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PHYSICIANS' SICKNESS CERTIFICATION PRACTICES

Frequency, Problems, and
Learning

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ABSTRACT

Background: Administration of sickness absence involves many stakeholders, among them physicians, who play a key role in the sickness insurance systems in most western countries. Despite the impact that sickness absence can have on the life situation of the affected individual, physicians have limited training in how to handle sickness certification cases, and very little research has examined the practices of those medical professionals in this context.

Aims: The overall aim of the present research was to gain more detailed knowledge about sickness certification performed by physicians, as a basis for interventions. Study I was conducted to determine the frequency of having consultations concerning sickness certification, and nature of problems experienced in relation to this task by physicians in different clinical settings. Study II explored the problems and characteristics of the daily work with sickness certification, as perceived by board certified specialists working in primary health care or orthopaedics. Study III examined the knowledge and skills that physicians stated they needed in this area. Study IV aimed to ascertain what types of learning situations helped physicians improve their competence in this certification task.

Methods: Two comprehensive questionnaires about sickness certification practices were administered to physicians in 2004 and 2008, respectively. In 2004, 7665 physicians from Stockholm and Östergötland Counties were included; in 2008, all 36898 physicians living and working in Sweden were included. The response rates were 71% and 61%, respectively. Answers from all physicians aged ≤ 64 years who had sickness certification tasks ($n = 4019$ and $n = 14210$, respectively) were evaluated using descriptive statistics, correlation analyses, logistic regressions, linear regressions, and analyses of variance.

Results: In 2004, 74% ($n = 4019$) of the respondents had consultations including sickness certification at least a few times a year, and about half of those had such consultations at least six times a week. The following items were rated as very or fairly problematic by the largest proportion of physicians: handling conflicts with patients about certification, assessing work capacity, estimating optimal length and degree of absence, and managing prolongation of sick leave initially certified by another physician (study I). Many physicians answered that they needed more knowledge and skills in handling sickness certification, for instance regarding assessment of work capacity (44%), the optimal length and degree of absence (50%), and information about aspects of the social insurance system (43–63%). Fewer (20%) reported needing to know more about how to fill out sickness certificates (study III). In 2008, relatively small proportions of the physicians stated that formal learning situations had to a large or fairly large extent contributed to their competence in sickness certification, for example 17% indicated this for undergraduate studies, 37% for internship, and 46% for resident training. However, 65% felt that contacts with colleagues and other health care staff had been beneficial, whereas only one-third (33%) had been helped by training arranged by Social Insurance Office. Between 2004 and 2008, a small but significant increase was noted for all items related to formal learning situations and continuing professional development, while there were no changes regarding informal learning situations such as contacts with colleagues and patients (study IV). In general, the results varied considerably between physicians in different clinical settings. In orthopaedics, 83% handled sickness certification cases ≥ 6 times a week, as compared to 62% in primary health care. However, the rate of

problems concerning sickness certification was highest for those in primary care and lowest among those in internal medicine and surgery (study I). Those working in primary health care and psychiatry also had larger needs for knowledge and skills compared to other groups. These differences were still observed after adjusting for sex, years in practice, workplace policy, and support from management (study III). Compared to physicians in orthopaedics, a greater proportion of general practitioners experienced having support from management in the certification task, and more of them indicated that there was a common strategy for handling this duty at their workplaces (study II).

Conclusions: Handling sickness certification was observed to be a very common task among physicians working in many different clinical settings, not only primary health care, which has been the focus of previous studies and interventions. Therefore, this should be recognized as a very common task for most physicians, at least in Sweden. Many aspects of sickness certification were experienced as problematic, but the nature and frequency of the difficulties varied greatly between physicians in different clinics/practices. A majority of the physicians answered that they needed more skills and knowledge in managing this task, and previous learning had occurred primarily in clinical practice, not through formal education. The high rate of problems and the lack of both knowledge and formal education about how to manage sickness certification may have consequences for the physicians' work situation, for patients, and for society. Efforts are warranted to educate physicians in sickness certification on both the undergraduate and the postgraduate level, and to provide workplace strategies for improving the prerequisites for handling this task.

Further research: Further research should consider sickness certification by physicians in fields other than general practice, such as oncology, surgery, and internal medicine. Studies about how the sickness certification task is learned and what the knowledge acquired actually includes are warranted. For example research about how physicians develop "rules of thumb" or "mindlines" in this field, and what they entail.

Key words: sick leave, sickness certification, insurance medicine, physician, family practice, competence, learning, health care.

SAMMANFATTNING

Bakgrund: Många olika aktörer är involverade när en person behöver vara sjukskriven och en av dem är läkaren, som har en nyckelroll i sjuksförsäkrings-systemet i många länder i västvärlden. I Sverige har alla läkare rätt att utfärda sjukintyg, och sjukskrivning är en vanlig åtgärd i sjukvården. Att bli sjukskriven kan påverka en patients livssituation i hög grad, men trots detta har läkare begränsad utbildning i att hantera sjukskrivningsärenden och det finns lite forskning om läkares sjukskrivningspraxis.

Syften: Det övergripande syftet med avhandlingen var att få mer kunskap om läkares arbete med sjukskrivning, vilken kan användas som bas för framtida interventioner på området. I studie I var syftet att få kunskap om frekvens av sjukskrivningsärenden bland läkare inom olika typer av verksamheter samt vilken typ av problem läkare upplever i samband med sjukskrivningsärenden. I studie II utforskades läkare inom primärvård och ortopedi, med avseende på upplevda problem och karaktäristika i det dagliga arbetet med sjukskrivning. Syftet med studie III var att få kunskap om vilka kunskaper och färdigheter som läkare ansåg sig behöva mer av i arbetet med sjukskrivning. Syftet med studie IV var att undersöka vad läkare ansåg hade hjälpt dem att utveckla sin kunskap om hantering av sjukskrivningsärenden; såsom grundutbildning, AT, ST, fortbildning och informellt lärande i arbetet.

Metod: Två enkäter med frågor om en rad olika aspekter av läkarnas arbete med sjukskrivning skickades till läkare i Sverige under år 2004 och 2008. År 2004 inkluderades 7 665 läkare i Stockholms och Östergötlands län, år 2008 inkluderades alla 36 898 läkare som var yrkesverksamma och bodde i Sverige. Svarefrekvensen var 71 % respektive 61 %. Svar från de läkare som var 64 år eller yngre och som svarat att de hade sjukskrivningsärenden minst några gånger per år (n=4 019 respektive n=14 210) analyserades, huvudsakligen med hjälp av deskriptiv statistik, korrelationsanalys, logistisk regression, linjär regression och variansanalys.

Resultat: År 2004 hade 74 % (n=4 019) av de läkare som svarade på enkäten sjukskrivningsärenden minst några gånger per år. Omkring hälften av dessa hade sådana ärenden minst sex gånger i veckan och nio procent hade dessa mer än 20 gånger i veckan. De delar av arbetet som störst andel av läkarna tyckte var problematiskt var: att hantera meningsmotsättningar med patienter kring sjukskrivning, bedöma patienters arbetsförmåga, bedöma optimal längd och grad av sjukskrivning samt att hantera förlängningar av sjukskrivning påbörjade av en annan läkare (studie I). Många av läkarna svarade att de hade behov av att fördjupa sina kunskaper och färdigheter kring sjukskrivning, till exempel kring att bedöma arbetsförmåga (44 %), bedöma optimal längd och grad av sjukskrivning (50 %) och sina kunskaper kring olika aktörers respektive roller i sjukförsäkringssystemet (43-63 %). Färre av läkarna (20 %) svarade att de behövde fördjupa kunskapen om att skriva själva sjukintyget (studie III). Relativt få läkare svarade att olika formella lärsituationer hade hjälpt dem mycket eller en hel del att utveckla sina kunskaper om att hantera sjukskrivningsärenden, till exempel hade grundutbildningen hjälpt 17 %, allmäntjänstgöringen hjälpt 37 %, och specialiseringstjänstgöringen hjälpt 46 %. Däremot hade kontakter med läkarkollegor och/eller annan vårdpersonal hjälpt 65 % av läkarna att utveckla sin kompetens inom detta, medan en tredjedel (33 %) uppgav att de blivit hjälpta av utbildningar i försäkringskassans regi. Dessa resultat gäller år 2008. Mellan åren 2004 och 2008 hade det skett en signifikant ökning av andelen läkare som svarade att de blivit hjälpta av de formella lärsituationerna och av

fortbildning, medan ingen förändring hade skett gällande informella lärsituationer, t ex kontakter med kollegor och patienter (studie IV). En jämförelse av svaren från läkare som arbetade på olika typer av kliniker/mottagningar visade på stora skillnader i upplevelsen av arbetet med sjukskrivning. En högre andel läkare som arbetade inom primärvården rapporterade att de hade problem med sjukskrivning än andra grupper, lägst andel läkare med problem fanns inom internmedicin och kirurgi (studie I). När det gällde läkarnas behov av att fördjupa kunskaperna i sjukskrivning var det läkare inom primärvård och psykiatri som hade störst behov. Resultatet förändrades inte när resultaten kontrollerades för skillnader i kön, antal år i yrket, upplevelse av stöd från ledningen eller förekomst av en gemensam linje för sjukskrivning på mottagningen/kliniken (studie III). I en jämförelse mellan specialister som arbetade inom ortopedi respektive primärvård var det vanligare att ortopederna sjukskrev utan att träffa patienten (t ex via telefon) och det var vanligare att primärvårdsläkarna rapporterade att de hade kontakter med försäkringskassan. En högre andel av primärvårdsläkarna jämfört med ortopederna upplevde att de hade stöd från ledningen i arbetet med sjukskrivning. Det var också fler av allmänmedicinerna som hade en gemensam linje för arbetet med sjukskrivning på mottagningen/kliniken (studie II).

Slutsatser: Sjukskrivningsärenden var en mycket vanlig arbetsuppgift bland läkare inom många olika typer av mottagningar/kliniker, inte bara inom primärvården, som är den typ av verksamhet som majoriteten av tidigare forskning om sjukskrivningspraxis fokuserat på. Arbetet med sjukskrivning bör således lyftas fram som en väldigt vanlig arbetsuppgift för de flesta läkare i Sverige. Många olika delar av arbetet med sjukskrivning upplevdes som problematiskt, men hur ofta och vilka typer av problem läkare upplevde varierade mellan olika typer av mottagningar/ kliniker. Många av läkarna svarade att de behövde fördjupa sina kunskaper och färdigheter kring sjukskrivning. I stor utsträckning hade läkarna lärt sig arbetet med sjukskrivning i sitt dagliga kliniska arbete, inte genom formella utbildningssituationer. Den höga andelen läkare som upplevde problem och kände behov av fördjupade kunskaper och färdigheter skulle kunna leda till konsekvenser för såväl patienter, samhället i stort och läkarnas egen arbetssituation. Ett större fokus på att utveckla läkares kompetens i att hantera sjukskrivningsärenden behövs, något som skulle kunna ske både under grundutbildning, AT och ST, men även i fortbildning och genom att förbättra villkoren för lärande i det dagliga kliniska arbetet.

Förslag till vidare forskning: Vidare forskning behövs kring arbetet med sjukskrivning bland läkare inom andra verksamhetsområden än primärvård, till exempel läkare inom onkologi, kirurgi och internmedicin. Studier behövs också kring hur läkare lär sig att hantera sjukskrivningsärenden och vad kunskapen de utvecklar består av. Till exempel forskning om hur läkare utvecklar ”tumregler” eller ”mindlines” kring sjukskrivningsarbetet och vad dessa innehåller.

LIST OF PUBLICATIONS

- I. Löfgren A, Hagberg J, Arrelöv B, Ponzer S, Alexanderson K. Frequency and nature of problems associated with sickness certification tasks: A cross-sectional questionnaire study of 5455 physicians. *Scand J Prim Health Care*. 2007 Sep;25(3):178-185.
- II. Arrelöv B, Alexanderson K, Hagberg J, Löfgren A, Nilsson G, Ponzer S. Dealing with sickness certification – a survey of problems and strategies among general practitioners and orthopaedic surgeons. *BMC Public Health*. 2007 Oct 2;7(1):273.
- III. Löfgren A, Hagberg J, Alexanderson K. What physicians want to learn about sickness certification: analyses of questionnaire data from 4019 physicians. *BMC Public Health*. 2010 Feb 9;10(1):61.
- IV. Löfgren A, Silén C, Alexanderson K. How physicians have learned to handle sickness certification cases (Submitted 2010).

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CONCEPTS USED

Undergraduate education	In Sweden, the first stage of medical education entails 5.5 years of university studies at one of the six (soon seven) medical schools (in Swedish: <i>grundutbildning</i>).
Medical degree	The degree awarded upon completion of the 5.5-year medical training program, in some countries called doctor of medicine or medical doctor, MD. To avoid confusion, instead of doctor of medicine or medical doctor, the term physician is used in this thesis to indicate all those who have received a medical degree (in Swedish: <i>läkarexamen</i>).
Internship	Supervised 21-month practical training of physicians who have acquired their medical degree (in Swedish: <i>allmäntjänstgöring, AT</i>).
Registered/Licensed physician	A physician who, after internship, has been approved by the Board of Health and Welfare to work independently as a physician (in Swedish: <i>legitimerad läkare</i>).
Resident training	To become specialists in Sweden, physicians (including general practitioners) must complete a five years of residency. Licensing is necessary for acceptance to resident training. (in Swedish: <i>specialiseringsjänstgöring, ST</i>).
Board certified specialist	Physician who is certified by the Board of Health and Welfare after completing five years of resident training and evaluation in a specific field (in Swedish: <i>specialist</i>).
Continuing medical education	Designation traditionally used to describe continuing educational activities covering relevant medical issues, e.g., new treatments.
Continuing professional development	A broader concept comprising all types of professional development related to the work performed by physicians, e.g., communication, leadership, and quality assurance.

LIST OF ABBREVIATIONS

SIO	Social Insurance Office (in Swedish: Försäkringskassan)
GP	general practitioner
OS	orthopaedic surgeon
CME	continuing medical education
CPD	continuing professional development

1 INTRODUCTION

1.1 WHY STUDY PHYSICIANS' SICKNESS CERTIFICATION PRACTICES?

The background of my interest in physicians' certification practices emerged from my educational background as a master of public health science, and a general interest in how health and disease are influenced by psychosocial, cultural, and societal factors. From a public health perspective a good health on equal terms in the whole population is the priority, and the means to reach that goal involves systematic health promoting and disease preventing measures (1). The sickness benefit system in Sweden and other welfare countries provides protection against loss of income caused by disease or injury. From a public health perspective, this can be seen as a preventive and/or health promoting measure, that is, a positive phenomenon.

Even though generally regarded as positive from a public health perspective, sickness absence has also been suggested to be harmful per se, regardless of the underlying disease or injury (2, 3). However, thus far, the research conducted in this area has been rather limited (4). Still, if sickness absence is a harmful measure, sickness certification should not be regarded primarily as an administrative concern for the physician, but rather as a powerful measure that may have side effects and should be used with caution so as not to harm the patient (5):

“The late professor of family medicine in Uppsala, Gösta Tibblin, used to talk about sick-listing as a ‘drug’ that had to be used with care—on proper indications, in appropriate doses and prescription duration, and always considering possible side effects”. (p. 81)

This quote agrees with the view held by the Swedish Board of Health and Welfare indicating that sickness absence should be looked upon as a part of a patient's care, regardless of whether it is included in the treatment (6).

Another reason for focusing on sickness certification practices is to benefit the physicians themselves, since it has been shown that this task can be a work environment problem for these professionals (7). The work situation of physicians can possibly affect their work, and thereby possibly outcomes in patients.

Furthermore, according to Stone (8) the role of physicians in certifying sickness absence is the core administrative mechanism of a range of redistributive policies, including sickness benefits, and this certification process is important, not only for the individuals who are ill, but for all people in the community. Indeed, the sickness certification practices mirror society's view on its members (8):

“The very act of defining a disability category determines what is expected of the nondisabled—what injuries, diseases, incapacities, and problems they will be expected to tolerate in their normal working lives”. (p. 4)

Considered from a public health perspective, “optimal” sickness absence will promote the health of the population. This thesis focuses on sickness certification through the eyes of the physician. The four studies in the thesis concentrate on how often physicians handle sickness certification cases, what problems they experience in that work, how they have learned to handle these cases and what further competence they need related to this task. Hopefully the knowledge gained in these four studies can contribute to a sustainable sickness benefit system contributing to good health in the population.

Table 1 shows a number of approaches that can be used to investigate sickness absence. Hopefully the findings presented in this thesis will provide one more piece to help complete the large interdisciplinary puzzle of research in this area. The current studies were performed from the perspective of physicians in their work involving sickness certification (Table 1).

Table 1 Overview of sickness absence as a research field (adapted from Alexanderson and Norlund (9)), bold type indicating the area, perspective, disciplines, and level considered in the present research

Area of research	<ul style="list-style-type: none"> • Risk factors for sickness absence • Consequences of sickness absence • Promotion of return to work • Professionals' sickness certification practices • Methodological and theoretical development
Perspective taken in different studies	<ul style="list-style-type: none"> • Insured individuals/sickness absentees/patients • Professionals (e.g., physicians or social insurance officers) • Employers • Health care • Social insurance offices • Local community • Nation
Scientific discipline	<ul style="list-style-type: none"> • Medicine • Epidemiology • Economy • Public health • Education • Philosophy • Psychology • Sociology • Law, etc
Level of factors included in the analyses	<ul style="list-style-type: none"> • Individual • Organizational • Community • National • Global

1.2 SICKNESS BENEFIT IN SWEDEN

The social insurance system in Sweden includes sickness benefits covering loss of income due to disease or injury, in the entire adult population. Sickness benefit can be awarded when work capacity is reduced by 25% or more due to disease or injury (10). The sickness benefit can be awarded when work capacity is reduced by 100%, 75%, 50%, or 25% compared to the claimant's ordinary working time (11). Sickness benefit is currently about 80% of the normal income, and it is provided for a maximum of 364 days (11). If work capacity is still reduced after that time, the recipient can apply for continued sickness benefit or disability pension (11). Unemployed persons can also receive sickness benefit.

All physicians are entitled to issue sickness certificates, and such documentation is generally required from day eight of a period of sickness absence. In general, a physician sees a patient at a clinical consultation, although certificates can also be issued without actually meeting the patient in person, for example by telephone (12). The sickness certificate provided by the physician is to include information about the following: the medical condition in question, in what way that condition affects function and work capacity, treatment and measures needed, and duration and degree of absence. If a certificate is incomplete, the Social Insurance Office (SIO) may request additional information from the issuing physician. National guidelines for sickness certification were introduced in 2007, and, since then, physicians are also to motivate any exceptions from those guidelines on the certificates.

