

Using new technology to enable preventing pressure ulcers and falls in a University Hospital in Switzerland; a clinical projet

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INTRODUCTION

In 2015 the prevalence of pressure ulcers (PU) in the Department of Internal Medicine was 12.2% and the incidence of falls 7.9%. A best practice "toolkit" was created in 2009 in the institution to manage the prevention of PUs. The caregivers had nevertheless difficulties to ensure systematic mobilization for patients at risk for PU, especially for patients with moderate and low risks. Also patients with cognitive impairments were at high risk for falls (1,2).

A new technology, the Mobility Monitor© (MoMo), has been designed to help nurses assess the mobility of patients and provide an alert both when a preset level of immobility has been exceeded (2h, 3h or 4h) and also if the patient gets out of bed (3). The aim of the MoMo is to increase the quality of care by preventing this injuries. To date there has been no statistically relevant evidence about the effect of MoMo to prevent falls and PUs and there is no recommendation how to use this technology for broad use in practice. A clinical project was conducted during three months in two internal medicine units.

OBJECTIVES

1. Can Mobility Monitors help improve the risk assessment of PUs and falls?
2. How can we use this system in clinical practice?
3. Can this system help to decrease the incidence of PUs and falls during hospitalization?

METHOD

The clinical project was based on two phases. First phase was to establish clinical use recommendation: **a blind test with 30 MoMo during three weeks to record the mobilization of random patients without alerts activated.** Risk assessment, preventive measures and PUs and falls were recorded and compared to the institutional protocol. For falls the institution had no recommendations. We analyzed the data with a physiotherapist expert. In the second phase **inclusion criteria were enacted.** PU risk: Braden score <18, existing PUs, incontinence-associated dermatitis, and medication (4). Falls risk : cognitive dysfunction AND falls during hospitalization, impaired mobility, polymedication. **Immobility alerts were set and mobilization monitoring was displayed on a screen on the nurses' desk.** Data of PU/falls and preventive measures were recorded as in first phase by a nurse on the units. Patients were informed about this new technology evaluation. All caregivers were instructed on how to use the MoMo.

RESULTS

During the two phases the number of patient were similar (n=56 and n=60) (Fig 1). **The incidence of PU and falls decreased to 0 % (Fig.3)** . During the blind phase there were more patients with low risk than in the intervention phase by Braden scale evaluation (Fig.3).

We observed that 27% patient had more than four hours immobilization during the blind phase and afterwards with alerts this decreased to 15% (Fig.2).

	Blind phase without alarms	Intervention phase with alarms AND inclusion criteria
Total patients	56	60
Total MoMos	30	15
Recording Mobility	333 days	550 days
Bed Exit Alerts	-	985 (Ø 5/day)
Immobility Alerts	-	713 (Ø 1,4/day)

