

# Improving the quality of nursing care in Austria: 10 years of success

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## Abstract

**Aims:** We provide more updated and comprehensive insights, including descriptions of changes that have taken place in the quality of pressure injury care provided in hospitals over a 10-year period.

**Background:** Various nursing quality measurements do not present a comprehensive view on nursing-sensitive quality indicators or place a focus on one specific care problem.

**Methods:** It is a repeated cross-sectional multicentre study conducted annually on 1 day including comprehensive data regarding nursing-sensitive care problems and quality indicators on the structure, process and outcome levels.

**Results:** The prevalence of pressure injuries decreased over the years from 4.4% to 2.9%, and the frequency of interventions increased.

**Conclusion:** The *Nursing Quality Measurement 2.0* initiative shows considerable improvements over a 10-year period. Therefore, the maintenance of such nursing databases should be treated as a prerequisite to providing high-quality nursing care and safe nursing practice. One main benefit of creating and maintaining such databases is that allow users to screen for improvements, for example in pressure injury care. These observations can be used to develop marketing strategies and/or to empower and engage nursing staff.

**Implications for Nursing Management:** Participation in such quality measurements allows the comparison of data collected in wards and institutions in many different countries, enabling them to set appropriate benchmarks. Furthermore, the results can be compared over a period of time, highlighting systematic changes, trends or improvements (e.g., due to implemented innovations).

## KEYWORDS

acute care, nursing assessment, pressure injury, quality, quality of care

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## 1 | INTRODUCTION

The World Health Organization (WHO) defines patient safety as 'the absence of preventable harm to a patient during the process of health care and reduction of risk of unnecessary harm associated with health care to an acceptable minimum' (WHO, 2020). On their website, the WHO states that up to four out of ten patients worldwide are harmed in health care settings, leading to 26 million patients that die annually due to unsafe care (e.g., health care-associated infections or pressure injuries) (WHO, 2020).

Patient safety is considered to be essential to ensure the quality of care in health care institutions (Ammouri, Tailakh, Muliira, Geethakrishnan, & Al Kindi, 2015). Nurses are major stakeholders and key personnel who play significant roles in the discussion on patient safety and health care quality. As an example, having a higher proportion of nurses on staff was associated with higher patient safety in terms of, for example, lower numbers of surgical complications (Amiri, Solankallio-Vahteri, & Tuomi, 2019).

Some measurement programmes and databases are available internationally to measure the quality of nursing care. In the United States, for example, the National Database of Nursing Quality Indicators (NDNQI®) is used. The NDNQI provides quarterly and annual reports on structure, process and outcome indicators which are used to evaluate nursing care at the ward level (Press Ganey, 2015). The indicators included are, for example, nursing hours per patient day, patient falls and pressure injury (PI) prevalence (Press Ganey, 2015). The NDNQI database includes several internationally recognized instruments, such as the Braden Scale (Bergquist-Beringer, Dong, He, & Dunton, 2013; Press Ganey, 2015).

Unlike the NDNQI database, another internationally well-known quality measurement tool is the 'International Pressure Ulcer Prevalence™ survey', which includes quality indicators such as (facility-acquired) pressure injury prevalence and the prevalence of risk for pressure injury (Van Gilder, Lachenbruch, Algrim-Boyle, & Meyer, 2017). This survey was initiated in 1989. It is facilitated by Hilliron. It is performed as a cross-sectional survey over a fixed 3-day period annually (Van Gilder et al., 2017).

The measured quality care indicators differ between the different quality measurements. This can be explained by the fact that different perspectives are taken in each of the quality measurement tools on health care quality and the responsibilities assigned to nurses in different countries also differ (Welton & Harper, 2016). Nevertheless, several nursing-sensitive key indicators are broadly and internationally recognized in specific areas of nursing care, such as (facility-acquired) pressure injury prevalence, pressure injury risks, pain management, nutrition management, infection prevention and patient falls. Pressure injuries are a particular problem, which is often attributed to a failure to provide adequate nursing care. This is, therefore, a topic which is of the highest importance when addressing the quality of nursing care and patient safety (Dubois, D'Amour, Pomey, Girard, & Brault, 2013; Joseph & Samson, 2016; Maben, Ball, Robert, & Griffiths, 2012).

