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Original Article

A Quality Improvement Project on Prevention of Falls in Himalayan Hospital, Dehradun

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Abstract:
Falls that occur in hospitalized patients are a widespread and serious threat to patient safety. Accidental falls are among the most common incidents reported in hospitals, complicating approximately 2% of hospital stays. These incidents can lead to injuries, prolonged hospitalization, increased healthcare costs, and a decline in patient confidence and quality of life. To address this critical issue, a quality improvement project focusing on patient fall prevention was undertaken with the primary goal of enhancing practices related to fall prevention and reducing the incidence of falls in the hospital setting. The project began with a comprehensive analysis of fall incidents reported between January and July 2019. Root cause analysis revealed multiple contributing factors including inadequate staff training, inconsistent fall risk assessments, and lack of adherence to safety protocols. Based on these findings, a set of targeted interventions were developed and implemented. These included staff training sessions, the introduction of updated fall prevention policies and guidelines, reinforcement of safety practices, and continuous monitoring and auditing of compliance. As a result of these concerted efforts, a significant reduction in fall incidents was observed. By the end of 2020, the number of reported falls had decreased by 45% compared to previous levels. Notably, the incidence of falls remained below 0.2 per 1000 inpatient days from July 2019 onwards. Furthermore, improvements were noted in the regular assessment and reassessment of fall risk, as well as in the implementation of individualized preventive strategies. These outcomes highlight the effectiveness of a structured, data-driven approach to patient safety improvement.

Keywords: Patient Falls, Quality Improvement, Fall Risk Assessment, Hospital Safety, Preventive Strategies, Incident Reporting

1. Introduction

The adverse event of a patient fall, regardless of the outcome, has the potential to cause physical and emotional harm to patients, staff, and the organization. In-hospital patient falls are the leading cause of injuries among the older population and can lead to patient injuries, prolonged hospital stays, and higher cost to the institution of care [1]. The American Nurses Association defined a fall in 2009 as an unplanned descent to the floor with or without injury to the patient [2].

Falls among hospitalized patients is an issue experienced at national level in the United States. Between 700,000 and 1,000,000 falls occur in hospitals every year. Furthermore, approximately 30-35% of these falls result in injury and 11,000 falls result in death [3]. Negative consequences of falls to patients include, Emotional harm, physical injury, and increased risk of hospital-acquired illnesses, prolonged hospital stays, and fatalities. Even falls that cause no physical injuries can cause harm, as the trauma from the adverse event can cause functional decline and fear related to events surrounding the fall, such as toileting. [4] However, patient falls also impact the staff and Organization as they contribute to emotional distress and increased hospital costs.[5]

The present study was initiated when a spike in the number of falls was observed from March to May 2019. The purpose of the study was to analyze the causes of falls and adopt appropriate preventive strategies to attain a significant reduction in the incidence of falls.[6]

2. Need & Significance

1. Majority of the hospitalized patients are vulnerable and at high risk.
2. Underreporting of incidents of falls (in initial phase).
3. Fall is preventable.
4. Improving the practice related to fall risk assessment, adopting appropriate preventive strategies, monitoring and documentation will help prevention of fall.

3. Objectives Primary Objective

1. To reduce the prevalence of fall incidence by 50%

Secondary Objective

1. Improve the patient safety practices related to prevention of falls

4. Methods

The phase 1 of the study involved the analysis of incident reports of falls from January to July 2019. After identification of the causes and priority areas, hospital wide interventions were implemented. It involved training of all the concerned staff, issuing guidelines, improvement of safety measures like side rails, safety belt for stretchers, improving the safety practice of housekeeping staff etc. The data on incidence of falls were obtained by incident reporting.

5. Analysis of the incidents of Fall, January-June 2019

There were 27 cases of falls reported from January to June 2019. Cumulative frequency of number of falls during this period is presented in figure 1. Table 1 shows the number of falls and rate per 1000 in patient days during this period.

