Valorisation
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Societal relevance
Chronic wounds, like pressure ulcers, leg ulcers and diabetic foot ulcers are often painful and debilitating for patients, resulting in a reduction of quality of life. Moreover, chronic wounds are associated with high costs accounting for more than 2-4% of health care expenses worldwide. Within the next 40 years, the cost burden of treating chronic wounds is expected to grow progressively due to an aging population and in particular a rise in the incidence of both obesity and diabetes. To assess the integral impact of this relevant care problem on patient, organisational care and societal level, prevalence and quality care measurements are useful to create awareness in caregivers, managers, policymakers and politicians of the scale of the problem chapter 2.

By applying a methodological approach like the National Prevalence Measurement of Care problems of Maastricht University (LPZ-Landelijke Prevalentiemeting Zorgproblemen) on the problem of (infected) chronic wounds, it is ensured that the data obtained can be used for benchmarking within and between health care settings. Before publication of this thesis, to the best of our knowledge no prevalence data and data about the quality of care related to patients with (infected) chronic wounds were available in the Netherlands chapter 3.

Chronic wounds may be complicated by infection, ultimately resulting in tissue damage and delayed healing. Efficient management and careful antimicrobial treatment of these infected wounds is essential and associated with earlier wound healing and less costs. However, the clinical assessment of a chronic wound infection is challenging. The clinical signs and symptoms of infection of chronic wounds are difficult to interpret. Therefore the clinical assessment is often accompanied by the identification and assessment of the number of microorganisms isolated from the wound.

In this thesis the literature was reviewed to explore the usefulness of a wound swab (using the Levine or Z-technique) in comparison to a biopsy as a reliable method for the diagnosis of a chronic wound infection. Compared both with the biopsy as golden standard, the diagnostic accuracy to diagnose a chronic wound infection by the Levine’s technique showed to be higher in comparison to the Z-technique chapter 4.

The Levine swab technique was used in an additional study to assess whether bacteriological analysis of a wound swab is supportive in the clinical assessment of infection of a chronic wound. The results of that study showed that the clinical assessments were not significantly correlated with the bacteriological results of the swabs taken. The conclusion was that in our study microbiological analysis of swabs taken from chronic wounds does not support the clinical assessment, and in fact seems to be a waste of time and money chapter 5.

The results of a cost analysis of one of the first outpatient community wound care clinics in the Netherlands, the Knowledge Centre in Wound Care (KCWC) in Venray have been described in chapter 6. The differences in costs related to wound care between the year before and the year after initial admission to the wound clinic resulted in a reduction of €2,553 per patient, per year in the base case analysis.
This study was a first attempt of a cost analysis of an equipped outpatient wound clinic in the Netherlands. The organization of more outpatient wound clinics in the Netherlands may be an adequate and cost effective solution to meet the forthcoming growth of chronic wounds.

**Usability of the results for daily practice**

Regular prevalence and quality of care measurements related to the problem of chronic wounds will create more awareness and focus among managers and caregivers. This will support actual daily wound care activities, e.g. the multidisciplinary discussions on chronic wounds as well as other improvement activities in the care for residents with chronic wounds. Applying a uniform methodological approach like the Dutch National Prevalence Measurement of Care Problems is necessary to ensure a reliable data collection and to allow comparisons between health care settings; nationally and even internationally chapter 3.

One of the conclusions of this thesis was that microbiological analysis of swabs taken from chronic wounds does not support the clinical assessment, and in fact seems to be a waste of time and money chapter 5. Naturally, conducting further research is necessary to affirm the results of this thesis, and to be able to generalise its conclusion. Knowing there is currently no better diagnostic strategy than the clinical assessment, and that the interpretation of signs and symptoms of infection of a chronic wound is not easy, elderly care physicians and other wound care related professionals need further education. Differentiated education programs, in terms of knowledge and skills in clinically assessing infected chronic wounds must be developed, both for registered physicians as students.

Knowing that there is currently no better diagnostic strategy than the clinical assessment itself, there is also need of research into innovative diagnostic solutions. A promising development is the use of DNA sequencing techniques. However related high costs and the complicated feasibility of these techniques to use in for instance nursing home settings, do not allow extensive use yet chapter 5.

The emergence of a worldwide growing number of wound care centres reflects the relevance of the problem of chronic wounds as well as the increasing cost burden for health care systems. The results of the cost-analysis of one outpatient wound clinic in this thesis showed that wound care was not only therapeutically effective (complete healing in 106 out of 172 patients) but also cost-efficient. In a comparison between the year pre- and post-admission of patients, the base case analysis post-admission showed that considerable savings in reimbursement costs (€2,533 per patient, per year) were achieved. In accordance with the recommendations of van Mierlo-van de Broek (2011): a timely referral of a patient with a chronic wound to a genuine wound care specialist team/wound care centre in which a comprehensive multidisciplinary wound assessment is performed, followed by a strictly monitored and targeted intervention, seems to have benefits for both the patient and the society chapter 6.