

## APPLYING THE INTERVENTION PROGRAMME IN CLINICAL PRACTICE

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### Abstract

*The goal* is to present partial results of the programme which was carried out in order to decrease the incidence of falls of hospitalized patients.

*Materials and methods:* In January 2018, 16 monitored departments in 4 South Bohemian hospitals started the annual intervention programme, the goal of which was to reduce the incidence of falls. The selected (intervention) nurses were responsible for the realization and coordination of the interventions of fall prevention in co-operation with the managers of selected departments. The interventions included the identification of fall risk patients and standard nursing interventions in fall risk patients (by the departments' standards) as well as the trainings of nurses in fall prevention of hospitalized patients, individual education of patients and their close relatives, special labelling of the beds of fall risk patients, and ensuring compensation and safety aids and after-fall medical audit using interactive databases.

*Results:* This article presents the data from only two selected departments (internal department and subsequent care department of the South Bohemian regional hospital), which recorded a decrease of falls compared to the same period in 2017. The internal department recorded 27 falls in 2018 (in 2017, there were 42 falls) and the subsequent care department recorded 18 falls in 2018 (in 2017, there were 38 falls).

*Conclusion:* Despite all measures, we recorded falls of patients in the monitored period (January–December 2018). However, it is positive that most workplaces included in our programme recorded a decrease compared to last year.

**Keywords:** Hospitalized patients; Intervention programme; South Bohemian hospitals; Prevention of falls

### INTRODUCTION

A fall is defined as a position change that ends in the contact of the body with the ground and can be followed by a consciousness disorder and injury (Topinková, 2005, p. 44). The falls of hospitalized patients in medical institutions are unde-

sirable and risky accidents. They can significantly affect expected therapeutic outcomes. Falls can cause traumas and can also result in a patient's death (Soriano et al., 2007).

Fall occurrence is included in the monitored indicators of safe care. In the prevention of falls, interprofessional teams

play a significant role. They focus on the multifactorial fall prevention, clinical assessments of fall risks, education of patients and ensuring a safe environment (Barker et al. 2016; Gray-Micelli and Quigley, 2012; Gu et al., 2016; Hempel et al., 2013; Johnston and Magnan, 2019; Luzia et al., 2018; Melin, 2018). Immediately after admission, it is important to identify a patient at risk. The assessment should be carried out as soon as possible (at least within 24 hours after the admission of the patient). This assessment includes information from anamnesis, comparison and evaluation scale. After that, a care plan is established and carried out, which should take into account individual risk factors.

The goal is to present partial results of the intervention programme for the decrease in the incidence of falls of hospitalized patients at selected departments in South Bohemian hospitals in 2018.

## MATERIALS AND METHODS

One of the outputs of the project of The Analysis of the Factors That Affect the Risk of Falls – The Options of Including Nurses and Pharmacists in the Minimization of Such Risks, which is carried out by FHSS USB and the Faculty of Pharmacy of the Charles University in Hradec Králové, was the realization of the intervention programme for the decrease of fall incidence of hospitalized patients. The selected (intervention) nurses were responsible for the realization and coordination of the interventions of fall prevention in co-operation with the managers of selected departments. The interventions included the identifications of fall risk patients (by the established evaluation scale) as well as the staff training, individual education of patients and their close relatives, labelling fall risk patients' beds with a warning picture and ensuring compensation and safety aids and after-fall medical audit using interactive databases. The selected workplaces also included standard nursing interventions by department standards. Prevention interventions for the minimization of fall risks were applied at 16 selected workplaces for 12 months in 2018. The project involved 6 internal departments, 2 surgical departments, 5 subsequent care departments, 1 rehabilitation departments, 1 pulmonary

department and 1 psychiatric department in four South Bohemian hospitals. They were Nemocnice České Budějovice, a. s., Nemocnice Jindřichův Hradec, a. s., Nemocnice Tábor, a. s., and Nemocnice Písek, a. s. We chose the workplaces with the highest number of fall incidences. The management of individual facilities carried out the selection.

Pharmaceuticals are considered one of the significant factors that affect patient falls (Costa-Dias et al., 2014; Mion et al., 2012). For this reason, in 2016 a web interactive database "Monitoring of fall risk factors and their analysis" was created. Expert teams (doctors and nurses) uploaded the data on the cases of falls. All patient falls at selected workplaces were monitored. Using this database, pharmacists from the Department of Social and Clinical Pharmacy of the Faculty of Pharmacy in Hradec Králové determined a potential influence of pharmaceutical therapy on the incidence of falls – and electronically sent their conclusions to the doctor who had reported the given accident. Based on this analysis, the doctor could suggest preventative measures to minimize the side effects of medicaments on the patient's health condition.

