Mental illness out-of-hours

Characteristics and challenges of patient contacts in emergency primary health care in Norway

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Scientific environment

During the work with this thesis, I have been enrolled in the doctoral education program at the Faculty of Medicine and Dentistry at the University of Bergen, Norway. Place of employment has been the National Centre for Emergency Primary Health Care, Uni Health, Uni Research, Bergen, Norway. I have benefitted from participation in regular research meetings at the Department of Global Public Health and Primary Care at the University of Bergen. During parts of the project period there has been a parallel and close collaboration with the Research Unit at the Division of Psychiatry, Haukeland University Hospital, Bergen, Norway.

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List of publications

The thesis is based on the following individual papers:

I. Johansen IH, Morken T, Hunskaar S. Contacts related to psychiatry and substance abuse in Norwegian casualty clinics. A cross-sectional study. Scand J Prim Health Care 2009; 27: 180-5.

II. Johansen IH, Morken T, Hunskaar S. Contacts related to mental illness and substance abuse in primary health care. A cross-sectional study comparing patients' use of daytime versus out-of-hours primary care in Norway. Scand J Prim Health Care 2010; 28: 160-5.

III. Johansen IH, Morken T, Hunskaar S. How Norwegian casualty clinics handle contacts related to mental illness: A prospective observational study. Int J Ment Health Syst 2012; 6: 3.

IV. Johansen IH, Carlsen B, Hunskaar S. Psychiatry out-of-hours: a focus group study of GPs' experiences in Norwegian casualty clinics. BMC Health Serv Res 2011; 11: 132.

To preserve the internal logic of this thesis and to be able to use identical roman numbers for individual studies and corresponding papers throughout the text, the papers are not given in chronological order. The papers will be referred to with their Roman numbers (**Paper I-IV**), and are included in the appendix at the end of this thesis.

Abbreviations and concepts

In this thesis some abbreviations and special concepts have been used. They are given in alphabetical order. Where relevant, the Norwegian term is given in parenthesis.

Casualty clinic (*legevakt*)	Used as a generic term for all organisational types of Norwegian emergency primary health care out-of-hours services.
ICD-10	International Classification of Diseases. Classification of diseases and other health problems provided by the World Health Organization, last revised in 1990. In Norway mainly in use by specialist services.
ICPC-2	International Classification of Primary Care. Classification of reasons for encounter, and problems managed, in primary care. Developed by the WONCA International Classification Committee, and last revised in 1998. Main diagnostic system in use by Norwegian general practitioners.
GP	General practitioner. Used as a generic term for all physicians working at primary care level.
HELFO (*Helseøkonomiforvaltningen*)	Institution which is responsible for direct payments to various health service providers. They are also responsible for the regular GP scheme. They are directly linked to the Norwegian Directorate of

	Health.
P-diagnosis	Used as generic term for all diagnoses in the chapter P of ICPC-2. The chapter P describes psychological symptoms and psychiatric diseases.
Relative prevalence	Prevalence stated as a relational numerical value, such as a percentage or a fraction.
RGP (*fastlege*)	General practitioner working on contract with the municipality. Responsible for primary care to a given list population.
RGP surgery (*fastlegekontor*)	Location where the RGP normally sees his or her patients.
TSB (*tverrfaglig spesialisert behandling*)	Specialist services for substance use disorders.
The Watchtowers	Cohort of seven casualty clinics selected to be representative of Norwegian casualty clinics. They routinely deliver activity data on all initial contacts to the clinics.

Abstract

In Norway there has been a call for improvement of the existing emergency mental health care services. Improvement of services needs to be built on knowledge and understanding of existing services, but in-depth knowledge about the role of the traditional low threshold out-of-hours emergency primary health care services (casualty clinics) has previously not been available. Thus the aim of this thesis was to describe mental illness related contacts to Norwegian casualty clinics, including the challenges general practitioners (GPs) experience in their out-of-hours' work.

This thesis is based on the results from three epidemiological and one qualitative study exploring different aspects of care provision in casualty clinics. The first study describes diagnoses given in contacts to one town-based and one inter-municipal rural casualty clinic throughout a year (n = 27 208). Gender and age characteristics of the patients and variations in time of presentation were explored. The second study compares daytime contacts to regular general practitioners' (RGPs') surgeries (n = 61 783) against contacts to the local casualty clinic (n = 11 976) over a year, focusing on diagnoses given, patient characteristics and simultaneous use of the two services at a group and an individual level. The third study observes routinely reported urgency levels, interventions and onwards referrals in contacts related to mental illness, for four Norwegian casualty clinics (28 527 initial contacts, 887 GP contacts judged to be related to mental illness or substance abuse). The fourth and last study is a qualitative study, based on six focus groups and two individual interviews (45 informants in total), that explores GPs' experiences in casualty clinic contacts with patients who present problems related to mental illness or substance abuse.

The studies showed that in 2006 there were 9-11 contacts with diagnoses signalling mental illness per 1000 inhabitants per year. In 30-68% of contacts judged by the GP

to be related to mental illness or substance abuse such diagnoses were not given. Contacts to the casualty clinic increased in periods with few contacts to the RGPs' surgeries (r = -0.59, p = 0.05). At least 74% of patients contacting the casualty clinic had seen their RGP during the study year.

The diagnostic profile out-of-hours had a higher relative prevalence of suicidal behaviour (relative risk (RR) 81.8), psychosis (RR 2.5) and substance abuse (RR 2.0) compared to the profile at the RGPs' surgeries. The diagnoses P16 (acute alcohol abuse) and P77 (suicide and suicide attempt) also had higher absolute prevalence at the casualty clinic compared to at the RGPs' surgeries. Contacts related to substance abuse were particularly prevalent during night-time, and included a group of patients presenting with injuries and medical consequences of substance abuse. 79% of contacts to the casualty clinics were handled without referral to in-patient care, and 17% of patients judged by health personnel to contact the casualty clinic due to mental health problems were referred to in-patient (14%) or out-patient (3%) psychiatric specialist care. The GPs expressed experiencing uncertainty in contacts related to mental illness, and they emphasised the importance of access to immediate support from colleges. Worry over their own safety was also an issue.

This thesis shows that there are few mental health related contacts to casualty clinics, and that a minority of the contacts result in involvement of secondary mental health care services. This questions the viability of additional or specialist out-of-hours mental health care services. Nevertheless, if the traditional structure is kept, the out-of-hours support framework for GPs needs to be strengthened.

Sammendrag

I Norge har det blitt etterlyst en forbedring av akutt-tjenester for pasienter med psykiske lidelser. Bedring av tjenester må bygge på kunnskap om og forståelse av eksisterende tjenester. Dybdekunnskap om rollen til den tradisjonelle lavterskeltjenesten legevakt har manglet. Derfor var formålet med denne avhandlingen å beskrive legevaktkontakter relatert til psykiske lidelser, inkludert legenes opplevde utfordringer i møtet med disse problemstillingene på vakt.

Avhandlingen er bygget på resultatene fra tre epidemiologiske og en kvalitativ studie som utforsker forskjellige aspekter ved legevakttjenester. Den første studien beskriver diagnoser gitt i alle kontakter til en bylegevakt og en interkommunal legevakt i distrikt over en periode på ett år (n = 27 208). Pasientkarakteristika og variasjoner i kontakttidspunkt ble utforsket. Den andre studien sammenligner kontakter gjennom ett år til fastlegene (n = 61 783) med tilsvarende kontakter til den lokale legevakten (n = 11 976). I studien ble det fokusert på diagnoser, pasientkarakteristika og parallell bruk av de to helsetjenestene på gruppe- og individnivå. Den tredje studien beskriver rutinemessig vurdert hastegrad, behandling og henvisninger i kontakter relatert til psykiske lidelser ved fire norske legevakter (28 527 henvendelser, 887 pasientkontakter vurdert av lege til å være relatert til psykiatri eller rus). Den fjerde og siste studien er en kvalitativ studie basert på seks fokusgrupper og to individuelle intervju (totalt 45 informanter) som utforsket legenes erfaringer med legevaktkontakter relatert til psykiske lidelser.

Studiene viste at i 2006 ble en diagnose relatert til psykisk lidelse gitt i 9-11 kontakter per 1000 innbyggere per år. I 30-68% av kontakter vurdert av lege til å være relatert til psykiatri eller rus ble det *ikke* gitt en slik diagnose. Antall kontakter til legevakt økte i perioder med få kontakter til fastlegene (r = -0.59, p = 0.05). Minst 74% av pasientene

som kontaktet legevakten hadde også vært i kontakt med fastlegen i løpet av studieåret.

På legevakt var det høyere relativ forekomst av suicidal atferd (relativ risiko (RR) 81,8), psykoser (RR 2,5) og rusmisbruk (RR 2,0) sammenliknet med fastlegekontorene. Diagnosene P16 (akutt alkoholmisbruk) og P77 (selvmord og selvmordsforsøk) hadde også høyere absolutt forekomst på legevakt sammenliknet med fastlegekontoret. Kontakter relatert til rusmisbruk hadde spesielt høy forekomst om natten, og inkluderte en gruppe pasienter som hovedsakelig kom med skader og somatiske konsekvenser av rusmisbruk. 79% av henvendelsene til legevakt ble håndtert uten innleggelse, og i 17% av kontaktene der helsepersonell vurderte kontaktårsaken som relatert til psykisk lidelse, ble pasienten henvist til innleggelse (14%) eller poliklinisk behandling (3%) innenfor spesialisthelsetjenesten i psykiatri. Legene uttrykte usikkerhet i legevaktkontakter relatert til psykisk lidelse, og de vektla behovet for umiddelbar tilgang til kollegial støtte. Bekymring for egen sikkerhet var også et tema.

Avhandlingen viser at få legevaktkontakter er relatert til psykisk lidelse og at et mindretall av kontaktene resulterer i at spesialisthelsetjenesten i psykiatri blir involvert. Dette utfordrer grunnlaget for nye eller spesialiserte døgnbemannede tjenester innenfor psykisk helsevern. Dersom legevakten beholdes som førstelinjetjeneste for mennesker med psykiske lidelser, bør rammene rundt legevakt bedres.

1. Introduction

1.1 Organisation of mental health care services

Changes in health policy and organisational structures lead to changes in patient flow (1-3). Deinstitutionalisation in mental health care in the Western world throughout the second half of the 20th century led to more people with severe mental illness living in society (1, 4, 5). Simultaneously an increase in emergency psychiatric referrals was observed (6-8). Initially this increase mostly consisted of former institutionalised patients with psychoses or suicidal behaviour (1, 9). However, during the last decades the increase has continued (6, 10), with growing dominance of people seeking emergency mental health care for conditions like substance-use disorders, mood disorders and anxiety disorders (6, 9, 11).

Throughout the world, emergency mental health care is organised in heterogeneous ways (4, 12-14). Organisations differ in whether access to care is tiered or not, to which extent patients can self-refer to specialist services, and in whether emergency mental health care is segregated from emergency medical care. The most prevalent model is self-referral to hospital emergency departments independent of the presented problem's nature (15, 16). When this model is applied, the emergency department is either the sole emergency care provider or has parallel options of self-referral to lower care levels. In some countries, mental health care is separated from general medical care, and patients self-refer to specialist psychiatric services directly, for example to psychiatric emergency rooms (15). The entry-point for self-referral at the specialist level can vary between regions, but the solution for gatekeeping seems mostly to be universal within a country. Few countries have strictly tiered health care systems where primary health care services also serve gatekeeper functions. For examples of countries with different gatekeeper models, see Table 1.

Table 1. Examples of countries with different gatekeeper models for round the clock emergency mental health care.