However, most of the proposed nursing quality measurement tools do not present a comprehensive and broad view on nursing-sensitive quality indicators. Especially in Austria, no comprehensive nursing quality measurements were previously available, although there had been a demand for these from health care institutions and nursing managers as well as leaders. For this reason, 10 years ago, we decided to launch the initiative to develop an Austrian version of the *National Prevalence Measurement of Care Quality (LPZ study)* in the German language. This initiative included the quality of pressure injury care as an important component (Halfens et al., 2013; van Nie-Visser et al., 2013).

In order to ensure a broad, comprehensive and detailed view, the *National Prevalence Measurement of Care Quality* is based on the framework of quality of care proposed by Donabedian (Donabedian, 1988, 2005). Donabedian stated that quality indicators should be assessed on three levels to measure the quality of care: on the structure, process and outcome levels. The structure level includes context indicators, such as the availability of educated staff or evidence-based guidelines. The process level includes all actions that are implemented by nurses, mainly interventions to treat and prevent care problems such as pressure injuries. The outcome level addresses the effect of these actions on patients or populations and certain aspects, such as the prevalence of nursing problems (Donabedian, 2005; Dubois et al., 2013).

Several studies have described the prevalence of pressure injuries and interventions applied. However, few studies have been conducted to describe the pressure injury prevalence over time (Amir, Meijers, & Halfens, 2011; Gunningberg & Stotts, 2008; Van Gilder et al., 2017). In the most recent study, pressure injury data were collected over time (i.e., up to the year 2015). This study, however, did not include results with regard to the structural and process level of pressure injury care provided over the years (Van Gilder et al., 2017). This article provides more updated and comprehensive insights, including descriptions of changes that have taken place in the quality of pressure injury care provided in hospitals over a 10-year period in which the *LPZ study* was conducted.

## 2 | MATERIALS AND METHODS

### 2.1 | Study design

The *Nursing Quality Measurement 2.0* is a cross-sectional multicentre study which is conducted annually on one specific day.

### 2.2 | Participants

All Austrian health care institutions can participate voluntarily in the *Nursing Quality Measurement 2.0*. Over a 10-year period from 2009 to 2018, the *Nursing Quality Measurement* tool has mostly been used in hospitals and nursing homes to measure the quality of nursing care. The institution leaders are encouraged to use the measurement tool on all wards, including all patients and residents present

on the day of the measurement, in order to attain representative results. The institutions pay a fee to participate in the measurement, as well as for each participating patient/resident.

## 2.3 | Data collection

The data collection procedure is performed at the participating institutions by designated staff members. All institution staff are annually invited to training sessions, at which they are provided with comprehensive training materials, the standardized questionnaires and informed consent forms. Institutions can choose whether they want to use printed questionnaires or enter the data directly into the online data entry programme. The data collection procedure is carried out by pairs of trained nurses who work in the participating organisations. One nurse works on the ward of the respective patient, and one nurse works on another ward. If nurses disagree regarding an answer to a question on the questionnaire, the nurse from the other ward makes the final decision. Questions regarding the fulfilment of structural quality indicators are answered by the nursing leaders at the respective institutions and by the nursing managers on the specific wards.

## 2.4 | Instrument

The Austrian version of the LPZ questionnaire was used for data collection. It was developed on the basis of the original Dutch LPZ questionnaire; the latter was developed based on evidence-based guidelines, the latest literature and expert opinions (Halfens et al., 2013). It was forward- and backward-translated into German, and a pilot test was performed in order to check the applicability of the questionnaire. Only minor changes in wording were made after the pilot test was completed.

The questionnaire includes questions on the structural, process and outcome levels. On the structural level, we assess the availability of evidence-based guidelines, the presence of a multidisciplinary expert committee in the institution as well as the nurses' participation in a refresher course. On the process level, we assess the following preventive and treatment interventions conducted, which are based on current guidelines (National Pressure Ulcer Advisory Panel, European Pressure Ulcer Advisory Panel, & Pan Pacific Pressure Injury Alliance, 2019): repositioning, use of moisture creams, client education, floating heals, prevention/treatment of nutrition deficits. On the outcome level, we collect data on the prevalence of pressure injuries and the prevalence of the risk for developing pressure injury risk. The pressure injury risk is measured with the Braden Scale (Nancy Bergstrom, 1987). Pressure injuries are classified according to the current guideline (National Pressure Ulcer Advisory Panel et al., 2019).

