

The implementation of a hospital's fall management protocol: results of a four-year follow-up

IMPLANTAÇÃO DE UM PROTOCOLO PARA GERENCIAMENTO DE QUEDAS EM HOSPITAL: RESULTADOS DE QUATRO ANOS DE SEGUIMENTO

IMPLANTACIÓN DE UN PROTOCOLO PARA GERENCIAMIENTO DE CAÍDAS EN HOSPITAL: RESULTADOS DE CUATRO AÑOS DE SEGUIMIENTO

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ABSTRACT

Inpatient falls are common occurrences with negative effects for patients and institutions. The objective of this descriptive study was to present the results of a fall management protocol used in a private hospital located in São Paulo. Follow-up consisted of reviewing the fall rates and performing a descriptive analysis of the data. Subjects were the patients admitted between 2005 and 2008, accounting for 284 falls in 207,067 patient-days. The rates showed a monthly variability, with reductions following the implementation of interventions and rises in rates after management actions and training. In 2008, falls were more frequent among patients in clinical units of greater complexity – the elderly - using drugs that affected the central nervous system or having an impaired gait. The performed actions caused a reduction in fall rates, and the characterization of the events permitted staff to redirect interventions to focus on patients who were more susceptible to falls, as well as strengthen educational actions.

DESCRIPTORS

Inpatients
Accidental falls
Safety management
Quality of health care
Nursing service, hospital

RESUMO

Quedas em pacientes hospitalizados são eventos frequentes com efeitos negativos para pacientes e instituições. Este estudo descritivo objetivou apresentar os resultados de um protocolo de gerenciamento de quedas implantado em um hospital privado na cidade de São Paulo. O seguimento foi feito por meio do índice de quedas e foi feita uma análise descritiva dos dados. Foram incluídos os pacientes internados entre 2005 e 2008, representando 284 quedas em 207.067 pacientes-dia. O índice apresentou variabilidade mensal, com diminuições subsequentes à implantação das intervenções e elevações após ações gerenciais e treinamentos. Em 2008, as quedas foram mais frequentes entre os pacientes de unidades clínicas de maior complexidade – idosos – fazendo uso de medicamentos que alteram o sistema nervoso central ou com dificuldade de marcha. As ações realizadas refletiram no índice de quedas e a caracterização dos eventos permitiu redirecionar intervenções voltadas aos pacientes mais susceptíveis e ao reforço das ações educacionais.

DESCRITORES

Pacientes internados
Acidentes por quedas
Gerenciamento de segurança
Qualidade da assistência à saúde
Serviço hospitalar de enfermagem

RESUMEN

Las caídas en pacientes hospitalizados son eventos frecuentes con efectos negativos para pacientes e instituciones. Estudio descriptivo que objetivó presentar los resultados de un protocolo de gerenciamento de quedas implantado en hospital privado de São Paulo. El seguimiento se realizó mediante índice de caídas y se efectuó análisis descriptivo de datos. Se incluyeron los pacientes internados entre 2005 y 2008, representándose 284 caídas en 207.067 pacientes-día. El índice presentó variabilidad mensual, con disminuciones derivadas a implantación de intervenciones y elevaciones posteriores a acciones gerenciales y entrenamientos. En 2008, las caídas incrementaron frecuencia entre pacientes de unidades clínicas de mayor complejidad – ancianos utilizando medicamentos que alteran el Sistema Nervioso Central o con dificultad de marcha. Las acciones realizadas se reflejaron en el índice de caídas y la caracterización de eventos permitió reencaminar intervenciones orientadas a los pacientes más susceptibles y al refuerzo de las acciones educativas.

DESCRIPTORES

Pacientes internados
Accidentes por caídas
Administración de la seguridad
Calidad de la atención de salud
Servicio de enfermería en hospital

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INTRODUCTION

According to the Brazilian Society of Geriatrics and Gerontology, fall

is the body's unintentional dislocation to a level below the initial position, which cannot be corrected in due time, provoked by multifactorial circumstances that compromise stability⁽¹⁾.

This definition is compatible with that of an error as the failure of a planned action to be concluded as foreseen⁽²⁾.

