Har liggetid i sykehus eller valg av omsorgsnivå for behandling betydning for behandlingskvalitet og ressursbruk for ulike pasientkategorier?

Notat
Litteratursøk med sortering
Oktober 2009

kunnskapssenteret

Bakgrunn: Denne kartleggingen viser hva som finnes av en viss type forskning om eventuell effekt for behandlingskvalitet og ressursbruk av liggetid i sykehus og av behandling på ulike omsorgsnivå, på tvers av pasientkategorier. Utredningen ble bestilt av Senter for klinisk dokumentasjon i Helse Nord RHF vinteren 2009. **Metode:** Nasjonalt kunnskapssenter for helsetjenesten har gjort et systematisk og omfattende søk i databasene Cochrane Library, Medline og EMBASE for tre forskjellige problemstillinger innen temaet organisering av helsetjenester. **Resultat:** Søkene resulterte totalt i 6170 treff. Av disse valgte vi totalt ut 247 referanser i henhold til de fastsatte inklusjonskriteriene, på grunnlag av tittel og sammendrag.

Nasjonalt kunnskapssenter for helsetjenesten
Postboks 7004, St. Olavs plass
N-0130 Oslo
(+47) 23 25 50 00
www.kunnskapssenteret.no
Notat: ISBN 978-82-8121-288-6

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Sammendrag

Denne kartleggingen viser hva som finnes av en viss type forskning om eventuell effekt for behandlingskvalitet og ressursbruk av liggetid i sykehus og av behandling på ulike omsorgsnivå, på tvers av pasientkategorier. Utredningen ble bestilt av Senter for klinisk dokumentasjon i Helse Nord RHF vinteren 2009.

Nasjonalt kunnskapssenter for helsetjenesten har gjort et systematisk og omfattende søk i databasene Cochrane Library, Medline og EMBASE for tre forskjellige problemstillinger innen temaet organisering av helsetjenester. Søkene resulterte totalt i 6170 treff. Av disse valgte vi totalt ut 247 referanser i henhold til de fastsatte inklusjonskriteriene, på grunnlag av tittel og sammendrag.

Vi utformet én søkestrategi for hvert av de tre spørsmålene som ble stilt i bestillingen og de referansene som hvert søk resulterte i ble samlet under hvert spørsmål:

1. Hva er effekten av liggetider i sykehus for ressursbruk og medisinsk eller pasientopplevd behandlingskvalitet generelt eller ved ulike diagnoser?

2. Hva er effekten av ulike omsorgsnivåer (dagbehandling versus innleggelse) for ressursbruk og behandlingskvalitet generelt eller ved ulike diagnoser?

3. Hva er effekten av innleggelse ved sykehus sammenlignet med innleggelse på intermediært nivå for behandlingskvalitet, kostnader eller tilgjengelighet for pasientene for ulike diagnoser eller pasientkategorier?

Sammendraget av hver enkelt studie er presentert. Vi har ikke vurdert den metodologiske kvaliteten av studiene og derfor har vi heller ikke kunnet ta stilling til om resultatene er troverdige. Vi minner om at det på våre hjemmesider ligger sjekklister for å vurdere kvaliteten av flere typer studiedesign:
http://kunnskapssenteret.no/Verktøy/2031.cms.

Innhold

Forord

Nasjonalt kunnskapssenter for helsetjenesten fikk vinteren 2009 en bestilling fra Senter for klinisk dokumentasjon og evaluering (SKDE) i Helse Nord RHF av søk etter forskningslitteratur innen temaene sammenheng mellom liggetid og omsorgsnivå på den ene siden og medisinsk og pasientopplevd kvalitet på den andre siden. Også ressursbruk og kostnader var av interesse.

Vurdering av titler og sammendrag ble gjort av Louise Forsetlund og Morten Christoph Eike ved Kunnskapssenteret. Litteratursøket ble gjort av Louise Forsetlund.

Anne Karin Lindahl
Avdelingsdirektør

Louise Forsetlund
Seniorforsker, prosjektleder og fung. forskningsleder

Problemstilling

SPESIFISERING AV SPØRSMÅL

Vi formulerte tre problemstillinger på grunnlag av teksten i bestillingen:

- Finnes det studier som sier noe om sammenhengen mellom liggetider og henholdshvis behandlingskvalitet (medisinsk eller pasientopplevd) og/eller ressursbruk/kostnader for innlagte pasienter, generelt og for ulike sykdoms/diagnose/pasientkategorier? Omformulert til:

1. *Hva er effekten av liggetider i sykehus for ressursbruk og medisinsk eller pasientopplevd behandlingskvalitet generelt eller ved ulike diagnoser?*

- Finnes det studier som sammenligner behandlingskvalitet (medisinsk eller pasientopplevd) og/eller ressursbruk for ulike omsorgsnivåer i spesialisthelsetjenesten (primært dagbehandling vs innlagte pas), generelt og for ulike sykdoms-/diagnose-/pasientgrupper? Omformulert til:

2. *Hva er effekten av ulike omsorgsnivåer (dagbehandling versus innleggelse) for ressursbruk og behandlingskvalitet generelt eller ved ulike diagnoser?*

- Finnes det studier som sammenligner behandlingstilbud levert på (spesialisert) sykehusnivå med tilsvarende behandlingsnivå levert på intermediært nivå (utenfor sykehus, enklere organisatoriske settinger) mht kvalitet (medisinsk, pasientopplevd), kostnader og/eller tilgjengelighet for pasientene, spesifisert for ulike/utvalgte sykdoms-/diagnose-/pasientkategoerier? Omformulert til:

3. *Hva er effekten av innleggelse ved sykehus sammenlignet med innleggelse på intermediært nivå for behandlingskvalitet, kostnader eller tilgjengelighet for pasientene for ulike diagnoser eller pasientkategorier?*

Innledning

I forbindelse med et større pågående prosjekt ønsket Senter for klinisk dokumentasjon og evaluering i Helse Nord RHF å se nærmere på betydningen av variasjon i liggetider, av forskjellige omsorgsnivå og av bruk av dagbehandling (særlig dagkirurgi) for somatiske pasienter for utfall som behandlingskvalitet, pasienttilfredshet og ressursbruk. Ett av formålene var å identifisere hva som er best mulig praksis som grunnlag for kvalitetsutvikling i Helse Nord.

Denne publikasjonen har til hensikt å søke etter forskningslitteratur om de ovenfor nevnte problemstillingene.

Metode

LITTERATURSØK

På bakgrunn av forhåndsdefinerte inklusjonskriterier utarbeidet vi en søkestrategi for hver enkelt problemstilling. Vi benyttet både emneord fra databasenes kontrollerte vokabular og fritekstterm er. De emneordene som var relevante viser imidlertid til tusenvis av dokumenter. Et vellykket søk er en balanse mellom sensitivitet og presisjon, men når emneordene dekker store, generelle emner, blir presisjonen en utfordring. Målet var at søket skulle være omfattende, men også håndterlig. Vi begrenset eller utvidet hvert av søkene i overensstemmelse med antall treff og en analyse av hvor godt søket så ut til å treffe. I ett av søkene stilte vi for eksempel som betingelse at indekseringstermen i to av databasene skulle være ett av hovedemneordene for artikkelen (problemstilling 1). Det vil si at en indekserer har bedømt dette til å være hovedtema for publikasjonen. Hvorvidt vi skulle søke etter andre typer design enn systematiske oversikter og randomiserte kontrollerte forsøk, ble bestemt for den enkelte problemstilling etter å ha vurdert hvor mange treff vi fikk for disse designene. Søkene ble foretatt i databasene Cochrane Library, Ovid MEDLINE og Ovid EMBASE. Søkehistorien for hver problemstilling presenteres fortløpende i Vedlegg I.

INKLUSJONSKRITERIER

Inklusjonskriteriene presenteres for hver problemstilling.

1. Problemstilling: Hva er effekten av liggetider i sykehus for ressursbruk og medisinsk eller pasientopplevd behandlingskvalitet generelt eller ved ulike diagnoser?

	Inklusjonskriterier	**Eksklusjonskriterier**
Populasjon	Pasienter på sykehus, uansett diagnose	Pasienter i psykiatriske sykehus eller avdelinger. Studier fra utviklingsland.
Intervensjoner	Liggetid av en viss lengde	Andre intervensjoner
Sammenlikning	Liggetid av annen lengde	Andre intervensjoner

Utfall	Ressursbruk, medisinsk behandlingskvalitet, pasientopplevd behandlingskvalitet	Andre utfall
Studiedesign	Systematiske oversikter og randomiserte forsøk. Søk etter andre prospektive, kontrollerte studier vurderes etter å ha sett hvor mange treff som returneres i Cochrane Library.	Ikke kontrollerte studier
Språk	Norsk, svensk, dansk, engelsk, tysk	Andre språk

2. Problemstilling: Hva er effekten av ulike omsorgsnivåer (dagbehandling versus innleggelse) for ressursbruk og behandlingskvalitet generelt eller ved ulike diagnoser?