In addition to quality indicators applicable to the structure, process and outcome levels, we collected data on the patients' general characteristics, such as age, sex, incidences of surgery within the 2 weeks prior to the measurement, medical diagnoses according to

ICD-10 (WHO, 2016) and care dependency levels using the care dependency scale (CDS) (Lohrmann, Dijkstra, & Dassen, 2003).

## 2.5 | Validity and reliability/Rigour

The initial validity of the original Dutch version of the LPZ questionnaire was tested for each nursing problem by several national and international experts (van Nie-Visser et al., 2013). Several instruments are included in the questionnaire, such as the Care Dependency Scale (CDS) (Dijkstra, Buist, & Dassen, 1996; Lohrmann et al., 2003) and the Braden Scale (Bergstrom, Braden, Laguzza, & Holman, 1987; Halfens, Van Achterberg, & Bal, 2000), which are extensively tested, valid, reliable and internationally well-recognized tools. The reliability of the LPZ questionnaire was addressed in one study, in which each patient/resident was assessed by two health care professionals (one from the patient's ward and one from another ward) (van Nie-Visser et al., 2013). The inter-rater reliability was found to be good (Cohen's kappa = 0.87) (Meijers et al., 2009).

## 2.6 | Data analysis and presentation of results

To analyse data, we used the SPSS 26.0 statistical software. Descriptive statistics were carried out on the nominal and ordinal variables for each year of measurement, and metric variables are displayed as a mean with a standard deviation or median and inter-quartile range. Differences between the years were identified using the chi-squared test. *p*-values lower than .05 were considered as statistically significant.

## 3 | RESULTS

In total, 91 different hospitals, 49 different nursing homes and 9 other institutions (e.g., rehabilitation clinics) have participated in the measurement since 2009. To date, most of these institutions have participated on a regular basis (59.7%). Of the regularly participating institutions, 32.9% have participated five to seven times, and 13.5% have participated more than eight times.

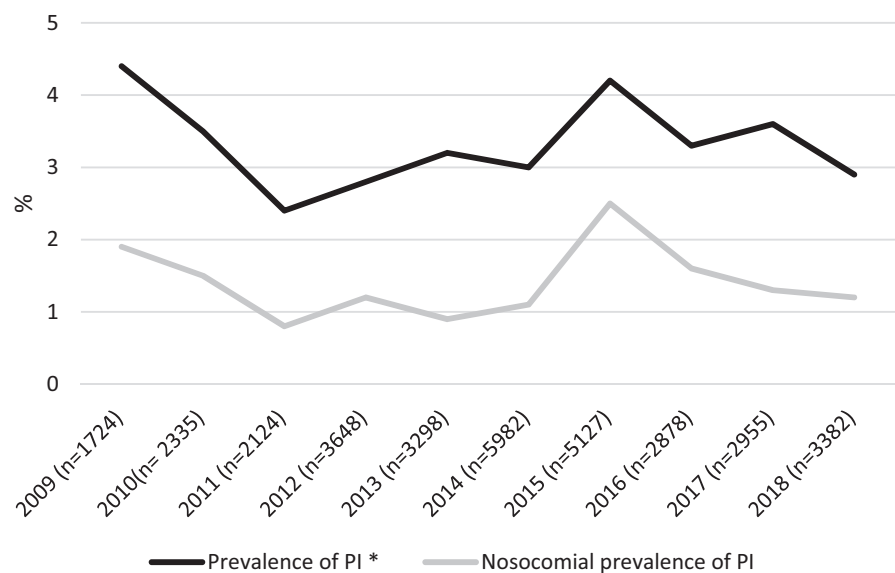
### 3.1 | Sample characteristics

Data collected from hospitals from 2009 to 2018 were included for this exemplary data analysis of the pressure injury (PI) module. In total, 33,479 (75.0%) hospital patients have given their informed consent to participate in the measurement from 2009 to 2018. The entire patient population was 53.6% female and 46.4% male, and the median patient age was 69 years. The median CDS sum score was 74 (scores between 15 and 75 are possible, whereas lower scores indicate higher levels of care dependency), indicating that most of the patients were more care independent. The most common diagnoses

**TABLE 1** Number and sample characteristics of hospital participants over the last 10 years

Year	Number of participants	Female sex %	Median age in years (IQR) <sup>a</sup>	Participants completely or to a great extent dependent on care %
2009	1,724	55.0	69 (56–80)	11.8
2010	2,335	53.9	68 (55–79)	9.5
2011	2,125	56.0	68 (54–79)	6.5
2012	3,648	53.3	68 (53–77)	6.5
2013	3,298	56.5	69 (55–79)	8.5
2014	6,002	54.2	68 (53–78)	8.4
2015	5,132	53.2	69 (54–79)	10.2
2016	2,878	51.4	69 (54–78)	8.1
2017	2,955	51.5	69 (55–78)	10.2
2018	3,382	51.8	69 (54–78)	9.5

<sup>a</sup>IQR interquartile range.

