Alternativer til sykehusinnleggelse for eldre og pasienter med kronisk sykdom

— Del 2 Publisert forskning om tiltak i kommunen som kan redusere behov for liggedøgn i sykehus

Notat
Litteratursøk med sortering
juni 2010

kunnskapssenteret

Bakgrunn: Kunnskapssenteret fikk i oppdrag fra Helsedirektoratet å belyse tiltak i kommunehelsetjenesten eller i samhandling mellom kommune og sykehus, som kunne redusere antall innleggelse eller liggedøgn i sykehus. Dette notatet er del 2 av dette oppdraget. Vi har utført et systematisk litteratursøk med påfølgende sortering av mulig relevant publisert forskning fra Norden om tiltak i kommunehelsetjenesten som har effekt på innleggelse eller liggetid i sykehus, publisert de siste 5 år. De andre to delnotatene fra dette prosjektet er en kunnskapsoversikt over oppsummert forskning (del 1) og en liste med eksempler fra norsk helsetjeneste (del 3). **Metode:** Vi søkte i følgende databaser: • The Cochrane Central Register of Controlled Trials (The Cochrane Library 2010) (Søkt 14.06.2010) • MEDLINE 1950 to June Week 1 2010 (Ovid) (Søkt 14.06.2010) • MEDLINE In-Process & Other Non-Indexed Citations June 11, 2010 (Ovid) (Søkt 14.06.2010) • EMBASE 1980 to 2010 Week 23 (Ovid) (Søkt 14.06.2010) • CINAHL 1981 - (Ebsco) (Søkt 14.06.2010) **Resultat:** • Totalt 2248 publikasjoner ble identifisert ved søket etter primærstudier. • 87 av disse ble

(fortsetter på baksiden)

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kunnskapssenteret

(fortsettelsen fra forsiden) identifisert som mulig relevante. • Treffene ble sortert etter om det dreide seg om generelle organisatoriske tiltak (19), legemidler/farmasøyt (3), tiltak for pasienter i sykehjem (4), tiltak for pasienter med psykiske lidelser (17), forebygging av fall eller skader (10), tiltak for slagpasienter (4), pasienter med kreftsykdommer (2), pasienter med gastroenterologiske sykdommer (1), pasienter med lungesykdommer (10), pasienter med hjertesykdom (5), pasienter med diabetes mellitus (1), tiltak i forhold til prematurt fødte barn (2), vaksinasjoner (6) eller andre typer tiltak (3). • Vi inkluderte også 14 systematiske oversikter over tiltak for andre enn eldre og pasienter med kroniske sykdommer. Disse inngår i delnotat 1.

Tittel Alternativer til sykehusinnleggelse for eldre og personer med kronisk sykdom. — Del 2 Publisert forskning om tiltak i kommunehelsetjenesten som kan redusere behov for liggedøgn i sykehus.
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Ansvarlig John-Arne Røttingen, *direktør*
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Nasjonalt kunnskapssenter for helsetjenesten fremskaffer og formidler kunnskap om effekt av metoder, virkemidler og tiltak og om kvalitet innen alle deler av helsetjenesten. Målet er å bidra til gode beslutninger slik at brukerne får best mulig helsetjenester. Senteret er formelt et forvaltningsorgan under Helsedirektoratet, uten myndighetsfunksjoner. Kunnskapssenteret kan ikke instrueres i faglige spørsmål.

Nasjonalt kunnskapssenter for helsetjenesten
Oslo, juni 2010

Sammendrag

Nasjonalt kunnskapssenter for helsetjenesten fikk i oppdrag fra Helsedirektoratet å belyse tiltak i kommunehelsetjenesten eller i samhandling mellom kommune og sykehus, som kunne redusere antall innleggelse eller liggedøgn i sykehus. Dette notatet er del 2 av dette oppdraget, der vi har utført et systematisk litteratursøk med påfølgende sortering av mulig relevante publikasjoner. Del 2 ble definert til å finne publisert forskning fra Norden om tiltak i kommunehelsetjenesten som har effekt på innleggelse eller liggetid i sykehus, publisert de siste 5 år. De andre to delrapportene fra dette prosjektet er en kunnskapsoversikt over oppsummert forskning (del 1) og en erfaringsrapport med eksempler fra norsk helsetjeneste (del 3).

Metode

Vi søkte i følgende databaser:

- The Cochrane Central Register of Controlled Trials (*The Cochrane Library 2010*) (Søkt 14.06.2010)
- MEDLINE 1950 to June Week 1 2010 (Ovid) (Søkt 14.06.2010)
- MEDLINE In-Process & Other Non-Indexed Citations June 11, 2010 (Ovid) (Søkt 14.06.2010)
- EMBASE 1980 to 2010 Week 23 (Ovid) (Søkt 14.06.2010)
- CINAHL 1981 - (Ebsco) (Søkt 14.06.2010)

Resultater

- Totalt 2248 publikasjoner ble identifisert ved søket etter primærstudier.
- 87 av disse ble identifisert som mulig relevante.
- Treffene ble sortert etter om det dreide seg om generelle organisatoriske tiltak (19), legemidler/farmasøyt (3), tiltak for pasienter i sykehjem (4), tiltak for pasienter med psykiske lidelser (17), forebygging av fall eller skader (10), tiltak for slagpasienter (4), pasienter med kreftsykdommer (2), pasienter med gastroenterologiske sykdommer (1), pasienter med lungesykdommer (10), pasienter med hjertesykdom (5), pasienter med diabetes mellitus (1), tiltak i forhold til prematurt fødte barn (2), vaksinasjoner (6) eller andre typer tiltak (3).
- Vi inkluderte også 14 systematiske oversikter over tiltak for andre enn eldre og pasienter med kroniske sykdommer (disse inngår i delnotat 1)

Innhold

Forord

Nasjonalt kunnskapssenter for helsetjenesten løste en del av et oppdrag fra Helsedirektoratet om å kartlegge tiltak i kommunehelsetjenesten som kan påvirke behov for sykehusinnleggelse eller liggetid i sykehus, ved å utføre et systematisk litteratursøk med påfølgende sortering av mulig relevante publikasjoner. Vi søkte etter litteratur/forskning med all type metodologi, om tiltak i kommunehelsetjenesten som kunne påvirke behovet for innleggelse i sykehus, reinnleggelse i sykehus eller antall liggedøgn i sykehus, i Norge og Norden. Kvaliteten på studiene er ikke vurdert, ei heller er det gjort noen vurdering av om vi kan stole på konklusjonene fra enkeltstudiene – studiene er kun listet opp tematisk i forhold til type tiltak.

Prosjektgruppen har bestått av:

- Prosjektleder: Anne Karin Lindahl, Kunnskapssenteret
- Marit Johansen, bibliotekar/seniorrådgiver, Kunnskapssenteret

Takk til Gunn E Vist, Marie Brudevik og Toril Bakke, som har bidratt i diskusjoner og i forhold til avgrensning av dette deloppraget i forhold til de andre delene av totaloppdraget

Anne Karin Lindahl
Avdelingsdirektør

Marit Johansen
Prosjektleder

Innledning

Helse- og omsorgsdepartementet ga Helsedirektoratet et oppdrag med å kartlegge mulige tiltak i kommunehelsetjenesten som kan påvirke behov for innleggelse i sykehus eller redusere antall liggedøgn i sykehus. Helsedirektoratet ba Kunnskapssenteret om bistand til dette arbeidet. Dette notatet er nr to av tre delrapporter inn mot dette oppdraget.

Vi har gjort et litteratursøk av primærstudier og sortert disse i forhold til type tiltak studien beskriver effekten av. Vi valgte litteratursøk med sortering ut fra behovet om raskt svar på oppdraget. Vi ønsket med dette å kartlegge hva som finnes av forskningslitteratur omkring denne brede problemstillingen. Vi inkluderte all type metodologi, og har ikke vurdert kvaliteten på studiene. Av den grunn må vi være tilbakeholdne med å formidle om enkeltstudiers konklusjon er generaliserbar og holdbar. Vi har ikke gjort noen evaluering av kvaliteten av studiene eller på effektstørrelsen på de studiene som listes opp, men de er inkludert på bakgrunn av relevans i forhold til problemstillingen.

De to andre deloppdragene består av:

- en kunnskapsoversikt, en såkalt oversikt over oversikter, om effekten av alternative tiltak til sykehusinnleggelse der dette ellers ville være det eneste alternativet, for eldre og pasienter med kronisk sykdom (Del 1). Denne delen av oppdraget er den som er løst med det beste kvalitative forskningsdesignet, med stringent metodikk for systematiske oversikter.
- en liste over innsamlede eksempler/erfaringer fra norsk kommunehelsetjeneste over ikke-publiserte tiltak, der vurderingene til de har gjennomført tiltaket er inkludert, selv om disse evalueringene oftest ikke er gjort med et forskningsdesign (del 3).

Styrker og svakheter ved litteratursøk med sortering

Ved denne typen notat gjennomfører vi systematiske litteratursøk for en gitt problemstilling. Resultatene fra søket blir i sin helhet overlevert oppdragsgiver, eller vi kan gjennomgå søkeresultatet og sortere ut ikke-relevante artikler, slik vi har gjort i dette notatet. Dette er gjort basert på tittel og sammendrag. Der det har vært tvil om studien kunne inkluderes, ble artiklene innhentet i fulltekst. Manglende innhenting

av alle artikler i fulltekst gjør at vi kan ha inkludert titler som vil vise seg ikke å være relevante ved gjennomlesning av fulltekst. Vi benytter i hovedsak databaser for identifisering av litteratur og kan derfor ha gått glipp av potensielt relevante studier.

Vi har ikke gjennomført noen kvalitetsvurdering av artiklene. Vi har også listet opp systematiske oversikter fra Cochrane collaboration's bibliotek som ikke omhandler tiltak for eldre og pasienter med kroniske lidelser. Vi har ikke tatt med resultater fra upubliserte studier eller prosjekter. Slike tiltak og resultatene av dem er kartlagt i del 3 av dette prosjektet, og listes opp i et eget notat.

Dette er altså ikke en full kunnskapsoppsummering, som i så fall ville ha innhentet alle relevante artikler i fulltekst for endelig vurdering opp mot inklusjonskritene og blitt blitt kvalitetsvurdert i henhold til våre sjekklister.

Begrunnelse for valg av søkestrategi

- Vi valgte, ut fra ønsket fra oppdragsgiver å identifisere effektive tiltak i kommunehelsetjenesten som kunne påvirke, dovs redusere, behov for sykehusinnleggelse eller antall liggedøgn i sykehus, å søke etter publikasjoner, enten med nordisk forfatter eller publisert i Norden, for de siste 5 år. Vi har ikke gjort noen begrensing med hensyn til studiedesign. Vi har til en viss grad tatt med studier der effekt på sykehusinnleggelse ikke er direkte påvist, men der en ut fra studiens konklusjon kan sannsynliggjøre at tiltaket har effekt på liggetid i sykehus eller behov for innleggelse.
- Søkene begrenses hovedsakelig av utfallsmålet (innleggelse i sykehus osv), og er meget brede søk ("alle mulige tiltak"). Dersom en skal ha med flere lands erfaringer, for eksempel Nederland og Storbritannia, ville tilfanget av treff bli så stort at det ville bli uoverkommelig i forhold til den tiden og de ressurser vi har hatt til rådighet. En bør vurdere om en på et senere tidspunkt vil avgrense type tiltak en ønsker å kartlegge bredere for å få med flere internasjonale publikasjoner.

Problemstilling

Vi har inkludert alle studier som kan informere noe om direkte påvirkning på liggetid eller behov for innleggelse i sykehus, av tiltak i kommunehelsetjenesten. Vi har også inkludert i litteraturlisten studier som påpeker områder det ut fra studiens resultater er sannsynlig at intervensjon vil virke inn på forbruk av liggedøgn i sykehus. For å avgrense mengden (pga kapasitets-og tidspress), søkte vi primært etter studier publisert med nordiske forfattere eller publisert i Norden.

Hva kommer ikke med i denne oversikten?

En rekke forhold har vi ikke kunnet ta med i denne oversikten. Dersom en søker på disse, kan det muligens finnes forskning som kan være av interesse for problemstillingen. Noen av poengene som blir tydelige ved gjennomlesning av referansene, tror vi det ikke finnes forskning til å besvare Følgende områder kunne være av interesse, men er utenfor rammen av dette notatet:

- Tidlig intervensjon, dvs spesialisthelsetjeneste tidlig, og evt effekter på senere innleggelser kommer ikke med (psykoser, AMI, slag, diabetes osv)
- Effekter av "discharge planning" eller "early supported discharge" kommer oftest ikke med (fordi dette oftest er opplegg fra sykehusets side) for eksempel "medication report", farmasøytgjennomgang før utskrivelse, informasjon om fallforebyggende tiltak, identifisering av pasienter som kan være spesielt "at risk", opplæringsprogram for pasienter med hjertesykdom mv. Heller ikke studier som har sammenlignet tidlig utskrivelse med spesialistoppfølging hjemme er inkludert (for eksempel KOLS, hjertesvikt mv), siden dette ikke er initiert av eller i samarbeid med kommunehelsetjenesten
- Tiltak for å redusere behov for sykehjem for hjemmeboende eldre og kronisk syke kommer ikke med, siden effektmålet skulle være innleggelse eller døgn i sykehus.
- Tiltak i helsetjenesten er det søkt etter – men sosiale tjenester for eldre og kronisk syke kunne også vært på sin plass å se på, selv om dette oftest har andre målsetninger enn å unngå sykehusinnleggelse, for eksempel å unngå sosial isolasjon mv. Aktuell problemstilling kunne også vært om en del oppgaver som i dag løses av pleie-og omsorg, med fordel kunne vært håndtert av andre uten helsefaglig bakgrunn?
- Mange studier beskriver nå-tilstanden uten å se på effekter av en intervensjon – for eksempel bruken av sykehus eller kostnader ved dagens behandling – disse er ikke med. Studier som ser på forekomst av demens, faktorer som kan forutsi demens, faktorer som kan forutsi sykehusinnleggelse som ikke kan påvirkes særlig av enkelt tiltak (alder, kjønn, utdanning, sosialstatus, forekomst av mange sykdommer samtidig osv) finnes det en del på, men disse er ekskludert.
- Mange studier av tiltak for pasienter med kroniske sykdommer har ikke innleggelse i sykehus som parameter det måles på; det måles på andre ting, som for eksempel funksjon. Noen ganger kan totalkostnader i abstraktet muligens finnes igjen i form av del-kostnader som kan være sykehusinnleggelse.
- Noen studier identifiserer sykehusinnleggelserate og årsak for eksempel hos unge pasienter med psykiatrisk diagnose – dette kan gi pekepinn på hvor det bør følges spesielt opp med tiltak, altså en type risikostratifisering, men ingen påvisning av slike er gjort i studiene – disse er da ikke med., En studie viser for eksempel at out of home care som barn gir økt forekomst av alvorlig psy-

kisk sykdom som voksen – uten at en har noen intervensjonsstudier En vet derfor ikke om dette kan forebygges, med redusert behov for sykehus som resultat

- Studie som for eksempel viser at kunnskap om ernæring og ernæringsguidelines hos eldre mangler hos helsepersonell i Skandinavia, som peker på at dårlig kosthold og manglende tiltak pga manglende kunnskap kan gi lenger sykehusopphold (vurdert av leger i spørreundersøkelsen) – kommer ikke med (har ikke målt effekter av tiltak for å øke kunnskap om ernæring på sykehusinnleggelse). For eksempel sies det i en annen studie at BMI<20 for pasienter med KOLS er "predictive of hospitalisation" – men en kan ikke derved slutte at tiltak for å øke BMI hos KOLS pasienter til over 20 vil redusere behov for innleggelser.
- Noen studier overvåker utvikling i sykehus-innleggesler og sykehusforbruk hos pasientgrupper over tid – for eksempel diabetes i Sverige, - kan peke på områder en kan tenke at det vil være nytte å fokusere på andre måter å ivareta pasientene på om mulig (kan ikke si noe om det faktiske behovet for innleggelse ut fra studien, og om det kan være mulig å gjøre det på en annen måte)
- Tiltak som påvirker livskvalitet eller bedre funksjon alene, er ikke med (for eksempel etter traumatisk hjerneskade, opplevelse ved overgang sykehus/hjem, tiltak med ergoterapi/fysioterapi i sykehjem mv).
- Identifisering av studier med for eksempel IKT nyvinninger har ikke så ofte sykehusinnleggelser som endepunkt, men sier ofte noe om tiltaket er nyttig totalt sett – disse kommer da ikke med.
- Studier identifiserer økte kostnader inkl sykehusinnleggelser for tilstander som potensielt kan forebygges, for eksempel overvekt, rotavirusinfeksjoner, depresjon hos eldre kvinner– men uten å kunne vise at intervensjon på disse vil ha effekt. Foreslår ofte en risikovurdering i forhold til intensivering av behandling for disse grupper -.
- Flere oppsett/design for integrated care, samarbeid mellom nivåene på forskjellig vis, i tilslutning til utskrivelse eller på annet vis, uten evalueringer for eksempel i forhold til forbruk av sykehusdøgn
- En del behandlingsregimer som også kan være av organisatorisk art, bedrer funksjon eller minker for eksempel forekomst av UVI, bedret ernæring mv, men ser ikke på sykehusinnleggelse – disse kommer ikke med.

Metode

Metodekapittelet innholder datakilder og søkestrategi, utvelgelse av studier (inklusjons- og eksklusjonskriterier).

Litteratursøk

Vi søkte i følgende databaser:

- The Cochrane Central Register of Controlled Trials (*The Cochrane Library 2010*) (Søkt 14.06.2010)
- MEDLINE 1950 to June Week 1 2010 (Ovid) (Søkt 14.06.2010)
- MEDLINE In-Process & Other Non-Indexed Citations June 11, 2010 (Ovid) (Søkt 14.06.2010)
- EMBASE 1980 to 2010 Week 23 (Ovid) (Søkt 14.06.2010)
- CINAHL 1981 - (Ebsco) (Søkt 14.06.2010)

Søket i CENTRAL, MEDLINE, EMBASE og CINAHL ble avgrenset til årene fra og med 2005 til og med 2010. De fullstendige søkestrategiene til hver database er presentert i vedlegg 1.

Inklusjonskriterier

Studiedesign:	Alle typer design.
Populasjon:	Personer eller pasienter som trenger helsetjenester
Tiltak (intervensjon):	Alle mulige tiltak i kommunehelsetjenesten
Sammenlikningstiltak:	Ingen tiltak
Utfall:	Behov for innleggelse, antall pasienter innlagt, liggetid i sykehus

Eksklusjonskriterier

Vi ekskluderte studier som ikke hadde relevans for behovet for sykehusinnleggelse eller liggedøgn i sykehus, eller der tiltakene utelukkende var i spesialisthelsetjenesten.

Artikkelutvelging

Bibliotekar utførte søket, og prosjektleder gikk gjennom alle titler og sammendrag for å vurdere relevans i henhold til inklusjonskriteriene. Inklusjonskriteriene ble tolket vidt, da hensikten med søket var å identifisere så mange som mulig av tiltak som kan påvirke behovet for sykehusinnleggelse eller liggedøgn i sykehus.

Utvelgelse av litteratur ble i hovedsak gjort basert på tittel og sammendrag. Vi bestilte i kun i noen grad fulltekst av artiklene.

Artiklene ble sorter etter type tiltak og også i forhold til pasientkategori.

Resultat

Resultat av søk

Søket resulterte i 2248 referanser.

Vi vurderte 87 av de identifiserte referansene til å være mulig relevante i henhold til inklusjonskriteriene.
I tillegg inkluderte vi 14 systematiske oversikter av aktuelle tiltak som ikke falt inn under inklusjonskriteriene i del 1 av oppdraget.

Resultat av sorteringen

De mulig relevante referansene av primærstudier fra litteratursøket ble sortert i 13 kategorier ut fra populasjon/intervensjon(se tab 1). Vi oppgir deretter forfattere, tittel på publikasjonen, publikasjonssted og sammendrag av artikkelen slik de fremkom i de elektroniske databasene.

Tabell 1: *Antall oversiktsartikler sortert etter titakstype, fra litteratursøk av primærstudier*

Tiltak	Antall referanser: 87
Organisatoriske tiltak	19
Legemidler/farmasøyt	3
Tiltak for pasienter i sykehjem	4
Tiltak for pasienter med psykiske lidelser	17
Tiltak for å forebygge fall og andre skader	10
Tiltak for slagpasienter	4
Tiltak for pasienter med kreftsykdommer	2
Tiltak for pasienter med gastroenterologiske sykdommer	1
Tiltak for pasienter med lungesykdommer	10
Pasienter med hjertesykdom	5
Pasienter med diabetes mellitus	1

Tiltak i forhold til for tidlig fødte barn	2
Vaksinasjoner	6
Andre typer tiltak	3

Tabell 2: *Systematiske oversikter, sortert etter type tiltak*

Tiltak	Antall studier til-sammen:15
Organisatoriske tiltak	3
Tiltak i forhold til legemidler/farmasøyt	1
Tiltak for pasienter med psykiske lidelser	3
Forebygging av fall og andre ulykker/skader	3
Tiltak for pasienter med lungesykdom	3
Tiltak for pasienter med diabetes	1
Andre tiltak: ernæring	1

Nordiske primærstudier er listet opp med sammendrag, i henhold til strukturen i tabell 1, i tilfeldig rekkefølge innen de enkelte typer tiltak. For noen studier har forfatterne tillatt seg å kommentere hvordan tanken var mht å inkludere akkurat denne studien i forhold til effekt på sykehusinnleggelse. Disse kommentarene står i kursiv etter at sammendraget er gjengitt nøyaktig slik de er publisert, og står for forfatternes oppfatning.