The SIO decides if the claimant is entitled to sickness benefit and their decisions are often based primarily on the information given on the certificates provided by physicians. In cases involving complicated or long-term sick-leave spells, meetings can be arranged between the SIO, the employer, and the patient/claimant. The employer is responsible for taking measures to promote return to work, such as adaptations in the workplace and rehabilitation of employees, and the occupational health services may also take part in these efforts. The mentioned agencies and people are the stakeholders that most often participate in this context, although many others can be involved as well. For example, the employment offices may be involved if the patient/claimant is unemployed, and it can be necessary to seek further expertise from additional health care providers, such as other physicians, nurses, midwives, physiotherapists, social workers, and psychologists. Moreover, the Social Services may be involved in cases concerning patients/claimants with social or economic problems. Thus, the certificate-issuing physician has to cooperate with many different stakeholders in the management of patients on sick leave.

1.3 THE SWEDISH SYSTEM IN AN INTERNATIONAL PERSPECTIVE

When interpreting research results concerning sickness certification practices in other countries, it is necessary to be aware of the differences that exist between those nations with regard to the insurance systems and the sick-leave rates (9, 13). An example of such a disparity is the number of days that a person is allowed to self-certify absence. In many countries the patient must obtain a certificate issued by a physician from the first day, whereas in others that has to be done from the third or fourth day (14). The maximum duration of sickness benefit also varies, from 26 weeks in Israel to no limit at all in other countries, as was previously the case in Sweden (15). Denmark and the Netherlands has a maximum duration on one year (15). A time limit of 364 days has now been introduced in Sweden, although that period can be extended to 550 days or longer in cases where work capacity is not restored (16). The

number of qualifying days also varies, with one day in Sweden and up to three days in some other countries (9).

Another difference between countries concerns the type of physicians that usually perform the task of sickness certification. For example, in Norway (17), it was observed that 81% of initial certificates were issued by GPs. A study in Sweden (18) showed that 40% of initial certificates were issued by general practitioners (GPs), 45% by hospital physicians, 8% by occupational health consultants, and 7% by other physicians. Also, another investigation in Sweden indicated that 57% of certificates were issued by doctors working in primary health care (19).

Despite the disparities between the various systems, the essence of the physicians' sickness certification task is the same, because the insurance systems in Western countries require some type of medical certification of sick leave after a certain period of absence from work. Results obtained in studies of physicians' experiences associated with issuing sickness certificates have been rather similar, for example, with regard to the problems that these professionals encounter in this work.

1.4 THE PHYSICIANS' TASKS IN SICKNESS CERTIFICATION

According to Swedish law (the Health and Medical Service Act), the overall goal of the health and medical services is to assure that the entire population is in good health and has access to quality care on equal terms (20). The Board of Health and Welfare regards sickness certification as part of health care, and hence it should be based on scientific evidence or well-proven experience (6). Upon request from a patient, it is the physician's duty to issue a certificate about the patient's care (21 p. 72). The law prescribes that the information provided on a certificate must have been acquired in an objective manner, and it should be written in language that is comprehensible to both the patient and the receiver of the document in order to allow proper assessment (21). The head of a health care facility is responsible for creating routines to ensure that certificates are issued in accordance with the legal requirements stipulating that members of the health care staff must have the competence and experience needed for that purpose (21).

According to Alexanderson et al. (22), a physician plays four different roles in clinical practice: (1) as a care provider, to investigate, diagnose, and treat patients', (2) as a "gatekeeper," to make decisions about how to use the restricted resources available in health care; (3) as a medical expert, to issue certificates to be used by stakeholders such as the SIO; (4) as a person in authority, to make decisions about compulsory care (e.g., in cases involving mental disorder or abuse). Those authors conclude that the first and third roles are used in sickness certification, which implies that the physician is not a "gatekeeper" for the social insurance system, since decisions concerning sickness benefits are made by the SIO.

The physician's sickness certification tasks can be summarized in seven items adapted from those proposed by Wahlström and Alexanderson, and Alexanderson et al. (23 p. 222, 24 p. 7):

- Determine whether a patient has an illness or injury.
- Ascertain whether the illness or injury impairs the patient's functioning to the extent that work capacity is also reduced in relation to the demands of the person's current job or, in the case of long-term sick leave, in relation to other jobs that are available on the labour market.
- Together with the patient, consider the advantages and disadvantages of sick leave, including how it might affect the disease/injury in question or the risk of mental problems, social isolation, substance abuse, or other difficulties.
- Determine the degree (full or part time) and duration of sick leave and what medical investigations, treatments, or other interventions are needed during the sick-leave period, and also make a plan of action.
- Establish whether there is a need to contact other specialists, the SIO, occupational health services, the employer, or other stakeholders.
- Issue a certificate (standard form) that provides sufficient information for the SIO case manager to decide whether the patient is entitled to sickness benefit and possibly also return-to-work measures.
- Document decisions, measures, and plans in the patient's case record.

Thus the issuing of sickness certificates involves many different types of tasks, ranging from assessment of medical conditions to, among other things, application of the sickness insurance rules and collaboration with external parties. The fourth item listed above also comprises application of guidelines, because such strategies for sickness certification were introduced on a national level in 2007 and 2008 (25, 26), and these are available on the Internet and include both general and diagnosis-specific guidelines. The importance of accurate documentation (the last item above) was stressed in a report describing the quality assessment performed by the Board of Health and Welfare (6).

1.5 RECENT INTERVENTIONS AIMED AT IMPROVING SICKNESS CERTIFICATION PRACTICES IN SWEDEN

The Swedish Board of Health and Welfare conducted an assessment of the quality of the work with sickness certification performed in health care from 2003 to 2007 (27), which led to strong criticism of the handling of this process within primary health care and later also in other settings, such as psychiatric care. Furthermore, the assessment per se showed that sickness certification is to be defined as a part of health care, not merely as an administrative issue.

As a result of efforts such as the above mentioned quality assessments and another investigation with the aim of identifying problems in how health care handled sickness certification of patients (22), a comprehensive intervention was introduced by the Swedish government from 2006. This included giving County Councils economic incentives to improve their work regarding management of sickness certification of patients. One goal was to upgrade the quality of the physicians' role in this process through the following: better management of the tasks involved; improved cooperation with other health care professionals and with other stakeholders, especially the SIO; increased competence. In part, the intervention was based on the two above mentioned investigations (22), and results from a survey conducted in 2004 to elucidate the tasks of physicians in sickness certification (28). Furthermore, in 2007

the Board of Health and Welfare introduced national guidelines to be used by physicians and others in the management of sickness certification, and these include both general recommendations regarding management of sickness absences (25) and diagnosis-specific recommendations regarding the duration of absence (26).

Also, in recent years the Swedish SIOs have begun to use stricter interpretation of the laws and regulations in this area, which has probably affected the way that physicians handle such cases. Other influencing factors include the general increase in use of evidence-based medicine (EBM) in health care and a stronger focus on the quality of care, trends that are exemplified in a systematic review of the literature on sickness absence, which was published in 2004 (9, 29). Furthermore, issues concerning sickness certification and the practices related to that process have been much focused in the media.

Together, the above-mentioned modifications and interventions probably changed the prerequisites for physicians performing sickness certification during the time elapsed between the two surveys conducted in the current research.

1.6 FREQUENCY OF SICKNESS CERTIFICATION TASKS AMONG PHYSICIANS

Considering the number of individuals who claim sickness benefit each year, the average proportion of physicians who have to perform sickness certification tasks among physicians ought to be fairly high. In Sweden, 130 000 persons received sickness benefit in 2009 (excluding those claiming disability pension) (30); some of those individuals had probably had more than one sick note during the year, and probably many of the sick leave spells requiring a certificate were shorter than 15 days and thereby not included in the SIO statistics. Yet few studies have examined how often physicians issue sick notes or have consultations involving consideration of such certification. In a review between 9% and 60% of primary care consultations with patients of working-age involved issues related to sickness certification (9 p. 14). Wynne-Jones et al. (31) conducted a systematic review of investigations concerning sickness certification in primary health care in Europe, and they concluded that there is a general lack of research on the rate of sickness certification.

Previous studies have used different measures of the frequency of consultations involving sickness certification. For example some have measured only consultations that actually led to issuing of a certificate (32), which is sometimes practical when collecting the data. Others have measured all consultations where certification was considered (5), which should be preferable when the focus is on professionals and their work associated with providing sick notes. Earlier investigations were carried out in primary health care settings and were small, that is, they included relatively few physicians and varying numbers of issued certificates (5, 32, 33). Some studies were based solely on the physicians at a single general practice (34-36).

In one of the few studies performed in Sweden, 24% of the patients visiting primary health care received a sickness certificate (32). The results of an investigation in Switzerland showed that 4% percent of consultations with GPs led to certification. A study of 14 general practices in Germany found that 40% of the patients were sickness certified (37). In the United States, it was found that in 10% of consultations in primary care, the physicians were asked to provide information on ability to work (33). Another investigation in Sweden showed that 9% of all consultations that

included consideration of sickness certification (defined as deliberation by the GP or discussion with the patient) (5).

Another way of investigating physicians' work in this area is to measure the proportion of working hours spent on providing sickness certificates, which Garraway (34) found to be 13% of the average weekly doctor-patient contact time in a study conducted in the UK. Yet another measure considers the rate of consultations concerning sickness certification that does not lead to provision of a sick note, which Englund and Svärdsudd (5) found to be only 6% in a Swedish county.

Thus the available literature does not contain any solid information about how common sickness certification tasks are. The studies that have been published were small, used different measures, and were performed in primary care settings.

1.7 PHYSICIAN-RELATED FACTORS THAT AFFECT SICKNESS CERTIFICATION PRACTICES

It has been suggested that physicians' sickness certification practices are affected by a range of factors, such as patient characteristics, physician-related factors, organization of the health care system, workplace factors, and the collaboration with the SIO (23). Wahlström and Alexanderson (23) conducted a systematic review of the literature in this area to explore the possibility that physician-related factors influence sickness certification, but their findings gave no scientific evidence to support that assumption. According to those authors, the investigations were too few, they addressed different issues, they were of low quality, and in some cases they provided conflicting results (23). Nonetheless, a small number of rather inconsistent studies have examined physician-related factors, and these are discussed below.

To start with, a few investigations have addressed how the sex of the physician affects sickness certification. In Sweden, it was found that more sick notes were provided by women physicians than by their male counterparts (32), whereas no such sex-related difference was observed between GPs and general internists in Switzerland (38).

The age of the physician has also been investigated in relation to sickness certification. Tellnes (39) found that older physicians issued sickness certificates for longer periods, and other researchers have observed the same tendency among GPs in Sweden (32). However, no age differences were noted in an investigation of Swiss GPs and general internists (38). A case vignette study in the UK showed that longer duration of sickness absence was suggested by GPs qualified before 1975 than by those qualified in 2000 or later (40). Furthermore, in qualitative studies performed in the UK, GPs found it easier to make decisions (41) and negotiate with a patient (42) about work capacity if they knew the patient well.

The level of education of physicians can probably also affect how these professionals handle sickness certification. In Sweden, Norrmén et al. (32) observed that more sick notes were issued by specialists than by non-specialists. Those investigators also found that physicians with training in insurance medicine, as compared to those without such training, issued more sick notes for musculoskeletal diagnoses.

Considering two other aspects, a study in Norway demonstrated that physicians' attitudes towards sickness certification did not affect the length of sick leave (39), and

the mentioned investigation of Swiss GPs and general internists showed no differences between rural and urban areas (38).

A study in Norway showed that physicians' sickness certification behaviour could be altered by a one-day workshop on how to perform structured functional assessments (43). However, in the US, Pransky (33) found that an educational intervention did not significantly change physicians' practices in this context, although it did lead to a tendency towards better quality of the sick notes. A study of GPs in the UK revealed that a training program could affect physicians' attitudes regarding the importance of their role in sickness certification and confidence in managing such consultations (44).

It is also plausible that management and leadership constitute another important factor influencing the work involved in sickness certification. A recent qualitative study carried out in Sweden (7) demonstrated that physicians feel that there is a lack of management of their sickness certification duties, and one investigation of health care managers (45) showed that those professionals are uncertain about what aspects of physicians' sickness certification tasks they should actually be managing.

None of the studies discussed above gave any information about the type of patients that the physicians treated. It is possible that the more experienced physicians handled the most complicated cases. Shiels and Gabbay (46) found evidence that the variation in long-term sickness certification was explained by the patient's diagnosis and age, rather than factors related to the physician.

In summary, so far, there is no scientific evidence that can demonstrate whether or in what way sickness certification is influenced by physician-related factors such as sex, age, or educational level.

1.8 PHYSICIANS' PROBLEMS CONCERNING SICKNESS CERTIFICATION

Despite the many and varying aspects of physicians' sickness certification practices that were included in the systematic literature review presented above (23), scientific evidence (albeit limited) has been established for only for two things: first, sickness certificates are often of insufficient quality; second, physicians find sickness certification problematic. The second of those conclusions was been confirmed in a study designated as a "narrative review" based on a systematic search (47) describing GPs attitudes and beliefs towards sickness certification. Three themes were identified in that review: conflicts (with patients and other stakeholders), conflicting role responsibilities, and barriers to good practice. One of the studies even suggested that some physicians regard the issuing of sick notes as a work environment problem (7).

Various types of problems have been found in the previous investigations, for example, several studies have shown the potentially conflicting roles of physicians (7, 23, 41, 48), and it has also been reported that some physicians find it troublesome to negotiate with patients about sickness certification (42). Other problems reported in the literature concern difficulties associated with reaching medical diagnoses for patients' complaints (7, 41, 49-51), handling absences of long duration (38), lack of support and cooperation from colleagues (7, 48, 52), and problems in performing assessments of work capacity (7, 50). It has also been shown that physicians experience lack of time and lack of control over their work situation (52). Moreover, according to von Knorring et al. (7), psychosocial working conditions can be a

problem for physicians in managing sickness certification cases, which was described as being manifested in, for example, feelings of fatigue, despair, and lack of pride in that aspect of their work. Hussey et al. (48) found that some Scottish GPs did not regard making judgments on behalf of the Department of Work and Pensions as their core role. These GPs felt that confronting patients about sickness certification endangered the physician-patient relationship, and they were more interested in preserving such interaction than in doing their “duty to society.”

The mentioned studies concerning the problems experienced by physicians were all qualitative in nature, and hence the extent of the reported difficulties could not be assessed.

1.9 PHYSICIANS’ NEEDS FOR COMPETENCE IN SICKNESS CERTIFICATION

Qualitative investigations have indicated that physicians report the need for more knowledge and skills in how to handle sickness certification (53, 54). Several studies have shown that physicians have poor knowledge of the social insurance system (40, 41, 48, 55). Examples of this from the UK include indications that doctors have insufficient knowledge about what happens to the information they supply to the various authorities (41) and evidence that a majority of GPs are unaware of the guidelines provided by the Department of Work and Pensions’ for handling sickness certification (40). In two other UK studies, it was found that 79% of young physicians were concerned about their lack of knowledge regarding sickness certification (55), and 55% of GPs reported that they would like to have additional training in aspects of sickness certification, such as how to deal with patients who demand sick notes and how to use specific types of certificates (56). In contrast to those findings, a qualitative study conducted in the UK indicated that sickness certification was not a very appealing subject among GPs (41), but these doctors suggested that, instead of formal training, it would be better to provide a unit on this subject in their personal training plans or “educational” information in periodicals.

The studies described above did not go into detail about the specific needs of physicians in regard to sickness certification, but rather they assessed general needs for knowledge and skills in this area.

1.10 PHYSICIANS’ EDUCATION IN SICKNESS CERTIFICATION

In Sweden, as well as many other countries, physicians receive only limited formal education in how to handle sickness certification, and yet all Swedish physicians are required to issue sickness certificates when necessary. Very few studies have examined how physicians are trained to manage this task, even though research has long been done to elucidate other areas of medical education. A few quantitative and qualitative investigations have been performed, mostly in the UK and in a primary care setting, as discussed below.

Hiscock and Ritchie (41) found that the training in the UK does not provide GPs with enough knowledge of requirements in different occupations. In fact, the GPs in that study generally claimed they had received almost no instruction in certification practices, at either the undergraduate or the postgraduate level (41), and what little they had been given consisted of being informed about various certificates and forms by a trainer or senior colleague (41). Some of those GPs had also learned by reading a guide or attending a seminar, lecture, or training day, whereas others had not

participated in any training at all. Contacts with colleagues were referred to as a source of informal “continuing education.” Furthermore, specific issues that were regarded as difficult were discussed at practice meetings, and that was also considered to be a way of learning (41). Lack of training in this field may have resulted in the view that sickness certification is a less important aspect of a physician’s work (42) and not a very attractive subject (41).

In two other studies of UK GPs, the majority (63% and 71%, respectively) reported that they had no formal training in this area (40, 56), and those who had received instruction indicated that it comprised a mean of 4.1 hours (40). Training in how to manage sickness certificates was typically informal in nature and included in the vocational training of GPs (56). Nonetheless, some of the physicians had received more intensive training, for example courses in occupational health.

In an investigation of primary care physicians in the US (33), it was found that only 32% had received training in how to manage work disability, and 8% of those had undergone training during undergraduate education, 10% during residencies, and 23% at some later point. Similar results were found in another UK study (55), which showed that only 13% of young physicians had received training as students, and 21% had been given instruction in such matters while they were junior doctors, and 66% had not had any such training at all.

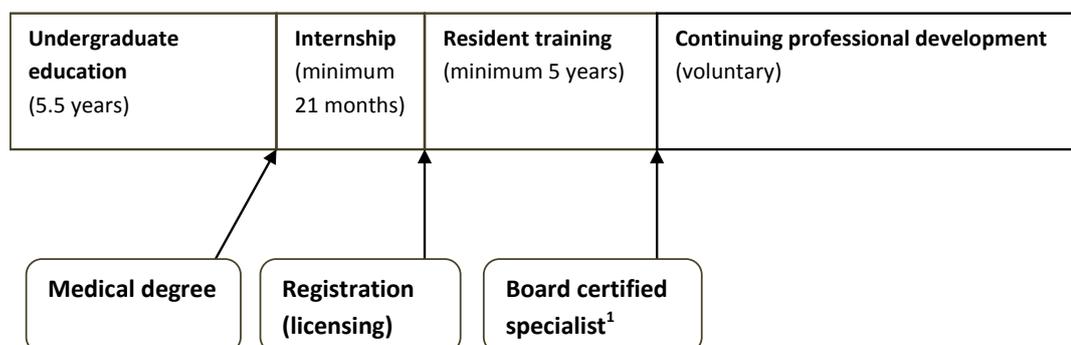
Many physicians say that sickness certification is an area of competence that is actually not included in their medical knowledge (7), and some even want to get rid of this task (41, 48). However, at least in the UK, this task has been the responsibility of GPs for nearly a century, and there is no indication that this situation will change in the near future (57).