Gatekeeper model	Country
Self-referral to specialist care	Canada [5] Italy [19] Japan[18] United States of America [8, 17]
Self-referral to specialist care combined with optional access to emergency primary health care	Belgium [13] France [22] Germany [21] Netherlands* Sweden [14] United Kingdom [20]
Compulsory gatekeeping at primary health care level	Denmark* Finland [14] Norway

*Personal communication

In Norway general practitioners (GPs) are gatekeepers to specialist psychiatric care round the clock. This represents a rather rare organisation of emergency mental health care. During the last two decades there has been a sustained focus on delivery of mental health care in Norway (23-26), and specialist emergency services have increasingly been implemented to enhance the quality and availability of emergency care (25, 27, 28). New initiatives have mostly been loyal to the general two-tiered structure, but some initiatives have opened up for self-referral of patients already known to the specialist services (28, 29). This change has been implemented without extensive knowledge about the function and use of existing emergency primary mental health care services. Information has been missing on which patients use emergency primary care services, what kind of problems they contact the service for, which care

they receive, and relative referral-rates. Accordingly, Norwegian policy making and official debate have been coloured by individual experiences and assumptions, in conjunction with findings from international studies which, due to differences in organisational structure and population served, might have limited generalizability to the Norwegian context. Given the increased emphasis on community care (23, 26, 30) and the established importance of extensive use of primary health care to optimise health outcome for the general population (2), more knowledge about characteristics and challenges of existing emergency primary mental health care is needed as a foundation for further development of the services and improved utilisation of available resources.

1.2 The Norwegian emergency mental health care system

Norway has a strict two-tiered health care system, consisting of primary and secondary health care services. For an overview of how the different services relate to each other in emergency mental health care, see Figure 1. The recent years a marginal private sector has developed at both levels of care. Private actors so far play a very limited role in emergency care in general, and they have hardly any role in emergency mental health care. Norwegian municipalities are by law responsible for the primary health care services (31, 32). This includes emergency mental health care and referral to secondary health care when necessary.

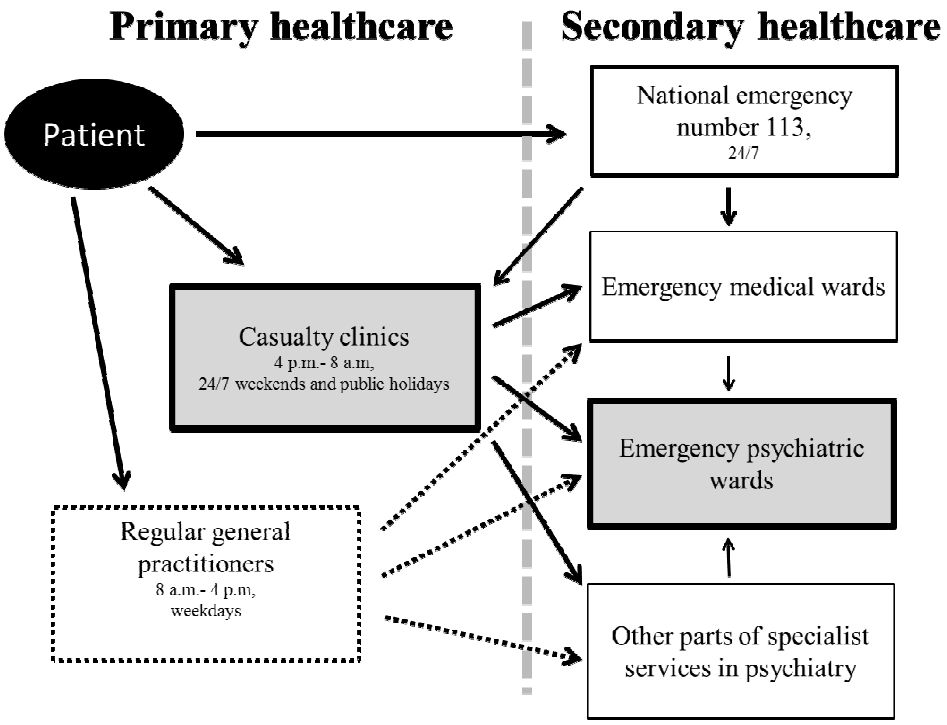


Figure 1. The Norwegian emergency mental health care system. Possible pathways to emergency psychiatric wards.

Since 2001 Norway has supported a list-system for general practice, and the municipalities are obliged to give all inhabitants access to a regular general practitioner (RGP) (33). 99.6% of Norwegians are enlisted with an RGP (34). Emergency health care is an integrated part of RGPs' services to their enlisted patients during office hours (33). Out-of-hours, emergency health care is provided by municipality initiated services primarily staffed by general practitioners (GPs) (35). Most RGPs participate in out-of-hours emergency care as part of their contract with the municipality (33). Nevertheless, a substantial part of duties are covered by doctors without this local attachment, for example interns, hospital doctors and GPs from other Scandinavian countries who fill short-time temporary locum positions in Norway (36).

The municipalities normally organise out-of-hours health care as casualty clinics or GP rotas (35). Increasingly, casualty clinics are inter-municipal collaborations (37). Most casualty clinics are located on their own premises or at one specific RGP surgery, and have one or several additional health personnel present at the clinic (37, 38). Available facilities vary. 18% of casualty clinics can observe patients for 2 hours or more (38). Additionally, a few casualty clinics serve functions normally allocated to specialist services, like for example treatment of uncomplicated fractures (38). However, the smallest units still consist of one home-based GP on-call, whom the patients can contact directly. Henceforth *casualty clinic* will be used to denote all types of out-of-hours emergency primary health care services despite the structural variations described.

When patients are in need of emergency care, they contact the casualty clinics by calling the local emergency medical call centre (*legevaktsentralen*) or, in some cities, by direct attendance. Local emergency medical call centres are usually located in or nearby the casualty clinic. A nurse judges the patients' medical needs. Sometimes the nurse can help the patient sufficiently by direct counselling. If not, the nurse will refer the patient to a contact with a GP. Mode of contact with the GP depends on the presented problem and perceived urgency level, and includes counselling by phone, consultations, home visits or emergency call-outs. Although the main objective of casualty clinics is to provide emergency care, approximately 80% of contacts are judged non-urgent, and many of these contacts could safely be solved by an RGP the next day (39). The rate of non-urgent contacts varies between casualty clinics, and this variation probably reflects local traditions and availability of RGPs (39, 40).

The casualty clinics are financed by a combination of funds from the local authorities, direct payment from patients and reimbursement from the government. The

governmental reimbursement is based on a pay-for-service system, whereby the GPs report patient contacts to the Health Economics Administration (*HELFO*) and receive reimbursement according to the activities reported. To redeem a reimbursement, the claim must contain the national identity number of the patient, activity codes and the diagnostic codes for the contact. For governmental reimbursement two diagnostic systems are in use: International Classification of Primary Care 2nd edition (ICPC-2) (41) and International Classification of Diseases and Related Health Problems (ICD-10) (42). ICPC-2 is the preferred diagnostic system for primary care (41). ICD-10 is mainly in use within secondary services (43).

Since 2002 the responsibility for public secondary care has belonged to the government, and has been organised through Regional Health Authorities (44). Until recently secondary mental health care services consisted of central psychiatric hospitals and out-patient clinics. An emergency admission to a central hospital was usually the only available out-of-hours service. Increasingly local community psychiatric centres (*distriktpsykiatriske sentre*) and crisis resolution teams (*akutt ambulante team*) are established (28, 45), and this has resulted in a more diverse emergency specialist service (26, 28). Local community psychiatric centres and crisis resolution teams are direct results of the governmental program for improved quality and availability of secondary mental health care (26, 46). Local community psychiatric centres often incorporate former out-patient clinics in addition to offering voluntary in-patient care. However, few centres accept admissions out-of-hours, and they never offer involuntary care. Therefore voluntary and involuntary emergency admissions to a central psychiatric hospital continue to be the only out-of-hours secondary service available most places in Norway. The patients have no direct access to specialist psychiatric care, and thus need referral from a physician or a psychologist.

Substance-use disorders are by diagnostic convention included in the mental illness spectrum (41, 42), but have traditionally been part of social care in Norway. In 2004

the responsibility for addiction treatment was moved from the field of social care to the medical specialist services (*tverrfaglig spesialisert rusbehandling (TSB)*) by a change in legal rules (47). Consequently RGPs could refer patients to addiction treatment, a privilege which was previously confined to social workers in the municipalities. As part of the medical specialist services, TSB is now obliged to offer emergency treatment. However, there have hardly been any institutions accepting patients for immediate in-patient care. Patients in need of emergency treatment due to somatic consequences of substance-use disorders are admitted to medical services, whilst patients with substance related mental illness are referred to psychiatric services.

Finally, the Norwegian emergency medical system also includes the national emergency number 113, answered by emergency medical communication centres (*AMK-sentraler*). Although the emergency number is reserved for severe emergencies, 71% of contacts are for non-life-threatening conditions (48). When delay of care is considered potentially fatal, the patients are directly transported to a hospital, and the GPs thus bypassed. Direct transport is the chosen response for 24% of all patients whom 113 are contacted for (48). However, no patients are directly transported to psychiatric admissions without prior assessment by a GP. 6% of contacts to emergency medical communication centres are related to mental illness (48), and most of these contacts are rerouted to casualty clinics.

1.3 Literature on out-of-hours mental health care by the end of 2012

1.3.1 Service utilisation and relative prevalence of mental illness

Out-of-hours primary health care exists in a continuum with daytime primary health care. Since the first studies of this PhD-project were conducted, several reports based

on national statistics of reimbursement claims have become available (49-54). In 2006 71% of the Norwegian population had at least one appointment with an RGP, whilst 17% of the population was in contact with casualty clinics (49). The same year RGPs had 1.14 million consultations and home visits in which the GP chose to give a mental illness related diagnosis as main diagnosis, whilst the corresponding number for casualty clinics was 56 000 (49). The share of total contacts given a mental illness related diagnosis was 10% at RGP surgeries and 4% at casualty clinics (49). This placed mental illness among the top four reasons for contacts to RGP surgeries, but among the less usual reasons for contacts to casualty clinics (49). Henceforth the occurrence of mental illness related contacts compared to other types of contacts will be denominated *relative prevalence*, to underline the relational quality of the numerical values given.

Relative prevalence of mental illness related contacts to the casualty clinics differs between contact modes. A mental illness related diagnosis is given in approximately 10% of home visits, compared with approximately 4% of consultations (50-52, 54). Although annual statistics for casualty clinics 2006-2010 have shown a 12% increase in all contacts to casualty clinics, the relative prevalence of mental illness related diagnoses remains stable (4.8%) (54). The high prevalence of mental illness related problems in out-of-hours home visits in 2007-2011 contrasts with earlier findings. In a study conducted in 1988-89 in the county of Møre and Romsdal, 5% of home visits to women and 3% of home visits to men were related to depression, anxiety or neuroses (55). In a study conducted in 2001-02 in Oslo, 5% of daytime home visits were related to psychiatry (56). There has been a general decline in total number of home visits (52), and the increased relative prevalence of mental illness related home visits probably reflects a lasting need for home visits to mentally ill patients.

The share of contacts related to mental illness in Norwegian casualty clinics seems to be comparable with what is reported from emergency departments in United States

(11, 57), where the emergency room serves as the interface between the community and medical services. A comparative study of symptoms and diagnoses in out-of-hours primary care services in eight European countries showed variation in use of different ICPC-chapters, and diagnoses from the chapter describing mental illness, were used in 1.2- 6.4% of contacts (13). The European services vary in organisation and availability of alternative low threshold services. The direct access to specialist services in psychiatry in some of these countries probably affects the diagnostic spectrum seen in primary care. In the comparative study, German out-of- hours care centres reported use of a mental illness related diagnosis in 2.2% of contacts (13). A different study which observed call-outs for German emergency physicians, classified 11.8% of calls as psychiatric emergency situations (21). This latter share is remarkably similar to what is found for Norwegian out-of-office primary care contacts such as emergency call-outs and home visits (50-52, 54).