	Inklusjonskriterier	**Eksklusjonskriterier**
Populasjon	Pasienter i sykehus eller under dagbehandling, uansett diagnose	Pasienter i psykiatriske sykehus eller avdelinger. Studier fra utviklingsland.
Intervensjoner	Dagbehandling	Andre intervensjoner
Sammenlikning	Innleggelse	Andre intervensjoner
Utfall	Ressursbruk, medisinsk behandlingskvalitet, pasientopplevd behandlingskvalitet	Andre utfall
Studiedesign	Systematiske oversikter og randomiserte forsøk. Søk etter andre prospektive, kontrollerte studier vurderes etter å ha sett hvor mange treff som returneres i Cochrane Library	Ikke kontrollerte studier
Språk	Norsk, svensk, dansk, engelsk, tysk	Andre språk

3. Problemstilling: Hva er effekten av innleggelse ved sykehus sammenlignet med innleggelse på intermediært nivå for behandlingskvalitet, kostnader eller tilgjengelighet for pasientene for ulike diagnoser eller pasientkategorier?

	Inklusjonskriterier	Eksklusjonskriterier
Populasjon	Pasienter innlagt i sykehus eller i annen type institusjon	Pasienter i psykiatriske sykehus eller avdelinger. Studier fra utviklingsland.
Intervensjoner	Behandling på intermediært nivå	Andre intervensjoner
Sammenlikning	Sykehusinnleggelse	Andre intervensjoner
Utfall	Ressursbruk, medisinsk behandlingskvalitet, pasientopplevd behandlingskvalitet herunder tilgjengelighet	Andre utfall
Studiedesign	Systematiske oversikter og randomiserte forsøk. Søk etter andre prospektive, kontrollerte studier vurderes etter å ha sett hvor mange treff som returneres i Cochrane Library	Ikke kontrollerte studier
Språk	Norsk, svensk, dansk, engelsk, tysk	Andre språk

UTVELGELSE OG SORTERING

Etter litteratursøkene gikk de to prosjektmedarbeiderne gjennom referanselisten for hver problemstilling uavhengig av hverandre. Vi vurderte referansene med hensyn på inklusjon og eksklusjon på grunnlag av tittel og sammendrag. For det mindretallet av referanser som ikke hadde sammendrag, ble vurderingen gjort kun på grunnlag av tittelen. Når vi var uenige om en referanse var relevant eller ikke, innhentet vi en tredje person som avgjorde spørsmålet.

Studiene ble ikke innhentet i fulltekst og har derfor heller ikke vært kvalitetsvurdert. Sjekklister som kan brukes som hjelpemiddel i en kritisk vurdering av studiene finnes på Kunnskapssenterets hjemmesider:
http://www.kunnskapssenteret.no/Verktøy/2031.cms

En liste med referansene og tilhørende sammendrag av hver enkelt artikkel for hver problemstilling presenteres alfabetisk i Resultat-kapittelet.

Resultat

HVA ER EFFEKTEN AV LIGGETIDER I SYKEHUS FOR RESSURSBRUK OG MEDISINSK ELLER PASIENTOPPLEVD BEHANDLINGSKVALITET GENERELT ELLER VED ULIKE DIAGNOSER?

Tabell 1 Søketreff fordelt på kilder

Cochrane Library	1472
MEDLINE	1499
EMBASE	207

Her søkte vi etter systematiske oversikter, randomiserte kontrollerte studier og observasjonsstudier. Etter dublettkontroll gjensto totalt 3012 referanser som vi gikk gjennom. Av disse ble 114 referanser vurdert som potensielt relevante for problemstillingen:

Oversiktsartikler

1. Brown LP, Towne SA, York R. Controversial issues surrounding early postpartum discharge. Nurs Clin North Am 1996;31(2):333-9.
   Abstract: Throughout the world, early postpartum discharge programs are emerging as one strategy for reducing health care costs and, in some areas, relieving the shortage of hospital beds. This article summarizes the research findings to date regarding programs of early postpartum discharge. Additionally, findings from recently completed work on a program of early discharge for high-risk childbearing families is discussed. [References: 23]

2. Brown S, Small R, Argus B, Davis PG, Krastev A. Early postnatal discharge from hospital for healthy mothers and term infants. Cochrane Database Syst Rev 2002;(3):CD002958.
   Abstract: BACKGROUND: Length of postnatal hospital stay has declined dramatically in the past thirty years. There is ongoing controversy concerning whether staying less time in hospital is harmful or beneficial. OBJECTIVES: The objective of this review was to assess the safety, impact and effectiveness of a policy of early discharge for healthy mothers and term infants, with respect to the health and well-being of mothers and babies, satisfaction with postnatal care, overall costs of health care and broader impacts on families. SEARCH STRATEGY: We searched the Cochrane Pregnancy and Childbirth Group's Trials Register (December 2008), the Cochrane Central Register of Controlled Trials (The Cochrane Library 2008, Issue 1), MEDLINE (1966 to December

2007), CINAHL (1982 to December 2007) and reference lists of articles. SELECTION CRITERIA: Randomized trials comparing early discharge from hospital of healthy mothers and term infants, of greater than or equal to 2500 grams, with standard care in the settings in which trials were conducted. DATA COLLECTION AND ANALYSIS: Trial quality was assessed and data were Abstracted independently by at least two review authors. MAIN RESULTS: Ten trials (involving 4489 women) were identified . There was substantial variation in the definition of 'early discharge', and the extent of antenatal preparation and midwife home care following discharge offered to women in intervention and control groups.Six trials recruited and randomized women in pregnancy, four randomized women following childbirth. Post randomization exclusions were high. Non-compliance with allocated treatment was frequent.No statistically significant differences in infant or maternal readmissions were found in eight trials reporting data on these outcomes. Five trials showed either no significant difference or results favouring early discharge for the outcome of maternal depression, although only three used a well-validated standardized instrument. The results of eight trials showed that breastfeeding rates did not differ significantly between the early discharge group and the control group receiving standard care. AUTHORS' CONCLUSIONS: The pooled trials have inadequate power to detect increases in rare outcomes, such as infant and maternal mortality or readmissions.Policies of earlier postnatal discharge of healthy mothers and term infants do not appear to have adverse effects on breastfeeding or maternal depression when accompanied by a policy of offering women at least one nurse-midwife home visit post discharge.Large well-designed trials of early discharge programs incorporating process evaluation to assess the uptake of co-interventions, and using standardized approaches to outcome assessment are needed. EARLY POSTNATAL DISCHARGE FROM HOSPITAL FOR HEALTHY MOTHERS AND TERM INFANTS: The length of time women spend in hospital after childbirth has fallen dramatically in many countries over the past 30 years. This review of trials compared the policy of early discharge after childbirth with standard length of stay and care at the time.Early postnatal discharge of healthy mothers and term infants does not appear to have adverse effects on breastfeeding or maternal depression. However, the quality of the studies was generally poor. There are still too few participants in trials to determine the impact of early discharge on rare events, such as infant mortality. Further research is needed

3. Clarke A, Rosen R. Length of stay. Eur J Public Health 2001;11(2):166-70.
Abstract: BACKGROUND: Reducing length of hospital stay (LOS) is a policy aim for many health care systems and is thought to indicate efficiency. METHODS: A MedLine search was undertaken for articles relating to 'LOS', 'early discharge' or 'patient discharge' between 1983 and 1997 and a selective search was undertaken for material published before 1983. RESULTS: Routine data showed that there were variations in LOS between countries, regions and hospitals. The trends in LOS showed a decrease over time in all regions. Research consistently fails to show an adverse effect on health outcomes of reducing LOS, but there may nevertheless be an ethical or moral minimum LOS. Two recent examples illustrate this. There has been an outcry at some ultrashort stays, for example 'drive-through mastectomy' and 'lunchtime abortion' and these are discussed in the review. CONCLUSIONS: There are a number of reasons for the perceived lack of relationship between LOS and health outcomes. Clearly reducing days of care at the low-intensity end of a hospital stay may not necessarily affect health outcomes. There is a case to be made for tailoring care more exactly to an individual's needs by looking at the actual components of care rather than the place of care--within or outside hospital walls. [References: 70]

4. Conseil d'Evaluation des Technologies de la Sante du Quebec. Evaluation of the risks and benefits of early postpartum discharge - systematic review.: Conseil

d'Evaluation des Technologies de la Sante du Quebec (CETS); 1997. HTA: http://www.mrw.interscience.wiley.com/cochrane/clhta/articles/HTA-31998008690/frame.html

5. Daly S, Campbell DA, Cameron PA. Short-stay units and observation medicine: a systematic review. Med J Aust 2003;178:559-63.
Abstract: OBJECTIVES: To conduct a systematic review of how short-stay observation units (SOUs) affect the efficiency of healthcare delivery and the quality of services provided. DATA SOURCES: MEDLINE, CINAHL, Best Evidence and The Cochrane Library were searched for the period 1 January 1960 to 31 July 2000. STUDY SELECTION: Studies were eligible if published in English and rated at National Health and Medical Research Council evidence levels I, II-1, II-2, or II-3; 12 comparative studies published between 1985 and 1998 met these criteria. DATA EXTRACTION: Data pertaining to clinical outcomes, length of stay, re-presentation rates, emergency department efficiency and costs of care were extracted and evaluated independently. DATA SYNTHESIS: As there was considerable heterogeneity in the patient populations and outcomes, results were summarised rather than subjected to meta-analysis. CONCLUSION: SOUs have the potential to increase patient satisfaction, reduce length of stay, improve the efficiency of emergency departments and improve cost effectiveness. However, SOUs have commonly been implemented alongside new clinical protocols, and it is not possible to distinguish the relative benefits of each. As demand increases, providing effective and cost-efficient care will become increasingly important. SOUs may help organisations that are attempting to streamline patient care while maintaining their quality of service delivery.