Falls are common in hospitals and appointed as responsible for two out of five unwanted patient safety-related events⁽³⁾. Frequencies vary in function of patient and institutional characteristics, with indices ranging from 1.4 to 13.0 falls for every 1000 patients-day⁽³⁻⁶⁾. Injuries deriving from falls happen in between 15.0 and 50.0% of events, resulting in a wide range of damage⁽³⁻⁶⁾, including post-fall syndrome, increased comorbidity and compromised recovery, increased hospitalization time and care costs, anxiety of care team and loss of confidence in the institution, besides lawsuits^(3-5,7-8).

Care quality and safety issues have gained relevance against the background of quality accreditation programs. These programs propose adapting processes to a set of standards aimed at guaranteeing, hospital performance safety, quality and improvements⁽⁹⁻¹⁰⁾. Falls management and events are related with safety and quality issues and are signs of care processes, especially in nursing care^(2,7,10-11).

Protocols are tools that contribute to the nursing care process, enhancing process improvements in the search for care excellence^(2,12). Efforts are being made to identify the best practices and identify effective falls management protocols for risk control, falls prevention and reduction of consequences^(2-3,8). Despite the relevance of the problem and the existence of institutions that have been developing falls management protocols, the results of these initiatives still lack dissemination.

This study aims to present the results of a falls management protocol put in practice at a private hospital in São Paulo City, Brazil.

METHOD

This descriptive study was based on result monitoring between January 2005 and December 2008, covering all patients from hospitalization units of a 200-bed high-complexity private hospital in São Paulo City, with Joint Com-

mission International – JCI quality accreditation. The falls management protocol is displayed under Attachment and was developed in three phases:

1) Pre-implantation – 07 till 12/2005:

a) Creation of Falls Commission: as from July 2005, a falls risk management system was proposed, integrated with the JCI accreditation process. A Falls Commission was set up to permit a diversified and comprehensive view, with a focus on patient safety.

b) Literature survey: the Commission members surveyed the literature about the theme with a view to updating their knowledge about falls prevention and control practices, supporting subsequent decision making.

c) Implantation of notification forms: in January 2005, a notification form was implanted, containing items related to falls-related characteristics, risk factors, consequences and conducts. Notification was defined as compulsory and data started to be registered in a specific worksheet with a view to statistical data analysis and, consequently, a correct diagnosis of falls events.

d) Elaboration of the first falls profile: developed at the end of 2005. Its results guided new intervention actions.

2) Implantation – 01/2006 till 02/2007:

a) Elaboration of institutional protocol: as a result of different Falls Commission meetings, which was based on a literature survey, institutional characteristics, care teams' opinions and perceptions and alignment with the institution's care quality and safety policy.

b) Institutional training; between November and December 2006, the first training was organized for all collaborators

involved in patient care. The goal of this training was to align knowledge on conceptual, technical (risk factor assessment, preventive actions, event identification and adoption of conducts) and logistic (completion and forwarding of notification form) aspects.

c) Additional actions: adoption of risk identification labels in patient files, reformulation of event notification form, and inclusion of individual falls risk diagnosis in the SAE – Nursing Care-Process.

3) Maintenance – 03/2007 and ongoing:

a) Care actions: technical assessment of new beds; assessment of patient movement monitoring software; elaboration of educational material for patients and companions; new nursing team training and implantation of

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bed rail protectors, patient protection bands, non-slip bands and safety belts in playroom strollers.

b) Process management actions: restructuring of the Falls Commission structure to incorporate a pharmacist, physical therapist, occupational safety technician and epidemiologist; semiannual audits for protocol adherence assessment; inclusion of the protocol in SOP – Standard Operating Procedures related to the quality accreditation process.

c) Statistical data treatment improvement: new review of event data collection and recording routine, data analysis and monitoring in cooperation with the institution's Epidemiology Center and elaboration of technical-management reports.

To assess the protocol, 284 falls events (100%) between 01/2005 and 12/2008 were assessed/ The falls index was used as the indicator, which weighs the event in function of the exposure time [(No of falls/No of patients-day)*1000], monitored with the help of a U control chart (for indices with a variation of more than 20% in the denominator). The alert limits (variation of values around the means) were established based on the historical series. It was expected that the indicator would not surpass the first alert limit. Finally, the event characteristics were described: characteristics of the patient, event, risk factors, consequences and conducts deriving from the falls. For this analysis, the researchers decided to consider data

for 100% of events (80 cases) occurred in 2008, as these picture the most recent events.