A recent report observed huge differences between individual RGPs in their relative use of mental illness related diagnoses as main diagnoses for consultations (53). Similarly, individual studies show considerable variation in use of mental illness related diagnoses at RGP surgeries, with a relative prevalence of 5-12% of consultations (58, 59). Corresponding information for individual casualty clinics has not been available.

The frequency of total casualty clinic contacts is rather stable throughout the year (50), but there are marked peaks in holiday seasons like Easter, main summer holidays (*fellesferien*) and Christmas (51, 52). The relative prevalence of mental illness related contacts is remarkably stable between months, showing a variation of less than 2% throughout a year (50-52). The day distribution is more uneven. Total contact frequency to casualty clinics peaks between 4 p.m. and 23 p.m. (50-52). However, the relative prevalence of mental illness related contacts doubles during night time (50-

52). Thus mental illness related contacts seem to be more evenly distributed throughout night and day compared with other conditions.

1.3.2 Patient flow in emergency mental health care

48-53% of admissions to Norwegian emergency psychiatric wards occurs during evening and night time (29, 60), a time of day when casualty clinics normally are the only available source of emergency primary health care. A prospective observational study including emergency admissions at three quarters of emergency wards in Norway, showed that 38% of total referrals came from casualty clinic doctors (29), and 46% of patients had been in contact with casualty clinics within the last 48 hours before the emergency admission (29). Casualty clinics thus constitute the major pathway to secondary psychiatric emergency care (29, 61, 62). Studies from individual psychiatric emergency wards show diverging proportions of emergency admissions referred from casualty clinics, ranging from 46% to 65% (61, 62). These differences might reflect local variation in structure and availability of mental health care services. In the United States, lower use of emergency facilities has been reported in areas with better access to routine day-time mental health care (11). In another American study 21% of participants attributed the need for contacting emergency departments to problems of accessing on-going psychiatric care (63). Studies from the Netherlands suggest that community-care networks and integrated services increase number of contacts to mental health care, but reduce the need for emergency admissions (64, 65).

Overcrowding of psychiatric emergency wards is a problem, in Norway as well as elsewhere (18, 66-68). Given the high number of emergency admissions via casualty clinics, it has been tempting to suggest that Norwegian casualty clinics function inadequately as gatekeepers and thus strongly contribute to the overcrowding of emergency wards (61, 69). However, recent studies have shown high concordance between judgements by casualty clinic doctors and specialists in psychiatric

emergency wards. In one study 101 referrals to emergency admissions from a single casualty clinic were examined (70). All but one patient was accepted for admission. In another study the therapist responsible for treatment at one psychiatric emergency ward judged whether the emergency admission could have been avoided, given alternative treatment options (62). Surprisingly, when comparing admissions from RGPs, casualty clinic doctors, therapists within secondary mental health care and doctors within other parts of the secondary health care system, there were no significant differences between the referring agents in the proportion of avoidable admissions. Thus casualty clinic doctors seem to be as adequate in their gatekeeper function as other services are.

Furthermore, existing evidence suggests that substantial triage take place at casualty clinics. In a small study from Oslo on outcome of daytime home visits, there were 16 home visits related to mental illness in the study sample (56). 3 of the home visits resulted in an emergency admission, whilst 6 resulted in an onwards referral to out-patient treatment (56). Thus 7 contacts were handled at site without further referral. In a prospective observational study conducted in 2003, all health care contacts in Oslo related to intoxications were included. Most alcohol intoxications were treated at the casualty clinic without referral to higher levels of care (71). Opioid intoxications were mostly handled by ambulance personnel, whilst intoxications with pharmaceuticals and other types of substances were mostly treated in medical hospitals (71). The casualty clinic thus seemed to play a particularly important role in treatment of alcohol intoxications. These findings imply that many casualty clinic contacts related to mental illness are handled without emergency referrals to inpatient care. However, more information is needed to improve the general understanding of the casualty clinics' role in emergency mental health care.

The predominant view in current official Norwegian policy documents is that care for behavioural emergencies should be diverted from casualty clinics to RGPs surgeries

and possibly crisis resolution teams (24, 72, 73). It is believed that such a diversion could improve the quality of patient care and reduce hospitalisation and use of coercion (24, 72, 73). Patients referred from casualty clinics have on average the same severity of symptoms and level of functioning as patients referred from other agents (62). However, compared to other patients a slightly higher proportion of casualty clinic patients display aggressive behaviour or behaviour related to substance use (62). Many are escorted to the hospital by the police (62). Casualty clinics have more than their fair share of patients being referred to involuntary care (61, 62). Even more worrying is the number of patients referred to involuntary care, where the request for involuntary care is rejected (62, 70). A Norwegian study has shown a higher risk of involuntary admissions in patients with disorders due to the use of psychoactive stimulants (74), and it is likely that a fair share of these patients are referred from casualty clinics. The transient character of drug induced psychosis might contribute to patients who need compulsory care when referred, but who regain their normality when assessed the next day. The expected reduction of emergency admissions and use of coercion after establishment of crisis resolution teams in Norway has so far not been seen (75). A better understanding of factors influencing the patient flow could possibly have predicted this outcome.

1.3.3 Characteristics of patients using emergency services for mental illness

When this PhD-project was planned, characteristics of patients using emergency services for mental illness were not known. However, recent national reports have shown that the majority of casualty clinic patients given diagnoses related to mental illness are between 16 and 60 years old (50-52, 54). Such diagnoses are less frequently given to patients older than 60 years, and they are hardly given to patients younger than 16 years (50-52). There has been a consistent pattern of slightly more men than women being given diagnoses from the chapter P of ICPC-2 at casualty clinics (49-52, 54). The relative prevalence for all male contacts has been 5.2-5.5%, whilst the corresponding prevalence for female contacts has been 4.1-4.5% (50-52, 54). At RGP

surgeries approximately 50% more women than men are given diagnoses from the chapter P in consultations and home visits (49). A similar pattern of female predominance is found in psychiatric out-patient services (29, 76). Casualty clinics are thus the only health service with slight dominance of male contacts related to mental illness.

Due to frequent overload of emergency services, much attention has been given to frequent attenders and the scope of reducing their use of emergency services. Patients with mental illness or substance use disorders have repeatedly been identified as predominant categories of frequent attenders (22, 77-79). National annual statistics for use of emergency primary health care in 2011 showed that frequent attenders are given mental illness related diagnoses 4-5 times more frequently than other users of casualty clinics (54). There is a strong positive association between use of daytime and out-of-hours GP services (80). In organisational systems without gatekeeper function between levels, frequent GP attenders have higher use of specialist services and are more frequently doctor-shoppers than other patients (22). Psychological distress seems to increase the likelihood of becoming a frequent attender in daytime GP practice (81), and might equally affect use of out-of-hours services.

1.3.4 The perspective of patients

There are patient stories of personal infringement and offence in the encounter with personnel at Norwegian casualty clinics (63, 82, 83). Often the essence of these stories has been that the offence could have been avoided if the health personnel in question had known the patient from before, had been more experienced in handling behavioural emergencies or had been more knowledgeable regarding mental illness (63, 72). In an American study from emergency departments, patients with experiences of behavioural emergencies were asked what they wanted and needed during the emergency (63). Four main themes were identified:

1. To be treated with respect and to be allowed to retain one's dignity.
2. To be informed about what happens, and why.
3. To be asked what they needed or wanted.
4. Comfort and reassurance.

In line with this, the same respondents gave the following recommendations for improving emergency psychiatric care at emergency departments: Providing a comfortable physical environment, emotionally supportive treatment in terms of timeliness and communication, shared decision making and improved staff training. In addition they recommended increased accessibility of low threshold alternative crisis care and the use of crisis prevention and resolution plans. Several of these recommendations overlap with possible improvements identified by psychiatric professionals (1, 7).

1.3.5 RGPs' participation in out-of-hours service

A significant share of duties at casualty clinics is covered by locums and hospital doctors despite the RGPs' obligation to participate in out-of-hours services (36, 84, 85). 65% of RGPs cover some or all they duties, whilst 29% are formally exempted from this work (85). When asked, 60% of RGPs said they try to get rid of their duties (85). There are probably multiple reasons why participation in out-of-hours care is unpopular. Yet the work burden of emergency mental health care is believed to contribute to the unpopularity. Although mental illness is among the less frequent reasons for a contact with the casualty clinics, a survey conducted in 2006 showed that mental illness (92%) and intoxications (69%) ranged among the four most common emergency situations experienced at least once by RGPs during the last 12 months of out-of-hours' work (86). The other top experienced emergency situations were chest pain, myocardial infarction and pulmonary oedema (94%), and asthma and chronic obstructive pulmonary disease (88%) (86).

1.3.6 The doctors' challenges in emergency mental health care

In a review from 1980 Gerson and Bassuk summed up challenges of psychiatric emergency rooms in hospital emergency departments in the United States of America (1). Firstly, they pointed to time pressure as a pervasive quality of emergency care due to a structural organisation where rapid assessment and disposition was preferred to allow space for the next emergency. They claimed that this need for rapid assessment influenced the decision-making process, and favoured brief interventions and hospitalisation of patients. The time pressure also reduced the doctors' ability to access or to consider potentially relevant sources of information and support. Secondly, they pointed to a negative attitude to acutely mentally ill patients in an environment which was mainly geared towards treatment of medical emergencies, as well as within specialist psychiatric care where emergency care was less prestigious than, for example, long-term psychotherapy. Thirdly, they claimed the problems encountered often exceeded the therapists' level of competence or possibilities for referrals, due to a wide diagnostic spectrum, complicating medical disorders, contributing psychosocial issues or the patients' reluctance to co-operate. To meet these challenges they pointed to organisational changes like more appropriate physical environment, change in staffing and assessment procedures, and better availability of treatment options. The same conclusions were repeated in a paper by Allen 19 years later (7). Both these papers describe the challenges of psychiatrists and residents in psychiatry in emergency rooms attached to open access generalist hospital departments. The doctors in question were substantially more trained in psychiatry than the average general practitioner. They were devoted to behavioural emergencies, although they worked in a medical setting. However, what happens when less experienced and skilled doctors attend to all kinds of emergencies in an unselected patient population?

From daytime GP practice it has been shown that perceived time pressure and organisational factors limit GPs' attentiveness to mental health problems (87-89).

Furthermore, the low prestige of psychiatry (90, 91) has been postulated to give patients with mental problems less attention within generalist care (89, 92, 93). Problematic interactions between GPs and actors in psychiatric specialist care are repeatedly described in different countries (89, 94-97), and a former Norwegian study found that casualty clinic doctors might end up in a squeeze as mediators between expectations from society and restrictions from specialist services in psychiatry, due to conflicting understanding of (a) what constitutes mental illness and (b) which help specialist services in psychiatry should provide (94). Except for the last mentioned study, none of the studies has focused on emergency primary health care and the specific challenges of providing out-of-hours primary care to an unselected and largely unfamiliar patient population. This raises the question as to which challenges GPs have out-of-hours in their contacts with patients presenting problems related to mental illness.

2. Aims of the studies included in the thesis

Aim I. **To describe Norwegian casualty clinic contacts related to mental illness in terms of prevalence, patient characteristics, diagnostic spectrum, time of contact, urgency, treatment given and onwards referrals.** Three individual studies (Study I-III) approached these issues through different samples and methodology. For an overview of how the individual studies relate to the subthemes of this aim, see Table 2.

Aim II. To explore GPs' experienced challenges in the provision of care for patients presenting problems related to mental illness at Norwegian casualty clinics. This aim was pursued in Study IV.

