CHRISTEL BAHTSEVANI
IN SEARCH OF EVIDENCE-BASED PRACTICES
Exploring factors influencing evidence-based practice and implementation of clinical practice guidelines
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Exploring factors influencing evidence-based practice and implementation of clinical practice guidelines

Malmö University, 2008
Faculty of Health and Society
To all of you who,
prefer change to stagnation,
influence to simple acceptance,
and critical thinking to assure professional development.
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Within the evidence-based movement means are developed to support the practitioner in becoming a research consumer with knowledge and skills to create an evidence-based practice (EBP). But little is actually known about whether, and how, this evidence-based accumulation of knowledge is used by practitioners and in what way any actual use leads to improved outcomes. Clinical practice guidelines (CPGs) are described to provide means to keep up with scientific development and may serve as an interface between science and practice. Implementation of evidence and guidelines in daily care are very complex and knowledge about the best way to implement evidence to facilitate best practices is still limited. The overall aim of this thesis was to explore factors that influence an evidence-based clinical practice, and more specifically, to investigate outcomes of an evidence-based practice, the dissemination and awareness of evidence-based literature, and to describe factors of importance when implementing CPGs. A systematic review was conducted to identify outcomes, and different experimental designs have been used for the purpose of describing awareness and dissemination of evidence-based literature as well as experience of the implementation of CPGs. Furthermore, a test-retest was conducted to test the reliability of items constructed from factors drawn from The Promoting Action on Research Implementation in Health Services (PARIHS) framework.

The findings of the systematic review showed that it is difficult to prove effects of an EBP and the studies that managed this had implemented evidence-based CPGs. Although improvements in outcomes were reported for patients, personnel and the organisation, the synthesis showed a weak scientific foundation for the overall result since the studies included were heterogeneous in their designs. In a questionnaire study, in the area of psychiatric nursing with a pre-
post design in relation to published evidence-based nursing reports, some differences were detected over time. But still 39.5% of the sample reported no access to evidence-based literature one year after the publication of the two evidence-based nursing reports, and few of the respondents who had access to evidence-based literature reported any use of it. In the test-retest items of factors such as clinical experience, patients experience, leadership, context, culture, evaluation and facilitation was included. The findings of the test-retest showed that the reliability varied from good to fair agreement regarding the Kappa values, with a predominance of moderate agreement. The interview study, with an interpretive qualitative design, revealed several factors that appeared to be of importance for the implementation CPGs. The factors seemed to form a base consisting of circumstances, conditions and requirements. These have a relation to components that constitute a process, thus illustrating that implementing CPGs are continuous processes of creating reliable and tenable routines which involve all staff members and are expected to lead to better and safer care of patients and increase knowledge and confidence among the staff.

In conclusion, it is complicated, but not impossible, to demonstrate the outcomes of an EBP. To implement evidence-based CPGs is one way to make an evidence-based care visible. But more research is needed to strengthen the scientific foundation and to establish whether the tendency towards improved outcomes reported can be further supported. To implement CPGs is described as processes of bringing about a certain level of best practice that benefits patients as well as the staff. There are several factors influencing the process in relation to both positive and negative aspects and depending on which aspects will rise in the foreground the processes are visible or concealed, move forward or stagnate, promote or impede a successful implementation.
ORIGINAL PAPERS I – IV

This thesis is based on the following papers referred to in the text by their Roman numerals:


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# ABBREVIATIONS

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Full Form</th>
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<tr>
<td>CPGs</td>
<td>Clinical Practice Guidelines</td>
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<tr>
<td>EBCP</td>
<td>Evidence-Based Clinical Practice</td>
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<td>EBHC</td>
<td>Evidence-Based Health Care</td>
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<td>EBM</td>
<td>Evidence-Based Medicine</td>
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<td>EBP</td>
<td>Evidence-Based Practice</td>
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<td>NBHW</td>
<td>The National Board of Health and Welfare</td>
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<td>PARIHS</td>
<td>Promoting Action on Research Implementation in Health Services</td>
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<tr>
<td>SALAR</td>
<td>The Swedish Association of Local Authorities and Regions</td>
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<tr>
<td>SBU</td>
<td>The Swedish Council on Technology Assessment in Health Care (Swedish acronym)</td>
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DEFINITIONS OF TERMS

Clinical Practice Guideline(s):
“Systematically developed statements to assist practitioners and patients in choosing appropriate health care for specific clinical conditions.” (Lohr & Field, 1992, p 346)

Evidence-Based:
Based on research that is systematically searched, critically appraised and considerations are made upon the strength of evidence.

Evidence-Based Clinical Practice Guideline(s):
A clinical practice guideline based on research that is systematically searched, critically appraised and includes the level of evidence in the recommendations made.
INTRODUCTION

A vast number of decisions are demanded in the field of day-to-day clinical practice, which all has consequences for patients and staff, as well as the organization in terms of the resources used and the outcomes reached. It seems obvious that these decisions on care and treatment should be based on findings from research whenever possible. These matters were called upon by the evidence-based movement which was initiated and gained interest world-wide during the nineteen-nineties. Practitioners’ need for tools to provide an evidence-based practice (EBP) raised questions about the usefulness of evidence-based sources and factors influencing EBP, questions which became the point of departure for conducting this thesis. This research area – implementation research – is fraught with difficulties when measuring outcomes. This is perhaps to a great extent due to the complexity of the empirical field concerning implementation and changes of practice, and the many factors involved. Even if there is a wealth of research done regarding this area, questions concerning these factors still remain to be investigated, particularly regarding Swedish conditions.

Factors that influence an evidence-based practice have to be explored in a perspective wide enough to encompass the complexity that exists in practice. Consequently the empirical studies underpinning this thesis encompass all health professions that have relevance to the question at issue in each study, assuming that knowledge about these matters will be valuable for all health professionals striving to provide an EBP.
BACKGROUND

Never before have so many advanced methods for the diagnosis and treatment of diseases and health problems been available, and the findings in medical and healthcare research are continually increasing. If practitioners are supposed to provide a safe and secure care based on these research findings they must possess a positive attitude towards scientific knowledge and be able to transform the findings into everyday actions in clinical practice. This can be a rather confusing act due to the immense, ever-growing pile of research literature that in addition sometimes gives contradictory statements.

The concept of evidence-based medicine (EBM) has been introduced to emphasize that the actions taken in healthcare are based on scientific knowledge within the bounds of possibility (Willman & Stoltz, 2002). Within the evidence-based movement means are developed to support the practitioner in becoming a research consumer with knowledge and skills to create an EBP. This global progress has yielded the development of research and educational centres, as well as a growing base of knowledge constituted accrued by systematic reviews. However, Gray (1997) draws attention to the fact that there is no assurance that potential benefits identified in research will be realised in practice, because outcome is also determined by the quality of management. From this we can argue that it might take more than knowledge of research findings to apply these in clinical practice. Strategies to disseminate and implement the evidence-based sources of knowledge are also of importance. Gray (1997) further highlights that decisions in healthcare are made by combining evidence, values and resources, and that both evidence-based healthcare and quality management are essential practices to ensure maximum health benefit at the lowest possible risk and cost from the resources available. The outcomes of an EBP are, of course, not easy to measure, and any attempt to do this has to deal
with problems concerning different ways of defining the concept “evidence-based”, as well as the complexity of factors that exist in clinical practice which promote, or obstruct, the use of this evidence.

The following sections present an overall picture concerning EBP, implementation and changes in clinical practice, as well as clinical practice guidelines (CPGs), including common definitions and standpoints for this thesis.

Evidence-based practice
The term evidence-based has been on the healthcare agenda since the beginning of the 1990s, and was consolidated and named EBM by a group led by Gordon Guyatt at McMaster University in Canada (Sackett, et al., 2000). EBM was described as a new paradigm for medical practice which stressed the examination of evidence from clinical research to strengthen the grounds for clinical decision making (EBM Working Group, 1992).

EBM is defined as “the conscientious, explicit, and judicious use of current best evidence in making decisions about the care of individual patients” (Sackett, et al., 1996, p 71). The idea behind this concept has its origin in Archie Cochrane’s legacy concerning effectiveness and efficiency in healthcare (Hill, 2000). Cochrane emphasized that medical interventions are effective if it is demonstrated, preferably by randomized controlled trials, that the interventions do more good than harm, and that the efficiency of a healthcare system is demonstrated by the way the system uses available resources to maximize the delivery of effective interventions (Cochrane, 1972). During the 1970s Cochrane’s theme of effectiveness was taken up in Canada by David Sackett at McMaster University, and during the 1980s Iain Chalmers at the University of Oxford, UK, created a database of RCTs. Contacts between these two scholars finally formed the Cochrane Collaboration (Hill, 2000), which today is spread globally, promoting the evidence-based movement. Another firm promotion of EBM is the fruitful collaboration between researchers that resulted in an often cited textbook “Evidence-Based Medicine, How to Practice and Teach EBM” (Sackett, et al., 1997; Sackett, et al., 2000; Straus, et al., 2005). In these different editions one can follow a development over time in clarifying the definition of EBM, although the meaning seems the same. In the third edition it is stated that “EBM requires the integration of the best research evidence with our clinical expertise and our patient’s unique values and circumstances” (Straus, et al., 2005, p 1). This definition indicates that EBM involves
critical reasoning, integrating different sources of knowledge when decisions on actions in clinical situations are taken concerning patients’ wellbeing and health. However, when adding the descriptions of how to practice EBM it becomes clear that research is the source of knowledge that is taken as evidence, and which the practitioner must take into account and critically appraise. How to practice EBM is described in a process comprising the following; (1) converting the need for information into an answerable question; (2) finding the best research evidence with which to answer the question; (3) critical appraisal of that evidence for its validity, impact and applicability; (4) integration of the appraisal with clinical expertise and with the patient’s unique biology, values and circumstances; (5) evaluating the effectiveness and efficiency in executing the former four steps and seeking ways to improve them in coming events (Straus, et al., 2005). Thus EBM is a process of producing the research-based source of knowledge, but also a process of integrating this source in the decision-making for each individual patient encounter.

Gray (1997) uses the term evidence-based clinical practice (EBCP) as a more generic term than EBM, but describes the two terms as comparable with the same meaning. The term evidence-based healthcare (EBHC) consists of producing evidence, making the evidence available through information systems, and then using the evidence, either to improve clinical practice or to improve health service management. EBHC is described as a discipline centred upon evidence-based decision making about individual patients, groups of patients or populations, which may be manifest as evidence-based purchasing or evidence-based management. EBHC enables those managing health services to determine the mix of services and procedures that will give the greatest benefit to the population served. This way of describing an evidence-based approach in healthcare also indicates the involvement of critical reasoning in decision making, but seems to embrace processes that transcend the individual patient situation and incorporate management of healthcare in general.

The principal of EBM was relatively quickly transmitted to many healthcare professionals other than physicians, such as nurses, physical therapists, etc. Thus the terms EBHC or EBP become appropriate to cover the full range of clinical applications of the evidence-based approach to patient care (Closs & Cheater, 1999; Guyatt, 2002). The term EBP seems to be more commonly used probably because it encompasses all kinds of health professionals (cf. Upton, 1999; Jette, et al., 2003; Gosling & Westbrook, 2004; O’Donnell, 2004,
Stevenson, et al., 2004; Upton & Upton, 2006a). Today there also exist multiplicities of evidence-based approaches named according to the area involved such as evidence-based nursing, evidence-based mental healthcare, etc. Whatever term is used they all seem to have the same foundation, namely, of being inspired by Sackett and colleagues’ definitions (1996; 2000). It is proposed, in a consensus statement of an international working group, that the concept of EBM is broadened to EBP to reflect the benefits to healthcare teams and organisations when an evidence-based approach is used (Dawes, et al., 2003). It is further clarified that EBP requires decisions about healthcare that are based on the best available, current, valid and relevant evidence. These decisions should be made by those receiving care, informed by the tacit and explicit knowledge of those providing care, within the context of available resources (ibid). This definition focuses on the patients’ right to make an informed decision together with and guided by the health professionals involved.

The standpoint of this thesis is based on the perspective of EBP, defined as the integration of the best available research evidence with the clinical expertise, the patient’s unique values and expectations, together with the circumstances in the clinical setting. The term integration assumes that it is a process involved in clinical decision making. The best available research evidence dictates that the practitioner should be aware of and have access to the best available findings from research (or know how to find them), and use this as a foundation in the decision making. However, in order to make the most appropriate decision in the particular situation for the patient it is neither sufficient, nor possible, to base the decision solely on evidence from research. The patient’s unique values, expectations and actual clinical state, as well as the circumstances in the clinical setting, will also be of great importance. Therefore the clinical expertise is seen as essential in the process to guide the decision making, with the practitioner’s ability to use clinical skills and past experience to rapidly identify each patient’s unique situation, as well as to integrate this with the best research evidence and the circumstances of the clinical setting. Nevertheless, if an EBP is to be explored, the “evidence-base” has to be detectable in ways that make it possible to connect it to the outcomes of its use. Otherwise the existence of improved outcomes can not be proven.

Concerns and criticism of the evidence-based movement
The criticisms raised against the evidence-based movement are similar from different disciplines. Common arguments are that EBP is nothing new, that
there is a danger of misuse from purchasers and managers to cut costs and suppress clinical freedom, that it is a form of “cookbook” practice that can only be conducted from ivory towers, and that it over-emphasises randomized controlled trials and systematic reviews. Much of the criticism has been seen as misconceptions of the fundamentals of EBP. This criticism was met by introducing more details on the interpretation of evidence, clarifications of the hierarchy of evidence, and reasoning about the right research design to answer the question posed (Sackett, et al., 1996; DiCenso, et al., 1998; Closs & Cheater, 1999; Jennings & Loan, 2001; Banta, 2003; DiCenso, et al., 2005).