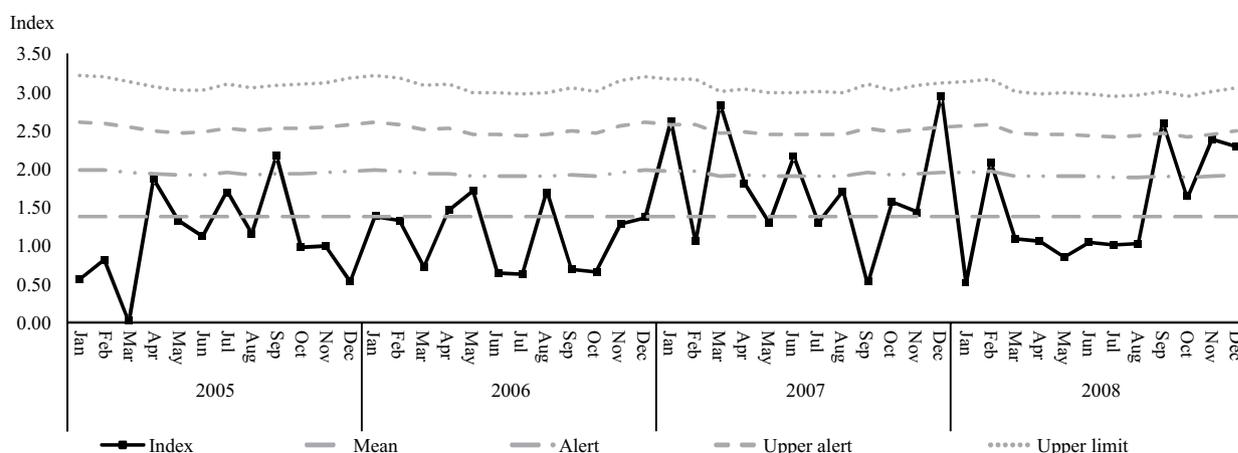
The data the head nurses of the hospitalization units collected through the event notification form were used. The data were typed in an Access application and addressed information about patient characteristics (age, medication use, clinical characteristics, presence of devices and previous falls history), the event (hospitalization unit, shift, place of the event, height of the fall, companion and environmental factors), consequences and conducts needed. Secondary data were also used, provided by the SAME – Medical Filing Service, about the number of patients-day.

Approval was obtained from the Institutional Review Board at *Hospital Samaritano*, under protocol number 20/08, on 08/26/2008.

RESULTS

Falls index

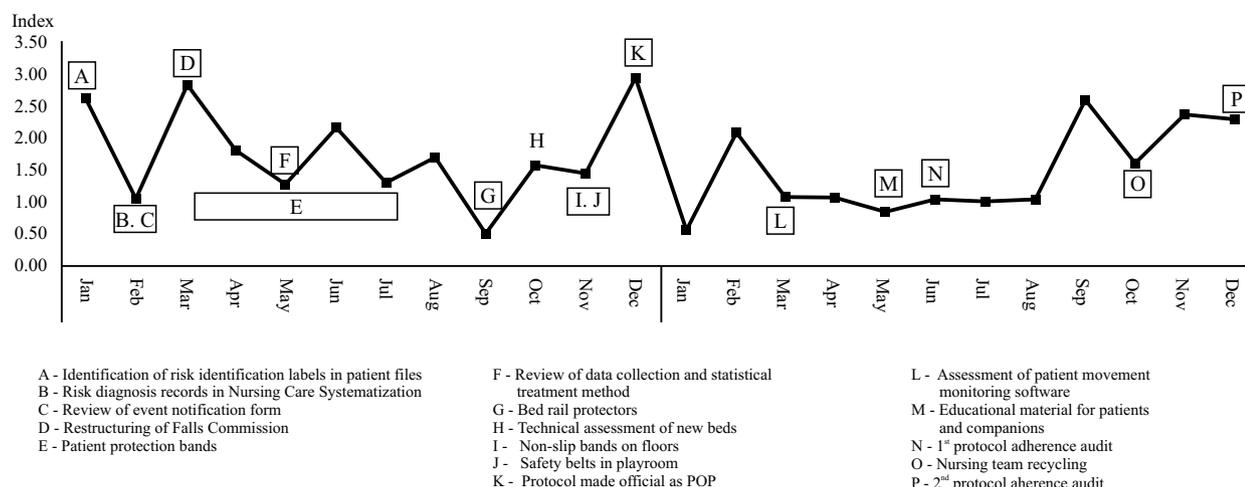
Between January 2005 and December 2008, 284 falls occurred within an exposure period of 207,067 patients-day, with a mean number of 1.37 falls/1,000 patients-day. Picture 1 shows great monthly variation in the falls index, ranging between 0.00 and 2.97 falls/1,000 patients-day. The index exceeded alert levels in some months and remained below the average index in others.