Table 2. Subthemes covered by the individual studies I-IV

Subthemes	Study I	Study II	Study III	Study IV
Prevalence	X		X	
Characteristics of patients	X	X	X	
Diagnostic spectrum	X	X	X	
Time of contact	X	X	X	
Urgency/priority degree given			X	
Treatment and onwards referral			X	
GPs' experienced challenges in provision of care				X

The results from each individual study are presented in four corresponding papers included in the appendix (**Paper I-IV**).

3. Material and methods

3.1 Principal choices

In pursuing the aims of this thesis a combination of epidemiological and qualitative approaches was used to increase the validity of the results and the scope for understanding. The approach in Study III was chosen to deepen the more superficial knowledge gained in Study I and II, and to inform issues about internal validity and the appropriateness of case inclusion in these studies. The qualitative approach in Study IV was chosen to increase the understanding of challenges in care provision. In the following, an outline of material and methods for each study will be provided, relating variables, definitions and categorisations to the subthemes described in Table 2. Due to methodological similarities Study I and II will be presented together, whilst Study III and IV will be presented separately. For more details of each individual study, see the corresponding paper (**Paper I-IV**).

3.2 Study I and II

The first two studies were retrospective, observational studies. Diagnostic codes were used to identify contacts related to mental illness. A tailor-made computer program was used to anonymously retrieve routinely stored information from the reimbursement claims to the Health Economics Administration (*HELFO*). To receive reimbursement the following information must be recorded in a billing card: The patients' age and gender, the patients' national identity number or date of birth, the municipality in which the patient is registered as inhabitant, time of contact, diagnostic codes and codes describing the activity performed. The billing cards thus describe activities at the casualty clinic, including patient demographics.

Study I investigated contacts to two Norwegian casualty clinics throughout 2006. To ensure representation of different organisational models and populations, four casualty clinics were invited to take part in the study. All invited casualty clinics agreed to participate, but casualty clinics had to be excluded if a large part of the GPs sent their claims to HELFO on paper. Thus the final study population involved two casualty clinics. One of the clinics was an inter-municipal collaboration serving a rural area with 29 021 inhabitants (January 2006). The other casualty clinic was a town-based clinic covering a single municipality with 43 656 inhabitants (January 2006).

In Study II, routinely stored billing information from contacts to one Norwegian casualty clinic during 2006 was compared with similar information from daytime RGP surgeries in the same geographical area. The chosen casualty clinic was a rural inter-municipal collaboration where seven municipalities participated. All RGP surgeries in three municipalities participated in the study. In a fourth municipality, three out of four surgeries participated. The RGP surgeries in the remaining three municipalities had to be excluded from the study due to differing software for their electronic medical records. Thus we had information about all contacts around the clock with doctors in primary health care for inhabitants in three municipalities (N=13 051), whilst some daytime contacts were missing for inhabitants in the fourth municipality (N=13 285). Information on contacts with patients living in the three excluded municipalities (N=2 685) were removed from the data files of the casualty clinic.

The tailor-made computer program retrieved the following information from the billing card: Time of contact, age and gender of the patient, which municipality the patient lived in, contact codes and diagnostic codes. In addition a unique code was generated based on the patients' national identity number. To generate this code the complete national identity number of a patient was required. Whenever a unique code was generated, individual patients could be traced within and between services. This allowed for quantification of contacts and registration of contemporaneous use of

daytime and out-of-hours services. Billing cards for individual patients issued with less than two hours' interval were considered duplicates. The billing card with most complete information was then kept. However, when the diagnostic information on the two billing cards differed, both billing cards were kept, and the contacts regarded as unique.

The contact codes could be used to identify types of contact with the GP. We chose to focus on consultations (2ad, 2ak, 2fk) and out-of-office events like home visits and emergency call-outs (11ad, 11ak, 11f, 22ad, 22ak, 21k). Other types of contacts were excluded.

The diagnostic codes were given as ICPC-2 codes (41). ICPC-2 consists of 17 chapters (41). Each chapter has codes for symptoms and complaints, diseases and processes. Mental illness is coded in the chapter P, which comprises 26 codes for psychological symptoms and complaints, and 17 codes for mental diseases. The chapter P also includes substance use disorders. The chapter P of ICPC-2 was used as a proxy for mental illness, and diagnoses from this chapter will henceforth be referred to as *P-diagnoses*. Due to the high total number of diagnostic codes, we decided to use expanded diagnostic clusters in the analysis, grouping several codes in clinical similar categories. For an overview of the diagnostic clusters and the corresponding ICPC-2 codes, see Table 3. All subgroups were analysed separately in Study II. In Study I the subgroups of depression and suicidal behaviour were pooled.

Table 3. Overview of the diagnostic subgroups and the corresponding clustered diagnostic codes from the chapter P of ICPC-2

Subgroup	Code(s)
Depression	P03, P76
Suicidal behaviour	P77
Substance abuse	P15, P16, P17, P18, P19
Anxiety	P01, P27, P74, P75, P79, P82
Acute stress reaction	P02
Unspecified P-diagnoses	P28, P29, P99
Psychosis	P71, P72, P73, P98
Sleep disturbance	P06
Memory disturbance	P20, P70
Others	P04, P05, P07, P08, P09, P10, P11, P12, P13, P22, P23, P24, P25, P78, P80, P81, P85, P86

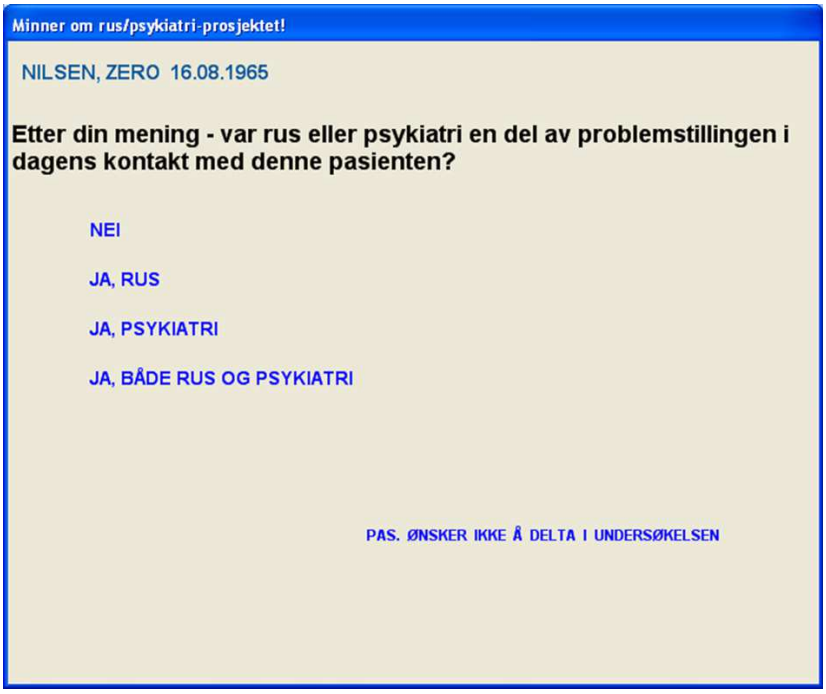
The data was analysed descriptively, using the Statistical Package for the Social Sciences (SPSS, version 15). Group differences were tested with Pearson's chi squared test or Student's *t* test. In Study II the correlation between total number of monthly events at the casualty clinic and the RGP surgeries were tested with Pearson's *r*. The distributions of patients' individual contacts to the casualty clinic and the RGP surgery were skewed, and the correlation between visits to the two services was therefore tested with Spearman's rho.

3.3 Study III

Study III was a prospective observational study. Contacts related to mental illness and substance abuse were successively identified and reported by nurses and GPs at four Norwegian casualty clinics. The selection of cases was based on clinical judgement. The participating casualty clinics were recruited from a preformed cohort of seven casualty clinics (the Watchtowers) (39) which are representative of Norwegian casualty clinics in terms of organisation and population density, and which routinely deliver activity data on all contacts to the casualty clinic, including time of contact, age and gender of the patient, priority degree given and first action taken. The five casualty clinics which used the dominating computer software were enrolled in the study, but one casualty clinic had to be excluded due to lack of local IT-support. The four participating clinics included a city-based single municipality casualty clinic, a town-based single municipality casualty clinic, a rural single municipality casualty clinic and a large inter-municipal casualty clinic covering a town and surrounding rural areas. Altogether the participating casualty clinics covered a population of approximately 180 000 inhabitants (January 2010). The three non-participating clinics served approximately 38 000 inhabitants (January 2010) and were all rural.

Study III was carried out in the period from January throughout May in 2010. During this period the Watchtower's routine activity data set was expanded to include whether the attending nurses judged the contact to the casualty clinic to be related to mental illness or substance misuse. Additionally, a pop-up window was generated when a) the doctor closed a patient's medical record and b) a billing card had been issued. The pop-up window contained a question asking if today's contact with the patient had been related to mental illness or substance misuse (Figure 2). The GPs had to answer the question to be able to continue their work in the medical records. The alternatives for answering the question were 'no', 'yes, substance misuse', 'yes, mental illness', 'yes, both mental illness and substance misuse' and 'the patient does

Figure 2. The pop-up window generated when a GP closed a patient's medical record and a billing card had been issued.



not want to participate in the study'. The answers to the pop-up window were stored in a separate log, including age and gender of the patient. This allowed for calculations of relative prevalence and differences in patient characteristics and time of contact between contacts related to mental illness or substance misuse and other contacts. For all contacts judged by GPs to be related to mental illness or substance misuse an identification code was stored. This identification code allowed all entries in the patient's medical record for that particular date to be retrieved anonymously at the end of the study period by another tailor-made computer program. Based on the information available in the text extracts from the medical records, the following variables were recorded for each contact: Age and gender of the patient, interventions performed at the casualty clinic beyond a standard consultation, onwards referral,

ICPC-2 diagnoses given, involvement by the police and reports of dangerous situations.

The data gathering resulted in three separate data sets which gave information on different aspects of the patients' contact with the casualty clinic. The nurse identified cohort (The Watchtower data) gave information about the patients' initial contact to the casualty clinic, and were analysed on:

1. Relative prevalence of mental illness or substance abuse in the initial contact to the casualty clinic as judged by nurses
2. A comparison of patients judged by nurses to contact the casualty clinic due to mental illness or substance abuse and other patients with respect to:
    a. Patient characteristics (age, gender)
    b. Time of contact (shift; day 08.00-15.29, evening 15.30-22.59, night 23.00-07.59)
    c. Judged urgency as priority degree given (acute, urgent, not urgent)
    d. First action taken (contact with nurse (by phone or face to face), contact with GP (by phone, consultation, home visit or emergency call-out) or other)

The log based on answers to the pop-up window gave information on contacts the GPs had judged to be related to mental illness or substance abuse, and were analysed for the following:

1. Relative prevalence of mental illness or substance abuse in consultations, home visits or emergency call-outs as judged by GPs
2. Characteristics of patients who refused to participate in the study compared with participating patients (age, gender)

3. Comparison of time of contact between contacts related to substance abuse, contacts related to mental illness, contacts related to substance abuse and mental illness in combination and contacts related to neither substance abuse nor mental illness (shift; day 08.00-15.29, evening 15.30-22.59, night 23.00-07.59)

The extracts of the entries in medical records of contacts judged by GPs to have a relation to mental illness or substance abuse, gave in-depth information about treatment and onwards referral, and were described and analysed on the following:

1. Interventions performed at the casualty clinic (laboratory tests, GP consulted others regarding treatment, medication given, prescriptions, minor surgical treatment, observation on site, sick leave)

2. Onwards referral to out-patient treatment (RGP, somatic services, psychiatric services, addiction treatment),

3. Onwards referral to in-patient treatment (psychiatric wards, medical wards, surgical wards, other somatic wards, community based wards, addiction treatment)

4. Involvement by the police (following the patient to the casualty clinic, involvement during the stay at the casualty clinic, police custody after treatment at casualty clinic)

5. Diagnoses given (ICPC-2 code, if at least one P-diagnosis was given (yes/no))

6. Work-place violence (verbal abuse, physical abuse)

The information mentioned under 1, 2, 3 and 5 was analysed for differences between the three possible subgroups (substance abuse, mental illness, mental illness and substance abuse combined).