Organisatoriske tiltak:

Kjekshus LE. Primary health care and hospital interactions: Effects for hospital length of stay. Scandinavian Journal of Public Health, 2005; 33: 114–122

Aims: Norwegian healthcare services are divided between primary and secondary care providers. A growing problem is that every third patient of 75 years of age or more experiences an extended stay in a somatic hospital while waiting to be sent to primary healthcare services. The interaction between these two levels of healthcare services is analyzed to examine the effect on a patient's length of stay in hospital.
Methods: Recent studies have asserted that research on length of stay in hospital should include influential factors such as system variation and system characteristics, in addition to standardizing for casemix. New organizational routines are identified in 50 Norwegian somatic hospitals. A multivariate linear regression is used in both a static and a dynamic model to explain variations in hospital length of stay and in additional length of stay (5% of stays are defined as outliers).
Results: The study shows that newly specialized structures constructed to enhance the interaction between the two levels have had no effect. Length of stay is depend-

ent on the capacity of the primary healthcare provider and on the share of elderly in the hospital catchment area, the type of patients, the procedure performed, and the Characteristics of the hospital.
Conclusion: Variation in length of stay between hospitals is primarily explained by the capacity of primary healthcare providers. However, some support is found in the dynamic model that introduces the proposition that a hospital-owned hotel would decrease the length of stay of patients in hospital.

Tjerbo T. Does competition among general practitioners increase or decrease the consumption of specialist health care? *Health Econ Policy Law* 2010;5:53-70.
Abstract: Studies of the effects of capacity and competition among general practitioners (GPs) on the use of specialist health care services are inconclusive. Some studies indicate that an increase in the number of GPs leads to increased consumption of specialist health care, while other studies point in the opposite direction. This article adds to the literature in two ways; first by testing out different operationalization of capacity and competition among GPs, and then by testing out effects of capacity and competition on use of specialist health care services as this is disaggregated into ambulatory and inpatient activities. The empirical tests indicate that GP capacity in itself does not affect use of specialist health care services. Increased competitions among GPs do, however, reduce the use of ambulatory care while the effects on the use of inpatient services are unaffected

Garasen H, Windspoll R, Johnsen R. Long-term patients' outcomes after intermediate care at a community hospital for elderly patients: 12-month follow-up of a randomized controlled trial. *Scand J Public Health* 2008;36:197-204.
Abstract: BACKGROUND: Developing a better understanding of if, and when, patients need care at a general hospital is an urgent challenge, as the proportion of general hospital beds being occupied by older patients is continuously increasing. METHODS: In a randomized controlled trial, of 142 patients aged 60 years or more admitted to a city general hospital due to acute illness or exacerbation of a chronic disease, 72 (intervention group) were randomized to intermediate care at a community hospital, and 70 (general hospital group) to further general hospital care. The patients were followed up for 12 months. The need for long-term home care and nursing homes, mortality and the number of admissions and days in general hospital for all diseases were monitored. RESULTS: Thirty-five patients, 13 (18.1%) of the patients included in the intervention group and 22 (31.4%) in the general hospital group, died within 12 months (p=0.03). Patients in the intervention group were observed for a longer period of time than those in the general hospital group; 335.7 (95% confidence interval (CI) 312.0-359.4) vs. 292.8 (95% CI 264.1-321.5) days (p=0.01). There were statistically no differences in the need for long-term primary-level care or in the number of admissions or days spent in general hospital beds. CONCLUSIONS: Intermediate care at the community hospital in Trondheim is an equal alternative to ordinary prolonged care at the city general hospital, as fewer pa-

tients were in need of community care services, and significantly fewer patients died during the 12-month follow-up time

Garasen H, Magnussen J, Windspoll R, Johnsen R. [Elderly patients in hospital or in an intermediate nursing home department--cost analysis]. *Tidsskr.Nor.Laegeforen.* 2008;128:283-5.

Abstract: BACKGROUND: This paper compares the cost efficacy of care at an intermediate level in a community hospital or a conventional prolonged treatment in a general hospital. MATERIAL AND METHODS: 142 patients older than 60 years and admitted to the city general hospital (due to an acute illness or exacerbation of a chronic disease) were randomised to one of the two types of care. Patients were followed for one year or until death and costs for care were monitored. RESULTS: Mean costs for treatment of the disease in question at the time of inclusion were 39,650 NOK (95% CI 30,996-48,304) in the community hospital group and 73,417 NOK (95 % CI 52,992-93,843) in the general hospital group ($p < 0.01$). No significant differences were found for the municipality and general hospital care costs during follow-up, except for readmissions. Mean health service costs per patient per observed day were 606 NOK (95% CI 450-761) for the community hospital group and 802 NOK (95 % CI 641-962) for the general hospital group ($p = 0.03$). INTERPRETATION: Care at an intermediate level in a community hospital in Trondheim was given for a lower cost compared to that given in a general hospital. The main reason for the difference was the reduction in readmission costs

Carlsen F, Grytten J, Kjelvik J, Skau I. Better primary physician services lead to fewer hospital admissions. *Eur J Health Econ* 2007;8:17-24.

Abstract: The aim of the study was to examine whether improved quality of primary physician services, measured by patient satisfaction, leads to fewer admissions to somatic hospitals. We studied differences in hospital admissions at the municipality level in Norway. In addition to the standard explanatory variables for use of hospitals--gender, age, socio-economic status and travelling distance to the nearest hospital--we also included a measure of patient satisfaction with primary physician services in the municipality. Data on patient satisfaction was obtained from an extensive questionnaire survey of 63,798 respondents. We found a statistically significant negative relationship between patient satisfaction and the number of hospital admissions. This conclusion was robust with regard to the empirical specification, and the effect was large

Garasen H,.Johnsen R. The quality of communication about older patients between hospital physicians and general practitioners: a panel study assessment. *BMC Health Serv Res* 2007;7:133.

Abstract: BACKGROUND: Optimal care of patients is dependent on good professional interaction between general practitioners and general hospital physicians. In Norway this is mainly based upon referral and discharge letters. The main objectives of this study were to assess the quality of the written communication between physi-

cians and to estimate the number of patients that could have been treated at primary care level instead of at a general hospital. METHODS: This study comprised referral and discharge letters for 100 patients above 75 years of age admitted to orthopaedic, pulmonary and cardiological departments at the city general hospital in Trondheim, Norway. The assessments were done using a Delphi technique with two expert panels, each with one general hospital specialist, one general practitioner and one public health nurse using a standardized evaluation protocol with a visual analogue scale (VAS). The panels assessed the quality of the description of the patient's actual medical condition, former medical history, signs, medication, Activity of Daily Living (ADL), social network, need of home care and the benefit of general hospital care. RESULTS: While information in the referral letters on actual medical situation, medical history, symptoms, signs and medications was assessed to be of high quality in 84%, 39%, 56%, 56% and 39%, respectively, the corresponding information assessed to be of high quality in discharge letters was for actual medical situation 96%, medical history 92%, symptoms 60%, signs 55% and medications 82%. Only half of the discharge letters had satisfactory information on ADL. Some two-thirds of the patients were assessed to have had large health benefits from the general hospital care in question. **One of six patients could have been treated without a general hospital admission.** The specialists assessed that 77% of the patients had had a large benefit from the general hospital care; however, the general practitioners assessment was only 59%. One of four of the discharge letters did not describe who was responsible for follow-up care. CONCLUSION: In this study from one general hospital both referral and discharge letters were missing vital medical information, and referral letters to such an extent that it might represent a health hazard for older patients. There was also low consensus between health professionals at primary and secondary level of what was high benefit of care for older patients at a general hospital

Garasen H, Windspoll R, Johnsen R. Intermediate care at a community hospital as an alternative to prolonged general hospital care for elderly patients: a randomised controlled trial. *BMC Public Health* 2007;7:68.
Abstract: BACKGROUND: Demographic changes together with an increasing demand among older people for hospital beds and other health services make allocation of resources to the most efficient care level a vital issue. The aim of this trial was to study the efficacy of intermediate care at a community hospital compared to standard prolonged care at a general hospital. METHODS: In a randomised controlled trial 142 patients aged 60 or more admitted to a general hospital due to acute illness or exacerbation of a chronic disease 72 (intervention group) were randomised to intermediate care at a community hospital and 70 (general hospital group) to further general hospital care. RESULTS: In the intervention group 14 patients (19.4%) were readmitted for the same disease compared to 25 patients (35.7%) in the general hospital group (p = 0.03). After 26 weeks 18 (25.0%) patients in the intervention group were independent of community care compared to seven (10.0%) in the general hospital group (p = 0.02). There were an insignificant reduction in the number of

deaths and an insignificant increase in the number of days with inward care in the intervention group. The number of patients admitted to long-term nursing homes from the intervention group was insignificantly higher than from the general hospital group. CONCLUSION: Intermediate care at a community hospital significantly decreased the number of readmissions for the same disease to general hospital, and a significantly higher number of patients were independent of community care after 26 weeks of follow-up, without any increase in mortality and number of days in institutions

Eberl R, Kaminski A, Reckwitz N, Muhr G, Clasbrummel B. [The tele-visit as a telemedical technique in daily clinical practice. *Unfallchirurg* 2006;109:383-90.

Abstract: Technologies in telecommunication and information are being increasingly applied in the public health system of the western world. Also responsible for this development is the cost factor in the field of financing and maintenance of such a system of superior medical supply, as well as the concurrent patient' demand for optimized medical "24 h care and treatment". Pioneers in the use of telematic projects have, up until now, been large states such as the USA, Canada, Norway or Australia. Such projects have been used to provide, guarantee and maintain medical care in geographically remote regions with few medical facilities. After breaking the obstacle of geographic distance, telemedical solutions in general, and especially the tele-visit, represent a new form of treatment for patient care after discharge from hospital. In the year 2002, a prospective randomized two-armed study was initiated including patients after surgical intervention by arthroplasty in posttraumatic contracture of the elbow. The system of the tele-visit was used for 6 weeks after discharge and the patients were controlled as outpatients after 6 months, including a physical examination. The functional outcome, duration of stay in hospital and the costs for treatment arising were determined. A standardized questionnaire was developed and the degree of satisfaction of the patients surveyed. **A shorter stay in hospital was found** together with lowered costs in medical treatment, while no differences in functional outcome could be found in comparison to the control group, although there was an additionally high grade of satisfaction with the new system

Dinesen B, Nohr C, Andersen SK, Sejersen H, Toft E. Under surveillance, yet looked after: telehomecare as viewed by patients and their spouse/partners. *Eur J Cardiovasc Nurs* 2008;7:239-46.

Abstract: INTRODUCTION: In this research project, a group of heart patients were transferred from traditional hospital settings to home hospitalisation across sectors. The project involved patients with heart failure and arrhythmia. AIM: The aim was to understand the experiences and attitudes of patients and their spouses/partners with regard to the application of telehomecare technology as an option within home hospitalisation. METHODS: A phenomenological hermeneutic approach was used to

collect and interpret the findings and data. A triangulation of data collection techniques was applied using participation observation and qualitative interviews with patients and spouse/partner. Data were analysed from the perspective of the sociology of everyday life. FINDINGS: The impact of home hospitalisation on patients is described according to several themes: security, freedom, increased awareness of own symptoms, being 'looked after' but annoyed with their spouse/partner. The patients experience a seamless cross-sector patient care process. The impact on the spouse/partner includes elements of increased responsibility, nervous tension, and invasion of privacy. CONCLUSION: Patients believe that home hospitalisation speeds up the process of returning to everyday life, both physically and mentally. It is important to be aware of certain anxieties experienced by the patient's spouse/partner about home hospitalisation, and these anxieties may also affect the patient

Hammar T, Rissanen P, Perala M-L. The cost-effectiveness of integrated home care and discharge practice for home care patients. *Health Policy* 2009;92:10-20.

Abstract: Objectives: To evaluate the effects of integrated home care and discharge practice (IHCaD-practice) on the use of services and cost-effectiveness. Methods: A cluster randomised trial with Finnish municipalities (n = 22) as the units of randomisation. At baseline the sample included 668 home care patients aged 65 years or over. Data consisted of interviews (discharge, 3-week, 6-month) and care registers. The intervention was a generic prototype of care/case management-practice that was tailored to each municipality's needs. The effects were evaluated in terms of the use and cost of health and social care services. Unit costs of services were calculated. Cost-effectiveness was calculated for changes in health-related quality of life using the Nottingham Health Profile (NHP) and the EQ-5D instruments. All analyses were based on intention-to-treat. Results: At 6-month follow-ups, the patients in the trail group used less home care, doctor and laboratory services than patients in the non-trial group. Similar differences between groups were found regarding costs. According to the NHP instrument, the IHCaD-practice showed higher cost-effectiveness compared to the old practice. No evidence for cost-effectiveness was found with the EQ-5D instrument. Conclusions: The study suggests that the IHCaD-practice may be a cost-effective alternative to usual care.

Petersen H, Melton R, Sejtved B, S. Helping patients avoid admission to hospital [Danish]. *Sygeplejersken / Danish Journal of Nursing* 2009;109:52-5.

Abstract: The article presents the results of the project "Cross-Sector Team", collaboration between Lyngby-Taarb+ªk Municipality and Gentofte Hospital involving citizens over age 65 in Lyngby-Taarb+ªk Municipality threatened with admission to hospital. The project was implemented during the period 1.9.2006-30.6.2008
The results show that unnecessary admission to hospital can be prevented by means of quick and efficient cross-sector, inter-professional procedures in the citizen's own home. Of the 80 participant citizens with an average age of 80, only 5 citizens were

admitted as acute patients and 4 were admitted for planned procedures during the project period. The effect was long-term, in that 69 citizens were not re-admitted for a period of three months for the same diagnosis as the one given as the reason for their referral to the project

Schweitzer BPM, Blankenstein N, Deliens L, van der Horst H. Out-of-hours palliative care provided by GP co-operatives: availability, content and effect of transferred information. *BMC Palliat Care* 2009;8:17.
Abstract: BACKGROUND: Out-of-hours GP care in England, Denmark and the Netherlands has been reorganised and is now provided by large scale GP co-operatives. Adequate transfer of information is necessary in order to assure continuity of care, which is of major importance in palliative care. We conducted a study to assess the availability, content and effect of information transferred to the GP co-operatives. METHODS: Cross-sectional exploratory study of all palliative care phone calls during a period of one year to a GP co-operative. RESULTS: The total number of phone calls about patients who needed palliative care was 0.75% of all calls to the GP co-operative. Information was transferred by GPs on 25.5% of palliative care patient calls, and on 12% of palliative care patient calls from residential care homes. For terminally ill patients the number of information transfers increased to 28.9%. When information was transferred, the content consisted mainly of clinical data. Information about the diagnosis and current problems was transferred in more than 90% of cases, information about the patient's wishes in 45% and information about the patient's psychosocial situation in 30.5% of cases.A home visit was made after 53% of the palliative care calls.When information was transferred, fewer patients were referred to a hospital. CONCLUSION: GPs frequently fail to transfer information about their palliative care patients to the GP co-operatives. Locums working at the GP co-operative are thus required to provide palliative care in complex situations without receiving adequate informationGPs should be encouraged and trained to make this information available to the GP co-operatives

Condelius A, Edberg A-K, Jakobsson U, Hallberg IR. Hospital admissions among people 65+ related to multimorbidity, municipal and outpatient care. *Arch.Gerontol.Geriatr.* 2008;46:41-55.
Abstract: This study aimed at examine the number of planned and acute hospital admissions during 1 year among people 65+ and its relation to municipal care, outpatient care, multimorbidity, age and sex. Four thousand nine hundred and seven individuals having one or more admissions during 2001 were studied. Data were collected from two registers and comparisons were made between those having one, two and three or more hospital stays and between those with and without municipal care and services. Linear regression was used to examine factors predicting number of acute and planned admissions. Fifteen percent of the sample had three or more hospital stays (range 3-15) accounting for 35% of all admissions. This group had significantly more contacts in outpatient care with physician (median number of contacts (md) = 15), compared to those with one (md: 8), or two admissions (md: 11).

Main predictors for number of admissions were number of diagnosis groups and number of contacts with physician in outpatient care. Those who are frequently admitted to hospital constitute a small group that consume a great deal of inpatient care and also tend to have frequent contacts in outpatient care. **Thus interventions focusing on frequent admissions are needed**, and this requires collaboration between outpatient and hospital care.

Matzen LE, Foged L, Pedersen P, Wengle K, Andersen-Ranberg K. [Geriatric home visits can prevent hospitalisation of subacute patients but is time-consuming. A randomised study]. ***Ugeskr.Laeger*** **2007;169:2113-8.**
Abstract: AIM: To study if geriatric home visits could prevent hospital admittance of geriatric patients referred subacute by general practitioners. MATERIALS AND METHODS: Patients were randomised to first contact by geriatric home visit (n=59), or to subacute admittance to a geriatric ward (n=43), median age 79.0 and 82.5 years, women 64% and 72%, Barthel-index 755 and 770 and MMSE 24,0 and 23,0. Only 30% of the total number of subacute referred patients were included. RESULTS: 53% (31/59) randomised to home visits were not admitted to hospital, 17% (10/59) were admitted at the first home visit and 12% (7/59) within the first 7 days. Patients admitted within the first 7 days were more often single, 84% (n=16/19) as compared to 52% (16/31) of those not admitted. The time used on home visits was on average 122 min, including 23 min (19%) for transportation. Among the 43 patients randomised to subacute admittance 16% (7/43) were sent home within 24 hours, and of these 73% were seen in the outpatient clinic, 26% (11/42) were sent home on day 2-7 and of these 27% were seen in the outpatient clinic. The overall median time in contact with the geriatric department was 27.1 days (n=59) in the home visit group and 15.0 days (n=43) in the admitted group ($p<0.05$). There were no significant differences in patient satisfaction or self-rated health. The average time used by the municipality for home service was reduced to 15 min/day in patients sent to hospital ($p<0.01$) and increased to 44 min/day in patients not admitted ($p<0.05$). CONCLUSION: Hospital admittance was avoided by geriatric home visits. However, time consumption was high. The municipality costs increased for non-admitted patients. The overall time in contact with the geriatric department was shortest for admitted patients

Thomsen JL, Karlsmose B, Parner ET, Thulstrup AM, Lauritzen T, Engberg M. Secondary healthcare contacts after multiphasic preventive health screening: A randomized trial. ***Scand J Public Health*** **2006;34:254-61.**
Abstract: Aim: To analyze the consequence of preventive health screenings and discussions on the utilization of secondary healthcare. Methods: All 30- to 49-year-old residents registered with a general practitioner in the district of Ebeltoft, Denmark, were included (n=3,464) in a randomized controlled trial with eight years' follow-up. A random sample of 2,030 subjects was selected for invitation (Invited). The remaining 1,434 persons were never contacted and served as external control group

(Non-Invited). Persons accepting participation were randomly divided into one internal control group (Questionnaire) and two intervention groups. One intervention group was offered three health screenings (Health Screening) during the five years. The other intervention group were in addition offered a yearly health discussion with their general practitioner (Health Screening and Discussion). Results: The rate ratio for hospital admissions was 0.97 (95% confidence interval 0.80 to 1.18) in the Invited group compared with the Non-Invited. The annual admission rates showed a significant trend (p=0.0003) with a decrease four and five years after intervention launch for the Invited group compared with the Non-Invited. A similar trend was found when comparing the internal control group with intervention groups (p=0.0016). Conclusions: A 30- to 49-year-old general population's utilization of secondary healthcare did not increase in response to a general health promotion offer. During the observation period a significant decline in annual hospital admission rates was seen.

Linnala A, Aromaa A, Mattila K. Specialist consultations in primary health care-a possible substitute for hospital care? ***Health Policy*** **2006;78:93-100.**

Abstract: This study assesses how the use of hospitals is affected by GPs being given an opportunity to send their patients to private specialists for consultation instead of referring them exclusively to hospital outpatient clinics. In the City of Turku three populations were served for a period of over 34 months by different service models. The first model was implemented in municipal health centres by 10 GPs with a list system and an option to consult private specialists. In the second model there were four GPs in municipal health centres without a list system or the consultation option. The third model comprised four private GPs with a list system and the consultation option. Persons with private GPs with a list system had fewer visits to the hospital outpatient clinics and fewer bed days than persons served by a municipal GP, either with or without a list system. When GP's have the opportunity to send patients for consultation to private specialists, both the number of visits to hospital outpatient clinics and the number of bed days are reduced

Adamiak GT,.Karlberg I. Impact of physician training level on emergency readmission within internal medicine.
Int.J.Technol.Assess.Health Care **2004;20:516-23.**

Abstract: OBJECTIVES: The research question was whether training level of admitting physicians and referrals from practitioners in primary health care (PHC) are risk factors for emergency readmission within 30 days to internal medicine. METHODS: This report is a prospective multicenter study carried out during 1 month in 1997 in seven departments of internal medicine in the County of Stockholm, Sweden. Two of the units were at university hospitals, three at county hospitals and two in district hospitals. The study area is metropolitan-suburban with 1,762,924 residents. Data were analyzed by multiple logistic regression. RESULTS: A total of 5,131 admissions, thereby 408 unplanned readmissions (8 percent) were registered (69.8 percent of 7348 true inpatient episodes). The risk of emergency readmission in-

creased with patient's age and independently 1.40 times (95 percent confidence interval [CI], 1.13-1.74) when residents decided on hospitalization. Congestive heart failure as primary or comorbid condition was the main reason for unplanned readmission. Referrals from PHC were associated with risk decrease (odds ratio, 0.53; 95 percent CI, 0.38-0.73). CONCLUSION: The causes of unplanned hospital readmissions are mixed. Patient contact with primary health care appears to reduce the recurrence. In addition to the diagnoses of cardiac failure, training level of admitting physicians in emergency departments was an independent risk factor for early readmission. Our conclusion is that it is cost-effective to have all decisions on admission to hospital care confirmed by senior doctors. Inappropriate selection of patients to inpatient care contributes to poor patient outcomes and reduces cost-effectiveness and quality of care

Kinnersley P, Rapport FM, Owen P, Stott N. In-house referral: a primary care alternative to immediate secondary care referral? Family Practice. 1999. Vol. 16, Iss. 6; 558
Background. Methods are needed to ensure that those patients referred from primary to secondary care are those most likely to benefit. In-house referral is the referral of a patient by a general practitioner to another general practitioner within the same practice for a second opinion on the need for secondary care referral.
Objective. To describe whether in-house referral is practical and acceptable to patients, and the health outcomes for patients.
Methods. Practices were randomized into an intervention or a control group. In intervention practices, patients with certain conditions who were about to be referred to secondary care were referred in-house. If the second clinician agreed referral was appropriate the patient was referred on to secondary care. In control practices patients were referred in the usual fashion. Patient satisfaction and health status was measured at the time of referral, 6 months and one year.
Results. Eight intervention and seven control practices took part. For the 177 patients referred in-house, 109 (61%) were judged to need referral on to secondary care. For patient satisfaction, the only difference between the groups studied was that at 12 months patients who had been referred in-house reported themselves as being more satisfied than those referred directly to hospital. For health status, the only difference found was that at the time of referral, patients who had been referred in-house and judged to need hospital referral reported themselves as being less able on the 'Physical function' subscale of the SF-36 than patients who were referred in-house and judged to not need hospital referral.
Conclusion. In-house referral is acceptable to patients and provides a straightforward method of addressing uncertainty over the need for referral from primary to secondary care.