**FIGURE 1** Prevalence of PI and nosocomial prevalence of PI over the last 10 years. \* statistically significant difference between the years 2009 and 2018 ( $p < .01$ ) [Colour figure can be viewed at [wileyonlinelibrary.com](http://wileyonlinelibrary.com)]

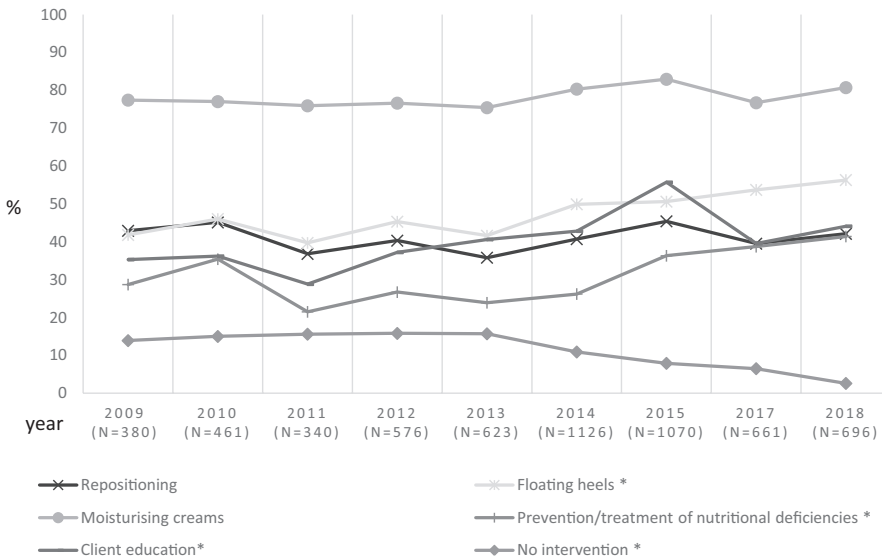
were diseases of circulatory system (43.2%), diseases of the musculoskeletal system (27.2%) and diseases of digestive system (22%). An overview of the number of hospital participants, their sex, ages and care dependency levels over a 10-year period is given in Table 1.

### 3.2 | OUTCOME: At-risk patients and the prevalence of pressure injuries (PI) in hospitals

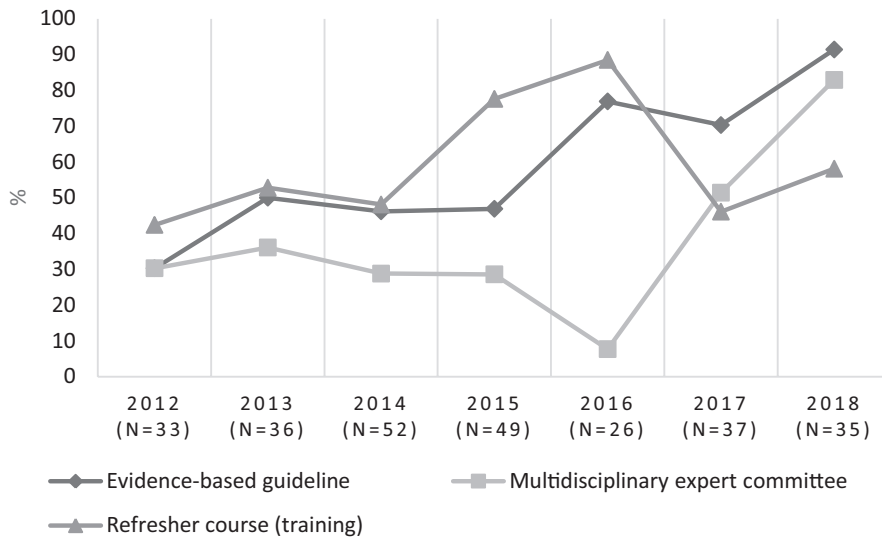
On an outcome level, the data show that 22.0% of the patients were at risk of developing a PI in 2009; this does not significantly differ from the 20.6% of patients who were identified as at risk in 2018 ( $p = .226$ ). The prevalence of PI decreased significantly from 4.4% in 2009 to 2.9% in 2018 ( $p = .006$ ) (Figure 1). The lowest prevalence of PI was found in 2011, whereby 2.4% of the participants had PI (category one and higher). In addition, the nosocomial prevalence (PI developed during the hospital stay) also decreased during this period, but the difference was not statistically significant ( $p = .082$ ).