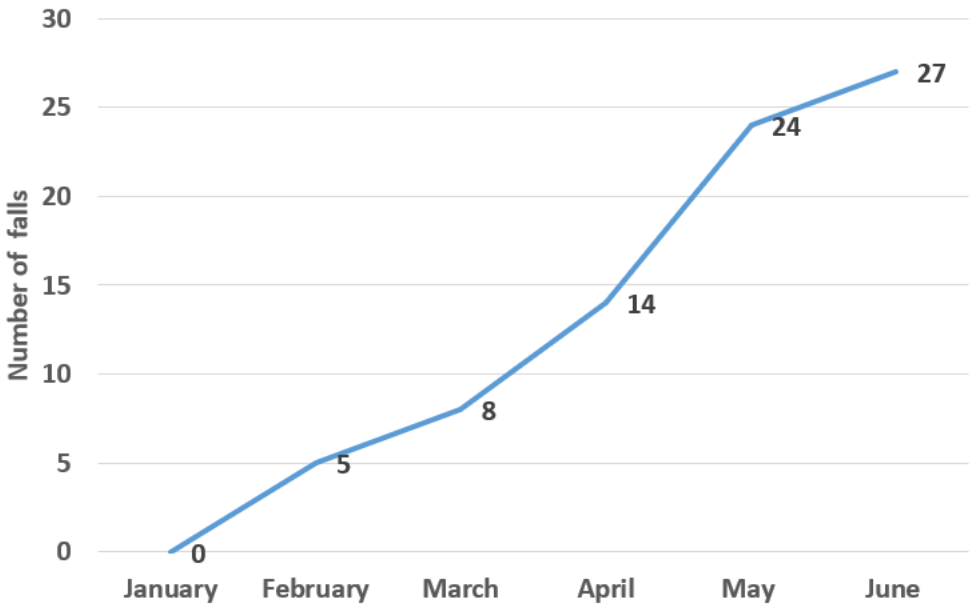

Fig 1. Ogive on the cumulative frequency of falls (Jan-June 2019)

Table 1. Month wise distribution of falls

Sl No.	Characteristics	F	Cumulative frequency	Rate of fall per 1000 patient days
1.	January	0	0	0
2.	February	5	5	0.24
3.	March	3	8	0.13
4.	April	6	14	0.24
5.	May	10	24	0.37
6.	June	3	27	0.12