The three datasets were analysed descriptively, using the Statistical Package for the Social Sciences (SPSS, version 15). Group differences were tested with Pearson's chi squared test or Student's *t* test.

3.4 Study IV

During the planning phase of the initial studies I was puzzled by repeatedly coming across GPs who told elaborate stories of heart-sink patients and expressed that dealing with mental illness was an unwanted burden in out-of-hours work. The observational, epidemiological and quantitative approach of the initial three studies could not confirm that the amount of mental illness encountered constituted a particularly huge burden, nor could it identify the challenges GPs encountered in their clinical work with these patients. We therefore chose to perform an explorative study in an attempt to discern patterns in the GPs' experiences which could point to possible obstacles in their clinical work.

A focus group design was chosen to reduce the influence of the interviewer and to enhance memory retrieval and sharing of views between informants. For practical reasons 2 informants could not participate in any group, and these were interviewed individually. Throughout the study period 6 focus groups and 2 individual interviews were conducted with a total of 45 participants. Initially participants were recruited individually, but this strategy only recruited GPs particularly interested in psychiatry or research. We therefore invited 5 peer groups organised by the Norwegian Medical Association to participate in the study. Participation in supervised peer groups is compulsory for physicians specialising in general practice. The peer groups were purposely selected to represent different populations and organisations of casualty clinics. The invitation was passed on to the peer group participants by their supervisors, and 4 groups agreed to participate. The fifth group declined as they had no pre-planned meetings in the study period. The majority of doctors in the peer groups

had experience from small casualty clinics where the GP worked alone without any support, or from medium sized casualty clinics where the GP was supported by other health personnel. To ensure inclusion of experiences from large city-based casualty clinics with several doctors on duty at the same time, the chief administrator at one of the largest casualty clinics was contacted. She recruited participants for one focus group. She was not present during the group discussion.

Benedicte Carlsen (BC) conducted 1 focus group. I (IHJ) conducted the remaining 5 focus groups and the individual interviews. For practical reasons there was no observer present in the focus groups. All the interviews were recorded by digital sound-recorder. The individual interviews lasted 40-44 minutes, whilst the focus groups lasted 81-113 minutes. The participants were encouraged to talk freely, and the interviews were structured around three topics:

1. An out-of-hours consultation or home visit where the patient presented mental illness or substance misuse.

2. An out-of-hours consultation or home visit where the patient presented mental illness or substance misuse and where the consultation or home visit had an unexpected positive turn.

3. Suggestions for how to improve the working conditions for GPs when dealing with patients presenting mental illness or substance misuse.

Towards the end of the interview the participants were encouraged to share thoughts they had had during the interview which had not been covered in the discussion, and to add information they wanted the researchers to know about which had not been addressed during the interview.

To secure that conclusions were directly founded on the data, the analysis was performed in an editing style (98), with no distinct theoretical framework apart from a

phenomenological stance and the researchers' professional backgrounds. Each interview was transcribed verbatim by IHJ shortly after the interview. The transcript was then read by IHJ (GP) and BC (social anthropologist), identifying preliminary themes separately. The interviews were spread out in time, and preliminary results were challenged in interviews with successive groups, by actively searching for discordant experiences and views. When time allowed at the end of the session in later groups, participants were asked to comment on preliminary results. In the third and fourth focus groups no new themes emerged. However, the last two groups were already booked, and we decided to carry out the interviews as these groups differed from the previous groups in terms of composition (1 group with only young GPs with limited work experience) and moderator (1 group moderated by BC). In these last groups, no new themes emerged. Nevertheless, they provided important contributions to the description of already identified themes.

After an initial analysis of the last transcript, IHJ and BC agreed on a framework for coding. All transcripts were coded by IHJ, whilst BC control-coded some sections. Presence or absence of text related to codes in each transcript was recorded in a matrix. Based on further analysis of text related to each code, a hierarchy of principal and subordinate themes was built. The descriptions of the themes were evolved by writing memos (99). The descriptions were refined in constant comparison with the text and later constituted the basis for presenting the results. Quotations were selected to show illustrative and typical parts of the transcripts.

3.5 Ethical considerations

Study I and II used anonymous data retrieved from routine billing cards. The studies were approved by the Regional Committee for Medical Research Ethics (*Regional komite for medisinsk og helsefaglig forskningsetikk (REK) vest*) and the Data Protection Official for Research (*Personvernombudet for forskning*). Permission to use

patient information was given by the Norwegian Directorate for Health Affairs (*Helsedirektoratet*).

Study III was based on nurse and GP generated anonymous logs, and extracts from medical records. All information that could directly or indirectly identify patients was removed from the extracts. The study was approved by the Regional Committee for Medical Research Ethics and the Data Protection Official for Research. The Norwegian Ministry of Health and Care Services (*Helse- og omsorgsdepartementet*) gave permission to use passive consent in the inclusion of patients. During the study period the casualty clinics had posters about the study on display, including information about the study, the patients' right to refuse participation and the procedure for refusing participation. The information posters were translated to relevant languages, including Nynorsk (1 casualty clinic), English (4 casualty clinics) and Sami (1 casualty clinic). Each casualty clinic thus had on display 2-3 posters in different languages. There was no payment involved for the casualty clinics, the casualty clinic staff or the patients.

In Study IV some of the GPs narrated stories about interaction with patients, and care was taken to preserve the patients' anonymity. The study was approved by the Data Protection Official for Research. The Regional Committee for Medical Research Ethics had no objections to the study. All participants received written and oral information about the study and gave written informed consent to participate. The participants received no payment.

4. Results

4.1 Limitation of the presentation of results

In this section I will present the core findings from Study I-IV related to the subthemes presented in Table 2. For further details on each study, see the corresponding papers in the appendix (**Paper I-IV**).

4.2 Characteristics of contacts

4.2.1 Prevalence

Results from Study I showed that a first diagnosis from the chapter P of ICPC was given in 9-11 events per 1000 inhabitants per year. Based on the size of the Norwegian population in 2012 (100), stipulated number of casualty clinic contacts related to mental illness should be somewhere between 45 000 and 55 000 for 2012. The fraction of casualty clinic contacts related to mental illness varied between the three initial studies. In Study I a P-diagnosis was given in 2.7% of contacts. In Study III the nurses identified a relation to psychiatry or substance misuse in 2.5% of first contacts to the casualty clinic, whereas GPs reported a relation to psychiatry or substance misuse in 9.3% of consultations, home visits and emergency call-outs.

The three answer categories in the pop-up window used to include cases in the GP cohort of Study III (substance abuse/psychiatry/substance abuse and psychiatry combined) were originally posted to increase case inclusion, and we had planned to pool the groups in the analysis. However, the characteristics of each case group were rather specific (see **Paper III, Table 2 and 5**), thus we decided to use them as separate groups in the final analysis. Cases judged to be related to mental illness constituted 3.9% of all GP contacts, cases related to mental illness in combination with substance

abuse constituted 2.2% of GP contacts, and cases related to only substance abuse constituted 3.2% of GP contacts. Based on total number of consultations and home visits given in the National annual statistics for 2011 (n=1 429 034) (54), the stipulated number of GP contacts related to psychiatry or substance abuse would be approximately 133 000 for 2011. Results from Study III suggested that there might be differences between casualty clinics, especially in number of contacts related to mental illness alone (range 1.9-4.9%).

4.2.2 Characteristics of patients

Study I found a slight male predominance in the group of patients being given a P-diagnosis (54.7%). In Study II there was a male predominance at the casualty clinic (64.5%), whereas there was a small female predominance at RGP surgeries (54.4%). In Study III there were differences between the three subcategories. Women dominated the mental illness category (60.8%), whereas men were dominant in the categories of substance abuse only (68.5%) and substance abuse and mental illness combined (59.4%).

In Study I a P-diagnosis was mostly given to patients in the age groups 15-59 year (84.0% of all P-diagnoses). Study II showed that patients given P-diagnoses at the casualty clinic were on average younger (mean age 38 years) than patients given P-diagnoses at RGP surgeries (45 years). In Study III the patients in the group with contacts related to substance abuse only were on average younger (35 years) than the other patients (44 years), whereas the average age in the categories related to mental illness were fairly similar (40 years (mental illness), 39 years (mental illness and substance abuse). Thus the patients in the substance abuse only group seemed to differ from patients judged by GPs to have a problem related to mental illness in terms of age and gender.

Study II showed that most individual patients who had been given a P-diagnosis in their contact with the casualty clinic (n=154) had also been in contact with an RGP during the study period (n=114). There was a small positive correlation between visits to the casualty clinic and visits to the RGP (r_s=0.28). The majority of patients who had been given a P-diagnosis in their contact with the RGP (72%) did not have any contacts with the casualty clinic throughout the study period.

4.2.3 Diagnostic spectrum

In Study I, substance abuse (21.2%), depression (20.4%) and anxiety (19.4%) were the most prevalent diagnostic subgroups used at the casualty clinics. This pattern was confirmed in Study II. Study II also showed that within a limited geographical area diagnoses related to suicidal behaviour, psychosis and substance abuse were significantly more prevalent at the casualty clinic compared with at the RGP surgeries. Suicidal behaviour was more prevalent at the casualty clinic in terms of absolute values (n=8 compared to n=2 at the RGP surgery) *and* relative values (relative risk =81.8). Acute alcohol abuse was by far the most frequently given substance abuse diagnosis (n=38) at the casualty clinic, whilst it was hardly used at the RGP surgery (n=5) ($p<0.001$). The RGPs diagnosed more patients with depression and behavioural disturbances than their counterparts at the casualty clinic.

Study III showed very different diagnostic patterns in the three subcategories. Diagnoses in the substance abuse only category were dominated by diagnoses related to injuries and medical consequences of substance abuse. The mental illness only category had a high percentage of core psychiatric diagnoses such as depression, anxiety and suicidal behaviour, whilst patients in the combined category were given diagnoses related to mental illness or substance abuse. For further details, see **Paper III, Table 5**.

Study III also showed that a diagnosis from the chapter P of ICPC-2 was given in less than 70% of relevant contacts. The divergence was largest in the subcategory related to substance misuse only, where such a diagnosis was given in 32.1% of cases. The divergence was smallest in the mental illness and substance abuse combined category, where 70.4% of cases were given such a diagnosis.

4.2.4 Time of contact

Study I and III showed a shift in day distribution for contacts related to mental illness compared with other contacts. Contacts related to mental illness were more frequent during night-time than other contacts. In Study I contacts with a P-diagnosis accounted for 2% of total events during daytime and evening, whilst they accounted for 6% of contacts during the night. This shift seemed mainly to be carried by contacts related to substance misuse. Study III showed that 51% of substance-use related contacts happened during night-time. Contacts related to substance abuse and mental illness combined, were rather evenly distributed throughout day (28%), evening (39%) and night (33%).

Study I showed that prevalence of contacts related to mental illness was rather constant throughout the year, with highs in July (n=102, 14%) and December (n=81, 11%). Findings in Study II suggested that there is a reverse relation between number of contacts to the casualty clinic and contacts to RGP surgeries (r = -0.59, p = 0.05) with an increase of contacts to the casualty clinic in periods with low use of daytime services.