6. Danish Centre for Evaluation and Health Technology Assessment. Fast-track colonic surgery: a health technology assessment. 2005. HTA: http://www.mrw.interscience.wiley.com/cochrane/clhta/articles/HTA-32006000170/frame.html; http://www.sst.dk/publ/Publ2005/CEMTV/Acc_kolonkirurgi/Acc_kolonkir_patientforloeb.pdf

7. Early Supported Discharge Trialists. Services for reducing duration of hospital care for acute stroke patients. Cochrane Database Syst Rev 2005;(2):CD000443.
Abstract: BACKGROUND: Stroke patients conventionally receive a substantial part of their rehabilitation in hospital. Services have now been developed which offer patients in hospital an early discharge with rehabilitation at home (early supported discharge (ESD)). OBJECTIVES: To establish the effects and costs of ESD services compared with conventional services. SEARCH STRATEGY: We searched the Cochrane Stroke Group's trials register (last searched August 2004) and obtained further information from individual trialists. SELECTION CRITERIA: Randomised controlled trials recruiting stroke patients in hospital to receive either conventional care or any service intervention which has provided rehabilitation and support in a community setting with an aim of reducing the duration of hospital care. DATA COLLECTION AND ANALYSIS: Two review authors scrutinised trials and categorised them on their eligibility. Standardised individual patient data was then sought from the primary trialists. Results were analysed for all trials and for subgroups of patients and services, in particular whether the intervention was provided by a co-ordinated multidisciplinary team (co-ordinated ESD team) or not. MAIN RESULTS: Outcome data are currently available for 11 trials (1597 patients). Patients tended to be a selected elderly group with moderate disability. The ESD group showed significant reductions ($P < 0.0001$) in the length of hospital stay equivalent to approximately eight days. Overall, the odds ratios (OR) (95% confidence interval (CI)) for death, death or institutionalisation, death or dependency at the

end of scheduled follow up were OR 0.90, 95% CI 0.64 to 1.27, P = 0.56, OR 0.74, 95% CI 0.56 to 0.96, P = 0.02 and OR 0.79, 95% CI 0.64 to 0.97, P = 0.02, respectively. The greatest benefits were seen in the trials evaluating a co-ordinated ESD team and in stroke patients with mild-moderate disability. Improvements were also seen in patients' extended activities of daily living scores (standardised mean difference 0.12, 95% CI 0.00 to 0.25, P = 0.05) and satisfaction with services (OR 1.60, 95% CI 1.08 to 2.38, P = 0.02) but no statistically significant differences were seen in carers' subjective health status, mood or satisfaction with services. AUTHORS' CONCLUSIONS: Appropriately resourced ESD services provided for a selected group of stroke patients can reduce long term dependency and admission to institutional care as well as reducing the length of hospital stay. No adverse impact was observed on the mood or subjective health status of patients or carers. SERVICES FOR REDUCING DURATION OF HOSPITAL CARE FOR ACUTE STROKE PATIENTS: Early discharge services can allow stroke patients to return home early and improve long-term recovery. Early supported discharge services are provided by teams of therapists, nurses and doctors. They aim to allow stroke patients to return home from hospital earlier than usual and receive more rehabilitation at home. Patients who received these services returned home earlier and were more likely to remain at home in the long term and to regain independence in daily activities. The best results were seen with well organised discharge teams and patients with less severe strokes

8. Gazmararian JA, Koplan JP. Economic aspects of the perinatal hospital stay. Clin Perinatol 1998;25(2):483-98.
Abstract: This article concentrates on the economics of the perinatal hospital stay for normal vaginal and cesarean section deliveries. Published studies in the United States are reviewed under three headings: inpatient costs for traditional stays, outpatient costs for postpartum services, and costs for short stays with follow-up services. Despite the increasing attention on length of stay after delivery, there has been minimal research examining the true costs of an early discharge program and services compared with longer hospital stays. Formal analysis of alternative strategies and well-designed clinical studies are needed before an optimal policy for caring for mothers and infants can be identified

9. Grullon KE, Grimes DA. The safety of early postpartum discharge: a review and critique. Obstet Gynecol 1997;90(5):860-5.
Abstract: OBJECTIVE: To determine the effect of early postpartum discharge (less than 48 hours after vaginal birth or 96 hours after cesarean delivery) on maternal and neonatal complications, maternal concerns, patient satisfaction, and cost savings. DATA SOURCES: We performed a MEDLINE search of English-language journals for pertinent articles published from 1966 through January 1997. We also reviewed reference lists in all the articles retrieved in the search as well as those of major obstetric texts. METHODS OF STUDY SELECTION: We included all studies describing early postpartum discharge. TABULATION, INTEGRATION, AND RESULTS: Studies included five randomized controlled trials, ten cohort studies, one case-control study, and 12 case-series reports. We classified the data using the rating system of the U.S. Preventive Services Task Force. We calculated relative risks and 95% confidence intervals for maternal and neonatal readmission and outpatient treatment after early postpartum discharge. Most studies did not show an increase in maternal or neonatal morbidity after early discharge. The five randomized controlled studies did not meet criteria for properly designed trials. Most evidence consists of cohort studies and case-series (class II-2 and III evidence) of highly selected patients with extensive supplemental antepartum and postpartum care and education. CONCLUSION: The current data do not support or condemn widespread use of early postpartum discharge in the general population (class C recommendation). Early postpartum discharge appears safe for carefully se-

lected, consenting patients. Whether these data can be extrapolated to the general population of pregnant women remains unknown

10. Kehlet H, Wilmore DW. Evidence-based surgical care and the evolution of fast-track surgery. Ann Surg 2008;248(2):189-98.
Abstract: BACKGROUND: Optimization of postoperative outcome requires the application of evidence-based principles of care carefully integrated into a multimodal rehabilitation program. OBJECTIVE: To assess, synthesize, and discuss implementation of "fast-track" recovery programs. DATA SOURCES: Medline MBASE (January 1966-May 2007) and the Cochrane library (January 1966-May 2007) were searched using the following keywords: fast-track, enhanced recovery, accelerated rehabilitation, and multimodal and perioperative care. In addition, the synthesis on the many specific interventions and organizational and implementation issues were based on data published within the past 5 years from major anesthesiological and surgical journals, using systematic reviews where appropriate instead of multiple references of original work. DATA SYNTHESIS: Based on an increasing amount of multinational, multicenter cohort studies, randomized studies, and meta-analyses, the concept of the "fast-track methodology" has uniformly provided a major enhancement in recovery leading to decreased hospital stay and with an apparent reduction in medical morbidity but unaltered "surgery-specific" morbidity in a variety of procedures. However, despite being based on a combination of evidence-based unimodal principles of care, recent surveys have demonstrated slow adaptation and implementation of the fast-track methodology. CONCLUSION: Multimodal evidence-based care within the fast-track methodology significantly enhances postoperative recovery and reduces morbidity, and should therefore be more widely adopted. Further improvement is expected by future integration of minimal invasive surgery, pharmacological stress-reduction, and effective multimodal, nonopioid analgesia. [References: 187]

11. Langhorne P, Taylor G, Murray G, Dennis M, Anderson C, Bautz-Holter E, et al. Early supported discharge services for stroke patients: a meta-analysis of individual patients' data. Lancet 2005;365(9458):501-6.
Abstract: BACKGROUND: Stroke patients conventionally undergo a substantial part of their rehabilitation in hospital. Services have been developed that offer patients early discharge from hospital with rehabilitation at home (early supported discharge [ESD]). We have assessed the effects and costs of such services. METHODS: We did a meta-analysis of data from individual patients who took part in randomised trials that recruited patients with stroke in hospital to receive either conventional care or any ESD service intervention that provided rehabilitation and support in a community setting with the aim of shortening the duration of hospital care. The primary outcome was death or dependency at the end of scheduled follow-up. FINDINGS: Outcome data were available for 11 trials (1597 patients). ESD services were mostly provided by specialist multidisciplinary teams to a selected group (median 41%) of stroke patients admitted to hospital. There was a reduced risk of death or dependency equivalent to six (95% CI one to ten) fewer adverse outcomes for every 100 patients receiving an ESD service ($p=0.02$). The hospital stay was 8 days shorter for patients assigned ESD services than for those assigned conventional care ($p<0.0001$). There were also significant improvements in scores on the extended activities of daily living scale and in the odds of living at home and reporting satisfaction with services. The greatest benefits were seen in the trials evaluating a coordinated multidisciplinary ESD team and in stroke patients with mild to moderate disability. INTERPRETATION: Appropriately resourced ESD services provided for a selected group of stroke patients can reduce long-term dependency and admission to institutional care as well as shortening hospital stays