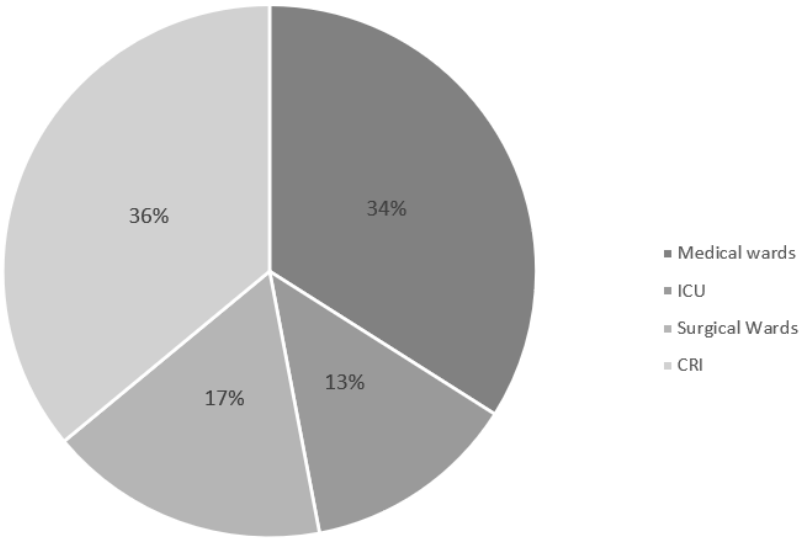

Fig. 2 Clinical area wise distribution of falls, Jan-Jun 2019

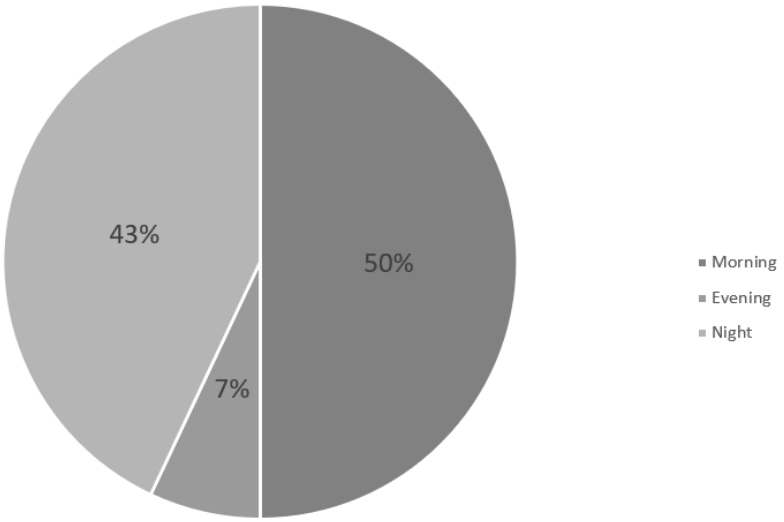

Fig 3. Shift wise distribution of falls, Jan-Jun 2019

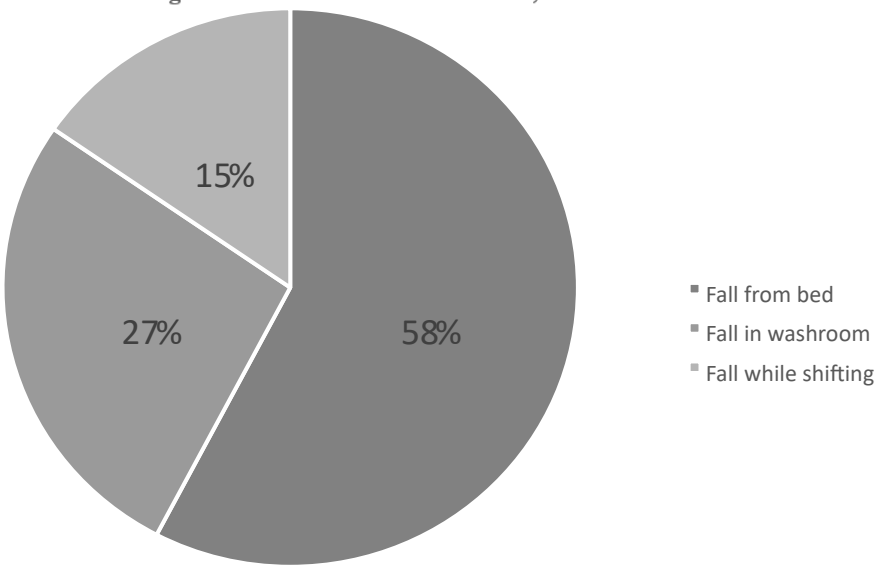

Fig 4. Distribution based on place of occurance, Jan-Jun 2019

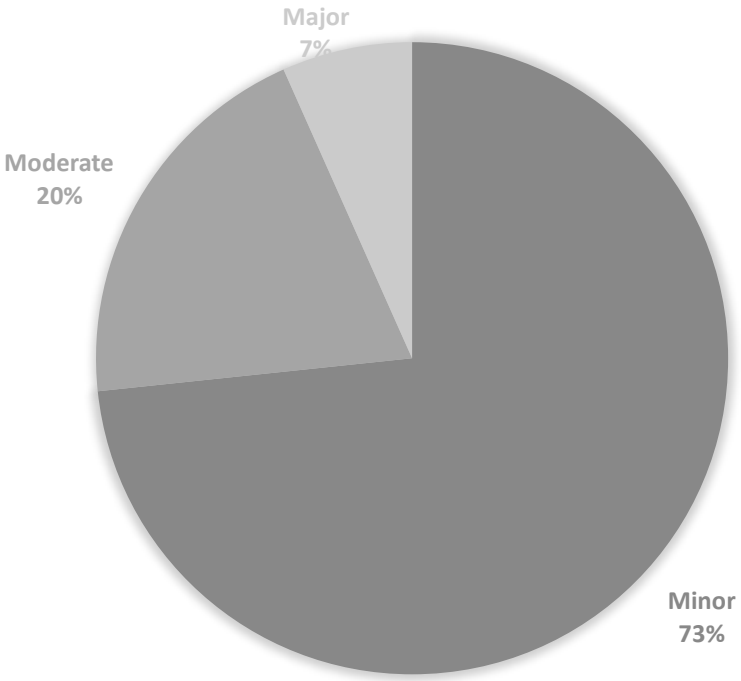

Fig 5. Distribution based on severity of fall, jan-jun 2019

6. Root Cause analysis of fall

Fall from bed	Fall while shifting	Fall in wash room
• Beds without side rails • Side rails put down for care • Rest less patients • Side rails with lost knobs • Size of the side rails	• Inadequate attention while shifting • Stretcher without side rails (Corrected)	• Slippery floor- ICU and wash rooms • Level of washroom from the floor • Vulnerable patients not accompanied by attenders