Sahlen K-G, Lofgren C, Mari HB, Lindholm L. Preventive home visits to older people are cost-effective. Scand J Public Health 2008;36(3):265-

71.

Abstract: Aims: There is ongoing debate over the effectiveness of preventive home visits (PHVs) for the elderly. A municipality in the north of Sweden carried out a controlled trial of such visits. Healthy seniors aged 75 years and over received two PHVs per year over 2 years. The aim of this study was to do a cost utility analysis of the intervention. Methods: The intervention group (n=196) was compared with a control group (n=346), and a cost utility analysis was performed. The analysis was carried out with three different time perspectives. Data were sourced from official documents and medical and social records. Results: From a societal perspective, using a time period of 4 years, the analysis of PHVs to healthy seniors showed net savings. When including estimated future costs for health and elderly care during gained life years, the result changed from a net saving to a cost of Euro 200,000. A lifetime perspective also resulted in net savings if the costs of future health and elderly care were not included in the analysis. In this case, the total costs rose to approximately Euro 900,000. The cost could also be expressed as Euro 14,200 per quality-adjusted life year gained if future costs for elderly care and healthcare were included. Conclusions: PHVs represent a cost-effective intervention in this setting. The costs are justified by the outcomes.

Tiltak i relasjon til medikamenter/farmasøyter

Bergheim S, Jacobsen CD, Clausen F, Straand J. [Home visits by a pharmacist after discharge from hospital]. *Tidsskr.Nor.Laegeforen.* 2008;128:567-9.

Abstract: BACKGROUND: Elderly patients using many medicines are at particular risk of making medication errors after discharge from hospital. This pilot study aims at investigating the feasibility and acceptance of improved written discharge information and home visits (by a pharmacist) to elderly patients who have newly been discharged from a medical department in a hospital. MATERIAL AND METHODS: Patients (70 years and older) who needed at least 5 medicines and were about to be discharged from a medical department in a hospital, were offered home visits by a pharmacist 1, 5 and 26 weeks after discharge. A copy of the medication list was sent to their general practitioner (GP) the day the patient went home. During the home visit, the pharmacist provided information and training and recorded discrepancies between the hospital's medication list and the patients' actual medication use. 57 were invited to participate and 51 accepted the offer. During the 6-month project period, 5 patients died, one moved to a nursing home and one patient dropped out. Patients' and physicians' views on these measures were recorded. RESULTS: 53 discrepancies were disclosed for 29 of 51 patients during the first home visit. 26 discrepancies were disclosed during both the second and third visit; for 15/49 patients during the second and for 14/44 during the third visit. All involved GPs agreed that the medication list should be sent to the patient's GP the day the patient was discharged. Both hospital doctors and GPs regarded home visits by pharmacists to be useful for selected patients. INTERPRETATION: In conclusion, home visits by a

pharmacist is feasible, well accepted by doctors and patients and may represent a useful method for reducing medication errors in newly discharged elderly patients. The improved routines for informing the GPs about patients' medication use at discharge were appreciated. A controlled intervention study is needed to substantiate the effects of the measures undertaken in this pilot study

Kommentar: Ingen direkte måling av effekt på relinnleggelse eller innleggelsesrate – men kan potensielt ha effekt på disse, ingen beskrivelse eller vurdering av alvorlighetsgrad av avvikene som ble dokumentert.

Wallvik J, Sjalander A, Johansson L, Bjuhr O, Jansson JH. Bleeding complications during warfarin treatment in primary healthcare centres compared with anticoagulation clinics. *Scand.J.Prim.Health Care* 2007;25:123-8.

Abstract: OBJECTIVES: To examine determinants of bleeding complications during warfarin treatment in an unselected patient population and evaluate possible differences in safety between specialized anticoagulation clinics and primary healthcare centres. DESIGN: Prospective cohort study. Data were collected with an admission form and medical records were scrutinized in order to pursue all adverse events. Differences between groups were estimated with a t-test and chi-squared test, and univariate and multivariate Cox regression analysis. SETTING: All patients treated and monitored with oral anticoagulation in primary healthcare centres and specialized anticoagulation clinics in the Sundsvall and Skelleftea region (northern Sweden) during a five-year period. SUBJECTS: A total of 2731 patients corresponding to 5044 treatment years. MAIN OUTCOME MEASURES: Bleedings were classified as fatal or major. Major bleedings were defined as an event causing admission, prolonged in-hospital care or death. RESULTS: In total 195 major bleedings occurred corresponding to 3.9% per treatment year, including 34 fatal events (0.67% per treatment year). Patients monitored at the two specialized anticoagulation clinics combined had a major bleeding frequency of 4.1% as compared with 3.9% at primary healthcare units. The frequency of fatal haemorrhage was 0.57% and 0.76%, respectively. The rate of major and fatal bleeding was age related with an increase of 4% and 5%, respectively, per year. CONCLUSIONS: There was no difference in bleeding complications between patients monitored at primary healthcare centres and specialized anticoagulation clinics. Age was continuously and independently associated with bleeding risk. These study data indicate the need to exercise caution in treatment of the elderly

Forfatternes kommentar: pasienter på warfarin får like god (eller dårlig) kontroll i primærhelsetjenesten, men det kan virke som det kan være mye å hente mht alvorlige komplikasjoner (som ofte trenger sykehusinnleggelse) på å følge opp eldre på warfarin bedre, både ved kontrollene i primærhelsetjenesten og ved sykehuspoliklinikkene

Hellden A, Bergman U, Von Euler M, Hentschke M, Odar-Cederlof I, Hlen O. Adverse drug reactions and impaired renal function in elderly

patients admitted to the emergency department: A retrospective study. *Drugs Aging* 2009;26:595-606.

Abstract: Background: Adverse drug reactions (ADRs) are common in elderly patients. There are various reasons for this, including age- and disease-related alterations in pharmacokinetics and pharmacodynamics as well as the common practice of polypharmacy. The decline in renal function in elderly patients may also predispose them to pharmacological ADRs (type A, augmented). Patients receiving home healthcare may be at even higher risk. Objectives: To study ADRs as a cause of acute hospital admissions in a defined cohort of elderly patients (aged [greater-than or equal to]65 years) registered to receive home healthcare services, with special reference to impaired renal function as a possible risk factor. Methods: This was a retrospective study of 154 elderly patients aged [greater-than or equal to]65 years admitted to the emergency department of a university hospital in Stockholm, Sweden, in October?November 2002. Estimated creatinine clearance (eCLCR) was calculated from the Cockcroft-Gault formula, and estimated glomerular filtration rate (eGFR) by the Modification of Diet in Renal Disease (MDRD) equation. ADRs were defined according to WHO criteria. All medications administered to patients at admission and at discharge were collated. These and other data were collected from computerized hospital records. Results: ADRs were judged to contribute to or be the primary cause of hospitalization in 22 patients, i.e. 14% of 154 patients registered to receive home healthcare. Eleven of the 22 patients were women. All but oneADRwere type A. Excessive doses or drugs unsuitable in renal insufficiency were present in seven patients in the ADR group compared with only four patients in the group without ADRs (p = 0.0001). Patients with ADRs did not differ significantly from those without ADRs in relation to age, plasma creatinine, eCLCR, weight or number of drugs prescribed at admission. However, women with ADRs were significantly older than women without ADRs (mean +/- SD age 88.8 +/- 5.7 years vs 82.5 +/- 8.0 years, respectively; p = 0.014) and had significantly lower mean +/- SD eCLCR values (25.5 +/- 10.8 and 37.1 +/- 17.1mL/min, respectively; p = 0.035). Median MDRD eGFR was significantly higher than median eCLCR (59 [range 6?172] mL/min/1.73 m2 vs 38 [range 5?117] mL/min, respectively; p = 0.0001). Conclusions: In elderly patients registered to receive home healthcare, 14% of hospital admissions were primarily caused by ADRs. One-third of these ADRs were related to impaired renal function, generally in very old women. These ADRsmay be avoided by closemonitoring of renal function and adjustments to pharmacotherapy (drug selection and dose), particularly in very elderly women

Tiltak for pasienter i sykehjem

Dreyer A, Forde R, Nortvedt P. Autonomy at the end of life: life-prolonging treatment in nursing homes--relatives' role in the decision-making process. *J.Med.Ethics* 2009;35:672-7.

Abstract: BACKGROUND: The increasing number of elderly people in nursing homes with failing competence to give consent represents a great challenge to healthcare staff's protection of patient autonomy in the issues of life-prolonging

treatment, hydration, nutrition and hospitalisation. The lack of national guidelines and internal routines can threaten the protection of patient autonomy. OBJECTIVES: To place focus on protecting patient autonomy in the decision-making process by studying how relatives experience their role as substitute decision-makers. DESIGN: A qualitative descriptive design with analysis of the contents of transcribed in-depth interviews with relatives. PARTICIPANTS: Fifteen relatives of 20 patients in 10 nursing homes in Norway. RESULTS AND INTERPRETATIONS: The main findings reveal deficient procedures for including relatives in decision-making processes. Relatives have poor knowledge about the end of life, and there is little discussion about their role as substitute decision-makers for patients who are not competent to give consent. Few relatives understand the concept of patient autonomy. In Norway the treating physician is responsible for patient treatment. When relatives are included in discussions on treatment, they perceive themselves as responsible for the decision, which is a burden for them afterwards. This qualitative study describes relatives' experiences, thus providing important information on the improvement potential with the main objective of safeguarding patient autonomy and caring for relatives. CONCLUSION: The study reveals failing procedures and thus a great potential for improvement. Both ethical and legal aspects must be addressed when considering patient autonomy

Forfatternes tolkning: Manglende systemer for å inkludere pårørende i avgjørelser og samtaler om avgjørelser rundt livsforlengende behandling og sykehusinnleggelse for pasienter i sykehjem på en god måte, kan muligens føre til overforbruk av sykehustjenster og livsforlengende behandling.

Bollig G, Husebo BS, Husebo S. [On-call physicians in nursing homes]. ***Tidsskr.Nor.Laegeforen.*** **2008;128:2722-4.**

Abstract: BACKGROUND: Patients in Norwegian nursing homes are old and multimorbid; they often need emergency treatment and regular medical follow-up is a must. The aim of the study was to investigate reasons for contacting a physician and to find out if unnecessary hospitalization can be reduced. MATERIAL AND METHODS: The study took place at Bergen Red Cross Nursing home, which has 174 patients in long-term wards, dementia wards, a short-term ward and a palliative care ward. Contacts to on-call nursing home physicians were recorded (time, ward, problem and measures taken) and assessed in a prospective study of 4 months duration. RESULTS: 319 calls were registered during the 107-day study period, and these resulted in 187 active working hours (92.5 hours for the palliative care unit). Active working hours per patient/week by ward were 0.32 hours for the palliative care unit, 0.07 hours for the short-term ward and 0.03 hours for the long-term wards. Frequent problems were counselling/information (24 %), the abdomen (14 %), the nervous system (13 %), airways (12 %), pain (11 %) and cardiovascular disease (7 %). **Admission to a hospital could have been prevented for nine patients**. INTERPRETATION: All wards at Bergen Red Cross Nursing home use the 24-hour on-call service frequently. Nursing homes should offer such services to ensure acute and

competent treatment and avoid unnecessary transport and hospitalisation

Kullberg E, Sj+Âgren P, Forsell M, Hoogstraate J, Herbst B, Johansson O. Dental hygiene education for nursing staff in a nursing home for older people. J.Adv.Nurs. 2010;66:1273-9.
Abstract: Aim. This paper is a report of a study evaluating the effect of a repeated education programme for nursing staff in a home for older people. Background. A strong relationship exists between oral infections and general health complications (especially aspiration pneumonia) among nursing home residents and hospitalized older people. Thus, nursing staff need to be educated in oral hygiene measures. Methods. Forty-three nursing home resident older people (12 men, 31 women, age range 69-99 years) were included in a dental hygiene and gingivitis evaluation using gingival bleeding scores and modified plaque scores. Evaluation was conducted before and 3 weeks after a repeated dental hygiene education for nursing staff at a nursing home in Sweden in 2008. Dental hygiene education had been given 1-Å5 years previously. Findings. Forty-one residents (12 men and 29 women) were available for evaluation after the repeated dental hygiene education (one died, one had had teeth extracted). There was a reduction in gingival bleeding scores (P < 0-À001), and in plaque scores (P < 0-À001). Conclusion. Repeated dental hygiene education improves the dental hygiene among nursing home resident older people. In order to succeed it may be necessary to address attitudes and perceptions towards oral care in such a dental hygiene education programme for nursing staff. **Improved oral hygiene contributes to reducing the incidence of healthcare-associated pneumonia among nursing home resident older people, and thus to reduced healthcare costs**

Sjogren P, Kullberg E, Hoogstraate J, Johansson O, Herbst B, Forsell M. Evaluation of dental hygiene education for nursing home staff. *J.Adv.Nurs*. 2010;66:345-9.
Abstract: AIM: This paper is a report of a study evaluating the long-term effects on the oral hygiene status of older nursing home residents one and a half years after dental hygiene education was given to the staff. BACKGROUND: **A strong relationship exists between oral infections and general health complications (especially aspiration pneumonia) among nursing home residents and hospitalized older people.** It is therefore important to educate nursing home staff in oral hygiene measures and to follow up the effects of the education over time. METHODS: Dental plaque measurements were conducted at a Swedish nursing home in 2006-2008. Forty-one residents (12 men, 31 women, aged 69-99 years) fulfilled the inclusion criteria and participated in a dental hygiene evaluation 1.5 years after dental hygiene education was given to the staff at the nursing home. Plaque index scores (year 2008) were compared to those soon after the education (year 2006). FINDINGS: After the dental hygiene education in 2006, 60 nursing home residents (14 men, 46 women) were available for plaque index measurements, whereas 41 residents (12 men, 29 women) were available 1.5 years later. The median

plaque index scores were 17.0 (n = 60) in 2006, and 18.0 (n = 41) in 2008 (Mann-Whitney U-test, P > 0.05). CONCLUSION: Dental hygiene education for nursing home staff is important to maintain an adequate level of oral hygiene among older nursing home residents over time. Follow-up of dental hygiene education for nursing home staff is recommended to maintain a sufficient level of oral hygiene among the residents

Tiltak rettet mot pasienter med psykiatriske sykdommer:

Bergerud T, Moller P, Larsen F, Veenstra M, Ruud T. [A community short-term crisis unit does not reduce acute admissions to psychiatric wards]. ***Tidsskr.Nor.Laegeforen*** **2009;129:1973-6.**
Bakgrunn. På bakgrunn av vedvarende overbelegg i psykiatrisk akuttavdeling forsøkte vi å kanalisere akuttinnleggelser som var begrunnet i livskriser og ikke alvorlig psykisk lidelse, til et nytt kortids krisetilbud i distriktspsykiatrisk senter. Vi antok at det ville redusere innleggelsene i psykiatrisk akuttavdeling, og at denne endringen kunne avspeiles blant de innlagte på akuttavdelingen i form av høyere psykisk sykelighet.
Materiale og metode. Studien har en kvasieksperimentell design. Pasientgrupper fra to opptaksområder innlagt ved psykiatrisk akuttavdeling ble sammenliknet i to perioder, før (2.1. 2003–1.6. 2003) og etter (2.1. 2004–1.6. 2004) etablering av en døgnbasert krisepost i distriktspsykiatrisk senter ved et av opptaksområdene.
Resultater. 234 pasienter ble inkludert. Antall innleggelser ble ikke redusert ved psykiatrisk akuttavdeling fra første til andre måleperiode fra noen av opptaksområdene. Det var gjennomgående redusert forekomst av psykisk sykelighet i andre måleperiode, dog kun hos menn i området med krisepost. Reduksjonen var størst ved selvskading og suicidal atferd (p = 0,02) og depresjon (p = 0,01).
Fortolkning. Ingen av hypotesene ble innfridd. Hovedkonklusjonen er at pasientstrømmer i akuttpsykiatrien styres av mange komplekse og uforutsigbare faktorer. Helsevesenet endrer sin organisering kontinuerlig. Systematisk evaluering av slike tjenesteomlegginger er få, og de er vanskelige og ressurskrevende.

Christiansen E,.Jensen BF. A nested case-control study of the risk of suicide attempts after discharge from psychiatric care: the role of co-morbid substance use disorder. ***Nord.J Psychiatry*** **2009;63:132-9**.
Abstract: The literature suggests that the risk of suicide is high within the first weeks after discharge from psychiatric care, but practically no studies have estimated the risk of suicide attempt after discharge from psychiatric care. The aim of this study was to examine the risk level for suicide attempt after discharge from psychiatric care, and to control for effects from psychiatric diagnoses, number and length of previous admission. An analysis of the role of co-morbid substance use disorder in suicide attempts risk was completed. The study is a Danish register-based nested case-control study; 3037 cases were identified from Register for Suicide Attempts,

and 60,295 individuals, matched by gender and age, were identified for comparison. Retrospective personal data on psychiatric care was obtained from the Danish Psychiatric Central Register. Risk of suicide attempts was estimated by the use of conditional logistic regression. We found a significant high peak in risk of suicide attempts in the first weeks after discharge from psychiatric care. The risk was lowered as time passed by. Suicide attempt risk was not equally distributed across various psychiatric diagnoses, and co-morbidity of substance abuse with mental illness raised risk in an additive way. We found only small gender differences in risk. In order to lower the risk of suicide attempts, we need to improve after-care when discharging from psychiatric care. **A differentiation between the possibilities of after-care for different mental illnesses is needed**

Kolbjornsrud OB, Larsen F, Elbert G, Ruud T. [Can psychiatric acute teams reduce acute admissions to psychiatric wards?]. *Tidsskr.Nor.Laegeforen.* 2009;129:1991-4.
Abstract: BACKGROUND: Treatment by psychiatric acute teams - as an alternative to admission in psychiatric acute wards - has been introduced in Norway, based on positive experience in other countries. The effect of establishing such acute teams in Norway has not been studied. In January 2004, Notodden/Seljord Community Mental Health Centre established an acute team for one part of their catchment area. MATERIAL AND METHODS: The material consists of information on the patients admitted to the acute ward in the psychiatric hospital Sykehuset Telemark from area 1 (with an acute team) and from area 2 (without an acute team) in 2003 and 2004, and on all patients treated by the acute team in 2004. RESULTS: From 2004 to 2003, admissions to the acute ward at Sykehuset Telemark decreased by 25 % from Area 1 and by 13 % from Area 2. The acute team treated 22 patients, of whom five were admitted as in-patients at the community mental health centre. Most of the patients with psychosis or severe depression were admitted to the acute hospital ward. INTERPRETATION: An acute team in a well-staffed community mental health centre may contribute to less use of acute admissions to psychiatric wards by treating patients with moderately severe disorders, while patients with the most severe disorders are still admitted to acute psychiatric wards

Walby FA,.Ness E. [Psychiatric treatment of deliberate self-harm in the out-of-hours services]. *Tidsskr.Nor.Laegeforen.* 2009;129:885-7.
Abstract: BACKGROUND: Patients who harm themselves are often considered difficult to treat. There are no evidence-based approaches available for the emergency setting. General practitioners should nevertheless be able to offer interventions directed towards emotional needs in self-harm patients. In this article we suggest how to intervene in such situations. MATERIAL AND METHOD: Based on experience from Oslo psychiatric out-of-hours service and with elements from Dialectic Behavioural Therapy, we present a five-step model for treatment of these patients in an out-of-hours service within the primary health care services. RESULTS: The aim of this model is to bring the patient out of the acute crisis and to arrange for further

treatment. Assessment, validation or confirmation, problem-solving, avoiding unnecessary hospitalisation, and focus on continuing established treatment, are important elements in the proposed intervention. This can all be carried out in 60 - 90 min. INTERPRETATION: The model may be suitable for training general practitioners to meet and care for patients with self-harm behaviour in the out-hours-services. We have positive experience with the intervention, but systematic research is necessary to assess the effect of the model

Heskestad S,.Tytlandsvik M. [Patient-guided crisis admissions for severe psychotic conditions]. ***Tidsskr.Nor.Laegeforen.*** **2008;128:32-5.**
Abstract: BACKGROUND: Standard treatment for psychotic conditions has been criticized for being inflexible, with too many involuntary admissions and too little patient involvement. MATERIAL AND METHODS: Two of 11 beds in a unit for schizophrenic patients at a psychiatric centre were converted to crisis beds. Patients who were known by the centre were given the right (through contracts) to use these beds without being referred by their primary care physician. Stays were limited to five days, with 14 days required between each stay. Data were obtained on the first 18 patients to complete at least a year on the program. Inpatient stays, including involuntary admissions, were compared to the same time frame before implementation of the program. RESULTS: The number of admissions rose, but the number of days hospitalized fell by 33%. Involuntary hospitalization days were approximately cut in half. On the average, patients used the crisis beds just under five times per year, with an average duration of 2.5 days. INTERPRETATION: By contracting to ensure patients' rights and by lowering the threshold for admission, patients and families experience greater autonomy and security. This explains the paradox that increased accessibility of care actually reduces the use of beds. The study shows that seriously ill psychiatric patients can cooperate productively about inpatient care

Melle I, Larsen TK, Haahr U, Friis S, Johannesen JO, Opjordsmoen S ***et al.*** **Prevention of negative symptom psychopathologies in first-episode schizophrenia: two-year effects of reducing the duration of untreated psychosis.** ***Arch.Gen.Psychiatry*** **2008;65:634-40.**
Abstract: BACKGROUND: The duration of untreated psychosis (DUP)-the time from onset of psychotic symptoms to the start of adequate treatment--is consistently correlated with better course and outcome, but the mechanisms are poorly understood. OBJECTIVE: To report the effects of reducing DUP on 2-year course and outcome. DESIGN: A total of 281 patients with a DSM-IV diagnosis of nonorganic, nonaffective psychosis coming to their first treatment during 4 consecutive years were recruited, of which 231 participated in the 2-year follow-up. A comprehensive early detection (ED) system, based on public information campaigns and low-threshold-psychosis-detecting teams, was introduced in 1 health care area (ED area), but not in a comparable area (no-ED area). Both areas ran equivalent 2-year treatment programs. RESULTS: First-episode patients from the ED area had a significantly lower DUP, better clinical status, and milder negative symptoms at the start of treatment.