Within the nursing area the debate about EBP has yielded many scholarly discussions, particularly regarding the questions about what can be counted as evidence (Mulhall, 1998; Closs & Cheater, 1999; McKenna, et al., 2000; Fawcett, et al., 2001), and its relationship to the areas of research utilization and quality assurance (Estabrooks, 1998; French, 1999; French, 2002; Stetler, 2004). The debate concerned the upgrading of other sources of knowledge to evidence, such as clinical experience, experiences of the patients, and local data from the context (Rycroft-Malone, et al., 2004b). Also standards of practice, codes of ethics, philosophies of nursing, autobiographical stories, aesthetic criticism and work of art are suggested as evidence (Fawcett, et al., 2001). This reasoning is coherent with Carper’s (1978) identification of fundamental patterns of knowledge in nursing; (1) empirics – the science; (2) aesthetics – the art; (3) personal knowledge – the subjective, concrete and existential knowledge of oneself as a professional in personal encounters; (4) ethics – the moral component. These patterns, although identified some time ago, still seem relevant and applicable because of their generality. None of these areas of knowledge are inconsistent with EBP in the light of defining the term as a foundation for clinical decision-making, integrating the best research evidence with clinical expertise and patient values (Dicenso, et al., 2005). However, how these other sources of knowledge can be taken as evidence is still not clarified. This remains as a question on the nursing research agenda, which also Kitson (2004) points out. Rolfe and Gardner (2006) stress that the literature on EBP shows that there is no straight line that can be drawn from early definitions to later definitions, rather, the definitions exist side by side in the current literature. This may well encourage the argument that almost anything goes within EBP, which in turn can threaten the picture of EBP as leading to a uniform, dependable, and patient-centred health service. To counter this it seems important to stress Kitson’s (2002) argument that evidence, which
seems to be the crucial point of disagreement, needs to be understood from a plurality of disciplines, applied at a specific point of time within a cultural context.

Evidence-based practice versus research utilization
The relationship between EBP and research utilization has attracted some attention in the area of nursing. This is probably due to the fact that research utilization initiatives in nursing started as early as in the 1970s, growing on its own premises and emphasizing a closure of the gap between research and practice (Stetler, 2004). Research utilization was identified as a dimension of EBP by Estabrooks (1998) that positioned EBP as a broader concept due its encompassing forms of knowledge other than only research. Research utilization was broadly defined as the use of research findings in any and all aspects of one’s work. Also Swedish researchers define EBP as broader than research utilization (Nilsson-Kajermo, 2004), and regard research utilization as a subset of EBP (Wallin, 2003), or as a part of EBP (Boström, 2007). Berggren (2003) opines that the distinctions between EBP and research utilization depend on the way these concepts are defined and account for two relationships. EBP can either be regarded as a superior concept to research utilization (when the definition encompasses also sources of knowledge other than research), or EBP can be regarded as a subordinate concept to research utilization (when the definition encompasses only findings from randomized controlled trials). Maybe the distinctions made between the concepts of EBP and research utilization all come down to the different points of departure of the concepts. EBP has its roots within the medical epidemiological perspective, and research utilization has its departure within nursing and the area of quality assurance. Since they both clearly embrace the use of research findings for the benefit of patients, practitioners and healthcare organizations, they do seem to have things in common. But they also appear to focus on the use of research and the decision-making process from different angles, which certainly contributes to these concepts being perceived as separate but comparable. This thesis is in the perspective of EBP because of its focus on sources of evidence-based knowledge, the dissemination and implementation of these sources.

Swedish perspectives
In Sweden it is in particular The Swedish Council on Technology Assessment in Health Care (best known by its Swedish acronym SBU) that has spread knowledge about EBP. SBU has published several reports that provide the sci-
entific foundation of a great number of methods used within Swedish healthcare. The groups targeted for the reports are professional caregivers, healthcare administrators, planners, health policy makers and patients. The findings of SBU are reported nation-wide, and SBU has an extensive network of collaborators in Sweden, such as The National Board of Health and Welfare (NBHW), the Medical Products Agency, and the Pharmaceutical Benefits Board. SBU is a public authority but it does not have the authority to impose the recommendations included in the SBU reports on healthcare staff. The authority to impose actions taken within healthcare in Sweden lies within the authority of NBHW, a government agency under the Ministry of Health and Social Affairs. The Board sets goals and outlines norms by issuing provisions, guidelines and general advice. But little is actually known about whether, and how, this evidence-based accumulation of knowledge provided by SBU and NBHW is used by the practitioners and in what way any actual use leads to improved outcomes.

**Implementation and changes in clinical practice**

Many approaches exist regarding changes in clinical practice and the implementation of evidence and guidelines, and the literature in this area of research is huge and still growing. Already in the year 1993 it was reported that guidelines do improve clinical practice when introduced in a context of rigorous evaluation. However, the extent of the improvements varied considerably, depending on the clinical context and methods of developing, disseminating, and implementing the guidelines (Grimshaw & Russel, 1993). Implementation of evidence and guidelines in daily care are very complex, which implies that this field demands specific scientific research on methods for effective implementation. Knowledge about the best way to implement evidence to facilitate best practices is still limited (Grol, 2000a). Factors shown to play a role for this implementation are knowledge, attitudes and routines of the individual care provider. Factors relating to the social context may be absence of guidelines as well as lack of support from management and forms of evaluation of performance. Factors relating to the organisational context are high workload, lack of adequate equipment and financial arrangements (Grol, 1997; Grol, 2000b).

Interventions that are consistently effective in promoting behavioural change among practitioners are educational outreach visits, reminders, multifaceted intervention, and interactive educational meetings (Bero, et al., 1998). Similar findings were reported in a systematic review published later. The majority of
interventions showed some effect although there were considerable variations both within and across interventions (Grimshaw, et al., 2004). It is essential that there are routine mechanisms by which individual and organisational change can occur. But any attempt to bring about change should involve an analysis to identify factors likely to influence the proposed change, and the choice of implementation interventions should be guided by this analysis (Effective Health Care, 1999).

Key factors of the implementation process that have been identified are ownership of quality and action to improve (Harvey & Kitson, 1996). Ownership is important in promoting an EBP, but not sufficient. There is also a need for support structures such as attendance of experts, audit and information (Gerrish, et al., 1999). Lessons learned show the necessity of tailoring actions to local needs, reinforcing them periodically to keep staff motivated, and making them consumer-friendly (Titler, et al., 1999). Le May and colleagues (1998) show that practitioners and managers have differing perceptions regarding the nature of research, and the opportunities and constraints which affect its dissemination and utilization. It is reported that nurses rely most heavily on experimental knowledge gained through interactions with colleagues and patients. Information in the form of policies and audit reports is drawn upon more frequently than research reports. Lack of time, resources and perceived authority to change a practice influence the extent to which nurses utilize formal sources of evidence (Gerrish & Clayton, 2004). In summary, both facilitating factors and barriers are reported in research within different settings. However, the findings are not always straight-forward, and show a somewhat contradictory picture in that although attention is given to the identification of barriers and the strengthening of facilitating factors, health professionals still seem to turn rather to clinical experience and expert colleagues, than utilize evidence-based sources.

According to Grol and Grimshaw (2003) there is no intervention that is superior in promoting change in all settings and most intervention studied has some effects. There seems to be more evidence concerning interventions aiming at health-professionals and less of those focusing on organisations or patients. In an extensive systematic review Greenhalgh and colleagues (2004) report that an early involvement of staff at all levels together with top management support and advocacy of the implementation process, enhance the success of implementation. A successful implementation depends on the motiva-
tion, capacity and competence of individual practitioners. Structures and processes that support devolved decision-making will enhance the success of the implementation and chances of sustainability, as well as effective communication across internal structural boundaries within the organization. Further research into the process of dissemination, implementation and routinisation should be theory- as well as process driven, rather than “package” oriented (ibid). Thus, there is still need for more research especially with its focus on patient- and organization outcomes, and preferably in a theoretical perspective that elucidates processes to provide successful implementation and sustainable changes in clinical practice.

Theoretical perspectives
A variety of theoretical perspectives within the area of implementation research exist, often spread across disciplinary boundaries (Estabrooks, et al., 2006). A widely used theory is Rogers (2003) “Diffusion of innovations”, which was developed in the early 1950s in the research field of rural sociology. In this theory “diffusion is the process by which an innovation is communicated through certain channels over time among the members of a social system” (Rogers, 2003, p 36). The main elements are innovation, communication channels, time and social system. An innovation is an idea, practice or object perceived as new by an individual or other presumptive adopter unit. The characteristics of the innovation determine its rate of adoption. Communication channels are the means by which messages get from one individual to another. Time is involved in the diffusion regarding the innovation-decision process, innovativeness, and in the innovation’s rate of adoption. The innovation-decision process is when the individual (or other decision-making unit) passes from knowledge of the innovation to forming an attitude towards the innovation, to adopt or reject, to implement and to confirm the decision. A social system is a set of interrelated units that are engaged in joint problem solving to accomplish a common goal. A system has structure which facilitates or impedes the diffusion of innovation in the system (Rogers, 2003). Roger’s diffusion-of-innovations theory has been widely tested in different disciplines (sociology, anthropology, education, public health, communication, marketing and management, geography), and seems to give tenable explanations regarding the perspectives of the individual as well as the organizational perspective. The main elements such as communication, time and social system are relatively typical for the period at which the developments were made, and these concepts can also be found in other theoretical frameworks useful in health-
care and caring science (cf. King, 1981). This implies that the construction of these elements today appears to be fairly traditional, which might have influenced the direction of research that focused on barriers in connection with each concept.

Today it seems important to focus on the facilitating factors of implementation, and to the existing complexity regarding the context of healthcare systems. The Promoting Action on Research Implementation in Health Services (PARIHS) framework demonstrates the complexity that exists when evidence is implemented in clinical practice (Kitson, et al., 1998; Rycroft-Malone, et al., 2002; Rycroft-Malone, 2004; Rycroft-Malone, et al., 2004a). The PARIHS framework is generated from research and experience of quality assurance developments in clinical practice, and incorporates knowledge of evidence and EBP. The framework reveals that successful implementation is related to a dynamic, contemporary relationship between the three elements, namely, evidence, context and facilitation. Successful implementation is facilitated by robust scientific evidence that agrees with professional consensus and the experience of patients. In addition, the context should be constituted by receptiveness to changes in a culture that has a sympathetic attitude and a strong leadership. The use of relevant and appropriate evaluation forms and feedback are also of importance, and finally, change should be guided by skilled external and internal facilitators. Each element of the framework consists of a number of factors, which are described by means of statements that illuminate their characteristics and can be rated as either high or low. Successful implementation is considered more likely when all factors are at the high end of the continuum. Evidence comprises the factors: research, clinical experience, patient experience and local data/information (Rycroft-Malone, et al., 2004b). Context is illuminated by the factors: context, culture, leadership and evaluation (McGormack, et al., 2002). Facilitation is characterised by purpose, role, skill and attributes (Harvey, et al., 2002). The PARIHS framework still requires validations, although some isolated testing and utilisation of the model have been undertaken, which to some extent validates the element of context (Wallin, et al., 2006), and illustrate the frameworks face validity as a guide to improve practice (Brown & McCormack, 2005). Since earlier research points to the importance of giving attention to the complexity concerning the context when implementing changes it seems reasonable to examine more closely a framework that takes this into consideration.
Clinical practice guidelines as tools for changes

Clinical practice guidelines (CPGs) are defined as “systematically developed statements to assist practitioners and patients in choosing appropriate healthcare for specific clinical conditions” (Lohr & Field, 1992, p 346). They are described to provide means to keep up with scientific development and may serve as an interface between science and practice, thereby supporting the movement towards an EBP (Klazinga, 1994). CPGs have increasingly become a familiar part of clinical practice (Woolf, et al., 1999), and are reported to play an important role in the clinical effectiveness agenda (Cheater & Closs, 1997; Feder, et al., 1999). However, CPGs reflect existing values in relation to the effects on health and economy, and thereby require critical appraisal in terms of how they address matters of opinion as well as matters of science (Hayward, et al., 1995). Even when recommendations of guidelines are properly linked to evidence the application of those recommendations in individual care is always likely to require judgement (Hurwitz, 1999). CPGs do not set legal standards in clinical care, but, they provide a benchmark by which to judge clinical conduct (Hurwitz, 2004). CPGs are developed by many various organisations, from governmental agencies, to private entities, as well as medical speciality organizations (Cohen, 2004).

The development of valid and usable guidelines requires sufficient resources in terms of people with a wide range of skills, a systematic review of evidence, and a multidisciplinary group to translate the evidence into a guideline (Shekelle, et al., 1999). It is not likely that individual healthcare organizations have resources and skills to develop valid guidelines on their own. Instead they have the option to identify previously developed rigorous guidelines and adapt these for local use (Feder, et al., 1999). Concerns are raised regarding the fact that many CPGs are based on consensus and non-systematic literature reviews (van Rijswijk, 1999). It is also shown, in a systematic review evaluating effectiveness of guidelines in nursing, midwifery and therapies, that it is generally impossible to tell whether the guidelines evaluated are based on evidence (Thomas, et al., 1999). High-quality CPGs are produced in particular within established guideline programmes and by government-funded agencies (Burgers, et al., 2003). Although Shekelle and colleagues (2001) reported that of 17 CPGs, developed by the US Agency for Healthcare Research and Quality between 1990 and 1996, more than three quarters needed updating.
Even though in general practitioners are positive to guidelines this does not guarantee their successful use (Hayward, et al., 1997; Lia-Hoagberg, et al., 1999). Compliance with CPGs is influenced by whether they are evidence-based, reflect current standards, reduce complexity in decision making or require few new skills or organisational changes to follow them (Grol, et al., 1998; Grol & Grimshaw, 2003). Reported barriers to physicians’ adherence to CPGs are lack of awareness and motivation, patients’ inability and preferences, guideline characteristics, presence of contradictory guidelines, and lack of time and resources, and organizational constraints (Cabana, et al., 1999; Cabana & Kim, 2003). Impediments to the use of guidelines reported in public health nursing are lack of time, complex guideline structure and competing agency demands and priorities (Lia-Hoagberg, et al., 1999). Global calls to assure evidence-based practices exist, but the outcomes of such are still to be clarified and scientifically proven. Research shows that changes made in clinical practice and implementation of CPGs do have effects, although the effects vary in relation to the setting and the implementation strategies chosen. In most of this research it has not been clarified if the guidelines are evidence-based. Thus questions remain as to whether an EBP improves outcomes, and whether the CPGs in use are evidence-based.