Fig 6. Causes of falls based in the place of occurance, Jan-Jun 2019

Gaps in the incident report also were identified

1. Description of the event to be made more comprehensive and clearer
2. Inadequate data on

a. fall risk assessment done at admission and its documentation
b. patient education on fall risk and its prevention
c. actions taken by the nurse for the prevention of falls
d. Follow up assessment of the patient and condition
e. Risk factors of falls present in patients
f. Impact of fall on patient outcome

Corrective and Preventive actions adopted from July 2019

Based on the detailed analysis of each case falls and its root cause analysis, specific plan of actions was defined for quality team, nurses, ward and charges. These measures were adopted from July 2029

1. Quality team

a. Root cause analysis to be done more systematically by any member of the nursing quality team
b. Data on impact of fall to be collected - injuries, treatments done, hospital stay extended, additional expense incurred etc.
c. Follow up of the cases and remarks
d. Revise the incident form to be more specific- to consider separate form for falls
e. Training of staff nurses, ward attenders, housekeeping staff
f. Develop, test and implement SOP on prevention of falls
g. Root cause analysis of each incident and its Corrective and preventive actions

2. Staff Nurses

a. Perform fall risk assessment and its documentation
b. Reassessment of fall risk as per the guidelines

c. Patient education on fall risk and preventive measures
d. Documentation of preventive measures taken
e. Special instructions to patient movement staffs while shifting
f. Patient at risk should be accompanied by care taker or a hospital staff to wash rooms
g. Reporting the incident at the earliest and its documentation

3. Ward-In-charges
a. Periodic review of the preventive actions done by the staff nurses
b. Period assessment of fall risk in their concerned area

i. Check wash rooms- anti-slippery mats, side bars, use of wet signage while cleaning
ii. Correct the level issues in washrooms
iii. Check side rails of beds- presence and proper functioning
c. Ensure reporting the incident at the earliest
d. Request any administrative support needed
e. All beds in high-risk areas to be given side rails