There were no differences in treatment received for the first 2 years between the groups. The difference in negative symptoms was maintained at the 1-year follow-up. There was a statistically significant difference in the Positive and Negative Syndrome Scale negative component, cognitive component, and depressive component in favor of the ED group at the 2-year follow-up. Multiple linear regression analyses gave no indication that these differences were due to confounders. CONCLUSION: Reducing the DUP has effects on the course of symptoms and functioning, including negative symptoms, suggesting secondary prevention of the negative psychopathologies in first-episode schizophrenia

Kommentar: må anta at kortere psykosetid også betyr kortere tid med innleggelse i sykehus

Morken G, Widen JH, Grawe RW. Non-adherence to antipsychotic medication, relapse and rehospitalisation in recent-onset schizophrenia. *BMC Psychiatry* 2008;8:32.

Abstract: BACKGROUND: The aims of this study were to describe outcome with respect to persistent psychotic symptoms, relapse of positive symptoms, hospital admissions, and application of treatment by coercion among patients with recent onset schizophrenia being adherent and non-adherent to anti-psychotic medication. MATERIALS AND METHODS: The study included 50 patients with recent onset schizophrenia, schizoaffective or schizophreniform disorders. The patients were clinically stable at study entry and had less than 2 years duration of psychotic symptoms. Good adherence to antipsychotic medication was defined as less than one month without medication. Outcomes for poor and good adherence were compared over a 24-month follow-up period. RESULTS: The Odds Ratio (OR) of having a psychotic relapse was 10.27 and the OR of being admitted to hospital was 4.00 among non-adherent patients. Use of depot-antipsychotics were associated with relapses (OR = 6.44). CONCLUSION: Non-adherence was associated with relapse, hospital admission and having persistent psychotic symptoms. Interventions to increase adherence are needed.

Petersen B, Toft J, Christensen NB, Foldager L, Munk-Jorgensen P, Lien K *et al*. Outcome of a psychotherapeutic programme for patients with severe personality disorders. *Nord.J Psychiatry* 2008;62:450-6.

Abstract: A specialized psychotherapeutic day treatment programme was established in a Danish clinical setting on the basis of recent research and advances in treatment for severe personality disorders. This study analyses treatment effectiveness by comparing the day treatment programme with a treatment as usual (TAU) situation as given to personality-disordered patients on a waiting list. The sample consisted of 66 personality-disordered patients consecutively referred and diagnosed according to standardized criteria. The intervention group comprised 38 patients. There was no selection made for the intervention group: when the programme capacity was reached, a waiting list of 28 consecutive patients formed the

comparison group; none of these patients figured in the intervention group. Intervention included psychodynamic and cognitive-based therapy in a group/individual setting and lasted 5 months. Outcome measures were self-rated and observer-rated multidimensional evaluation of functioning relevant to personality-disordered patients. **The day treatment programme did significantly better in reducing acute and prolonged hospitalizations** and suicide attempts, in stabilizing the psychosocial functioning and in reducing complaints that lead to treatment. The intensive day treatment programme stabilized patient functioning but did not lead to changes on personality traits for which more extended treatment might be necessary

Pirkola S, Sund R, Sailas E, Wahlbeck K. Community mental-health services and suicide rate in Finland: a nationwide small-area analysis. *The Lancet* 2009;373:147-53.

Abstract: Background: In many countries, psychiatric services have been reformed by reducing the size of hospitals and developing community mental-health services. We investigated this reform by assessing the relation between suicide risk and different ways of organising mental-health services. Methods: We did a nationwide comprehensive survey of Finnish adult mental-health service units between Sept 1, 2004, and March 31, 2005. From health-care or social-care officers of 428 municipalities, we asked for information, classified according to the European service mapping schedule, about adult mental-health services. For each municipality, we measured age-adjusted and sex-adjusted suicide risk, pooled between 2000 and 2004, and then adjusted for register-derived socioeconomic factors. Findings: A wide variety of outpatient services (relative risk [RR] 0.92, 95% CI 0.87-0.96), prominence of outpatient versus inpatient services (0.93, 0.89-0.97), and 24-h emergency services (0.84, 0.75-0.92) were associated with decreased death rates from suicide. However, after adjustment for socioeconomic factors, only the prominence of outpatient services was associated with low suicide rate (0.94, 0.90-0.98). We replicated this finding even after adjustment for organisational changes and inpatient treatment. Interpretation: **Well-developed community mental-health services are associated with lower suicide rates than are services oriented towards inpatient treatment provision.** These data are consistent with the idea that population mental health can be improved by use of multifaceted, community-based, specialised mental-health services

Aagaard J, Freiesleben M, Foldager L. Crisis homes for adult psychiatric patients. *Soc.Psychiatry Psychiatr.Epidemiol.* 2008;43:403-9.

Abstract: INTRODUCTION: Inspired by the Crisis Home programme in Madison, we have adapted and evaluated the programme at the Community Mental Health (CMH) Centre in Tonder, Denmark. MATERIAL AND METHODS: Procedures and schedules from the Crisis Home programme were applied in this open trial. Questionnaire data concerning satisfaction with the stay and registration data concerning the admissions and bed days two years before and two years after the first stay were

obtained. RESULTS: During four years, 52 different patients had a total of 187 stays in a crisis home. Twenty (38.5%) of the patients were attached to the ACT team. The average duration of the stays was 4.0 days. **The number of readmissions and bed days after the first stay showed a significant downward tendency for the subgroup of patients with a more severe mental disorder, but not for the whole group.** The patients, the crisis homes families and the referrers were very satisfied with the programme and the treatment. CONCLUSION: Crisis home stays represent a quality improvement in the treatment package, especially for patients with a more severe mental disorder. Further documentation will require a controlled study

Karlsson B, Borg M, Kim HS. From good intentions to real life: introducing crisis resolution teams in Norway. *Nurs.Inq.* 2008;15:206-15.
Abstract: In Norway, as in most western countries, the adult services for people experiencing mental health problems have gone through major changes over the last decades. A report submitted to the Norwegian Parliament in 1997 summarized several areas of improvement in the provision of mental health-care to its population, and led to the introduction of a national mental health programme in 1998 for its implementation to be completed by 2008. The most significant recent development in Norway is **'Crisis Resolution/Home Treatment' (CRHT) teams that provide an alternative to acute hospital care services**. The major aim of this study is to explore an emerging form of community mental health-care, and present a framework for establishment and examination of CRHT teams applying the user perspectives. An illustration of user experiences in an already established CRHT team provides a background for understanding implications of this form of service in relation to service users' needs in acute crises

Sytema S, Wunderink L, Bloemers W, Roorda L, Wiersma D. Assertive community treatment in the Netherlands: a randomized controlled trial. *Acta Psychiatr.Scand.* 2007;116:105-12.
Abstract: OBJECTIVE: Assertive community treatment is rapidly implemented by many European mental health services, but recently the evidence base has been questioned. Positive results of randomized trials in the USA were not replicated in the UK. The question is whether the UK findings are representative for other European countries with modern mental health services. METHOD: Open randomized controlled trial of long-term severely mentally ill patients [Health of the Nation Outcome Scales (HoNOS) total score >or=15], assigned to assertive community treatment (n = 59) or to standard community mental health care (n = 59). Primary outcome: sustained contact; housing stability and admission days. This trial is registered as an International Standard Randomized Clinical Trial, number ISRCTN 11281756. RESULTS: **Assertive community treatment was significantly better in sustaining contact with patients, but not in reducing admission days.** No differences in housing stability, psychopathology, social functioning or

quality of life were found. CONCLUSION: The results are in agreement with UK studies. However, the sustained contact potential of assertive community treatment is important, as too many patients are lost in standard care

Grawe RW, Ruud T, Bjorngaard JH. Alternative acute interventions in mental health care. *Tidsskr.Nor.Laegeforen.* 2005;125:3265-8.
Abstract: Background. The objectives of this study were to review the literature on alternatives to traditional treatment of acute mental disorders and to describe the effects of these interventions. The main emphasis is on crisis resolution teams (CRT) because there are governmental plans to implement these in all Norwegian community mental health centres. Material and methods. The reviewed literature is based on a search for randomized controlled studies that compare the effect of standard emergency treatment with alternative emergency services. Quasi-experimental studies of crisis resolution teams were also included. Results and interpretation. The identified alternative interventions were: emergency residential/domestic care, emergency day centres, and crisis resolution teams (or assertive/out-reach/mobile crisis teams). Studies of acute day hospitals showed that this treatment is associated with reduced hospitalisation, faster recovery and reduced costs compared with treatment in traditional hospital acute wards. Because of insufficient research, it was not possible to draw conclusions on the effects of residential or domestic care. We identified six randomized controleld studies and four quasiexperimental studies of Crisis Resolution Teams. These studies indicate that Crisis Resolution Teams or other forms of assertive homebased mobile/outreach treatment, is an acceptable alternative to hospitalization for many patients. The clinical effect of such treatment seems to be comparable with traditional treatment, and are associated with reduced hospitalizations and rehospitalizations, and with reduced costs. None of the reviewed tratment can replace traditional acute hospital tratment. Although studies of alternatives to acute hospitalization have congruent results, there are few studies and methodological weaknesses make it difficult to draw firm scientific conclusions about the effect of such interventions.

Aagaard J, Freiesleben M, Mathiesen A, Foldager L. [Crisis Homes for adult psychiatric patients. *Ugeskr.Laeger* 2005;167:3174-9.
Abstract: INTRODUCTION: A Crisis Home programme inspired by the principles of the Assertive Community Treatment (ACT) model in U.S. psychiatry, in which adult psychiatric patients, as an alternative to admission to hospital, spend some time in a private family has been implemented at the Community Mental Health (CMH) Centre in Tonder. MATERIALS AND METHODS: Procedures and schedules from the Crisis Home programme, Madison, were analysed. Data obtained at the start and end of each patient's stay were supplemented with register data on the consumption of mental hospital benefits. Qualitative data were obtained through focus group interviews. RESULTS: From 1 July 2001 to 30 June 2003, 41 patients made a total of 96 stays in a Crisis Home. Eight of the patients made more than 3 stays. Seventeen (41.5%) of the patients were attached to the CMH Centre's ACT team. These patients

accounted for 43.8% of the stays. The average duration of the stays was 4.4 days. The number of patient readmissions after the first stay in a Crisis Home showed a downward tendency. The patients, the Crisis Home families and the associated professionals were all very satisfied with the programme. DISCUSSION: The possibility to stay in a Crisis Home has the potential to ameliorate the condition and reduce the risk of readmission of patients suffering from severe mental illness. We suggest that a stay in a Crisis Home represents an improvement in quality of the total treatment package; however, further documentation, including of the health economic aspects, will require a randomised trial

Tytlandsvik M,.Heskestad S. Experiences with user controlled admissions to a unit specialising in psychosis -- a qualitative evaluation study [Norwegian]. ***Nordic Journal of Nursing Research & Clinical Studies / V+Ñrd i Norden*** **2009;29:49-51.**

Abstract: The purpose of the research was to evaluate the effect of a flexible approach to service use versus the established practice in a unit for schizophrenic patients. In particular, the study examined how changing two out of 11 beds from the conventional admissions approach to a user controlled admissions approach affected the experiences of patients and their support network (i.e. relatives, care-staff and the community mental health service). Data were collected by qualitative research interview from the first 18 patients and their support network that completed at least one year on the program. The results demonstrated:

The patients greatly valued the freedom and right to decide when a crisis arose and what help was relevant

This decision made by the patient occurred without facing the need for confirmation by a doctor that this was the case

When coming in contact with patients, the unit appears to have an el1vironmenl based on equality and support, with a system that does not degrade or humiliate

There was reduction in the use of involuntary admissions. The results of this study support previous research on empowerment, demonstrating the viability of correcting the unequal distribution of power that occurs in patient admissions, without affecting the need for justifiable treatment

Henderson C, Flood C, Leese M, Thornicroft G, Sutherby K, Szmucler G. Effect of joint crisis plans on use of compulsory treatment in psychiatry: a single blind randomised controlled trial. BMJ 2004; 329:136

Abstract:

Objective To investigate whether a form of advance agreement for people with severe mental illness can reduce the use of inpatient services and compulsory admission or treatment.

Design Single blind randomised controlled trial, with randomisation of individual patients. The investigator was blind to allocation.

Setting Eight community mental health teams in southern England.

Participants 160 people with an operational diagnosis of

psychotic illness or non-psychotic bipolar disorder who had experienced a hospital admission within the previous two years.
Intervention The joint crisis plan was formulated by the patient, care coordinator, psychiatrist, and project worker and contained contact information, details of mental and physical illnesses, treatments, indicators for relapse, and advance statements of preferences for care in the event of future relapse.
Main outcome measures Admission to hospital, bed days, and use of the Mental Health Act over 15 month follow up.
Results Use of the Mental Health Act was significantly reduced for the intervention group, 13% (10/80) of whom experienced compulsory admission or treatment compared with 27% (21/80) of the control group (risk ratio 0.48, 95% confidence interval 0.24 to 0.95, P = 0.028). As a consequence, the mean number of days of detention (days spent as an inpatient while under a section of the Mental Health Act) for the whole intervention group was 14 compared with 31 for the control group (difference 16, 0 to 36, P = 0.04). For those admitted under a section of the Mental Health Act, the number of days of detention was similar in the two groups (means 114 and 117, difference 3, – 61 to 67, P = 0.98). The intervention group had fewer admissions (risk ratio 0.69, 0.45 to 1.04, P = 0.07). There was no evidence for differences in bed days (total number of days spent as an inpatient) (means 32 and 36, difference 4, – 18 to 26, P = 0.15 for the whole sample; means 107 and 83, difference – 24, –72 to 24, P = 0.39 for those admitted).
Conclusions Use of joint crisis plans reduced compulsory admissions and treatment in patients with severe mental illness. The reduction in overall admission was less. This is the first structured clinical intervention that seems to reduce compulsory admission and treatment in mental health services.

Skeie I, Brekke M, Lindbaek M, Waal H. Somatic health among heroin addicts before and during opioid maintenance treatment: a retrospective cohort study. *BMC Public Health* 2008;8:43.
Abstract: BACKGROUND: The long-term impact of opioid maintenance treatment (OMT) on morbidity and health care utilization among heroin addicts has been insufficiently studied. The objective of this study was to investigate whether health care utilization due to somatic disease decreased during OMT, and if so, whether the reduction included all kinds of diseases and whether a reduction was related to abstinence from drug use. METHODS: Cohort study with retrospective registration of somatic disease incidents (health problems, acute or sub-acute, or acute problems related to chronic disease, resulting in a health care contact). Medical record data were collected from hospitals, Outpatients' Departments, emergency wards and from general practitioners (GPs) and prospective data on substance use during OMT were available from 2001 onwards. The observation period was five years before and up to five years during OMT. The cohort consisted of 35 out of 40 patients who received OMT between April 1999 and January 2005 in a Norwegian district town. Statistical significance concerning changes in number of incidents and inpatient and outpatient days during OMT compared with the pre OMT period was calculated ac-

cording to Wilcoxon signed rank test. Significance concerning pre/during OMT changes in disease incidents by relation to the type of health service contacts, as well as the impact of ongoing substance use during OMT on the volume of contacts, was calculated according to Pearson chi-square and Fisher's exact tests. RESULTS: 278 disease incidents were registered. There was a reduction in all incidents by 35% ($p = 0.004$), in substance-related incidents by 62% ($p < 0.001$) and in injection-related incidents by 70% ($p < 0.001$). There was an insignificant reduction in non-fatal overdose incidents by 44% ($p = 0.127$) and an insignificant increase in non-substance-related incidents by 13% ($p = 0.741$). Inpatient and outpatient days were reduced by 76% ($p = 0.003$) and 46% ($p = 0.060$), respectively. The disease incidents were less often drug-related during OMT ($p < 0.001$). Patients experienced a reduction in substance-related disease incidents regardless of ongoing substance use, however there was a trend towards greater reductions in those without ongoing abuse. CONCLUSION: Although as few as 35 patients were included, this study demonstrates a significant reduction in health care utilization due to somatic disease incidents during OMT. The reduction was most pronounced for incidents related to substance use and injection. Inpatient and outpatient days were reduced. Most probably these findings reflect somatic health improvement among heroin addicts during OMT

Kommentar: studie med få pasienter, men dokumentere mindre behov for behandling for somatiske sykdommer inkl sykehusinnleggelse og liggedøgn i sykehus, ved metadon (og lignende) behandling.

Fall/skader:

Heskestad B, Baardsen R, Helseth E, Romner B, Waterloo K, Ingebrigtsen T. Incidence of hospital referred head injuries in Norway: a population based survey from the Stavanger region. *Scand J Trauma Resusc.Emerg Med* 2009;17:6.

Abstract: BACKGROUND: In three previous Norwegian studies conducted between 1974 and 1993, the annual incidence rates of hospital admitted head injuries were 236, 200 and 169 per 100,000 population. The aim of this study was to describe the incidence of head injury in the Stavanger region and to compare it with previous Norwegian studies. METHODS: All head injured patients referred to Stavanger University Hospital during a one-year period (2003) were registered in a partly prospective and partly retrospective study. The catchment area for the hospital is strictly defined to a local population of 283,317 inhabitants (2003). RESULTS: The annual incidence rate was 207/100,000 population for hospital referred head injury and 157/100,000 population for hospital admitted head injury. High age- and sex specific incidence rates were observed among the oldest, and the highest rate (882/100,000) among men above 90 years. More than 50% of the injuries were caused by falls. CONCLUSION: Comparison with previous Norwegian studies indi-

cates decreasing annual incidence rates for hospital admitted head injury during the last 30 years

Tolkning: Fall er årsak til over 50% av hodeskader som legges inn på sykehus. Eldre som faller har høyest grad av innleggelse for hodeskader. Forebygging av fall vil trolig redusere behov for sykehusinnleggelse også i denne aldersgruppen.

Spinks A, Turner C, Nixon J, McClure RJ. The 'WHO Safe Communities' model for the prevention of injury in whole populations. ***Cochrane Database Syst Rev*** **2009;CD004445.**

Abstract: BACKGROUND: The World Health Organization (WHO) 'safe communities' approach to injury prevention has been embraced around the world as a model for co-ordinating community efforts to enhance safety and reduce injury. Approximately 150 communities throughout the world have formal 'Safe Communities' designation. It is of public health interest to determine to what degree the model is successful, and whether it reduces injury rates. This Cochrane Review is an update of a previous published version. OBJECTIVES: To determine the effectiveness of the WHO Safe Communities model to prevent injury in whole populations. SEARCH STRATEGY: Our search included CENTRAL, MEDLINE and EMBASE, PsycINFO, ISI Web of Science: Social Sciences Citation Index (SSCI) and ZETOC. We handsearched selected journals and contacted key people from each WHO Safe Community. The last search was December 2008. SELECTION CRITERIA: Two authors independently screened studies for inclusion. Included studies were those conducted within a WHO Safe Community that reported changes in population injury rates within the community compared to a control community. DATA COLLECTION AND ANALYSIS: Two authors independently extracted data. Meta-analysis was not appropriate due to the heterogeneity of the included studies. MAIN RESULTS: We included evaluations for 21 communities from five countries in two geographical regions in the world: Austria, Sweden and Norway, and Australia and New Zealand. Although positive results were reported for some communities, there was no consistent relationship between being a WHO designated Safe Community and subsequent changes in observed injury rates. AUTHORS' CONCLUSIONS: There is marked inconsistency in the results of the studies included in this systematic review. While the frequency of injury in some study communities did reduce following their designation as a WHO Safe Community, there remains insufficient evidence from which to draw definitive conclusions regarding the effectiveness of the model.The lack of consistency in results may be due to the heterogeneity of the approaches to implementing the model, varying efficacy of activities and strategies, varying intensity of implementation and methodological limitations in evaluations. While all communities included in the review fulfilled the WHO Safe Community criteria, these criteria were too general to prescribe a standardised programme of activity or evaluation methodology.Adequate documentation describing how various Safe Communities implemented the model was limited, making it unclear which factors affected success. Where a reduction in injury rates was not reported, lack of information makes

it difficult to distinguish whether this was due to problems with the model or with the way in which it was implemented

Andelic N, Sigurdardottir S, Brunborg C, Roe C. Incidence of hospital-treated traumatic brain injury in the Oslo population. *Neuroepidemiology* 2008;30:120-8.
Abstract: BACKGROUND: The aim of this prospective, population-based study is to present the incidence of hospital-treated traumatic brain injury (TBI) in Oslo, Norway, and to describe the severity of brain injuries and outcome of the patients' acute medical care. METHODS: Data were obtained from hospital admission registers and medical records from May 2005 to May 2006. The initial severity of TBI was measured by the Glasgow Coma Scale. The region is urban with a population of 534,129. RESULTS: The 445 patients identified represent an annual incidence of 83.3/100,000. The median age was 29 years. The male:female ratio was 1.8:1.0. The highest incidence of TBI hospitalizations was found in the elderly males and the youngest children. The most common causes of TBI were falls (51%) and transport accidents (29.7%). Intracranial lesions were found more often in the elderly. The case fatality rate was 2.0/100 hospitalized patients and was highest in the elderly. CONCLUSIONS: The incidence of hospital-treated TBI in this study is considerably lower than that found in previous studies from Norway and Scandinavia. Despite the apparent decline in TBI hospitalization rates, **our findings should also draw attention to the need for more effective preventive programmes related to falls**. Studies that assess long-term consequences of TBI in elderly patients are also needed

Onarheim H, Guttormsen AB, Eriksen E. [Burn treated at the Haukeland University Hospital Burn Centre--20 years of experience]. *Tidsskr.Nor.Laegeforen.* 2008;128:1168-71.
Abstract: BACKGROUND: The Burn Centre at Haukeland University Hospital has had a national burn function since 1984. PATIENTS AND METHODS: The following data were reviewed: area injured, age, sex, length of stay, mortality and county of residence for all admissions in the period 1984-2004. RESULTS: 1294 acute admissions for burns, chemical injuries or high-voltage injuries were identified. 71% of the patients were male. The mean age was 29.6 years; 24% were below 3 years of age. The mean (SD) area of injury was 19.5 +/- 18.3 % of the body surface area. 458 patients (35%) had burns involving less than 10% of the body surface area. The mean length of hospitalisation was 19.5 +/- 19.8 days. 140 patients (10.8%) died before discharge; these had a significantly higher age and injured area than the 1154 survivors. Every year there were 2-3 patients who had such extensive burns or substantial comorbidity that they only received palliative treatment. The probability of survival after a burn affecting 60% of the body surface, was around 50 % for all ages combined. On average 1.17 patients per 100.000 inhabitants were transferred annually from other parts of Norway for specialized treatment at this burn centre. INTER-

PRETATION: Despite societal focus on burn prevention measures there has been no reduction in the number of patients transferred to the burn centre during the 20-year period

Kommentar: denne er tatt med for å peke på at brannskader forbruker store ressurser på sykehus. En må anta at mer innsats for å forebygge vil redusere antall brannskadde og dermed behovet for sykehusinnleggelse.

