Care integration with telemedicine for remote monitoring of pressure ulcers in home care patients

HSD104

Amélia Tomás[1] | Célia Carvalho[1] | Dilma Pereira[1] | Graça Farelo[1] | Paula Leonor Botelho[1] | Paula Teixeira[1] | Catarina Carreteiro[2] | Paulo Pereira[2] | Valeska Andreozzi[2]

1. Matosinhos Local Health Unit, Matosinhos, Portugal
2. Exigo Consultores, Portugal

INTRODUCTION/OBJECTIVES

Pressure ulcers (PU) pose significant challenges that require innovative prevention and management strategies [1]. Telemedicine has gained prominence, enabling specialized and individualized treatment, particularly in home care settings [2,3]. This study aimed to implement a remote monitoring program using mobile technology to collect data on PU, allowing remote patient evaluation from home by four Integrated Continuing Care Teams (ICCTs) with primary care and wound management experts. An accessible mobile device/app was used for PU assessment by primary care nurses.

METHODS

We conduct an observational prospective study and collected images and other relevant information at home for full remote evaluation, easing the consultation workflow by a wound management expert nurse. The endpoints were as follows:

- Admission days in ICCT;
- Patient discharge rates;
- Average number of PUs per patient
- Proportion of PU improved;
- Proportion of patients without PU risk assessment through the Braden scale.

RESULTS

A total of 27 patients were analysed. The average age was 81±7.5 years and 63% were females. Patients were admitted for a median of 200 days (95% Confidence Interval=[59,NE]). Stratification of patients by ICCT and its demographic characteristics are described in Table 1 and Table 2.

Table 1. Number of patients stratified by ICCT

	N=27
ICCT 1	9 (33.3%)
ICCT 2	5 (18.5%)
ICCT 3	3 (11.1%)
ICCT 4	10 (37.0%)

n (%); N: Number of patients; ICCT: Integrated Continuing Care Teams

Table 2. Demographic characteristics of patients stratified by ICCT

	Global N=27	ICCT 1 N=9	ICCT 2 N=3	ICCT 3 N=5	ICCT 4 N=10
Age (years)[1]	81.0 (7.5) 59.0; 94.0	80.9 (5.2) 73.0; 91.0	81.0 (3.6) 77.0; 84.0	88.2 (3.8) 84.0; 94.0	77.5 (9.4) 59.0; 93.0
Male[2]	10 (37.0%)	3 (33.3%)	1 (33.3%)	4 (80.0%)	2 (20.0%)

[1]Mean(DP); range; [2] n (%); N: Number of patients

Figure 1 shows that most patients were discharged within the first 90 days. The probability of discharge estimated for the first 30 and 60 days after admission to the ICCT was 4.8% and 38.0%, respectively.

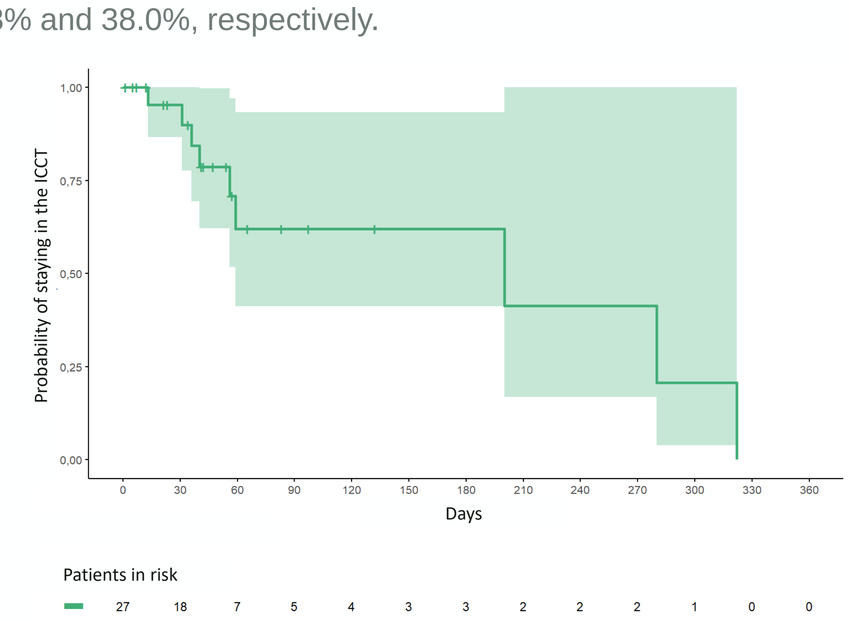

Figure 1. Kaplan-Meier estimate for the probability of remaining in the ICCT

During the study period, three patients were discharged (11.1%). A total of 59 PUs were monitored for an average period of 37.5±28.2 days, with an interval of 13.3±9.1 days between assessments. The mean change from baseline in the dimension of the PUs was -13.7±16.5 and the improvement rate was high, reaching 97% of the PUs. On average, patients had 2.6±2.2 PUs, as described in Table 3, with hip, sacrum, and heel being the common places.

Table 3. Summary statistics of number of PUs per patient stratified by ICCT

Summary of PUs per patient	Global N=27	ICCT 1 N=9	ICCT 2 N=3	ICCT 3 N=5	ICCT 4 N=10
Mean (SD)	2.6 (2.2)	2.4 (1.6)	4.0 (3.6)	1.8 (1.3)	2.6 (2.6)
Median	2.0	2.0	3.0	1.0	1.5
Min; Max	1.0; 9.0	1.0; 5.0	1.0; 8.0	1.0; 4.0	1.0; 9.0

N: Number of patients; SD: Standard deviation

The results also showed that 29.6% and 71.4% of patients were without risk of PU in the first and second month of admission in ICCT, respectively (Table 4).

Table 4. Number and proportion of patients without Braden Scale assessment for each one-month period

Time horizon (months)	No. of patients with Braden Scale assessment at the beginning of the month	No. of patients without Braden Scale assessment during the month	Proportion of patients without Braden Scale assessment during the month
0 – 1	27	8	29.6
1 – 2	7	5	71.4
2 – 3	5	5	100.0
3 – 4	4	4	100.0
4 – 5	3	3	100.0
5 – 6	3	3	100.0
6 – 7	2	2	100.0

= CONCLUSION

Implementing remote monitoring of PU by ICCTs optimizes clinical outcomes and suggests potential for nationwide scalability. However, larger samples would be needed to better evaluate the app's effectiveness in PU monitoring. Close coordination between care professionals and specialized nurses was essential in achieving these results.

References: [1] Alves, P. J., Feridas: Prevalência e Custos. Porto, Porto, Portugal. 2014 [2] Barateau M,, et al. L'apport de la télémédecine dans la prise en charge des escarres en soins palliatifs [The contribution of telemedicine in the management of pressure ulcers in palliative care]. Soins. 2015 Jan-Feb;(792):46-8. French. [3] Sood A, et al. The Role of Telemedicine in Wound Care: A Review and Analysis of a Database of 5,795 Patients from a Mobile Wound-Healing Center in Languedoc-Roussillon, France. Plast Reconstr Surg. 2016 Sep;138(3 Suppl):248S-256S. doi: 10.1097/PRS.0000000000002702.