Clinical practice guidelines in Sweden

In Sweden the most common types of guidelines are symptom-, disease-, and technology-oriented, and another term often used is “Medical Care Programmes” (Garpenby & Larsson, 1999; Garpenby, et al., 2003). Since 1996 the NBHW has produced national guidelines that are based on science and/or reliable experience (consensus of experts) within healthcare. If possible the guidelines are based on findings from SBU reports. In addition, guidelines are also developed and published by regional health authorities, professional specialist associations, and locally by hospital managements, clinical departments or other health organizations. The Swedish Association of Local Authorities and Regions (SALAR), publishes a manual for healthcare (SALAR, 2007). The manual is primarily directed to nursing care staff within hospitals and primary healthcare and staff active in home nursing. Its contents cover mainly care concerning adult patients, and are based on science where possible. The manual comprises general instructions and guidelines, current regulations, and published standards of relevance (Manual for Healthcare, 2007).
Swedish research regarding clinical guidelines and implementation

There are few examples of Swedish research giving attention to CPGs. It has been shown in the context of psychiatric care that the practitioners in general supported the idea that management of care was promoted by guidelines, and that use of a medical care programme resulted in a clarification of the scientific foundation of the practice. There seems to be a relation between the perception of the programme and professional belonging, as well as in what type of knowledge one bases the exercise of work on (Garpenby & Larsson, 1999; Garpenby, et al., 2003). Lindberg and colleagues (2005) report that primary healthcare staff refer to several guidelines covering the same disease, that CPGs (covering the same subject) were drawn up at different levels, and the old version of a guideline was used in spite of the existence of an updated version. It was shown that nurses’ adherence to guidelines regarding management of peripheral catheterization varies (Eiman Johansson, et al., 2007). A national survey of standardized nursing care plans revealed that only 4% (34 of 782) could be classified as a standardized nursing care plan including a literature review, but none of them fulfilled any criteria of being evidence-based (Socialstyrelsen, 2006). Thus, there is a need for more research that can further describe the actual use of CPGs within Swedish healthcare organizations, and to critically scrutinize the characteristics of the CPGs used. In Sweden the SBU and NBHW provide evidence-based sources of knowledge on various topics, such as systematic reviews and national guidelines. However, if and in what way these are used is not clear, nor is it clear whether the sources actually reach the health professionals.

Swedish studies concerning implementation are conducted in the settings of neonatal nursing care. It is shown that national guidelines were applied to different extents in 30 of 35 neonate care units, and 20 units applied them as a starting point for quality improvement. A more extensive application was related to using a quality improvement method (the Dynamic Standard Setting System), an experienced nurse manager, experience of nursing research, and good staff resources (Wallin, et al., 2000). Another study reveals that the establishment of a change team to facilitate the implementation of guidelines for Kangaroo Mother Care resulted in activities that impacted on staff behaviour, which in turn was perceived to influence the well-being of the patients (Wallin, et al., 2005). There is some knowledge in the Swedish context from neonatal care about factors that influence the implementation of CPGs. However, there is a need for more research to establish knowledge that is process oriented.
from contexts other than neonatal care, dealing with actual experience of implementing and sustaining the use of CPGs.
AIMS

The overall aim of this thesis was to explore factors that influence an evidence-based clinical practice, and more specifically, to investigate outcomes of evidence-based practice, the dissemination and awareness of evidence-based literature, and to describe factors of importance when implementing clinical practice guidelines.

The specific aims of the studies included in this thesis were,

To investigate in a systematic review whether an evidence-based clinical practice in health care improve outcomes for patients, personnel, and/or organizations. (Paper I)

To investigate the dissemination and awareness of evidence-based literature, especially recently published evidence-based nursing reports, among psychiatric nurses. (Paper II)

To investigate the reliability of a questionnaire designed for the purpose of developing an instrument, to be used when evaluating implementation strategies in clinical practice. (Paper III)

To elucidate experiences and factors of importance for the implementation of clinical practice guidelines in hospital care. (Paper IV)
METHODS

Design
The outline of this thesis was set with the intention to combine different experimental designs, such as a critical appraisal of the research literature, with methods that involved questionnaires as well as interviews. The challenge of exploring the factors influencing an EBP was the difficulties of actually making the evidence-base visible in practice. This implied that the studies included in this thesis had to deal with the rather confused picture of the concept EBP that existed in the empirical field. Combining different experimental designs was intended to provide the opportunity to gain knowledge and describe factors of importance that promote an evidence-based practice. Thus, it was assumed that improved outcomes of an EBP, as well as dissemination of evidence-based literature together with awareness and use of this literature, are factors that might influence and facilitate an EBP. Studies that succeeded in making the evidence-base detectable had all implemented and used evidence-based clinical guidelines and therefore it became of interest to incorporate the area of clinical practice guidelines in the further investigations. However, it was necessary to realize that CPGs are not always evidence-based. Table 1 gives a brief overview of the designs of the four studies (papers I-IV) included in this thesis.
<table>
<thead>
<tr>
<th></th>
<th>Paper 1</th>
<th>Paper 2</th>
<th>Paper 3</th>
<th>Paper 4</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Main focus</strong></td>
<td>Outcomes of evidence-based practice</td>
<td>Dissemination and awareness of literature on evidence-based nursing</td>
<td>To test the reliability of a questionnaire evaluating implementation of CPGs</td>
<td>Experiences of implementation and use of CPGs</td>
</tr>
<tr>
<td><strong>Design</strong></td>
<td>Systematic review</td>
<td>Descriptive, prospective pre-post design in relation to the publication of two evidence-based nursing reports</td>
<td>Test-retest design</td>
<td>Descriptive, interpretive qualitative design</td>
</tr>
<tr>
<td><strong>Sample</strong></td>
<td>Ten scientific publications including eight studies</td>
<td>2.294 members of a specialist nursing association response rate pre: 82% (n=1.889) response rate post: 72% (n=1.641)</td>
<td>39 health professionals in hospital care</td>
<td>20 nurse managers or other health professionals with the responsibility to pursue the handling of CPGs</td>
</tr>
<tr>
<td><strong>Data collection</strong></td>
<td>Systematic database searches</td>
<td>Questionnaire</td>
<td>Questionnaire</td>
<td>Interviews</td>
</tr>
<tr>
<td><strong>Analysis</strong></td>
<td>Classification, quality assessment and narrative synthesis of research findings</td>
<td>Descriptive statistics including cross-tabulation of groups within the sample</td>
<td>Cohen’s Kappa Percentage concordance</td>
<td>Manifest and latent content analysis</td>
</tr>
<tr>
<td><strong>Coverage</strong></td>
<td>International (Europe, North America)</td>
<td>National (Sweden)</td>
<td>Local (Southern region of Sweden)</td>
<td>Regional (Southern region of Sweden)</td>
</tr>
</tbody>
</table>
The rationale behind conducting a systematic review to investigate outcomes of an EBP was to have a rigorous starting point for the thesis and to generate support for the direction of the further research agenda (cf. Sackett, et al., 2000). The advantages of conducting a systematic review are to identify whether scientific findings are consistent and can be generalized across populations and settings or whether findings vary significantly (Mulrow, 1995). Consequently it seemed a good idea to conduct a systematic review and to scrutinize the existence of research that might corroborate the contention that an evidence-based care improved outcomes for patients, personnel or organizations.

The rationale behind conducting the prospective questionnaire study with a pre-post design was to identify and describe the awareness and use of evidence-based literature in relation to the publication of two evidence-based literature reports in psychiatric nursing (SBU, 1999a; SBU, 1999b). Questionnaires were distributed before and one year after the publication to members of The National Association of Psychiatric Nurses. The pre-post design gave the opportunity to explore possible changes that might have occurred and to observe awareness or use of the published reports. The descriptive perspective was chosen with the intention to give a sincere picture of actual dissemination of the reports within the sample, as well as awareness of the concept evidence-based nursing (EBN) and any literature in this area.

The result of the systematic review gave inspiration to proceed with the search for an EBP within the area of implementing CPGs, penetrating the factors of importance for a successful implementation. A questionnaire was designed to survey the implementation and use of CPGs. The instrument included items constructed as scales investigating the perception of factors important for the implementation process drawn from the PARIHS-model. More specifically the items focused on perceptions of clinical experience, patients’ experience and context of care regarding circumstances in clinical practice. The test-retest gave an opportunity to test the reliability of the items, thus finding indications whether or not they were suitable for use in the further development of an instrument for evaluating the implementation and use of CPGs.

The rationale behind conducting the interview study was an attempt to deepen our understanding concerning factors of importance when implementing CPGs. A survey provided examples of guidelines actually implemented which
could serve as a foundation for an interview in combination with any other example that the interviewees were keen to communicate. These were assumed to give an insight into the existing experience that might elucidate factors of importance, such as the foundations of the CPGs, strategies of successful implementation, and evaluation of the use of CPGs. Also it was assumed that further insight into experience of the implementation of CPGs might elucidate factors useful in the further development of an evaluation instrument.

**Samples**

**Identification of data – paper I**

The identification of data for paper I followed a given systematic approach (SBU, 1993), and a structure presented by Flemming (1998) was used to specify the assessment problem and determine criteria for the inclusion of studies (see table 2).

**Table 2. Criteria of inclusion for selection of studies.**

<table>
<thead>
<tr>
<th>Situation</th>
<th>Intervention</th>
<th>Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>Healthcare professionals</td>
<td>Evidence-based* clinical practice</td>
<td>Health-related quality of life</td>
</tr>
<tr>
<td>Patients in any kind of healthcare/clinical practice</td>
<td>Use of evidence-based knowledge in decision-making</td>
<td>Mortality</td>
</tr>
<tr>
<td>Studies conducted with quantitative methods:</td>
<td>Use of evidence-based</td>
<td>Symptom score</td>
</tr>
<tr>
<td>Meta-analysis</td>
<td>knowledge in decision-making</td>
<td>Functional status</td>
</tr>
<tr>
<td>Systematic Review</td>
<td></td>
<td>Cost-effectiveness</td>
</tr>
<tr>
<td>Randomized Controlled Trial</td>
<td>Use of evidence-based clinical guidelines</td>
<td>Quality of care</td>
</tr>
<tr>
<td>Clinical Controlled Trial</td>
<td></td>
<td>Satisfaction with care/life situation/ work situation</td>
</tr>
<tr>
<td>Clinical Trial</td>
<td></td>
<td>Understanding of care/ treatment/life situation</td>
</tr>
<tr>
<td>Studies conducted with qualitative methods:</td>
<td></td>
<td>Patient experience of care/ treatment/disease/life situation</td>
</tr>
<tr>
<td>Hermeneutical</td>
<td></td>
<td>Healthcare professionals’ experience of work situation</td>
</tr>
<tr>
<td>Phenomenological</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grounded Theory etc.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*evidence-based, i.e. research is critically appraised and considerations are made on the strength of the evidence. Modified from Flemming (1998).*
The structure was useful to identify and define all relevant elements central to the question at issue, and to deduce words suitable for the literature search. This review included studies conducted with quantitative as well as qualitative methods. A previous review had pointed to problems concerning how to distinguish between performances of different healthcare professionals (Thomas, et al., 2000). This led to a decision to include all categories of healthcare professionals in our review. It also seemed reasonable to include any kind of healthcare or clinical practice, since previous reviews reported a wide spread of clinical settings (Grimshaw & Russel, 1993; Effective Health Care, 1999; Thomas et al., 2000). The intervention or area of interest described in the retrieved studies should state in what way practice, guideline or decision-making are concerned to be evidence-based (see table 2). This inclusion criterion was essential if the question at issue was to be answered. Studies were included if the outcomes of the studies were in relation to: 1) patients, concerning health-related quality of life, mortality, morbidity, symptom score, functional status, self-care, experience of care; 2) healthcare professionals, concerning experience of work situation; and/or 3) healthcare organizations, concerning cost-effectiveness, changed patient care, and resource utilization. The language of the studies was limited to English, Swedish, Danish and Norwegian.

The literature search was conducted in the databases Medline, Cinahl and Cochrane Library, as well as a manual search in the reference list of individual articles possible for inclusion. To identify pertinent search terms in the databases, terms from the structure above were compared with each database system of subject headings. A combination of free-text and indexed medical subject headings was used. The search terms chosen were first combined with “OR” in order to make the search sensitive, and then with “AND” to assure specificity within the search strategy. Table 3 summarises the search terms used and the time-frame for each database.
Table 3. Search terms and time-frame for the literature searches.

<table>
<thead>
<tr>
<th>Medline</th>
<th>Cinahl</th>
<th>Cochrane Library</th>
</tr>
</thead>
<tbody>
<tr>
<td>Evidence-Based Medicine</td>
<td>Professional-Practice-Evidence-Based</td>
<td>Evidence-based medicine</td>
</tr>
<tr>
<td>Health care category</td>
<td>Program-Development</td>
<td>Practice guidelines</td>
</tr>
<tr>
<td>Organization and administra-</td>
<td>Evaluation</td>
<td>Implementing and research</td>
</tr>
<tr>
<td>tion</td>
<td>Professional-Practice-Research-Based</td>
<td>Evidence-based near practice</td>
</tr>
<tr>
<td>Review literature</td>
<td>Practice-Guidelines</td>
<td></td>
</tr>
<tr>
<td>Meta-analysis</td>
<td>Phenomenology*</td>
<td></td>
</tr>
<tr>
<td>Clinical Trials</td>
<td>Grounded Theory</td>
<td></td>
</tr>
<tr>
<td>Randomized Controlled Trials</td>
<td>Clinical Research</td>
<td></td>
</tr>
<tr>
<td>Controlled Clinical Trials</td>
<td>Evaluation Research</td>
<td></td>
</tr>
<tr>
<td>Life Change Events</td>
<td>Qualitative Studies</td>
<td></td>
</tr>
<tr>
<td>Models, nursing</td>
<td>Experimental Studies</td>
<td></td>
</tr>
<tr>
<td>Models, organizational</td>
<td>Literature Review</td>
<td></td>
</tr>
<tr>
<td>Models, Psychological</td>
<td>Clinical Trials</td>
<td></td>
</tr>
<tr>
<td>Viewpoint</td>
<td>Meta-analysis</td>
<td></td>
</tr>
<tr>
<td>Meaning</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grounded theory</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Phenomenology*</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*=truncation, search for every possible suffix of the term

Participants – paper II – IV
The sample in paper II was comprised of members of The National Association of Psychiatric Nurses. The members of this association are mostly registered nurses active or interested in psychiatric care, but it is also possible for anyone with an interest in psychiatric care to become an associated member. In the autumn of 1999 a complete register, including the names and addresses of all members, was retrieved. Although this sample can be characterized as a sample of convenience, it gave access to a specific population with a broad occupational and geographical distribution. Data collection was done in September 1999 and November 2000. Table 4 reports the response rate and non-participation of the sample during both periods of data collection.
Table 4. Response rate and non-participation of sample in paper II.