Rohde G, Haugeberg G, Mengshoel AM, Moum T, Wahl AK. Is global quality of life reduced before fracture in patients with low-energy wrist or hip fracture? A comparison with matched controls. *Health Qual Life Outcomes* 2008;6:90.

Abstract: BACKGROUND: The aims of the study were (i) to examine global quality of life (GQOL) before fracture in patients with low-energy wrist or hip fracture compared with an age- and sex-matched control group, and (ii) to identify relationships between demographic variables, clinical fracture variables, and health- and global-focused quality of life (QOL) prior to fracture. METHODS: Patients with a low-energy fracture of the wrist (n = 181) or hip (n = 97) aged >or= 50 years at a regional hospital in Norway and matched controls (n = 226) were included. The participants answered retrospectively, within two weeks after the fracture, a questionnaire on their GQOL before the fracture occurred using the Quality of Life Scale (QOLS), and health-focused QOL using the Short Form-36, physical component summary, and mental component summary scales. A broad range of clinical data including bone density was also collected. ANOVA and multiple linear regression analysis were used to analyse the data. RESULTS: Osteoporosis was identified in 59% of the hip fracture patients, 33% of the wrist fracture patients, and 16% of the controls. After adjusting GQOL scores and the three sub-dimensions for known covariates (sociodemographics, clinical fracture characteristics, and health-focused QOL), the hip patients reported significantly lower scores compared with the controls, except for the sub-dimension of personal, social, and community commitment (p = 0.096). Unadjusted and adjusted GQOL scores did not differ between the wrist fracture patients and controls. Sociodemographics (age, sex, education, marital status), clinical fracture variables (osteoporosis, falls, fracture group) and health-focused QOL explained 51.4% of the variance in the QOLS, 35.2% of the variance in relationship and marital well-being, 59.3% of the variance in health and functioning, and 24.9% of the variance of personal, social, and community commitment. CONCLUSION: The hip fracture patients had lower GQOL before the fracture occurred than did controls, even after adjusting for known factors such as sociodemographics, clinical variables and health-focused QOL. **The findings suggest that by identifying patients with low GQOL, in addition to other known risk factors for hip fracture, may raise the probability to target preventive health care activities**

Di Monaco M, Vallero F, De Toma E, De Lauso L, Tappero R, Cavanna A. A single home visit by an occupational therapist reduces the risk of falling after hip fracture in elderly women: A quasi-randomized controlled trial. *J Rehabil Med* 2008;40:446-50.

Abstract: Objective: To assess the effectiveness of a single home visit by an occupational therapist in the reduction of fall risk after hip fracture in elderly women. Design: Quasi-randomized controlled trial. Participants: Ninety-five women aged 60 years or older, living in the community, who sustained a fall-related hip fracture. Methods: The women were allocated alternately to intervention or control groups. All the women underwent a multidisciplinary programme targeted at fall prevention during inpatient rehabilitation. Additionally, the intervention group received a home visit by an occupational therapist a median of 20 days after discharge. Falls were recorded at a 6-month follow-up. Results: Thirteen of the 50 women in the control group sustained 20 falls during 9231 days, whereas 6 of the 45 women in the intervention group sustained 9 falls during 8970 days. After adjustment for observation periods, Barthel Index scores, and body height, a significantly lower proportion of fallers was found in the intervention group: the odds ratio was 0.275 (95% confidence interval 0.081-0.937, p=0.039). Conclusion: A single home visit by an occupational therapist after discharge from a rehabilitation hospital significantly reduced the risk of falling in a sample of elderly women following hip fracture.

Kommentar: Denne studien påviser ikke direkte reduksjon i sykehusinnleggelse, men data fra andre studier viser at ca 1av 10 fall hos eldre fører til sykehusinnleggelse.

Kirchhoff M, Bregnbak MJ, Backe H, Hendriksen C, Obel K. [Elderly's emergency department contacts following falls]. *Ugeskr.Laeger* 2008;170:3667-70.

Abstract: INTRODUCTION: The aim of this retrospective study was to quantify and characterize contacts to the acute emergency department due to fall accidents among elderly aged 65 years and above at H:S Hvidovre hospital in Copenhagen during a three-month period. Data on demographics, injuries and admission rates were collected along with follow-up data during the six months after the index contact. MATERIAL AND METHODS: Case records from patients aged 65 years and above seen in the emergency department from July 1st to September 30th 2001 were examined. Patients with documented falls as primary cause of contact were included. Via a central database the use of emergency department, admissions to hospital and mortality during the next six months were monitored. RESULTS: During the three-month period, 535 elderly persons (582 visits) were seen in the acute emergency department because of a fall. Of these 186 (32%) had a fracture. A total of 39% of the patients were admitted to hospital. Among the elderly who returned directly to their home from the emergency department, 37% had no planned appointment for follow-up in the social or health care system. The next six months saw 215 contacts to acute emergency departments and 444 hospital admissions (including

the first admission). The contacts and admissions generated 8,310 bed-days. The six-month mortality was 13%. CONCLUSION: The results document the frailty of a considerable proportion of the elderly who contact the acute emergency department because of a fall. About half of the elderly returning home directly from hospital have no planned follow-up. **A more structured assessment and collaboration between hospital and primary health care is needed in order to prevent further falls among the elderly**

Timonen L, Rantanen T, Mäkinen E, Timonen TE, Törmäkangas T, Sulkava R. Cost analysis of an exercise program for older women with respect to social welfare and healthcare costs: a pilot study. ***Scandinavian journal of medicine & science in sports*** **2008;18:783-9.**
Abstract: The aim of this study was to analyze social welfare and healthcare costs and fall-related healthcare costs after a group-based exercise program. The 10-week exercise program, which started after discharge from the hospital, was designed to improve physical fitness, mood, and functional abilities in frail elderly women. Sixty-eight acutely hospitalized and mobility-impaired women (mean age 83.0, SD 3.9 years) were randomized into either group-based (intervention) or home exercise (control) groups. Information on costs was collected during 1 year after hospital discharge. There were no differences between the intervention and control groups in the mean individual healthcare costs: 4381 euros (SD 3829 euros) vs 3539 euros (SD 3967 euros), P=0.477, in the social welfare costs: 3336 euros (SD 4418 euros) vs 4073 euros (SD 5973 euros), P=0.770, or in the fall-related healthcare costs: 996 euros (SD 2612 euros) vs 306 euros (SD 915), P=0.314, respectively. This exercise intervention, which has earlier proved to be effective in improving physical fitness and mood, did not result in any financial savings in municipal costs. These results serve as a pilot study and further studies are needed to establish the cost-effectiveness of this exercise intervention for elderly people

Kommentar: relativt store gjennomsnittsforskjeller, men stor variasjon i dataene, for små grupper til å konkludere. Ingen data direkte mht sykehusinnleggelse.

Nilsen P, Ekman R, Ekman DS, Ryen L, Lindqvist K. Effectiveness of community-based injury prevention. Long-term injury rate levels, changes, and trends for 14 Swedish WHO-designated Safe Communities. ***Accident; analysis and prevention*** **2007;39:267-73.**
Abstract: This study investigates the injury rate levels, changes, and trends between 1987 and 2002 for the 14 Swedish municipalities designated as WHO Safe Communities. The injury rate was defined as the number of injured patients discharged from hospital per 1000 persons. Injury rates were age standardised. Each municipality was compared with its respective municipality group, according to a classification of Sweden's 288 municipalities into nine groups based on numerous structural

parameters. The average injury rate levels for the 14 WHO-designated Safe Community municipalities ranged from 11.54 to 19.09 per 1000 population during the study period, which was defined as the time period during which a municipality's injury prevention program has been operational. Eleven of 14 municipalities had higher levels than their corresponding municipality groups. Five of the 14 municipalities "outperformed" their respective municipality groups and achieved a greater relative injury rate decrease during the study period. The trends for the 14 municipalities in relation to their municipality groups showed an inconsistent pattern, with only four municipalities exhibiting overall favourable trends for the study period

Kommentar: Måler ikke sykehusinnleggelse direkte, men skadefrekvens dokumenteres i forhold til antall utskrevet fra sykehus med skadediagnose.

Larsen ER, Mosekilde L, Foldspang A. Vitamin D and calcium supplementation prevents severe falls in elderly community-dwelling women: A pragmatic population-based 3-year intervention study. *Aging - Clinical and Experimental Research* 2005;17:125-32.
Abstract: Background and aims: We evaluated the effect of two programs for the prevention of falls leading to acute hospital admission in a population of elderly community-dwelling Danish residents. Methods: This was a factorial, pragmatic, intervention study. We included 9605 community-dwelling city residents aged 66+ years. We offered a prevention program consisting of a daily supplement of 1000 mg of elemental calcium as calcium carbonate and 400 IU (10 mug) of vitamin-D₃ to a total of 4957 participants. The remaining 5063 participants were offered home safety inspection with dietary and health advice, or no intervention. Results: The Calcium and Vitamin D program was followed by 50.3% and the Environmental and Health Program by 46.4%. According to a multivariate analysis including age, marital status and intervention program, female residents who followed the Calcium and Vitamin D Program **had a 12% risk reduction in severe falls** (RR 0.88; 95% CI 0.79-0.98; p<0.05; NNT 9). Conclusions: The present study supports the hypothesis that vitamin D and calcium supplementation prevent falls leading to acute hospitalization in community-dwelling elderly females in a northern European region known to be deficient in vitamin D.

Kommentar: Se også Gillespie et al under systematiske oversikter under
.

Slagpasienter
Rousseaux M, Daveluy W, Kozlowski R. Value and efficacy of early supported discharge from stroke units. *Ann Phys Rehabil Med* 2009;52:224-33.
Abstract: OBJECTIVES: The goal of early supported discharge (ESD) is to reduce the duration of in-patient care in stroke units (SUs) and to optimize the manage-

ment of pre- and post-discharge rehabilitation. Here, we report on and discuss ESD's effects on various outcome parameters in stroke patients. METHODS: Analysis of randomized, controlled studies and meta-analyses identified in the Medline and Cochrane databases. RESULTS: ESD interventions have been evaluated in more than 10 studies. Most of the included patients had suffered from mild or moderate strokes. Meta-analyses have shown that when compared with standard care, ESD has a positive effect on the risk of death or institutionalisation, death or dependence and participation in instrumental activities of daily living (iADL). In-patient hospitalization in the SU and the overall cost of care were significantly lower. Individual studies showed variability in the inclusion criteria, type of care, comparisons performed and conclusions drawn. ESD's superiority in terms of the risk of death or dependency was mainly reported in a Norwegian study and that in terms of iADL was reported in a Swedish study. There was no specific effect on functional impairment and personal ADL (pADL). DISCUSSION: This technique reduces the length of the in-patient stay and the overall cost of care while lowering the risk of death or institutionalisation and promoting participation in iADL. However, studies on this topic are heterogeneous.

Fjaertoft H, Indredavik B. [Cost-estimates for stroke]. *Tidsskr.Nor.Laegeforen.* 2007;127:744-7.
Abstract: BACKGROUND: The annual incidence of stroke in Norway is 15,000. The disease has tremendous health-related and economic consequences. The aim of this article is to give an overview of the cost implications of stroke. MATERIAL AND METHODS: The article is based on literature identified through searching the Medline and Cochrane databases, and analysis of our own stroke data at St. Olavs Hospital. Costs are presented in Norwegian kroner (NOK). RESULTS: The average cost during the first year after a stroke is 150,000-170,000 NOK, according to economic analyses of stroke trials in Trondheim and Swedish studies. The average lifetime cost is estimated to be NOK 600,000. Stroke-related total annual public costs are approximately 7 - 8 billion NOK. Acute stroke unit care, extended stroke unit service with early supported discharge and cooperation with the primary health care system seem to be the most effective methods of reducing costs and improving functional outcome after a stroke. INTERPRETATION: The cost of stroke is significant. Economic analyses of treatment strategies and care plans for stroke patients will help us to make the most of the resources at our disposal for the benefit of our patients

Pessah-Rasmussen H,.Wendel K. Early supported discharge after stroke and continued rehabilitation at home coordinated and delivered by a stroke unit in an urban area. *J Rehabil Med* 2009;41:482-8.
Abstract: Objective: To explore the characteristics and outcome of patients after stroke admitted to early supported discharge (ESD) services, and to investigate changes over time. Study populations: Patients admitted between June 1997 and September 1998 and participating in a follow-up study (n=87) and all patients admitted in 2005-06 (n=226). Background populations: All stroke cases in Malmo

alive 3 months after stroke in June 1997 to September 1998 (n=514) and 2005-06 (n=1353). Results: There were no differences in age, gender, proportion living alone or Katz Index distribution between the 2 study populations. The Katz Index improved between start and end of ESD (p<0.001). Patients admitted to ESD services did not differ from the background populations with regard to gender or age, but were less often living alone in 2005-06 (p=0.002). The mean duration of the ESD input was shorter in 2005-06 (p<0.001). In 1997-98 the participants were satisfied with most of the dimensions of care; the proportion of patients having activity limitations decreased during the first 6 months after stroke. Conclusion: The use of ESD was feasible in the routine setting of an urban stroke unit. The input of the ESD services per patient decreased over time, perhaps indicating an improvement in use of healthcare resources.

Kommentar: viser at rehablitering hjemme med oppfølging (som ikke er beskrevet i abstraktet) er like god som rehabilitering i institusjon etter slag.

Piron L, Turolla A, Agostini M, Zucconi C, Cortese F, Zampolini M *et al.* Exercises for paretic upper limb after stroke: A combined virtual-reality and telemedicine approach. *J Rehabil Med* 2009;41:1016-20.
Abstract: Objective: Telerehabilitation enables a remotely controlled programme to be used to treat motor deficits in post-stroke patients. The effects of this telerehabilitation approach were compared with traditional motor rehabilitation methods. Design: Randomized single-blind controlled trial. Patients: A total of 36 patients with mild arm motor impairments due to ischaemic stroke in the region of the middle cerebral artery. Methods: The experimental treatment was a virtual reality-based system delivered via the Internet, which provided motor tasks to the patients from a remote rehabilitation facility. The control group underwent traditional physical therapy for the upper limb. Both treatments were of 4 weeks duration. All patients were assessed one month prior to therapy, at the commencement and termination of therapies and one month post-therapy, with the Fugl-Meyer Upper Extremity, the ABILHAND and the Ashworth scales. Results: Both rehabilitative therapies significantly improved all outcome scores after treatment, but only the Fugl-Meyer Upper Extremity scale showed differences in the comparison between groups. Conclusion: Both strategies were effective, but the experimental approach induced better outcomes in motor performance. These results may favour early discharge from hospital sustained by a telerehabilitation programme, with potential beneficial effects on the use of available resources

Pasienter med kreft

Aabom B, Pfieffer P. Why are some patients in treatment for advanced cancer reluctant to consult their GP?

Scand J Prim Health Care. 2009;27(1):58-62

Objectives. To analyse cancer patients' views and perspectives on mechanisms and barriers to involving the GP in the late treatment phase of advanced cancer.
Design. Qualitative, semi-structured interview study of 16 patients with advanced cancer and their next of kin. Seven patients were re-interviewed after six months and three after 12 months.
Setting. Patients' home in Region South, Denmark.
Results. The cancer patients described how they developed a personal relationship with the staff at the cancer treatment centre. They also described some kind of dependability towards the hospital staff and therefore consulted the doctor or the staff at the cancer treatment centre before seeking advice from their GP. Some patients found that the GP was not familiar enough with the treatments given; others that they did not want to inconvenience the busy GP with what they perceived to be minor non-treatment-related matters. However, as the disease progressed they also described how they perceived unmet psychosocial needs. After ending chemotherapy,re-establishment of the contact between patient and GP was in this study dependent on a proactive attitude by the GP.
Conclusion. GPs are important for cancer patients' possibility of staying at home and dying at home. This study, however, shows that due to some patients' barriers special attention is needed to guarantee the switch over from the cancer treatment centre to home-based end-of-life care. This is increasingly important as cancer patients to a still larger extent receive hospital-based, active treatment until shortly before death.

Tolkning: kreftpasienter trenger litt ekstra hjelp til å bruke fastlegen etter å ha vært lenge under spesialistbehandling på sykehus – et system eller initiativ fra fastlegekontorets side foreslåes i denne studien. Det oppfattes som viktig at denne kontakten er på plass, fordi det øker kreftpasientenes mulighet til å forbli hjemme og dø i hjemmet.

Anvik T, Holtedahl KA, Mikalsen H. "When patients have cancer, they stop seeing me"--the role of the general practitioner in early follow-up of patients with cancer--a qualitative study. *BMC Fam Pract* 2006;7:19.

Abstract: BACKGROUND: The role of the general practitioner (GP) in cancer follow-up is poorly defined. We wanted to describe and analyse the role of the GP during initial follow-up of patients with recently treated cancer, from the perspective of patients, their relatives and their GPs. METHODS: One focus group interview with six GPs from the city of Bodo and individual interviews with 17 GPs from the city of Tromso in North Norway. Text analysis of the transcribed interviews and of free text comments in two questionnaires from 91 patients with cancer diagnosed between October 1999 and September 2000 and their relatives from Tromso. RESULTS: The role of the GP in follow-up of patients with recently treated cancer is discussed under five main headings: patient involvement, treating the cancer and treating the patient, time and accessibility, limits to competence, and the GP and the hospital

should work together. CONCLUSION: The GP has a place in the follow-up of many patients with cancer, also in the initial phase after treatment. Patients trust their GP to provide competent care, especially when they have more complex health care needs on top of their cancer. GPs agree to take a more prominent role for cancer patients, provided there is good access to specialist advice. **Plans for follow-up of individual patients could in many cases improve care and cooperation**. Such plans could be made preferably before discharge from in-patient care by a team consisting of the patient, a carer, a hospital specialist and a general practitioner. Patients and GPs call on hospital doctors to initiate such collaboration

Pasienter med gastrointestinale sykdommer

Johansson PA, Farup PG, Bracco A, Vandvik PO. How does comorbidity affect cost of health care in patients with irritable bowel syndrome? A cohort study in general practice. *BMC Gastroenterol* 2010;10:31.
Abstract: BACKGROUND: Irritable bowel syndrome (IBS) is associated with other disorders (comorbidity), reduced quality of life and increased use of health resources. We aimed to explore the impact of comorbidity on cost of health care in patients with IBS in general practice. METHODS: In this cohort study 208 consecutive patients with IBS (Rome II) were recruited. Sociodemographic data, IBS symptoms, and comorbidity (somatic symptoms, organic diseases and psychiatric disorders) were assessed at baseline. Based on a follow up interview after 6-9 months and use of medical records, IBS and non-IBS related health resource use were measured as consultations, hospitalisations, use of medications and alternative health care products and sick leave days. Costs were calculated by national tariffs and reported in Norwegian Kroner (NOK, 1 EURO equals 8 NOK). Multivariate analyses were performed to identify predictors of costs. RESULTS: A total of 164 patients (mean age 52 years, 69% female, median duration of IBS 17 years) were available at follow up, 143 patients (88%) had consulted their GP of whom 31 (19%) had consulted for IBS. Mean number of sick- leave days for IBS and comorbidity were 1.7 and 16.3 respectively ($p < 0.01$), costs related to IBS and comorbidity were 954 NOK and 14854 NOK respectively ($p < 0.001$). Age, organic diseases and somatic symptoms, but not IBS severity, were significant predictors for total costs. CONCLUSION: Costs for health resource use among patients with IBS in general practice were largely explained by comorbidity, which generated ten times the costs for IBS

Kommentar:Denne studien har ingen intervensjon, men beskriver hva som gir økt forbruk av tjenester/kostnader for pasientgruppen - lite data spesifikt på sykehusinnleggelse, har tatt dette med som del av kostnadsanalysen, selv om det står at sykehusinnleggelse er med

Tiltak for pasienter med lungesykdom – inklusive preventive tiltak

Goksor E, Amark M, Alm B, Gustafsson PM, Wennergren G. The impact of pre- and post-natal smoke exposure on future asthma and bronchial hyper-responsiveness. *Acta Paediatr.* 2007;96:1030-5.

