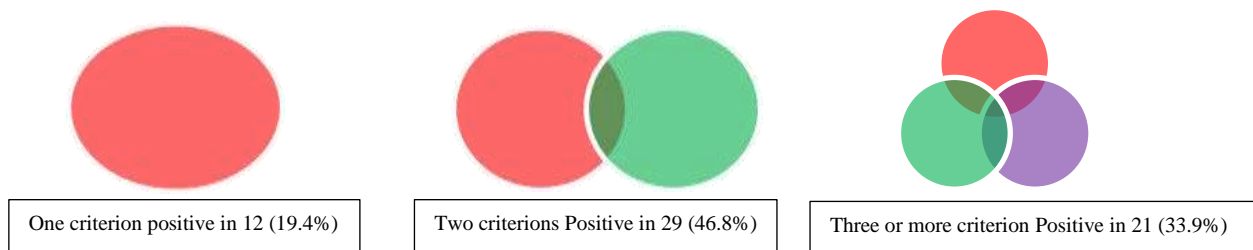


**Figure 1: Specialty wise cases studied in mortality meetings.**

Among the total 62 mortality meetings, Cardiac/respiratory arrest was the most common complaint studied (67.74%) involving males (35.4%) more than females (32.2%) in the age group of 61 years & above years (27.4%) who came from emergency care (48.3%) with the duration of stay between 0-10 days (54.7%). Unexpected death (48.38%) followed by hospital acquired infection/sepsis (27.41%) and readmission during last 12 months related to any given healthcare for the same health condition (25.80%) were other common adverse event seen (Table 2 & Table 3).

One screening criteria for adverse event was positive in 12 cases (19.4%). Two screening criteria for adverse event were positive in 29 cases (46.8%) and three and more screening criteria for adverse event were positive in 21 cases (33.9%) (Figure 2, Table 2 & Table 3).

A total of 129 RF2 forms were filled for adverse event. 29 (22.5%) RF2 forms were filled for General Medicine patients as it was having most common adverse events, followed by 15 (11.6%) in Gastroenterology and 15 (11.6%) in Neurosurgery (Figure 3).



**Figure 2: Number of criteria positive among cases discussed in Mortality meets.**

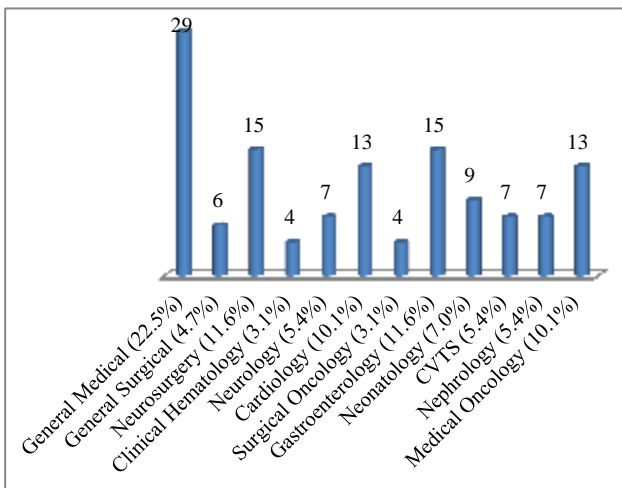
**Table 2: Frequency of Adverse Events among cases discussed in mortality meets.**

Screening Criterion	Number	Percentage(%)
Q1. During the last 12 months, any unplanned ward admission related to any given healthcare for the same health condition?	16	25.80
Q2. Hospital-incurred patient accident or injury?	0	0
Q3. Adverse drug reaction/drug error or related to administration of fluids or blood?	1	1.61
Q4. Hospital acquired infection/sepsis?	17	27.41
Q5. Unplanned removal, injury or repair of organ or structure during surgery, invasive procedure or vaginal delivery?	2	3.22
Q6. Unplanned return or visit to the operating theatre during this admission?	7	11.29
Q7. Unplanned open surgery following closed or laparoscopic surgery?	1	1.61
Q8. Cardiac/respiratory arrest, low APGAR score?	42	67.74
Q9. Development of neurological deficit not present on admission?	2	3.22
Q10. Injury or complications related to termination of pregnancy or labour and delivery including neonatal complications?	1	1.61
Q11. Other patient complications including MI, DVT, PE, CVA etc?	1	1.61
Q12. Patient/family dissatisfaction with care received documented or expressed during the current admission?	7	11.29
Q13. Unplanned transfer from general care to intensive care higher dependency?	9	14.52
Q14. Unplanned transfer to another acute care hospital?	0	0
Q15. Unexpected death (i.e. not an expected outcome of the disease during hospitalization)?	30	48.38
Q16. Patients care delayed or lesser treatment given because the patient was unable to pay?	8	12.90
Q17. Admission significantly prolonged compared to the expected length for this clinical condition?	2	3.22
Q18. Any other undesirable outcomes (not covered by any of the above)?	4	6.45

