

District nurses' knowledge development in wound management: ongoing learning without organizational support

Anne Friman, Anna Carin Wahlberg, Anne-Cathrine Mattiasson and Britt Ebbeskog

Department of Neurobiology, Karolinska Institute, Care Sciences and Society, Division of Nursing, Stockholm, Sweden

Aim: The aim of this study was to describe district nurses' (DNs') experiences of their knowledge development in wound management when treating patients with different types of wounds at healthcare centers. **Background:** In primary healthcare, DNs are mainly responsible for wound management. Previous research has focused on DNs' level of expertise regarding wound management, mostly based on quantitative studies. An unanswered question concerns DNs' knowledge development in wound management. The present study therefore intends to broaden understanding and to provide deeper knowledge in regard to the DNs' experiences of their knowledge development when treating patients with wounds. **Methods:** A qualitative descriptive design was used. Subjects were a purposeful sample of 16 DNs from eight healthcare centers in a metropolitan area in Stockholm, Sweden. The study was conducted with qualitative interviews and qualitative content analysis was used to analyze the data. **Results:** The content analysis resulted in three categories and 11 sub-categories. The first category, 'ongoing learning by experience,' was based on experiences of learning alongside clinical practice. The second category 'searching for information,' consisted of various channels for obtaining information. The third category, 'lacking organizational support,' consisted of experiences related to the DNs' work organization, which hindered their development in wound care knowledge. **Conclusions:** The DNs experienced that they were in a constant state of learning and obtained their wound care knowledge to a great extent through practical work, from their colleagues as well as from various companies. A lack of organizational structures and support from staff management made it difficult for DNs to develop their knowledge and skills in wound management, which can lead to inadequate wound management.

Key words: district nurse; organization; primary care; wound care knowledge; wound management

*Received 9 January 2013; revised 6 June 2013; accepted 16 June 2013;
first published online 14 August 2013*

Background

District nurses (DN) are well integrated and well known within the Swedish primary healthcare

system (Emanuelsson and Wendt, 1994). Their work involves examining, treating, informing and educating the patients, both independently and in cooperation with others in the healthcare team such as general practitioners (GP) and assistant nurses (AN) (Swartling, 2006; Friman *et al.*, 2010). One of their major tasks consists of wound management, which includes wound bed preparation in order to accelerate wound healing

Correspondence to: Anne Friman, Department of Neurobiology, Karolinska Institute, Department of Neurobiology, Care Sciences and Society, Division of Nursing, Alfred Nobels Allé 23, 141 83 Huddinge, Sweden. Email: anne.friman@ki.se

© Cambridge University Press 2013

(Schultz *et al.*, 2003; Friman *et al.*, 2011). Patients with leg ulcers require long-term health care (Ebbeskog, 2003) and patients with increasingly complex pathologies and multiple comorbidities require specific skills (Harding *et al.*, 2007). As the different methods applied in wound care are complex, due to the characteristics of the wound and the needs of the individual patient (Jones *et al.*, 2007), it has been found that advanced training is necessary, partly to enhance professional competence and also to ensure high-quality patient care (Iivanainen and Seppänen, 2005; Boudioni *et al.*, 2007). This is in line with the Association of District Nurses' in Sweden (2008) who emphasizes the importance of a health sector with highly trained DNs with specialist skills including wound care knowledge. Gaining knowledge in wound management improves the standard of care and, therefore, DNs need to obtain current knowledge of the subject (Van Hecke *et al.*, 2009).

Research question

What are DNs' experiences in developing wound care knowledge in the primary healthcare setting?

Literature review

Previous studies (King, 2000; Dowsett, 2009; Cook, 2011) have investigated the DNs' level of expertise regarding wound management and found that there were flaws in both theoretical and clinical knowledge. A lack of knowledge is understood as general knowledge on wound care and the actual treatment (Haram *et al.*, 2003a; Adderley and Thompson, 2007). Studies have found that some patients are treated incorrectly; in regard to local wound care and aspects related to hygiene (Haram and Dagfinn, 2003; Ribu *et al.*, 2003). In order to further illustrate these problems, Haram *et al.* (2003b) reported that many patients have not been diagnosed, salt solution is still used to clean wounds and compression stockings are used on all types of wounds regardless of the diagnosis. Although clinical guidelines have been formulated, the treatment of patients with leg and foot ulcers are not always in accordance with this information and standards of care (Jones *et al.*, 2007; Källman, 2008).