Abstract: AIM: To analyse the impact of pre- and post-natal smoke exposure on asthma presence, bronchial hyper-responsiveness, airway function and active smoking in early adulthood. METHODS: We have prospectively studied 101 children hospitalized due to wheezing before the age of 2 years. The cohort was re-investigated at age 17-20 years and tested for airway function and bronchial hyper-responsiveness. Data on maternal smoking during pregnancy were obtained from the Swedish Medical Birth Register. RESULTS: There was a significant, independent correlation between both pre- and post-natal smoke exposure and asthma at age 17-20 years, OR 3.5 (1.1-11.3) and 3.4 (1.2-10.1), respectively. Maternal smoking during pregnancy was an independent risk factor for current bronchial hyper-responsiveness, OR 6.6 (1.2-35.5). Pre-natal smoke exposure seemed to negatively affect small airway function in early adulthood due to structural changes. Post-natal smoke exposure was independently associated with an increased risk of current smoking, OR 7.4 (1.6-35.2). CONCLUSION: In subjects hospitalized due to early wheezing, pre- and post-natal smoke exposure increase the risk of asthma in early adulthood. The connection between pre-natal smoke exposure and asthma appears to be mediated via the development of bronchial hyper-responsiveness. Smoke exposure in infancy is associated with an increased risk of active smoking in early adult age, which is in turn linked to current asthma

Kommentar: Antagelig gammelt nytt, men viktig i forhold til effektiv forebygging uansett

Kullberg E, Sj+Âgren P, Forsell M, Hoogstraate J, Herbst B, Johansson O. Dental hygiene education for nursing staff in a nursing home for older people. J.Adv.Nurs. 2010;66:1273-9.

Abstract: Aim. This paper is a report of a study evaluating the effect of a repeated education programme for nursing staff in a home for older people. Background. A strong relationship exists between oral infections and general health complications (especially aspiration pneumonia) among nursing home residents and hospitalized older people. Thus, nursing staff need to be educated in oral hygiene measures. Methods. Forty-three nursing home resident older people (12 men, 31 women, age range 69-99 years) were included in a dental hygiene and gingivitis evaluation using gingival bleeding scores and modified plaque scores. Evaluation was conducted before and 3 weeks after a repeated dental hygiene education for nursing staff at a nursing home in Sweden in 2008. Dental hygiene education had been given 1-Å5 years previously. Findings. Forty-one residents (12 men and 29 women) were available for evaluation after the repeated dental hygiene education (one died, one had had teeth extracted). There was a reduction in gingival bleeding scores (P < 0-À001), and in plaque scores (P < 0-À001). Conclusion. Repeated dental hygiene education improves the dental hygiene among nursing home resident older people.

In order to succeed it may be necessary to address attitudes and perceptions towards oral care in such a dental hygiene education programme for nursing staff. Improved oral hygiene contributes to reducing the incidence of healthcare-associated pneumonia among nursing home resident older people, and thus to reduced healthcare costs

Kommentar: tatt denne med her fordi det hevdes at tannhygiene har betydning for aspirasjon og lungeinfeksjoner spesielt.

Kupczyk M, Haahtela T, Cruz AA, Kuna P. Reduction of asthma burden is possible through national asthma plans. *Allergy: European Journal of Allergy and Clinical Immunology* 2010; 65:415-9.

Abstract: Despite increase in understanding of asthma patomechanisms the practical actions to lessen asthma burden in the communities are far behind of scientific knowledge. There are still reports of uderdiagnosis and poor treatment leading to repeated severe exacerbations, often demanding emergency care and hospitalisation, which cause most of the economic burden both for families and society. From the public health perspective, the key issue is to implement the best standards of care in every-day practice. The problems are different in high income compared to low- and middle-income countries, and the solutions have to be tailored to each country needs and resources. We present here examples from Finland, Poland and Brazil, to show that asthma burden can be reduced using varied strategies in quite different societal, economical and health care environments. The experience from those interventions confirms that regardless of the health care system and its coverage, a major change for the better can be achieved by local efforts, systematic planning and networking to implement the best asthma practice.

Pietinalho A, Kinnula VL, Sovijarvi ARA, Vilkman S, Saynajakangas O, Liippo K *et al*. Chronic bronchitis and chronic obstructive pulmonary disease. *Respir.Med*. 2007;101:1419-25.

Abstract: The Finnish National Prevention and Treatment Programme for Chronic Bronchitis and COPD, launched in 1998, has, to date, been running for 6 years (2003). The goals of this action programme were to reduce the incidence of COPD and the number of moderate and severe cases of the disease, and to reduce both the number of days of hospitalisation and treatment costs. A prevalent implementation of over 250 information and training events started. Health centres and pharmacies appointed a person in charge of COPD patients. In order to improve the cooperation between primary and specialised care, two thirds of hospital districts created local COPD treatment chains. The early diagnosis of COPD by spirometric examination was activated during the programme. Number of health centres with available spirometric services increased to 95%. Before the start of the programme, approximately 5-9% of the adult population had COPD. During the whole programme, the proportion of male and female smokers decreased from 30% to 26% and from 20% to 19%, respectively. **The total number of hospitalisation periods and days due to COPD decreased by 15% and 18%, respectively.** Both the number of

pensioners and daily sickness days due to COPD also decreased by 18%. Registered COPD induced deaths remained at their previous levels during the monitoring period, i.e. around 1000 deaths out of 5.2 millions annually. The measures recommended by the programme have been widely introduced but they need to be still more effective

Haahtela T, Tuomisto LE, Pietinalho A, Klaukka T, Erhola M, Kaila M *et al*. A 10 year asthma programme in Finland: major change for the better. *Thorax* 2006;61:663-70.

Abstract: BACKGROUND: A National Asthma Programme was undertaken in Finland from 1994 to 2004 to improve asthma care and prevent an increase in costs. The main goal was to lessen the burden of asthma to individuals and society. METHODS: The action programme focused on implementation of new knowledge, especially for primary care. The main premise underpinning the campaign was that asthma is an inflammatory disease and requires anti-inflammatory treatment from the outset. The key for implementation was an effective network of asthma-responsible professionals and development of a post hoc evaluation strategy. In 1997 Finnish pharmacies were included in the Pharmacy Programme and in 2002 a Childhood Asthma mini-Programme was launched. RESULTS: The incidence of asthma is still increasing, but the burden of asthma has decreased considerably. **The number of hospital days has fallen by 54%** from 110 000 in 1993 to 51 000 in 2003, 69% in relation to the number of asthmatics (n = 135 363 and 207 757, respectively), with the trend still downwards. In 1993, 7212 patients of working age (9% of 80 133 asthmatics) received a disability pension from the Social Insurance Institution compared with 1741 in 2003 (1.5% of 116 067 asthmatics). The absolute decrease was 76%, and 83% in relation to the number of asthmatics. The increase in the cost of asthma (compensation for disability, drugs, hospital care, and outpatient doctor visits) ended: in 1993 the costs were 218 million euro which had fallen to 213.5 million euro in 2003. Costs per patient per year have decreased 36% (from 1611 euro to 1031 euro). CONCLUSION: It is possible to reduce the morbidity of asthma and its impact on individuals as well as on society. Improvements would have taken place without the programme, but not of this magnitude

Lofdahl C-G, Tilling B, Ekstrom T, Jorgensen L, Johansson G, Larsson K. COPD health care in Sweden - A study in primary and secondary care. *Respir.Med*. 2010;104:404-11.

Abstract: Objectives: To map out-patients with Chronic Obstructive Pulmonary Disease (COPD) with special reference to patients suffering from acute exacerbations, and to describe COPD health care structure and process in Swedish clinical practice in a real life setting. Design: Retrospective, non-interventional, epidemiological survey. Setting: 141 hospital based out patient clinics (OPC, n = 30) and primary health care clinics (PC, n = 111) were included in the structure evaluation. Subjects: 1004 COPD diagnosed patients from 100 of the centres (OPC, n = 26) participated in the process evaluation. Methods: All Swedish OPC (n = 40) and a random sample of 180

PC were asked to answer a questionnaire regarding COPD care. In addition, data from 10 randomly selected patients with a documented COPD disease were analysed from the centres. Results: Spirometers were available at all OPCs and at 99% of the PCs. Spirometry had been performed in 52% of PC-patients and in 89% of OPC-patients during the last 2 years prior to the study. More severe patients, as judged by investigator and lung function data, were treated at OPCs than at PCs. Physiotherapists, occupational therapists and dieticians were available at >80% of centres. Exacerbation rate was higher at PCs without a specialized nurse, 2.2/year versus 0.9/year at centres with a specialized nurse. Conclusions: Special attention to COPD, marked by a specialised nurse in primary care improves the quality, as assessed by a lower number of exacerbations. The structure of COPD care in Sweden for diagnosed individuals seems satisfactory, but could be improved mainly through higher availability and educational activities.

Di Re L, Orsini A, Ferron F. Home long term oxygen therapy: Preliminary analysis of a service with a high degree of complexity and impact on hospitalization. *Rassegna di Patologia dell'Apparato Respiratorio* 2006;21:181-7. Abstract: Background: In Italy, the management of patients with chronic respiratory failure (CRF) treated at home with oxygen (compressed, liquid and concentrators) is done with different degrees of complexity: from a basic model that provides only home delivery of oxygen to a high complexity model that also provides further services (hi-tech devices, specialized nurses and physicians, etc.). Aims: The aim of this study is to determine whether a long-term oxygen therapy (LTOT) which also provides nursing care, chest physician's periodical check-up and high-tech home medical devices (LTOT High Profile), may reduce the hospitalization. Methods: Data collected from 242 subjects of Teramo area with COPD and CRF and provided with the High Profile LTOT over a 15 month period have been compared with data coming from a study of Ringbaek¹ (Denmark), also used by Cergas Bocconi² for an economical evaluation on LTOT costs, who investigated 246 patients, diagnosed COPD and CRF, before and after 10 months of LTOT basic profile (simple home oxygen delivering). Results: Over a 15 month period of the study, the hospitalization rate has been 0.4 per patient recruited. The percentage of patients who have been admitted at the hospital at least once was 18.6%. These results, in comparison with the sample enrolled by Ringbaek, show significantly lower values in accordance with the initial hypothesis. Conclusions: The effectiveness of LTOT (in terms of hospitalization rate) could be significantly increased if the LTOT basic profile (simple home oxygen delivering) is enriched by high tech tools (hardware and software) and sanitary specialized home care.

Casas A, Troosters T, Garcia-Aymerich J, Roca J, Hernandez C, Alonso A *et al*. Integrated care prevents hospitalisations for exacerbations in COPD patients. *Eur.Respir.J.* 2006;28:123-30.

Abstract: Hospital admissions due to chronic obstructive pulmonary disease (COPD) exacerbations have a major impact on the disease evolution and costs. The current authors postulated that a simple and well-standardised, low-intensity integrated care intervention can be effective to prevent such hospitalisations. Therefore, 155 exacerbated COPD patients (17% females) were recruited after hospital discharge from centres in Barcelona (Spain) and Leuven (Belgium). They were randomly assigned to either integrated care (IC; n = 65; age mean+/-sd 70+/-9 yrs; forced expiratory volume in one second (FEV(1)) 1.1+/-0.5 L, 43% predicted) or usual care (UC; n = 90; age 72+/-9 yrs; FEV(1) 1.1+/-0.05 L, 41% pred). The IC intervention consisted of an individually tailored care plan upon discharge shared with the primary care team, as well as accessibility to a specialised nurse case manager through a web-based call centre. **After 12 months' follow-up, IC showed a lower hospitalisation rate (1.5+/-2.6 versus 2.1+/-3.1) and a higher percentage of patients without re-admissions (49 versus 31%)** than UC without differences in mortality (19 versus 16%, respectively). In conclusion, this trial demonstrates that a standardised integrated care intervention, based on shared care arrangements among different levels of the system with support of information technologies, effectively prevents hospitalisations for exacerbations in chronic obstructive pulmonary disease patients

Saynajakangas O, Valmari P, Tuuponen T, Keistinen T. Trends in hospitalization for childhood asthma in Finland in 1996-2004. *Acta Paediatr.* 2007;96:919-23.
Abstract: AIM: To discuss trends based on data on all asthma-related admissions of children under 15 years of age. METHODS: retrospective analysis of records of the Finnish National Research and Development Centre for Welfare and Health in 1996-2004. The analysis was stratified for age. RESULTS: Out of the total of 23,715 such admissions, 66.8% involved boys. The number of all admissions for boys aged 0-under 3 years declined by 42.7% (relative to the child population) between 1996 and 2004, that for boys aged 3-under 5 years by 55.1% and that for boys aged 5-under 15 years by 59.0%, the figures for the corresponding age groups of girls being 53.0, 48.7 and 66.1%, respectively. The overall rate of first admissions for asthma among children (relative to population) declined by 36.8% during that period. CONCLUSIONS. The hospitalization of children for asthma has declined in Finland in recent times in all age and both sex groups. This favourable development coincides with the systematically programmed national shift into effective anti-inflammatory therapy in the paediatric age groups

Indinnimeo L, Bonci E, Capra L, La Grutta S, Monaco F, Paravati F *et al.* Clinical effects of a Long-term Educational Program for Children with Asthma - Aironet. *Pediatr.Allergy Immunol.* 2009;20:654-9.
Abstract: Educational self-management programs for children with asthma have now become a routine feature in the management of the disease, as international

guidelines underline. We designed this trial to find out whether Aironet , an educational program developed for children with asthma, influenced asthma severity and improved parents' knowledge of the disease. In a multicenter, prospective, randomized controlled trial we enrolled 123 children, 72 boys, mean age 8.78 yr (+/-2.33 s.d.), with intermittent or mild persistent asthma. Participants were randomly assigned to an education group, who received Aironet at baseline and 2 months later (60 children), or to a control group who did not (63 children). Follow-up lasted 12 months and included out-patient clinic visits and spirometry at 2, 4 and 12 months. At baseline and at 12 months follow-up, parents were questioned about their knowledge of asthma, and their children's asthmatic attacks, use of systemic corticosteroids, family physician or hospital emergency room visits, hospitalizations and asthma-related school absences. Questionnaire replies at 12-month follow-up reported **significantly fewer asthma attacks** in patients who received the program than in those who did not (1.65 +/- 1.21 vs. 2.34 +/- 1.73; p < 0.05). For the subgroup of children who had [greater-than or equal to]3 asthma attacks at baseline, parents' knowledge improved significantly more in the educational group than in the control group. The out-patient educational program Aironet reduces the number of asthma attacks in children with intermittent or mild persistent asthma and improves knowledge of the disease

Tiltak i forhold til pasienter med hjertesykdom

Bellman C, Hambraeus K, Lindback J, Lindahl B. Achievement of secondary preventive goals after acute myocardial infarction: a comparison between participants and nonparticipants in a routine patient education program in Sweden. *J.Cardiovasc.Nurs.* 2009;24:362-8.
Abstract: BACKGROUND: Modification of risk factors such as smoking, obesity, physical inactivity, and hypertension after acute myocardial infarction (AMI) has been shown to reduce mortality and morbidity. Therefore, most hospitals in Sweden invite patients with myocardial infarction to an educational program, the "Heart School," where they can learn about lifestyle changes. Whether this kind of education program applied in routine care increases the proportion of patients achieving secondary prevention goals is unknown. METHODS: A cohort of consecutive patients treated for AMI and included in a quality registry was followed up during 1 year. The main aim was to study the effects of taking part in the Heart School on smoking habits, blood pressure and low-density lipoprotein cholesterol levels, exercise habits, cardiac symptoms, quality of life, and **readmissions to hospital**. Patients included in the national quality register of secondary prevention after AMI who had participated in the educational program were compared with those who had not participated in the program. Achievements of secondary prevention goals 1 year after the myocardial infarction were evaluated. The study included 2,822 patients. RESULTS: The result showed that patients who participated in the Heart School stopped smoking more often than those who did not participate (adjusted odds ratio, 2.01; 95% confidence interval, 1.46-2.78). The Heart School had no ef-

fects on the other variables that were examined. CONCLUSION: The interventions currently used in the Swedish Heart School seem to be **insufficient** to obtain sustainable lifestyle changes, except for smoking cessation

Leetmaa TH, Villadsen H, Mikkelsen KV, Davidsen F, Haghfelt T, Videbaek L. Are there long-term benefits in following stable heart failure patients in a heart failure clinic? ***Scandinavian cardiovascular journal : SCJ*** **2009;43:158-62.**

Abstract: OBJECTIVES AND DESIGN: This study describes the long-term outcome of 163 patients with stable mild to moderate heart failure (NYHA II-III), who already were enrolled in a heart failure clinic and now were randomized to continued follow-up in the heart failure (HF) clinic or else to usual care (UC). The primary outcome was unplanned hospitalisations and death, the secondary endpoints were pharmacological therapy, NYHA class, six-minute-walking distances and NT-pro BNP level. RESULTS: At the end of follow-up we found no significant differences in total number of hospitalisation ($p = 0.2$) or mortality (16% vs. 16%) between the two groups. Patients in the HF clinic cohort achieved a significantly better NYHA score ($p < 0.01$), significantly longer walking-distances ($p = 0.04$) and received a significantly higher dose of angiotensin-converting enzyme inhibitors ($p < 0.001$) and beta-blockers ($p < 0.001$). No significant difference was found on the level of NT-pro BNP ($p = 0.4$). CONCLUSIONS: Patients with mild to moderate HF may benefit from long-term follow-up in a HF clinic in terms of pharmacological therapy and functional status, but we found no significant impact on unplanned hospitalisations or death.

Kommentar: Dette er nok en spesialistpoliklinikk, men det er ikke noe i veien for å lage spesialiserte poliklinikker i kommunal regi, derfor er den inkludert.

Forssell A,.Boman K. Experiences of home-based palliative care in patients suffering from severe chronic heart failure [Danish]. ***Nordic Journal of Nursing Research & Clinical Studies / V+Ñrd i Norden*** **2006;26:44-8**.

Abstract: This is a retrospective, pilot study of patients suffering from severe heart failure. The participants (n=43) were living in their own homes and treated by a multidisciplinary, home-based team for palliative care. Patients suffering from severe heart failure were a new group connected to this care organisation. The aims were to examine how the diagnosis was verified and to scrutinize the underlining cardiovascular disorders and the medical treatment. Furthermore to investigate the frequency of hospital readmission after vs. before the patients connection to the homecare team. The majority (81%) of the patients had had their diagnoses verified with echocardiography. Most of the patients (88%) were treated with an ACE-inhibitor or an angiotensin-II -receptor blocker, while 44% of the patients were prescribed a betareceptor-blocker. We found that patients were readmitted to the hospital significantly less often, after connection to the palliative homecare team. **The**

hospital readmission decreased during 0-90 days by -63% and in 0-180 days by -58%.

Holdgaard A, Johansen S, Gadsb+©ll N. Home-based care and treatment of patients with severe heart failure [Danish]. ***Sygeplejersken / Danish Journal of Nursing*** **2005;105:28-33.**

Abstract: A pilot project at the cardiology department of Bispebjerg Hospital in Copenhagen involving 12 patients has demonstrated that it is possible to care for and treat seriously cardiac insufficiency patients in their own homes. A specially trained nurse can, using a portable blood analysis device, visit 5-6 patients a day. In urban areas, modest expenditure on taxi fares is the only financial consideration. These selected patients preferred home visits to traditional outpatients check-ups. The patients involved in the project expressed great satisfaction with the treatment and were pleased not to have had to travel to hospital**. Several of the patients also avoided hospitalisation,** as it was possible to treat them with intravenous diuretics in the home. Close co-operation was established between home care and the relatives of several of the patients. in connection with the establishment of a permanent outgoing function, the responsibility and competences of the outgoing nurses should be described in detail. Co-operation and division of responsibility with partners in the primary sector should be clarified

Ballegaard S, Borg E, Karpatschof B, Nyboe J, Johannessen A. Long-term effects of integrated rehabilitation in patients with advanced angina pectoris: a nonrandomized comparative study. ***J.Altern.Complement.Med.*** **2004;10:777-83.**

Abstract: OBJECTIVES: An evaluation of Integrative Rehabilitation (IR) of patients with angina pectoris with respect to death rate, the need for invasive treatment, and cost effectiveness. DESIGN: A report from a clinical database. Death rates were compared to those of the general Danish population matched for age, gender, and observation period, as well as with data from the literature concerning medical and invasive treatments. SETTING: The treatment was carried out as an ambulatory treatment in a private clinic. SUBJECTS: One hundred and sixty-eight (168) patients with angina pectoris, of whom 103 were candidates for invasive treatment and 65 for whom this had been rejected. INTERVENTIONS: Integrated rehabilitation consists of acupuncture, a self-care program including acupressure, Chinese health philosophy, stress management techniques, and lifestyle adjustments. OUTCOME MEASURES: Death rate from any cause, the need for invasive treatment, and health care expenses. RESULTS: The 3-year accumulated risk of death was 2.0% (95% confidence limits: 0.0%-4.7%) for the 103 candidates for invasive treatment, 6.4% for the general Danish population, 5.4% (4.7%-6.1%), and 8.4% (7.7%-9.1%) for patients who underwent percutaneous transluminal balloon angioplasty and coronary artery bypass grafting, respectively, in New York. For the 65 inoperable patients the risk of death due to heart disease was 7.7% (3.9%-11.5%), compared to 16% (10%-34%) and 25% (18%-36%) for American patients, who were treated with laser revasculariza-

tion or medication, respectively. Of the 103 candidates for invasive treatment, only 19 (18%) still required surgery. Cost savings over 3 years were US 36,000 dollars and US 22,000 dollars for surgical and nonsurgical patients, respectively. These were mainly achieved by the **reduction in the use of invasive treatment and a 95% reduction in in-hospital days.** CONCLUSIONS: Integrated rehabilitation was found to be cost effective, and added years to the lives of patients with severe angina pectoris. The results invite further testing in a randomized trial

Tiltak i forhold til pasienter med diabetes mellitus

Gaede P, Valentine WJ, Palmer AJ, Tucker DM, Lammert M, Parving HH *et al*. Cost-effectiveness of intensified versus conventional multifactorial intervention in type 2 diabetes: results and projections from the Steno-2 study. *Diabetes Care* 2008;31:1510-5.