**Table 3: Spectrum of adverse events screened through RF1 among cases discussed in mortality meets.**

	Age (in Years)				Gender		Type of Admission		Duration Of Stay (in Days)			Total
	0-20	21-40	41-60	≥61	Male	Female	Elective	Emergency	0-10	11-20	≥21	
Q1. Unplanned ward re-admission	1 (1.61%)	3 (4.83%)	7 (11.3%)	5 (8.05%)	6 (9.66%)	10 (16.1%)	5 (8.05%)	11 (17.7%)	12 (19.3%)	4 (6.44%)	0 (0%)	16
Q2. Hospital-incurred injury	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0
Q3. Adverse drug /blood reaction	0 (0%)	1 (1.61%)	0 (0%)	0 (0%)	1 (1.61%)	0 (0%)	0 (0%)	1 (1.61%)	1 (1.61%)	0 (0%)	0 (0%)	1
Q4. Hospital acquired infection	1 (1.61%)	4 (6.44%)	6 (9.66%)	6 (9.66%)	10 (16.1%)	7 (11.3%)	7 (11.3%)	10 (16.1%)	11 (17.7%)	4 (6.44%)	2 (3.22%)	17
Q5. Unplanned injury during surgery	0 (0%)	1 (1.61%)	1 (1.61%)	0 (0%)	0 (0%)	2 (3.22%)	1 (1.61%)	1 (1.61%)	1 (1.61%)	0 (0%)	1 (1.61%)	2
Q6. Unplanned return to the OT during this admission?	1 (1.61%)	2 (3.22%)	3 (4.83%)	1 (1.61%)	7 (11.3%)	0 (0%)	4 (6.44%)	3 (4.83%)	4 (6.44%)	2 (3.22%)	1 (1.61%)	7
Q7. Unplanned open surgery following closed or laparoscopic surgery	0 (0%)	0 (0%)	1 (1.61%)	0 (0%)	1 (1.61%)	0 (0%)	0 (0%)	1 (1.61%)	0 (0%)	1 (1.61%)	0 (0%)	1
Q8. Cardiac/respiratory arrest or low	4 (6.44%)	6 (9.66%)	15 (24.2%)	17 (27.4%)	22 (35.4%)	20 (32.2%)	12 (19.3%)	30 (48.3%)	34 (54.7%)	6 (9.66%)	2 (3.22%)	42

APGAR?												
Q9. Development of neurological deficit?	0 (0%)	0 (0%)	1 (1.61%)	1 (1.61%)	0 (0%)	2 (3.22%)	0 (0%)	2 (3.22%)	2 (3.22%)	0 (0%)	0 (0%)	2
Q10. Injury or complications related to termination of pregnancy	0 (0%)	0 (0%)	1 (1.61%)	0 (0%)	1 (1.61%)	0 (0%)	0 (0%)	1 (1.61%)	1 (1.61%)	0 (0%)	0 (0%)	1
Q11. Other complications including MI, DVT, etc	0 (0%)	0 (0%)	1 (1.61%)	0 (0%)	1 (1.61%)	0 (0%)	1 (1.61%)	0 (0%)	1 (1.61%)	0 (0%)	0 (0%)	1
Q12. Patient/family dissatisfaction?	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0
Q13. Unplanned transfer from general care to ICU	2 (3.22%)	2 (3.22%)	4 (6.44%)	1 (1.61%)	4 (6.44%)	5 (8.05%)	5 (8.05%)	4 (6.44%)	4 (6.44%)	5 (8.05%)	0 (0%)	9
Q14. Unplanned transfer to another hospital?	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0
Q15. Unexpected death	4 (6.44%)	3 (4.83%)	13 (20.9%)	10 (16.1%)	15 (24.2%)	15 (24.2%)	11 (17.7%)	19 (30.6%)	21 (33.8%)	6 (9.66%)	3 (4.83%)	30
Q16. Patients care delayed as unable to pay?	2 (3.22%)	0 (0%)	3 (4.83%)	3 (4.83%)	2 (3.22%)	6 (9.66%)	2 (3.22%)	6 (9.66%)	5 (8.05%)	2 (3.22%)	1 (1.61%)	8
Q17. Admission significantly prolonged	0 (0%)	0 (0%)	1 (1.61%)	1 (1.61%)	0 (0%)	2 (3.22%)	0 (0%)	2 (3.22%)	1 (1.61%)	1 (1.61%)	0 (0%)	2
Q18. Any other undesirable outcomes	0 (0%)	0 (0%)	1 (1.61%)	3 (4.83%)	1 (1.61%)	3 (4.83%)	0 (0%)	4 (6.44%)	3 (4.83%)	0 (0%)	1 (1.61%)	4