Considering the above-mentioned studies, it is obvious that an insufficient amount of research has been conducted to elucidate the extent of physicians’ education and other types of training in the area of sickness certification. Despite the general lack of information regarding the performance of this task, substantial resources are being allocated to various measures aimed at improving the way that it is handled by physicians. In order to plan interventions that are effective, it is necessary to gain a better understanding of the work that physicians must do and the problems they face. To achieve a solid basis for planning future interventions in this area, it will be necessary to obtain detailed information about how common the certification task is and how often it entails problems for physicians, and also about what physicians want to learn and how their knowledge is currently acquired. Moreover, most previous studies have focused on GPs and have used qualitative methods or been small in size, and hence the results cannot be generalized to other physicians or settings.

1.11 A TYPOLOGY FOR LEARNING SITUATIONS

The development of competence as a physician is achieved during undergraduate education, internship, and residency, and subsequently through continuing professional development and learning in daily clinical practice. In the present research (study IV), a typology of these different types of education was used that was originally developed by Coombs and Ahmed and has been described by La Belle (58). This classification distinguishes between formal, non-formal, and informal education.

According to the applied typology, formal education is defined as an “institutionalized, chronologically graded and hierarchically structured educational system, spanning lower primary school and the upper reaches of the university” (58 p. 162). This type of education leads to a certificate or degree of some kind. The formal education of physicians includes undergraduate education, internship, and resident training (Figure 1). In Sweden, medical students receive a limited amount of formal education in how to handle sickness certification, and the curricula at the six medical schools differ.



¹In Sweden, general practitioners (GPs) are also classified as specialists after a five-year period of resident training.

Figure 1 Overview of stages in medical education in Sweden

Non-formal education is defined as “any organized, systematic educational activity carried on outside the framework of the formal system to provide selected types of learning to particular subgroups in the population, adults as well as children” (58 p. 161). For medical students, such education is exemplified by extra-curricular activities, and for working physicians it is called continuing medical education (CME) or continuing professional development (CPD) (Figure 1). In Sweden CME/CPD is voluntary and does not give credits, which is in contrast to some other countries (59). The concept CPD is used in this thesis rather than CME, because CPD encompasses a wider view of physicians’ competence and learning, and it is also more closely related to actual performance in clinical practice, which Cervantes (59) described as follows:

“CPD focuses on practice improvement and therefore it develops all competence levels, those of self-reflection, performance analysis, quality improvement and assurance, communication and leadership, internal and external feedback, and personal and social competency, adding to the classical concept of CME” (p. 190)

In Sweden, CPD in how to manage sickness certification is provided primarily by the SIO and not on an academic level.

Informal education is “the lifelong process by which every person acquires and accumulates knowledge, skills, attitudes and insights from daily experiences and exposure to the environment” (58 p. 161). The physicians’ everyday practice provides a rich source of such learning, which is characteristically unintentional: it happens as an effect of solving problems and interacting with peers.

In this thesis, the three concepts formal education, non-formal education, and informal education are designated *formal learning situations*, *non-formal learning situations*, and *informal learning situations*. The reason for this is that the original

typology does not differentiate between the educational setting per se and the structure of the learning processes. Each of the educational types can have different characteristics and stimulate different types of learning processes, and they represent three different settings in which learning can occur. According to La Belle (58), each of the three can involve formal, non-formal, and informal characteristics, or, in other words, learning always has an informal component, and no learning is completely informal (60).

1.12 DEFINING THE PHYSICIANS' COMPETENCE

Competence is a concept that is used in multiple and unspecific ways (61). Epstein and Hundert (62) have given a general definition of a physician's competence, which indicates that acquired knowledge or skills as such are not central, but rather the *judicious use* of knowledge and skills:

“Professional competence is the habitual and judicious use of communication, knowledge, technical skills, clinical reasoning, emotions, values, and reflection in daily practice for the benefit of the individual and community being served”. (p. 226)

Epstein and Hundert also stressed that competence is always related to a specific task and a specific context:

“Competence is a statement of relationship between an ability (in the person), a task (in the world), and the ecology of the health systems and clinical contexts in which those tasks occur”. (p. 228)

Here, the specific task in focus is physicians' handling of sickness certification cases, and the context is the everyday clinical work performed by those medical professionals. The ability to act appropriately in a situation depends on a range of aspects that are, among other things, related to psychomotor, cognitive, social, affective, and personality factors (61, p 48). The cognitive factors include both theoretical knowledge and intellectual skills, for example the ability to solve problems and make decisions. Other types of cognitive factors are tacit knowledge and meta-cognitive knowledge.

Theoretical knowledge (also called declarative knowledge or “know-what”) refers to knowledge that can be verbalized and communicated to others. It can comprise facts, but also descriptions of procedures in the form of rules and norms (61). Theoretical knowledge is to a large extent the result of formal learning (e.g., university studies). In the medical profession, a large amount of the theoretical knowledge is central.

Another type of knowledge is called tacit or implicit knowledge, which according to definition cannot be put into words. In short, tacit knowledge can be described as “knowing how” as opposed to “knowing what”. Tacit knowledge can develop only in practice, and two specific types are recognized, which are termed knowledge as acquaintance (e.g., to be able to recognize something) and knowledge as experience (e.g., to see patterns) (61). A great deal of the knowledge that is required to perform complex assessments is tacit, which according to Polanyi (63) can be described as “we know more than we can tell”. This type of knowledge is also highly relevant in medicine, where the experienced physician uses implicit clinical knowledge in tasks such as searching for a diagnosis.

A third type of knowledge is designated meta-cognitive knowledge, which represents the individual's knowledge about and ability to plan, supervise, and evaluate his or her own cognitive processes in relation to learning or problem solving (61). Meta-

cognitive skills are important for the physician's ability to learn from clinical practice and also to identify knowledge gaps, two traits that are necessary for self-directed learning (64).

The definitions of different types of knowledge and skills that are given above are not clear-cut (i.e., they overlap each other), but they are nonetheless useful to help distinguish between them as theoretical concepts.

1.13 A MODEL OF PROFESSIONAL COMPETENCE

Some occupations, for example physicians, are in the literature referred to as "professions", which according to Friedson can be described as an ideal type that is in control of their own work, as opposed to work controlled by bureaucratic principles or by customers as in the model of the free market (65). Professions share certain characteristics. These are described by Cruess et al (66) who have combined previous definitions to explain the term profession as follows:

"Profession: An occupation whose core element is work based upon the mastery of a complex body of knowledge and skills. It is a vocation in which knowledge of some department of science or learning or the practice of an art founded upon it is used in the service of others. Its members are governed by codes of ethics and profess a commitment to competence, integrity and morality, altruism, and the promotion of the public good within their domain. These commitments form the basis of a social contract between a profession and society, which in return grants the profession a monopoly over the use of its knowledge base, the right to considerable autonomy in practice and the privilege of self-regulation. Professions and their members are accountable to those served and to society". (p. 75)

According to this definition, physicians should base their work on a complex body of knowledge and skills, and they should be governed by a code of ethics and accountable to both patients and society. The social contract between a profession and society, described in the above-mentioned definition of a profession, give the profession considerable autonomy in practice and the privilege of self-regulation.

Forslund (67) has created a model that illustrates the competence needed in a professional's work (Figure 2). It includes five elements of professional competence: knowing the goals of the organization, knowing the ethical codes of the profession, having a systematic theoretical base, having the ability to use a set of methods, and being able to evaluate and reflect over one's work.

Knowing the organizations' goals mean having insight into the rationale of those goals, understanding by whom and why they were created, and being able to judge one's own performance in light of the goals. Forslund describes both goals such as those defined by legislation or work regulations, and those concerning a specific individual. Problems can arise when professional ethics and the organizational goals are in conflict. This issue is highly relevant in relation to sickness certification issues, because the physician's views regarding what will benefit a patient may disagree with the rules that he or she must follow in the role as medical expert for the SIO.

Forslund's model also includes the systematic theoretical base that is required in the profession (e.g., theoretical knowledge in medicine and insurance rules) and that constitutes the fundamental knowledge structure for medical practice, and this is combined with a set of methods or techniques (e.g., communication techniques or surgical procedures). Both those components should be rooted in the organizations' goals and the professional ethical codes. The systematic theoretical base provides the

“how to think about it” element, and the set of methods serves as the “how to do it.” Each individual practitioner will construct his or her own unique combination of knowledge and skills, which is joined with other experiences and personality in what Forslund calls a personal professional profile. In each specific situation that arises, this profile will affect the professional’s actions and decisions. Thus, knowledge and skills do not exist separate from the individual physician, but rather are “filtered” through him or her. According to Forslund’s model, an important part of professional competence is the ability to continuously evaluate the effects of one’s professional actions in relation to the goals of the organization and professional ethics.

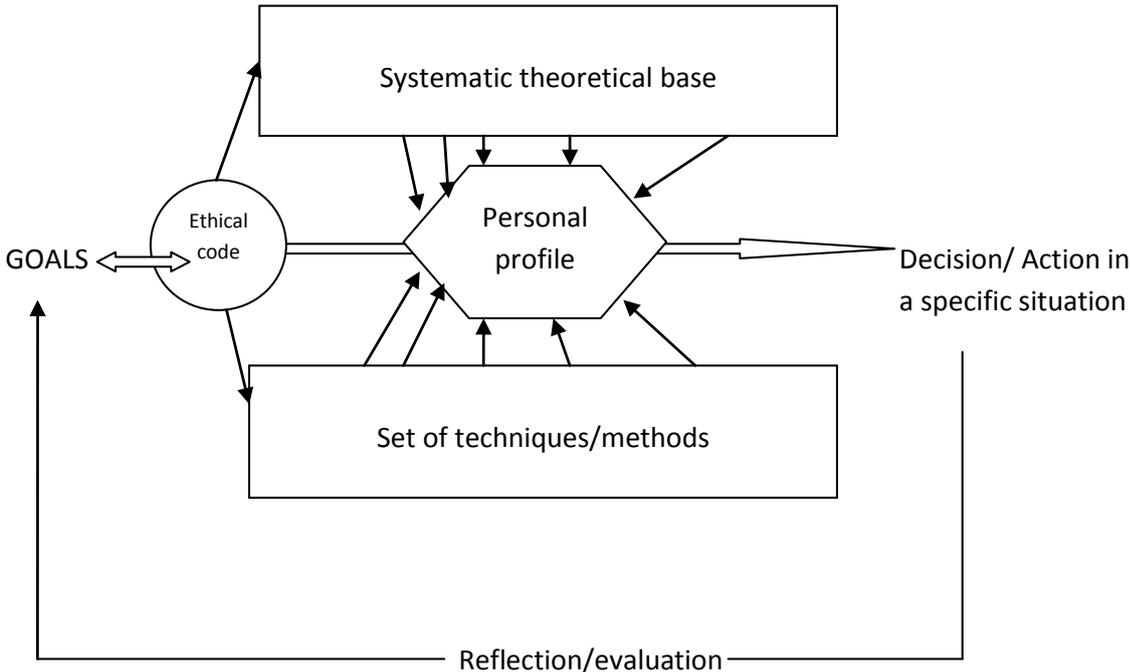


Figure 2 Components of professional competence in Forslund’s model (67, p. 9).

2 AIMS

2.1 GENERAL AIM

The general aim of the present research was to gain knowledge about physicians' sickness certification practices, focusing on the frequency of this task, related problems, and learning. The information obtained can be used as a basis for planning future interventions designed to aid physicians in performing sickness certification.

2.2 SPECIFIC AIMS

2.2.1 Study I

The aim of the first study was to describe the frequency of sickness certification tasks among physicians in different clinical settings, as well as frequency and type of problems associated with sickness certification.

2.2.2 Study II

The second study was performed to explore and compare the perceived problems and characteristics of the daily work involving sickness certification, in two groups of board certified specialists with high rates of consultations including sickness certification, namely, specialists working in primary health care or in an orthopaedic surgery.

2.2.3 Study III

The aim of the third study was to investigate what further knowledge and skills physicians in different clinical settings think they need to handle sickness certification.

2.2.4 Study IV

The aim of the fourth study was to analyse what learning situations physicians state has helped them to improve their competence in handling sickness certification, and to compare the results of that analysis for the years 2004 and 2008.

3 METHODS

This thesis is based on the findings of four studies (I–IV) that used data from two questionnaires concerning physicians’ work involving sickness certification, which were administered to physicians in Sweden in 2004 and 2008 (Table 2).

Table 2 Overview of the four studies

	Study I	Study II	Study III	Study IV
Aim	To gain knowledge about the frequency and nature of problems associated with physicians’ sickness certification practices.	To explore perceived problems and strategies related to sickness certification work among general practitioners (GPs) and orthopaedic surgeons (OS).	To study what kind of knowledge and skills physicians say they need to better manage sickness certification.	To gain knowledge about what physicians state has improved their competence in relation to sickness certification.
Study population	Physicians aged ≤ 64 years in Stockholm and Östergötland Counties (n= 7665)	Physicians aged ≤ 64 years in Stockholm and Östergötland Counties (n = 7665)	Physicians aged ≤ 64 years in Stockholm and Östergötland Counties (n = 7665)	Physicians aged ≤ 64 years in Stockholm and Östergötland Counties 2004 (N = 7665), and all physicians working and living in Sweden in 2008 (n = 34360)
Year	2004	2004	2004	2004 and 2008
Response rate, total	71% (n = 5455)	71% (n = 5455)	71% (n = 5455)	71% (n = 5455) and 60% (n = 20459)
Study group	n = 5455	n = 822 (GPs and OSs who have sickness certification consultations)	n = 4019 (physicians who have sickness certification consultations)	n = 4019 and n = 14210 (physicians who have sickness certification consultations)
Main outcome	Frequency of sickness certification and related problems among physicians	Frequency of problems and strategies in handling sickness certification among physicians	Percentage of physicians needing more knowledge/skills in sickness certification	Percentage of physicians who had gained competence in different learning situations
Design	Cross-sectional questionnaire study	Cross-sectional questionnaire study	Cross-sectional questionnaire study	Two cross-sectional questionnaire studies
Background variables	Type of clinical setting, educational level, years in practice, age, sex	Type of clinical setting, years in practice, sex	Type of clinical setting, educational level, years in practice, age, sex, support, policy	Type of clinical setting, year of data collection, educational level, age, sex
Analyses	Descriptive statistics, including confidence intervals and correlation analyses	Descriptive statistics, including chi2-test and logistic regression	Descriptive statistics, analyses of association which were used to construct two indices, linear regression, ANOVA	Descriptive statistics, including t-test and logistic regression

3.1 THE QUESTIONNAIRES

A questionnaire was developed in 2004, and a revised and extended version was created in 2008. Both include many different aspects of physicians work related to sickness certification. The second questionnaire was developed by making improvements based on the results of the 2004 year survey, and adding items about the sickness certification guidelines and interventions regarding sickness certification that were introduced in Sweden after 2004. In this thesis, a few out of the questionnaire items were used (see Appendix), and they concerned e.g., frequency of sickness certification, experienced problems, collaboration, and learning situations.

3.1.1 The 2004 questionnaire

Obviously, the first stage in the 2004 survey was to develop the questionnaire, a process that actually started in 2003, one year prior to distribution of the questionnaire (October 2004). Inasmuch as only a few studies had been conducted in this area, and most of them had been qualitative or directed mainly towards physicians in general practice, a completely new questionnaire was developed by the multi-professional interdisciplinary research group.

The questionnaire was based on a range of sources: previous research in the field (23); discussions with two reference groups, including members of health care and SIO staffs; and comments from some 20 researchers and teachers in insurance medicine. Finally, in June 2004, a pilot study was performed that comprised 102 randomly sampled physicians in Uppsala County in southern Sweden. After minor revisions, the final questionnaire included 96 items. (NB: In studies I and II, the total number was indicated to be 83, depending on whether or not the items in question 5d were counted separately).

A strong ambition was to construct each item in a non-tendentious way in order to avoid questions with a socially desirable "right answer." For the same reason, items concerning physicians' general opinions about the social insurance system were not included. The items about problems and needs for competence were developed using the definition of a physician's tasks proposed by Wahlström and Alexanderson (23), as well as the results of previous studies of problems related to sickness certification practices. The items about how physicians had gained competence were based on principles in the field of medical education indicating that professional development should be viewed as a phenomenon that is broader than formal education alone.

3.1.2 The 2008 questionnaire

To develop the questionnaire for the 2008 study, the instrument constructed in 2004 was revised to some extent based on the findings of the 2004 survey, and a number of new items were also added. For example, the number of response options concerning the main workplace was increased from 11 to 20 to obtain more detailed information. This was done because the results of the 2004 questionnaire showed that sickness certification was common in many types of clinics/practices where it was not expected. Furthermore, due to the introduction of national guidelines regarding sickness certification (26) and economic incentives encouraging the County Councils to improve the management of sickness certification in their organizations, items related to these aspects were included in the 2008 questionnaire (Table 3).

Information on the participants' age, sex, year of graduation, year of registration, and specialty was collected from the register compiled by the company Cegedim AB; this

was done in order to obtain more reliable data and thereby shorten the questionnaire. Other researchers in this field, as well as clinicians, made comments on the instrument, and a pilot study was performed in August 2008 (n = 100). The final questionnaire included 163 questions.