Therefore, regular updates in wound care are needed in order to maintain the DNs basic level of knowledge (Källman, 2008; Taverner *et al.*, 2011) and responsibility for this should be placed on the organization itself, not on its employees (Kennedy and Arundel, 1998; Gottrup, 2004; Pancorbo-Hidalgo *et al.*, 2007). It has been shown that DNs who are familiar with modern wound products and trained in wound management are able to provide adequate treatment (Graham *et al.*, 2001; Mekkes *et al.*, 2003; Buckley *et al.*, 2005; Friman *et al.*, 2011) and therefore, patients can expect to meet professional caregivers that are capable of assessing the wound and offering suitable treatment (Schultz *et al.*, 2003). Professional knowledge is made up of the three following components: *a basic scientific component* upon which the practice is grounded or developed; *the applied scientific or technical component*, which is part of many contemporary diagnostic methods and solutions; and *the skill and attitude component*, which is based on basic and applied knowledge. Thereby professional activity involves solving problems by applying scientific theories and techniques (Schön, 2003) and requires organization that makes it possible to utilize and apply concrete and visible results of academic research (Eriksson *et al.*, 1999).

Previous research has focused on DNs' level of expertise regarding wound management, mostly based on quantitative studies (e.g. Haram *et al.*, 2003a; Ribu *et al.*, 2003). Few studies have been made concerning the DNs development of knowledge in wound management. Therefore, the aim of the present study is to describe DNs' experiences of their knowledge development in wound management when treating patients with different types of wounds at healthcare centers.

Research methods

A qualitative descriptive design was chosen as appropriate for describing DNs' experiences of their knowledge development in wound management (Krippendorff, 2004). Individual qualitative interviews were conducted with a total of 16 DNs at eight healthcare centers located in various areas in the metropolitan area of Stockholm, Sweden. The method was chosen as it provides the opportunity to get rich and meaningful

information from interviews (Patton, 2002; Elo and Kyngäs, 2007). Data collection was conducted using an interview guide with topics for support (Patton, 2002). Examples of issues to be explored were development, possibilities and obstacles. The interviewer encouraged the participants to speak freely and the interviews started with a broad question: describe the types of wounds that you are familiar with and good at managing. Each interview lasted ~30 minutes and was tape recorded and then transcribed.

Context/participants

The study was conducted at eight healthcare centers in one metropolitan environment. Purposive sampling was used to try and ensure coverage of a variation (Patton, 2002). The healthcare centers were located in four different areas of the main city and included both private and public services. The healthcare centers employed both DNs and ANs. The DNs' duties included treating patients at the clinic and in patients' homes. The study included 16 DNs, of which 14 were females and two were males. Half of the participants had completed a course in wound care. Their work experience as DNs ranged from 1 to 29 years (Table 1).

Ethical issues

The study was approved by The Ethical Research Committee at Karolinska Institute, Dnr 2207/730-31. The participants were informed that anonymity would be preserved and that their involvement was completely voluntary. They were assured that they could discontinue participation at any time.

Data analysis

Qualitative content analysis was used to analyze the data because it allows analysis and description of written and verbal communication messages (Hsieh and Shannon, 2005; Elo and Kyngäs, 2007). The purpose of the analysis was to search and attain a condensed and broad description of the phenomenon, with categories describing the phenomenon (Elo and Kyngäs, 2007). Each interview script was regarded as one unit of analysis. Data analysis began with reading all data repeatedly to achieve a sense of the whole (Elo and Kyngäs, 2007). In the next step, the texts were organized by open coding. Open coding means that notes and headings are written in the text while reading it (Elo and Kyngäs, 2007). The written text was read through again, and headings were written down in the margins to describe all aspects of the content. Text with no relevance to the aim of the study was excluded (Elo and Kyngäs, 2007). In the next step, the headings were labeled as a code and were sorted into sub-categories and categories (Table 2), based on how different codes were related (Hsieh and Shannon, 2005). All data relevant to the aim of the study, has been placed under only one category.