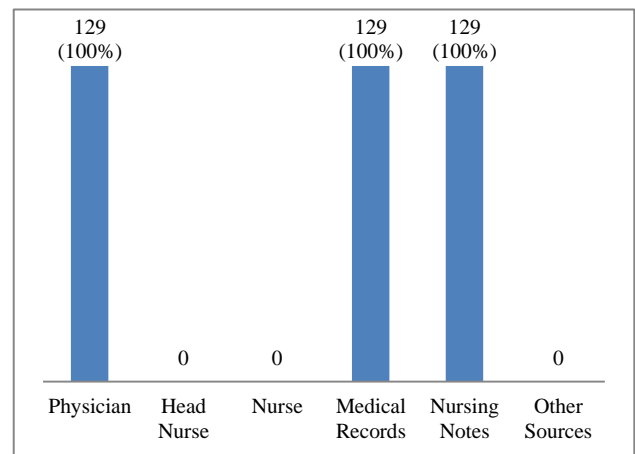


**Figure 3: Specialty wise adverse events among cases discussed in mortality meets through RF2.**

Source of information were physician discussing cases in mortality meetings along with the medical and nursing records (Figure 4).

Among the total of 129 adverse events studied through RF2 100% of cases presented with untoward outcome with 43 causing admission in wards, 126 causing

unexpected death and 42 causing prolonged stay (Figure 5 and Table 4).



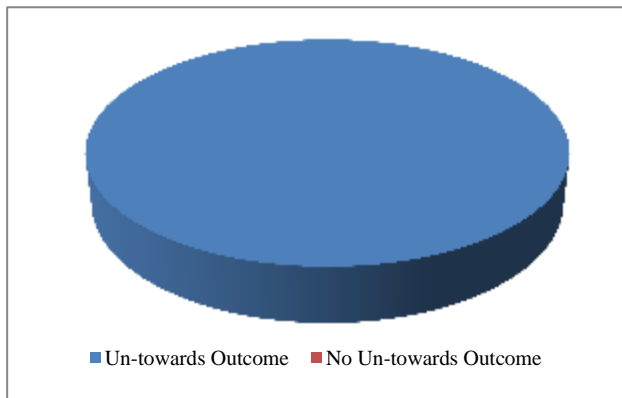
**Figure 4: Source of information of adverse events among cases discussed in mortality meets.**

52.7% of studied adverse events by RF2 form showed signs of health care team responsible for causing adverse events which could have been prevented. 69% of adverse events occurred after index admission and 31.0% of adverse event occurred before the index admission.

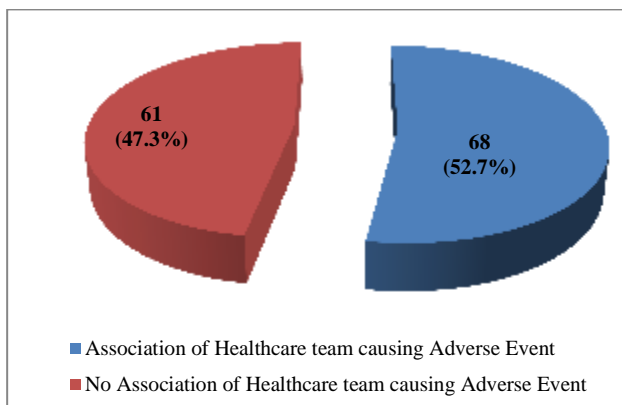
About 64.8% of adverse events were related to therapeutic care of patient followed by the diagnostic care (28.2%) (Figure 6 – 10 & Table 5).

