

The effect of a simple 3-step pressure relieving strategy for prevention of pressure ulcers; a longitudinal study from 2002-2011

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Objective

Pressure ulcers remain an important and distressing problem in Dutch nursing homes. This study explores the patient outcome and economic effects of a 3-step prevention protocol on the development of pressure ulcers in patients at risk of PU, as introduced in 2004 in the AVOORD nursing homes in Etten-Leur/Zundert (The Netherlands), on the development of pressure ulcers in patients at risk of PU. The 3-step protocol involves:

1. Primary prevention for every resident on a visco-elastic foam mattress
2. Addition of a static air mattress when there are signs of a developing pressure ulcer category 1
3. If the signs of PU-development do not disappear or progression occurs toward Category 2, start with repositioning.

Methods

Data on the development of pressure ulcers and use of preventive measurements were derived from the yearly independent National Prevalence Measurement of Care Problems of Maastricht University (LPZ; Halfens et al. 2011).

We analyzed over the period 2002-2011 the data of patients at risk of pressure ulcers in the AVOORD nursing homes in Etten-Leur/Zundert and compared them with the national data.

Results

Introduction of the 3-step protocol resulted in a considerable reduction of the prevalence of pressure ulcers category 2, 3 and 4 in the first year to less than one percent (< 1%) in patients at risk (Braden scale ≤ 20). This low level maintained during the study period except for the year 2010 where we measured a prevalence rate of 3.6%.

The national prevalence in Dutch nursing homes decreased also during this period from 12.5 to 4 %, but less fast (Fig.1). Figures 2 and 3 show the use of the types of mattresses. The use of alternated systems declined to almost 1% and the use of static air mattresses shows an almost linear rise in the AVOORD nursing homes but the trend for both types of mattresses is stabile at national level.

By introducing the static air mattress (step 2) instead of the much more expensive alternating mattresses the costs were reduced with more than 70% (mean costs over the study period €36.15 versus €127.24 per day) (Fig.4).

Conclusion

The introduction of the 3-step protocol was effective. The prevalence of pressure ulcers reduced directly towards a lower level and remained there. Moreover, the costs were reduced with more than 70%.



Figure 1: Effect of 3 step protocol on PU prevalence in Avoord nursing homes versus the PU prevalence in the national Dutch nursing home sector (2002-2011).

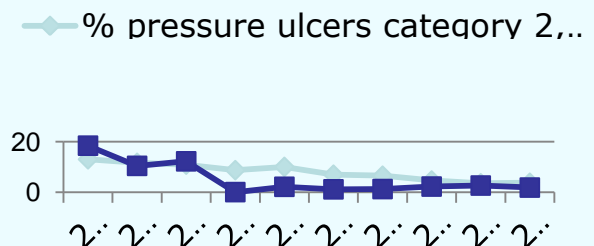


Figure 2: Use of expensive alternating systems in Avoord nursing homes versus the national Dutch nursing home sector (2002-2011).

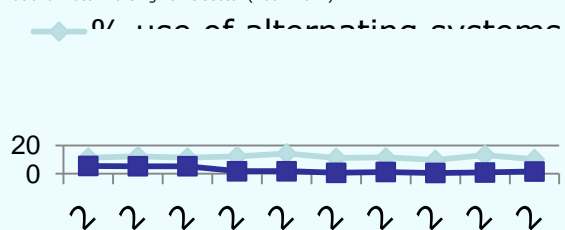


Figure 3: Use of static air systems in Avoord nursing homes versus the national Dutch nursing home sector (2002-2011).

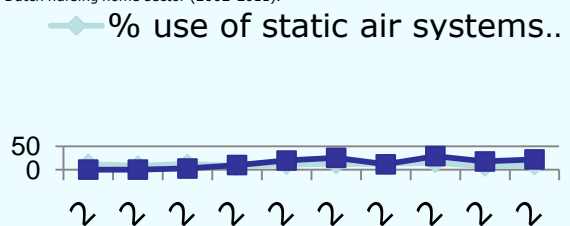


Figure 4: Daily costs of alternating systems + static air overlay systems in Avoord nursing homes versus the national Dutch nursing home sector (2002-2011).