### 3.3 | PROCESS: Interventions to prevent and treat PI

On the process level, we found that the frequency of interventions that were used to prevent and treat PI in risk patients, according to the Braden Scale, varied over the years. In general, the frequency of interventions increased from 2009 to 2018. In 2009, 13.9% of patients who were assessed as being at risk of PI according to the Braden Scale received no preventive intervention, but the proportion of these patients had significantly dropped to 2.6% by 2018 ( $p < .01$ ). The most frequently used intervention was the application of moisturizing cream to protect the skin, and the frequency of this intervention remained relatively stable during this period (77.4% in 2009 and 80.7% in 2018). The intervention of repositioning at-risk patients was also a highly frequently used preventive measure, the usage of which remained stable during this period (42.9% in 2009 and 42.1% in 2018). The usage frequency of other interventions increased significantly from 2009 to 2018, for example, floating



**FIGURE 2** Interventions to prevent PI in risk patients according to the Braden Scale over the last 10 years; data on 2016 is missing, because no risk assessment with Braden Scale was used; % = the proportion of PI risk patients that received the respective intervention. \* statistically significant difference between the years 2009 and 2018 ( $p < .01$ )



**FIGURE 3** Fulfilment of quality indicators in participating institutions over the last 7 years; 2009 to 2011 could not be included into the analysis because the indicators we measured were not comparable to the other years

heels (41.8% to 56.3%,  $p < .001$ ), client education (35.3% to 44.1%,  $p < .01$ ) and prevention/treatment of nutritional deficiencies (28.7% to 41.4%,  $p < .001$ ) (Figure 2).

### 3.4 | STRUCTURE: Structural quality indicators

In general, the fulfilment of quality indicators on the structural level varied greatly during this period. When comparing the data on three structural quality indicators collected from 2012 to 2018 (the data were comparable for these years), an increase in the fulfilment rate could be detected, especially regarding the use of an evidence-based guideline about PI in the institutions (Figure 3).

## 4 | DISCUSSION

The results of this annually repeated, cross-sectional, multicentre study show that pressure injury care in hospitals improved

significantly from 2009 to 2018. Structural quality indicators improved, such as the use of evidence-based guidelines, the availability of multidisciplinary expert committees and the participation of nurses in refresher courses. The prevalence decreased to an extremely low level (2.9%), and the conducted interventions in risk patients improved remarkably. In 2009, 13.9% of the risk patients did not receive any interventions to prevent a PI, but this proportion decreased to 2.6% by 2018, a result that can be seen as a great success. It seems likely that taking part regularly in the *Nursing Quality Measurement 2.0* considerably facilitated this improvement process in PI care in Austrian hospitals.

The prevalence of PI decreased significantly from 4.4% in 2009 to 2.9% in 2018. An analysis of the data collected in the 'International Pressure Ulcer Prevalence™ survey' from 2008 to 2015 also revealed that a significant decrease in PI prevalence in US acute-care settings had occurred (13.3% vs. 8.8%) (Van Gilder et al., 2017). However, much lower prevalence rates were observed in Austria in 2009 (4.4%) than in the United States (13.3%). One explanation for these results might be that participation in our study

was voluntarily. It is possible that only hospitals participated that were already interested in improving PI nursing care quality; therefore, they might have entered the study with an already relatively low PI prevalence.