**Table 4: Implication of adverse event on Outcome among cases discussed in mortality meets.**

Outcome	No.
Adverse Event causing Admission in ward	43 (33.3%)
Adverse Event associated with Death	126 (97.7%)
Adverse Event associated with Disability at Discharge	0 (0%)
Adverse Event associated with prolonged Stay	42 (32.6%)



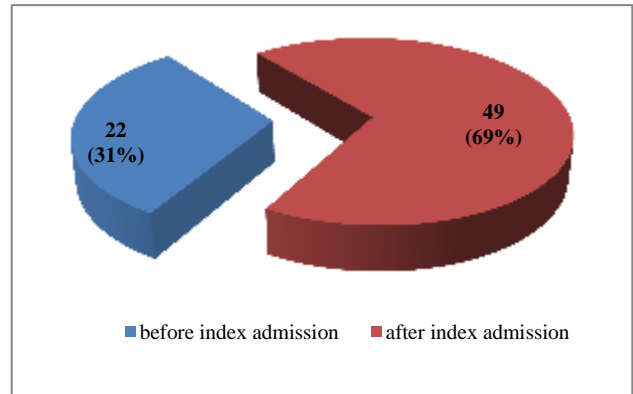
**Figure 5: Adverse Event discussed in mortality meetings presenting with untoward outcome.**



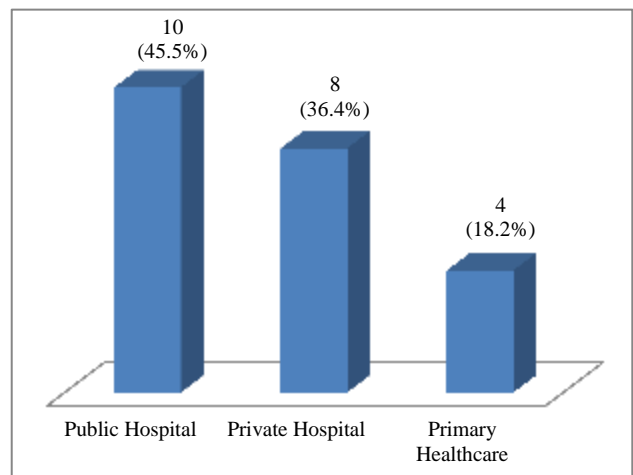
**Figure 6: Evidence that healthcare team caused adverse events among cases discussed in mortality meets.**

60 (47%) of adverse events were found preventable and 69 (53%) of adverse events were found non-preventable. Definite certain evidence for preventability was seen in 8.5% of adverse events and virtually no evidence for preventability was seen in 7.8% of adverse events

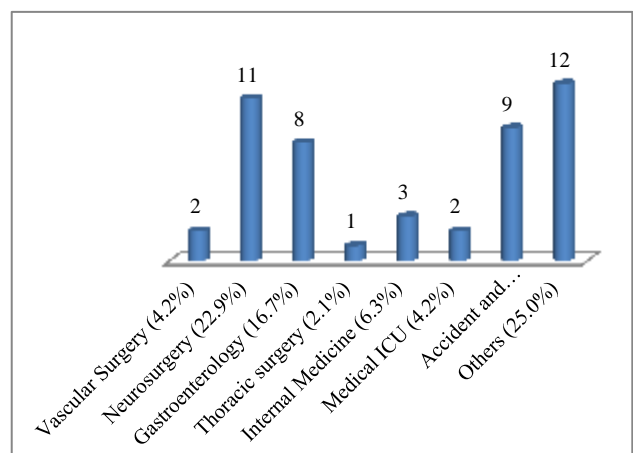
occurred. The most common confidence score of preventability came to be of 3 i.e. preventability not likely than 50-50 (Figure 11 & Table 6).