Picture 1 – Distribution of falls index (1,000 patients-day per month) in inpatients according to year and month, Private General Hospital – São Paulo – 2005 till 2008

In 2005 as well as 2006, the mean index was 1.12 falls/1,000 patients-day. After the actually implantation of the protocols, the index increased and, in 2007 and 2008, the mean index corresponded to 1.77 and 1.45/1,000 patients-day, respectively. This period is represented in Picture 2, where the actions developed are indicated. The

Picture shows that, in general, the index dropped after the implantation of care actions, such as risk identification in patient files or the placement of patient protection bands. After administrative or educational actions, like the review of the notification form or care team training, the index increased.



Picture 2 – Distribution of falls index (1,000 patients-day per month) in inpatients according to year, month and intervention actions, Private General Hospital – São Paulo – 2005 till 2008

Event characteristics

Between January and December 2008, 80 events occurred, corresponding to 1.45 falls/1,000 patients-day. The hospitalization units with the highest falls indices were the Clinic, Neurology and Oncology, with 2.79; 2.77 and 2.41 falls/1,000 patients-day, respectively. At the other units, the index ranged between 0.0 and 1.66 falls/1,000 patients-day.

The falls mainly occurred during the night shift (41.3%) and the most frequent sites were the patient's room (65.0% of events) or bathroom (26.3% of events). The falls mainly occurred from patients' own height (56.3%) and to a lesser extent from armchairs (13.8%) or beds (11.3%). A companion was present in 58.8% of events. Regarding environmental conditions at the moment of the fall, the most frequent conditions were presence of obstacles (5.0%) or lack of support (5.0%). In Table 1, it is observed that, among the falls events, the most prevalent risk factors and the highest falls index corresponded to the use of medications that alter the central nervous system, age over 60 years and gait disorders.

In Table 2, it is observed that 52.2% of falls cases came with some kind of consequence, the most frequent of which were abrasions (16.3%) and hematomas (11.3%).

Regarding the conducts needed, observation (46.3%), medical assessment (36.3%), imaging tests (20.0%), specialist assessment (15.0%) and medication administration (10.0%) prevailed. Cases that needed stitches (6.3%) and transfer to the ICU (1.3%) were not very frequent, indicating that the event was more severe.

DISCUSSION

Protocols are tools that contribute to nursing care systemization process, enhancing process improvements in search of care excellence^(2,12). In general, protocols recom-

mend preventive measures, with a view to reducing the probability and gravity of events, contributing to rationalize resources and reduce costs⁽²⁻³⁾. This study sustains that the elaboration of the protocol, based on literature reviews and multidisciplinary work, permitted the development of diversified, comprehensive and scientifically founded actions.

Although nursing had been monitoring the falls index since January 2005, its actual adoption as a patient care quality and safety indicator and the systemization of prevention and control actions only occurred in the institutional context of the quality accreditation process, showing that this is a strategic opportunity for nurses, with a view to the implantation and improvement of management and care measures.

One of the difficulties met in this process was related to the gradual implantation of care actions over a period of months. The need to study each intervention (literature review, assessment of similar measures in other institutions, pilot tests and team training) prevented adopted the actions as a set, which might have provided earlier results. It should be reminded that punctual actions are limited to themselves and that favorable results in terms of fall prevention are achieved through the continuous development of a range of varying and integrated actions, oriented towards patients and the environment^(1,2,13).

Another difficulty was related to event notification, which demanded the reformulation of the notification form, delaying the identification of the institutional fall profile. As for facilities, multidisciplinary work entailed a broader perspective to determine the events and preventive or corrective intervention forms.