4.2.5 Urgency of contacts

Study III showed a slight shift of urgency in contacts related to mental illness compared with other contacts ($p<0.001$). Mental illness related contacts were less

often non-urgent (58.7%) than other types of contacts (66.3%). Compared to other types of contacts the increase in urgency affected both the two more urgent categories (urgent and acute). Based on previously stipulated number of mental illness related consultations and home visits in 2011 (n=133 000), approximately 6 000 of the contacts would have needed immediate attention, whilst 49 000 would be judged urgent and would have needed the attention of a GP within some few hours. For further details, see **Paper III, Table 1**.

4.2.6 Treatment and onwards referral

Study III showed that 30.8% of initial contacts related to substance abuse or mental illness were handled by nurses on the phone, without any involvement by the GP. This was significantly higher than for other types of contacts (17.8%) ($p < 0.001$). At the same time initial contacts related to substance misuse or mental illness resulted in slightly more home visits and emergency call-outs (4.1%) than other types of contacts (2.6%) ($p < 0.001$). 50.3% of initial contacts resulted in GP contact by consultation, home visit or emergency call-out. Another 11.5% of initial contacts were handled by the GP on phone.

In the GP identified cohort 50.2% of consultations, home visits and emergency call-outs related to mental illness or substance abuse were handled by the GP without any kind of onwards referral. Based on previously stipulated number of mental illness related consultations and home visits in 2011 (n=133 000), approximately 67 000 contacts would therefore be concluded at the casualty clinic. Reported interventions varied from laboratory tests, minor surgical treatment and observation at site, to prescribing medication or sick leave. The GPs reported having consulted others regarding treatment in 16.7% of cases. All interventions were performed in every subcategory, but their relative frequency varied (see **Paper III, Table 3**).

The same applied to GP contacts which resulted in onwards referral (see **Paper III, Table 4**). 14.0% of contacts resulted in a referral to an out-patient clinic, and 34.0% of contacts resulted in in-patient care. Many patients were referred to *other than* psychiatric services (74% of patients receiving out-patient treatment, 55% of patients admitted to in-patient treatment), but the relative share of referrals to psychiatric services varied between the three subcategories. Noticeably, in-patient treatment was needed more frequently in the group of patients identified as having problems related to mental illness and substance abuse combined, and just under half of this patient group were admitted to other than psychiatric wards.

Table 4 combines information from the nurse- and the GP-identified cohort. It compares the highest level of care received by patients who GPs judged to (a) present a problem related only to substance abuse, versus (b) present a problem related to mental illness alone or in combination with substance abuse. The share of patients treated only by nurses is equal in the two groups. This is because the share of patients treated only by nurses is stipulated from the nurse identified cohort, in which there was no distinction between substance abuse and mental illness. The table shows that hardly any patients presenting problems related only to substance abuse are referred to psychiatric services. Conversely 17 out of 100 patients judged to present a problem related to mental illness are referred to psychiatric specialist services. Thus it seems that 83 out of 100 patients judged to present a problem related to mental illness are handled outside psychiatric specialist services.

Police were involved in 17.4% of GP contacts related to mental illness or substance abuse. In these contacts the police were mostly involved before the patient arrived at the casualty clinic. 2.2% of contacts resulted in police custody. Based on previously stipulated numbers of mental illness related consultations and home visits at casualty clinics in 2011 (n=133 000), the police would have been involved in approximately 23 000 casualty clinic contacts, and 3 000 patients would have been left in police

Table 4. Highest level of care received of patients contacting casualty clinics for help. Organised by whether the GP judged the presented problem to be related to substance abuse only, or to be related to mental illness with or without substance abuse. Share is given as percentage. The percentage for nurses is stipulated from the nurse identified cohort

Highest level of care	Mental illness	Substance abuse
No referral		
Nurse	38	38
GP	30	33
Out-patient follow up		
RGP	3	1
Psychiatric services	3	0
Others	2	9
Admission		
Psychiatric services	14	1
Others	9	17
Police custody	1	1

custody after their contact with the casualty clinic. In Study III the police were also engaged in 17 out of 32 GP contacts where threatening behaviour by patient or relatives were reported, including one episode where health personnel were physically abused by the patient.

4.3 Challenges in care provision

Study IV explored GPs' personal experiences of casualty clinic contacts related to psychiatry, including substance abuse. Two principal themes arose spontaneously from the discussions: Safety and uncertainty.

4.3.1 Safety

The GPs talked about worries over unpredictable patient behaviour, especially in contacts with intoxicated patients, patients displaying drug-seeking behaviour, or in situations where compulsory care was deemed necessary. Many of them described low safety awareness within the organisation, with few implemented measures to improve personal safety. Several of the GPs had experienced situations where they had been verbally or physically abused, and the experience of such episodes had made them more safety conscious. They also talked about dilemmas between ensuring own safety and providing necessary health care. This could be a practical dilemma, such as when pre-set precautions delayed care, or an ethical dilemma, such as when necessary precautions contributed to stigmatising the patient.

4.3.2 Uncertainty

Uncertainty was described in relation to three subthemes: Complexity of presented issues, suboptimal preconditions for the patient encounter, and personal confidence. The GPs talked about complexity of the presented issues that derived from an interaction between mental health problems, social problems and sometimes also somatic health problems. They claimed that the emergency medical services were sometimes contacted for problems which the medical services could not solve, at least not alone. Some of the GPs advocated their right to turn down such requests for help, whereas others expressed a strong obligation to help regardless of the nature of the

presented problem, as long as it seemed urgent and alternative relief measures were unavailable.

The GPs reported suboptimal preconditions for the encounter with the patients. They talked about having a faltering basis for their psychiatric assessments, due to limited information about the patient and the actual situation. They often had no personal knowledge of the patient, and reliable information about the patient's history and follow-up was often difficult to obtain in the emergency situation. Due to frequent multi-tasking at the casualty clinic they found it difficult to set aside enough undisturbed time with the patient to build the necessary alliance or to obtain additional information from other sources. Moreover, the diversity and complexity of the problems presented sometimes called for solutions which were unavailable out-of-hours. The GPs described a lack of alternatives to emergency admissions, for example the availability of out-patient consultations the following day or a secure place to stay overnight. They also argued that patients sometimes had to be admitted due to the lack of such 'postponement-tools'.

The GPs conveyed that they often felt unsure about their final decision. They worried over the dire consequences of possible mistakes when assessing suicide or danger risk, or when judging the need for compulsory care. They sought reassurance from colleagues in the casualty clinics, colleagues at the hospital or from case commentaries from the hospital. To our surprise, for many of the participating doctors, the most prominent problem in consultations related to mental illness seemed to be the interaction with the specialist services in psychiatry. Some of the doctors even dreaded to call their hospital colleagues. The doctors talked about problems in getting advice when needed and difficulties in getting acceptance for emergency admissions. This especially affected patients whom nobody wanted to take responsibility for, such as patients with chronic suicidality, patients with substance-use disorders and patients displaying aggressive behaviour who also needed psychiatric help. Doctors

experiencing a better relation to the specialist services in psychiatry described this relation as relieving and reassuring. Thus, emotional and practical support from hospital colleagues seemed important to perceived stress when working at the casualty clinic.

5. Discussion

5.1 Methodological considerations and limitations of the studies

5.1.1 Case definition

One of the challenges in this PhD-project has been to find valid definitions of contacts related to mental illness. According to Barra et al, emergencies can be divided into four groups (19):

1. **Mixed emergencies:** Somatic pathology with overlapping psychological discomfort, e.g. myocardial infarction.

2. **Pseudo-somatic emergencies:** Physical symptoms of psychological discomfort, e.g. panic attack, somatization disorders.

3. **Pseudo-psychiatric emergencies:** Psychiatric presentation of somatic disease, e.g. hypoglycaemia and confusion in elderly people.

4. **Psychiatric emergencies:** Psychiatric presentation of psychological discomfort.

In a general medical setting like casualty clinics, these groups have to be complimented by a fifth group: **Somatic emergencies**, i.e. somatic pathology without overlapping psychological discomfort. Although the groups apparently seem to be mutually exclusive, real life does not adhere to such categories. Comorbidity between somatic pathology and mental illness is frequent (101, 102), and the prevailing dichotomy between somatic and mental illness is increasingly challenged within fields such as psychoneuroimmunology. In clinical situations, the presented problems are often complex, and limited contact in emergency settings might make it particularly difficult to discern between psychiatric and somatic causes. There is also a question of grading. How strong can psychological symptoms like anxiety be before the case is also a psychiatric emergency?

In Norway the traditional approach of excluding substance- use problems from the field of psychiatry poses additional difficulties. Is substance abuse mental illness? If yes, does this imply that substance-use related contacts due to, for example, injuries should be included as cases? As there are no definite answers to these questions, a pragmatic approach was chosen in the case definition. In Study I and II case inclusion was based on routinely set diagnoses, with the chapter P of ICPC-2 used as a proxy for mental illness. In Study III and IV case inclusion was based on clinical judgement. Study III also recorded information on diagnostic codes, allowing for a direct comparison between the two approaches.

The use of routinely set diagnoses for case inclusion has two principal problematic aspects: Intrinsic weaknesses of the diagnostic system and problems with use of routine information. The diagnostic system used, International Classification of Primary Care (ICPC), has coarse categories consisting of a code (one letter and two digits) and one or several text alternatives. There is no definition of each code which excludes the use of other codes. Some clinical presentations can equally correctly be coded under different chapters or under different codes within a chapter. Intoxication is an example of a clinical presentation which potentially could be coded as A86 (toxic effect other substances), or more specifically after intoxicating agent, for example A84 (intoxication by medical drug), P16 (acute intoxication by alcohol) or P19 (misuse of illegal drugs). Similarly, a patient contacting the casualty clinic due to feeling low might be given a code for the symptom (P03 - feeling depressed), the disease (P76 - depressive disorder) or even unspecific psychological symptoms (P29 - psychological symptom) or unspecific psychological disorders (P99 – psychological disorders). The ICPC chapter which covers mental illness (chapter P) includes substance-use related problems (chronic and acute abuse of diverse substances) in addition to core psychiatric problems. As stated before, addiction problems have traditionally been part of social services in Norway. By using the chapter P of ICPC as inclusion criterion we

therefore included cases which in Norway are not automatically understood as cases of mental illness. However, all major diagnostic systems classify chronic and acute substance-use within the chapter devoted to psychological problems. Using the whole of chapter P as the definition of mental illness cases therefore allowed for direct comparisons with other literature.

The main problem with use of routine information is unknown validity. The diagnoses used were required for economical reimbursement, and were also used for communication between clinicians. Time pressure or other factors might limit the effort put into choosing a correct diagnosis, and clinicians might have personal favourites they use more frequently. Within primary care the wait-and see-approach is often used as a diagnostic tool, and thus early diagnoses might be less accurate than later diagnoses. Such drift is not seen at casualty clinics. Additionally, clinical contacts are often complex with patients presenting several problems. In these situations one single diagnosis might cover only part of the presented problem. Nevertheless, routinely set diagnoses are probably not random, and should therefore give a coarse estimate of judged aetiology in the emergency situation. Use of routinely set diagnoses also had apparent advantages, such as giving access to larger data sets with minimal disruption of clinical practice.

In Study I and II we chose to strictly use the chapter P as a proxy for mental illness, as these diagnoses are specifically meant to cover psychological symptoms and complaints. We chose *not* to include single diagnostic codes from other chapters although they could be related to mental illness or substance abuse. Inclusion of such diagnoses was likely to increase the number of detected cases, but would probably have decreased the number of correct cases. Psychiatric diagnoses are also considered to have high specificity due to their potential stigma, but this is not proven. The resulting inclusion of substance-use related diagnoses in Study I and II had direct implications for case inclusion in Study III and IV. In these latter studies cases related

to substance abuse were actively sought for to increase the comparability between the studies.