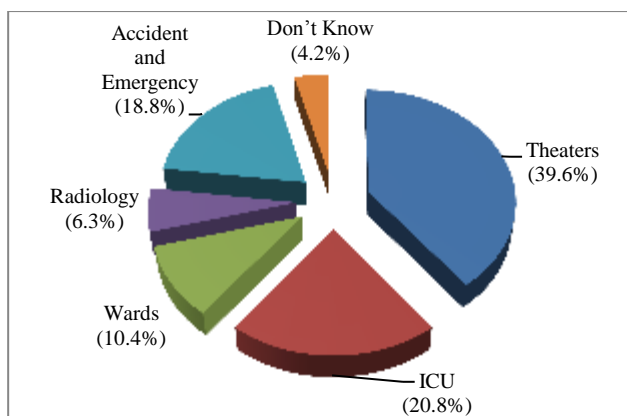
**Figure 7: Location of adverse event discussed in mortality meets.**



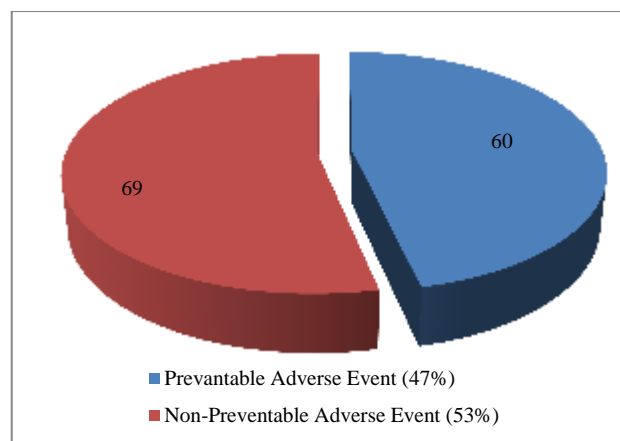
**Figure 8: Location of adverse event taken place before index admission among the cases discussed in mortality meets.**



**Figure 9: Location of adverse events taken place at SKIMS among cases discussed in mortality meets.**



**Figure 10: Exact location of adverse events taken place at SKIMS among cases discussed in mortality meets.**



**Figure 11: overall preventability of adverse events among cases discussed in mortality meets.**

**Table 5: Type of care related to Adverse Events among cases discussed in mortality meetings.**

	Preventive & Prophylaxis	Diagnostic	Therapeutic	Rehabilitation
General Medical	0	7	6	0
General Surgical	0	2	0	0
Neuro surgery	0	0	11	0
Clinical Hematology	0	1	0	0
Neurology	0	3	0	0
Cardiology	2	0	5	0
Surgical Oncology	0	0	0	1
Gastroenterology	0	3	8	0
Neonatology	2	0	2	0
CVTS	0	0	5	0
Nephrology	0	1	2	0
Medical Oncology	0	3	7	0
<b>Total</b>	<b>4 (5.6%)</b>	<b>20 (28.2%)</b>	<b>46 (64.8%)</b>	<b>1 (1.4%)</b>

**Table 6: Confidence Score of preventability of adverse event among cases discussed in mortality meets.**

Confidence Score	Frequency
Virtually no evidence for preventability	10 (7.8%)
Slight to modest evidence for preventability	27 (20.9%)
Preventability not really likely; less than 50-50	32 (24.8%)
Preventability more likely than not; more than 50-50	20 (15.5%)
Strong evidence for preventability	29 (22.5%)
Definite certain evidence for preventability	11 (8.5%)

52.7% of studied adverse events by RF2 form showed signs of health care team responsible for causing adverse event, which could have been prevented. 69% of adverse events occurred after index admission and 31.0% of adverse event occurred outside SKIMS before the index admission. Adverse events, which occurred after index admission, were mainly in theaters related to therapeutic care mainly followed by the diagnostic care.

Risucci et al found that adverse events were the results of complication either from the nature of disease, or error in diagnosis, technique or judgment.<sup>6</sup>

## CONCLUSION

Thus adverse events detected in our study were non-preventable more than preventable.

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*Conflict of interest: None declared*

*Ethical approval: The study was approved by the Institutional Ethics Committee*

## DISCUSSION

The result of Cardiac/respiratory arrest, unexpected death, hospital acquired infection/sepsis the present study contradicted results of previous studies.<sup>3-5</sup> The reason may be because the study was conducted with a different methodology.

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