<table>
<thead>
<tr>
<th></th>
<th>Distribution 1 (September, 1999)</th>
<th>Distribution 2 (November, 2000)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Respondents</td>
<td>1.889 (82%)</td>
<td>1.641 (72%)</td>
</tr>
<tr>
<td>Active refusal of participation</td>
<td>24 (1%)</td>
<td>30 (1%)</td>
</tr>
<tr>
<td>Logistic error of postal service</td>
<td>27 (1%)</td>
<td>117 (5%)</td>
</tr>
<tr>
<td>No reply (despite reminder)</td>
<td>354 (15%)</td>
<td>460 (20%)</td>
</tr>
<tr>
<td>Drop-outs from distribution 1</td>
<td>46 (2%)</td>
<td></td>
</tr>
</tbody>
</table>

There were no major differences concerning the characteristics of respondents between the distributions. The mean age of respondents was 48 years (SD 9) in distribution 1 (D1) and 49 years (SD 8) in distribution 2 (D2), with a range of 50 (23-73) and 50 (24-74), respectively. There were 83% women and 17% men in both distributions. A total of 1.694 (90%) respondents in D1 and 1.398 (85%) in D2 reported to be active in psychiatric care. The majority of the respondents (74% and 71% respectively) were nurses in clinical service, 16% and 15% respectively worked in administration, 4% (both distributions) were teachers and 1% (both distributions) were researchers. Concerning place of work the majority worked in consulting rooms (39% and 42% respectively) or at hospital wards (40% and 35% respectively). Most of the respondents were registered nurses with further specialist training in psychiatric care (93% in both distributions). Few had received any academic education (bachelor 12%/16%, master 2% (both distributions), licentiate <1% (both distributions), PhD <0.5% (both distributions)). The majority of the respondents had worked in psychiatric nursing > 15 years (63% and 66% respectively).

The sample in paper III was comprised of health professionals at one University hospital in southern Sweden, who were involved in a project aimed at the development of standardized nursing care plans. Since the data collection was a test-retest design of a questionnaire investigating factors of importance when implementing and using CPGs, this sample was deemed to be suitable owing to their involvement in activities in relation to quality improvement in practice. A total of 40 health professionals were invited to participate, and all but one accepted to participate. The person declining to participate had changed clinical position and the new position was not related to the subject of the questionnaire. The respondents worked in 11 different clinical departments, representing both wards and counselling units. Most of them were nurses (32) holding a position as registered nurse (24) employed in clinical service. Other
respondents participating were: midwife, physiotherapist, occupational therapist, and physician. Some of the respondents held positions as director of ward, clinical teacher and care manager. Time spent in the present position ranged from less than a year up to 38 years (mean 9 years, SD 8). The respondents’ mean age was 43 years (SD 11) with a range of 38 (26-64), 37 were women and two were men.

The sample in paper IV was a selection of respondents who had previously participated in a survey and there specified that CPGs were implemented in their clinical practice. The survey was conducted previous to the interview study in an attempt to gain an insight into whether CPGs were actually being used, since this was unknown. In a total of 61 completed questionnaires 53 reported the use of CPGs. The respondents were nurse managers at wards within hospital care, providing round-the-clock care at least five days a week, or any other member of the staff with the responsibility to process the CPGs. Presumptive interviewees were identified in an attempt to establish a heterogeneous sample representing a variety of experiences regarding hospital size, clinical setting, clinical guideline and duration of implementing and using this clinical guideline. A total of 22 presumptive participants were invited to take part in this interview study, of which two declined due to lack of time and already taking part in other research projects. The 20 participants accepting the invitation represent eight different hospitals (ranging in size from 90 to 1,200 beds), and 20 different clinical specialities and settings. All participants were nurses and the majority held a position as head nurse (14). Other positions reported were assistant head nurse, registered nurses in clinical service, and care manager engaged in a combination of administrative and clinical service. The mean time they had held on their present position was 12 years (SD 9) with a range of 29 years (one – 30). Their mean age was 48 years (SD 7) with a range of 33 years (25 – 58), there were 18 women and two men.

Data collection

Retrieving data for paper I
The result of the literature searches finally gave 2,824 references at abstract level. These were reviewed by two independent reviewers to establish which references should be ordered as full-text documents. On the basis of the inclusion criteria a total of 298 references were suggested to be screened for inclusion. The manual search in the reference list of the retrieved articles added 15
references. Of the references ordered, eight were not received for logistic reasons. Finally 305 articles remained to be screened for inclusion.

A protocol, used to screen the references for inclusion, helped to focus the data extraction regarding agreement of inclusion criteria and classifying the type of study. Each of the 305 articles was assessed for inclusion by one of the authors (CB). Two independent reviewers (CB, AW) made the final decision for inclusion. Of the 305 articles ten were eligible for inclusion and 295 articles were excluded due to their not complying sufficiently with the criteria for inclusion. The majority was excluded because they were not original studies, because they did not clarify how the practice could be considered to be evidence-based, or because they did not fulfil the criteria in relation to outcomes. If the evidence-based status of practice was described in another reference this reference was included where possible.

**Questionnaires in paper II – III**

At the time when the studies were planned there were no instruments suitable for the evidence-based focus of these studies. Existing questionnaires as for example “The Barrier Scale” (Funk, et al., 1991) had a distinct focus on research utilization. Therefore the questionnaires regarding both paper II and paper III was constructed by the authors. The questionnaire in paper II contained 23 “closed-ended response” questions to which the respondents’ answers were either “yes”, “no”, or “don’t recall”, with space for additional comments (cf. Ejlertsson, 1996). Instructions on how to skip irrelevant questions were also provided. The first eight questions were directed to gather demographic data. The next 13 questions investigated whether or not the respondent was aware of the concept of EBN, their access to any literature about EBN, access to literature on EBN regarding psychiatric care, and how recently the literature was assessed. The language (Swedish, English, or other) of the EBN literature and type of publication (article in scientific journal, or other journal, report or book) was sought. The two final questions investigated the practical use of the literature and the respondents’ perceptions of the continuing need of using EBN literature in their practice. The questionnaire concluded with an invitation to add any information or viewpoint.

A pre-test of the questionnaire was conducted with a sample that comprised of a total of 30 persons of whom six were academically qualified RNs geographically dispersed throughout Sweden. There were 22 RNs active in psychiatric
care some in a town in the west and some in a large city in the south of Sweden, and two lecturers in nursing based at a University in the south of Sweden. A final total of 21 completed questionnaires were returned, as well as two questionnaires not completed but with valuable comments. Overall, the respondents’ comments in the pre-test showed a positive attitude to the questions and an understanding of the questionnaire. Suggestions were made concerning the instructions and the alternative of “don’t recall”. These were acted upon.

The questionnaire was individually coded through the register provided, to enable a targeted distribution of reminder letters. The first distribution of the questionnaire was in September 1999, and the second in November 2000. Enclosed with the questionnaire was a letter of information with a pre-paid, self-addressed envelope. On both occasions of distribution a reminder followed three weeks later together with the same information and envelope for the completed questionnaire.

The questionnaire in paper III was designed to gather data both regarding a description of a CPG actually implemented and used, as well as strategies for this, but also data regarding the perceptions of factors important for the implementation. The questionnaire began with an introductory text including the definition of CPG (Lohr & Field, 1992) followed by information that the focus was on clinical routines in relation to patient care and some examples of CPGs known. Then a total of 23 questions followed in sections concerning demographic data, the use of CPGs (including stating one example of the most recently implemented CPG), implementation of the stated CPG and strategies used, and final evaluation of the stated CPG. The questions were either formulated in the form of “close-ended-response” to be answered by “yes”, “no” or “don’t know”, with space for additional comments, or in the form of a visual analogue scale. The scales were constructed as a 10-cm line running between the continuums of two contradictory statements drawn from the PARIHS framework. Based on their perceptions of current circumstances in their clinical practice the respondent was asked to mark a cross on the line between the statements. The scales were not marked in any way with figures or regular markings to avoid that the respondent made estimations in relation to high or low numbers. There were a total of 18 scales investigating the perceptions of circumstances in clinical practice concerning: patient experiences, clinical experiences, context of care in terms of culture, leadership, forms of evaluation,
feed-back and function of facilitators. The questionnaire also included instructions to skip irrelevant questions and ended with an invitation to include additional comments. The researcher who originally published the PARIHS framework (Kitson, et al., 1998) as well as the translators of the original into Swedish (The Swedish Society of Nursing) gave permission to use the translated version (SSF, 2002). The Swedish translation was used with minor changes which were made for clarity.

A pre-test pilot was conducted to test the face validity of the questionnaire (cf. Streiner & Norman, 1995). The questionnaire was sent to contact persons at one surgical department in a university hospital in the north of Sweden, and at one psychiatric department in a regional hospital in central Sweden. They were asked to distribute the questionnaire, along with a letter of information about the test, to nursing managers in their respective departments. About 16 questionnaires were distributed in the psychiatric area, but only four were returned due to an extremely busy period according to an inquiry made. In the surgical department seven questionnaires were distributed and six were returned. Of the ten questionnaires returned nine were fully completed, one was incomplete, and all contained comments about the design. The comments were similar regardless of clinical setting, and concerned the design of the question about the strength of the CPG and noted that the term facilitator required clarification. All remarks were taken into consideration and changes were made accordingly.

After initial contacts with the management of a University hospital in southern Sweden information facilitating contact with presumptive respondents who were involved in a specific quality assurance project regarding standardized nursing care plans was made available. The respondents were contacted by phone and informed about the test-retest study and asked whether they were interested in participating. The questionnaire was coded and distributed, by e-mail and in a few cases by post, in November 2006, accompanied by a letter with information about the study. About three weeks after receipt of the first completed questionnaire, the respondents were sent the same questionnaire (and information) again. After both distributions a reminder followed by e-mail about two weeks later together with information as before. Both distributions resulted in 39 completed questionnaires. The time for receiving the completed questionnaires between distributions ranged from 4 to 10 weeks (mean 5.5 weeks).
Interviews in paper IV

The interviews in paper IV were conducted in an attempt to deepen our understanding of the factors of importance for the implementation of CPGs. In order to have a structure for the interview and to facilitate a connection to stated examples derived from a previous completed questionnaire, an interview guide was used. In the construction of the interview guide care was taken that the questions would not only be constructive for the research theme but would also create an encouraging atmosphere at the interview (Kvale, 1997). Table 5 shows the content of the interview guide.

<table>
<thead>
<tr>
<th>The use of CPGs</th>
<th>The implementation of CPGs</th>
<th>The evaluation of CPGs</th>
</tr>
</thead>
<tbody>
<tr>
<td>What is your experience concerning how the CPG was to be used in your practice?</td>
<td>What is your experience of the implementation strategies used?</td>
<td>If evaluation was performed</td>
</tr>
<tr>
<td>What are the strengths of the CPG?</td>
<td>What is your experience of evaluating the use of CPGs?</td>
<td>What is your experience of evaluating the use of CPGs?</td>
</tr>
<tr>
<td>What are the weak points of the CPG?</td>
<td>Did you experience the implementation as successful or unsuccessful?</td>
<td>If evaluation was not performed</td>
</tr>
<tr>
<td></td>
<td></td>
<td>In your experience what decides whether an evaluation is to be performed?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>In your experience what would be important to evaluate?</td>
</tr>
</tbody>
</table>

Before the interview the interviewer again explained the study and the procedure during the interview as well as regarding the handling of the data. The interview guide was exposed and the interviewer answered any questions and encouraged the interviewee to talk about any example of CPG that came to mind in addition to CPG previously mentioned in the questionnaire. During the interview follow-up questions were used to encourage further comments, for clarification or to confirm some assertion, with the purpose of deepening and substantiating the narration (cf. Kvale, 1997). All of the interviews were conducted by one of the authors (CB) between June 2006 and November 2006. To make the interviewees comfortable they could choose to be interviewed either by phone or at a personal meeting in a place of their choice. A total of eleven participators decided to have the interviews at their place of
work, and provided a private room in the clinical setting. Two preferred to visit the author’s place of work (private room at the University). Of the seven participators who decided to be interviewed by phone, six were at their place of work and one was at home. The length of all of the interviews ranged from 25 – 63 minutes (mean 45 min). The length of the interviews performed by phone was 25 – 52 minutes (mean 42 min), and regarding a personal meeting 25 – 63 minutes (mean 46 min). The interviews were audio taped on a Mini-disc player using a separate microphone or connection to the phone. All interviews were transcribed verbatim by one of the authors (CB) including laughter, sighs, pauses and background sounds, such as persons entering the room etc. Transcripts amounted to a total of 358 single spaced pages.

Data analysis

Reviewing and synthesizing data – paper I
The ten articles included reported on eight different studies. Each study was reviewed by two independent reviewers (CB, AW) to establish the quality of each study, which was defined as high, moderate or low in accordance with formulated criteria for study quality (see table 6). In appraising the quality of each study the reviewers used protocols to extract data. There was one protocol for appraising studies with a quantitative approach and one for studies with a qualitative approach. The protocols contained questions that were to be answered with yes/no/unclear and with additional space to comment the relevance of each item and for the extracted data. The protocols ended with an appraisal of the quality of the study and a motivation for the judgement made.

The items in the protocol for appraisal of quantitative studies focused on: relevance of aim, relevance of inclusion/exclusion of sample and sample procedures, influence of drop-outs, description and relevance of intervention, ethical considerations, if and how randomization was used, similarity of groups, similar treatment between groups apart from the intervention in question, if and how techniques of blinding were used, relevance of outcomes, validity and reliability of instruments used, relevance of statistical procedures, and possibility of generalization of results (cf. Guyatt et al., 1993; Guyatt et al., 1994; Greenhalgh, 1997; Willman & Stoltz, 2002).
Table 6. Criteria for study quality concerning level of evidence.