Abstract: OBJECTIVE: To assess the cost-effectiveness of intensive versus conventional therapy for 8 years as applied in the Steno-2 study in patients with type 2 diabetes and microalbuminuria. RESEARCH DESIGN AND METHODS: A Markov model was developed to incorporate event and risk data from Steno-2 and account Danish-specific costs to project life expectancy, quality-adjusted life expectancy (QALE), and lifetime direct medical costs expressed in year 2005 Euros. Clinical and cost outcomes were projected over patient lifetimes and discounted at 3% annually. Sensitivity analyses were performed. RESULTS: Intensive treatment was associated with increased life expectancy, QALE, and lifetime costs compared with conventional treatment. Mean +/- SD undiscounted life expectancy was 18.1 +/- 7.9 years with intensive treatment and 16.2 +/- 7.3 years with conventional treatment (difference 1.9 years). Discounted life expectancy was 13.4 +/- 4.8 years with intensive treatment and 12.4 +/- 4.5 years with conventional treatment. Lifetime costs (discounted) for intensive and conventional treatment were euro45,521 +/- 19,697 and euro41,319 +/- 27,500, respectively (difference euro4,202). Increased costs with intensive treatment were due to increased pharmacy and consultation costs. Discounted QALE was 1.66 quality-adjusted life-years (QALYs) higher for intensive (10.2 +/- 3.6 QALYs) versus conventional (8.6 +/- 2.7 QALYs) treatment, resulting in an incremental cost-effectiveness ratio of euro2,538 per QALY gained. This is considered a conservative estimate because accounting prescription of generic drugs and capturing indirect costs would further favor intensified therapy. CONCLUSIONS: From a health care payer perspective in Denmark, intensive therapy was more cost-effective than conventional treatment. Assuming that patients in both arms were treated in a primary care setting, intensive therapy became dominant (cost- and lifesaving)

Kommentar: kun totalte kostnader, ikke innleggelse i sykehus separat, mulig mer informasjon i selv artikkelen.

Tiltak i forhold til for tidlig fødte barn mv

Altman M, Vanpee M, Bendito A, Norman M. Shorter hospital stay for moderately preterm infants. *Acta Paediatr.* 2006;95:1228-33.
Abstract: AIM: To determine length of hospital stay (LOS) for moderately preterm infants during the last 20 years, and to identify factors affecting the number of bed-days. METHODS: Review of LOS for all infants delivered between 30 to 34 gestational weeks during 1983, 1988, 1993, 1998 and 2002. Exclusion criteria: life-threatening abnormalities, chromosomal anomalies and death during hospitalization. RESULTS: 564 included infants accounted for 20% of admissions and 48% of bed-days in the neonatal unit. Between 1983 and 2002, maternal age and use of nasal continuous positive airway pressure increased, use of antibiotics and mechanical ventilation decreased, whereas distributions for gestational age, birthweight, gender, smallness for gestational age, low Apgar score or incidence of respiratory distress syndrome did not change. For healthy inborn singletons discharged home, LOS decreased from 1983 (28+/-11 d, mean+/-SD values) to 2002 (14+/-7 d, $p<0.05$). Infants born more immature had longer LOS, but postconceptional age at discharge did not differ between age groups. CONCLUSION: LOS for moderately preterm infants has decreased as a result of individualized neonatal care and **organization of homecare support**. Shorter LOS is of benefit to the family, prevents overcrowding in the NICU and has important economic implications

Cattaneo A, Ronfani L, Burmaz T, Quintero-Romero S, Macaluso A, Di Mario S. Infant feeding and cost of health care: a cohort study. *Acta Paediatr.* 2006;95:540-6.
Abstract: AIM: To compare the use and cost of health care in infants with different feeding patterns. METHODS: Observational study on a cohort of 842 infants born in ten hospitals in northern Italy and followed up to age 12 months. Data on feeding gathered through telephone interviews with 24-hour recall. Data on use of health services reported by mothers and checked against records. Data on hospital cost derived from Disease Related Groups codes. Data on cost of other services obtained from maternal reports and available price lists. RESULTS: At three months, 56% of infants were fully breastfed, 17% complementary fed and 27% not breastfed. Infants fully breastfed at three months had 4.90 episodes of illness requiring ambulatory care and 0.10 hospital admissions per infant/year compared with 6.02 and 0.17, respectively, in infants not or not fully breastfed. They had also a lower cost of health care: 34.69 euro versus 54.59 per infant/year for ambulatory care, and 133.53 euro versus 254.03 per infant/year for hospital care. Higher cost of health care was significantly associated with having a hospital admission and being a twin; cost of health care decreased with each additional gram of birth weight, each month of delayed return of the mother to work after the third month, and each extra month of

breastfeeding. CONCLUSION: Lack of breastfeeding and higher use and cost of health care are significantly associated

Vaksiner

Bergsaker M, Hungnes O, Iversen B. [Vaccination against influenza--why, for whom and with which vaccine?]. *Tidsskr.Nor.Laegeforen.* 2006;126:2814-7.
Abstract: Every year, 5-10% of Norwegians become sick from influenza. Some groups, such as the elderly and the seriously ill, are at greater risk of contracting a serious form of influenza leading to complications and death. Annual influenza vaccination in such groups reduces the risk for pneumonia, **hospitalisation** and death. Vaccination of health care workers reduces the mortality rate among patients during the winter season. In Norway, around 900,000 persons belong to a group at risk and should be offered vaccination. In the winter of 2005/06, about 45% of these groups were vaccinated; the aim is 75% by 2010. Whether people get vaccinated or not depends much on their self-perceived need of vaccination. Health care workers play an important role in raising awareness of and spreading information about influenza and vaccination. Sending personal invitations and arranging mass vaccination days are effective in increasing the rate of vaccination

Bergman A, Hjelmgren J, Ortqvist A, Wisloff T, Kristiansen IS, Hogberg LD *et al*. Cost-effectiveness analysis of a universal vaccination programme with the 7-valent pneumococcal conjugate vaccine (PCV-7) in Sweden. *Scand.J.Infect.Dis.* 2008;40:721-9.
Abstract: The 7-valent pneumococcal conjugate vaccine (PCV-7) has proved to be highly effective against invasive pneumococcal disease and has also provided some protection against all-cause pneumonia and acute otitis media. The objective of this study was to evaluate the projected health benefits, costs and cost-effectiveness of vaccination with the 7-valent conjugated pneumococcal vaccine compared with no vaccination, in all infants in Sweden, taking herd immunity into account. A Markov model was used and a hypothetical birth cohort was simulated for a lifelong perspective. The results show that vaccination of 1 cohort **could potentially prevent** 9 cases of pneumococcal meningitis, 22 cases of pneumococcal septicaemia, 509 cases of hospitalized pneumonia, 7812 cases of acute otitis media, and 2.7 fatalities, among children 0-4 y of age and 6 episodes of pneumococcal meningitis and 167 cases of pneumococcal septicaemia among adults. The incremental cost per QALY and LY gained was estimated to Euro 29,200 and Euro 51,400, respectively. When herd immunity was accounted for, the cost per QALYand LY gained was estimated to Euro 5500 and Euro 6600, respectively. Thus, the health benefits of a national vaccination programmeme can be achieved within a 'moderate' or 'low' cost per QALY gained

Vila-Corcoles A, Ochoa-Gondar O, Llor C, Hospital I, Rodriguez T, Gomez A. Protective effect of pneumococcal vaccine against death by pneumonia in elderly subjects. *Eur.Respir.J.* 2005;26:1086-91.

Abstract: The present study assessed the effectiveness of the 23-valent pneumococcal polysaccharide vaccine to prevent pneumonia and death in older adults in a first-time report between January and December 2002. A prospective cohort study was conducted including all individuals>or=65 yrs of age assigned to one of eight primary care centres in Tarragona, Spain (n=11,241). The primary outcomes were community-acquired pneumonia (hospitalised or outpatient) and death from pneumonia. All pneumonias were validated by checking clinical records. The association between the pneumococcal vaccination and the risk of each outcome was evaluated by means of multivariate Cox proportional-hazard models, adjusted by age, sex, influenza vaccination status, comorbidity and immunological status. Pneumococcal vaccination did not alter the risk of hospitalisation from pneumonia (hazard ratio (HR): 0.80; 95% confidence interval (CI): 0.50-1.28) or overall pneumonia (HR: 0.86; 95% CI: 0.56-1.31), but the vaccine was associated with considerable reductions of death risk from pneumonia (HR: 0.28; 95% CI: 0.09-0.83). In conclusion, these results suggest that pneumococcal polysaccharide vaccine may not be effective in reducing the incidence of pneumonia, but may be able to diminish the severity of the infection. These findings support the effectiveness of the pneumococcal polysaccharide vaccine to prevent mortality caused by pneumonia in older adults, providing a new argument to recommend systematic vaccination in the elderly

Honkanen P, Laara E, Pyhala R, Kivela SL, Helena Makela P. Comparison of two vaccination programmes in preventing influenza-related hospitalization among the elderly during two consecutive seasons. *Scand.J.Infect.Dis.* 2006;38:506-11.

Abstract: The protective effect of influenza vaccine against influenza related hospitalization is well established at an individual level, but the effect of vaccination programme at the population level is unknown. In this study we compared a risk disease-based free-of-charge influenza vaccination programme in preventing hospitalizations due to influenza or pneumonia and cardiovascular diseases during 2 consecutive influenza seasons 1992/93 and 1993/94 in 43 municipalities in northern Finland. Vaccinations were carried out and reported by local staff in health centres. Data of hospital treatment periods were obtained from the National Hospital Discharge Register. During the influenza seasons the number of hospitalizations due to cardiovascular diseases and influenza/pneumonia increased by 13%. In the 1993/1994 season the increase in the study area with the risk disease-based vaccination programme was 22 per 1000 persons (95% CI 19-24), and with an age-based programme 3.3 per 1000 persons (95% CI 2.5-4.0), while the increase in the 1992/1993 season in both areas was 3-4 per 1000. The excess of hospitalization related to influenza epidemics is mostly due to cardiovascular diseases and varies from y to y, as do the benefits gained by vaccination

Salo H, Kilpi T, Sintonen H, Linna M, Peltola V, Heikkinen T. Cost-effectiveness of influenza vaccination of healthy children. *Vaccine* 2006;24:4934-41.

Abstract: Influenza vaccination of children 6-23 months of age is recommended in the United States and Canada because of high rates of influenza-associated hospitalisations, but few other countries have adopted similar policies. Most children with influenza are treated in the primary care setting, and the cost-effectiveness of influenza vaccination of children has not been fully established. We used a decision analysis model to assess the cost-effectiveness of influenza vaccination of children 6 months to 13 years of age in Finland. The analyses were based on comprehensive clinical data on virologically confirmed influenza infections, hospital medical records, and national registers. We estimated the impact of influenza on outpatient and hospitalised children and their families, and performed the analyses from the health care provider and societal perspective. Influenza vaccination resulted in savings in all programs including children [less-than or equal to]13 years of age from both the health care provider and societal perspective. Investing 1.7 million euros in vaccination of children <5 years of age yielded savings of 2.7 million euros in health care costs. From the health care provider perspective, the savings per vaccinated child ranged between 5.7 and 12.6 euros in any program including children up to 13 years of age. The vaccination was cost saving in all age groups even with assumed vaccine efficacy of 60%. The results show that influenza vaccination would be cost saving in all children [less-than or equal to]13 years of age in Finland, which advocates reconsideration of the current influenza vaccine recommendations in all countries

Nohynek H, Salo H, Renko M, Leino T. Finland introduces rotavirus vaccine into the national vaccination programme in September 2009. *Euro Surveill* 2009;14.

Abstract: Supported by an economic evaluation, rotavirus vaccine is introduced into the national immunisation schedule in Finland. The vaccination programme has been estimated to be reasonably cost-effective. Given at the age of two, three and five months, the vaccine is expected to prevent annually in Finland among children under the age of five years approximately 2,000 rotavirus diarrhoea episodes needing hospitalisation, and over 10,000 outpatient visits. The impact of the programme will be evaluated in 2011 by repeating the economic analysis and carefully monitoring adverse events

Andre tiltak:

von Bonsdorff MB, Rantanen T, Leinonen R, Kujala UM, Tormakangas T, Manty M *et al*. Physical activity history and end-of-life hospital and long-term care. *J Gerontol A Biol Sci Med Sci* 2009;64:778-84.

Abstract: BACKGROUND: Little is known about the early predictors of need for care

in late life. The purpose of this study was to investigate whether physical activity from midlife onward was associated with hospital and long-term care in the last year of life. METHODS: We studied a decedent population of 846 persons aged 66-98 years at death, who, on average 5.8 years prior to death, had participated in an interview about their current and earlier physical activity. Data on the use of care in the last year of life are register-based data and complete. RESULTS: Men needed on average 96 days (SD 7.0) and women 138 days (SD 6.2) of inpatient care in the last year of life. Among men, the risk for all-cause hospital care in the last year of life was higher for those who had been sedentary since midlife (adjusted incidence rate ratio [IRR] 1.98, 95% confidence interval [CI] 1.14-3.42) compared with those who had been consistently physically active, whereas use of long-term care did not correlate with physical activity history. Among women, the risk for long-term care was higher for those who had been sedentary (IRR 2.03, 95% CI 1.28-3.21) or only occasionally physically active (IRR 1.60, 95% CI 1.06-2.43), than for those who had been consistently active from midlife onward, whereas use of hospital care did not correlate with physical activity history. CONCLUSION: People who had been physically active since midlife needed less end-of-life inpatient care but patterns differed between men and women

Beijer U,.Andreasson S. Physical diseases among homeless people: gender differences and comparisons with the general population. *Scand J Public Health* 2009;37:93-100.

Abstract: AIM: To study morbidity amongst homeless men and women by comparing prevalence of hospital care for somatic diseases and injuries with a control group of men and women from the general population. METHODS: A cohort of 1,364 men and 340 women were documented as homeless in 1996. Comparisons are made concerning hospital care for somatic diseases and injuries (1996-2002) among 3,750 men and 1,250 women from the general population. RESULTS: The relative risk (RR) for homeless men and women of being hospitalised was double that of the men and women in the controls (1.93 and 1.96 respectively). Homeless women had a slightly, not significant, increased risk compared to homeless men (RR 1.10). Younger homeless women had a significant higher risk. Among diagnostic categories, the highest prevalence was found among homeless men in the diagnosis group injury/poisoning (22%). The highest risk was found for skin diseases (RR 36.96) and concerned homeless women. There were a number of gender specific diagnoses, where risks were considerably elevated, such as diseases of the genital organs, viral hepatitis, and poisoning for homeless women, and cerebrovascular diseases, diseases of the liver, and concussion for homeless men. CONCLUSIONS: Homeless people had twice the risk of being hospitalised for physical diseases compared to the general population. Younger women were particularly at risk compared to homeless men and to women in the controls. There were a number of gender specific diagnoses that are important to take into account when planning services for homeless people

Kommentar: kan ikke med dette vise at det å skaffe bolig mv vil redusere behov for sykehusinnleggelse, men peker i den retningen.

Jarl J, Gerdtham UG, Lyttkens CH, Lithman T, Merlo J. The Danish effect on Swedish alcohol costs. *Eur J Health Econ* 2006;7:46-54.
Abstract: This study investigated: (a) the cost and change in hospitalizations related to alcohol misuse for the healthcare sector and (b) the effect of distance to the border on alcohol-related hospitalization costs. The first objective was analyzed using descriptive statistics and the second using ordinary least squares regression on aggregated municipality data. The total cost decreased marginally during the study period while the number of patient-cases decreased substantially, presenting evidence of a substitution towards outpatient care. The increase in average treatment cost and the almost constant total cost provide evidence for a societal increase in the burden of alcohol-related diseases. We found a negative effect for distance to Denmark on alcohol-related hospitalization cost for the year 2003. The effect was smaller for 1998, suggesting that the increase in private import quotas during the study period has affected individuals' consumption level and/or consumption pattern. We also found indications that the increase in import quotas lead to a higher cost increase for heavy consumers than for low consumers

Systematiske oversikter:

Organisatoriske tiltak:
Forster A, Young J, Lambley R, Langharne P. Medical day hospital care for the elderly versus alternative forms of care
Cochrane Database of Systematic Reviews 2008, issue 4, art no CD001730
Result related to hospital use:
"When resource use was examined, the day hospital group showed trend towards reductions in hospital bed use and placement of survivors in institutional care. ."

Ali W, Rasmussen P. What is the evidence for the effectiveness of managing the hospital/community interface for older people? NZHTA Report 2004, vol7, no 1.
Resultater i forhold til innleggelse på sykehus:
"Evidence support intervention programmes to reduce and prevent falls".
"Various case-management modlese including a post acute care program, a short-term case management by an advanced practice nurse, an integrated community care program, case managers for patients discharged from hospitals and integrated home care program guided by case manager generally showed benefits to patients in the outcomes assessed."

Hughes SL, Ulasevich A, Weaver FM, Henderson W, Manheim L, Kubal JD, Bonarigo F. Impact of home care on hospital days: a meta analysis. HSR: Health services research 1997; 32;4: 415-431
Resultater i forhold til sykehusinnleggelse:
"Although effect sizes were small to moderate, the consistent pattern of reduced hospital days across a majority of studies suggest…that home care has a significant impact on this costly outcome"

Medikamenter/farmasøyt
Holland R, Desborough J, Goodyer L, Hall S, Wright D, Loke YK. Does pharmacist-led medication review help to reduce hospital admissions and deaths in older people? A systematic review and meta-analysis. Br J Clin Pharmacol 2008; 65(3): 303-316.
Resultater i forhold til innleggelse på sykehus:
"Pharmacist-led medication reveiw interventions do not have any effect on reducing mortality or hospital admission in older people, and can not be assumed to provide substantial clinical benefit".

Tiltak for pasienter med psykiske sykdommer:
Burns T, Catty J, Dash M, Roberts C, Lockwood A, Marshall M. Use of intensive case management to reduce time in hospital in people with severe mental illness: systematic review and meta-regression. BMJ 2007, 335(7615):336.
Resultater i forhold til innleggelse på sykehus:
"Intensive case management works best when participants tend to use a lot of hospital care and les well when they do not. When hospital use is high, intensive case management can reduce it, but it is less successful when hospital use is already low. The benefits of intensive case management might be marginal in settings that have already achieved low rates og bed use, and team organization is more important than the details of staffing. It might not be necessary to apply the full model of assertive community treatment to achieve reductions in inpatient care"

Marshall M,.Lockwood A. Assertive community treatment for people with severe mental disorders. Cochrane Database of Systematic Reviews 1998;CD001089.
Main results
ACT versus standard community care
Those receiving ACT were more likely to remain in contact with services than people receiving standard community care (OR 0.51, 99%CI 0.37-0.70). People allocated to ACT were less likely to be admitted to hospital than those receiving standard community care (OR 0.59, 99%CI 0.41-0.85) and spent less time in hospital. In terms of clinical and social outcome, significant and robust differences between ACT and standard community care were found on i. accommodation status, ii. employ-

ment and iii. patient satisfaction. There were no differences between ACT and control treatments on mental state or social functioning. ACT invariably reduced the cost of hospital care, but did not have a clear cut advantage over standard care when other costs were taken into account.
ACT versus hospital-based rehabilitation services
Those receiving ACT were no more likely to remain in contact with services than those receiving hospital-based rehabilitation, but confidence intervals for the odds ratio were wide. People getting ACT were significantly less likely to be admitted to hospital than those receiving hospital-based rehabilitation (OR 0.2, 99%CI 0.09-0.46) and spent less time in hospital. Those allocated to ACT were significantly more likely to be living independently (OR (for not living independently) 0.19, 99%CI 0.06-0.54), but there were no other significant and robust differences in clinical or social outcome. There was insufficient data on costs to permit comparison.
ACT versus case management
There were no data on numbers remaining in contact with the psychiatric services or on numbers admitted to hospital. People allocated to ACT consistently spent fewer days in hospital than those given case management. There was insufficient data to permit robust comparisons of clinical or social outcome. The cost of hospital care was consistently less for those allocated to ACT, but ACT did not have a clear cut advantage over case management when other costs were taken into account.**Authors' conclusions:**ACT is a clinically effective approach to managing the care of severely mentally ill people in the community. ACT, if correctly targeted on high users of in-patient care, can substantially reduce the costs of hospital care whilst improving outcome and patient satisfaction. Policy makers, clinicians, and consumers should support the setting up of ACT teams.

Morriss R, Faizal MA, Jones AP, Williamson PR, Bolton CA, McCarthy JP. Interventions for helping people recognise early signs of recurrence in bipolar disorder. Cochrane Database of Systematic Reviews 2007;CD004854.