Results

The content analysis resulted in three categories and 11 sub-categories (Table 3). The results are presented from categories and sub-categories. The findings are illuminated by quotations from the interview text. DNs' quotes are numbered according to the order of the interviews.

Table 1 Backgrounds for participating DNs ($n = 16$)

| Background variable | Number | Median | Range |
|--|--------|------------|-------------|
| Experience as RN | 16 | 24.5 years | 11–35 years |
| Experience as DN | 16 | 5.5 years | 1–29 years |
| DNs in private HCC | 6 | | |
| DNs in public HCC | 10 | | |
| Specialist training in wound care (five weeks) | 8 | | |

RN = registered nurse; DN = district nurse; HCC = healthcare center.

Primary Health Care Research & Development 2014; **15**: 386–395

Table 2 Example of the analysis process

| Code | Sub-category | Category |
|--|---|--------------------------------|
| Developing when dealing with various stages in wound healing process | Improving knowledge when dealing with the complexity of the wound healing process | Ongoing learning by experience |
| Increased knowledge when treating different types of wounds | Feelings of development when managing different types of wounds | |

Table 3 Overview of categories and sub-categories

| Category | Sub-category |
|--------------------------------|--|
| Ongoing learning by experience | Feelings of development when managing different types of wounds Improving knowledge when dealing with the complexity of the wound healing process Acquiring skills and cost-awareness while using wound dressings |
| Searching for information | Personally searching for information Exchanging information with colleagues Consulting specialists Obtaining theoretical knowledge and practical skills by companies Searching information via independent sources |
| Lacking organizational support | Facing financial obstacles Lacking time Lacking support and interest from management |

Ongoing learning by experience

Feelings of development when managing different types of wounds

The DNs experienced that their wound care knowledge developed while they treated different types of wounds. They felt that wound care was a large area that requires a high level of knowledge and regular training. Some newly qualified DNs explained that their earlier experience as nurses had been important since they had received training in wound care at that time. This provided them with a foundation on which they could improve their knowledge of wound care. The DNs expressed that they have to learn about and treat many different types of wounds, one said:

... my earlier work involved treating different types of wounds after surgery, I know how to treat these as I worked on the surgical ward ... but the types of wounds and ulcers that we may have to treat in the future...well we will just have to learn little by little...

(DN 7)

Most of the experienced DNs explained that they were more skilled in venous and arterial leg ulcer care. They explained that they had worked with these types of slow healing wounds on a regular basis, which had helped them to improve their knowledge:

usually I work with dressing changes on chronic venous leg ulcers ... these are the most common ... I think that it's really hard and you are aware that you need to learn more ... but most of my experience comes from these ... leg ulcers.

(DN 4)

The DNs pointed out that working with patients with wounds resulted in a solid clinical experience in the field, which meant they recognized certain symptoms that indicated the type of wound. The concrete treatment situation allowed them to confront the problems involved and reflect on the treatment and care of patients, which in turn improved their knowledge in wound management and caused them to develop in that area.

Primary Health Care Research & Development 2014; **15**: 386–395

Improving knowledge when dealing with the complexity of the wound healing process

The DNs felt that dealing with the complexity of the wound healing process improved their knowledge. When treating wounds the most important element was trying to establish the underlying causes, while blood circulation was another aspect related to wound healing, which required great skills. The informants explained that understanding the wound healing process was vital, as this was linked to the treatment practice. Understanding the different stages of the wound healing process helped them to strengthen their knowledge and experience and led to improvements in patient care. The DNs said that as they gradually became more experienced at wound treatment, they were able to decide at what stage of the healing process the wound is in. They made connections between their clinical practice and theory:

... one example took place during a lecture on wound care ... suddenly everything became clear as the researcher explained that cells multiply and that they migrate into the wound and float on top of each other and fill in the wound with new tissue ... then I immediately gained a better understanding...