Analysis of incidence of falls 2019-2020

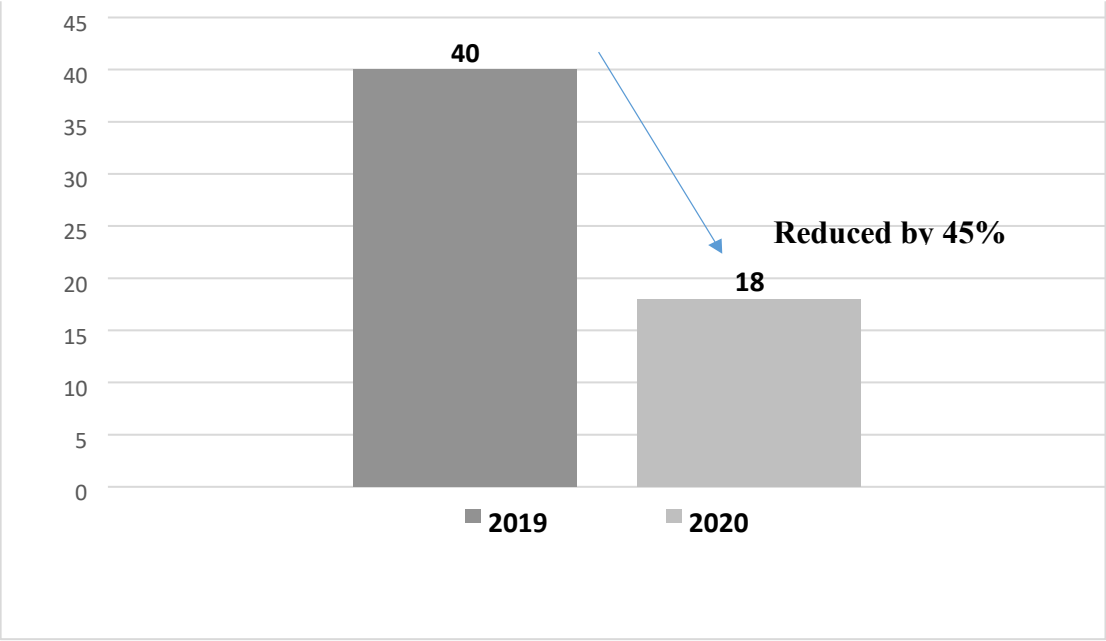

Fig 7. Number of falls reported 2019-20

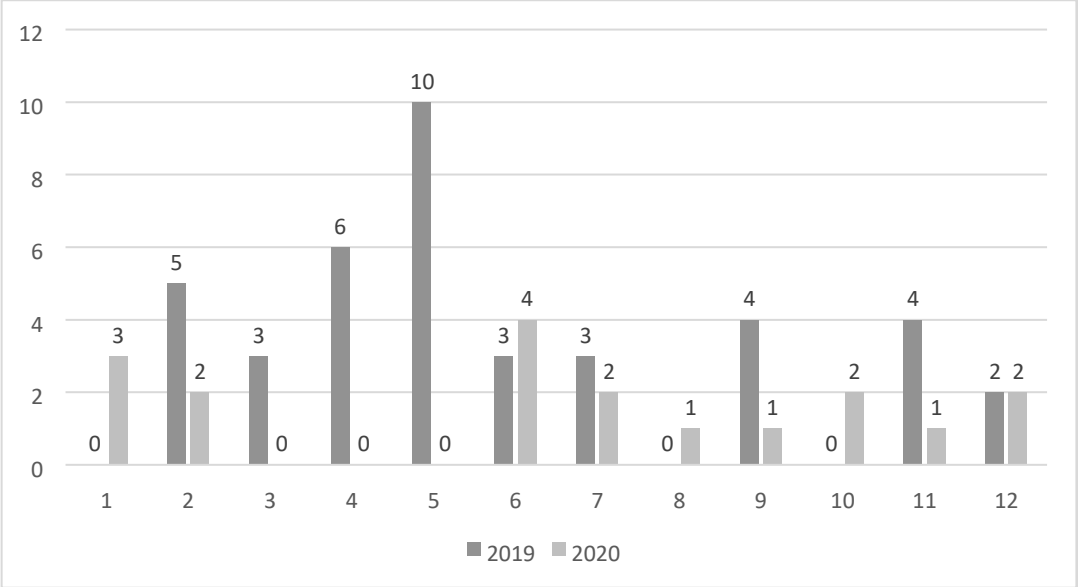

Fig 8. Number of falls reported 2019-20

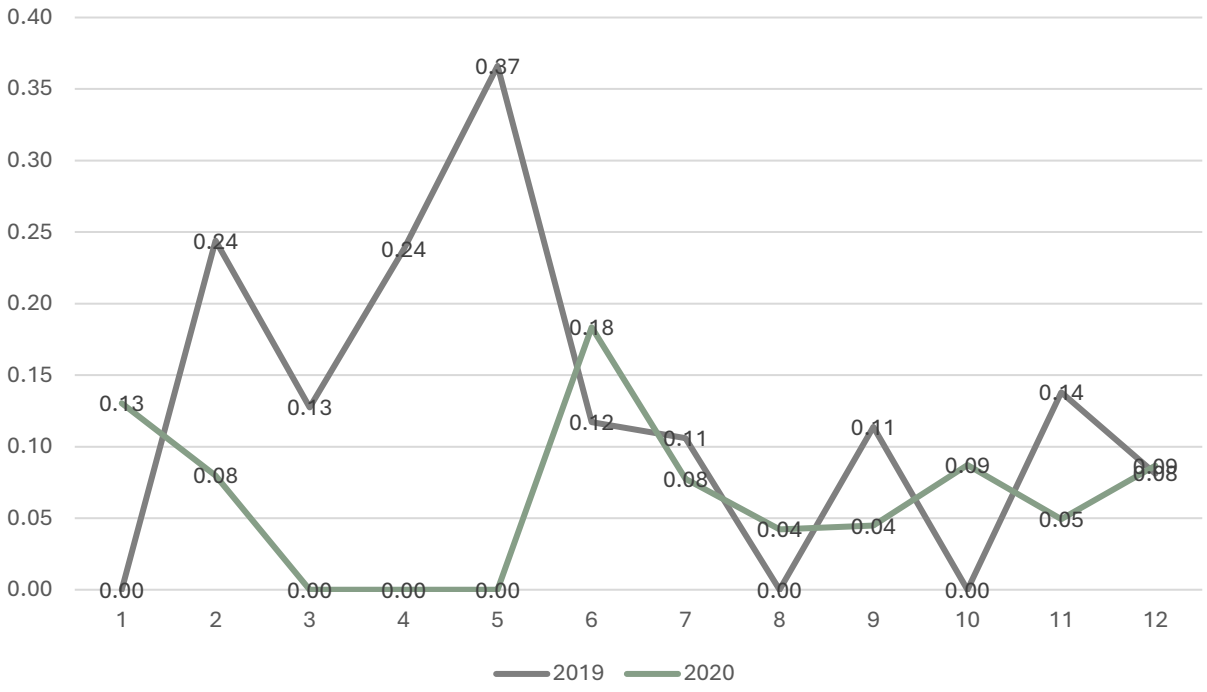

Figure 9. Rate of falls, 2019-2020

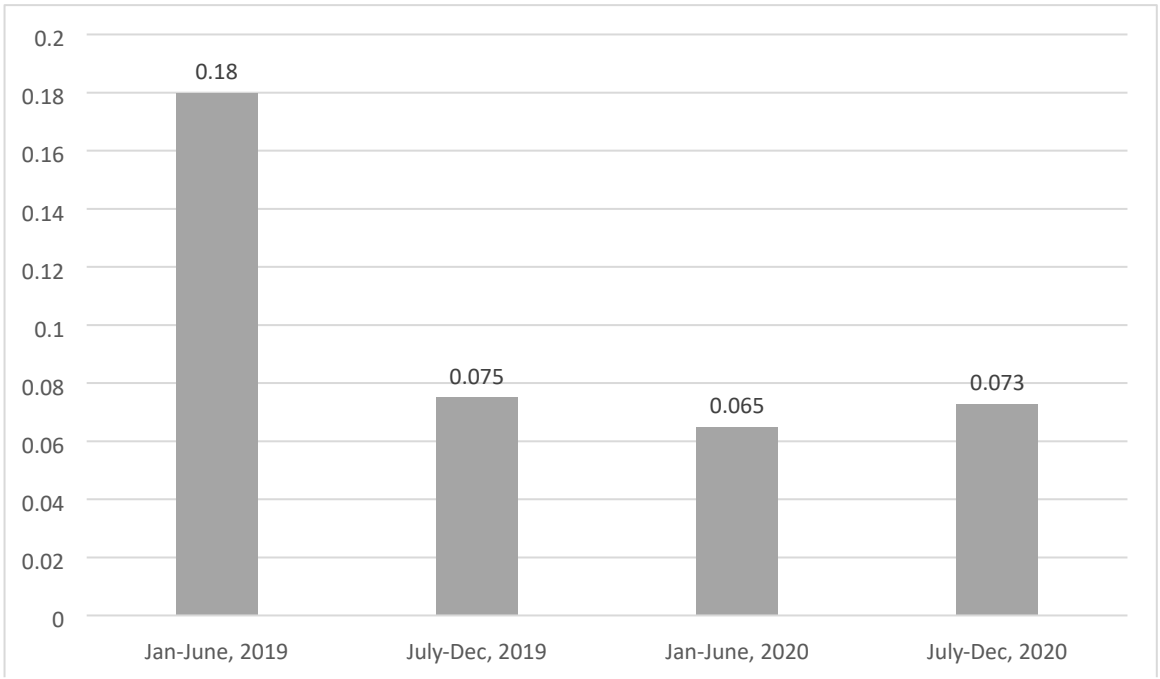

Figure 10. Six monthly average rate of falls, 2019-2020

Table 2. Percentage Distribution based on documentation fall risk and vulnerability assessment

Sl.no	Initial assessment	Jan-20	Apr-20	Jul-20	Oct-20
		N = 420	N = 57	N = 377	N = 333
1	Falls risk assessment	94.4	100	99.4	100
2	Vulnerable assessment is documented	95	84.2	99	100

7. Discussion

The QI project on prevention of falls was initiated when an increase in the rate of falls was observed. Detailed analysis of the falls happened during the last six month could identify the gaps in the safety practice.[7] The gaps in the incident reporting also could be identified and rectified. Interventions were given based on the needs identified.[8] Figure 11 shows the framework of interventions adopted for the prevention of falls.