<table>
<thead>
<tr>
<th></th>
<th>I = High</th>
<th>II = Moderate</th>
<th>III = Low</th>
</tr>
</thead>
<tbody>
<tr>
<td>CCT</td>
<td>Non-randomized, prospective study with simultaneous control group. Large well-planned and executed study with adequate description of selection of patients, interventions undertaken, collection of data and statistical analysis. Sufficient number of patients to address the issue.</td>
<td>Insufficient statistical power. Defective account of population. Large and/or insufficiently described drop-outs. Large difference between groups at entry. Questionable treatment of groups, data collecting procedure, time of follow-up and/or statistical analysis.</td>
<td></td>
</tr>
<tr>
<td>CTP</td>
<td>Prospective study with no simultaneous control group. Large well-planned and executed study with adequate description of selection of patients, interventions undertaken, collection of data and statistical analysis. Sufficient number of patients to address the issue.</td>
<td>Insufficient statistical power. Defective account of population. Large and/or insufficiently described drop-outs. Large difference between groups at entry. Questionable data collecting procedure, time of follow-up and/or statistical analysis.</td>
<td></td>
</tr>
<tr>
<td>CTR</td>
<td>Retrospective study with large consecutive patient database material. Large well-planned and executed study with adequate description of selection of patient database material, interventions undertaken previously, collection of data and statistical analyses. Sufficient number of patient/database material to address the issue.</td>
<td>Limited patient/database materials. Questionable data collecting procedure, time of follow-up and/or statistical analyses.</td>
<td></td>
</tr>
<tr>
<td>Q</td>
<td>Qualitative study with a clear description concerning the research area in focus. Well-planned and executed with adequate description of selection of participants, context, researchers’ comprehension, collection of data and data analysis. Logical results with good communicability.</td>
<td>Insufficient description of choice of participants, context, comprehensiveness of researcher, data collecting and procedure of analysis. Non-logical results with poor communicability.</td>
<td></td>
</tr>
</tbody>
</table>

The items in the protocol for appraisal of qualitative studies focused on: clarity of aim, relevance and procedure of sample, description and relevance of context, ethical reasoning, declaration of pre-understanding, description and relevance of data collection, clarity of analysis procedures, possible saturation, clarity and logic of results, use of relevant theoretical framework, possible theory generation, and universal applicability of results (cf. Greenhalgh, 1997; Giacomini, 2002; Willman & Stoltz, 2002). There were no disagreements between the reviewers concerning the quality appraisal of the studies included.

The data synthesis is descriptive in a narrative form since the studies included were heterogeneous regarding study designs, interventions, measurements, sample and settings. In establishing the strength of evidence concerning the conclusions of the systematic review, the level of evidence for each study was the foundation. This way of synthesising followed recommendations from SBU (Britton, 2000), which are displayed in table 7. Regarding the process of grading the conclusions of our systematic review the intention was to formulate separate conclusions for qualitative and quantitative studies.

Table 7. Strength of evidence concerning grades of recommendations*.

<table>
<thead>
<tr>
<th>Grade 1</th>
<th>Strong scientific foundation</th>
<th>At least two studies with a high level of evidence, or one systematic review/meta-analyses with a high level of evidence.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade 2</td>
<td>Moderate scientific founda-</td>
<td>One study with a high level of evidence and at least two studies with a moderate</td>
</tr>
<tr>
<td></td>
<td>tion</td>
<td>level of evidence.</td>
</tr>
<tr>
<td>Grade 3</td>
<td>Limited scientific founda-</td>
<td>One study with a high level of evidence or at least two studies with a moderate</td>
</tr>
<tr>
<td></td>
<td>tion</td>
<td>level of evidence.</td>
</tr>
<tr>
<td>Grade 4</td>
<td>Insufficient scientific foun-</td>
<td>One study with a moderate level of evidence and/or studies with low levels of</td>
</tr>
<tr>
<td></td>
<td>dation</td>
<td>evidence.</td>
</tr>
</tbody>
</table>

* Grades of recommendation are used in cases of congruence of studies, if there is divergence the grading is reduced by one step. (Based on Britton, 2000)
Statistical analysis – paper II and III
Regarding paper II all data related to demographics and “close-ended-response” questions were recorded and analysed using SPSS (version 11.5 for Windows). The computerizing was done by three research assistants and was randomly inspected. Statistical descriptive analysis was used, for instance, the frequencies of the two groups (first and second distribution), and cross-classification between demographic data and categorical variables, for instance, awareness of literature (cf. Bland, 1995). To explore the significance of differences between distributions, cross-tabulation of variables including Pearson Chi-Square was conducted (missing and not applicable values were excluded for these analyses). Any written comments were transferred to Microsoft Word documents, which was then collated and synthesised into categories.

Regarding paper III all data from the questionnaires were recorded into SPSS (version 12.0.1 for Windows). The marking on the scales were read using a ruler and registered with two decimals. Cohen’s Kappa and percentage concordance were used as a measure to investigate the test-retest reliability of the questions and scales between responses in distribution one and two. To perform this analysis regarding the scales, the values of the scales were distributed into two groups with the mean as a cut-off point. A Kappa value between 0.81 – 1.00 was considered as a very good strength of agreement, 0.61 – 0.80 as good agreement, 0.41 – 0.60 as moderate agreement, 0.21 – 0.40 as fair agreement and from 0.20 and less as poor agreement (Altman, 1991). Because some of the respondents referred to two different CPGs between distributions, the questions that pertained to the CPG mentioned are not included in the reporting of the Kappa and percentage concordance values. These questions concerned the foundation and strengths of the CPG, the implementation strategies used, whether or not the implementation was deemed successful, whether any evaluation of the use of the CPG was performed, and if so in what way.

Content analysis – paper IV
Manifest and latent content analysis was chosen to perform the analysis of the interview text. This approach seemed suitable in relation to the data collected, since the interview contained narrations both of experiences that in a way were fairly straight-forward, almost countable (for example different ways of making the CPGs assessable). But there were also experiences that were ex-
pressed in a more subtle way, such as relations between various health professionals. The analysis performed is manifest in the way that codes and subcategories are close to the text and descriptive to give structural surface, and latent in the way categories and theme interpret the deepened structural meaning mediated by the text (cf. Berg, 2004). After all the interviews were transcribed they were read through several times to grasp the content as a whole. A naive understanding was formulated with the intention to make the pre-understanding of the researcher (CB) conscious and open (cf. van Manen, 1997), but also to serve as a foundation to strengthen the continuing analysis process that was more structural. This formulation was shared with the co-authors.

The analysis continued with selecting meaning units from the text. A meaning unit was defined as a piece of any length that refers to experiences of implementing and using CPGs. The content of each meaning unit was condensed and reformulated close to the text. Then two of the researchers (CB, PS), independent of each other, formulated codes for each meaning unit. The coding was compared and a similarity was found in 96 % of the data, the remaining 4 % were agreed upon in consensus discussion. The analysis continued with one of the researchers (CB) sorting the codes into a structure of subcategories and categories by identifying patterns of similarities and differences. During this process an overall theme also emerged.

With the intention to deepen the interpretation and abstract level of the category system, the data were again sorted and grouped by two researchers (CB, PS), independently of each other, but with several consensus discussions during this part of the analysis. This final grouping was done to formulate and confirm each level of the system and the content of each subcategory, category as well as the content of the theme. During the analysis there was constant shifting between the whole and the details, from each code and subcategory and its condensation and meaning unit back to the interview text and forward into category and theme. The reason for the shifting was partly to maintain closeness to the text during the formulation of the codes and subcategories and partly to find bearing and confirmation for the interpretation of the emerging patterns. Table 8 shows examples of condensations, codes and categorisations of meaning units to exemplify the structure regarding the interpretation. In comparison the similarity in the sorting and grouping between the two researchers (CB, PS) analysis was high, and the variations were rather
about different ways of formulating words than the interpretations made. The co-researchers (AW, MÖ) participated in the analysis process by reading all of two of the interviews, and reviewed the coding and category system of these interviews. They also made contributions to the sorting, grouping and abstracting of subcategories, categories and theme by reviewing and discussing these data. Finally the analysis resulted in a system of subcategories related to five categories and one overall theme.

**Table 8.** Examples concerning condensations, codes and categorisations of meaning units.

<table>
<thead>
<tr>
<th>Meaning unit</th>
<th>Condensation</th>
<th>Code</th>
<th>Subcategory</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>1:8 I … both considering hygiene and documentation it is important that thrombophlebitis does not occur and within our practice one can easily forget due to the speed in practice and thus it is good that we raise this again</td>
<td>Sometimes important things are forgotten, such as hygiene, documentation, and risk of thrombophlebitis, due to the speed of practice, then it is good that these things are raised.</td>
<td>It is good that matters of importance are raised in the guideline to prevent them being forgotten in the rapid speed of practice.</td>
<td>Subcategory Facilitate for staff</td>
<td>Category Motives for initiating and using CPGs</td>
</tr>
<tr>
<td>17:45 .. that they are allowed to participate, make decisions, have opinions on the small things as well as the larger things, that I believe is very important, and above all engagement, so participation and engagement I believe to be important as also support from us the managers</td>
<td>To be allowed to participate, have opinions, and make decisions about small and large things is important, as well as engagement, participation and support from the managers.</td>
<td>Engagement and participation by the staff is important and that there is support from the managers.</td>
<td>Subcategory Establish in practice with the purpose to involve all members of the staff</td>
<td>Category Facilitating implementation</td>
</tr>
</tbody>
</table>

1:81= Interview 1, meaning unit 81, 17:45= Interview 17, meaning unit 45.
Pre-understanding
The first and second authors have experience within the research area as well as clinical experience. The third and fourth authors have no experience of this research area, but fourth author has clinical experiences of implementing CPGs. Interpretation is dependent on the researchers pre-understanding and will decide what will rise to the foreground and what will end up in the background of an interpretation. One of the problems when performing this type of interpretation is not knowing too little about the phenomenon, rather it is knowing too much (van Manen, 1997). When we accept the task to interpret it becomes important to raise the level of consciousness about the pre-understanding we have concerning the phenomenon we are investigating. The purpose of this according to van Manen (1997) is “It is better to make explicit our understandings, beliefs, biases, assumptions, not in order to forget them again, but rather to hold them deliberately at bay and even to turn this knowledge against itself, as it were, thereby exposing its shallow or concealing character” (p. 47).

The thought behind making the pre-understanding explicit is to question it so that the interpretation of the phenomenon is not at risk of being “locked up”, but instead allow, in a creative way, the data to develop into an understanding that becomes something greater and more than the pre-understanding implied. In paper IV the intention was to let the formulation of the naïve understanding be a way of exposing the pre-understanding of the author who read through all of the interviews to grasp the meaning of the whole. To share this formulation with the other co-authors was a way to open up for reflection of all the authors pre-understanding, which could be discussed and taken into consideration in the analysis. The intention was to strengthen the critical approach towards the process of selecting and interpreting meaning units and to prevent exaggeration in identifying categories and theme.

Ethical considerations
There is no need for ethical approval regarding conducting a systematic review. However, challengeability may have to be considered. The critical appraisal of other researchers’ work demands a tactful execution and there has to be awareness of any challengeability that might occur. Concerning paper I there was no challengeability known to the authors, which might influence considering the critical appraisal process.
Concerning paper II – IV approvals to handle and proceed with personal particulars and the data collected were given by the personal data representative at Malmö University. All procedures regarding invitation to participate in questionnaire surveys (paper II – III) or interviews (paper IV) followed the ethical principles of research in humanistic social science published by the Swedish Research Council (VR, 1990). This means that participation was voluntary and the presumptive participator was informed thoroughly about this and how the collected data were to be handled and safeguarded. During the realization of paper III and IV the new law, regarding ethical review permits, applied (SFS, 2003:460).

In paper II a register of members of The National Association of Psychiatric Nurses was made available after a decision made by the board of this organization. On the two occasions that the questionnaire was circulated a letter was enclosed containing information about the aim of the study, an explanation of the coding of the questionnaire, details of ethical considerations and assurance of confidentiality together with information that informed consent was assumed to be given in conjunction with the return of the completed questionnaire.

Approval to execute the data collection for papers III and IV was given by directors of the regional health authority, the management of each hospital as well as each site within the hospitals. The list of presumptive participants was provided by the management of the hospital involved with paper III, and from each clinical department of the hospitals concerned in connection with paper IV. In performing the data collection for paper III each potential respondent was first informed about the study by phone and then further by a letter accompanying the questionnaire. The letter contained information about test procedures, handling and processing of research data, that participation was voluntary and that informed consent for participation was assumed on the basis of a returned, completed questionnaire. In performing the data collection for paper IV each potential interviewee was first contacted by phone and informed about the study and asked whether they were interested in participation. If so, further written information was sent by e-mail explaining the handling and processing of the data collected, that participation was voluntary and a form of consent to be signed before the interview.
The results of each paper are reported in the text below under the following headings: In search of factors that influence an evidence-based clinical practice (paper I and II); In search of factors of importance when implementing and using clinical practice guidelines (paper III and IV). The descriptions of the findings contain the main traits, while more detailed information is to be found in the individual papers.

**In search of factors that influence an evidence-based clinical practice**

The results of paper I demonstrate the complexity that exists when effects of an evidence-based practice are to be scientifically proven, and the studies that actually managed this had all implemented evidence-based CPGs. Although improvements in outcomes are reported, the synthesis shows a weak scientific foundation for the overall result. This implies that more research is needed to strengthen the scientific support before it can be stated that implementation of evidence-based CPGs improves outcomes of care and therefore can be assumed as a factor promoting an EBP. The findings comprise eight different studies performed in USA (5), UK (2), and Canada (1). The studies differ regarding their overall designs, but most of them (6 studies) investigated practice in relation to evidence-based clinical guidelines. One study investigated the use of research-based clinical pathways and one study investigated a research utilization strategy. Four of the studies (Tranmer, et al., 1995; Button, et al., 1998; Dufault & Willey-Lessne, 1999; Manangan, et al., 2000) could not answer the question regarding improved outcomes, due to small populations, short follow-up, a large number of dropouts, unclear reporting of sites and time frames, and unclear relation to the implementation of the guidelines. The remaining four studies demonstrate improved outcomes in relation to the pa-
tients’ experiences, the personnel’s experiences, and organization, which are shown in Table 9.