(DN 1)

Acquiring skills and cost-awareness while using wound dressings

The DNs felt that they increased their skills while using wound dressings. They said that it was challenging to work with different types of wound dressings as many of them were similar. They gained experience by using them for a while, and then continued to use them if they were successful in wound treatment. Some informants suggested that the range of products should be reduced significantly because it was difficult to get a general view of all the available varieties:

... we try to use a few products here but I must admit I don't know all the different types and tend to stick to a couple of them ...

(DN 3)

The quality of the dressing material was important. Practical experience of working with dressings

Primary Health Care Research & Development 2014; **15**: 386–395

was used as a guide when choosing the bandages; although it was important that the dressings were easy to use, that several sizes were available, and that their effects had been documented. DNs highlighted the problem that the ANs were responsible for ordering and storing the dressings, while DNs made mutual decisions about the choice of wound dressings at regular meetings.

While using dressings, DNs experienced increased awareness of the costs. Being cost-conscious was an important factor and most of them stressed that if they were dealing with a straightforward wound then the simplest, most inexpensive type of dressing could be used. Being cost-conscious was related to public finances:

of course this is our money that we pay tax on so there are several aspects ... you have to think of the costs too since this affects the quality of care so I try to keep this in mind ... you don't always have to use the most expensive bandages ...

(DN 6)

However, some DNs said that costs were of secondary importance as the dressings were already in the storeroom and will be used anyway. They felt that someone ought to have considered this before ordering the bandages.

Searching for information

Personally searching for information

The DNs felt that their personal search for information was necessary in order to obtain current knowledge. The most common way to find current information and update their knowledge of wound management was to search for information on the internet or through other sources, such as books, nursing magazines or medical journal articles. The informants pointed out the importance of obtaining current information of wound management as this strengthens their professional role and is beneficial to patients as they are able to provide skilled care. The DNs suggested that information can be drawn from recent findings in wound care. They pointed out that treatment has improved and that wounds heal better nowadays and therefore it is important to have access to current information. One of

the DNs gave an example of compression bandages and their importance in wound healing:

... the number of venous leg ulcers has reduced since we received information that compression plays an important role in the healing process ...

(DN 13)

Exchanging information with colleagues

The DNs emphasized the importance of working independently with patients. However, when problems arose they sought help from their more experienced colleagues. They felt that exchanging information with colleagues helped when problems occurred during wound treatment.

... many patients are treated here and if I am uncertain of something I just ask a colleague and we discuss this ...we do this a lot and that is how you get information ... otherwise we work on our own most of the time... in our rooms ... but we can always ask one of our colleagues ...

(DN 2)

Consulting specialists

When the DNs felt that they or their colleagues lacked sufficient knowledge they sought support and advice from different specialists, the dermatology clinic was regarded as especially important. Although they wished to work together with the dermatologist, this was not possible, as the patient had been referred to the clinic for treatment there. Support and advice from the dermatology clinic was only possible by telephone. The DNs pointed out that consulting a dermatology clinic helped them with wound management as they could exchange experiences and information that facilitated their work with different types of problems and treatments. The DNs tended to compare their own knowledge of wound care to that of the GPs and they explained that as the GPs have so many other tasks to deal with, they did not have the time to improve their practical knowledge and experience.

... they would have to have a great deal of experience and this is impossible, I mean they can't work for 20–30 years just changing dressings on a daily basis ... they have to focus on other tasks ... I mean in principle,

I could prescribe antibiotics and order bacteria culture tests and provide the letter of referral to the specialist ... but this is how it is ...

