Evidence based decisions in nursing and their effect on quality of care
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Citation for published version (APA):

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Chapter 1

General introduction and outline of the thesis
INTRODUCTION

In healthcare today, improving the quality of care has gained priority on every agenda. Alarming reports on errors, exploding costs and large variations in practice have inspired this urge for quality improvement in healthcare. From these reports it has become clear that, between the present-day and the desired quality of healthcare, there lies not just a gap, but a chasm.

This quality chasm in healthcare also exists in the Netherlands. Although in this country healthcare has excellent accessibility, it lacks transparency in terms of suitable and accurate information about quality and patient outcomes. Furthermore, the healthcare provided shows a large variation in practice. Improving the quality of care and closing the quality chasm is important not only for policymakers, regulatory authorities, educational institutions and boards of (hospital) directors, but also, and not least, for healthcare professionals and patients themselves.

There is no agreed definition of quality of care, but the most commonly used definition has been formulated by the Institute of Medicine: ‘The degree to which health services for individuals and populations increases the likelihood of desired outcomes and are consistent with current professional knowledge’.

In the late 1980s, Evidence-Based Medicine (EBM) was coined as a tool to improve the quality of healthcare among doctors. It is an iterative process to maintain professional knowledge and foster lifelong learning. EBM is defined as the conscientious, explicit, and judicious use of current best evidence in making decisions about the care of individual patients, and involves issues such as safety, effectiveness, efficiency, accessibility, and patient centeredness. After its launch, the EBM-paradigm has spread all over the world, and authorities and health services have adopted EBM to improve the quality of care. Nowadays, improving clinical practices, introducing novel practices, and minimizing practice variation are increasingly being based on best available evidence from the scientific literature. Other healthcare disciplines, like nursing, have also adopted this paradigm in their decision-making regarding patient care. This has led to the more general term Evidence-Based Practice (EBP).

Building a body of state-of-the-art and relevant knowledge is an essential pillar for bridging the quality chasm and making evidence-based decisions possible. Conducting research generates new knowledge, and EBP promotes the integration of this knowledge into practice.

It should be noted that doctors and nurses cannot keep abreast of all newly published research evidence. Therefore, aggregated evidence in the form of evidence-based clinical guidelines can be helpful to allow novel insights to be quickly appreciated and also to improve the process, the structure, and thereby the quality of care. However, evidence-based improvements in the level of patient-related outcomes are rarely investigated and seem to be relatively small. Even when clinical guidelines have been implemented
in practice, 30-50% of patients still do not receive care at the latest standards.\textsuperscript{4,15} This non-adherence to guidelines may lead to unnecessary diagnostics, suboptimal treatment, or even adverse events.\textsuperscript{16,17} Thus, the implementation of guidelines remains a challenge for healthcare professionals responsible for improving the quality of clinical care.\textsuperscript{18}

This thesis is a compilation of efforts to contribute to the body of knowledge in nursing care, to promote evidence-based decision-making and to overcome the challenges in the implementation process. For this purpose, we have collected and investigated evidence for various (novel) clinical practices and routine practices (‘sacred cows’) in nursing and their effect on the quality of care. Although the focus is mainly on nursing care, all the topics investigated have multidisciplinary aspects.

**OUTLINE OF THE THESIS**

This thesis describes in two parts the underpinning of evidence-based decisions in nursing and their effect on the quality of care. **Part 1** describes four different studies on decisions on nursing practices at the emergency department, the out-patient department, and the in-patient hospital care setting. These practices are either novel practices for which evidence is lacking or unclear, or routine clinical practices of which the effectiveness is questioned. **Part 2** then describes the effects of each of these evidence-based decisions on the quality of care. If novel practices are implemented, it is imperative that their effects on the quality of care are investigated in order to weigh their pros and cons. If routine practices have to be changed, it is necessary to understand the difficulties in establishing long-term adherence to the change. Furthermore, understanding the process of disseminating the novel evidence and creating awareness of this evidence among all doctors and nurses can help patients receive the appropriate care.