The falls index is part of the so-called nursing-sensitive indicators, which are considered representative of care structures and processes, influencing patient and work environment quality and safety^(2,7,10-11). The results show

that the indicator was sensitive to the actions developed. The monthly variation was considerable, ranging between 0.00 and 2.97 falls/1,000 patients-day between 2005 and 2008, with a mean index of 1.45 falls/1,000 patients-day in 2008. Some aspects may influence these results. One aspect is that the relatively small number of events permits large variations, so that data are not statistically stable. Also, punctual drops in the index, generally after the implantation of care actions, suggest that these actions are effective. On the other hand, rising indices after the implantation of the intervention protocol may not mean that events occurred at a more intense pace, but may indicate improvements in the active event search and notification system, reflecting the adequacy of the adopted concepts and practices.

Despite monthly variations, these study results may seem low, indicating satisfactory care quality. Studies show variations in the falls index ranging from 1.4 to 13.0 falls/1,000 patients-day⁽³⁻⁷⁾. Comparing institutions is almost useless, as results reflect the structures and processes underlying care quality, patient characteristics and the data collection and analysis method. Therefore, the researchers decided to elaborate a time series of the indicator at the research institution, monitoring the falls index through a chart, which permitted identifying upward or downward changes in event indices, indicating when emergency and punctual actions were due, besides the actions established as preventive routines.

The characterization of the events occurred in 2008 permitted identifying some relevant aspects to understand falls events at the institution. A primary aspect is that the falls index was higher at the Clinical hospitalization, Neurology and Oncology units, where long hospitalization, high complexity levels and high age characterize the patients. Patient complexity, circumstance and activity characteristics can contribute to falls events⁽⁴⁾.

The event characteristics showed that the falls mainly occurred from the patients' own height, during the night shift, in the room or bathroom, in the presence of a companion and with the patient walking without using due protection measures, indicating the need to reinforce nursing orientations for patients and companions. A study among patients at a high-complexity hospital in Missouri identified higher falls indices during the night⁽¹⁴⁾. Similarly, at a general hospital in the United Kingdom, falls index peaks were identified at night and, in addition, most falls occurred in the room (near the bed), in 64.0 and 16.0% of cases, but rarely in the bathroom⁽¹⁵⁾. Other studies identified that more than 80.0% of falls occurred in the room and more than 10% in the bathroom^(4,14). Frequently (in between 79.2 and 84.7% of cases), patients were alone at the time of the fall^(4,14), differently from patients in this study, who were with their companions in most cases.

The limited indication of environmental conditions at the time of the fall suggests that the health teams focus more on clinical and therapeutic conditions, neglect-

ing the possible relevance of environmental issues in the occurrence of falls events and patients' evolution.

The risk factors included in the event notification form were those literature appointed at the most relevant. Among the assessed cases, the most prevalent risk factors and the highest falls index corresponded to the use of medications that alter the central nervous system, age over 60 years and gait disorders. Studies show higher chances of falls among patients taking drugs like benzodiazepines and sedatives or hypnotics⁽¹⁴⁻¹⁶⁾. Gait disorders were also identified as a risk for falls in other studies^(14,17). Age is one of the most frequently appointed risk factors, especially among elderly in vulnerable situations^(4,8,12,14,16).

In this study, 51.2% of the falls entailed some kind of consequence, which were considered severe in 11.3% of cases. Studies identified severe damage percentages in between 3.9 and 18.0% of cases^(4,6,14-15). The characteristics of the consequences determined the adopted conducts. It should be reminded that the falls led to consequences for patients and care funders (health operators or others) as well as for the hospital, impairing the institutional image. Thus, event less severe events cause harm that cannot always be translated in figures^(3-5,7,18).

These study results suggest that certain characteristics enhance fall events, appointing situations in which prevention can be intensified: measures aimed at guaranteeing the patient, the companion and the team's adherence to preventive actions, active search measures to increase event notification and measures with an environmental focus. Based on these results, further actions were indicated for the study hospital, including: anti-slip floor product tests, installation of lamps with presence sensors in the bathrooms, review of education material for fall prevention, new care team training and continuity of semianual protocol adherence audits.

Although falls prevention programs are international recommendations with a view to care quality and safety, evidence about the efficacy of this type of programs is inconclusive. While some studies demonstrate benefits of the programs^(5,13), others appoint the lack of conclusive results, mainly in function of the study method and interventions made. This indicates the need for research with better designs, randomized clinical trials, adequate sample sizes and inclusion of cost measures^(6,18).