(DN 3)

Obtaining theoretical knowledge and practical skills by companies

According to DNs training which was provided by various companies, resulted in a great deal of theoretical knowledge and practical skills. The DNs explained that a common form of education on wound care was provided through the companies that sponsored the training. Most informants explained that this was the only type of training that their employers approved of, as it was less expensive or often free of charge:

... I usually go along to most of these courses if I can... they are usually free... so I apply for them

(DN 8)

Information via companies was seen as important in facilitating the DNs work, especially regarding the different types of wound dressings. The most common way to obtain information about different wound products occurred when company representatives visited the DNs workplace to present the different materials. The nurses explained, however, that experience in wound management was necessary, as it was difficult to understand and evaluate the information. The informants were aware that the different companies were mostly interested in marketing and selling their own products and they often felt that there was a lack of objectivity regarding product information.

... yes... you have to have some experience to evaluate this... especially when it comes to those who are specialized in the products...they are very convincing and of course... they may have good products but they reject all other products on the market so you have to have a good eye for this ...

(DN 11)

Searching information via independent sources

All DNs stressed the importance of getting independent information about current wound management and wound care products since as was a shortage of this type of information.

The informants mentioned the *Swedish Wound Healing Society* and the newly established *Association for Wound Care Nurses* as good examples, since they provided independent information about wound care and new products. Some informants suggested employing a specific representative at the health centers, someone who was experienced and interested in wound care, while others suggested that health centers should share the cost and hire a lecturer to present new products based on research findings.

... I would like information from highly educated people... those who work with wound care, but who are not influenced by the companies... their information should be based on scientific research ...

(DN 12)

Lacking organizational support

Facing financial obstacles

The DNs experienced that obtaining knowledge requires organizational support and that they had poor economic opportunities in maintaining and developing their knowledge and skills within the present organizational structures. They stated that good-quality wound management requires high-quality theoretical knowledge about new methods. However, this was linked to the healthcare centers' finances. Economic obstacles made it difficult for the DNs to participate in educational courses. According to DNs, many different types of courses were available on wound care but the nurses explained that financial obstacles within the organization had restricted them in participating. One DN said:

... many courses are available but when we apply to go on them they usually just say no... saying that it costs a lot and... that there is no money ...

(DN 7)

Lacking time

The DNs felt that a lack of time was the major obstacle because of budget cutbacks. Some DNs explained that budget cutbacks had resulted in a reduction of staff and that a shortage of time was the major obstacle in getting and maintaining knowledge on wound management. DNs working

at healthcare centers with private services said that, although they had funds for education that they could use each year, no substitutes were employed to take over the workload, which meant that others had to carry this burden. This made it more difficult to participate in educational courses, one said:

... we don't get any substitutes so others have to do our job, that's the case with all the training courses... we have to take turns and help each other ...

(DN 14)

Lacking support and interest from management

The DNs felt a lack of support and interest from management. The majority of informants were disappointed in management, as there appeared to be a lack of interest in helping them to maintain and develop their professional skills. This led to feelings of frustration. They said that management should be more open minded in regard to developments within the organization. Furthermore, they stated that there were big differences between different professional categories and opportunities to improve one's skills. For example, GPs took it for granted that they have the right to participate in competence development on a regular basis, while this was not the case for the DNs, one said:

... it irritates me that I am not allowed to participate in courses ... it should be a matter of course that we update our knowledge continuously ... look at the GPs, they just take it for granted ...

(DN 9)

Discussion

The DNs in this study experienced that they were in a constant state of learning, and that their wound care knowledge developed while treating different types of wounds. Newly qualified DNs related their knowledge to earlier experiences of wound care, while those with longer experience often spoke about slow healing wounds that they treated on a regular basis, that is, venous and arterial leg ulcers that were difficult to heal. These types of slow healing wounds needed expert skills and the DNs emphasized that it was

important that they were well educated with good skills in wound care, which is in line with the recommendations provided by the Association of District Nurses in Sweden (2008). The informants felt that understanding the wound healing process was vital for the actual practice of treatment. Even previous studies have highlighted the importance of improving the skills and knowledge of DNs in wound care (Haram *et al.*, 2003a; Adderley and Thompson, 2007).