12. Langhorne P, Widen-Holmqvist L. Early supported discharge after stroke. J Rehabil Med 2007;39:103-8.
Abstract: Patients after stroke conventionally receive much of their rehabilitation in hospital. Services have been developed that offer patients an early discharge from hospital with more rehabilitation at home (early supported discharge). This paper sets out a systematic review of all randomized trials of early supported discharge services that included 12 trials (1659 patients). There was a reduced odds of death or dependency equivalent to 5 fewer adverse outcomes (95% confidence interval 1-10) for every 100 patients receiving an early supported discharge service ($p = 0.04$). Patients receiving early supported discharge services showed an 8 day reduction ($p < 0.0001$) in the length of hospital stay. The greatest benefits were seen in the trials evaluating a co-ordinated multidisciplinary early supported discharge team and with patients with mild-moderate disability. The experience of a trial from Stockholm is described in order to explore the potential mechanism of action of early supported discharge services. In conclusion, an illustrative case report is set out, indicating a typical patient pathway in an early supported discharge service.

13. Larsen T, Olsen TS, Sorensen J. Early home-supported discharge of stroke patients: A health technology assessment. Int J Technol Assess Health Care 2006;22(3):313-20.
Abstract: Objectives: A comprehensive and systematic assessment (HTA) of early home-supported discharge by a multidisciplinary team that plans, coordinates, and delivers care at home (EHSD) was undertaken and the results were compared with that of conventional rehabilitation at stroke units. Methods: A systematic literature search for randomized trials (RCTs) on "early supported discharge" was closed in April 2005. RCTs on EHSD without information on (i) death or institution at follow-up, (ii) change in Barthel Index, (iii) length of hospital stay, (iv) intensity of home rehabilitation, or (v) baseline data are excluded. Seven RCTs on EHSD with 1,108 patients followed 3-12 months after discharge are selected for statistical meta-analysis of outcomes. The costs are calculated as a function of the average number of home training sessions. Economic evaluation is organized as a test of dominance (both better outcomes and lower costs). Results: The odds ratio (OR) for "Death or institution" is reduced significantly by EHSD: OR =.75 (confidence interval [CI],.46-.95), and number needed to treat (NNT) = 14. Referrals to institution have OR =.45 (CI,.31-.96) and NNT = 20. The reduction of the rate of death is not significant. Length of stay is significantly reduced by 10 days (CI, 2.6-18 days). All outcomes have a nonsignificant positive covariance. The median number of home sessions is eleven, and the average cost per EHSD is 1,340 USD. The "action mechanism" and financial barriers to EHSD are discussed. Conclusions: EHSD is evidenced as a dominant health intervention. However, financial barriers between municipalities and health authorities have to be overcome. For qualitative reasons, a learning path of implementation is recommended where one stroke unit in a region initiates EHSD for dissemination of new experience to the other stroke units. Copyright copyright 2006 Cambridge University Press

14. Merritt TA, Pillers D, Prows SL. Early NICU discharge of very low birth weight infants: a critical review and analysis. Semin Neonatol 2003;8(2):95-115.
Abstract: Early neonatal intensive care unit (NICU) discharge has been advocated for selected preterm infants to reduce both the adverse environment of prolonged hospital stay and to encourage earlier parental involvement by empowering parents to contribute to the ongoing care of their infant, and thereby reducing costs of care. Randomized trials and descriptive experiences of early discharge programs are critically reviewed over the last 30 years, and the key elements necessary for successful early discharge are reviewed and defined. Early discharge is clearly achievable for a large number of infants. Variations in neonatal care practices are reviewed since these variations have been docu-

mented to influence NICU stay. Management of apnea of prematurity and feeding practices is documented to significantly influence NICU length of stay, as is timing of discharge based on institutional factors. Developmentally centered care, use of nutritional supplements pre- and postdischarge, hearing screening programs, evaluation for retinopathy of prematurity, evaluation for apnea and bradycardia events, and cardiopulmonary stability while in a car seat all influence timing of discharge. Programs of early hospital discharge with home nursing and neonatologist support have been successful in lowering the length of NICU stay. However, trends in length of stay in NICUs indicate that for infants >750 g at birth over the last decade there have been insignificant reductions in length of hospital stay. Thus, because of the increase in the percentage of low birth weight infants in the US, there remain opportunities to improve on variations in care that will be translated to fewer NICU days in hospitals for selected infants. Several professional guidelines are summarized, and standards of care as related to discharge of premature infants are reviewed. [References: 137]

15. Norr KF, Nacion K. Outcomes of postpartum early discharge, 1960-1986. Birth 1987;14(3):135-41.
Abstract: A review of all postpartum early discharge program outcomes in the United States published between 1960 and 1985 indicates that discharge under 48 hours after delivery has generally been safe for mothers and infants. The levels and types of morbidities did not appear to differ from those experienced with longer hospital stays. Infant readmissions and overall morbidity rates were consistently higher than the number of maternal readmissions and morbidity. The major infant morbidity was hyperbilirubinemia. Differences in identification and treatment of this single problem accounted for much of the variation in infant readmission rates among programs. Expansion of postpartum early discharge based on these favorable results must proceed with caution. Nearly all reported outcomes were for programs with extensive prenatal preparation and postpartum follow-up, serving relatively advantaged middle-class populations. It is not clear that equally good outcomes would result from less intensive programs or those serving disadvantaged populations. More research is needed on the effectiveness of early discharge procedures, cost savings, and patient satisfaction.

16. Phillips CO, Wright SM, Kern DE, Singa RM, Shepperd S, Rubin HR. Comprehensive discharge planning with postdischarge support for older patients with congestive heart failure: a meta-analysis. JAMA 2004;291:1358-67.
Abstract: CONTEXT: Comprehensive discharge planning plus postdischarge support may reduce readmission rates for older patients with congestive heart failure (CHF). OBJECTIVE: To evaluate the effect of comprehensive discharge planning plus postdischarge support on the rate of readmission in patients with CHF, all-cause mortality, length of stay (LOS), quality of life (QOL), and medical costs. DATA SOURCES: We searched MEDLINE (1966 to October 2003), the Cochrane Clinical Trials Register (all years), Social Science Citation Index (1992 to October 2003), and other databases for studies that described such an intervention and evaluated its effect in patients with CHF. Where possible we also contacted lead investigators and experts in the field. STUDY SELECTION: We selected English-language publications of randomized clinical trials that described interventions to modify hospital discharge for older patients with CHF (mean age > or =55 years), delineated clearly defined inpatient and outpatient components, compared efficacy with usual care, and reported readmission as the primary outcome. DATA EXTRACTION: Two authors independently reviewed each report, assigned quality scores, and extracted data for primary and secondary outcomes in an unblinded standardized manner. DATA SYNTHESIS: Eighteen studies representing data from 8 countries randomized 3304 older inpatients with CHF to comprehensive discharge planning plus postdischarge support or usual care. During a pooled mean observation period

of 8 months (range, 3-12 months), fewer intervention patients were readmitted compared with controls (555/1590 vs 741/1714, number needed to treat = 12; relative risk [RR], 0.75; 95% confidence interval [CI], 0.64-0.88). Analysis of studies reporting secondary outcomes found a trend toward lower all-cause mortality for patients assigned to an intervention compared with usual care (RR, 0.87; 95% CI, 0.73-1.03; n = 14 studies), similar initial LOS (mean [SE]: 8.4 [2.5] vs 8.5 [2.2] days, P =.60; n = 10), greater percentage improvement in QOL scores compared with baseline scores (25.7% [95% CI, 11.0%-40.4%] vs 13.5% [95% CI, 5.1%-22.0%]; n = 6, P =.01), and similar or lower charges for medical care per patient per month for the initial hospital stay, administering the intervention, outpatient care, and readmission (-359 dollars [95% CI, -763 dollars to 45 dollars]; n = 4, P =.10 for non-US trials and -536 dollars [95% CI, -956 dollars to -115 dollars]; n = 4, P =.03, for US trials). CONCLUSION: Comprehensive discharge planning plus postdischarge support for older patients with CHF significantly reduced readmission rates and may improve health outcomes such as survival and QOL without increasing costs.