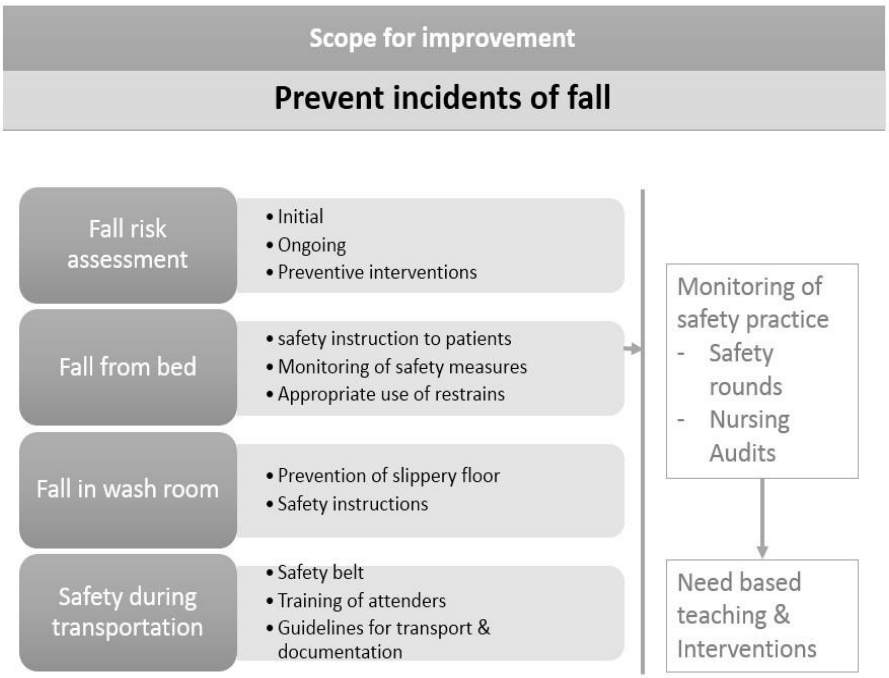

Figure 11. Framework for the prevention of falls

The total number of falls reduced from 40 to 18 from 2019 to 2020. The mean rate of falls in the first half of 2019 was 0.18 which got reduced to 0.075.[9] Though not significant statistically there was an observable reduction of fall rate after the initiation of project. Nursing practices related to fall risk assessment and preventive practices also improved.[10] Teaching and regular quality rounds were instrumental in bringing about change in practice.

Recommendations

1. Continue detailed RCA and CAPA of future incidences
2. Fall safety audit to ensure better safety practice
3. Continue continuing education programmes.

Conclusion:

The Quality Improvement (QI) project undertaken at Himalayan Hospital, Dehradun, focused on reducing the incidence of patient falls—a major concern in hospital safety and patient care. Through an initial analysis of fall incidents from January to June 2019, significant gaps were identified in incident reporting, fall risk assessment, documentation, and preventive measures. A root cause analysis revealed both systemic and procedural weaknesses, including lack of comprehensive assessments and insufficient staff training. Following this, a multilevel intervention strategy was implemented involving all tiers of hospital staff, including nurses, ward incharges, and housekeeping. Key measures included training sessions, revision of incident reporting formats, development and implementation of standard operating procedures (SOPs), and reinforcement of fall risk assessments at the time of admission and periodically thereafter. Emphasis was also placed on proper documentation, patient and caregiver education, and environmental modifications such as anti-slip mats and side rails. As a result of these interventions, the total number of falls reduced from 40 in 2019 to 18 in 2020, showing a 45% decline. Although the statistical analysis did not demonstrate a significant difference ($p > 0.05$), the observed outcomes indicated clear improvement in fall prevention practices. Nursing documentation compliance and fall risk assessments improved markedly across all departments. The project demonstrates that consistent monitoring, education, and process standardization can significantly enhance patient safety. Going forward, continuous audits, root cause analyses, and ongoing staff training will be critical in sustaining improvements and ensuring a fall-safe hospital environment.

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