Table 3 Overview of the two questionnaire studies

	2004	2008
Pilot study performed in:	June (n = 102)	August (n = 100)
Questionnaire sent out in:	October	October
Number of reminders:	2	3
Counties included:	Stockholm and Östergötland	All 21 in Sweden
Study population (n):	7665 physicians	36 898 physicians
Age of participants:	≤ 64 years	All age groups
Overall response rate:	71%	61%
Number of items:	96	163
Questionnaire themes:	<ul style="list-style-type: none"> •Demographics (educational level, specialty, main workplace) •Frequency of sickness certification consultations frequency of different types of problems •Sickness certification caused by waiting times •Contacts with other stakeholders (e.g., frequency, type of problems) •How competence is developed in this area and what additional competence is needed •What they want in the future concerning sickness certification •Support from management •Agreement/Policy concerning sickness certification 	<ul style="list-style-type: none"> •Demographics (educational level, type of resident training, main workplace) •Frequency of sickness certification consultations and frequency of different types of problems •Sickness certification caused by waiting times •Contacts with other stakeholders (e.g., frequency, type of problems) •How competence is developed in this area and what additional competence is needed •What they want in the future concerning sickness certification •Support from management •Agreement/Policy concerning sickness certification •Interventions arranged by the County Council •Experiences of the national guidelines (introduced 2007) •Sickness certification as part of the psychosocial work environment

3.2 STUDY POPULATIONS

3.2.1 Study population 2004

The study population consisted of physicians in Stockholm and Östergötland Counties in southern Sweden, and it represented 24% of all physicians employed in the country (68).

The participants in Stockholm County included all members of the Swedish Medical Association who were ≤ 64 years old and registered as working or living in Stockholm in 2004. About 95% of all physicians in Sweden were members of the Swedish Medical Association. The Swedish Medical Association register could not provide information about the physicians' specialty or worksite; therefore, all physicians were included. The physicians' home addresses were used.

In Östergötland County, the local branch of the Swedish Medical Association did not permit access to the member register. Therefore, information was acquired from the register of the company Pharma Marketing AB, which includes all licensed physicians, medical students, and interns in Sweden. Of all physicians in Östergötland County, the following were excluded: those working at clinics/practices where sickness certification was considered to be rare (Table 4), those aged 65 or older, and those working or living abroad or not working as physicians. Addresses that the physicians had previously given to Pharma Marketing were acquired (home addresses for two-thirds and work addresses for one-third).

The questionnaire was distributed by regular mail in October 2004. The physicians' home addresses were used when available to avoid interaction with colleagues during completion of the questionnaire. Handling of the questionnaires was done by Statistics Sweden to guarantee anonymity of the participants. Two reminders were posted to non-respondents. The response rate was 71%.

Table 4 Positions and work settings of the physicians who were not included in the study population in Östergötland County 2004

Positions [<i>Befattning</i>]
<ul style="list-style-type: none">• Chief school medical officers [<i>Skolöverläkare</i>]• School doctors [<i>Skolläkare</i>]• Physicians not involved in clinical care (performing research) [<i>Läkare utanför patientvården (forskning)</i>]• Physicians in administration [<i>Läkare inom administrationen</i>]• Teachers [<i>Lärare</i>]• County and vice county physicians [<i>Läns- och bitr länsstadsläkare</i>]• Other institutional physicians [<i>Övriga institutionsläkare</i>]• Consultants in communicable disease control [<i>Smittskyddsläkare</i>]
Clinical settings [<i>Verksamhet</i>]
<ul style="list-style-type: none">• Paediatrics (anaesthesiology, surgery, internal medicine, health care, rheumatology, neurology, oncology, psychiatry, rehabilitation) [<i>Barn- (anestesi, kirurgi, medicin, hälsovård, reumatologi, neurologi, onkologi, psykiatri, habilitering)</i>]• Phoniatrics [<i>Foniatri</i>]• Laboratory [<i>Laboratieverksamhet</i>]• Geriatrics, psychiatric geriatrics [<i>Geriatrik, psykiatri</i>]• Radiology [<i>Röntgen</i>]

3.2.2 Study population 2008

In 2008, the study population was extended to include all counties in Sweden (not just two). The questionnaire was sent to all 36898 physicians living and working in the country, regardless of age, and 34360 of those individuals were ≤ 64 years old. Physicians living or working abroad were not included.

Cegedim AB (formerly Pharma Marketing AB) provided information on the entire study population. The Cegedim AB register compiles addresses of all categories of health care staff, including physicians. The register includes information such as year of receiving medical degree, year of registration as physician, board certified specialties, and employment status.

The questionnaire was distributed by mail in October 2008, primarily to home addresses. Three reminders were posted to non-respondents, and the total response rate was 61%. Only physicians ≤ 64 years old were included in the present research, and among them the response rate was 60%. Statistics Sweden administered the process in order to ensure anonymity of the participants.

Both surveys (2004 and 2008) were approved by the Regional Ethical Review Board of Stockholm, Sweden.

3.3 ANALYSES

3.3.1 Study I

Study I was based on the 2004 questionnaire and included all physicians in Stockholm and Östergötland Counties ($n = 7665$). The initial analysis comprised the proportion of respondents ($n = 5455$) who handled sickness certification at least a few times a year in different clinical settings. The subsequent analyses of problems related to this task included only respondents who had dealt with certification at least a few times a year (74%). However, in eight out of ten of the specified clinics, over 90% of the physicians performed this duty. Descriptive statistics including percentages and 95% confidence intervals were calculated for the whole group and for the different types of clinics/practices. Kendall's tau-b was used as a measure of association.

3.3.2 Study II

Study II was also based on the 2004 questionnaire. All board certified specialists working in primary health care ($n = 673$) or orthopaedics ($n = 149$) were included, and these two groups were chosen because they were among the four types of clinics where, according to study I, over 95% percent of the respondents had handled sickness certification cases. To facilitate comparison between physicians in primary care and orthopaedics, only board certified specialists were included. The items were presented under headings such as "stressors," "strategies," and "role" in order to facilitate the reading. Descriptive statistics including p-values (chi-2 test) were calculated, and logistic regression was used to allow adjustment for confounders (sex and years in practice).

3.3.3 Study III

Study III was based on the 2004 year survey and included physicians who were aged ≤ 64 years and reported having consultations concerning sickness certification at least a few times a year. Descriptive statistics were calculated. An analysis of association (Kendall's tau-B) and a factor analysis were done to identify underlying variables, and, based on these calculations, two indices were created. Since the index was on an interval scale, and there were several groups (i.e., types of clinics/practices) analysis of variance was used. An alternative would have been to dichotomize the outcome variable and use logistic regression, but that would have led to loss of information. Number of years in practice was used as a covariate, and sex, workplace policy or not, and support from management or not were used as factors in the univariate ANOVA. Both main effects and interactions were calculated, but none of the interactions were significant, and hence only the main effects were presented. A graphic representation of the analysis of association is shown in Figure 3, which is based on Table 3 in study III. The knowledge index (items H, I, K, L, M, and N) and the skills index (items A, B, C, D, and F) were derived from these results.

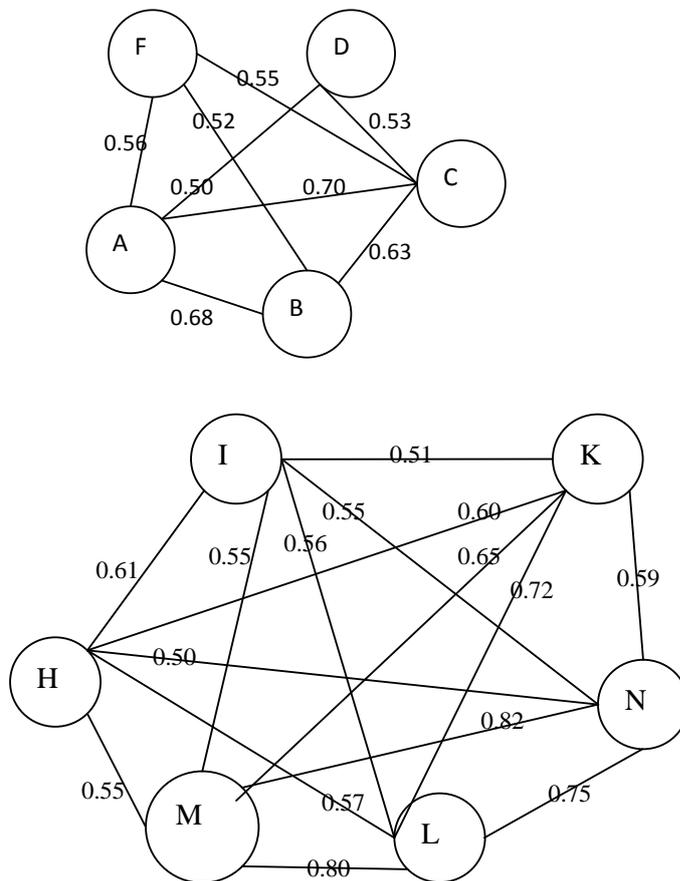


Figure 3 Graphic representation of the analysis of association (Kendall's tau-b)

3.3.4 Study IV

Study IV used data from 2004 and 2008 and included only physicians who were ≤ 64 years old and reported having consultations concerning sickness certification at least a few times a year. Included were items that appeared in both the 2004 and the 2008 questionnaire and concerned how physicians have attained competence in handling sickness certification (Table 5). The response options were dichotomized in some analyses: to a large extent/to a fairly large extent versus somewhat/not at all. Descriptive statistics were calculated, including t-test of mean differences between groups. Logistic regression was used to analyse differences between the 2004 and 2008 data.

Table 5 Differences in wording of the items in the 2004 and 2008 questionnaires

<i>Questionnaire 2004</i>	To what extent have the following helped you to improve your <i>knowledge about handling</i> ¹ sickness certification?
<i>Questionnaire 2008</i>	To what extent have the following helped you to improve your <i>competence in managing</i> ² sickness certification?
	<i>To a large extent/To a fairly large extent</i> ³ / <i>Somewhat</i> ⁴ / <i>Not at all/Not relevant</i>
<i>Items concerning formal learning situations</i>	Undergraduate studies Internship Resident training
<i>Items concerning informal learning situations</i>	Contacts with colleagues and/or other healthcare staff Contacts with patients Contacts with Social Insurance Office staff
<i>Items concerning non-formal learning situations</i>	Training arranged by the Social Insurance Office Conferences, seminars Your own searches for information (e.g., in the literature or the Internet)

¹In Swedish: *kunskap om hantering*

²In Swedish: *kompetens i handläggning*

³In Swedish: 2004, *En hel del*; 2008, *Ganska mycket*

⁴In Swedish: 2004, *Något*; 2008, *Lite*

4 RESULTS

4.1.1 Study I

In the first study, conducted in 2004, all respondents ($n = 5455$) were included in the initial step of the analyses, which was done to describe the frequency of having sickness certification tasks. The main finding was that a total of 74% ($n = 4019$) of all the respondents had consultations involving consideration of sickness certification at least “a few times a year”. Figure 4 shows that there were large differences between different types of clinical settings, and it can be seen that the highest rate of such consultations did not occur in primary health care.

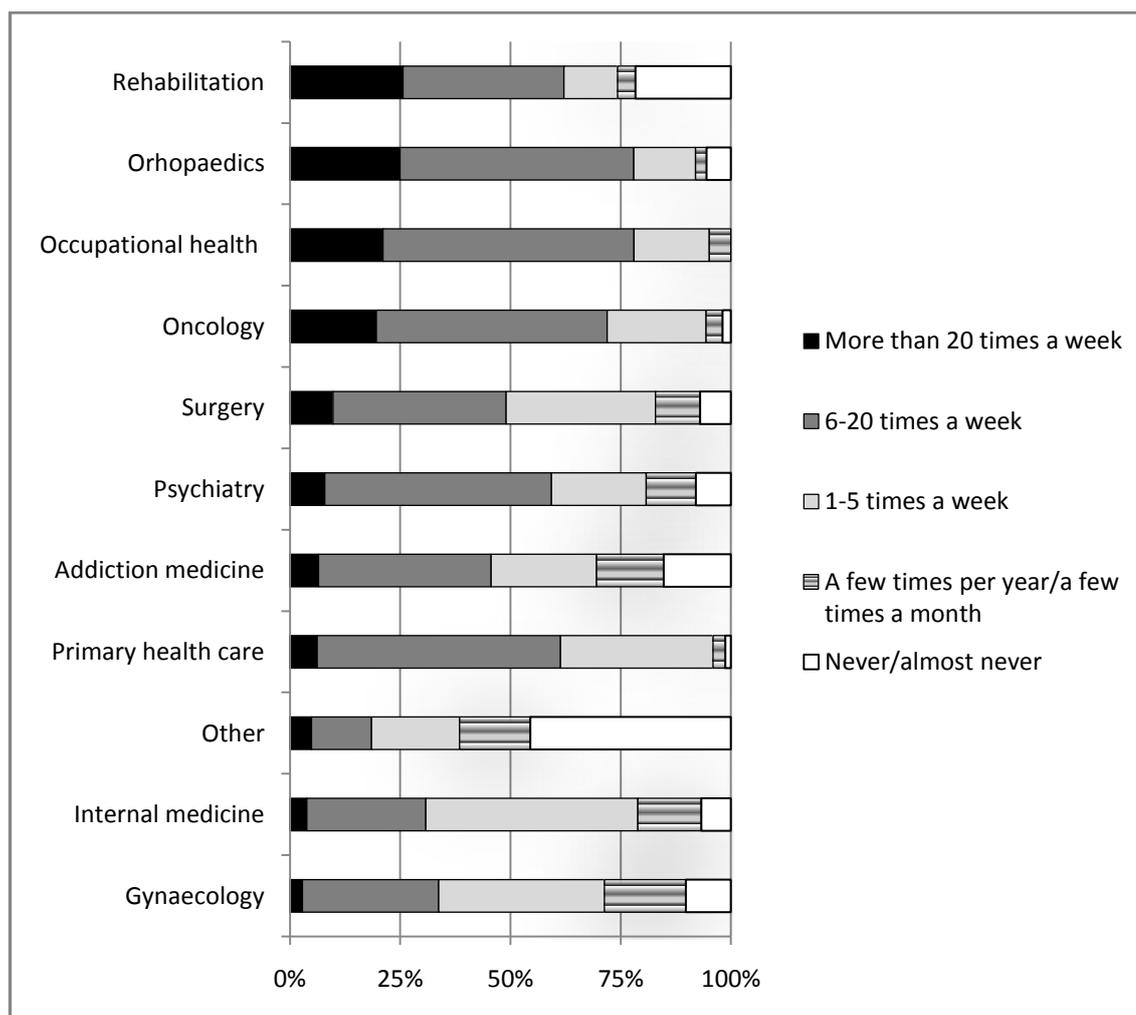


Figure 4 Frequency of having consultations concerning sickness certification in different types of clinical settings

Subsequent results obtained in study I were based solely on physicians who performed sickness certification tasks ($n = 4019$). About half of them had certification consultations six times a week or more, and one out of ten had such consultations more than 20 times a week. Thus, most of the physicians handled sickness certification, and many of them did so very often in their daily work.

Almost one-third of the physicians found sickness certification to be problematic once a week or more. Four items were rated as fairly or very problematic by more than half of the physicians: handling disagreements with patients about the need for

sickness certification; deciding whether to authorize prolongation of a sick-leave period that was previously certified by another physician; assessing a patients' work ability; ascertaining the optimum duration and degree of certification.

The frequency and type of problems varied substantially between the different clinical settings. The percentage of physicians reporting problems was significantly higher among those working in primary health care compared to other groups. Also, a significantly larger proportion of primary health care physicians ($p < 0.001$) found it difficult to assess functional and work ability, and to handle disagreements.

Figures 5 and 6 illustrate graphically the data presented in study I. Figure 5 shows the association between having sickness certification consultations six times a week or more and having problems with sickness certification once a week or more. It is apparent that a large proportion of physicians working in primary health care experienced these difficulties, even though they did not have the highest rate of such consultations.

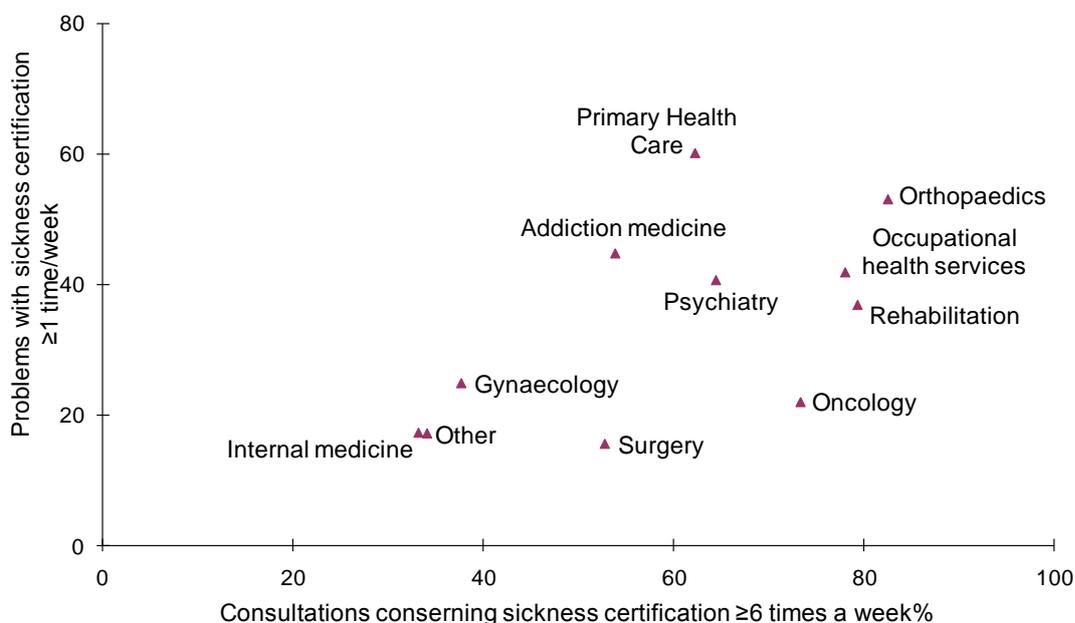


Figure 5 Association between frequency of consultations concerning sickness certification and frequency of problems associated with such work in 2004

Figure 6 describes the percentage of physicians in different types of clinical settings who found it very or fairly problematic to assess functional ability and work ability. A much higher percentage of those working in primary care had difficulties with assessments of both functional ability and work ability.