In Study III we deliberately used clinical judgement to include cases. In Study IV we let the clinicians choose which stories to include. In these studies we wanted to explore the GPs' and nurses' subjective experience of out-of-hours work. It is likely that health personnel differ in how they define a case to be related to mental illness, and how strong this relation has to be for a case to be included. However, clinical practice abounds with uncertainty and grey areas. Thus our personal view of definitions was not superior to other health personnel's private views. By using relatively open questions, we could also explore what health personnel actually include when they talk about mental illness and substance-use related problems.

Findings in Study III confirmed some of our misgivings about case definition. 32-70% of cases were not given diagnoses from the chapter P of ICPC despite being identified by the GP to be related to mental illness or substance abuse. This implies that estimates based on routinely set diagnoses underestimate the actual impact of mental illness on emergency primary health care services.

5.1.2 Sampling

As previously stated there is a huge variation in the organisation of Norwegian casualty clinics. In 2012 Norway had 429 municipalities (100), and 203 casualty clinics (103). The casualty clinics vary in three principal dimensions: (1) Degree of collaboration between municipalities, (2) number of health personnel on duty at any given time and (3) population served. In 2012 89 casualty clinics were inter-municipal collaborations, whilst 84 casualty clinics covered a single municipality (103). The remaining 30 casualty clinics were inter-municipal collaborations during part of the

day. Presence of a GP is mandatory, and in approximately 40% of the casualty clinics the GPs work completely alone without support from other health personnel (103). In the remaining casualty clinics the GP is supported by other health personnel or other GPs. 8% of the casualty clinics have more than one GP on duty around the clock. Twice as many clinics (16 %) have more than one doctor on duty during day or evening. The organisation of casualty clinics is further dependent on size of population served and the urbanity of the municipality. The largest cities have huge casualty clinics with separate emergency rooms for injuries and doctors devoted to this section. Although these clinics serve a major share of the Norwegian population, their organisational assets differ largely from smaller units.

When sampling to study Norwegian casualty clinics, all these factors had to be taken into account. In the first study, a town-based casualty clinic and a rural inter-municipal casualty clinic were chosen. Findings from these organisational forms and populations might have limited validity for the larger, city-based casualty clinics. However, findings from these settings were likely to be more generalizable to the majority of Norwegian casualty clinics. In the second study, an inter-municipal rural casualty clinic was chosen. The advantages of this sample were limited leakage of patients to the private sector and the dominance of one computer software which made it possible to recruit most RGP surgeries to the study. Choosing a larger size of the community could have meant higher diversity of computer software in use with following exclusion of eligible RGP surgeries and reduced possibility to accurately trace patients between services.

In Study III we took advantage of a predefined, representative cohort of casualty clinics. Due to the diversity of computer systems two casualty clinics had to be excluded, and another casualty clinic could not participate due to technical problems. However, the remaining four casualty clinics served more than 80% of the total

population, and all varieties of organisation, staffing and population served were represented in the study sample.

In the last study we focused on working conditions for the GPs. Care was taken to include GPs with experience from all types of casualty clinics, including GPs working at larger, city-based casualty clinics with more GPs on duty simultaneously and with larger patient volumes and a population predicted to have higher prevalence of illegal substance misuse. In this study several of the informants had experiences from different casualty clinics, and thus they were able to relate their experiences to organisational factor.

5.1.3 Limitations of the studies

Case definition and problems related to sampling restricts the internal as well as the external validity of all the studies in this thesis. This is already discussed in the previous two sections and will not be repeated here. Comparison of the results with national statistics suggests that Study I has higher external validity than Study II. In Study II the male proportion of patients presenting problems related to mental illness is remarkably high (65%) and the increase of mental illness related contacts to the casualty clinic in July is also exaggerated compared to national reports (49-52, 54). These findings might be a result of the small sample size or the population. However the comparison of the two services should have higher validity due to the same population being described in both services.

In Study I and II, cases could be missing due to GPs choosing not to bill a patient. The prevalence could possibly be affected, but this would probably affect absolute rates more than relative rates. The GPs depend on these billing cards for reimbursement and a salary, so it is likely that they are conscientious in their reporting. A more pressing

problem for Study II was the RGP surgery which refused to participate in the study. This limited the traceability of patients between services, and it is likely that more than the verified 74% of patients given a mental illness related diagnosis at the casualty clinic had been in contact with their RGP. In Study III, missing cases was a problem in the GP defined cohort due to a dysfunction of the pop-up window in periods with high activity on the computer system. Hence absolute rates could not be calculated. However, the dysfunction of the pop-up window was unsystematic. A selection bias was thus avoided and relative rates should be valid.

In Study III, GPs' entries in the patients' electronic medical records were used to record information on interventions and referrals. GPs vary in how detailed reports they write, thus absence of information does not necessarily imply absence of treatment. The paper work for some interventions, such as sick leave and onwards referral, are normally done electronically, thus the information on these interventions is likely to be correct, whereas other interventions might have been underestimated.

In Study III we should ideally have been able to trace patients through the casualty clinic, from their first contact with the local emergency call centre until treatment was concluded at the casualty clinic. This was impossible due to Norwegian legislation, and the approach of identifying two individually cohorts was therefore adopted. The findings in these cohorts suggest that GPs see a relation to mental illness or substance misuse more often than nurses do. This discrepancy might be explained by the increased information available in face-to-face contacts compared to phone calls, and an awareness effect in GPs as they were actively asked for such a relation in every contact.

Methodological limitations in Study IV are thoroughly discussed in **Paper IV**, and I refer to this paper for discussion of pitfalls in interviewing peers and the low

generalizability of qualitative results. However, the focus group design's intrinsic lack of ability to assess the magnitude of the identified problems needs further comment. There are indications that focus groups might give an over-negative impression of the informants' experiences, although the essence of their message seems to be valid (104). In our interpretation of the results in Study IV we should therefore be cautious when estimating the effect on GPs in general. The high consistency across groups and the volunteering of both principal themes in all the focus groups nevertheless suggest that these main themes are central in the GPs' work experience. Still, the study has to be complemented by other methodologies to establish effect size and external validity.

This PhD-project has lacked a patient perspective. Contrary to the general spirit of the age, the project was primarily designed to describe the epidemiology and the health personnel's experiences. Due to limitations in time and work capacity the patients' voice had to be left for later. Notwithstanding, the patient perspective could give an important supplement to our understanding of the services.

5.2 Discussion of results

Annual national statistics from 2006 till 2011 have shown a stable relative prevalence of contacts given P-diagnosis (4.8%) (54). Using the same method of measurement, Study I and II showed a lower relative prevalence (<3.0%). In Study III there was variation between the casualty clinics in relative share of contacts judged to be related to mental illness or substance abuse. The disparity between casualty clinics might reflect differences in accessibility of day-time care, local organisation of mental health care and characteristics of the population served.

The share of contacts related to mental illness in Norwegian emergency primary health care services seems to be comparable to what is reported from emergency departments

in United States (11, 57), where the emergency room serves as the interface between the community and medical services. European services vary in organisation and availability of alternative low threshold services, and their use of P-diagnoses varies between 1.2% and 6.4% of contacts (13). It is likely that direct access to specialist psychiatric care gives lower prevalence of mental illness in out-of-hours primary care. It is also likely that direct access to accident and emergency departments gives lower prevalence of diagnoses related to injuries and medical consequences of substance abuse. In Germany, where patients have direct access to specialist care, out-of- hours primary care centres have reported the use of P-diagnoses in 2.2% of contacts (13), whilst emergency physicians in Germany report 11.8% of call-outs to be due to a psychiatric emergency situation (21). Compared to GP contacts with lower urgency levels (consultations), Study I, II and III showed a consistently higher relative share of contacts related to mental illness among those contacts which had higher urgency levels (home visits and emergency call-outs). This is also a consistent finding in the National annual statistics (50-52, 54). Additionally, Study I and III found that contacts related to mental illness had a higher relative presentation rate during night-time, a time when the threshold for seeking help is generally higher. This pattern is confirmed in the National annual statistics (50-52, 54). Thus it seems that low-threshold emergency services 24/7 are an important complement to daytime mental health care, and there are also indications that the patients contact these services when their situation is rather severe and help is urgently needed.

Study I and III found similar age and gender distributions to that which is reported in the National annual statistics, with a slight predominance of men (50-52, 54). This contrasts with findings from daytime primary care services and out-patient mental health care services where the majority of patients are females (29, 49, 105, 106). It has been suggested that men have a higher threshold for seeking mental health care than women, possibly due to self-stigma and embarrassment (107, 108). However, this effect seems to diminish when the level of symptoms are controlled for (105). Results from Study III further suggest that the high male proportion at casualty clinics is

mainly carried by contacts related to substance misuse problems. The slight male predominance at casualty clinics might therefore be ascribed to effects of substance use. However, casualty clinics are the only referring agent referring more men than women to emergency psychiatric admissions (62), which could imply that casualty clinics constitute an important first-access service for men. This might also mean that casualty clinic doctors should show vigilance in case-detection and in ensuring appropriate onwards referral for men. Gender differences in use of health services, before or in parallel with contacts to the casualty clinic, need further exploration before solid conclusions can be drawn.

The results from Study II suggest that few patients who are given mental illness related diagnoses at the casualty clinic are unknown to daytime GP services. The slight positive correlation between visits at the casualty clinic and visits to the RGP surgeries further implies that some of the patients are frequent attenders at both services. Both findings are in line with previous findings from general practice (80). There is an over-representation of mental illness and substance abuse among frequent attenders to open-access emergency services (54, 78, 109). This over-representation probably reflects the increased morbidity and high comorbidity in these patient groups. Longitudinal studies show that patterns of use are variable (77, 78, 109), and a randomised controlled study aimed at reducing frequent attendance to out-of-hours services had no effect (110). This could imply that frequent use of out-of-hours services is simply the natural result of increased morbidity and random aggravation of disease, and that the out-of-hours services therefore fill needs which cannot be met within daytime services. At the same time the results from Study II remind us that most patients with mental health problems have no contact with out-of-hours primary health care services at all. Frequent contacts to casualty clinics might therefore be a signal that baseline follow-up is suboptimal, and hence concern should be conveyed to the relevant authorities. More research is needed to improve the understanding of mechanisms which make patients use out-of-hours services instead of making use of routine daytime services, such as RGPs or pre-established contacts with specialist out-patient clinics.

Study II showed that the diagnostic spectrum seen out-of-hours differs from what RGPs see during daytime; showing a larger share of suicidal behaviour and substance abuse. This has implications for the training of GPs working out-of-hours, and also for accessibility to other services. Casualty clinic doctors have to be able to convey information to relevant authorities and ensure necessary follow-up for a large spectrum of patients, including patients with no need for an emergency admission. If there is no out-of-hours interface where the GP can interact directly with other relevant services, the GPs must be given access to 'postponement-tools' so that the patient can be appropriately cared for until the relevant service can take over. The informants in Study IV called for alternative options like follow-up by community healthcare nurses, a safe place for the patient to sleep overnight, or a secured arrangement for follow-up at the appropriate level of care the next day. Similar measures have been suggested by patients (63). It seems logical that such options can slightly reduce the need for emergency admissions by providing an alternative for patients in need of an urgent specialist assessment, but who can function in their home environment or with slightly increased levels of care. It is also likely that such tools will have lower costs and involve less use of resources than building up complementary out-of-hours emergency specialist services 24/7. Given the low incidence of psychiatric emergencies in most of Norway, adequate care at a primary care level, in combination with access to next-day follow-up at secondary care level, seems a more viable solution than building up low-threshold 24/7 emergency specialist care in addition to emergency admissions. However, this needs further evaluation through, for example, natural experiments.

