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 (Braden scale ≤ 20) 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% (mean costs over the study period ≤ 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 level for the percentage of patients at risk of PU in the national Dutch nursing home sector (2002-2011) was diminished from 31 to 8%.

Conclusion
The introduction of the 3-step protocol was effective. The prevalence of pressure ulcers reduced directly towards a lower level and remained there. Less patients needed repositioning. Expensive alternating systems are no longer necessary. Moreover, the costs were reduced with more than 70%.