**Table 9.** Studies in paper I showing improved outcomes.

The use of evidence-based clinical practice guidelines improves outcomes for:

<table>
<thead>
<tr>
<th>Reference/Country/Situation/Study design/Quality assessment</th>
<th>Outcomes/ Grade of recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Patients</strong></td>
<td></td>
</tr>
<tr>
<td>Effectiveness of an evidence-based CPG for neonatal skin care in neonatal intensive-care units, special-care units and well-baby nurseries/ CTP, before &amp; after implementation/ I</td>
<td>Less likelihood of worsening of skin condition and disruption of skin condition improving more rapidly/ GRADE 3 (Limited scientific foundation)</td>
</tr>
<tr>
<td><strong>Personnel</strong></td>
<td></td>
</tr>
<tr>
<td>Marshall, et al., 2001/ UK/</td>
<td></td>
</tr>
<tr>
<td>Implementation of an evidence-based CPG for management of venous leg ulcers/ Qualitative study with thematic analysis of group interviews/ II</td>
<td>Support in daily work situation/ GRADE 4 (Insufficient scientific foundation)</td>
</tr>
<tr>
<td><strong>Organisations</strong></td>
<td></td>
</tr>
<tr>
<td>Perlstein, et al., 1999, Perlstein et al., 2000/ USA/</td>
<td></td>
</tr>
<tr>
<td>Implementation of an evidence-based CPG for inpatient care of infants with bronchiolitis/ CTP + historical control, before &amp; after, follow-up after 1 + 2 years/ II</td>
<td>Decreased admission rates, length of stay, less resource utilization and reduced costs/ GRADE 4 (Insufficient scientific foundation)</td>
</tr>
<tr>
<td>Perlstein, et al., 2002/USA/</td>
<td></td>
</tr>
<tr>
<td>Implementation of an evidence-based CPG for the care of children with acute gastro-enteritis/ CTP + historical control, before &amp; after/ II</td>
<td></td>
</tr>
</tbody>
</table>

CTP=clinical trial prospective, I=high quality, II=moderate quality
Since the studies were few and heterogeneous in overall design and measurements this implies limitations regarding the strength of evidence when formulating grades of recommendation. Regarding the outcomes of organizations the grading was reduced from grade 3 to grade 4, due to some divergence between the study results (cf. table 7). The synthesis displays a limited scientific foundation regarding improved outcomes for patients, and insufficient scientific foundation regarding improved outcomes for personnel and organisation. The interpretation to be made is that there is incomplete support for the idea that improved outcomes of an EBP, in this case the implementation of evidence-based CPGs, can be seen as a factor that influences the promotion of an EBP. More research is needed to strengthen the scientific evidence concerning outcomes of an EBP, and to support such an idea.

The figures reported in paper II imply that dissemination and awareness of EBN literature do not appear to be factors that alone contribute to an EBP. The findings demonstrate that there are differences between the distributions regarding awareness of the concept of EBN and of access to EBN literature. However, there are few respondents reporting any use of the literature in the exercise of their work, and still 39.5% of the sample in the second distribution reported not to have any access to EBN literature. Table 10 shows results from paper II regarding awareness of EBN, access and use of literature in this area. The overall interpretation regarding the differences seen between distributions has to be made with caution in relation to the influence that the questionnaire itself might have had. The large number of non-applicable answers indicates that the respondents did not have access to EBN literature. The figures also show that when the respondents reported access to EBN literature, the literature in Swedish was more commonly reported than that in English. This may indicate that the respondents prefer to read literature in their own language, which was noted in the questionnaires. It also seems that articles in journals other than scientific ones were preferred by the respondents. Although there was more access to reports and books reported in the second distribution, the study failed to demonstrate support for the assumption that the two EBN reports in psychiatric care were well-known to the respondents, since few of the respondents actually mentioned them.
Table 10. Results in paper II regarding awareness of the concept of EBN, access to EBN literature, the language, type and use of the literature.

|                              | 1st distribution (n=1.889) | Pearson Chi-Square† | 1st Yes % 2nd Yes % 1st No % 2nd No % 1st Missing % 2nd Missing % 1st n/a % 2nd n/a % |
|------------------------------|-----------------------------|---------------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| Concept of EBN              |                             |                     |                 |                 |                 |                 |                 |
| Literature in EBN           |                             |                     |                 |                 |                 |                 |                 |
| EBN Literature in psychiatric care |                 |                     |                 |                 |                 |                 |                 |
| EBN literature in:*         |                             |                     |                 |                 |                 |                 |                 |
| Swedish                     | .000                        |                     | 52.3            | 83.1            | 47.0            | 16.2            | 0.7             | 0.7             | 0               | 0               |
| English                     | .000                        |                     | 29.2            | 59.0            | 68.5            | 39.5            | 2.2             | 0               | 0.1             | 1.5             |
| Type of literature:*        |                             |                     |                 |                 |                 |                 |                 |
| Article in scientific journal | .061                       |                     | 2.3             | 5.3             | 10.1            | 33.6            | 2.4             | 2.3             | 85.2            | 58.8            |
| Article in other journal    | .001                        |                     | 7.7             | 19.3            | 4.7             | 19.5            | 2.3             | 2.4             | 85.2            | 58.8            |
| Report or book              | .000                        |                     | 4.6             | 21.6            | 7.8             | 17.2            | 2.3             | 2.3             | 85.2            | 58.8            |
| Use of EBN:*                |                             |                     |                 |                 |                 |                 |                 |
| Local guidelines            | .348                        |                     | 1.7             | 4.6             | 6.8             | 14.3            | 2.1             | 2.2             | 89.3            | 78.9            |
| National guidelines         | .687                        |                     | 0.6             | 1.4             | 6.0             | 15.5            | 2.6             | 2.5             | 90.7            | 80.6            |
| Improve care for patients   | .517                        |                     | 2.9             | 7.6             | 4.9             | 11.3            | 2.3             | 2.1             | 89.8            | 79.0            |
| Improve cost-effectiveness  | .577                        |                     | 0.7             | 2.1             | 6.4             | 15.3            | 2.4             | 2.4             | 90.5            | 80.2            |
| Improve knowledge among professionals |               |                     |                 |                 |                 |                 |                 |
| Study material in training  | .161                        |                     | 1.0             | 4.9             | 6.1             | 12.5            | 2.3             | 2.4             | 90.5            | 80.2            |
| Literature in nursing education | .000                      |                     | 0.7             | 2.7             | 5.8             | 13.5            | 2.5             | 2.6             | 91.0            | 81.1            |
| Not at all                  | .651                        |                     | 0.4             | 1.0             | 2.2             | 4.6             | 2.3             | 2.0             | 95.1            | 92.4            |

n/a=not applicable, *=more than one alternative per respondent was possible, †=5 % significance level between distributions (missing and n/a values excluded)
In search of factors of importance when implementing clinical practice guidelines

The results of paper III included factors drawn from the PARIHS framework regarding clinical experience (five items), patient experience (five items), leadership (1 item), context (1 item), culture (2 items), evaluation (2 items) and facilitation (2 items). The findings show that the test-retest reliability of the items drawn from the PARIHS framework varies, from good to fair agreement regarding the Kappa values, with a majority of moderate agreement (see Table 11). In further instrument development the items showing only fair agreement should be considered to be excluded, and the items with moderate agreement would probably benefit by a revision concerning the clarity of the statement. The lower test-retest scores may indicate that it is difficult for the practitioner to arrive at a decision in conjunction with the subject of the items. This may be related to many things and might also imply unfamiliarity with this kind of reflections.

The findings in paper III further demonstrate that 35 (of 39) respondents reported the use of CPGs in their practices. The CPGs mentioned varied in terms of content and design, and had been implemented from about 1 month and up to 6 years previously (mean 5 months). In seven cases the CPG mentioned differed between first and second distribution. The most frequently reported foundation of the CPGs was research combined with clinical expertise, and 20 of the CPGs in the first distribution and 17 in the second were reported to be evidence-based. The implementation of the CPG mentioned was regarded as successful by 21 respondents in the first distribution and by 19 in the second. The most frequently used implementation strategies were reminders, initial education, printed matter and internal facilitators. Concerning evaluation only three respondents in the first distribution and five in the second stated that this had been carried out. About half of the respondents (20) in the first distribution and 17 in the second stated that a specific circumstance had promoted the implementation.
Table 11. Test-retest scores regarding the scales drawn from the PARIHS framework.

<table>
<thead>
<tr>
<th>Clinical experience</th>
<th>Agreement of Kappa</th>
<th>Percentage concordance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Presence of critical reflection on clinical experience</td>
<td>Good</td>
<td>82</td>
</tr>
<tr>
<td>Valuation of clinical experience as a form of evidence</td>
<td>Moderate</td>
<td>80</td>
</tr>
<tr>
<td>Presence of judgement regarding clinical experience</td>
<td>Moderate</td>
<td>76</td>
</tr>
<tr>
<td>Presence of mutual understanding between health professionals regarding value of clinical experience</td>
<td>Moderate</td>
<td>72</td>
</tr>
<tr>
<td>Valuation of clinical experience as the only form of valid knowledge regarding decision making</td>
<td>Fair</td>
<td>69</td>
</tr>
<tr>
<td>Patients’ experience</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Valuation of patients’ experiences as a form of evidence</td>
<td>Good</td>
<td>85</td>
</tr>
<tr>
<td>Valuation of patients’ experience as the only valid knowledge in decision making</td>
<td>Moderate</td>
<td>80</td>
</tr>
<tr>
<td>Presence of involvement of patients in planning activities for care</td>
<td>Moderate</td>
<td>77</td>
</tr>
<tr>
<td>Presence of partnership between patients and health professionals</td>
<td>Moderate</td>
<td>72</td>
</tr>
<tr>
<td>Making use of patients’ biographies and experiences</td>
<td>Fair</td>
<td>69</td>
</tr>
<tr>
<td>Context</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Characteristics of leadership (traditional/transfoming)</td>
<td>Good</td>
<td>82</td>
</tr>
<tr>
<td>Presence of receptiveness to change</td>
<td>Good</td>
<td>82</td>
</tr>
<tr>
<td>Characteristics of organization (task driven/promotes learning)</td>
<td>Moderate</td>
<td>79</td>
</tr>
<tr>
<td>Presence of evaluation regarding performance</td>
<td>Moderate</td>
<td>75</td>
</tr>
<tr>
<td>Presence of function regarding facilitator (doing for/enabling others)</td>
<td>Moderate</td>
<td>74</td>
</tr>
<tr>
<td>Characteristics of culture regarding values and beliefs</td>
<td>Moderate</td>
<td>74</td>
</tr>
<tr>
<td>Presence of feedback regarding feedback on performance</td>
<td>Moderate</td>
<td>73</td>
</tr>
<tr>
<td>Presence of facilitator and appropriate facilitating methods</td>
<td>Moderate</td>
<td>71</td>
</tr>
</tbody>
</table>

The results of paper IV revealed several factors that seem to be of importance when implementing CPGs, made visible in a system of subcategories, categories and one overall theme. The factors (subcategories) appear to form a base of circumstances, conditions and requirements that have a relation to five
components (categories) that compose a process (theme). The findings indicates that implementing CPGs consists of “continuous processes of creating reliable and tenable routines that involve all staff members and are expected to lead to better and safer care for patients and to increase knowledge and confidence among the staff”. The process starts when a need for a CPG is identified, and goes on through the development of a CPG, by implementing, supervising and evaluating its use. The process continues as long as it is relevant to use the CPG, but might fade when it becomes so well integrated in practice that one almost forgets that the document exists, and the knowledge is integrated and its routines are followed. In the text below factors identified (in italics) illustrate the content of each component (underlined).

Motives for initiating and using CPGs elucidates that CPGs facilitate staff by preventing them from forgetting important matters. CPGs also assist to ensure patient safety which is reflected as patients having a right to a certain standard of best practice. It appears necessary to use CPGs to create routines of “how it should be done” to promote a uniform practice, which is raised as internal demands from staff in relation to unclear routines, but can also be initiated from external demands such as from clinical collaborators, the NBHW, the directors of the hospital or patients. To implement CPGs also seems to be a strategy for knowledge utilization by providing opportunities to keep up to date with developments in research and care.

Facilitating implementation elucidates several factors that facilitate the implementation of CPGs. Internal identification of problems gives the process a perspective from “bottom-up” which is easier to accept than from “top-down”. The access to facilitators and working teams of experts within different professions helps to pursue the process, and the importance to prepare and adjust before implementation is described as being able to appraise the possibility of the implementation under prevailing conditions. A reliable and tenable foundation of CPG is important in order to enhance a willingness to use the guideline. This stands in relation to the CPG being based on research or other sources of authority such as laws or national guidelines. Also clinical experience is regarded as a valuable foundation since it gives a sense of recognition. An accessible structure of the CPG, such as using standardized models and pictures is described as giving a notion that the CPG is easy to understand and follow. One essential part of the process is to use different strategies such as education and ways of distributing and keeping the CPGs available to assure
that the CPG is *established in practice to involve all staff members*. If the staff has a perception that the CPG is useful and beneficial for the patients the implementation is described as proceeding almost by itself.

Influencing compliance with and use of CPGs elucidates several factors which have a positive or negative impact. The staffs’ willingness to use the CPG is increased when they have confidence in the *authority of the person in charge and management support*. To promote and maintain the use of the CPG a variety of *follow-up and feedback strategies*, such as using reminders, regular feedbacks of evaluations and updating the CPG is described. But also that this is time-consuming and does not always function satisfactorily. *The attitudes of the staff and their intention to collaborate* in using the CPGs have an impact on the implementation process that, when it is positive creates a culture with receptiveness for changes, but when it is negative can create barriers that have to be dealt with. If there are no *relevance of divergence from the CPG recommendations or uncertainty concerning application of the CPG* exists this influences the compliance and undermines willingness to use the CPGs. *Collaborations across boundaries of practices* are important in order to get useful support from “experts” that gives confidence when applying the CPGs. To bring about a continued application of the CPGs *a functional, computerized documentation system* appears to be important.

Necessity of and motives for evaluating the use of CPGs elucidates several factors influencing the performance of evaluation. There is an ambition to *balance the priorities and costs of practice* which implies that there has to be a real demand to initiate the process. Mostly the development and implementation of CPGs are described to be performed within current economic frameworks. To *supervise compliance* is expressed as a necessity and the descriptions of this vary from informal discussions with the staff to a rigorously planned evaluation. That there are *inadequate forms of evaluation* is also disclosed as also a desire to improve this function. Evaluations performed are on the other hand described as *demonstrating the importance of the application* and show that when the staff takes part in the evaluations they gain an insight into how matters stand. This promotes a feeling of making a difference and of being able to influence the quality of care.

*Values of a successful implementation* elucidate the advantages gained and the values that are visualised when the implementation is perceived as successful.
It is seen that a successful implementation leads to improved conditions for patients by making more information available to them, which strengthens the patients’ capacity to cope. The interviews show that CPGs can contribute to an increased knowledge among the staff which supports them in performing their duties. The use of CPGs also increases awareness of knowledge based on facts, implying the development of critical thinking and an understanding of how to base nursing functions on research. When the content of the CPGs was in line with nursing activities already known this gave confirmation of correct performance of care interventions, which reassured the staff that their performance was appropriate. When the CPG is an integrated part of practice and the initial problems are resolved the staff has a positive attitude towards the CPG and is willing to act in line with the recommendations. In particular the initial problems that once started the process are now solved and there are no more complaints or reports of deviations.
DISCUSSION

Methodological considerations
The design of the studies included in this thesis is restricted to an overall descriptive perspective. The evidence-based movement was beginning to be known in clinical practice at the time when this thesis was initiated. There was little knowledge of how the concept EBP was conceived and operationalized in Swedish settings, although various aspects of the subject were discussed in the media. These matters gave an indication that a blend of different experimental and descriptive methodological approaches could form an appropriate way to accumulate knowledge that would give some insight into the mechanisms of providing an EBP into different settings in Sweden. Major changes have been made over time concerning the planning of the latter research projects in this thesis (paper III and IV). This gives the thesis a broad overall perspective rather than a deepening perspective.