We also found that the use of certain interventions, for example floating heels, client education and the prevention/treatment of nutritional deficiencies, increased significantly from 2009 to 2018. One explanation for these results might be that the APUPA published the first German version of the Prevention and Treatment of Pressure Ulcers: Quick Reference Guide (National Pressure Ulcer Advisory Panel, European Pressure Ulcer Advisory Panel, & Pan Pacific Pressure Injury Alliance, 2014) in 2014, which highlighted the recommendations to float heels, educate clients and focus on nutritional deficits. PIs have become a 'hot topic' in Austria. An increased awareness of PIs, raised through marketing campaigns and research studies, might explain the increased use of internationally recommended PI prevention and treatment strategies. This awareness may also explain the low PI prevalence in Austria as compared to the prevalence seen in other countries.

The use of quality measurements, such as the *Nursing Quality Measurement 2.0*, is beneficial for the participating institutions in that it increases the transparency of strengths and potentials for improvement and allows users to compare their data with those collected in other institutions, enabling them to set appropriate benchmarks. Furthermore, the results can be compared over a period of time, highlighting systematic changes, trends or improvements (e.g., due to implemented innovations). The results can then be used to launch targeted initiatives or projects to improve the quality of care. In the current study, the results convincingly show that positive changes in the quality of care regarding PI occurred. The prevalence rate decreased during the study period, and the use of preventive interventions increased considerably. These results show that institutions performed effective actions and successfully changed nursing practices, resulting in improved patient outcomes. Participating institutions can use the measurement to gather ideas and explore possibilities for improvement by transparently outlining the prevalence of nursing problems, the conducted interventions and the fulfilment of structural indicators.

Quality measurements have the potential to raise awareness about the performance of nurses and important nursing problems in health care institutions (Dubois et al., 2013). However, even if nursing quality measurements are strongly recommended by professional associations, it is still challenging to establish a quality measurement routine in nursing practice. Some institutions are still unaware of the importance or significance of collecting data on nursing-sensitive outcomes or are concerned about the extra work associated with conducting such a measurement. These barriers prevent institutions from participating in such measurements. A systematic review revealed barriers and facilitators of routine outcome measurement and showed that the institutions must provide appropriate resources to successfully implement quality measurements as part of the nursing routine (Duncan & Murray, 2012). Furthermore, organisations must

think about how they deal with possible negative results. For example, if quality measurements reveal substandard performance, a punitive approach will probably not result in increased nursing performance. This means that the nursing management must handle the data sensitively (Duncan & Murray, 2012).

Furthermore, the nurses' concerns and ideas must be heard and considered. To date, the nursing management has generally made decisions about the participation and how to deal with the results of a quality measurement independently, neither inviting nor welcoming input from nursing staff. But this kind of top-down approach simply does not support the goal to improve nursing practice and quality of care. Instead, efforts should be made to encourage and facilitate nursing staff to participate in quality measurements and subsequent quality improvement projects (Izumi, 2012).

Another important point that is important to consider is that, in some countries and also in Austria, participation in a nursing quality measurement action project that includes nursing-sensitive outcomes is not legally mandatory. This represents a limiting factor to increasing the participation rate. In Switzerland, for instance, hospitals are mandatorily required to participate in the Nursing Quality Measurement 2.0 (modules for falls and pressure injuries). This has proven highly advantageous for all stakeholders, as it enables fair comparison of data among all Swiss hospitals and also improves data quality. In addition, the data analysis results from all hospitals are displayed on the official website, which leads to higher levels of transparency (ANQ, 2020).

The results of this study provide sound arguments for regularly participating in quality measurements. We examined changes in PI care that occurred over a time period of 10 years, which allowed us to draw firm conclusions. In addition, we included a huge number of hospitals and hospitalized patients in our study, strengthening the validity of the results. However, this study had certain limitations. First, participation in the measurement was voluntary in the hospitals. For this reason, it may be that only highly motivated nursing managers decided to participate in the measurement. Therefore, the results cannot be generalized to all hospitals in Austria. Because the participating hospitals had to pay a fee to conduct the Nursing Quality Measurement 2.0 in their institutions, this may have limited participation in the study. This fee is necessary to finance the technical and scientific support for the institutions, but it could have prevented hospitals from participating. Furthermore, not all hospitals participated annually. Even if a large number of hospitals take part regularly, the hospital sample differs every year. Therefore, the results can provide insights into trends in PI care in hospitals, but cannot provide detailed information regarding changes in a fixed hospital sample. Moreover, the observed changes may not only result from the institutions' participation in the Nursing Quality Measurement but may also be attributable to other factors. For example, it is possible that enhanced nursing education, and therefore improved professional nursing competencies, may have contributed to the decrease in PI prevalence and improvement of PI care.