Previous studies show that nurses are uncertain when it comes to wound management and knowledge about the different types of products available (Adderley and Thompson, 2007; Dowsett, 2009). The DNs in this study said that they would prefer to work with only a limited amount of dressings and learn how to use these properly. Another aspect that emerged was related to an increase in cost-awareness while using wound dressings and how this was linked to the national economy. Some said that once the dressings had been ordered and received they just used them without thinking of the costs. The selection of dressings should be well thought-out beforehand. Therefore, a more structured management is needed when ordering dressing products, as this will ultimately reduce costs (Tennvall *et al.*, 2004).

The results show that there are many sources of information for DNs. We found that the DNs obtain and update their knowledge and skills by participating in educational courses sponsored by different companies. This was seen as important by the DNs as it improved their knowledge. However, the suitability and quality of these courses can be questioned, as they may be business oriented. Professional activity involves solving problems by applying scientific theories and techniques based on academic research (Eriksson *et al.*, 1999) and company training should be of a high academic standard. Keeping abreast of recent information and research in the field of wound management is crucial, as today's patients have increasingly complex pathologies and multiple comorbidities, which require specialized skills (Harding *et al.*, 2007). Furthermore, some patients are not provided with adequate treatment (Haram and Dagfinn, 2003; Ribu *et al.*, 2003; Haram *et al.*, 2003b). Company sources of information on a regular basis was seen as important, as this keeps nurses updated about current wound care products. However, this information places

demands on the DNs who emphasized the importance of being experienced in receiving and evaluating information as this was often perceived as being linked to business-related profits. The DNs preferred to have unbiased information. This is especially important for newly qualified DNs since they lack the experience and knowledge of modern products, which is necessary for adequate wound management and professional patient care (Schultz *et al.*, 2003).

One important finding of the present study was that DNs experienced a lack of organizational support in regard to their development of knowledge and skills in wound management. Earlier studies show that the organization itself should be responsible for providing continuing education (Kennedy and Arundel, 1998; Gottrup, 2004; Pancorbo-Hidalgo *et al.*, 2007). The results of the present study indicate that there are flaws within the organizational structures, which make it difficult for DNs to improve their wound care knowledge. The DNs explained that other occupational groups, that is, GPs, took it for granted that they would be allowed to participate in training courses, but this was not the case for them. One of the reasons for this was linked to a reduction in staff due to budget cutbacks. They also felt that management was uninterested in sending them on educational courses. They had to rely on their practical work experience and nursing magazines to gain their wound care knowledge. Not being able to improve one's skills affects the care of patients and the DNs emphasized that management must become more flexible and realize that they must have the opportunity to participate in courses as a natural part of their work. The study shows that DNs used experiential learning and not evidence-based wound care. It has been found that deeper knowledge of wound management is necessary in order to develop professional competence and improve care for patients with wounds (Schultz *et al.*, 2003; Iivanainen and Seppänen, 2005; Dowsett, 2009). The present study shows that DNs feel that it is important to have access to current knowledge and information on wound management as this is constantly changing. As Boudioni *et al.* (2007) suggests, should primary care settings become learning organizations that provide continuous learning opportunities, support cooperation and foster links between organizations and individuals.

Study limitations

In this study, the results are generated from participants via interviews and are not supposed to be generalized but rather give a deeper understanding of the subject. It might be considered that some DNs had short experience as DN but they all had extensive experience as a nurse. The participants represented a metropolitan environment and no participants from rural areas were included. It is possible that DNs working on smaller units might describe their experiences of development in wound care knowledge in different ways. In Sweden, the DNs work independently with their own patients and differences within the healthcare system may limit the transferability of the study results. Despite its limitations, the current study raises important aspects such as the impact of organization on DNs' development of knowledge in wound management.

Conclusion

The DNs experienced that they were in a constant state of learning and obtained their wound care knowledge to a great extent through practical work, from their colleagues and from the various companies. A lack of organizational support from staff management made it difficult for DNs to develop their knowledge and skills in wound management. This can lead to difficulties in deepening and strengthening their professionalism and may affect their ability to perform adequate wound management. The complexity of wound care demands expert skills and employers must take responsibility for educating the DNs, as this leads to high quality and safe care.