Figure 1 : Patient profile of records and alerts; blind and intervention phase

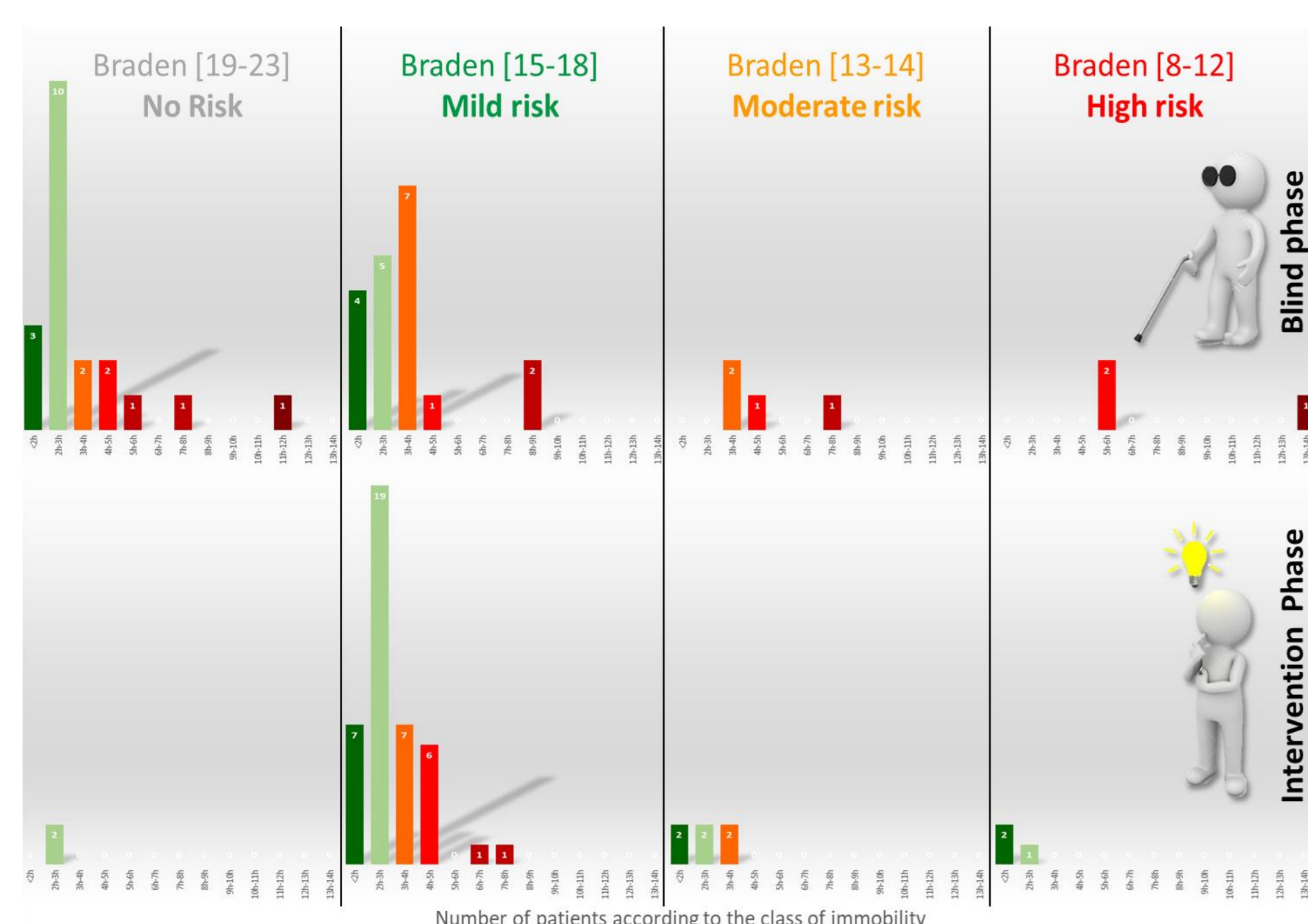


Figure 2 : Comparison of maximum period of immobility during blind and intervention phase.

	Blind phase without alerts		Intervention phase with alerts	
Braden scale score	N	Mean	N	Mean
• High risk 8-12	3	6,3%	3	5,0%
• Moderate risk 13-14	4	8,3%	6	10,0%
• Mild risk 15-18	19	39,6%	41	68,3%
• No risk 19-23	20	41,67%	2	3,3%
Dynamic Risk Immobility	26	62%	37	67%
PU	5	8,9%	0	0%
Fall's Risk Criteria	N	Mean	N	Mean
• Case Studies	13	100%	23	100%
• Fall during hosp prior MoMo	3	23%	8	35%
• Polymedication	No specific data recorded	No specific data recorded	20	87%
• Impaired mobility	No specific data recorded	No specific data recorded	17	74%
• Cognitive dysfunction	No specific data recorded	No specific data recorded	20	87%
Falls with Momo	3	5,37%	0	0%

Figure 3 : Description of risks and injuries

DISCUSSION

1. MoMo helps to have a better evaluation of risk assessment of PU; immobility of over four hours was better identified. The analyses of falls alarms, clinical characteristics, review of literature and expert advice served to enact recommendations to identify patients at risk for falls.
2. The system can be used to improve the assessment and to help improve the preventive measures. Mobilization was enhanced.
3. During the second phase no falls and no pressure ulcers were acquired. The incidence should be further followed over a longer period to confirm this result.

CONCLUSION

The clinical project outcome is positive. Using MoMo helps nurses to enhance the prevention assessment and prevention care for PUs and falls. More research is needed to develop and set standards.