17. Rhew DC, Tu GS, Ofman J, Henning JM, Richards MS, Weingarten SR. Early switch and early discharge strategies in patients with community-acquired pneumonia: a meta-analysis. Arch Intern Med 2001;161:722-7.
Abstract: BACKGROUND: The effectiveness of early switch and early discharge strategies in patients with community-acquired pneumonia remains unknown. METHODS: We searched the MEDLINE, HEALTHSTAR, EMBASE, Cochrane Collaboration, and Best Evidence databases from January 1, 1980, to March 31, 2000, for community-acquired pneumonia studies that included specific switch criteria or recommendations to switch on a particular day. RESULTS: From 1794 titles identified, 121 articles were reviewed. We identified 10 prospective, interventional, community-acquired pneumonia-specific studies that evaluated length of stay (LOS). Nine studies applied an early switch from parenteral to oral antibiotic criteria. Six different criteria for switching were applied in the 9 studies. Five of the studies that applied early switch criteria also applied separate criteria for early discharge. Six studies applied an early switch and early discharge strategy to an intervention and control group, and 5 of these provided SD values for LOS. The mean change in LOS was not significantly (P =.05) reduced in studies of early switch and early discharge (-1.64 days; 95% confidence interval, -3.30 to 0.02 days). However, when the 2 studies in which the recommended LOS was longer than the control LOS were excluded from the analysis, the mean change in LOS was reduced by 3 days (-3.04 days; 95% confidence interval, -4.90 to -1.19 days). Studies did not reveal significant differences in clinical outcomes between the intervention and control groups. CONCLUSIONS: There is considerable variability in early switch from parenteral to oral antibiotic criteria for patients with community-acquired pneumonia. Early switch and early discharge strategies may significantly and safely reduce the mean LOS when the recommended LOS is shorter than the actual LOS.

18. Rotter T, Kugler J, Koch R, Gothe H, Twork S, van Oostrum JM, et al. A systematic review and meta-analysis of the effects of clinical pathways on length of stay, hospital costs and patient outcomes. BMC Health Serv Res 2008;8:265.
Abstract: BACKGROUND: To perform a systematic review about the effect of using clinical pathways on length of stay (LOS), hospital costs and patient outcomes. To provide a framework for local healthcare organisations considering the effectiveness of clinical pathways as a patient management strategy. METHODS: As participants, we considered hospitalized children and adults of every age and indication whose treatment involved the management strategy "clinical pathways". We include only randomised controlled trials (RCT) and controlled clinical trials (CCT), not restricted by language or country of publication. Single measures of continuous and dichotomous study outcomes were

extracted from each study. Separate analyses were done in order to compare effects of clinical pathways on length of stay (LOS), hospital costs and patient outcomes. A random effects meta-analysis was performed with untransformed and log transformed outcomes. RESULTS: In total 17 trials met inclusion criteria, representing 4,070 patients. The quality of the included studies was moderate and studies reporting economic data can be described by a very limited scope of evaluation. In general, the majority of studies reporting economic data (LOS and hospital costs) showed a positive impact. Out of 16 reporting effects on LOS, 12 found significant shortening. Furthermore, in a subgroup-analysis, clinical pathways for invasive procedures showed a stronger LOS reduction (weighted mean difference (WMD) -2.5 days versus -0.8 days)).There was no evidence of differences in readmission to hospitals or in-hospital complications. The overall Odds Ratio (OR) for re-admission was 1.1 (95% CI: 0.57 to 2.08) and for in-hospital complications, the overall OR was 0.7 (95% CI: 0.49 to 1.0). Six studies examined costs, and four showed significantly lower costs for the pathway group. However, heterogeneity between studies reporting on LOS and cost effects was substantial. CONCLUSION: As a result of the relatively small number of studies meeting inclusion criteria, this evidence base is not conclusive enough to provide a replicable framework for all pathway strategies. Considering the clinical areas for implementation, clinical pathways seem to be effective especially for invasive care. When implementing clinical pathways, the decision makers need to consider the benefits and costs under different circumstances (e.g. market forces).

19. Shepperd S, Parkes J, McClaran Jacqueline JM, Phillips C. Discharge planning from hospital to home. Cochrane Database Syst Rev 2004;(1):CD000313. Abstract: BACKGROUND: Discharge planning is a routine feature of health systems in many countries. The aim is to reduce hospital length of stay and unplanned readmission to hospital, and improve the co ordination of services following discharge from hospital thereby bridging the gap between hospital and place of discharge. Sometimes discharge planning is offered as part of an integrated package of care, which may cover both the hospital and community. The focus of this review is discharge planning that occurs while a patient is in hospital; we exclude studies that evaluate dischage planning with follow up care. OBJECTIVES: To determine the effectiveness of planning the discharge of patients moving from hospital. SEARCH STRATEGY: Relevant studies were identified using Medline, Embase, SIGLE database for grey literature, Bioethics database, Health Plan, Psych. Lit, Sociofile, CINAHL, Cochrane Library, Econ Lit, Social Science Citation Index, EPOC register. The review was updated using the EPOC trials register in August 2002. SELECTION CRITERIA: Study design: randomised controlled trials (RCTs) that compare discharge planning (the development of an individualised discharge plan) with routine discharge care. Participants: all patients in hospital. Intervention: the development of an individualised discharge plan. DATA COLLECTION AND ANALYSIS: Data analysis and quality assessment was undertaken independently by two reviewers using a data checklist. Studies are grouped according to patient group (elderly medical patients, surgical patients, and those with a mix of conditions), and by outcome. MAIN RESULTS: Three new studies were included in this update. In total we included eleven RCTS: 6 trials recruited patients with a medical condition (2,368 patients), and four recruited patients with a mix of medical and surgical conditions (2,983 patients), one of these four recruited medical and surgical patients as separate groups, and the final trial recruited 97 patients in a psychiatric hospital and from a general hospital. We failed to detect a difference between groups in mortality for elderly patients with a medical condition (OR 1.44 95% CI 0.82 to 2.51), hospital length of stay (weighted mean difference -0.86, 95% CI -1.9 to 0.18), readmission rates (OR 0.91 95% CI 0.67 to 1.23) and being discharged from hospital to home (OR 1.15 95% CI 0.72 to 1.82). This was also the case for trials recruiting patients recovering from sur-

gery and those recruiting patients with a mix of medical and surgical conditions. One trial comparing a structured care pathway for patients recovering from a stroke with multidisciplinary care reported a significant rate of improvement in functional ability and quality of life for the control group (median change in Barthel score between 4 to 12 weeks of 2 points for the treatment group, versus 6 for the control group, $p<0.01$); (Euroqol scores at 6 months 63 for the treatment group, vs. 72 for the control group, $p<0.005$). Two trials reported that patients with medical conditions allocated to discharge planning reported increased satisfaction compared with those who received routine discharge. No statistically significant differences were reported for overall health care costs. AUTHORS' CONCLUSIONS: The impact of discharge planning on readmission rates, hospital length of stay, health outcomes and cost is uncertain. This reflects a lack of power as the degree to which we could pool data was restricted by the different reported measures of outcome. It is possible that even a small reduction in length of stay, or readmission rate, could have an impact on the timeliness of subsequent admissions in a system where there is an shortage of acute hospital beds. THE IMPACT OF DISCHARGE PLANNING ON READMISSION RATES, HOSPITAL LENGTH OF STAY, HEALTH OUTCOMES, AND COST TO PATIENTS AND HEALTH CARE PROVIDERS IS UNCERTAIN.: Discharge planning is the development of a discharge plan for the patient prior to leaving hospital, with the aim of containing costs and improving patient outcomes. The development of a discharge plan is increasingly becoming part of an integrated package of care, making it difficult to study the effects of discharge planning alone. Although the impact of discharge planning may be small, it is possible that even a small reduction in length of stay or readmission rate could free up capacity for subsequent admissions in a health care system where there is a shortage of acute hospital beds.

20. Soderstrom L, Tousignant P, Kaufman T. The health and cost effects of substituting home care for inpatient acute care: a review of the evidence. Can Med Assoc J 1999;160:1151-5.
Abstract: BACKGROUND: There is much interest in reducing hospital stays by providing some health care services in patients' homes. The authors review the evidence regarding the effects of this acute care at home (acute home care) on the health of patients and caregivers and on the social costs (public and private costs) of managing the patients' health conditions. METHODS: MEDLINE and HEALTHSTAR databases were searched for articles using the key term "home care." Bibliographies of articles read were checked for additional references. Fourteen studies met the selection criteria (publication between 1975 and early 1998, evaluation of an acute home care program for adults, and use of a control group to evaluate the program). Of the 14, only 4 also satisfied 6 internal validity criteria (patients were eligible for home care, comparable patients in home care group and hospital care group, adequate patient sample size, appropriate analytical techniques, appropriate health measures and appropriate costing methods). RESULTS: The 4 studies with internal validity evaluated home care for 5 specific health conditions (hip fracture, hip replacement, chronic obstructive pulmonary disease [COPD], hysterectomy and knee replacement); 2 of the studies also evaluated home care for various medical and surgical conditions combined. Compared with hospital care, home care had no notable effects on patients' or caregivers' health. Social costs were not reported for hip fracture. They were unaffected for hip and knee replacement, and higher for COPD and hysterectomy; in the 2 studies of various conditions combined, social costs were higher in one and lower in the other. Effects on health system costs were mixed, with overall cost savings for hip fracture and higher costs for hip and knee replacement. INTERPRETATION: The limited existing evidence indicates that, compared with hospital care, acute home care produces no notable difference in health outcomes. The effects on social and health system costs appear

to vary with condition. More well-designed evaluations are needed to determine the appropriate use of acute home care.