Further research

The DNs strive to be practitioners of professional wound care but they are hindered by organizational factors. The study indicates the need of access to current knowledge and information on wound management as this is constantly changing. Therefore, it is important to further study how to improve training in wounds and wound management for DNs.

Acknowledgements

The authors thank the DNs for participating in this study.

Primary Health Care Research & Development 2014; **15**: 386–395

Financial Support

The authors are grateful to research grants for lecturers from Karolinska Institute who funded this work.

Conflicts of Interest

The authors report no conflicts of interest.

References

- Alderley, U.** and **Thompson, C.** 2007: A study of the factors influencing how frequently district nurses re-apply compression bandaging. *Journal of Wound Care* 16, 217–21.
- Boudioni, M., McLaren, S.M., Woods, L.P.** and **Lemma, F.** 2007: Lifelong learning, its facilitators and barriers in primary care settings: a qualitative study. *Primary Health Care Research & Development* 8, 157–69.
- Buckley, K.M., Tran, B.Q., Adelson, L., Agazio, J.G.** and **Halstead, L.** 2005: The use of digital images in evaluating homecare nurses' knowledge of wound assessment. *Journal of Wound, Ostomy, and Continence Nursing* 32, 307–16.
- Cook, L.** 2011: Wound assessment: exploring competency and current practice. *British Journal of Community Nursing* 16, 80–82.
- Dowsett, C.** 2009: Use of TIME to improve community nurses' wound care knowledge and practice. *Wounds* 5, 14–20.
- Ebbeskog, B.** 2003. Elderly patients with slow-healing leg ulcers: an embodied suffering. Dissertation, Karolinska Institute, Department of Neurotec, Stockholm and Blekinge Institute of Technology, Department of Health, Science and Mathematics, Karlskrona, Sweden.
- Elo, S.** and **Kyngäs, H.** 2007: The qualitative content analysis process. *Journal of Advanced Nursing* 62, 107–15.
- Emanuelsson, A.** and **Wendt, R.** 1994: I Folkhälsans tjänst. Sju decennier med den svenska distriktsköterskan. FoU Rapport 43. Vårdförbundet. Värnamo: Fälths Tryckeri (in Swedish).
- Eriksson, K., Nordman, T.** and **Myllymäki, I.** 1999: *The Trojan horse – evidence-based caring and nursing practice from a caring science perspective.* The Institution of Nursing Science, Åbo Academy (Den trojanska hästen. Evidensbaserad vårdande och vårdarbete ur ett vårdvetenskapligt perspektiv. Institutionen för vårdvetenskap. Åbo Akademi. Helsingfors universitetscentralsjukhus. Vasa sjukvårdsdistrikt, rapport 1;1999 (in Swedish).
- Friman, A., Klang, B.** and **Ebbeskog, B.** 2010: Wound care in primary health care: district nurses' needs for co-operation and well-functioning organization. *Journal of Interprofessional Care* 24, 90–99.
- Friman, A., Klang, B.** and **Ebbeskog, B.** 2011: Wound care by district nurses at primary healthcare centres – a challenging task without authority or resources. *Scandinavian Journal of Caring Sciences* 25, 426–34.