Paper I
The limitation of the systematic review concerns the literature search that might have benefited if more databases than Medline, Cinahl and Cochrane Library had been included. To meet this consideration a manual search of the reference lists in all articles read in full-text was conducted. However, it may be due to this limitation that some relevant studies are lacking. The literature searches were done repeatedly and comparison was made both within the same database and between databases. The search terms that seemed most appropriate to assure sensitivity were placed in an overall position within the systems of medical subheadings in the databases. This led to a relatively large number of references, but in the choice of using terms at a more subordinated position and thereby running the risk of missing valuable references, or re-
viewing a large number of abstracts, the latter alternative was chosen. With the intention to strengthen the inclusion of studies two reviewers independent of each other viewed the citation lists of references. This was done to prevent any reference of value from being missed for full-text reading. Not many references could be electronically received at this time, which also contributed to the amount of references that was ordered to be viewed in full text.

The inclusion criteria were set in relation to the aim of the study, and the screening process ensured that the studies included all fell within these criteria. The validity regarding the screening and quality assessment process was strengthened by using two independent reviewers, and by using protocols that compelled the reviewers to motivate their judgement regarding the critical appraisal (cf. Greenhalgh, 1997; DiCenso, 2005). The inclusion criteria were wide regarding clinical settings and healthcare professionals, but relatively strict concerning the descriptions of the evidence base of the care given. The latter criteria were seen as essential in order to make it possible to answer the question at issue. However, this may have restricted the inclusion of studies, even if further references to ensure the evidence base were searched for, where these were referred to in the studies. This review also included studies with a qualitative approach. This was done with the intention to, if possible, give a broader picture regarding the experience of the staff providing an EBP, which was assumed to be reported in studies designed with qualitative methodological approaches. The idea was to let these studies, focusing on more than quantitative measurements of effects enrich the findings, and thereby eventually provide data showing values of an EBP that are otherwise not made visible (cf. Greenhalg, 1997; Cesario, et al., 2002; Thomas, et al., 2004).

**Paper II and III**

The strengths of paper II can be related to the size of the sample and the response rates reached. However, there are limitations regarding the impact of the questionnaire itself which straiten the interpretations that can be drawn from the data. According to statistics from the Swedish Association of Health Professionals (2003) it can be assumed that the sample in paper II covers about one third of the nurses working in psychiatric care. However, the proportion of nurses working in wards and in non-institutional psychiatric care is not representative in the sample. This sample has an almost equal (distribution 1) or fewer numbers (distribution 2) of nurses working in wards than in non-institutional care, which differs from the statistics that show a majority of
nurses work in wards. Since a comparison of matched responses showed a response rate of 66 % (1.518/2.294) a decision was made to base the statistical analyses on the total sample from each distribution. The respondents that participated only in the first distribution were fairly few (16 %), and even fewer responded only in the second distribution (5 %). This handling of the data will have an influence on the interpretations that can be made from the statistical figures.

Regarding paper III the response rate was ideal, but the size of the sample is small. The respondents’ involvement in the development of standardized nursing care plans was seen as a contribution that made them suitable in relation to the subject of the questionnaire. On the other hand the question remains about how clinicians in general would have responded to the questionnaire in a test-retest. The size of the sample restricted the opportunities for the analysis and set limitations concerning distribution in groups in the analysis of Cohen’s Kappa, as well as impeded other analysis such as weighted kappa. The findings in paper III are not sufficient to conclude that the tested factors are ideal to use, but indicate a reasonable stability, thus pointing to the possibility of further instrument development for the evaluation of implementation of CPGs. To ensure the development of an instrument using factors from the PARIHS framework more research is needed, including more factors from the PARIHS framework, larger samples and more tests, such as for example weighted kappa.

In constructing the questionnaires efforts were made to cover the area of investigation, to keep the questions simple with few alternative answers, to keep a resort alternative answer open, to avoid leading questions, and to make the instructions clear (Streiner & Norman, 1995; Ejlertsson, 1996). The pre-tests of the questionnaires were an attempt to validate the content. The limitations concern a reliance on estimates and recall by respondents, but also that the attempt to keep the questions simple to answer (that is, yes/no/don’t know) limited the ways of analysing the data. Regarding the construction of the items drawn from the PARIHS framework the original idea was to use them to test the content of the framework, as well as to test the possibilities to use them in the further development of an evaluation instrument. Because of this it became important to formulate them as closely as possible to the original expressions, although this gave rise to limitations regarding the phrasing and structure of the statement in the items. Due to unexpected matters this original idea of test-
ing the content of the PARIHS framework could not be realized, but the reliability test was feasible. However, in a further development of an evaluation instrument the phrasing and structure of the scales must be taken into considerations. The findings in paper III show overall an acceptable reliability concerning the scales, but the scales would probably benefit from a different structure. Perhaps a structure that permitted answers alternative, such as strongly agrees to absolutely disagrees. At the time the questionnaires were constructed the researchers were not aware of any similar questionnaire focusing on EBP, even if an instrument reported by Estabrooks (1998) made an attempt to consider a broad range of sources of information. Today some attempts have been made to develop questionnaires in this area (Egerod & Hansen, 2005; Upton & Upton, 2005a; Upton & Upton, 2005b; Upton & Upton, 2006b; Gerrish, et al., 2007). Although these questionnaires would probably not have fitted our investigation perfectly, parts of them might have been suitable. Clearly it would have been beneficial to use a questionnaire that has been subjected to tests of reliability and validity, as is the case with the questionnaire developed by Upton and Upton (2006b), and Gerrish and colleagues (2007).

Paper IV

The findings in paper IV indeed show the complexity involved in the implementation of CPGs, but also elucidate that the overall process includes factors that are perceptible and similar irrespective of which CPG is being used. Although the data are collected from many different settings and concern many types of guideline, caution is called for regarding the transferability. The participants were all active within hospital care, which might indicate specific requirements and conditions that influenced their experiences. Inviting nursing managers was an attempt to reach persons that had the overall responsibility for the quality of care and therefore also might be prepared to share their experience in this area. Since the interviewees are invited in connection with a previous survey it might be assumed that they have an optimistic attitude towards CPGs and thereby unconsciously neglect the difficulties experienced during the implementation process. The data consist of experiences with both negative and positive examples, disclosing difficulties as well as possibilities. However, the interpretation made visible in the formulation of theme and categories may give a generally positive impression, not recognizing the negative aspects.
In attempting to strengthen the credibility and dependability in the analysis of the text the researchers worked together in a process that enhanced reflective and critical thinking regarding the interpretations (cf. Lincoln & Guba, 1985; Morse, et al., 2002). In this process consideration of the researchers’ pre-understanding was made open and the two researchers who coded and formulated the system of categories had different experiences concerning the subject of the investigation. This was done with the purpose to support reflective thinking and thereby prevent the risk of losing meaning during the formulation of subcategories, categories and theme (cf. van Manen, 1997). If we not are aware of our pre-understanding and neglect the problems associated with this pre-understanding we risk that the result of the investigation becomes a reflection of our past experiences and our present but concealed conceptions. Then we are merely confirming what we already know instead of creating a new understanding (Dahlberg, et al., 2001).

Another consideration of importance is the use of the interview guide and to what extent its use was beneficial to the dialog between the interviewer and the participator. Since the interviewer lacked experience of conducting research interviews the interview guide helped to create a logical structure and provided the interaction with a focus, yet allowing individual perspectives and experiences to emerge (Patton, 2002). The guide also served as a memory aid concerning the previously completed questionnaire if this was needed during the interview. An overall impression is that the guide helped to focus on clarification or confirmation regarding the interviewees’ narration and inspired to follow-up questions, such as “what do you mean by …” (cf. Kvale, 1997), irrespective of whether the interview was by phone or in a face-to-face situation. However, the use of the guide and its possible influence on the pace of the narrations, and thus on the direction taken in the interpretation made, may be questioned.

**General discussion of the findings**

The aim of this thesis was to explore factors influencing an EBP, such as dissemination and awareness of evidence-based literature, and the outcomes of an EBP. The aim was also to describe factors of importance when implementing CPGs. The findings reveal that it is difficult but not impossible to show improved outcomes in relation to an EBP, that is, in relation to implementing evidence-based CPGs. The findings also indicate that dissemination and awareness of evidence-based literature does not seem to have a great influence
on the use of this literature in practice. This raises concerns about what really contributes to an EBP, and when it can be regarded as well proven that an EBP actually exists. The findings also reveal several factors that are of importance when implementing CPGs, and the reasonable stability in the tested factors drawn from the PARIHS framework indicates a possibility to use these in further instrument development regarding evaluating the implementation of CPGs. But there also seems to be some matters of confusion concerning the exemplification of CPGs and to what extent they were evidence-based. This raises concerns about the actual usefulness of CPGs, and the resources it seems to take in developing, implementing and maintaining the use of a CPG. But concerns must also be raised about the uncertainty shown regarding whether the CPGs were evidence-based or not.

Outcomes of an evidence-based practice
The findings regarding the outcomes of an EBP comprise examples of implementing evidence-based CPGs (paper I). This seems to be one way to demonstrate an EBP and to make it visible and measurable in terms of effects of care. However, the findings do not consolidate that outcomes do improve if evidence-based CPGs are implemented. Improvements are seen to a certain degree, but more research is needed to establish whether these improvements are also seen in other settings, in similar ways, and preferably with rigorous evaluations such as randomized controlled trials. The lesson learned in conducting this systematic review was that, within the frame of an evaluation it is complicated to show the connection between the actual use of an implemented CPG and the effects of its use. This means that both adherence to the CPG and the effects of the interventions actually made, have to be shown. The studies included in our review managed this, but had the disadvantage of being designed as before-and-after studies without randomization and a simultaneous control group. If more randomized, controlled trials had been identified this might have given more strength concerning the scientific foundation supporting the findings of the review, and probably more specific findings regarding the effect of using a CPG.

A relevant question today is whether the findings of paper I are still equivalent, or whether there is more scientific support for the idea that an evidence-based care improves outcomes. Findings of a systematic review can become out of date with time, especially if the scientific foundation is weak. In 2005 a systematic review, examining the effects of evidence-based CPGs on patient
care, was published (Bazian, 2005). This review, which included our review, managed to identify 15 evaluations published after 2002, of which five were included. The studies included were all randomized, controlled trials, of which two showed improvements regarding the quality of care, and three studies did not. The conclusions drawn are that evidence-based CPGs can work, but in some cases it does not seem to make a difference, which was related to shortcomings in study quality or that the guideline in question was actually not used (ibid). An update of paper I is needed in relation to the time since it was done, and the somewhat contradictory findings reported by Bazian (2005). There are publications identified incidentally that might be eligible for inclusion (in relation to former inclusion criteria in paper 1), that can perhaps offer further knowledge concerning the improvements of an EBP (Kotagal, et al., 2002; Horbar, et al., 2004; van Agthoven, et al., 2005; Couzigou, et al., 2005; Abbott, et al., 2006). An overall glance of these publications seems to indicate that the findings of paper I might be further supported rather than rejected.

In search of evidence-based practices

In the course of the systematic review (paper I) it became evident that the term evidence-based was often used but seldom declared in a sense that clarified how and in what way the healthcare given could be considered to be evidence-based. The findings of paper III and IV point to some confusion concerning the concept of CPG and whether or not they are evidence-based. Everything from national guidelines, regional care programmes and locally produced guidelines to instructions, standardized nursing care plans, or PM of treatments produced at a specific ward or clinical department was mentioned when CPGs were queried. The foundation of the CPGs varies, but research, clinical experience, laws and regulations are mostly referred to. In paper IV the findings revealed that CPGs must be reliable and tenable, which appeared to be an essential part of the implementation process. However, the concept of “evidence” was rarely described as systematically searched and critically appraised research findings. Research was always mentioned but the scrutinising of research publications was described in only a few cases. Instead other sources of knowledge than just research were often described as reliable and tenable, such as laws and regulations, but above all clinical experience, and preferably clinical experience of the “experts” often described as the specialist within the area of interest. The reliance on the expert is known from the “Diffusion of innovations theory” (Rogers, 2003), that proposed that most individuals do not evaluate an innovation on the basis of scientific research, but by the sub-
jective evaluation of close peers who had already adopted the innovation. The “experts” related to in paper IV were to some extent described as carriers of research knowledge and authorities within the area, but whether this really was the case was not seriously reflected upon or called into question. Similar findings of practitioners relying on various sources of knowledge are reported by Banning (2005) demonstrating that nurses generated evidence in numerous ways, including interviews, records, diaries, the internet, research papers, etc, and even if the nurses used the terms EBM and EBP they appeared to lack confidence in articulating their use. The nurses appeared to be familiar with research, but it was unclear to what extent the research assisted in clinical decision-making (ibid). More recent studies also report on various sources being used regarding clinical decision-making, but show also that research literature seemed to be a source of increasing importance (Dobbins, et al., 2007; Profetto-McGrath, et al., 2007). But no generalisation can be made from these studies since the samples are small and restricted in area of competence. A relatively large amount (about two thirds in paper III and half in paper IV) of the CPGs mentioned are reported to be evidence-based. However, in view of the confusion that seems to exist also in our studies regarding the concept “evidence-based”, this reporting can be misleading. Thus, it would be of interest to perform an independent appraisal of CPGs actually in use.