As the intervention measures were taken in all hospitalization units of the institution, covering all hospitalized patients, a randomized trial with control for variables like age or clinical complexity was not possible. This would permit identifying what risk each factor represented in the event. It should be reminded that patients in other areas (Emergency Care, Surgery Room, Diagnosis and Therapy Services) should also be targeted in falls management programs. Despite these limitations, the study permitted describing the falls index' behavior over time, with drops after the implantation of preventive actions, suggesting the good effectiveness of these actions. The results can be valid for hospitals with characteristics similar to the study hospital.

CONCLUSION

The elaboration of the protocol, based on a literature review and multidisciplinary work, permitted the development of diversified, comprehensive and scientifically founded actions. The falls index reflected the actions accomplished, with rises or drops after interventions, which helped to assess the processes. The characterization of

the falls events permitted redirecting intervention actions, especially oriented towards the most prevalent risks, besides indicating the need to reinforce educational orientations for clients and the care team. This experience showed that protocols and assessment indicators are important management tools for nurses in the patient care quality and safety improvement process.

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Acknowledgement

To the members of the Falls Commission: Ariane Ferreira da Silva, Jaticiana A. Pereira, Maria Fernanda Z. Gatti, Paula Cristina G. Abdalla, Sheila Pereira and Jorge de Jesus.

Attachment – Institutional Falls Prevention and Control Protocol, Private General Hospital - São Paulo, 2006

<p>RISK FACTORS FOR FALLS:</p> <p>Altered mental status (confusion or agitation), neurological disorder, impaired balance or walking, sensory disorder; previous fall, medications altering central nervous system; age (over 60 or below 13 years of age), urinary and/or intestinal urgency.</p>
<p>FALLS RISK ASSESSMENT:</p> <p>The nurse assesses all patients' fall risks daily, from admission until discharge. The risk assessment form is completed individually for each patient. The identification of one or more risk factors characterizes the existence of a fall risk. If a fall risk is characterized, the nurse establishes the nursing prescription, defining standardized preventive measures and other individual measures.</p>
<p>MAIN RESPONSIBILITIES:</p> <p>Nurse: identification of risk factors; daily records on risk assessment form, from admission until discharge; deliver falls prevention and orientation folder about the importance of preventive measures and, whenever necessary, prescribe falls prevention measures; supervise established care and notify falls events using specific form.</p> <p>Nursing Technician: execution of falls prevention measures according to the nursing prescription; reinforcement and recording of falls prevention orientations during each shift and assessment of patient and companion's understanding; as well as falls prevention measures taken; immediately informing the nurse about any situation that can characterize a possible fall event.</p> <p>Falls commission: event monitoring and notification (notification forms, data recording, data analysis and technical report elaboration application); two-monthly meetings; multidisciplinary team training; field audits; forward technical report to Medical Superintendence and Nursing Management and propose improvement measures regarding patient, care process and physical environment.</p>
<p>PREVENTIVE ACTIONS:</p> <p>Delivery of fall prevention folder and patient/companion orientation about falls risks, need for a companion, not leaving the patient alone in the bathroom or while bathing and call nursing for locomotion and movements. Keep the bell within the patient's reach, bed in low position with wheels blocked, protection rails raised and, if necessary, use rail protectors and velcro band for protection. Use safety belts in playroom strollers. Keep furniture and utensils out of the patient's circulation area. Identify room door with fall risk sign. Record all interventions in patient file. Intensify attention for patients using sedative, hypnotic, tranquilizer, diuretic, anti-hypertensive and anti-Parkinson drugs. Stay alert and agile to respond to bells.</p>
<p>NOTIFICATION AND ACTIONS UPON FALLS EVENTS:</p> <p>In case of a fall event, put the patient in bed if possible and inform the nurse in charge for assessment and physical examination. The nurse requests immediate medical assessment and puts in motion the care actions needed. Record fall event circumstances and medical conduct in patient file. Complete the Fall Event Form and forward it to the Falls Commission for analysis within 24 hours.</p>
<p>FALLS EVENTS DATA MONITORING:</p> <p>Falls risk identified upon admission, time of day when the event occurred, place of fall, circumstances of fall, presence of companion or not, risk factors, presence of comorbidity, medications used, assessment and type of medical conduct after the fall, consequences of falls, causes of falls, quality of nursing records, extension of hospitalization time.</p>