21. Teasell RW, Foley NC, Bhogal SK, Speechley MR. Early supported discharge in stroke rehabilitation. TOP 2003;10(2):19-33.
Abstract: A systematic review of the randomized controlled trials published from 1970-2002 was conducted to assess the effectiveness of early supported discharge programs in the context of stroke rehabilitation. Ten studies, including 1,286 patients, were selected for detailed review. The methodological quality of the studies was assessed using the PEDro Scale. The outcome assessed included functional outcomes, cost analysis, and length of hospital stay. Although the majority of studies reported no statistically significant differences in functional outcomes between the two groups, there was a reduction in hospital stays for patients receiving home-based therapy. These results suggest that patients with milder strokes who receive home-based therapies have similar functional outcomes to patients who receive traditional inpatient rehabilitation

22. Van Mastrigt GAPG, Maessen JG, Heijmans J, Severens JL, Prins MH. Does fast-track treatment lead to a decrease of intensive care unit and hospital length of stay in coronary artery bypass patients? A meta-regression of randomized clinical trials. Crit Care Med 2006;34(6):1624-34.
Abstract: OBJECTIVE: Evaluation of randomized, controlled clinical trials studying fast-track treatment in low-risk coronary artery bypass grafting patients. DESIGN: Meta-regression. PATIENTS: Low-risk coronary artery bypass grafting patients. INTERVENTIONS: Fast-track treatments including (high or low) anesthetic dose, normothermia vs. hypothermia, and extubation protocol (within or after 8 hrs). MEASUREMENTS: Number of hours of intensive care unit stay, number of days of hospital stay, prevalence of myocardial infarction, and death. Furthermore, quality of life and cost evaluations were evaluated. The epidemiologic and economic qualities of the different trials were also assessed. MAIN RESULTS: A total of 27 studies evaluating fast-track treatment were identified, of which 12 studies were with major and 15 were without major differences in extubation protocol or anesthetic treatment or both. The use of an early extubation protocol ($p = .000$) but not the use of a low anesthetic dose ($p = .394$) or normothermic temperature management ($p = .552$) resulted in a decrease of the total intensive care unit stay of low-risk coronary artery bypass grafting patients. Early extubation was found to be an important determinant of the total hospital stay for these patients. An influence of the type of fast-track treatment on mortality or the prevalence of postoperative myocardial infarction was not observed. In general, the epidemiologic and economic qualities of included studies were moderate. CONCLUSIONS: Although fast-track anesthetics and normothermic temperature management facilitate early extubation, the introduction of an early extubation protocol seems essential to decrease intensive care unit and hospital stay in low-risk coronary artery bypass grafting patients. Copyright copyright 2006 by the Society of Critical Care Medicine and Lippincott Williams & Wilkins

23. Wind J, Polle SW, Fung Kon Jin PHP, Dejong CHC, von Meyenfeldt MF, Ubbink DT, et al. Systematic review of enhanced recovery programmes in colonic surgery. Br J Surg 2006;93(7):800-9.
Abstract: BACKGROUND: Fast track (FT) programmes optimize perioperative care in an attempt to accelerate recovery, reduce morbidity and shorten hospital stay. The aim of this review was to assess FT programmes for elective segmental colonic resections. METHODS: A systematic review was performed of all randomized controlled trials and controlled clinical trials on FT colonic surgery. The main endpoints were number of applied FT elements, hospital stay, readmission rate, morbidity and mortality. Quality assessment and data extraction were performed independently by three observers. RESULTS: Six papers

were eligible for analysis (three randomized controlled and three controlled clinical trials), including 512 patients. FT programmes contained a mean of nine (range four to 12) of the 17 FT elements as defined in the literature. Primary hospital stay (weighted mean difference - 1.56 days, 95 per cent confidence interval (c.i.) - 2.61 to - 0.50 days) and morbidity (relative risk 0.54, 95 per cent c.i. 0.42 to 0.69) were significantly lower for FT programmes. Readmission rates were not significantly different (relative risk 1.17, 95 per cent c.i. 0.73 to 1.86). No increase in mortality was found. CONCLUSIONS: FT appears to be safe and shortens hospital stay after elective colorectal surgery. However, as the evidence is limited, a multicentre randomized trial seems justified. Copyright 2006 British Journal of Surgery Society Ltd. [References: 29]

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24. Adler ME. Randomized controlled trial of early discharge for inguinal hernia and varicose veins. Ann R Coll Surg Engl 1977;59(3):251-4.
Abstract: A randomized controlled trial has been conducted into the effects of discharging patients from hospital either at 48 h or 6-7 days after operation for inguinal hernia or varicose veins. There was no statistically significant difference in the frequency of major postoperative complications between the two lengths of stay for either of the conditions studied. Similarly there was no difference between the two groups of hernia patients in relation to eventual recurrences

25. Ahlmark G, Ahlberg G, Saetre H, Haglund I, Korsgren M. A controlled study of early discharge after uncomplicated myocardial infarction. Acta Med Scand 1979;206(1-2):87-91.
Abstract: Out of 383 myocardial infarction (MI) patients aged below 70 years, 252 (66%) were judged after the third day in hospital to have had uncomplicated infarctions. These patients were allocated at random to two groups, one of which was given treatment for 8 days and the other for 15 days. No significant differences in mortality, morbidity or incapacity for work could be detected during the three-month period of follow-up. The findings thus support previous conclusions that early discharge from hospital after uncomplicated MI is not associated with greater risk for the patient than later discharge

26. Ahmed N, El Mahallawy HA, Ahmed IA, Nassif S, El Beshlawy A, El Haddad A. Early hospital discharge versus continued hospitalization in febrile pediatric cancer patients with prolonged neutropenia: A randomized, prospective study. Pediatr Blood Cancer 2007;49(6):786-92.
Abstract: BACKGROUND: Hospitalization with single or multi-agent antibiotic therapy has been the standard of care for treatment of febrile neutropenia in cancer patients. We hypothesized that an empiric antibiotic regimen that is effective and that can be administered once-daily will allow for improved hospital utilization by early transition to outpatient care. PROCEDURE: Febrile pediatric cancer patients with anticipated prolonged neutropenia were randomized between a regimen of once-daily ceftriaxone plus amikacin (C + A) and imipenem monotherapy (control). Afebrile patients on C + A satisfying "Early discharge Criteria" at 72 hr continued treatment as outpatients. We compared the outcome, adverse events, duration of hospitalization, and cost between both groups. RESULTS: A prospective randomized controlled clinical trial was conducted on 129 febrile episodes in pediatric cancer patients with prolonged neutropenia. No adverse events were seen in 32 children (84% of study arm) treated on an outpatient basis. We found a statistically significant difference between the duration of hospitalization of the C + A group [median 5 days] and control [median 9 days]($P < 0.001$), per episode antibiotic cost ($P < 0.001$) and total episode cost ($P < 0.001$). There was no statistically significant difference in the response to treatment at 72 hr or after necessary antimicrobial modifica-

tions. CONCLUSIONS: We conclude that pediatric febrile cancer patients initially considered at risk for sepsis due to prolonged neutropenia can be re-evaluated at 72 hr for outpatient therapy. The convenience, low incidence of adverse effects, and cost benefit of the once-daily regimen of C + A may be particularly useful to reduce the overall treatment costs and duration of hospitalization

27. Bautz-Holtert E, Sveen U, Rygh J, Rodgers H, Wyller TB. Early supported discharge of patients with acute stroke: a randomized controlled trial. Disabil Rehabil 2002;24(7):348-55.
Abstract: PURPOSE: To evaluate the feasibility and effectiveness of early supported discharge (ESD) following acute stroke. METHOD: An ESD scheme was compared to conventional rehabilitation in a randomized controlled trial. All patients admitted with acute stroke were considered for inclusion. Eighty-eight (20.2%) were found to be eligible and 82 were randomized either to early supported discharge (n = 42) or conventional rehabilitation (n = 40). The primary outcome measure was the Nottingham Extended Activities of Daily Living Scale. The General Health Questionnaire, the Montgomery Aasberg Depression Rating Scale, mortality, placement and patient and carer satisfaction served as secondary outcome measures. RESULTS: Median length of stay was reduced from 31 days in the conventional hospital rehabilitation group to 22 days in the early supported discharge group (p = 0.09). No differences were found regarding primary outcome. The General Health Questionnaire score showed a significant difference in favour of the early supported discharge group at three months (19.5/24, p = 0.02), but not at six. At six months, the proportion of patients being dead or in institution showed a trend of being higher in the conventional rehabilitation group (OR 3.8, 95% CI 0.8-23). CONCLUSIONS: Early supported discharge after stroke is feasible and it is possible that it has benefits compared with conventional rehabilitation