For every workplace, we selected nurses that co-ordinated the realization of intervention programme regarding falls. These nurses finished the training on fall prevention and correct nursing interventions. They also received printed materials that summarize this issue, which is entitled: *The Issue of Fall Prevention in a Medical Institution*. Before the start of the programme, the intervention programme at selected clinical workplaces was carried out. During this preparation phase, the trained nurses assessed the current situation regarding fall prevention at their workplaces, informed their co-workers about the start of the intervention programme in 2018 and of future activities.

The key workers from individual departments of the hospitals involved also suggested the list of necessary aids at the departments. Some of them were financed from our project and actively used for fall prevention during 2018 (most frequently, they were aids for safe locomotion). We also designed and printed an educational brochure for patients, carers and family members.

Intervention nurses were responsible for the realization and coordination of activities

in co-operation with the managers of the departments. At some departments, stationary or head nurses were involved. Godlock et al. (2016) also see the importance of management support, the involvement of basic care workers and presenting the prevention programme regarding the successful implementation of the programme for the decrease of the number of falls.

## RESULTS AND DISCUSSION

The assessment of fall risk was a part of nursing documentation (nursing anamnesis). This assessment was regularly updated (mostly once a week, during the change in a patient's health condition, transfer to another department or discharge to a home environment. The departments newly implemented the "Get up test" in 2018. This test is a convenient tool for the assessment of balance and a quick screening tool for the detection of balance problems of elderly people (Shumway-Cook and Woollacott, 2007). It is included in the complex measuring of functional mobility in geriatrics (Schoene et al., 2013) and also used for testing fall risks. More detailed information was gained from the nursing staff. The assessments were recorded in nursing anamneses.

After establishing the patients with fall risk, the medical workers carried out the preventative interventions. They added the correct aids to the patients' beds, which would facilitate movement, self-service, and ensure their safety and help to minimize fall risk. They were, for example, bed brackets, horizontal bar or night-light for easier orientation at night. There were also compensation aids for easier mobility (walking aid, French walking sticks, etc.) and better orientation in a hospital environment. If a patient was at a high risk of fall, they had an escort ensured while walking in the room or in the department hall.

The staff passed on the information about the patients at the risk of fall either verbally or in writing – e.g. in daily reports or patient documentation. At some workplaces, patients with a risk of fall were labelled on information boards. There was also an identification

bracelet of a different colour and a label on their beds as well.

Patient education was crucial. It was carried out at selected workplaces by education materials that were designed by our project team and recorded in patient documentation.

### Education content

- education on the measures that decrease the risk of fall;
- education on the causes and ways of falling – considering patients' individual risk factors;
- education on the side effects of prescribed medications during admission and hospitalization (e.g. drowsiness, dizziness);
- education on the use of compensation aids, safety during movement or transfer, assistance in the toilet, safe footwear.

For example, at subsequent care departments, most admitted patients were educated and each was treated individually.

The first education on fall prevention was carried out by a triage nurse who assessed the risk of the fall (at some workplaces where patient admissions are planned, it was carried out by intervention nurse). Through this result, the patients were included in the groups of patients who were at the risk of fall and given basic education on the issue. Specific education followed by the type of illness. During admission and hospitalization, doctors, as well as intervention nurses, provided the education on the side effects of prescribed medicaments. Patients were instructed to immediately report side effects to hospital staff. Selected patients' families were also educated. The main goal of such education was to emphasize the importance of their co-operation in the prevention of fall and securing their home environment. Specifically, at the department of subsequent care, the education of patients and their families were always carried out during admissions, later 1× a week and during discharge. Specific education was carried out daily or even a few times a day (by a patient's needs).

Every month, intervention nurses reported on the number of admitted patients, patients at the risk of fall and the number of falls that occurred at their department (Table 1, 2).

**Table 1. Statistics regarding the programme for the reduction of the number of falls of hospitalized patients at the selected internal department**

<i>Hospital: Regional in South Bohemia</i>			
<i>Department: Internal</i>			
<b>Month</b>	<b>Number of admissions</b>	<b>Number of patients at the risk of fall</b>	<b>Number of falls</b>
January 2018	134	32	3
February 2018	124	29	4
March 2018	130	28	2
April 2018	139	39	2
May 2018	131	22	1
June 2018	132	29	2
July 2018	118	24	1
August 2018	130	29	2
September 2018	132	27	2
October 2018	144	25	2
November 2018	126	26	2
December 2018	130	23	4
	1570	333	27

- Total number of admissions in 2017: 1,565
- Total number of falls of hospitalized patients in 2017: 42
- Total number of admissions in 2018: 1,570
- Total number of falls of hospitalized patients in 2018: 27

**Table 2. Statistics regarding the programme for the reduction of the number of falls of hospitalized patients at the selected aftercare department**

<i>Hospital: Regional in South Bohemia</i>			
<i>Department: Aftercare</i>			
<b>Month</b>	<b>Number of admissions</b>	<b>Number of patients at the risk of fall</b>	<b>Number of falls</b>
January 2018	60	60	4
February 2018	51	51	2
March 2018	46	46	0
April 2018	43	43	3
May 2018	50	50	1
June 2018	42	42	3
July 2018	43	43	1
August 2018	39	39	2
September 2018	40	40	0
October 2018	48	48	0
November 2018	44	44	2
December 2018	22	22	0
	528	528	18