AbstractBackgroundRecurrence rates for bipolar disorder are high despite effective treatments with mood stabiliser drugs. Self-help treatments and psychological treatments that teach patients to recognise and manage early warning symptoms and signs (EWS) of impending manic or depressive episodes are popular with patients. The main aim of such interventions is to intervene early and prevent bipolar episodes, thereby increasing the time to the next recurrence and preventing hospitalisation.**Objectives**To compare the effectiveness of an EWS intervention plus treatment as usual (TAU) versus TAU (involving and not involving a psychological therapy) on time to manic, depressive and all bipolar episodes (the primary outcome), hospitalisation, functioning, depressive and manic symptoms.**Main results**Eleven RCTs were identified, but only six provided primary outcome data. All six RCTs were of high quality. Time to first recurrence of any type (RE, hazards ratio

0.57, 95% CI 0.39 to 0.82), time to manic/hypomanic episode, time to depressive episode, and percentage of people hospitalised and functioning favoured the intervention group. Neither depressive nor hypomanic symptoms differed between intervention and control groups.**Authors' conclusions**This review shows a beneficial effect of EWS in time to recurrence, percentage of people hospitalised and functioning in people with bipolar disorder. However, the absence of data on the primary outcome measure in so many included studies is a source of concern and a potential source of bias. Mental health services should consider routinely providing EWS interventions to adults with bipolar disorder, as they appear to reduce hospitalisation and therefore may be cost-effective

Forebygge fall og andre skader

Gillespie LD, Robertson MC, Gillespie WJ, Lamb SE, Gates S, Cumming RG, Rowe BH. Interventions for preventing falls in older people living in the community. ***Cochrane Database of Systematic Reviews*** **2009, Issue 2. Art.** No.: CD007146. DOI: 10.1002/14651858.CD007146.pub2.
Abstract.Background. Approximately 30% of people over 65 years of age living in the community fall each year. **Objectives:** To assess the effects of interventions to reduce the incidence of falls in older people living in the community. **Search strategy:**We searched the Cochrane Bone, Joint and Muscle Trauma Group Specialised Register, CENTRAL (*The Cochrane Library* 2008, Issue 2), MEDLINE, EMBASE, CINAHL, and Current Controlled Trials (all to May 2008).**Selection criteria:**Randomised trials of interventions to reduce falls in community-dwelling older people. Primary outcomes were rate of falls and risk of falling.**Data collection and analysis:**Two review authors independently assessed trial quality and extracted data. Data were pooled where appropriate. **Main results:**We included 111 trials (55,303 participants).Multiple-component group exercise reduced rate of falls and risk of falling (rate ratio (RaR) 0.78, 95%CI 0.71 to 0.86; risk ratio (RR) 0.83, 95%CI 0.72 to 0.97), as did Tai Chi (RaR 0.63, 95%CI 0.52 to 0.78; RR 0.65, 95%CI 0.51 to 0.82), and individually prescribed multiple-component home-based exercise (RaR 0.66, 95%CI 0.53 to 0.82; RR 0.77, 95%CI 0.61 to 0.97).Assessment and multifactorial intervention reduced rate of falls (RaR 0.75, 95%CI 0.65 to 0.86), but not risk of falling. Overall, vitamin D did not reduce falls (RaR 0.95, 95%CI 0.80 to 1.14; RR 0.96, 95%CI 0.92 to 1.01), but may do so in people with lower vitamin D levels. Overall, home safety interventions did not reduce falls (RaR 0.90, 95%CI 0.79 to 1.03; RR 0.89, 95%CI 0.80 to 1.00), but were effective in people with severe visual impairment, and in others at higher risk of falling. An anti-slip shoe device reduced rate of falls in icy conditions (RaR 0.42, 95%CI 0.22 to 0.78).Gradual withdrawal of psychotropic medication reduced rate of falls (RaR 0.34, 95%CI 0.16 to 0.73), but not risk of falling. A prescribing modification programme for primary care physicians significantly reduced risk of falling (RR 0.61, 95%CI 0.41 to 0.91). Pacemakers reduced rate of falls in people with carotid sinus hypersensitivity (RaR 0.42, 95%CI 0.23 to 0.75). First eye cataract surgery reduced rate of falls (RaR 0.66, 95%CI 0.45

to 0.95).
There is some evidence that falls prevention strategies can be cost saving.
Authors' conclusions
Exercise interventions reduce risk and rate of falls. Research is needed to confirm the contexts in which multifactorial assessment and intervention, home safety interventions, vitamin D supplementation, and other interventions are effective.

McClure RJ, Turner C, Peel N, Spinks A, Eakin E, Hughes K. Population-based interventions for the prevention of fall-related injuries in older people. ***Cochrane Database of Systematic Reviews*** **2005;CD004441.**
Abstract. Background: Fall-related injuries are a significant cause of morbidity and mortality in older populations. Summary information about countermeasures that successfully address the risk factors for fall-related injuries in research settings has been widely disseminated. However, less available is evidence-based information about successful roll out of these countermeasures in public health programmes in the wider community. Population-based interventions in the form of multi-strategy, multi-focused programmes are hypothesised to result in a reduction in population-wide injury rates. This review tests this hypothesis with regard to fall-related injuries among older people.**Objectives**To assess the effectiveness of population-based interventions, defined as coordinated, community-wide, multi-strategy initiatives, for reducing fall-related injuries among older people.**Main results**Out of 35 identified studies, six met the criteria for inclusion. There were no randomised controlled trials. Significant decreases or downward trends in fall-related injuries were reported in each of the included studies, with the relative reduction in fall-related injuries ranging from 6% to 33%.**Authors' conclusions**Despite methodological limitations of the evaluation studies reviewed, the consistency of reported reductions in fall-related injuries across all programmes support the preliminary claim that the population-based approach to the prevention of fall-related injury is effective and can form the basis of public health practice. Randomised, multiple community trials of population-based interventions are indicated to increase the level of evidence in support of the population-based approach. Research is also required to elucidate the barriers and facilitators in population-based interventions that influence the extent to which population programmes are effective

Dinh-Zarr TB, Goss CW, Heitman E, Roberts IG, DiGuiseppi C. Interventions for preventing injuries in problem drinkers. ***Cochrane Database of Systematic Reviews*** **2004;CD001857**
Main results: Of 23 eligible trials identified, 22 had been completed and 17 provided results for relevant outcomes. Completed trials comparing interventions for problem drinking to no intervention reported reduced motor-vehicle crashes and related injuries, falls, suicide attempts, domestic violence, assaults and child abuse, alcohol-related injuries and injury emergency visits, hospitalizations and deaths. Reductions ranged from 27% to 65%. Because few trials were sufficiently large to

assess effects on injuries, individual effect estimates were generally imprecise. We did not combine the results quantitatively because the interventions, patient populations, and outcomes were so diverse. The most commonly evaluated intervention was brief counseling in the clinical setting. This was studied in seven trials, in which injury-related deaths were reduced: relative risk (RR) 0.65; 95% confidence interval (CI) 0.21 to 2.00. However, this reduction may have been due to chance. The majority of trials of brief counseling also showed beneficial effects on diverse non-fatal injury outcomes. **Authors' conclusions:** Interventions for problem drinking appear to reduce injuries and their antecedents (e.g. falls, motor vehicle crashes, suicide attempts). Because injuries account for much of the morbidity and mortality from problem drinking, larger studies are warranted to evaluate the effect of treating problem drinking on injuries.

Astma/KOLS:

Tapp S, Lasserson TJ, Rowe BH. Education intervention for adults who attend the emergency room for acute asthma. Cochrane Database of Systematic Reviews 2007, issue 3, art no CD003000

Resultater i forhold til innleggelse på sykehus:

Pasienter som presenterer seg med astma-forverrelse i en akutt setting (inkluderte studier med pasienter fra mottak på sykehus og fra legevaktsetting) som fikk en eller annen type opplæring i etterkant, hadde signifikant redusert sykehusinnleggelser (RR 0,50, 95% confidens intervall 0,27 – 0,92), og hadde en ikke-signifikant reduksjon av å oppsøke akutt mottak eller legevakt (RR 0,69, 95% confidens intervall 0,40 – 1,21).

Puhan M, Scharplatz M, Troosters T, Walters E. Haydn, Steurer Johann. Pulmonary rehabilitation following exacerbations of chronic obstructive pulmonary disease. Cochrane Database of Systematic Reviews 2009;CD005305.

Evidence from small studies of moderate methodological quality suggests that pulmonary rehabilitation is a highly effective and safe intervention to reduce hospital admissions and mortality and to improve health-related quality of life in COPD patients after suffering an exacerbation

Effing T, Monninkhof Evelyn EM, Valk Paul PDLP, Zielhuis Gerhard GA, Walters E. Haydn, van der Palen Job J, Zwerink Marlies. Self-management education for patients with chronic obstructive pulmonary disease. *Cochrane Database of Systematic Reviews* 2007;CD002990.

It is likely that self-management education is associated with a reduction in hospital admissions with no indications for detrimental effects in other outcome parameters. This would in itself already be enough reason for recommending self-management education in COPD. However, because of heterogeneity in interventions, study populations, follow-up time, and outcome measures, data are still insufficient to formulate clear recommendations regarding the form and contents of self-

management education programmes in COPD. There is an evident need for more large RCTs with a long-term follow-up, before more conclusions can be drawn.

Diabetes:

Polisena J, Tran K, Cimon K, Hutton B, McGill S, Plamer K. Home thelehealth for diabetes management: a systematic review and meta-analysis. Diabetes, Obesity and Metabolism 2009; 11: 913-930.

Resultater i forhold til innleggelse på sykehus:
26 studier og 5069 pasienter inkludert. Hjemme-telemonitorering av pasienter med diabetes reduserte antall pasienter innlagt, antall sykehusinnleggelser og antall liggedøgn i sykehus. Eksempler på hjemme-telemonitorering var videokonferanser, telefonkonferanser eller telefonsamtaler, innsending av data eller videopptak pr epost eller over internett. Monitoreringen ble utført av allmennlege, diabetessykepleier på legekontor eller av diabetesklinikk på sykehus.

Andre tiltak - **Ernæring**

Milne AC, Potter J, Vivanti A, Avenell A. Protein and energy supplementation in elderly people at risk from malnutrition. *Cochrane Database of Systematic Reviews* 2009;CD003288.

Fant ingen forskjell på lengde på sykehusopphold ved protein og energi-supplement for hjemmeboende eldre.

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Vedlegg 1 – søkestrategi

CENTRAL

#1 MeSH descriptor Inpatients, this term only
#2 MeSH descriptor Hospitalization, this term only
#3 MeSH descriptor Patient Admission, this term only
#4 MeSH descriptor Patient Readmission, this term only
#5 MeSH descriptor Patient Discharge, this term only
#6 MeSH descriptor Patient Transfer, this term only
#7 MeSH descriptor Length of Stay, this term only
#8 MeSH descriptor Adolescent, Hospitalized, this term only
#9 MeSH descriptor Child, Hospitalized, this term only
#10 (inpatient* or hospital NEXT patient* or hospital NEXT stay or hospital NEXT care or hospitaliz* or hospitalis* or rehospitaliz* or rehospitalis* or "hospital based" or "length of stay" or stay NEXT length* or "hospital days" or "bed days"):ti,ab,kw
#11 hospital* NEAR/3 (admit* or admission* or readmission* or discharg* or transfer*):ti,ab,kw
#12 patient* NEAR/3 (admit* or admission* or readmission* or discharg* or transfer*):ti,ab,kw
#13 (#1 OR #2 OR #3 OR #4 OR #5 OR #6 OR #7 OR #8 OR #9 OR #10 OR #11 OR #12)
#14 MeSH descriptor Outpatients, this term only
#15 MeSH descriptor Primary Health Care, this term only
#16 MeSH descriptor Community Health Services explode all trees
#17 MeSH descriptor Ambulatory Care explode all trees
#18 MeSH descriptor Halfway Houses, this term only
#19 MeSH descriptor Nursing Homes, this term only
#20 MeSH descriptor Intermediate Care Facilities, this term only
#21 MeSH descriptor Ambulatory Care Facilities, this term only
#22 (outpatient* or out NEXT patient* or outward NEXT patient* or out NEXT ward NEXT patient* or primary NEXT health* or primary NEXT care or ambulatory NEXT care or ambulatory NEXT healthcare or ambulatory NEXT health NEXT care or community or communities or home* or domestic or domicile or domiciliary or intermediate NEXT care or intermediate NEXT healthcare or intermediate NEXT health NEXT care or telehealth or tele NEXT health or telemedicine or tele NEXT medicine):ti,ab,kw

#23 (#14 OR #15 OR #16 OR #17 OR #18 OR #19 OR #20 OR #21 OR #22)
#24 MeSH descriptor Scandinavia explode all trees
#25 MeSH descriptor Finland, this term only
#26 MeSH descriptor Iceland, this term only
#27 (nordic NEXT countr* or scandinavia or norway or sweden or denmark or finland or iceland):ti,ab,kw
#28 (scandinavian or norwegian or swedish or danish or finnish or icelandic):ti,ab,kw
#29 (#24 OR #25 OR #26 OR #27 OR #28)
#30 MeSH descriptor Delivery of Health Care, Integrated, this term only
#31 (integrated NEXT care or integrated NEXT healthcare or integrated NEXT health NEXT care or integrated NEXT delivery):ti,ab,kw
#32 (#30 OR #31)
#33 (#13 AND #23 AND #29)
#34 (#32 AND #29)
#35 (#33 OR #34)
#36 (#35), from 2005 to 2010)

MEDLINE In-Process & Other Non-Indexed Citations

1. (inpatient? or hospital patient? or hospital care or hospitaliz* or hospitalis* or rehospitaliz* or rehospitalis* or hospital based or length of stay or stay length? or hospital stay or hospital days or bed days).tw.
2. ((hospital? or patient?) adj3 (admit* or admission? or readmission? or discharg* or transfer*)).tw.
3. or/1-2
4. (outpatient? or out patient? or outward patient? or out ward patient? or primary health* or primary care or ambulatory care or ambulatory healthcare or ambulatory health care or community or communities or home* or domestic or domicile or domiciliary or intermediate care or intermediate healthcare or intermediate health care or telehealth or tele health or telemedicine or tele medicine).tw.
5. (nordic countr* or scandinavia or norway or sweden or denmark or finland or iceland).tw.
6. (scandinavian or norwegian or swedish or danish or finnish or icelandic).tw.
7. or/5-6
8. 3 and 4 and 7
9. (integrated care or integrated healthcare or integrated health care or integrated delivery).tw.
10. 9 and 7
11. 8 or 10

MEDLINE

1. Inpatients/
2. Adolescent, Hospitalized/
3. Child, Hospitalized/
4. Hospitalization/
5. Patient Admission/
6. Patient Readmission/
7. Patient Discharge/
8. Patient Transfer/
9. Length of Stay/
10. (inpatient? or hospital patient? or hospital care or hospitaliz* or hospitalis* or rehospitaliz* or rehospitalis* or hospital based or length of stay or stay length? or hospital stay or hospital days or bed days).tw.
11. ((hospital? or patient?) adj3 (admit* or admission? or readmission? or discharg* or transfer*)).tw.
12. or/1-11
13. Outpatients/
14. Primary Health Care/
15. exp Community Health Services/
16. exp Ambulatory Care/
17. exp Ambulatory Care Facilities/
18. Halfway Houses/
19. Nursing Homes/
20. Intermediate Care Facilities/
21. exp Telemedicine/
22. (outpatient? or out patient? or outward patient? or out ward patient? or primary health* or primary care or ambulatory care or ambulatory healthcare or ambulatory health care or community or communities or home* or domestic or domicile or domiciliary or intermediate care or intermediate healthcare or intermediate health care or telehealth or tele health or telemedicine or tele medicine).tw.
23. or/13-22
24. Scandinavia/
25. exp Norway/
26. Sweden/
27. Denmark/
28. Finland/
29. Iceland/
30. (nordic countr* or scandinavia or norway or sweden or denmark or finland or iceland).tw.
31. (scandinavian or norwegian or swedish or danish or finnish or icelandic).tw.
32. (norway or sweden or denmark or finland or iceland).cp.

33. or/24-32
34. "Delivery of Health Care, Integrated"/
35. (integrated care or integrated healthcare or integrated health care or integrated delivery).tw.
36. or/34-35
37. 36 and 33
38. 12 and 23 and 33
39. or/37-38
40. (editorial or comment).pt.
41. Animals/ not (Animals/ and Humans/)
42. 40 or 41
43. 39 not 42
44. (2005* or 2006* or 2007* or 2008* or 2009* or 2010*).yr,ed,ep.
45. 43 and 44

EMBASE

1. hospital patient/
2. aged hospital patient/
3. hospitalized adolescent/
4. hospitalized child/
5. hospitalized infant/
6. hospitalization/
7. child hospitalization/
8. hospital care/
9. hospital admission/
10. hospital readmission/
11. hospital discharge/
12. length of stay/
13. (inpatient? or hospital patient? or hospital care or hospitaliz* or hospitalis* or rehospitaliz* or rehospitalis* or hospital based or length of stay or stay length? or hospital stay or hospital days or bed days).tw.
14. ((hospital? or patient?) adj3 (admit* or admission? or readmission? or discharg* or transfer*)).tw.
15. or/1-14
16. outpatient/
17. outpatient care/
18. outpatient department/
19. primary health care/
20. primary medical care/

21. exp community care/
22. exp home care/
23. ambulatory care/
24. ambulatory care nursing/
25. halfway house/
26. nursing home/
27. nursing home patient/
28. exp telehealth/
29. (outpatient? or out patient? or outward patient? or out ward patient? or primary health* or primary care or ambulatory care or ambulatory healthcare or ambulatory health care or community or communities or home* or domestic or domicile or domiciliary or intermediate care or intermediate healthcare or intermediate health care or telehealth or tele health or telemedicine or tele medicine).tw.
30. or/16-29
31. exp Scandinavia/
32. (nordic countr* or scandinavia or norway or sweden or denmark or finland or iceland).tw.
33. (scandinavian or norwegian or swedish or danish or finnish or icelandic).tw.
34. (norway or sweden or denmark or finland or iceland).cp.
35. or/31-34
36. integrated health care system/
37. (integrated care or integrated healthcare or integrated health care or integrated delivery).tw.
38. or/36-37
39. 15 and 30 and 35
40. 35 and 38
41. 39 or 40
42. Human/
43. Nonhuman/
44. Animal/
45. Animal Experiment/
46. or/43-45
47. 46 not (42 and 46)
48. 41 not 47
49. (2005* or 2006* or 2007* or 2008* or 2009* or 2010*).yr,em.
50. 48 and 49

CINAHL

S45	S40 and S43 *[MEDLINE records excluded]*

S44	S40 and S43
S43	S41 or S42
S42	EM 2005-
S41	PY 2005-
S40	S35 or S39
S39	S34 and S38
S38	S36 or S37
S37	TI ("integrated care" or "integrated healthcare" or "integrated health care" or "integrated delivery") or AB ("integrated care" or "integrated healthcare" or "integrated health care" or "integrated delivery")
S36	(MH "Health Care Delivery, Integrated")
S35	S32 and S33 and S34
S34	S28 or S29 or S30 or S31
S33	S16 or S17 or S18 or S19 or S20 or S21 or S22 or S23 or S24 or S25 or S26 or S27
S32	S1 or S2 or S3 or S4 or S5 or S6 or S7 or S8 or S9 or S10 or S11 or S12 or S13 or S14 or S15
S31	TI (scandinavian or norwegian or swedish or danish or finnish or icelandic) or AB (scandinavian or norwegian or swedish or danish or finnish or icelandic)
S30	TI (nordic W1 countr* or scandinavia or norway or sweden or denmark or finland or iceland) or AB (nordic W1 countr* or scandinavia or norway or sweden or denmark or finland or iceland)
S29	(MH "Iceland")
S28	(MH "Scandinavia+")
S27	TI (outpatient* or out N1 patient* or outward N1 patient* or out N1 ward N1 patient* or primary N1 health* or "primary care" or "ambulatory care" or " ambulatory healthcare" or "ambulatory health care" or community or communities or home* or domestic or domicile or domiciliary or "intermediate care" or "intermediate healthcare" or "intermediate health care" or telehealth or "tele health" or telemedicine or "tele medicine") or AB (outpatient* or out N1 patient* or outward N1 patient* or out N1 ward N1 patient* or primary N1 health* or "primary care" or "ambulatory care" or " ambulatory healthcare" or "ambulatory health care" or community or communities or home* or domestic or domicile or domiciliary or "intermediate care" or "intermediate healthcare" or "intermediate health care" or telehealth or "tele health" or telemedicine or "tele medicine")
S26	(MH "Telehealth+")
S25	(MH "Nursing Home Patients")
S24	(MH "Nursing Homes")
S23	(MH "Halfway Houses")
S22	(MH "Ambulatory Care Facilities+")
S21	(MH "Ambulatory Care Nursing")

S20	(MH "Ambulatory Care")
S19	(MH "Community Health Services+")
S18	(MH "Primary Health Care")
S17	(MH "Outpatient Service")
S16	(MH "Outpatients")
S15	TI (patient* N3 admit* or patient* N3 admission* or patient* N3 readmission* or patient* N3 discharg* or patient* N3 transfer*) or AB (patient* N3 admit* or patient* N3 admission* or patient* N3 readmission* or patient* N3 discharg* or patient* N3 transfer*)
S14	TI (hospital* N3 admit* or hospital* N3 admission* or hospital* N3 readmission* or hospital* N3 discharg* or hospital* N3 transfer*) or AB (hospital* N3 admit* or hospital* N3 admission* or hospital* N3 readmission* or hospital* N3 discharg* or hospital* N3 transfer*)
S13	TI (inpatient* or hospital N1 patient* or "hospital care" or hospitaliz* or hospitalis* or rehospitaliz* or rehospitalis* or "hospital based" or "hospital stay" or "hospital days" or "bed days" or stay N2 length*) or AB (inpatient* or hospital N1 patient* or "hospital care" or hospitaliz* or hospitalis* or rehospitaliz* or rehospitalis* or "hospital based" or "hospital stay" or "hospital days" or "bed days" or stay N2 length*)
S12	(MH "Length of Stay")
S11	(MH "Transfer, Discharge")
S10	(MH "Early Patient Discharge")
S9	(MH "Patient Discharge")
S8	(MH "Readmission")
S7	(MH "Patient Admission")
S6	(MH "Infant, Hospitalized")
S5	(MH "Child, Hospitalized")
S4	(MH "Aged, Hospitalized")
S3	(MH "Adolescent, Hospitalized")
S2	(MH "Hospitalization")
S1	(MH "Inpatients")