- Gottrup, F.** 2004: Optimizing wound treatment through health care structuring and professional education. *Wound Repair Regeneration* 12, 129–33.
- Graham, I.D., Harrison, M.B., Moffat, C. and Franks, P.** 2001: Leg ulcer care: nursing attitudes and knowledge. *Canadian Nurse* 97, 19–24.
- Mekkes, J.R., Loots, M.A., Van Der Wal, A.C. and Bos, J.D.** 2003: Causes, investigation and treatment of leg ulceration. *British Journal of Dermatology* 148, 388–401.
- Haram, R.B., Ribu, E. and Rustoen, T.** 2003a: The views of district nurses on their level of knowledge about the treatment of leg and foot ulcers. *Journal of Wound, Ostomy, and Continence Nursing* 30, 25–32.
- Haram, R.B., Ribu, E. and Rustoen, T.** 2003b: An evaluation of the leg and foot ulcer treatment provided in Oslo. *Journal of Wound Care* 12, 290–94.
- Haram, R.B. and Dagfinn, N.** 2003: Errors and discrepancies: a patient perspective on leg ulcer treatment at home. *Journal of Wound Care* 12, 195–99.
- Harding, K., Gray, D., Timmons, J. and Hurd, T.** 2007: Evolution or revolution? Adapting to complexity in wound management. *International Wound Journal* 4 (Suppl 2), 1–12.
- Hsieh, H.F. and Shannon, S.E.** 2005: Three approaches to qualitative content analysis. *Qualitative Health Research* 15, 1277–88.
- Iivanainen, A. and Seppänen, S.** 2005: The meaning of specialization studies in wound management for the content of nurses' work. *Sairaanhoitaja* 78, 15–18.
- Jones, K.R., Fennie, K. and Lenihan, A.** 2007: Evidence-based management of chronic wounds. *Advances in Skin & Wound Care* 20, 591–600.
- Kennedy, C. and Arundel, D.** 1998: District nurses' knowledge and practice of wound assessment: 2. *British Journal of Nursing* 7, 481–86.
- King, B.M.** 2000: Assessing nurses' knowledge of wound management. *Journal of Wound Care* 9, 343–46.
- Krippendorff, K.** 2004: *Content analysis: an introduction to its methodology*, 2nd edition. Thousand Oaks, CA: Sage.
- Källman, U.** 2008: *Leg and foot ulcer study in primary healthcare*. (Ben- och fotsårstudie inom primärvård och kommunal hälso- och sjukvård i Sjuhärad) Sjuhärad: Vårdsamverkan ReKo (in Swedish).
- Pancorbo-Hidalgo, P.L., Garcia-Fernandez, F.P., Lopez-Medina, I.M. and Lopez-Ortega, J.** 2007: Pressure ulcer care in Spain: nurses' knowledge and clinical practice. *Journal of Advanced Nursing* 58, 327–38.
- Patton, M.Q.** 2002: *Qualitative research & evaluation methods*, 3rd edition. London: Sage.
- Ribu, E., Haram, R. and Rustoen, T.** 2003: Observations of nurses' treatment of leg and foot ulcers in community health care. *Journal of Wound, Ostomy and Continence Nursing* 30, 342–50.
- Schultz, G.S., Sibbald, R.G., Falanga, V., Ayello, E.A., Dowsett, C., Harding, K., Romanelli, M., Stacey, M.C., Teot, L. and Vanscheidt, W.** 2003: Wound bed preparation: a systematic approach to wound management. *Wound Repair Regeneration* 11 (Suppl), S1–28.
- Schön, D.** 2003: *The reflective practitioner: how professionals think in action*. Bodmin, Cornwall: MPG Books Ltd.
- Swartling, P.G.** 2006: Den svenska allmänmedicinens historia. *Läkartidningen* 13, 1950–53 (in Swedish).
- The Association of District Nurses in Sweden.** 2008: Description of competence criteria for district nurses. Retrieved 15 October 2012 from <http://www.ditriktsskoterska.se> (in Swedish).
- Van Hecke, A., Grypdonck, M., Beele, H., De Bacquer, D. and Defloor, T.** 2009: How evidence-based is venous leg ulcer care? A survey in community settings. *Journal of Advanced Nursing* 65, 337–47.
- Taverner, T., Closs, S.J. and Briggs, M.** 2011: Painful leg ulcers: community nurses' knowledge and beliefs, a feasibility study. *Primary Health Care Research & Development* 12, 379–92.
- Tennvall, G.R., Andersson, K., Bjellerup, M., Hjelmgren, J. and Oien, R.** 2004: Treatment of venous leg ulcers can be better and cheaper. Annual costs calculation based on an inquiry study. *Läkartidningen* 101, 1506–10, 1512–13.