28. Beech R, Rudd AG, Tilling K, Wolfe CD. Economic consequences of early inpatient discharge to community-based rehabilitation for stroke in an inner-London teaching hospital. Stroke 1999;30(4):729-35.
Abstract: BACKGROUND AND PURPOSE: In an inner-London teaching hospital, a randomized trial of "conventional" care versus early discharge to community-based therapy found no significant differences in clinical outcomes between patient groups. This report examines the economic consequences of the alternative strategies. METHODS: One hundred sixty-seven patients received the early discharge package, and 164 received conventional care. Patient utilization of health and social services was recorded over a 12-month period, and cost was determined using data from provider departments and other published sources. RESULTS: Inpatient stay after randomization was 12 days (intervention group) versus 18 days (controls) (P=0.0001). Average units of therapy per patient were as follows: physiotherapy, 22.4 (early discharge) versus 15.0 (conventional) (P=0.0006); occupational therapy, 29.0 versus 23.8 (P=0.002); speech therapy, 13. 7 versus 5.8 (P=0.0001). The early discharge group had more annual hospital physician contacts (P=0.015) and general practitioner clinic visits (P=0.019) but fewer incidences of day hospital attendance (P=0.04). Other differences in utilization were nonsignificant. Average annual costs per patient were pound sterling 6800 (early discharge) and pound sterling 7432 (conventional). The early discharge group had lower inpatient costs per patient (pound sterling 4862 [71% of total cost] versus pound sterling 6343 [85%] for controls) but higher non-inpatient costs (pound sterling 1938 [29%] versus pound sterling 1089 [15%]). Further analysis demonstrated that early discharge is unlikely to lead to financial savings; its main benefit is to release capacity for an expansion in stroke caseload. CONCLUSIONS: Overall results of this trial indicate that early discharge to community rehabilitation for

stroke is cost-effective. It may provide a means of addressing the predicted increase in need for stroke care within existing hospital capacity.

29. Bogaty P, Dumont S, O'Hara GE, Boyer L, Auclair L, Jobin J, et al. Randomized trial of a noninvasive strategy to reduce hospital stay for patients with low-risk myocardial infarction. J Am Coll Cardiol 2001;37(5):1289-96.
Abstract: OBJECTIVES: This study evaluated the feasibility, pertinence and psychosocial repercussions of a noninvasive reduced hospital stay strategy (three days) for low-risk patients with acute myocardial infarction using simple clinical criteria and predischarge 24-h ambulatory ST-segment ischemic monitoring. BACKGROUND: Previous studies evaluating shorter stays for uncomplicated myocardial infarction have been limited by retrospective or nonrandomized design and overdependence on invasive cardiac procedures. METHODS: One-hundred twenty consecutive patients admitted with an acute myocardial infarction fulfilling low-risk criteria were randomized 2:1 to a short hospital stay (80 patients) or standard stay (40 patients). Short-stay patients with no ischemia on ST-segment monitoring were discharged on day 3, returning for exercise testing a week later. All analyses were on an intention-to-treat basis. RESULTS: Forty-one percent of all screened patients with acute myocardial infarction would have been medically eligible for the short-stay strategy. Seventeen patients (21%) were not discharged early because of ischemia on ST-monitoring or angina. Median initial hospital stay was halved from 6.9 days in the standard stay to 3.5 days in the short-stay group. At six months, median total days hospitalized were 7.5 in the standard stay and 3.6 in the short-stay group ($p < 0.0001$). Adverse events and readmissions were low and not significantly different, and there were 25% fewer invasive cardiac procedures in the short-stay group. Psychosocial outcomes, risk factor changes and exercise test results were similar in the two groups. CONCLUSIONS: This reduced hospital stay strategy for low-risk patients with acute myocardial infarction is feasible and worthwhile, resulting in a substantial and sustained reduction in days hospitalized. It is without unfavorable psychosocial consequences, appears safe and does not increase the number of invasive cardiac procedures

30. Bonnema J, van Wersch AM, Van Geel AN, Pruyn JF, Schmitz PI, Uyl-de Groot CA, et al. Cost of care in a randomised trial of early hospital discharge after surgery for breast cancer. Eur J Cancer 1998;34(13):2015-20.
Abstract: The aim of this study was to determine the effect of the reduction of the length of hospital stay after surgery for breast cancer on the rate of care consumption and the cost of care. Patients with operable breast cancer were randomised to a short or long postoperative hospital stay. Data on care consumption were collected for a period of 4 months in diaries administered by patients, and socioeconomic status was evaluated by questionnaires. A cost minimisation analysis using the 'societal' perspective was performed and savings were compared with the savings of hospital charges. The use of professional home care was higher for the short stay group during the first month (7.2 versus 1.3 h, $P < 0.0001$). The number of out-patient consultations, the intensity of informal home care and patient's expenses did not increase after early discharge. The total cost of care was reduced by US$1320 by introducing the short stay programme ($P = 0.0007$), but the savings were substantially lower than the savings in hospital charges (US$2680)

31. Bonnema J, Van Wersch AME, Van Geel AN, Pruyn JFA, Schmitz PIM, Paul MA, et al. Medical and psychosocial effects of early discharge after surgery for breast cancer: Randomised trial. Br Med J 1998;316(7140):1267-71.
Abstract: Objective: To assess the medical and psychosocial effects of early hospital discharge after surgery for breast cancer on complication rate, patient satisfaction, and psychosocial outcomes. Design: Randomised trial comparing discharge from hospital 4 days after surgery (with drain in situ) with discharge

after drain removal (mean 9 days in hospital). Psychosocial measurements performed before surgery and 1 and 4 months after. Setting: General hospital and cancer clinic in Rotterdam with a socioeconomically diverse population. Subjects: 125 women with operable breast cancer. Main outcome measures: Incidence of complications after surgery for breast cancer, patient satisfaction with treatment, and psychosocial effects of short stay or long stay in hospital. Results: Patient satisfaction with the short stay in hospital was high; only 4% (2/56 at 1 month after surgery and 2/52 at 4 months after surgery) of patients indicated that they would have preferred a longer stay. There were no significant differences in duration of drainage from the axilla between the short stay and long stay groups (median 8 v 9 days respectively, P = 0.45) or the incidence of wound complications (10 patients v 9 patients). The median number of seroma aspirations per patient was higher for the long stay group (1 v 3.5, P = 0.04). Leakage along the drain occurred more frequently in short stay patients (21 v 10 patients, P = 0.04). The two groups did not differ in scores for psychosocial problems (uncertainty anxiety, loneliness, disturbed sleep, loss of control, threat to self esteem), physical or psychological complaints, or in the coping strategies used. Before surgery, short stay patients scored higher on scales of depression (P = 0.03) and after surgery they were more likely to discuss their disease with their families (at 1 month P = 0.004, at 4 months P = 0.04). Conclusions: Early discharge from hospital after surgery for breast cancer is safe and is well received by patients. Early discharge seems to enhance the opportunity for social support within the family

32. Booth JE, Roberts JA, Flather M, Lamping DL, Mister R, Abdalla M, et al. A trial of early discharge with homecare compared to conventional hospital care for patients undergoing coronary artery bypass grafting. Heart 2004;90(11):1344-5.

33. Brooten D, Kumar S, Brown LP, Butts P, Finkler SA, Bakewell-Sachs S, et al. A randomized clinical trial of early hospital discharge and home follow-up of very-low-birth-weight infants. N Engl J Med 1986;315(15):934-9.
Abstract: To determine the safety, efficacy, and cost savings of early hospital discharge of very-low-birth-weight infants (less than or equal to 1500 g), we randomly assigned infants to one of two groups. Infants in the control group (n = 40) were discharged according to routine nursery criteria, which included a weight of about 2200 g. Those in the early-discharge group (n = 39) were discharged before they reached this weight if they met a standard set of conditions. For families of infants in the early-discharge group, instruction, counseling, home visits, and daily on-call availability of a hospital-based nurse specialist for 18 months were provided. Infants in the early-discharge group were discharged a mean of 11 days earlier, weighed 200 g less, and were two weeks younger at discharge than control infants. The mean hospital charge for the early-discharge group was 27 percent less than that for the control group ($47,520 vs. $64,940; P less than 0.01), and the mean physician's charge was 22 percent less ($5,933 vs. $7,649; P less than 0.01). The mean cost of the home follow-up care in the early-discharge group was $576, yielding a net saving of $18,560 for each infant. The two groups did not differ in the numbers of rehospitalizations and acute care visits, or in measures of physical and mental growth. We conclude that early discharge of very-low-birth-weight infants, with follow-up care in the home by a nurse specialist, is safe and cost effective