The findings in paper II concerning dissemination and awareness of evidence-based literature do not support the idea that these are factors influencing an EBP to a great extent. Even if dissemination does occur this seems to be over a rather prolonged time period, and the literature reaches far from all working in the area. The findings also show that awareness alone does not seem to inspire the use of the literature. These findings do not come as a surprise since similar findings concerning attitudes to research and research utilization are repeatedly reported internationally (Parahoo, 1999; Retsas, 2000; Gerrish & Clayton, 2004), as well as nationally (Nilsson Kajermo, et al., 1998; Nilsson Kajermo, et al., 2001; Boström, et al., 2006). In paper IV there are reports that research utilization seems to be more natural for physicians than for nurses, and in some cases the nurse managers wished that also the nursing staff would show more enthusiasm for research utilization. In particular it was reasoned that if the staff nurses read some of the research references underpinning the CPG this might strengthen their use and prevent irrelevant divergence from the guideline recommendations. Boström (2007) discusses, on the basis of the results of a thesis, that the nurses investigated reported not know-
ing whether resources for research utilization were available, that besides an actual lack of sources of information this can also indicate a lack of awareness, knowledge or interest for using such resources. Considering paper IV the resources as such were available, but, according to the nurse manager, the staff seemed to lack enthusiasm to actually make use of research literature. This can of course relate to many different things, for example to the type of innovation decisions (cf. Rogers, 2003) that existed regarding the use of the CPG. One might ask who had made the decision that the CPG was to be implemented, and if the implementation was initiated by an internal identification of problems (which is highlighted in paper IV as a factor that facilitates implementation). Another relevant question is whether the innovation decision was an optional (made by the individual), or a collective (made by consensus, among the staff), or an authority innovation decision (made by the management), (Rogers, 2003). We can argue from the findings of paper IV that if the resources are available and the time to make use of them exists, then it would seem that an integration (contingent innovation decision) between Rogers (2003) descriptions of innovation decisions would be preferred to inspire enthusiasm among the staff to actually put some effort into the matter. This means that by involving the staff from the beginning of the identification of the problems, striving for a collective innovation decision, supported by an authority decision, the individual might more easily make his/her own decision to collaborate and contribute by learning new ways of making sense of research literature.

Factors of importance when implementing clinical practice guidelines
The way to operationalize the factors in the PARIHS framework, as is conducted in paper III, has, to my knowledge, not been tried before. The figures regarding the scales indicate a reasonable stability with acceptable test-retest scores for most items, which would indicate the possibility of using the tested factors in the PARIHS framework as a foundation for the further development of an instrument. However, the statements with moderate agreement in Kappa values should benefit from a revision regarding clarity, and the items with merely fair kappa values should be considered to be excluded. This attempt is to be seen as a preliminary test and much more work has to be performed before an instrument is developed. The experience gained from conducting the investigations for papers III and IV demonstrate that some of the factors described in paper IV could be of value in the further development of an instrument, and perhaps be of help to further clarify the factors in the PARISH
framework, for instance, to specify characteristics regarding the factor culture in relation to attitudes of the staff and their intention to collaborate. The idea to evaluate implementation with the help of an instrument is to gain insight into the direction of the implementation process, thereby providing an opportunity to influence the process towards success.

The factors revealed in paper IV can be seen as related at different levels for instance, to the individual staff member, as well as at managerial and organisational levels. Similar to these findings also Ploeg and colleagues (2007) have identified factors influencing the implementation of CPGs at individual, organisational and environmental levels. These are factors such as staff attitudes and beliefs, leadership support, teamwork and collaboration, etc, and the authors suggest that implementation strategies should address barriers in relation to the different levels and should be tailored to different groups of stakeholders. The findings of paper IV highlight a general positive attitude towards the use of CPGs, even if a cautious attitude regarding the actual usefulness and value is also raised. CPGs are seen as support for the staff, promoting uniform action, securing a joint standard of practice, and ensuring a certain level of quality in care. The terms quality improvement and quality assurance were often used by the interviewees. But also that a misuse of CPGs poses risks, for instance, undermining the individual staff member’s own capacity to possess knowledge and create solutions to problems, as well as imposing a controlling instead of a transforming climate in practice. In the cases where the implementation process and use of the CPG are continuously evaluated, the process as well as the CPG is visible, while the processes seem concealed and the CPG tends to be forgotten when evaluation does not exist or is inadequate. In an overall perspective, implementation of CPGs appears to relate to processes of knowledge, learning, leadership and management. This can be linked to the reasoning by Batalden and Davidoff (2007) who propose a definition of quality improvement as the unceasing effort of making changes which lead to better patient outcomes (health), better system performance (care), and better professional development (learning). Batalden and Davidoff (2007) highlight five knowledge systems involved in improvement: (1) generalisable scientific knowledge from empirical studies, (2) particular context awareness characterising the local care setting, (3) knowledge of how performance is measured that helps to assess the effect of changes, (4) plans for change that describe the variety of methods available for incorporating evidence into the particular context, and (5) execution of planned changes which provides insight into the
realities that will make change happen. If implementation of CPGs is supposed to improve care then it appears to be essential that the knowledge needed to promote this is also prioritized by the management of healthcare, but also that the staff has an interest in learning and collaborating in these things.

**Dissemination and implementation as a process**

Paper II demonstrates that 39.5% of the respondents in distribution two reported no access at all to the literature, and that few of the respondents that had access to the literature reported any use of this literature. With all these matters taken into account it seems that the dissemination and awareness of evidence-based literature are not the sole factors that influence an EBP. Dissemination and awareness of these evidence-based sources have to be combined with demands from and responsiveness in the healthcare system that might actually benefit from using these sources. Turning to the PARIHS framework (Rycroft-Malone et al., 2002) there are several factors that in cooperation can be of significance to respond to the dissemination and awareness, for instance, context, culture, leadership and facilitation. One can argue that the dissemination is of importance if there are facilitators in the healthcare system who can be a recipient of this information. But this also works the other way around, namely, that the facilitator becomes significant if there is knowledge from evidence-based sources to disseminate. On the other hand the facilitator will have little chance to facilitate changes if the context is not receptive to change, or the culture does not promote learning, or if the management does not support the changes. In this way the PARIHS framework helps to illustrate the dynamic cooperation that will occur in practice, and that may promote or impede the way dissemination can make a contribution, or not, to an EBP.

Paper IV demonstrates five categories which illustrate components that drive the implementation process: motives for initiating and using CPGs, facilitating implementation, influencing compliance with and use of CPGs, necessity of and motives for evaluating the use of CPGs, and values of successful implementation. Also these components co-operate and, depending on how the factors within each component are constituted, the process is made visible or concealed, moves forward or stagnates, promotes or impedes a successful implementation. There are some similarities regarding the findings in paper IV and some of the factors in the PARIHS framework, such as research, clinical experience, context, culture, leadership, evaluation, and to some extent the ele-
ment facilitation. Factors reported in paper IV that constantly appear as facilitate the implementation process are to involve all staff members (facilitating), that the CPG has a reliable and tenable foundation (research, clinical experience), and that the CPG is perceived as useful and beneficial for the patients (culture). Salient factors that influence the compliance with CPGs are management support (leadership), follow-up and feedback strategies (evaluation), and the attitudes of staff and their intention to collaborate (culture).

In paper IV the values of a successful implementation are described as improved conditions for patients, increased knowledge among staff, and that the CPG becomes integrated in practice, thus resolving the initial problems. The findings of this thesis do not show any results that guarantee that an EBP, constituted by the use of evidence-based CPGs, improves outcomes for patients, personnel, or organisations. However, the results of paper I and IV indicate that it seems beneficial and may have some positive effects when CPGs are implemented, evidence-based or not.
CONCLUSIONS AND FURTHER RESEARCH

The findings show that it is complicated, but not impossible, to present outcomes of an EBP. To implement evidence-based CPGs seems to be one way to demonstrate that a practice is evidence-based, and to evaluate whether this leads to any improved outcomes. However, to succeed in this there has to be an acceptance, by practitioners, of a consistent definition of the concept “evidence-based”, and agreement concerning the measurement of outcomes. In this thesis it is shown that there is a tendency towards improved outcomes when evidence-based CPGs are implemented, in spite of, or maybe because of, the strict definition of “evidence-based” in the context of clinical practice. However, more research is needed to establish whether this tendency of improved outcomes can be further supported by research evidence.

Dissemination of EBN literature to psychiatric nursing practitioners seems to occur to some degree over an extended period of time, but the literature reaches far from all professionals within the area. Moreover the awareness of the literature does not seem to be sufficient to inspire a functional use of this literature. This implies that there has to be structures or receivers within healthcare practices that have the means to capture these evidence-based sources and facilitate their use for the benefit of patient care.

Inspired by the PARIHS framework an attempt was made to examine whether some of the factors described in this model are pertinent to the evaluation of the implementation of CPGs. Findings from a test-retest shows an overall, reasonable stability concerning the items that were drawn from the PARIHS framework. These results are to be seen as an attempt to investigate the factors usefulness for evaluation.
The findings in this thesis reveal experiences demonstrating that there are both advantages and disadvantages in the implementation of CPGs, and that there are observable structures in clinical practice that can facilitate or obstruct the implementation and use of CPGs. Implementation of CPGs is described as continuous processes to create reliable and tenable routines. Strategies to carry on the processes are a dynamic and complex pattern of prerequisites and factors that have an influence on whether the implementation becomes successful or not. Overall this deals with motives of initiating the use of CPGs, facilitation, factors influencing compliance and use of CPGs, motives and necessity of evaluating the use of CPGs, and values of a successful implementation.

There are still many questions to be raised concerning factors that influence and promote an EBP, and also concerning factors of importance when implementing CPGs. In the light of the results reported in paper I and by Bazian (2005), it may well be time to update the systematic review. If so, considerations must be taken regarding the strategies of the literature search and the inclusion criteria, so that other ways of making an EBP visible, than implementing evidence-based CPGs, also are scrutinised. To further investigate the use of evidence-based sources and to explore the foundation of CPGs it may be of interest to collect and appraise CPGs actually in use, to investigate the quality of these and to what extent they are evidence-based. This might give an insight into the existing processes of guideline development, and inspire to finding further questions that may give valuable information on the knowledge- and learning processes that exist in clinical practice. There is a need for further development of the PARIHS framework (Kitson, et al., 2008). Suggestions from the findings of this thesis are investigations that strive for conceptual clarification of the statements that describes the factors to facilitate the development of an instrument. But also investigations that test the content to confirm or develop the descriptions of the elements and factors described in the framework. It is relevant to ask whether the content of the factors can be confirmed, or perhaps be developed in empirical studies. Other studies that might bring valuable knowledge to the implementation area would be explorative research concerning organizational processes regarding the factors context, culture, leadership and evaluation which all seem to have a crucial influence on the implementation and the achievement of changes in clinical practice. It seems to be of importance to further illuminate the interplay between these factors in a way that deepen the understanding for the contemporary relationship rather than to study the factors in solitary.
This thesis was challenged with the difficulties of making the evidence-base in practice visible. By searching for EBPs it became clear that this is still an area needing attention if the goal of a secured, safe and effective care is to become a reality in every day care. In the light of the findings of this thesis this is possible, but complicated and maybe therefore not easily done. If an EBP is to become a common reality it has to be acknowledged by the practitioners and the management, that an EBP is basically nothing more, or less, than the expectation that, by raising the level of awareness regarding the foundations of clinical decision-making, the practitioners and the patients can act together in a better and more conscious way. This implies that the practitioners must be aware of the grounds for the decision-making process and be prepared to share their knowledge with the patients and their relatives. Thus there has to be a structure or a clearly defined system in clinical practice to continuously receive information on research findings, and transform these into easily adopted recommendations of how to act in every-day care. It makes sense that if such a system is to be functional the implementation of changes should be looked upon as processes that have to incorporate all the staff, and that evaluation of the implementations and changes made has to be continuously reviewed. The creation and supervision of such a system, and above all the fostering of a culture and context that strive to promote an EBP, may appear to be a heavy burden for a leadership to take on, but the idea of a learning organisation that values its staff and clients is of utmost importance if an EBP is to become a common reality.
POPULÄRVETENSKAPLIG SAMMANFATTNING

Begreppet evidensbaserad medicin har under de senaste tjugo åren lanserats för att understryka att de metoder som används inom hälso- och sjukvården så långt som möjligt ska vila på vetenskaplig grund. Ytterst är detta en strävan efter bättre beslutsunderlag i vården genom tillämpning av kritiskt granskade forskningsresultat. Idag är evidensrörelsen spridd globalt och inom samtliga professioner verksamma inom hälso- och sjukvård. Därför används numera ofta begreppet evidensbaserad vård. I Sverige är det framför allt SBU (Statens beredning för medicinsk utvärdering) som fört ut och etablerat begreppet genom att sammanställa och sprida kunskapsunderlag i form av systematiska kunskapsöversikter, där en kritisk granskning av utvalda metoder och rekommendationer för dessas användning presenteras. Det saknas undersökningar om evidensbaserade kunskapsunderlag används av de yrkesverksamma inom hälso- och sjukvården och om en användning möjligtvis leder till en bättre vård.

SBU samarbetar bland annat med Socialstyrelsen som sammanställer nationella riktlinjer för vård och behandling, som hälso- och sjukvårdspersonal i Sverige förväntas känna till och använda. Kliniska riktlinjer kan beskrivas vara beslutsunderlag som på ett praktiskt och lättillgängligt sätt omsätter en stor mängd fakta och kan användas för att minska olämpliga variationer av vårdinsatser. Det finns studier som visar att riktlinjer över lag inte nödvändigtvis är av hög kvalitet, men det visas också att det är mer sannolikt att riktlinjer används om de är evidensbaserade, alltså bygger på systematiskt insamlad och kritiskt värderad forskning. Implementering av forskningsresultat och kliniska riktlinjer i vården är ett komplett område och kunskapen om hur detta bäst låter sig göras är begränsad. I detta avhandlingsarbete var avsikten att under-
söka faktorer som kan bidra till en evidensbaserad vård och mer specifikt att undersöka effekter av en evidensbaserad vård, spridning och kännedom om evidensbaserad litteratur samt att beskriva faktorer som är viktiga vid implementering av kliniska riktlinjer i vården.

I en systematisk litteraturstudie demonstrerades att det är svårt att visa på effekter av en evidensbaserad vård, då en sådan är svår att synliggöra på ett sätt som låter sig mätas i vetenskapliga sammanhang. De studier som lyckades med detta hade implementerat evidensbaserade riktlinjer och visade på bättre resultat för patienter, personal och organisation. Totalt rörde det sig dock enbart om fyra studier med sinsemellan olika design och mätmetoder, vilket ger ett sammantaget svagt vetenskapligt underlag för idén att en evidensbaserad vård leder till bättre resultat. I en enkätundersökning riktad till sjuksköterskor inom psykiatrin, före och ett år efter publicering av två rapporter i evidensbaserad omvårdnad inom psykiatriska området, visades en viss ökning av spridning och kännedom om litteraturen. Vidare visades att 39.5 % av deltagarna fortfarande inte hade tillgång till evidensbaserad litteratur ett år efter publicering av rapporterna och av dem som hade tillgång till litteraturen var det få som rapporterade någon användning av litteraturen.


Sammanfattningsvis visar avhandlingsarbetet att det är komplicerat men inte omöjligt att påvisa effekter av en evidensbaserad vård, och att implementera
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