## 5 | CONCLUSION

The *Nursing Quality Measurement 2.0* can be used to improve the quality and safety of health care. Our study showed that repeated measurements of quality of care can result in considerable improvements in PI care observed over a 10-year period in Austria. Therefore, such nursing databases should be treated as prerequisites for high-quality nursing care and safe nursing practice. One main benefit of creating and maintaining such databases is to allow users to screen for improvements, for example in pressure injury care. These observations can be used to develop marketing strategies and/or to empower and motivate nursing staff.

### ACKNOWLEDGEMENTS

We would like to thank all participating institutions as well as patients and residents.

### AUTHOR CONTRIBUTIONS

All above listed as authors (D. Eglseer, S. Osmancevic, M. Hoedl, C. Lohrmann and S. Bauer) are qualified for authorship by meeting all four of the following criteria: 1. Have made substantial contributions to conception and design, or acquisition of data, or analysis and interpretation of data; 2. Been involved in drafting the manuscript or revising it critically for important intellectual content; 3. Given final approval of the version to be published. Each author should have participated sufficiently in the work to take public responsibility for appropriate portions of the content; and 4. Agreed to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

### ETHICAL APPROVAL

Ethical approval for this study was obtained in all participating countries. In Austria, the ethics committee of the Medical University of Graz approved the study in 2008 (20-192 ex 08/09). Written informed consent was obtained from the participating persons or their legal representatives as a prerequisite for participation. The study was conducted in accordance with the recognized ethical standards.

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### REFERENCES

- Amir, Y., Meijers, J., & Halfens, R. (2011). Retrospective study of pressure ulcer prevalence in Dutch general hospitals since 2001. *Journal of Wound Care*, 20(1), 18–25. <https://doi.org/10.12968/jowc.2011.20.1.18>
- Amiri, A., Solankallio-Vahteri, T., & Tuomi, S. (2019). Role of nurses in improving patient safety: Evidence from surgical complications in 21 countries. *International Journal of Nursing Sciences*, 6(3), 239–246. <https://doi.org/10.1016/j.ijnss.2019.05.003>
- Ammouri, A. A., Tailakh, A. K., Muliira, J. K., Geethakrishnan, R., & Al Kindi, S. N. (2015). Patient safety culture among nurses. *International Nursing Review*, 62(1), 102–110. <https://doi.org/10.1111/inr.12159>
- ANQ, N. V. f. Q. i. S. u. K. (2020). Retrieved from <https://www.anq.ch/de/>
- Bergquist-Beringer, S., Dong, L., He, J., & Dunton, N. (2013). Pressure ulcers and prevention among acute care hospitals in the United States. *The Joint Commission Journal on Quality and Patient Safety*, 39(9), 404–414. [https://doi.org/10.1016/S1553-7250\(13\)39054-0](https://doi.org/10.1016/S1553-7250(13)39054-0)
- Bergstrom, N., Braden, B. J., Laguzza, A., & Holman, V. (1987). The Braden Scale for predicting pressure sore risk. *Nursing Research*, 36(4), 205–210. <https://doi.org/10.1097/00006199-198707000-00002>
- Dijkstra, A., Buist, G., & Dassen, T. (1996). Nursing-care dependency. *Scandinavian Journal of Caring Sciences*, 10(3), 137–143. <https://doi.org/10.1111/j.1471-6712.1996.tb00326.x>
- Donabedian, A. (1988). The quality of care. How can it be assessed? *JAMA*, 260(12), 1743–1748. <https://doi.org/10.1001/jama.1988.03410120089033>
- Donabedian, A. (2005). Evaluating the quality of medical care. *Milbank Quarterly*, 83(4), 691–729. <https://doi.org/10.1111/j.1468-0009.2005.00397.x>
- Dubois, C. A., D'Amour, D., Pomey, M. P., Girard, F., & Brault, I. (2013). Conceptualizing performance of nursing care as a prerequisite for better measurement: A systematic and interpretive review. *BMC Nursing*, 12, 7. <https://doi.org/10.1186/1472-6955-12-7>
- Duncan, E. A., & Murray, J. (2012). The barriers and facilitators to routine outcome measurement by allied health professionals in practice: A systematic review. *BMC Health Services Research*, 12, 96. <https://doi.org/10.1186/1472-6963-12-96>
- Ganey, P. (2015). NDNQI. Retrieved from <http://www.health-links.me/web/ndnqi.html>
- Gunningberg, L., & Stotts, N. A. (2008). Tracking quality over time: What do pressure ulcer data show? *International Journal for Quality in Health Care*, 20(4), 246–253. <https://doi.org/10.1093/intqhc/mzn009>
- Halfens, R. J. G., Meesterberends, E., van Nie-Visser, N. C., Lohrmann, C., Schönherr, S., Meijers, J. M. M., ... Schols, J. M. G. A. (2013). International prevalence measurement of care problems: Results. *Journal of Advanced Nursing*, 69(9), e5–e17. <https://doi.org/10.1111/jan.12189>
- Halfens, R. J., Van Achterberg, T., & Bal, R. M. (2000). Validity and reliability of the Braden scale and the influence of other risk factors: A multi-centre prospective study. *International Journal of Nursing Studies*, 37(4), 313–319. [https://doi.org/10.1016/S0020-7489\(00\)00010-9](https://doi.org/10.1016/S0020-7489(00)00010-9)
- Izumi, S. (2012). Quality improvement in nursing: Administrative mandate or professional responsibility? *Nursing Forum*, 47(4), 260–267. <https://doi.org/10.1111/j.1744-6198.2012.00283.x>
- Joseph, L., & Samson, R. (2016). *Indicators of nursing quality: Quantifying effects of nursing care interventions*.
- Lohrmann, C., Dijkstra, A., & Dassen, T. (2003). The care dependency scale: An assessment instrument for elderly patients in German hospitals. *Geriatric Nursing*, 24(1), 40–43. <https://doi.org/10.1067/mgn.2003.8>
- Maben, J. M. E., Ball, J., Robert, G., & Griffiths, P. (2012). *High quality care - Metrics for nursing*. Retrieved from London: <https://www.kcl.ac.uk/nursing/research/nru/publications/Reports/High-Quality-Care-Metrics-for-Nursing---Nov-2012.pdf>
- Meijers, J. M. M., Schols, J. M. G. A., vanBokhorst-de van der Schueren, M. A. E., Dassen, T., Janssen, M. A. P., & Halfens, R. J. G. (2009). Malnutrition prevalence in The Netherlands: Results of the annual Dutch national prevalence measurement of care problems. *British Journal of Nutrition*, 101(3), 417–423. <https://doi.org/10.1017/s0007114508998317>
- National Pressure Ulcer Advisory Panel, European Pressure Ulcer Advisory Panel, & Pan Pacific Pressure Injury Alliance (2014). *Prevention and treatment of pressure ulcers: Quick reference guide*. Retrieved from Osborne Park, Australia.
- National Pressure Ulcer Advisory Panel, European Pressure Ulcer Advisory Panel, & Pan Pacific Pressure Injury Alliance (2019).