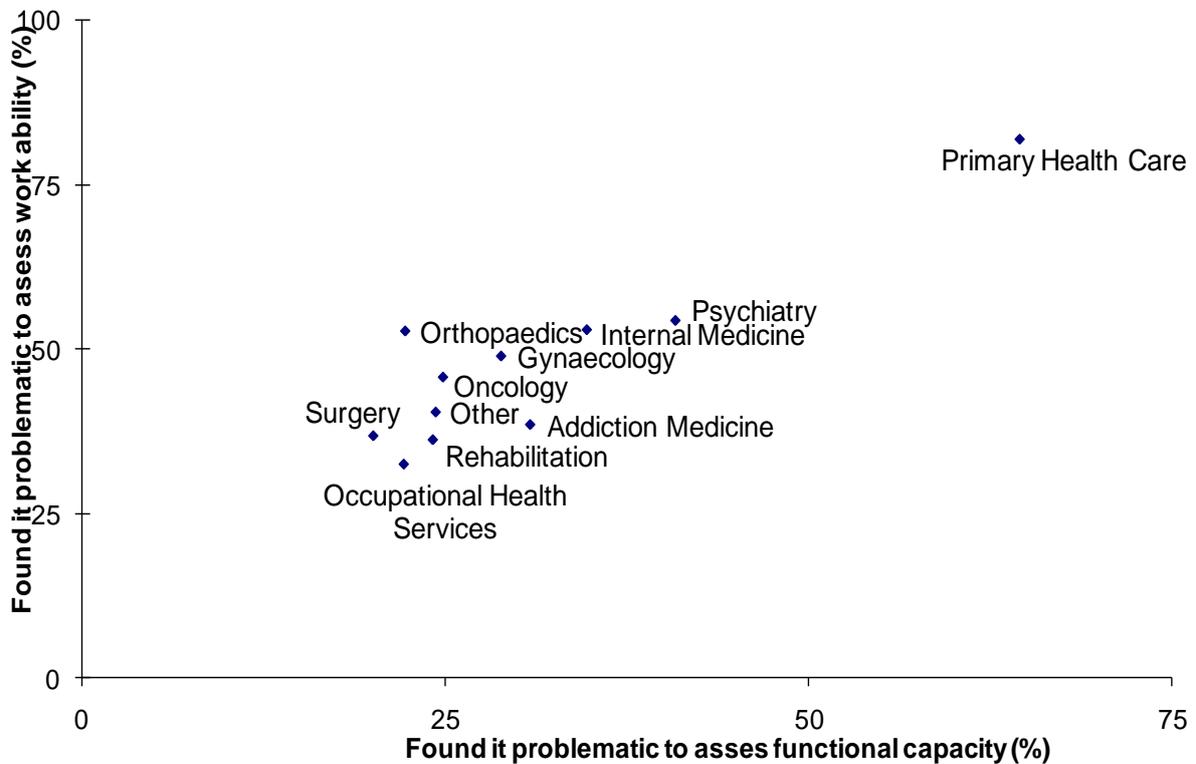


Figure 6 Association between percentage of physicians indicating problems in assessing functional capacity and problems in assessing work ability

(NB: An error has been made in table I, study I, page 181; the word “specialist” should change places with the word “non-specialist”.)

4.1.2 Study II

In study II, board certified specialists working in primary health care (here called GPs) and orthopaedic surgery were compared regarding their sickness certification work. Practically all members of both groups (97.1% and 97.3%, respectively) had this task at least a few times a year. In both groups, more than half of the physicians (61% and 53%, respectively) experienced problems in relation to this duty at least once a week. Logistic regressions (crude and adjusted for sex and number of years in practice) were performed to compare the two groups of physicians. The differences between the crude and adjusted odds ratios were very small. When analysing items about experienced problems, the odds ratio was significantly higher for the GPs than for the orthopaedic surgeons in eight out of nine items. Thus, it seemed that problems concerning handling of sickness certification were more common among the GPs. However, no significant differences in odds ratios were found when analysing a range of potentially difficult situations, such as how often the physicians had conflicts with patients about sickness certification, how often they felt threatened by patients, and how often they

encountered patients who wanted to be on sick leave for reasons other than work incapacity. Still, the GPs showed a tendency towards experiencing these situations more often, and the chi²-tests turned out significant. A large percentage of the orthopaedic surgeons indicated that, at least once a week, they issued certificates for longer periods than necessary due to waiting times for investigation (37%) or treatment (42%). The corresponding rates for the GPs were slightly lower. However, for the GPs, the odds ratio was 5.4 (CI 2.3–12.7) for reporting waiting times caused by lack of access to adequate care or care providers, compared to the orthopaedic surgeons. The odds ratio for having support from management was slightly but significantly higher for GPs compared to orthopaedic surgeons. At the time of data collection (October 2004), the national guidelines concerning sickness certification had not yet been introduced. Nevertheless, 16% of the GPs and 10% of the orthopaedic specialists indicated that there was a common strategy for handling matters related to sickness certification at their clinics/practices.

4.1.3 Study III

The results of study III showed that many physicians reported that they needed additional knowledge and skills in insurance medicine. About half of the physicians indicated that they needed to learn more about different stakeholders' options and responsibilities, including their own role as physicians. Many also reported that they required more knowledge and skills in assessing length and degree of sickness absence. Furthermore, they needed to know more about "demands made in different occupations". The lowest proportion of physicians with a large or fairly large need was found for the items "writing sickness certificates" and "deciding when it is necessary to contact the SIO."

The regression analyses showed that the following variables were associated with lower learning needs: higher age, more years in practice, higher educational level, seldom experiencing problems with sickness certification, and existence of a common strategy for sickness certification at the workplace. The differences between physicians working in different types of clinics were large, even after adjustment for demographic and work-related factors. Compared to other physicians, those working in primary health care and psychiatry had a greater need for more knowledge and skills in sickness certification.

4.1.4 Study IV

The main result of study IV was that relatively few physicians indicated that undergraduate training had contributed to their competence in sickness certification: in 2008, only 17% reported being helped to a large/fairly large extent at that level of their education. However, 37% were helped by internship and 46% by resident training. Even though formal education had contributed to the competence of relatively few, there was an increase in this between 2004 and 2008 (e.g., in 2004 only 14% had been helped by their undergraduate education). This could be partly explained by the fact that the mean age was around one year lower in 2008 than in 2004, and the level of education was also lower, whereas the percentage of women was the same.

A large proportion (65%) stated that contacts with colleagues had helped them to increase competence to a large/fairly large extent, and this was noted for contacts with patients (56%) as well. Training arranged by the SIOs and also the physicians' own searches for information were reported as helpful by one-third of the participants. Some (33%) indicated "not relevant" [ej aktuellt] in the item about training provided by the SIO (i.e., they had probably not participated in this type of training), and hence those physicians were not included in the analysis. Thus it seems that knowledge in sickness certification is acquired primarily through experiences in the daily work, not in educational settings. Figure 7 shows the differences between 2008 (grey) and 2004 (black), based on data from Stockholm and Östergötland Counties.

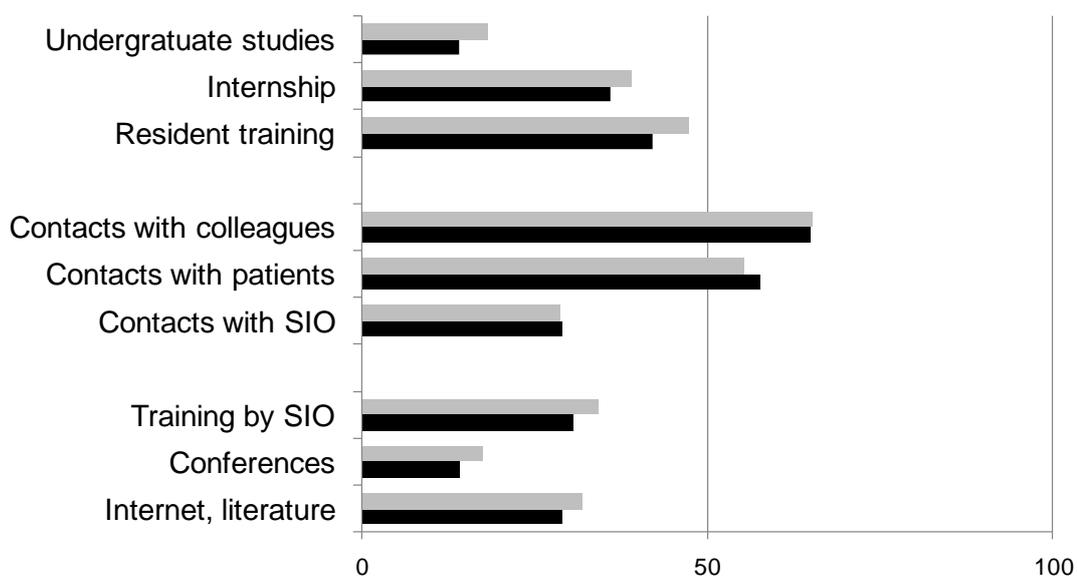


Figure 7 Physicians (%) in Stockholm and Östergötland Counties who stated that the indicated learning situations had helped them improve their competence in sickness certification in 2008 (grey) and 2004 (black).

5 GENERAL DISCUSSION

The present studies revealed that handling sickness certification was a very common task among physicians in many different types of clinical settings, not only primary health care, which has been the main interest in a majority of previous investigations focused on this task. The participating physicians experienced problems in numerous facets of the sickness certification task, but the nature and frequency of the difficulties varied extensively between those working in different clinical settings. A large number of the physicians stated that they needed more skills and knowledge about how to handle sickness certification, primarily with respect to the options and responsibilities of the different stakeholders involved, for example the SIO. It seemed that learning to handle this task occurs largely through clinical practice, not formal education. Only 17% of the physicians stated that their undergraduate education had helped them deal with sickness certification cases.

5.1 METHODOLOGICAL CONSIDERATIONS

The results presented in this thesis were based on two questionnaire studies conducted in Sweden in 2004 and 2008, respectively, which included more physicians than in any other investigation of sickness certification performed thus far. The response rate was high in 2004 (71%) and moderately high in 2008 (61%). Only two counties were included in 2004, but the physicians in those regions represented 24% of all physicians working in the entire country. Furthermore, the results of the 2004 study can probably be generalized to other counties in Sweden as well. The two counties that were investigated, Stockholm and Östergötland, comprise both rural and populous urban areas.

The study conducted in 2008 included all physicians working in Sweden, which is unique, since previous investigations in this field of research, have used only small samples. Despite that, any generalization of the current results to other countries must be done with caution due to differences in the social insurance and medical education systems. Nonetheless, earlier research has identified very similar problems and learning needs in other countries, possibly because the core functions of physicians in sickness certification are comparable in many different nations.

Given that the present results are based on such large populations, it can provide information about the extent of problems reported in earlier qualitative studies in the area. No other investigations have focused on frequency of different types of problems related to sickness certification as well as learning needs, nor have they included physicians in different clinical settings.

The selection of physicians in Östergötland County in 2004 targeted those who were working at clinics/practices where sickness certification could be expected. Thus, the proportion of respondents who reported having consultations involving this task was higher in that county (91%) than in Stockholm (71%). However, the response rates did not differ between the two counties. Furthermore, the mean number of sickness benefit days in Östergötland and Stockholm Counties did not differ substantially compared to other counties in Sweden in 2004 and 2008 (69).

Face validity of the questionnaires can be claimed, considering the extensive efforts that were made in constructing the questionnaires, which entailed comments from other researchers and other professionals in the field, as well as the result of the pilot study. The questionnaire themes were based on previous research in the area. The

reliability of the items in both questionnaires was tested (test-retest) using two separate groups of participants and the result was found to be acceptable.

In all questionnaire studies, recall bias must be recognized as a potential problem. Here, it is possible that the more recent a case, problem, or education occurred, the more a responding physician remembered it in detail. For example, it is likely that the effect of an educational activity was greater directly after the learning activity than it was some time later. However, in light of the aim of the current research, a questionnaire was still the most appropriate alternative for gathering information about physicians' sickness certification practices. Other suitable approaches would have been to use sources such as interviews, focus groups, registries, case records or charts, sickness certificates, and video recordings.

There were no differences in response rate between the counties in 2004, but in 2008 it was higher in Östergötland County than in Stockholm County. The response rate was slightly higher for women in both the 2004 and 2008 survey. The mean age did not differ between responders and non-responders. An analysis of non-respondents based on board certified specialty was conducted on data from 2008. Non-responders might have consultations involving sickness certification more seldom than others. However, the analysis of non-responders showed high response rates among specialists such as paediatrics, clinical bacteriology, radiology and geriatrics. For specialists in psychiatry, oncology, orthopaedics and general practitioners the response rate was near the mean response rate. Specialists in internal medicine had slightly lower response rate than the mean, and specialists in gynaecology, rehabilitation and occupational medicine had higher response rates than the mean. It can be concluded that there were no large differences in non-response between the groups analysed in this thesis.

5.2 DISCUSSION OF THE RESULTS

This chapter discusses the empirical results of the four studies in relation to previous investigations and from different theoretical perspectives. Also, a model summarizing how physicians learn the sickness certification task and a comprehensive list of the knowledge and skills needed to handle that task are presented at the end of the chapter.

5.2.1 Sickness certification was a very common task (study I)

It was found that a majority of the physicians included in study I had sickness certification consultations at least a few times a year. This confirmed results from previous investigations of primary health care, which have shown that a large percentage of all consultations entail considering provision of sickness certificates. More precisely, study I revealed that sickness certification was also a very common task in many other clinical settings, for example in orthopaedics, oncology, rehabilitation care, and occupational health services. No previous investigations have examined the rate of sickness certification among other types of clinicians in such detail, instead, broader and less specific categories like "hospital physicians" or "private physicians" have been used (17, 18). It is important to exercise caution when seeking to generalize the results of study I to other countries because national health care and insurance systems vary.

The findings of study I demonstrate that sickness certification should be regarded as one of the routine work tasks of most physicians in Sweden. Thus, quality assurance

of such certification should be an important aspect in several parts of the health care organization, not only in primary care. Notably, it has been reported that some physicians regard this duty as being partly outside their profession (7, 70) or even wish to avoid it entirely (41, 70), and this may represent a challenge to implementing measures directed towards the practices in sickness certification. Introduction of strategies to increase motivation and priority of this task has been tried in an educational program for GPs in the UK (44).

5.2.2 Variation between different between types of clinical settings (studies I, II, and III)

The results of studies I, II, and III revealed considerable variation between different clinical settings with regard to both the frequency of sickness certification and the extent to which the physicians experienced problems and a need for further knowledge in relation to that task. In all three studies, a larger proportion of GPs reported having such problems and needs. These differences could not be explained by the frequency of handling sickness certification, because, as shown in study I, consultations concerning sickness certification were even more common among other groups.

The sickness certification practices of only two groups of physicians were compared in study II: board certified physicians working in primary health care (here called GPs) and orthopaedic surgeries. These were chosen to enable comparison of physicians who were similar with regard to educational level and the extent to which they handled sickness certification. Despite that, logistic regression adjusted for sex and years in practice showed that a significantly larger proportion of the GPs experienced problems related to sickness certification. Thus, the rate of problems could not be explained by educational level, sex, or years in practice.

Instead, the differences might be accounted for by differences in the nature of the cases these physicians handled. In a study of GPs in the UK, it was found that many judgments were “straightforward”, but requests that were difficult or dubious posed problems (48). Probably, the type of medical conditions of patients in primary health care and orthopaedics vary considerably, which might affect the experiences of the physicians. For example, in study II few of the orthopaedic surgeons (19%) found it difficult to assess functional capacity, whereas this task was problematic for 64% of the GPs. The disparities in types of patients treated by these physicians might also be reflected in the frequency of having to make contacts with the Social Insurance Office (SIO) and the frequency of issuing certificates without meeting a patient in person; perhaps the more complicated cases more often gave rise to the former and the straightforward cases more often to the latter. The results of study II also showed that a larger percentage of the GPs tended to experience conflicts with patients, feel threatened, and encounter patients who wanted to be on sick leave for reasons other than reduced work capacity. The reasons for this are not evident, although they may have been related to characteristics of the patients, as well as other factors.

It is also plausible that the way that the physicians experienced the duty of sickness certification was affected by the amount of support they received from management, whether there were strategies to handle these tasks in their workplaces, and the possibility for referring patients for further investigations or treatments. It is likely that these organizational characteristics of the physicians’ work, as well as potential

differences in the work place “cultures” in the different clinical settings where they were employed affected how they experienced the task of handling sickness certification.

In a qualitative study with a phenomenographic approach, Swartling and co-workers (70) examined the way that orthopaedic surgeons perceived their role in the health care system in relation to sickness certification, and the views that were reported represented three different categories among these professionals: the isolated specialist, the specialist as an adviser, and the system-integrated physician. The views of the participants in that investigation illustrate a continuum ranging from regarding sickness certification as being outside the physician’s duties to comprehending it as a part of health care aimed at helping the patient regain the ability to work. On the whole, the way that physicians understand the task of sickness certification probably affects how they experience this work, and it is also likely that the views of these professionals differ depending on the type of clinical setting in which they work and/or are educated. For example, according to the competence requirements stipulated in general practice (71), the physician should view the patient’s problem over a long period and take into account the person’s entire life situation. This is not stated as explicitly in the competence requirements for orthopaedic surgeons.

In study III the scope and level of competence against which the physicians judged their own competence probably differed considerably between physicians in different clinical settings, for example depending on their views regarding what they are required to do in relation to sickness certification (72).

Thus this discussion indicates that the variation in the way that physicians experience the task of sickness certification may be an effect of organizational factors, different goals in different clinical settings, and divergent understanding of this task by specialists in different fields.

5.2.3 Physicians experienced sickness certification as problematic (studies I and II)

Many of the physicians who participated in studies I and II found it difficult to handle sickness certification, and that task has even been referred to as a work environment problem in another investigation (7). The data used in studies I and II were collected in 2004, before national guidelines for sickness certification and other large scale interventions were introduced in Sweden. Therefore, problems related to guidelines are not discussed here.

Study I and II used the physicians’ own opinions about what is problematic, and it is obvious that the personal “scales” of what is experienced as problematic among these professionals differ. However, the current goal was not to study “objective” problems of physicians (e.g., misconduct and errors) identified by external assessors, but rather to examine problems that are experienced by physicians themselves, which can only be investigated by exploring the views of those individuals. Identification of the physicians’ own problems provides an important starting point for improvement.

The high rate of difficulties experienced by physicians in handling sickness certification can be interpreted on many levels and can vary in character, including aspects such as the following: practical problems, theoretical problems (e.g., paradoxes), ethical problems, emotional problems, and lack of knowledge in a given situation. Here, a number of factors are discussed that might explain why physicians

encounter the mentioned problems: different goals of health care and the SIO, discrepancy between physicians' formal and informal roles, a vague definition of the physician's task, lack of management and leadership, ethical issues, organizational prerequisites for the work task, and lack of competence. Many of these problems can be elucidated by considering theories concerning the medical profession and professional competence of physicians, which are described by for example Cruess et al (66) and Forslund (67). This will be discussed in the following sections.