In a commentary from 2003, Forrest pointed to evidence that when patients have the option of self-referral to a specialist level, patients see specialists more often than if there is strict gatekeeping at primary care level (111). In a health care system with unlimited resources, low-threshold specialist services could theoretically be unproblematic. However, health resources are generally limited, and there is also

evidence suggesting that specialists use more resources than generalists when confronted with the same cases (112-114). Additionally, the correct identification of true cases is reduced when the population prevalence is lowered (115). In a scientific fairy-tale called 'The gatekeeper and the wizard' from 1989, Mathers and Hodgkins used basic probability calculations, claiming that filtering makes for better treatment at each service level (116). They wrote:

"…if the Wizard's crystal ball and magic potions are going to work properly he should only see the people the Gatekeeper thinks have a high chance of being very poorly. And the Gatekeeper should see the people who think they might be poorly and try and find out if they are." (p. 174)

Forrest claims that the most promising way of streamlining referrals is by providing immediate decision support whenever the question of referral arises (111). Immediate decision support and the opportunity to confer with specialists were one of the lacks expressed in Study IV and, from the informants' stories, it seemed that access to such support made a substantial difference to their experience of work-related stress. Furthermore, Study III showed that consulting others about treatment was among the most prevalent interventions in GP-registered contacts. Study results from the United Kingdom have suggested that doctor-to-doctor communication and flexibility within care pathways are important to diminish tension across the primary-secondary interface (96, 97). Given a variation between GPs in experience and professional skills, direct communication and flexibility are also likely to be vital for ensuring the best treatment for individual patients.

Study I-III showed that substance-use disorders and substance-use related health problems constituted a substantial part of contacts to Norwegian casualty clinics. Similar findings are reported from, for example, Germany (117), United Kingdom (118) and the United States (11, 57, 119, 120). The high occurrence of substance-use related problems has tempted researchers to propose low-threshold emergency settings such as casualty clinics, accident and emergency rooms, and emergency departments,

as important intervention sites for problematic substance-use (118, 119, 121). A study from Oslo showed that the majority of alcohol related intoxications are discharged from the casualty clinic without admission to hospital levels (71). Thus for some patients the casualty clinic is the only possible place for an intervention. A number of individual interventions have been suggested, ranging from self-administered computer surveys (122) to brief interventions on-site administered by different types of health personnel (123-126). However, findings from Study III and IV suggest that although casualty clinics might be a place where substance abuse is suspected in patients, other issues are more pressing in the acute care for these patients. Given the high number of acute intoxications reported in Study I-III it is likely that interventions in the emergency setting will have little effect due to the patients' temporarily reduced cognitive abilities. However, it is important that casualty clinic doctors can convey their observations to other relevant authorities for others to follow up when the patient is sober and more accessible for counselling, or that they can secure direct referrals to necessary treatment. Study IV's reports of uncertain access to appropriate care for patients with substance-use related problems are therefore worrying, and are unfortunately in line with observations made by the Norwegian Board of Health Supervision (127). The Norwegian Directorate of Health has recently explicitly rejected substance abuse as a valid reason for denying patients admission to psychiatric care (128, 129), and there is a hope that the described situation will gradually improve. Finally, it should also be mentioned that systematic registrations at the casualty clinics could possibly have a role in informing public policies by disclosing dysfunctional parts of the health care system or problematic issues in the local environment (130).

Table 4 showed that the majority of contacts judged to have a relation to mental illness were handled outside psychiatric specialist care. The share of patients who would have self-referred directly to specialist psychiatric services if permitted is unknown, and the design of Study III does not allow for judgement of the appropriateness of current interventions. Nevertheless, these figures suggest that a considerable number of

patients are filtered away, and that the workload on specialist services would be substantially increased by opening up specialist services to direct access. This is supported by a recent study comparing the flow of referred and self-referred non-urgent patients to an emergency department (114). This study showed that the share of patients accepted to be in need of immediate attention at a specialist level were considerably higher in the referred group (84%) compared to the self-referred group (45%). The pattern was even clearer when comparing the result for admissions only, which showed higher admission rates in the referred group (27%) compared to the self-referred group (3%) (114). Table 4 also showed that when no relation to mental illness was suspected, the patient was generally ***not*** referred to specialist psychiatric care. This is in line with the finding from general practice that 75% of referral rates for specific conditions are caused by the characteristics of the presenting problem, including suspected diagnosis, practice prevalence and number and severity of comorbidities (131). Gatekeeping at a generalist level might therefore substantially improve the apportionment of patients to different specialities and decrease the use of resources at a specialist level.

When the GPs participating in Study IV were asked about challenges in care provision to patients with mental illness or substance abuse, the GPs had two major concerns: Own safety and an experience of uncertainty due to structural, patient, personal and collaborative factors. The GPs' worries over safety seem qualified. In Study III, 32 episodes of threatening behaviour by patients or relatives were mentioned in the extracts from the medical records. This constituted 3.8% of eligible contacts related to substance abuse or mental illness. One of these episodes involved physical abuse. In a cross-sectional Norwegian study, 32% of participants reported having been exposed to physical abuse during their work career in out-of-hours primary health care services, and 13% had experienced physical violence in the last 12 months (132).

One of the first qualitative studies reporting worries over safety as a problem for general practitioners was published in 1991 (133). The results from this study were discouragingly similar to the findings in Study IV, and mental illness and substance misuse have repeatedly been suggested as factors which augment the likelihood of dangerous episodes arising (132, 134-139). Over the last years there has been an increased focus on safety issues in daytime and out-of-hours primary care (132, 134-138, 140-155), and general safety recommendations have been published (156-159). However, little has changed in the working conditions for Norwegian GPs where many GPs still work alone (103) and undertake home visits without any support. This contrasts the general approach in the Norwegian police, the ambulance services and mobile outreach teams, where personnel usually operate in teams of at least two when out of office. Studies have suggested that apprehension about work-place violence affects GP's willingness to participate in out-of-hours' care (141, 144, 145, 148, 153), and also affects their work performance (150, 151). It seems that experiencing episodes of violence increases apprehension about violence (146). Further, it has been suggested that low-level violence can be as intimidating as high-level violence, due to the unknown potential for escalation of violence (143). Most existing knowledge in this field is based on qualitative or cross-sectional studies with concomitant methodological biases. We still need prospective observational studies, intervention studies and natural experiments to qualify prevalence of work-related violence and to prove the effect of suggested security measures (160, 161). More knowledge is required on how to apply preventive measures against work-related violence in a beneficial manner, and to understand how best to increase the subjective feeling of safety without introducing a negative impact on the relationship to the general public (138, 142, 156, 162, 163). After all, most contacts with patients are benign, and it would be a paradox if further security precautions decreased the health personnel's ability to provide help, or even increased the risk of experiencing work-place violence (138). Further research should also appreciate that safety is a whole-of-practice problem (143, 146), thus attention should be paid to the casualty clinic as a system that includes all personnel.

Dealing with uncertainty is a challenge in all parts of medicine (164), and the intrinsic qualities of out-of-hours care make the levels of uncertainty particularly high in this domain. The Study IV finding that experienced uncertainty is a hindrance has already been discussed in relation to the perceived need for advice from hospital colleagues. In addition to this collaborative factor, the GPs participating in Study IV pointed to structural, patient and personal factors influencing how comfortably they could handle mental illness related contacts. Most of the identified factors correspond to challenges described for psychiatrists and residents in psychiatry who work in emergency rooms attached to generalist hospitals (1, 7). Lack of relevant information obviously increases the risk of unfavourable treatment decisions. Restricted time will limit the possibility to obtain relevant information from others, but also reduces the GPs receptivity and ability to respond adequately to the patients' mental distress (88). Lack of flexibility in treatment options poses problems when trying to find solutions for complex problems. High complexity in contacts related to mental illness is recognised by the patients (63) and has been reported from other emergency settings (5). In a survey, 72% of patients reported three or more different problems contributing to the need to attend psychiatric emergency care (63). Only 12% of the patients attributed the emergency to one single problem (63). Many of the problems reported in this study were of social or relational character, none of which can be solved in one single out-of-hours contact. There are many aspects to uncertainty in medical care which have to be accepted, like the complexity of real life or the problem of communicating with some patients due to their psychological or medical condition. However, structural hindrances can be changed. They need to be identified and amended if the quality of care is to be improved.

The focus on quality in emergency mental health care services is warranted and should be sustained. However, in the future struggle to improve these services, close attention must be paid to the differences between *needs* versus *wants*, *emergencies* versus *urgencies*, and *unpredictability* versus *malfunctioning systems*: In the quest for an ideal world we might need less than we want. And although emergencies must be handled

when they arise, urgencies can normally be better handled under less dramatic circumstances. Malfunctioning systems can be improved, but accidents and undesirable events will always occur. Thus we should do what we can to identify and counter pitfalls in the services, but perfection might not be possible.

6. Conclusions

The main conclusions of this thesis are as follows:

- Although contacts related to core mental diseases are relatively rare at Norwegian casualty clinics, the casualty clinics currently represent an important supplement to other primary and secondary health care sources. Patients presenting problems related to mental illness at casualty clinics seem predominantly to be a subgroup of patients using the RGP surgeries, and the use of casualty clinics increases in periods when RGPs are less available.

- Contacts related to harmful substance use are relatively more common, and include a group of patients who are younger, mainly male and are given diagnoses related to injuries and somatic conditions. The distribution of these contacts is markedly shifted towards night-time compared to other contacts.

- GPs on-call must be mentally prepared for contacts related to suicidal behaviour, psychoses and harmful substance use.

- The majority of contacts to casualty clinics are handled without referral to in-patient care, and referral to psychiatric care is only one of many interventions used.

- Out-of-hours treatment of patients with mental illness is pervaded with uncertainty, and GPs on-call need to have access to adequate support.

- GPs worry over safety issues when they are on-call, and these issues need to be addressed.

7. Future perspectives

7.1 Practical implications and suggestions

The low occurrence of mental health related contacts out-of-hours questions the current political and ideological trend in psychiatry with increasing focus on building up low-threshold specialist services out-of-hours. Given the epidemiology, there is no need for additional 24-hours emergency specialist services in most places of Norway, and focus should rather be on strengthening the current generalist approach.

Notwithstanding, the results of Study IV suggest that changes are needed in the generalist service, and a better framework for support is required to increase the GPs confidence and the quality of patient care. Examples of possible actions are:

- GPs should always work with other health personnel, to ensure collegial support and personal safety.
- The buffer capacity at casualty clinics should be increased, allowing for more time with individual patients when needed.
- GPs should be given adequate training in acute management of suicidal behaviour, psychoses and substance-use disorders.
- The flow of necessary information between service levels should be improved, for example by ensuring the availability of crisis plans and medical case summaries.
- The communication with specialist services needs improvement.
- ‘Postponement-tools’ and alternatives to emergency admissions should be made available so that urgencies can be handled with a more appropriate use of resources.

7.2 Future research

Based directly on the findings in this thesis, there are several issues which warrant further focus. Examples of such issues are the appropriateness of current treatment at casualty clinics, possible gender differences in the use of mental health care services, and evaluation of structural changes for improvement of GPs' out-of-hours' work condition. However, the overriding future research question is how to provide cost-efficient, high-quality, low-threshold emergency mental health care services around the clock in populations with low need for these services. To answer this overriding question we need a better understanding of the following:

1) What constitutes sufficiently high quality emergency mental health care service?

2) How can this quality be ensured?

3) How can this care be provided in a cost-efficient manner?

When searching for answers to these questions we need to explore the patients' and next of kin's experiences in actual situations where emergency health care has been required. We need to better understand how the need for out-of-hours services is affected by available daytime services. And finally, we need to understand ***whether*** and ***how*** behavioural emergencies can be predicted or prevented.

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