**PART 1: EVIDENCE-BASED DECISIONS IN NURSING**

**Novel practices**

The first example of a novel practice was the implementation of one of the formally structured triage systems (that is, the Manchester Triage System (MTS) or the Emergency Severity Index (ESI)) at the Emergency Department (ED). To make an evidence-based decision as to which system should be used, the validity and the inter- and intra-observer agreement for both triage systems is investigated. **Chapter 2** deals with a prospective observational comparative study, in which the percentages of undertriage are determined and compared, and the validity of the two systems (MTS and ESI) and the current local informally structured triage system (ISS), and their relation to resource use, hospital admission, and length of stay, are studied. In **Chapter 3**, the inter- and intra-observer agreement of the MTS and the ESI is compared using paper-based clinical scenarios. The
studies were set up to help decide which triage tool to use, and to enlarge the body of knowledge as to validity and agreement.

The second example of a novel practice was the initiation of a nurse-led structured behavioral smoking cessation program, the Minimal Intervention Strategy (MIS), in cardiovascular out-patients. In Chapter 4, the effectiveness of this program combined with nicotine replacement therapy (NRT), as compared with NRT alone, at the cardiovascular out-patient clinics is described. The outcome of this study should help in the process of deciding whether or not to implement the MIS in daily nursing practice in cardiovascular out-patient clinics.

Routine clinical procedures
In medical and surgical hospitalized patients, numerous routine measurements of vital signs, with uncertain effectiveness, are performed. Therefore a systematic review is conducted, as described in Chapter 5, and the clinical relevance of routinely measured vital signs is determined.

Another widely used routine procedure is the use of silver sulfadiazine in burn patients to prevent wound infection and to promote wound healing. However, robust evidence is lacking for many of the outcomes. Hence, in Chapter 6, we describe a Cochrane systematic review on the effects of silver-containing dressings and topical agents for the prevention of wound infection and the promotion of wound healing in uninfected wounds.

The results of both studies are helpful in gaining insight into the value of routine procedures in supporting daily care and clinical decision-making.

PART 2: EFFECT OF EVIDENCE-BASED DECISIONS ON THE QUALITY OF CARE

Effect of decisions on patient care
Based on the results described in Chapters 2 and 3, the MTS was implemented at our ED. Chapter 7 deals with a prospective observational before and after study, in which the effects of the implementation of MTS on waiting times, length of stay and patient satisfaction were determined.

Smoking cessation is an important factor in reducing cardiovascular mortality. The “number needed to treat” (NNT), commonly used to quantify an intervention effect, does not reflect the total effort necessary to identify all patients who could potentially be treated. One of the components in determining the usefulness, relevance and efficiency of screening programs can be expressed by calculating the “number needed to screen” (NNS). Therefore, in Chapter 8 the efficiency of the MIS is studied, and the NNT and NNS are determined, based on the prospectively sampled data from the study described in Chapter 4.
Challenges to change routine care

Two challenges in the implementation process for changes in routine care are described in the last two chapters.

High short-term guideline adherence rates were achieved in decreasing unnecessary routine post-operative body temperature measurements,\textsuperscript{20,21} but regression to old habits is a common human flaw.\textsuperscript{22,23} Hence, the first challenge is to achieve long-term adherence. \textbf{Chapter 9} describes a study in which a mixed-methods analysis was used to determine if adherence was persistent over time and which facilitators and barriers affected long-term adherence.

The second challenge is how to achieve awareness among doctors and nurses of novel research evidence, particularly when this evidence is more and more available in aggregated form in systematic reviews and clinical guidelines. Based on the results of Chapter 6, \textbf{Chapter 10} describes a cross-sectional study investigating the awareness and use of evidence by different stakeholders in wound care in their choice of wound dressings.

Finally, \textbf{Chapter 11} discusses the study results on the body of novel knowledge and its effect on quality of care.
REFERENCES