5.2.3.1 Different goals of health care and the SIO

The problems that physicians experience regarding sickness certification might be partly explained by the different organizational goals of the two main stakeholders involved, health care and the SIO. The SIO must abide by legislation passed by the government, whereas the health care system is required to offer high-quality and equal care to patients, and these objectives might sometimes be conflicting. For example, the information provided on sickness certificates issued in health care must conform to the legislative requirements or it will not be usable. The legal nature of those certificates differs from the communication style in the health care system. A qualitative study has shown that physicians develop strategies to deal with the disparate agendas of the various stakeholders, for example how to handle the problem of communicating with other actors (48).

5.2.3.2 Discrepancy between the formal and informal roles of physicians

Another important aspect is that there has long been a discrepancy between intention and practice in the physician's role in this context. According to the law, the formal role of the physician is to serve as a medical expert who provides information on which the SIO and the employer can base their decisions. However, informally, the physician's role has become that of a decision maker, since the SIO have traditionally accepted almost all certificates issued. This difference between the formal and the informal role has evolved over decades and is reinforced by the fact that many patients also maintain the false conception of the physician as the actual decision maker. This has also been observed in the UK in a study conducted by Hussey (48), in which one of the interviewed physicians explained the problem as follows: "I write 'neurasthenia' and I scribble it so even I can't read it, and they have never ever asked for clarification, so they are obviously quite happy for you just to scrawl something totally illegible" (p. 3). Investigations have shown that many sickness certificates sent to the SIO lack information that is needed for decisions about the right to sickness benefits (19, 23). One investigation in Sweden found that about two-thirds of the incomplete certificates received by the SIO were not sent back to the physicians (73). In the absolute majority of the cases (97%), the SIO accepts the claims for sickness benefit (30). The discrepancy between the formal role as certifier and the informal role as decision maker for the social insurance system may be one explanation for why physicians experience problems in handling sickness certification.

5.2.3.3 Vague definition of the physician's task

The discrepancy between intention and practice is also related to the vague definition of what the physicians' task of sickness certification actually entails, which has been highlighted in qualitative studies (41, 42). Physicians develop their own strategies to handle sickness certification consultations, often to aid their own interests rather than those of the system (48). One approach reported in the literature (that did not concur

with legislation) was found to be that physicians took a range of factors into account, which, for example, resulted in issuing certificates to persons caring for sick relatives (41).

Discussing some characteristics of the work done by groups of professionals, Axelsson (74) describes that professional work generally includes advanced problem solving, which comprises assessments that ought to be based on scientific evidence and well-proven experience. This type of work can only be partly based on routines and standards, or controlled by superiors. In other words, a great deal of professional autonomy and independence is needed in the physicians' work. The professional must rely largely on his or her own competence and ability to make challenging decisions (74). Thus, considering the findings of previous studies of sickness certification and theories regarding characteristics of the work of professionals, it seems that the actual decision latitude in the physicians' work is very broad. It seems that physicians individually have to define what the task actually entails. This may be positive in general, but it may also cause problems for these medical professionals.

Also related to the definition of the task is who is in control of defining that task. Based on the definition of a profession made by Cruess (66) the medical profession has the monopoly over the use of its knowledge base, and thus can be seen as controlling the content of it. One could argue that the task of sickness certification is not fully established as a natural part of the knowledge base. Based on previous studies about physicians' views on this task (7, 41, 48), sickness certification seems to lie on the border delimiting what is included in the professions' knowledge and skills. Of course, the concept of professions is based on an "ideal type" (65) and is used here for analytical reasons, but it can still be valuable in tracing the origins of such views found in previous studies.

5.2.3.4 Lack of management and leadership

In Study II, relatively few physicians working in orthopaedics (10%) and primary health care (16%) indicated that there was a common strategy for handling matters related to sickness certification at their clinics/practices. Also, many of the participants in that study reported that they did not have support from management in the task of issuing sickness certificates. This can be seen as an obvious concern for health care management. Lack of leadership and management of sickness certification within the Swedish health care organization was seen as a problem by physicians (7). Another investigation in Sweden (45) revealed that managers on different levels in health care did not know what they should be managing, although many of them, at least among the higher level managers, were interested in this issue. An uncertainty was expressed concerning whether this was an issue for the organization or for the individual physician. Since 2007, interventions have been implemented that are intended to improve management and increase competence, and also enhance co-operation with other stakeholders, especially with the SIO. However, lack of leadership must not necessarily be negative. In the "ideal type" professional organization, many tasks cannot and should not be controlled by managers (65), something that is inherent in the work of a professional. These issues deserve to be investigated further.

5.2.3.5 *Ethical issues*

Ethical dilemmas may represent another source of difficulties. This has been discussed by Forslund (67), who described the potential problem of a conflict between the goal of the organization and the ethical code of the profession. According to the ethics of the medical profession, physicians should make the patient his or her primary concern (75), as well as professional autonomy and integrity, and so on. This ethical code is a prerequisite for their work and regulates the interaction of the profession with both patients and the whole of society (66). However, the SIO rules and regulations may conflict with the professional ethics of the physician. Thus an ethical dilemma arises when the physician must choose between options that are conceived as incompatible, as was observed in a study of GPs in the UK (48). Another type of ethical dilemma reported in the literature is related to physicians' concerns about how to maintain confidentiality in contacts with other stakeholders, such as employers (41).

The essence of an ethical dilemma is a conflict of interest, and it seems that the physician alone has to decide which foot to stand on. Apparently, a shared ethical code about sickness certification has not been negotiated in the profession, and hence each physician must make relevant decisions on his/her own. Studies have shown that physicians' views on the sickness certification task vary considerably, and some even regard it as being outside the profession (41, 72).

5.2.3.6 *Workload and other organizational prerequisites for the task*

The organization of the work may be another factor that creates difficulties for physicians in association with the task of sickness certification. Some such aspects of the work were investigated in study II, for example possibility of referrals, contacts with the SIO and sickness certification by telephone. According to previous research many physicians have a very heavy workload (76), and thus it has been suggested that problems can arise due to lack of time (41, 42, 52). Moreover, a substantial workload might lead to *underuse* of actual competence, and it is possible that having only a limited possibility to perform high-quality work based on relevant knowledge and skills can be experienced as troublesome. A similar problem could be the lack of cooperation with other health care staff.

5.2.3.8 *Lack of competence*

Lack of competence may seem to be an appealing way of defining the problems experienced by the physicians, because it is easier to implement an appropriate solution to the difficulty in question (i.e., to conduct an educational program) than to introduce organizational changes in health care. However, when applying such a definition, there is a risk that the experienced problems will be seen as a concern for the individual physician rather than as an issue caused by the organizational shortcomings. However, there is probably a range of knowledge and skills that are actually lacking on an individual level (48). Based on the results of study I-III as well as previous studies knowledge and skills is needed about how to handle various situations, such as difficult encounters with patients, complex assessments, and so on.

5.2.4 Physicians wanted to learn more about sickness certification (study III)

According to Forslund's model (Figure 2) physicians need both a systematic theoretical base of knowledge and a set of techniques/methods in their management of sickness certification cases. These dimensions were investigated in study III. The results showed that a majority of the physicians in most types of clinical settings reported that they needed more knowledge and skills in handling the task of sickness certification, particularly with respect to the following: the roles of the different stakeholders involved in the certification process, assessments of work capacity, assessment of length and degree of sickness absence, and dealing with conflicts. The results may be interpreted as that the physicians need further knowledge in many parts of the work, both relating to knowledge, skills, goals and ethics (Figure 2). The extensive needs for more knowledge about the physicians' own options and responsibilities in sickness certification, as well as knowledge of the employment office's role, the employer, and the SIO can be examples of what was called "vague definition of the physicians' task" in the previous chapter. Only one in five indicated that they wanted to learn more about how to fill out a sickness certificate, which was an unexpected observation considering that a systematic review published in 2003 (29) had provided limited evidence that the quality of sickness certificates is often poor and that sickness certification is experienced as problematic by physicians. This shows the importance of studying large groups of physicians from their own point of view.

5.2.4.1 Needs assessments are essential

As mentioned, assessment of a situation is an important prerequisite to achieving successful designing of a public health intervention, and the same applies from an educational perspective, in which case it is called a needs assessment. Study III can be viewed as such an assessment. One component of creating high-quality education, for example CPD, can be to perform needs assessments before planning the educational activity (64). Before study III was conducted, this had not been done on a detailed level previously with respect to sickness certification.

There are four different types of such assessments, which, according to Grant (64), can be considered to address felt needs (what people say they need), expressed needs (expressed in action), normative needs (defined by experts), and comparative needs (group comparison). The first of these was used in study III. The method employed in most needs assessments is to conduct a questionnaire survey, as was done here. Other ways of collecting data for needs assessments include techniques such as structured interviews, objective tests of knowledge and skills, and observations (64).

5.2.4.2 A needs assessment is not equivalent to an assessment

Nevertheless, a needs assessment is not the same thing as an assessment. According to Grant (64) some minimum characteristics are required when the goal is to perform an assessment: external criteria and standards should be used to measure performance, adequacy should be determined by an assessor, and a standardized data collection method should be employed. Needs assessments can have these characteristics (64), but they can also be based on other types of data. Grant suggests that if a needs assessment is limited to the same standards as an assessment, only a limited range of needs will be found. From this perspective study I and II also can be used as a basis for needs assessments.

Thus, the present research was not aimed at assessing the level of knowledge and skills in how to manage sickness certification. There are no scales for evaluating competence in insurance medicine, since there is no consensus concerning what competence is needed, or how and when it should be learned. Thus the needs reported in study III represent the physicians' own opinion about their need for further competence.

5.2.4.5 Individual learning needs may have been identified

As mentioned, the results presented here can provide a better foundation for planning educational activities in sickness certification. In addition, it is possible that completing the questionnaire about sickness certification per se helped the respondents to identify their learning needs. Identification of learning needs has been shown to motivate initiation of self-directed learning among physicians in clinical practice (64, 77). Hence, this project may already have resulted in an increase in self-directed learning in this field.

5.2.5 How did the physicians learn? (study IV)

In study IV the typology of learning situations (58) described in the introduction was used to categorize different learning situations. The main findings were that more than half of the physicians that were investigated answered that their contacts with patients and colleagues (i.e., informal learning situations) were important for learning how to deal with sickness certification. Furthermore, fewer physicians than one would expect indicated that undergraduate education (formal learning situation) had contributed to their competence. Unfortunately, the questionnaires did not distinguish between those who reported that they did not receive any training in sickness certification and those who stated that they did not learn from the instruction they received.

However, according to those results, learning happens to a large extent in the daily clinical practice, through contacts with patients and colleagues. To understand this type of learning, other theories than traditional educational (classroom-) theories is used here. Two theoretical perspectives focusing on learning will be presented that can be applied to physicians' learning in the clinical context. Using those theoretical perspectives can improve the understanding of how physicians learn the sickness certification task in their daily practice.

To start with, learning can be described as the result of actions, which means that competence is developed by doing something, for example through solving problems. Svensson et al. (78) have adopted Dewey's view indicating that action, not theory, provides the starting point for learning. The focal point of this theory is that people do act—they “perform tasks, make assertions, solve problems, and cooperate with others” (78). These researchers also claim that action alone is no guarantee for learning; even though informal learning in daily life is important, it is not sufficient and must be supported by formal education. The ability to detect, identify, and solve problems intellectually is needed in many types of work, and this requires both theoretical knowledge and intellectual skills. If learning is the result of action, the opportunities for the learner to engage in different work tasks constitute a prerequisite for learning. This depends on the objective and subjective decision latitude that the work provides (61), and of course of how often the enabling conditions for learning arises. The objective decision latitude defines the actual possibilities, while the subjective decision latitude defines the perceived possibilities (61). The decision

latitude as well as the possibility to interpret and evaluate the work that is done will affect the prerequisites for learning.

Another way of describing how individuals learn a profession is to use a view on the context as the basis for learning. This indicates that participation in a specific community, setting, or organization will lead to learning, and the learning is always situated. The learner participates in roles ranging from a passive observer of the work, to an actor in performance (79). The competence that is acquired will be strongly context dependent (62) or situated (80), and thus it will not be easy for the person to transfer this new “expertise” from one area to another. According to this theoretical perspective on learning, the health care organization serves as the framework for professional development in sickness certification. The physician learns this duty (and other parts of the medical profession) by being a part of a clinic or practice, and the learning is probably influenced by the particular way in which the organization handles these issues. The interactions with patients, fellow physicians, and other stakeholders are the prerequisites for learning. Whether the physician works independently or as a member of a team will also affect the learning process. It can even be argued that the environment does not merely influence the learning process, it is indeed a part of it (81). Bleakely (82) claims that socio-cultural learning theories are more powerful than those oriented to the individual’s cognition when attempting to explain how learning occurs in medicine.

Svensson et al. (78) explain that experiential learning “presupposes conceptual tools and explicit knowledge about the task and the work process than can be used by the learning subject to identify and interpret experiences (e.g. the results of work actions)”. Consequently, for physicians, theoretical knowledge about the welfare system and legislation concerning sickness certification could probably increase learning from clinical practice.

However, learning through participation is not inherently a “positive” phenomenon, because it can also lead to passiveness or “learned helplessness” (83). Moreover, when learners observe their instructors in the setting of formal education, they learn not only what they are intended to learn, but they also gain knowledge in the form of by-products of the learning situation, which can be called the “hidden curriculum” (84). This also means that long experience is not necessarily equivalent to good performance. A weak association between clinical experience and performance has also been shown in a systematic review (85). This is exemplified by a study in which it was found that younger physicians filled out sick certificates more appropriately than older physicians did (19).

The Board of Health and Welfare in Sweden has defined sickness absence as a part of the care and treatment of the patient, regardless of whether it is actually used as part of the treatment (6). Thus, this work should be based in scientific knowledge or well proven experience just as other measures in health care. Notwithstanding, very little scientific knowledge has been accumulated regarding the advantages and disadvantages of being on sick leave, which means that the physician is required to make decisions based on limited information. Even if the body of evidence about sickness certification was larger—application of evidence based medicine and guidelines in clinical practice is easier said than done. In a situation where the physician has limited formal education (according to study IV) and there is limited scientific evidence to lean on (even though guidelines has been introduced in 2007),

sickness certification is probably learned to a great extent by adopting ways of handling this task that is common in the specific work context.

Gabbay have suggested (86) that physicians develop “mindlines” instead of guidelines, and they are strongly influenced by the interaction with colleagues. The mindlines are described as (86):

“...collectively reinforced, internalised tacit guidelines, which were informed by brief reading, but mainly by their interactions with each other and with opinion leaders, patients, and pharmaceutical representatives and by other sources of largely tacit knowledge that built on their early training and their own and their colleagues’ experiences” (p.3).

The concept of mindlines appears very useful in understanding how physicians learn how to deal with sickness certification. According to Gabbay the mindlines are refined and adjusted through discussions with colleagues and based on clinical experience.

The results of study IV showed that more physicians had gained competence to a great extent through the informal learning situations than formal and non-formal. From an educational standpoint, development of professional competence requires a balance between formal and informal learning situations. An increased amount of formal undergraduate training situations would probably provide a better basis for physicians to continue to learn in their daily work. As in other fields, there is a need for a comprehensive plan for education and learning in insurance medicine, where basic instruction is provided at the undergraduate level, and more in-depth studies are conducted during internship and residency. However, retention of knowledge gained, if any, in undergraduate education is maybe not crucial to good performance in sickness certification. Maybe this task is impossible to learn in medical school, this rewards further investigation.

5.2.6 A summarizing model (studies I, II, III, and IV)

Figure 8 summarizes how physicians learn to handle sickness certification. This model was constructed based on the results of all four of the present studies (I–IV) and previous investigations in combination with theories on education and learning, and is intended to facilitate discussions about physicians’ learning in sickness certification. The model will here be discussed in the light of the empirical results of this study and different theoretical perspectives.

The model indicates that learning sickness certification happens in the daily practice in a specific clinical work context. Furthermore, it illustrates that learning is affected by feedback (e.g. from managers or SIO), the opportunities for reflection given, formal education and CPD. The arrows in the figure indicate influence in both directions, in other words, that learning is impacted by these factors, but also that formal education, CPD, feedback, and reflection are affected by the daily clinical work, which is the starting point for learning.

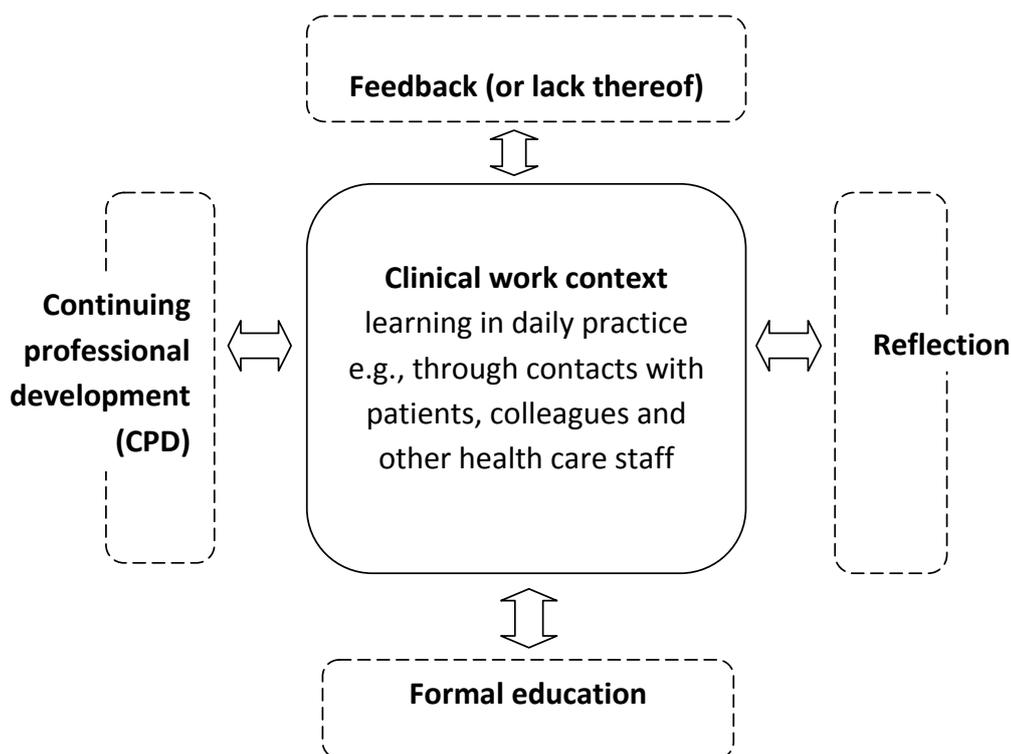


Figure 8 A model summarizing how physicians learn the sickness certification task.