- Total number of admissions in 2017: 602
- Total number of falls of hospitalized patients in 2017: 38
- Total number of admissions in 2018: 528
- Total number of falls of hospitalized patients in 2018: 18

The education of patients and staff (conducted by trained people) contributes to the decrease of the number of falls and injuries caused by falls in the elderly population – as stated by e.g. Hill et al. (2015) in their research. They studied the effectiveness of educational programmes for the prevention of falls at rehabilitation departments from the point of view of educators. They concluded that patients, staff and the environment must effectively co-operate to facilitate the prevention of falls. In connection with the involvement of staff and patients who used the gained knowledge, the educators also noticed that their role was crucial in leading patients and staff to understand how patients can be involved in planned safe behaviour in the environment that supports it. The educators verified that the feedback they gave the staff was crucial for the development of mutual understanding. Hook et al. (2008) also mention the involvement of patients and their family members.

During hospitalization, an emphasis was put on self-service training and the activation of patients. The form of education was always chosen by the patient's condition and the level of the risk of fall.

Most frequently, the education was verbal and combined with practical presentations – the emphasis was put on feedback. Other employees at the selected departments participated in the daily repeated education of patients, overseeing the maintenance of the principles that helped to minimize the risk of fall. These employees were informed about the programme for the prevention of falls by educational nurses. At the departments, there was co-operation of the lower medical staff, nurses, stationary nurses and head nurses. In the hospitals, there is multiprofessional and multidisciplinary care, which helped to ensure complex care. This project tries to contribute to the better co-operation of multidisciplinary teams of doctors, nurses and clinical pharmacists. Its goal is to minimize the risk of falls of hospitalized patients. For this reason, this project enabled the professional seminar to be carried out in the autumn of 2018 entitled “The Effect of Pharmaceutical Therapies on the Risk of Falls; Management of Administering Selected Groups of Medicaments to Patients”. The goal of this seminar was to im-

prove multidisciplinary co-operation and acquaint the participants with the effect of pharmaceutical therapies on the risk of falls and on administering selected groups of medications to patients (e.g. administering medications using probes, graining, administering transdermal systems, insulin or hypo-molecular heparin). The seminar was interactive with anonymous balloting technology and the possibility of discussions on topics chosen by the participants. The participants were nurses and doctors who were involved in the project of South Bohemian hospitals.

If a patient fell, this fact was recorded in the patient's documentation, catalogued as an extraordinary event and the risk of fall was reassessed. Such a patient was watched over during hospitalization. The patient was educated on the prevention of fall again, and according to the cause of fall, measures were established so that they would not fall again.

Our experience confirms the fact that management support, the involvement of carers and educators of staff as well as the positive change in the approach to fall prevention are important for the successful implementation of the programme for the decrease in the number of falls (Miake-Lye et al., 2013). Considering the many factors that play a role in patient falls, it is necessary to achieve a complex understanding and multifactorial approach (Hajduchová et al., 2017). Care plans should be designed by interdisciplinary teams. Besides nurses, other employees also create and carry out the plans for treatment. Physical therapists and pharmacists are important contributors to the prevention of falls and an important part of care planning (Ganz et al., 2013). The possible influence of pharmaceutical therapies on falls and the work of clinical pharmacists – who can contribute to the prevention of falls with their involvement in multidisciplinary teams and focus on the risks of pharmaceutical therapies and their management – were shown by the authors of this article using a practical example (Doseděl et al., 2018). The multidisciplinary co-operation between doctors, nurses and clinical pharmacists can decrease the prevalence of falls in medical institutions. This fact is proven by the pilot results of the long-term monitoring of falls in selected South Bohemian hospitals (Malý et al., 2019).

## CONCLUSION

Regarding the prevention of falls of patients, an effective approach seems to be the active involvement of multidisciplinary employees. It is necessary to have a high-quality organizational culture and operational methods that support teamwork and communication. The most effective seem to be multifactorial or multicomponent interventions. In January 2018, the annual intervention programme for the decrease in the number of falls began at 16 monitored departments at 4 South Bohemian hospitals. The monitored departments received modern compensation aids for the prevention of falls. Despite all measures, there were cases of falls in the monitored period (January–December 2018). It is positive that the number of falls at most workplaces involved in our programme was less than the previous year. Complex results that prove the effectiveness of the intervention programme will be published in our next article.

## Conflict of interests

The authors have no conflict of interests to declare.

## Ethical aspects of the research

This research was approved by the Ethical Committee of the Faculty of Health and Social Sciences and the management of the hospitals involved. We processed the data very carefully according to Act No. 101/2000 Coll. on the protection of personal data. We ensured credibility and anonymity of the collected data.

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