- Prevention and treatment of pressure ulcers/injuries: Clinical practice guideline*. The International Guideline.
- Van Gilder, C., Lachenbruch, C., Algrim-Boyle, C., & Meyer, S. (2017). The International Pressure Ulcer Prevalence™ Survey: 2006–2015: A 10-year pressure injury prevalence and demographic trend analysis by care setting. *Journal of Wound Ostomy & Continence Nursing*, 44(1), 20–28. <https://doi.org/10.1097/won.00000000000000292>
- van Nie-Visser, N. C., Schols, J. M., Meesterberends, E., Lohrmann, C., Meijers, J. M., & Halfens, R. J. (2013). An international prevalence measurement of care problems: Study protocol. *Journal of Advanced Nursing*, 69(9), e18–e29. <https://doi.org/10.1111/jan.12190>
- Welton, J. M., & Harper, E. M. (2016). Measuring nursing care value. *Nursing Economics*, 34(1), 7–14, quiz 15.
- WHO (2016). *International statistical classification of diseases and related health problems 10th revision (ICD-10)*. Retrieved from <http://apps.who.int/classifications/icd10/browse/2016/en#/R13>
- WHO (2020). *Patient safety*. Retrieved from <https://www.who.int/patientsafety/en/>

**How to cite this article:** Eglseer D, Osmancevic S, Hoedl M, Lohrmann C, Bauer S. Improving the quality of nursing care in Austria: 10 years of success. *J Nurs Manag*. 2021;29:186–193. <https://doi.org/10.1111/jonm.13136>