5.2.6.1 *Clinical work context – learning in daily practice*

The clinical work context was placed at the centre of the model illustrated in Figure 8. This was done because sickness certification is a common part of the physicians' daily clinical work (study I) that takes place in a specific context and involves contacts with colleagues and other health care staff and patients, and this stands for the major part of the learning that is done (study I and IV). Thus, learning this task occurs in or in close connection to the core of clinical practice. It is possible that the pronounced impact of informal learning situations on the competence in this area is the reason for the lack of knowledge (i.e., theoretical knowledge) about sickness insurance rules among many physicians in study III.

Learning a profession is seen by Grant (64) as a process mainly taking place in practice, rather than the classroom. In the actual clinical work the learner incorporates the tacit knowledge that is built in to the clinical practice. Grant describes the vast opportunities for learning in profession as follows (64):

“Learning in a profession is unlike any other kind of learning. Doctors live in a rich learning environment, constantly involved in and surrounded by professional interaction and conversation, educational events, information, and feedback. The search for the one best or “right” way of learning is a hopeless task especially if this is combined with attempting to “measure” observable learning”. (p. 159)

Learning is thus here seen to be influenced by the support from colleagues (for example the possibility to ask a co-professional for advice about a complicated case), whether work is done mainly on a team or independently, and whether quality assurance strategies such as guidelines or individual feedback are applied (for instance regarding the frequency of sickness certification). The organizational prerequisites for collaborating with other stakeholders inside and outside health care are other potential examples of what affects work-related learning.

5.2.6.2 *Feedback or lack thereof*

Feedback or lack of feedback from managers in health care, from Social Insurance Office (SIO) staff (study II), and from other stakeholders can possibly be an incentive for initiating learning or for carrying on “business as usual”. Feedback from the SIO can occur in the form of requests to amend incomplete certificates or indeed receiving no such requests at all, both of which will be learning experiences for the physician. Feedback can also consist of reports from the SIO to clinical practices to provide information about aspects such as the number of patients at those medical facilities who have been issued sickness certificates for long-term absence. Feedback from management can be any type of reaction or lack of reaction to the physicians’ work.

The possibility of getting feedback on sickness certification from patients, the SIO, and other stakeholders can probably influence the conditions for learning. If the SIO provide feedback, it will increase the “transparency” regarding how the SIO manage cases and thereby improve the physicians’ understanding of their own role in relation to the SIO (41). Competence that can be attained in this way might include for example skills in how to report assessments of work capacity properly. It is also plausible that absence of feedback can lead to the SIO being perceived as a “black box” where sickness certificates go in and sickness benefits come out, which would not provide opportunities for learning.

5.2.6.3 *Reflection*

Reflection is, according to theories on learning, crucial for learning in daily practice. The ability to step back and reflect over how and why work is done is important in all types of professions, as indicated in Forslund’s model (Figure 2). Furthermore, reflection on a meta-cognitive level is necessary to identify learning needs, which is a prerequisite for engaging in self-directed learning beyond formal training.

The four stages of learning described by Kolb (81) can be applied here to describe how essential reflection is to learning by experience. The stages entail: concrete experience, reflective observation, abstract conceptualization, and active experimentation. Having a consultation involving sickness certification is a concrete experience for a physician. Through reflection on what was and what was not successful in that particular consultation, or in a certain type of consultation, the physician can conceptualize the experience. Based on this conceptualization a new approach can be tried in the next consultation, which will yield new experiences. In order to increase learning, it is very important to emphasize the stage of reflection.

Reflection is presented in the model (Figure 8) as a separate part, but is of course part of the clinical consultation as well, through “reflection-in-action”, which can be described as a continuous dialogue with the specific situation that the professional is involved in (83). The type of reflection in Figure 8 can be designated “reflection-on-action” (83), which involves reflection on the outcome of a situation. The reason for presenting reflection separately in the model is because it is crucial to the development of professionals’ competence. To intentionally reflect on the outcomes of decisions and actions taken is important in the continuous learning process that the professional must engage in. Reflection is also used in formal education and CPD as a means for learning.

5.2.6.4 *Continuing professional development (CPD)*

Some physicians had, according to study IV, been aided by continuing professional development (courses, seminars, and discussion groups) in developing competence in handling sickness certification. CPD is voluntary for physicians in Sweden and can consist of a variety of educational activities, including courses, supervision, conferences, seminars, and discussions with colleagues (e.g., in FQ groups and Balint groups). In the model, the arrow between clinical work and CPD is two headed. This is because the tacit knowledge that is created in daily clinical work can be reflected on and made explicit in a CPD activity, in which case it can be an important source of learning. However, the experience of daily work does not necessarily lead to increased competence, which is why CPD might be important.

The everyday experience of practicing medicine can also be a source of inspiration or a trigger to initiate self-directed learning or engaging in CPD. According to Grant (64), physicians' experiences of their daily work represent an important means of identifying learning needs. This could happen in numerous ways, for instance through clinically generated unknowns, mistakes that are made, patients' complaints and feedback, external recruitment of staff, and/or contacts with junior staff.

5.2.6.5 *Formal education*

The present findings indicated that formal education, such as undergraduate studies, internship, and resident training, had helped some of the physicians to develop competence (study IV). However, many of the study participants had probably not received any formal training at all in how to handle sickness certification.

In the model, there is a two-headed arrow between daily practice and formal education to indicate the following: it is easier to learn from practice if you already have some theoretical knowledge, and, conversely, experience from clinical work facilitates the transfer of knowledge from the classroom to clinical practice. Consequently formal education needs to be backed up by informal learning situations in order to be effective (78).

Kneebone et al. (87) claim that in order to perform a clinical procedure, two sets of skills are needed: on the one hand those associated with the procedure itself, and on the other those related to communicating with the patient. In practice these two cannot be divided, but they are often taught separately. Integration is needed between the procedural skills and the communication skills, and this is probably also the case with respect to sickness certification skills. The physician needs skills in how to make appropriate judgments about sickness certification, but also in how to interact with the patient.

Thus, combining different types of education may increase the ability of the learners to transfer the knowledge they gain in the classroom to their clinical work. Being able to mobilize relevant knowledge in a specific situation leads to understanding of both the theoretical and clinical aspects of the task at hand (88), and in sickness certification this ability is a key competence, for example in applying regulations and guidelines. It is also important to be able to apply different rules in a large variety of situations.

In 2008, a total of 2082 physicians were licensed to practise medicine in Sweden by the Board of Health and Welfare, and as many as 61% of those had received their medical education in some other country (89). This may constitute a problem in the

area of sickness certification, since those doctors have neither formal training nor clinical experience in managing sickness certification in Sweden. Thus it is probably very important that these physicians perform residency and/or CPD that cover the duty of sickness certification.

5.2.7 Competencies needed to perform sickness certification

As mentioned, there are no criteria for evaluation of competence in sickness certification, and there is not even a common definition of what skills and knowledge are needed. Obviously, such information is essential for planning educational activities, and thus a new definition of knowledge and skills is offered here (Table 6 and Table 7), which is based on previous definitions of physicians' competence (23, 90, 91) and the perspectives and results discussed in this thesis. Competence in investigating, diagnosing, and treating disease, which is part of the physicians' general medical competence, is not specified in Table 6 and Table 7.

Table 6 Knowledge needed to handle sickness certification, based on previous definitions of physicians' competence adapted from findings published by other authors (23, 91)

KNOWLEDGE	
Medical	<ul style="list-style-type: none"> • The association between sickness absence and health • Possible advantages and disadvantages of different lengths and degrees of sickness absence • Physical and psychosocial demands in different types of work • Basic principles of the International Classification of Functioning, ICF
Insurance related	<ul style="list-style-type: none"> • Basic principles of the sickness certification guidelines • Limitations and possibilities related to the role as medical expert for the SIO • Roles and responsibilities of the different stakeholders involved in sickness certification (e.g., the SIO, employer, and employment office)
Information	<ul style="list-style-type: none"> • Sources of information about sickness certification rules, regulations, and guidelines
Local factors	<ul style="list-style-type: none"> • Knowledge about local services, such as those related to rehabilitation, employment, and expert advice

The examples of skills dimensions below (Table 7) were inspired by the Anaesthetists' Non-Technical Skills System (ANTS) (90). The ANTS taxonomy describes specific behavioural markers associated with good practice and poor practice by anaesthetists. The intention here is not to give a complete description of competence requirements, but rather to start to identify the specific competencies that are needed in this particular work.

Table 7 Skills needed to handle sickness certification, based on previous definitions of physicians' competence adapted from findings published by other authors (23, 90, 91)

SKILLS	
Task management	<ul style="list-style-type: none"> • Maintaining standards: following guidelines, staying informed about new rules and regulations • Identifying and utilizing resources: identifying available resources, distributing the workload to ensure sufficient time for specific tasks, such as filling out forms • Prioritizing: identifying key issues
Communication	<ul style="list-style-type: none"> • Communicating: showing empathy and respect for the patient's and relatives' situation, recognizing the patient's right to information and participation, maintaining open communication and handling conflicts appropriately • Gathering information: actively and specifically collecting data about the situation (e.g., about the patient's work conditions and work history), collecting information to become familiar with the circumstances of a new case
Decision making	<ul style="list-style-type: none"> • Identifying options: generating options for decisions, discussing various options with the patient, asking colleagues for suggestions about a difficult case • Balancing risks and selecting options: considering advantages and disadvantages of different courses of action, implementing the option(s) selected • Re-evaluating: continually reviewing the suitability of the options identified, reviewing the situation if decision is made to wait and see, identifying one's own learning needs
Co-operation	<ul style="list-style-type: none"> • Coordinating activities with other stakeholders: cooperating with others to achieve goals, considering roles and responsibilities of other stakeholders before acting • Exchanging information: communicating assessments, decisions, plans, and other relevant information in a clear and comprehensive way to appropriate stakeholders, maintaining clear case documentation

In the future, these dimensions will hopefully help to improve educational activities, for example through development of criteria for evaluating physician performance.

6 CONCLUSIONS

The present studies showed that handling sickness certification was a very common task among the physicians in many different types of clinics/practices, not only primary health care, which is the setting that has been in focus in the majority of previous investigations on this topic. Accordingly, it should be recognized that this is an important task for most physicians, at least in Sweden. Many aspects of certifying sickness absence were experienced as problematic by the participating physicians, although the nature and frequency of the difficulties varied considerably depending on the type of clinical setting in which they worked. A majority reported that they needed more skills and knowledge about how to handle certification. Learning this task had occurred largely in clinical practice, not through formal education. The high rate of problems and lack of both knowledge and formal education in performing sickness certification may have consequences for the physicians' work situation, for patients, and for society. Efforts are warranted to educate physicians in sickness certification on both the undergraduate and the postgraduate level, and to provide workplace strategies for improving the prerequisites for handling this task.

6.1 FURTHER RESEARCH

Qualitative studies about how the sickness certification task is learned and what the knowledge acquired actually includes are warranted. For example research about how physicians develop rules of thumb or "mindlines" in this field, and what they entail. Furthermore, the notion of sickness certification as a work environment problem needs to be further investigated.

There is need for developing strategies for evaluating physicians' handling of sickness certification cases. This could be used for educators, but also a basis for conducting RCT-studies on how to increase competence and improve practices.

Research is needed to elucidate sickness certification performed by physicians in fields other than general practice, such as oncology, surgery, and internal medicine.

Further research is needed about consequences of being sickness absent. That knowledge would help physicians in their management of sickness certification cases and in the prevention of possible health problems caused by sickness absence.

6.2 IMPLICATIONS FOR PRACTICE

From a public health perspective the results of this study indicates that there may be potential deficits in the quality of care related to sickness certification, despite this task being very common for many groups of physicians. From this perspective a range of implications can be seen as indicated by the dimensions listed below.

6.2.1.1 *Balancing interventions aimed at all and specific groups*

The current findings showed that sickness certification is common in many different clinical settings. Stakeholders in medical education need to be aware that sickness certification is common among physicians in a variety of fields, such as orthopaedics, oncology, internal medicine, surgery, and gynaecology. However, particular attention should be focused on GPs, because, compared to other physicians, they reported

experiencing significantly more problems related to sickness certification. Thus it is necessary to consider whether resources should be spread among all those who are responsible for this task or if specific groups should be prioritized.

6.2.1.2 Balancing measures on the individual and organizational levels

Also, it is important to balance individual professional development and development of the organization. Today, many interventions concerning sickness certification are directed towards the individual physician. However, since this is actually an issue for the entire health care organization, these interventions should also be aimed at improving management of sickness certification cases through other measures. Examples of this are methods implemented to achieve quality assurance and better management and support for physicians.

6.2.1.3 Balancing education and self-directed learning

There is also a need to balance between self-directed learning and education. At present, it seems that education plays a limited role in physicians' development of competence in sickness certification matters. Acquiring a larger knowledge base in undergraduate education might increase the possibilities of learning in practice. To promote physicians' competence in handling sickness certification, a broad view must be adopted with regard to learning. When planning education about sickness certification, it is important to see the connection between what physicians learn in undergraduate studies, internship, residency, and CPD. To be effective, it is essential that CPD is truly continuing (77). However, high-quality management of sickness certification requires lifelong learning, which means that physicians must undertake a great deal of self-initiated learning during their professional lives. The outcome of these efforts could probably be strengthened by ensuring improved learning opportunities in the workplaces.

6.2.1.4 Balancing academic education and SIO-offered training

Finally, there is a need to achieve a balance between academic education and training arranged by the SIO. Today in Sweden, postgraduate education concerning sickness certification is often arranged by the SIO, not by academic institutions. Training in handling of this task should be an integral part of medical education and conducted using evidence-based methods. This would involve exploring learning needs (77) and also defining learning goals and making sure they are congruent with the content, process, and evaluation of the education (92). Another reason that more academic teaching is needed in insurance medicine is to balance the SIO "agenda" with the professional goals of the physicians. A parallel to this is that basic biomedical sciences are taught by academic teachers, not by pharmaceutical companies using their own agenda.

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8 REFERENCES

1. Janlert U. Folkhälsovetenskapligt lexikon [Dictionary of public health] (In Swedish). Stockholm: Natur och Kultur, Folkhälsoinstitutet; 2000.
2. Dunstan DA. Are sickness certificates doing our patients harm. *Aust Fam Physician*. 2009 Jan-Feb;38(1-2):61-3.
3. Waddell G, Burton AK. Is work good for your health and well-being? London: TSO (The Stationery Office); 2006.
4. Vingård E, Alexanderson K, Norlund A. Consequences of being on sick leave. In: Alexanderson K, Norlund A, editors. *Sickness absence - causes, consequences, and physicians' certification practice A systematic literature review by the Swedish Council on Technology Assessment in Health Care: Scand J Public Health 2004*. p. 207-15.
5. Englund L, Svärdsudd K. Sick-listing habits among general practitioners in a Swedish county. *Scand J Prim Health Care*. 2000 Jun;18(2):81-6.
6. Sjukskrivningsprocessen i primärvården. Återföring av tillsynsbesök 2004. [The sickness certification process in primary care. Report on supervision 2004] (In Swedish). Stockholm: The National Board of Health and Welfare; 2005. Report No.: 2005-109-2.
7. von Knorring M, Sundberg L, Löfgren A, Alexanderson K. Problems in sickness certification of patients: A qualitative study on views of 26 physicians in Sweden. *Scand J Prim Health Care*. 2008 Mar;26(1):22-8.
8. Stone D. *The disabled state*. Philadelphia: Temple University Press; 1984.
9. Alexanderson K, Norlund A. Sickness absence - causes, consequences, and physicians' sickness certification practice. A systematic literature review by the Swedish Council on Technology Assessment in Health Care. *Scandinavian Journal of Public Health*. 2004;32(Supplement 63):1-263.
10. Järvisalo J, Anderson B, Boedeker W, Houtman I. *Mental disorders as a major challenge in prevention of work disability*. Helsinki: Kela; 2005.
11. Försäkringskassan. *Socialförsäkringen i siffror 2009* [Social insurance statistics 2009] (In Swedish). Stockholm; 2009.
12. Olofsson C, Mikaelsson B. Regelverk och administrativa processer [Rules and administrative processes]. In: Järholm B, Olofsson C, editors. *Försäkringsmedicin* [Insurance Medicine] (In Swedish). Lund: Studentlitteratur; 2006.
13. Gimeno D, Benavides FG, Benach J, Amick III BC. Distribution of sickness absence in the European Union countries. *Occupational Environmental Medicine*. 2004;61:867-9.
14. Soler JK. Sick leave certification: a unique perspective on frequency and duration of episodes - a complete record of sickness certification in a defined population of employees in Malta. *BMC Fam Pract*. 2003 Mar 27;4(1):2.
15. Bloch FS, Prins R, editors. *Who returns to work and why? A six-country study on work incapacity and reintegration*. London: Transaction Publishers; 2001.
16. Försäkringskassan. *Sjuk längre än 14 dagar* [Sick more than 14 days]. Försäkringskassan [Social Insurance Office]; 2010 [cited 2010 20 January]; Available from: <http://www.forsakringskassan.se/nav/56c9cf5c2162b3c06807aca63f4127de>
17. Tellnes G, Svendsen K-OB, Bruusgaard D, Bjerkedal T. Incidence of Sickness Certification. *Scand J Prim Health Care*. 1989(7):111-7.
18. Arrelöv B, Borgquist L, Ljungberg D, Svärdsudd K. Do GPs sick-list patients to a lesser extent than other physician categories? A population-based study. *Family Practice*. 2001;18(4):393-8.
19. Söderberg E, Alexanderson K. Sickness certificates as a basis for decisions regarding entitlement to sickness insurance benefits. *Scand J Public Health*. 2005;33(4):314-20.
20. *The Health and Medical Service Act (1982:763)*. Ministry of Health and Social Affairs, Sweden; [April 12 2010]; Available from: <http://www.sweden.gov.se/content/1/c6/02/31/72/5ef21912.pdf>
21. Adler H. *Medicinsk juridik. Grundläggande handbok. Andra upplagan*. [Medical law. Basic handbook. Second edition] (In Swedish). 2nd edition ed. Poland: Studentlitteratur; 2007.
22. Alexanderson K, Brommels M, Ekenvall L, Karlsryd E, Löfgren A, Sundberg L, et al. *Problem inom hälso- och sjukvården kring handläggning av patienters sjukskrivning*

- [Problems in healthcare regarding management of patients' sickness certification] (In Swedish) Stockholm: Karolinska Institutet; 2005.
23. Wahlström R, Alexanderson K. Physicians' sick-listing practices. In: Alexanderson K, Norlund A, editors. Sick absence - causes, consequences, and physicians' certification practice A systematic literature review by the Swedish Council on Technology Assessment in Health Care: Scand J Public Health; 2004. p. 222-55.
 24. Alexanderson K, Arrelöv B, Ekmer A, Hagberg J, Lindholm C, Löfgren A, et al. Läkares arbete med sjukskrivning. Enkät till alla läkare i Sverige 2008. Utveckling sedan 2004 i Östergötland och Stockholm. [Physicians' work with sickness certification. Survey to all physicians in Sweden 2008. Development since 2004 in Östergötland and Stockholm.] (in Swedish). Stockholm: Sektionen för försäkringsmedicin, Institutionen för klinisk neurovetenskap, Karolinska Institutet; 2009.
 25. Försäkringsmedicinskt beslutsstöd [Decision support for insurance medicine] (In Swedish) National Board of Health and Welfare; [cited 2010 10 february]; Available from: <http://www.socialstyrelsen.se/riktlinjer/forsakringsmedicinsktbeslutsstod>
 26. Försäkringsmedicinskt beslutsstöd för specifika diagnoser [Diagnosis-specific guidelines for sickness certification] (In Swedish) National Board of Health and Welfare; [cited 2010 10 February]; Available from: <http://www.socialstyrelsen.se/riktlinjer/forsakringsmedicinsktbeslutsstod>
 27. Socialstyrelsen. Sjukskrivningsprocessen i hälso- och sjukvården. Sammanfattning av Socialstyrelsens tillsynsprojekt 2003-2007. [The sickness certification process in health care. Summary of the National Board of Health and Welfare's supervision] (In Swedish): The National Board of Health and Welfare; 2008.
 28. Alexanderson K, Arrelöv B, Hagberg J, Karlsryd E, Löfgren A, Ponzer S, et al. Läkares arbete med sjukskrivning - en enkätstudie [Physicians' work with sickness certification - a survey] (In Swedish): Försäkringskassan, Länskontoren i Stockholm och Östergötland; 2005. Report No.: 46.
 29. Alexanderson K, Allebeck P, Hansson T, Hensing G, Jensen I, Mastekaasa A, et al. Sjukskrivning - orsaker, konsekvenser och praxis. En systematisk litteraturoversikt (Sickness absence - causes, consequences, and praxis. A systematic literature review) (In Swedish). Stockholm: The Swedish Council on Technology Assessment in Health Care; 2003.
 30. Försäkringskassans årsredovisning 2009 [Social Insurance Office's Annual Report 2009]. Stockholm: Försäkringskassan; 2009.
 31. Wynne-Jones G, Mallen CD, Welsh V, Dunn KM. Rates of sickness certification in European primary care: A systematic review. Eur J Gen Pract. 2009 Jan 19;1-10.
 32. Norrmén G, Svärdsudd K, Andersson D. Impact of physician-related factors on sickness certification in primary health care. Scand J Prim Health Care. 2006 Jun;24(2):104-9.
 33. Pransky G, Katz JN, Benjamin K, Himmelstein J. Improving the physician role in evaluating work ability and managing disability: a survey of primary care practitioners. Disabil Rehabil. 2002 Nov 10;24(16):867-74.
 34. Garraway WM. Sickness certification in a general practice. Practitioner. 1973 Apr;210(258):529-34.
 35. Carne S. Sick Absence Certification. Analysis of one Group Practice in 1967. Brit med J. 1969(1):147-9.
 36. Weingarten MA, Hart J. Sick leave certification in general practice. Aust Fam Physician. 1984 Sep;13(9):702-3, 10-11.
 37. Himmel W, Sandholzer H, Kochen M. Sickness certification in general practice. Eur J Gen Pract. 1995;1:161-6.
 38. Bollag U, Rajeswaran A, Ruffieux C, Burnand B. Sickness certification in primary care - the physician's role. Swiss Med Wkly. 2007 Jun 16;137(23-24):341-6.
 39. Tellnes G, Sandvik L, Moum T. Inter-doctor variation in sickness certification. Scand J Prim Health Care. 1990;8:45-52.
 40. Roope R, Parker G, Turner S. General practitioners' use of sickness certificates. Occup Med (Lond). 2009 Dec;59(8):580-5.
 41. Hiscock J, Ritchie J. The role of GPs in sickness certification. Research Report No 148. Leeds: Department for Work and Pensions; 2001.

42. Cohen DA, Aylward M, Rollnick S. Inside the fitness for work consultation: a qualitative study. *Occup Med (Lond)*. 2009 Aug;59(5):347-52.
43. Österås N, Gulbrandsen P, Kann IC, Brage S. Structured functional assessments in general practice increased the use of part-time sick leave: a cluster randomised controlled trial. *Scand J Public Health*. 2010 Mar;38(2):192-9.
44. Cohen D. The sickness certification consultation in general practice. MD Thesis. Cardiff: Cardiff University; 2008.
45. Alexanderson K, von Knorring M, Tyrkkö A, Parmander M. Hälso- och sjukvårdens ledning och styrning av arbetet med patienters sjukskrivning [The health care organizations' management of sickness certification of patients] (In Swedish); 2007.
46. Shiels C, Gabbay MB. Patient, clinician, and general practice factors in long-term certified sickness. *Scand J Public Health*. 2007;35(3):250-6.
47. Wynne-Jones G, Mallen CD, Main CJ, Dunn KM. What do GPs feel about sickness certification? A systematic search and narrative review. *Scand J Prim Health Care*. 2010 Mar 25(Electronic publication ahead of print).
48. Hussey S, Hoddinott P, Wilson P, Dowell J, Barbour R. Sickness certification system in the United Kingdom: qualitative study of views of general practitioners in Scotland. *Bmj*. 2004 Jan 10;328(7431):88.
49. Woivalin T, Krantz G, Mantyranta T, Ringsberg KC. Medically unexplained symptoms: perceptions of physicians in primary health care. *Fam Pract*. 2004 Apr;21(2):199-203.
50. Timpka T, Hensing G, Alexanderson K. Dilemmas in sickness certification among Swedish physicians. *E J Public Health*. 1995;5:215-9.
51. Engblom M, Alexanderson K, Englund L, Norrmen G, Rudebeck CE. When physicians get stuck in sick-listing consultations: a qualitative study of categories of sick-listing dilemmas. *Work*. 2010 Jan;35(2):137-42.
52. Edlund C, Dahlgren L. The physician's role in the vocational rehabilitation process. *Disabil Rehabil*. 2002 Sep 20;24(14):727-33.
53. Swartling MS, Alexanderson KA, Wahlström RA. Barriers to good sickness certification - an interview study with Swedish general practitioners. *Scand J Public Health*. 2008 Jun;36(4):408-14.
54. Krohne K, Brage S. New rules meet established sickness certification practice: a focus-group study on the introduction of functional assessments in Norwegian primary care. *Scand J Prim Health Care*. 2007 Sep;25(3):172-7.
55. Walters G, Blakey K, Dobson C. Junior doctors need training in sickness certification. *Occup Med (Lond)*. 2010 Mar;60(2):152-5.
56. Wynne-Jones G, Mallen C, Main C, Dunn K. Sickness certification and the GP: what really happens in practice? [Electronic publication ahead of print]. *Fam Pract*. 2009 Dec 24.
57. Ford J, Parker G, Ford F, Kloss D, Pickvance S, Sawney P. Rehabilitation for work matters. Abingdon: Radcliffe Publishing 2008.
58. La Belle TJ. Formal, nonformal and informal education: a holistic perspective on lifelong learning. *International Review of Education*. 1982(159-175).
59. Cervantes A. Continuing medical education (CME) or continuing professional development (CPD): a need, a challenge, but also a must. *Clin Transl Oncol*. 2009 Apr;11(4):189-90.
60. Eraut M. Non-formal learning and tacit knowledge in professional work. *Br J Educ Psychol*. 2000 Mar;70 (Pt 1):113-36.
61. Ellström P-E. Kompetens, utbildning och lärande i arbetslivet [Competence, education and learning in working life] (In Swedish). Stockholm: Publica; 1997.
62. Epstein RM, Hundert EM. Defining and assessing professional competence. *JAMA*. 2002 Jan 9;287(2):226-35.
63. Polanyi M. The tacit dimension. London: Routledge; 1967.
64. Grant J. Learning needs assessment: assessing the need. *BMJ*. 2002 Jan 19;324(7330):156-9.
65. Friedson E. Professionalism - the third logic. Great Britain: The University of Chicago Press; 2001.
66. Cruess SR, Johnston S, Cruess RL. "Profession": a working definition for medical educators. *Teach Learn Med*. 2004 Winter;16(1):74-6.

67. Forslund K. Professionell kompetens. Fyra essäer om inläring och utveckling för professionalitet. [Professional competence. Four essays on learning and development for professionalism] (In Swedish): Linköping University, Department of Education and Psychology; 1998.
68. Socialstyrelsen. Statistik om hälso- och sjukvårdspersonal – officiell statistik om antal legitimerade (2005) och arbetsmarknadsstatus (2004) [Statistics on health care personnel - official statistics on the number of licensed practitioners (2005) and their labour market situation (2004)] (In Swedish): The National Board of Health and Welfare; 2006.
69. Officiell statistik och annan statistik: sjukförmåner [Official statistics and other statistics: sickness benefits]. Försäkringskassan; 2010 [12 april 2010]; Available from: http://statistik.forsakringskassan.se/portal/page?_pageid=93,232917&_dad=portal&_sc_hema=PORTAL
70. Swartling M, Wahlström R. Isolated specialist or system integrated physician-different views on sickness certification among orthopaedic surgeons: an interview study. *BMC Health Serv Res.* 2008;8:273.
71. Allmänmedicin Läkarnas specialiseringstjänstgöring [Resident training in general practice] (In Swedish): Svensk förening för allmänmedicin (SFAM); 2008.
72. Swartling M, Peterson S, Wahlström R. Views on sick-listing practice among Swedish General Practitioners -a phenomenographic study. *BMC Fam Pract.* 2007;8:44.
73. Johansson P, Nilsson M. Finns det något samband mellan sjukintygets kvalitet och sjukfrånvaro? Rapport 2008:27 [Is there an association between the quality of sickness certificates and sickness absence?] (In Swedish). Uppsala: IFAU Institutet för arbetsmarknadspolitisk utvärdering; 2008.
74. Axelsson R. Hälso- och sjukvårdsadministration i organisationsteoretisk belysning [Health care management in an organizational theoretical perspective] (In Swedish). Lund: Studentlitteratur; 1998.
75. Tomorrow's doctors - outcomes and standards for undergraduate medical education. UK: General Medical Council; 2009.
76. Korta sifferfakta 10.2005 Läkare [Short facts 10.2005 Physicians](In Swedish): Swedish Work Environment Authority 2005.
77. Mazmanian PE, Davis DA. Continuing medical education and the physician as a learner: guide to the evidence. *JAMA.* 2002 Sep 4;288(9):1057-60.
78. Svensson L, Ellström P-E, Åberg C. Integrating formal and informal learning at work. *The Journal of Workplace Learning.* 2004;16(8):479-91.
79. Dornan T, Scherpbier A, Boshuizen H. Supporting medical students' workplace learning: experience based learning (ExBL). *The Clinical Teacher.* 2009(6):167-71.
80. Nielsen K, Kvale S. Mästarlära - Lärande som social praxis [Apprenticeship - Learning in social practice] (In Swedish). Malmö: Studentlitteratur; 2007.
81. Illeris K. Lärande [Learning] (In Swedish). Pozkal: Studentlitteratur; 2007.
82. Bleakley A. Broadening conceptions of learning in medical education: the message from teamworking. *Medical Education.* 2006;2009(40):150-7.
83. Granberg O, Ohlsson J. Från lärandets loopar till lärande organisationer [From learning loops to learning organizations] (In Swedish). Tredje upplagan ed. Lund: Studentlitteratur; 2009.
84. Gaiser RR. The teaching of professionalism during residency: why it is failing and a suggestion to improve its success. *Anesth Analg.* 2009 Mar;108(3):948-54.
85. Choudhry NK, Fletcher RH, Soumerai SB. Systematic review: the relationship between clinical experience and quality of health care. *Ann Intern Med.* 2005 Feb 15;142(4):260-73.
86. Gabbay J, le May A. Evidence based guidelines or collectively constructed "mindlines?" Ethnographic study of knowledge management in primary care. *BMJ.* 2004 Oct 30;329(7473):1013.
87. Kneebone R, Kidd J, Nestel D, Asvall S, Paraskeva P, Darzi A. An innovative model for teaching and learning clinical procedures. *Med Educ.* 2002 Jul;36(7):628-34.
88. Aspegren K. [The way to clinical competence can be wider and straighter]. *Läkartidningen.* 2007 Sep 19-25;104(38):2678-80.

89. Socialstyrelsen. Statistik om hälso- och sjukvårdspersonal – officiell statistik om antal legitimerade (2008) och arbetsmarknadsstatus (2007) [Statistics on health care personnel - official statistics on the number of licensed practitioners (2008) and their labour market situation (2007)] (In Swedish): The National Board of Health and Welfare; 2009.
90. Framework for Observing and Rating Anaesthetists' Non-Technical Skills. Anaesthetists' Non-Technical Skills (ANTS) System Handbook v1.0. University of Aberdeen, Scottish Clinical Simulation Centre; Available from: http://www.abdn.ac.uk/iprc/documents/ants/ants_handbook_v1.0_electronic_access_version.pdf
91. Sawney P. Current issues in fitness for work certification. British Journal of General Practice. 2002;52:217-22.
92. Aspegren K. [The difficult art of writing a good goal description]. Läkartidningen. 2007 Sep 19-25;104(38):2698-700.

APPENDIX

Questionnaire items used in this thesis, from the 2004 survey

What is your highest level of medical education?

- Medical degree
- Registered physician
- Resident (In resident training)
- Specialist

How many years have you practiced medicine since you got your medical degree?

Number of years

At what type of clinic/practice do you do mainly work?

Choose only one.

- Occupational health service
- Social Insurance Office (SIO) or Insurance Company
- Gynaecology/Obstetrics
- Internal medicine
- Surgery
- Addiction medicine
- Oncology
- Orthopaedics
- Psychiatry
- Rehabilitation care
- Primary Healthcare Centre
- Other (*can be specified on the last page of the questionnaire*)
- None

How often in your daily work do you...	More than 20 times a week	6–20 times a week	1–5 times a week	About once a month	A few times a year	Never or almost never
have consultations including consideration of sickness certification ⇒ <i>if you mark “never or almost never” go to item 11</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
find it problematic to handle sickness certification?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
encounter a patient who wants to be on sick leave for some reason other than work incapacity due to disease or injury?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
experience conflicts with patients about sickness certification?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
feel threatened by a patient in connection with sickness certification?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
issue sickness certificates without personal appointment (e.g. via telephone)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
make a referral to occupational health	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

How often do you certify unnecessarily long periods of sickness absence due to...	Every day	About once a week	About once a month	A few times a year	Never or almost never
waiting times for investigation in health care?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
waiting times at social insurance office?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
waiting times at unemployment office?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
wait for measures taken by the employer?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
waiting time for treatment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
lack of access to adequate care/ care providers (e.g., cognitive behavioural therapy)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

How problematic do you find it ...

	Very problematic	Fairly problematic	Not very problematic	Not problematic
to assess whether a patient's functional capacity is reduced?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
to assess the degree to which reduced functional capacity limits a patient's work ability?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
to discuss with patients the advantages and disadvantages of being on sick leave?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
to fill out sickness certificates to be used by social insurance offices?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
to suggest a plan of action and/or measures to be taken during the sick leave?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
to manage the two different roles as the patient's physician and medical expert for the social insurance offices and other authorities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
to decide whether to authorize prolongations of a period of sick leave that was previously certified by another physician?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
to ascertain the optimum duration and degree of sickness certification?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
to handle situations in which you and a patient have different opinions about the need for sickness absence?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

To what extent have the following helped you to improve your knowledge about handling sickness certification?

Please respond to each of the suggestions (a–k).

	To a large extent	To a fairly large extent	Some-what	Not at all	Not relevant
Undergraduate studies	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Internship	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Resident training	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Your own searches for information (e.g., in the literature or the Internet)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Contacts with colleagues and/or other healthcare staff	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Contacts with patients	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Contacts with SIO staff	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Training arranged by the SIO	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Conferences, seminars	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

How often do you usually contact SIO staff about matters concerning sickness certification?

- Daily
- Once or a few times a week
- About once a month
- A few times a year
- Never or almost never

Do you have regular, scheduled contacts with the SIO? (e.g., coordinating meetings, rehabilitation meetings, sickness certification committee conferences, SIO officers at your practice)

- Yes, to a satisfactory degree
- Yes, but I would prefer more extensive contact
- No, but I would like to
- No, and I am satisfied not to

To what extent do you need further knowledge and skills concerning the following?

Please respond to each of the suggestions (a–n).

	Large need	Fairly large need	Limited need	No need
Judging patients' work capacity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Work demands made in different occupations and/or workplaces	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Assessing the optimum length and degree of sickness certification	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Handling conflicts with patients about the need for sickness certification	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Writing sickness certificates	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Designing optimum plans of action	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Deciding when it is necessary to contact the SIO	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sickness insurance rules	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other forms of compensation in the social insurance system (e.g., disablement benefit, rehabilitation allowance, disability pension)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Private and supplementary insurance that patients often have	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
My options and responsibilities as a physician in sickness certification cases	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The options and responsibilities of the SIO in sickness certification cases	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Employers' options and responsibilities in sickness certification cases	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The options and responsibilities of the Employment Office in sickness certification cases	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Do you have support from your management regarding handling of sickness certification cases?

- Yes, to a large degree
- Yes, to some degree
- No

Do you at your clinic/practice have a common strategy for handling matters related to sickness certification?

- Yes, and it is well established
- To some extent
- No

Questionnaire items from the 2008 year survey used in the thesis

What is your highest level of medical education?

- Medical degree ⇒ *Go to question 3*
- Registered physician
- In resident training
- Specialist

To what extent have the following helped you to develop your skills in handling sickness certification cases?	To a large extent	To a fairly large extent	To some extent	Not at all	No relevant
<i>Please respond to each of the items.</i>					
Undergraduate studies	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Internship	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Resident training	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Your own searches for information (e.g., in the literature or the Internet)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Contacts with other physicians and/or other healthcare staff	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Contacts with patients	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Contacts with SIO staff	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Training arranged by the SIO	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Conferences, seminars	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>