34. Brooten D, Roncoli M, Finkler S, Arnold L, Cohen A, Mennuti M. A randomized trial of early hospital discharge and home follow-up of women having cesarean birth. Obstet Gynecol 1994;84(5):832-8.
Abstract: OBJECTIVE: To determine the safety, efficacy, and cost savings of early hospital discharge of women delivered by unplanned cesarean delivery. METHODS: Using randomized assignment, 61 postpartum women were dis-

charged from the hospital at the usual time, and 61 were discharged early and had nurse specialist home follow-up care. The latter group received comprehensive discharge planning, instruction, counseling, home visits, and daily on-call availability from the nurse specialists. Both groups were followed from delivery to 8 weeks postpartum. RESULTS: Women who were discharged early and received transitional home care services by clinical nurse specialists were sent home a mean of 30.3 hours earlier than the control group (P < .001). They had significantly greater satisfaction with care, more of their infants had timely immunizations at the end of follow-up, and they had a 29% reduction in health care charges compared to the control group receiving routine care. Although there were no statistically significant differences in maternal and infant rehospitalizations and acute-care visits, there were more maternal rehospitalizations in the control group than in the nurse specialist-followed group (three versus zero). No statistically significant differences were found between the groups in the outcomes of maternal affect and overall functional status. CONCLUSION: Early hospital discharge of women after unplanned cesarean birth, using the model of nurse specialist transitional home care, is safe, feasible, and cost-effective

35. Casiro OG, McKenzie ME, McFadyen L, Shapiro C, Seshia MM, MacDonald N, et al. Earlier discharge with community-based intervention for low birth weight infants: a randomized trial. Pediatrics 1993;92(1):128-34.
Abstract: BACKGROUND. Prolonged hospitalization of low birth weight infants increases the risk of medical and psychosocial complications. The feasibility of earlier discharge with community-based follow-up of infants of < or = 2000 g birth weight, without the use of home apnea monitors, was investigated. METHODS. One hundred infants of < or = 2000 g birth weight were randomized to either an intervention or control group. Intervention infants were discharged when readiness criteria were met. Based on assessed need, intervention group families received public health nursing and homemaker services for up to 8 weeks. Control infants were discharged to their homes at the discretion of the attending physician. All infants were assessed blindly at age 1 year with the Bayley and Home Observation for Measurement of the Environment (HOME) scales. RESULTS. There were no group differences in baseline infants' characteristics or in neonatal complications. Infants in the intervention group were discharged from the hospital at an earlier postconceptional age (mean +/- SD 36.6 +/- 1.5 weeks vs 37.3 +/- 1.6 weeks; P < .04). Median length of hospital stay (23 days vs 31.5 days) and mean weight at the time of discharge (2200 +/- 288 g vs 2275 +/- 301 g) were lower, but not significantly, for infants in the intervention group. A secondary analysis by birth weight strata (< or = 1500 g and 1501 through 2000 g) revealed that the most significant reductions in hospital stay and weight at discharge were realized in infants of 1501 through 2000 g birth weight. The persistence of apneic episodes and need for electronic monitoring prevented earlier discharge of infants of < or = 1500 g birth weight. Postdischarge services to the intervention group included 185 public health nurse home visits (3.8 +/- 0.91), 410 phone contacts (8.4 +/- 5), and 2298 homemaker hours (46 +/- 78) of service. At 1 year, there were no deaths and no group differences in rehospitalization rates, use of ambulatory services, or Bayley scores. Intervention families had significantly higher 1-year HOME scores. Minimum cost of hospital care was $873 per day, while the total cost of community-based services averaged $626 per infant. CONCLUSIONS. A significant reduction in average length of hospital stay was achieved for infants of 1501 through 2000 g birth weight. Earlier discharge of infants weighing < or = 1500 g at birth was hampered by persistent apneic episodes and feeding difficulties. A community-based program designed to provide individualized support and education for families of low birth weight infants was cost-effective and had a positive influence on the home environment

36. Crotty M, Whitehead CH, Gray S, Finucane PM. Early discharge and home rehabilitation after hip fracture achieves functional improvements: a randomized controlled trial. Clin Rehabil 2002;16(4):406-13.
Abstract: OBJECTIVE: To compare hospital and home settings for the rehabilitation of patients following hip fracture. DESIGN: Randomized controlled trial comparing accelerated discharge and home-based rehabilitation (n = 34) with conventional hospital care (n = 32) for patients admitted to hospital with hip fracture. SETTING: Three metropolitan hospitals in Adelaide, Australia. SUBJECTS: Sixty-six patients with fractured hip. INTERVENTIONS: Patients assigned to the home-based rehabilitation group were discharged within 48 hours of randomization. The project team therapists made visits to the patient's home and negotiated a set of realistic, short-term and measurable treatment goals with both the patient and carer. Those randomized to usual care remained in hospital for conventional rehabilitation. MAIN OUTCOME MEASURES: Physical and social dependence, balance confidence, quality of life, carer strain, patient and carer satisfaction, use of community services and incidence of adverse events such as re-admission and falls. RESULTS: While there was no difference between the groups for all measures of quality of life, patients in the accelerated discharge and home-based rehabilitation group recorded a greater improvement in MBI from randomization ($p < 0.05$) and scored higher on the Falls Efficacy Scale ($p < 0.05$) at four months. There was no difference in falls rates. Patients in the home-based rehabilitation group had a shorter stay in hospital ($p < 0.05$) but a longer stay in rehabilitation overall ($p < 0.001$). The groups were comparable on the rate and length of admissions after discharge, use of community services, need for carer input and contact with general practitioner (GP) after discharge. CONCLUSIONS: This trial further supports the practice of accelerated discharge from hospital and home-based rehabilitation in selected patients recovering from hip fracture. Such a practice appears to improve physical independence and confidence in avoiding subsequent falls which may have implications for longevity and overall quality of life

37. Cruz H, Guzman N, Rosales M, Bastidas J, Garcia J, Hurtado I, et al. Early hospital discharge of preterm very low birth weight infants. J Perinatol 1997;17(1):29-32.
Abstract: OBJECTIVE: The objective of this study was to investigate whether early discharge from the hospital was feasible for selected very low birth weight (VLBW) infants. STUDY DESIGN: A randomized clinical trial of discharge of VLBW infants from the neonatal intensive care unit at 1300 gm versus 1800 gm was done comparing weight gain and incidence of infection. Forty-three VLBW infants treated in the neonatal intensive care unit and follow-up clinics of the Hospital Universitario del Valle, Cali, Colombia, were entered into the study at 1300 to 1350 gm when they met behavioral criteria for discharge and the family home was approved. RESULTS: There were no differences in weight gain or incidence of infection in the home group compared with the hospital group. A significant saving in hospital days and hospital costs was realized for the home group. Family cooperation was heightened in the home group. CONCLUSIONS: Early discharge from the hospital at weights as low as 1300 to 1350 gm is safe for the VLBW infant when properly selected on the basis of behavioral criteria and environmental approval. The potential savings in hospital costs should be considered when resources are allocated for continued support for these infants

38. Dawes HA, Docherty T, Traynor I, Gilmore DH, Jardine AG, Knill-Jones R. Specialist nurse supported discharge in gynaecology: a randomised comparison and economic evaluation. Eur J Obstet Gynecol Reprod Biol 2007;130(2):262-70.
Abstract: AIM: To determine the effect on quality of life and cost effectiveness of specialist nurse early supported discharge for women undergoing major ab-

dominal and/or pelvic surgery for benign gynaecological disease compared with routine care. STUDY DESIGN: Randomised controlled trial comparing specialist nurse supported discharge with routine hospital care in gynaecology. The SF-36, a generic health status questionnaire, was used to measure women's evaluation of their health state before surgery and at 6 weeks after surgery. A further questionnaire scoring patient symptoms, milestones of recovery, information given and satisfaction, was administered prior to discharge from hospital and at 6 weeks thereafter. SETTING: Gynaecology service at the Western Infirmary Glasgow, part of North Glasgow University, NHS Trust. PARTICIPANTS: One hundred and eleven women scheduled for major abdominal or pelvic surgery for benign gynaecological disease. MAIN OUTCOME MEASURES: SF-36 health survey questionnaire baseline scores were reported before surgery and at 6 weeks follow-up. Complications, length of hospital stay, readmission, information on discharge support and satisfaction of women were recorded at discharge from hospital and at 6 weeks follow-up. A cost consequence analysis was conducted based on the perspective of the NHS. RESULTS: The addition of a specialist nurse to routine hospital care in gynaecology significantly reduced the post-operative length of hospital stay p = 0.001, improved information delivery and satisfaction of women. The specialist nurse supported discharge group was associated with significantly lower total costs to the NHS than routine care resulting principally from the difference in the cost of the post-operative length of stay. CONCLUSIONS: Women undergoing major abdominal and pelvic surgery were discharged home earlier with provision of support from a specialist gynaecology nurse. The results of this study suggest that duration of hospital stay can be shortened by the introduction of a specialist nurse without introducing any adverse physical and psychological effects. This process of care is associated with receipt of information on health and lifestyle issues and maintenance of high levels of patient satisfaction and demonstrates the effectiveness of the specialist nurse role in the provision of health information for women. Earlier hospital discharge at 48 h after major abdominal and pelvic surgery is an acceptable, cost effective alternative to current routine practice in the absence of further randomised evidence

39. Desideri A, Fioretti PM, Cortigiani L, Gregori D, Coletta C, Vigna C, et al. Cost of strategies after myocardial infarction (COSTAMI): A multicentre, international, randomized trial for cost-effective discharge after uncomplicated myocardial infarction. Eur Heart J 2003;24(18):1630-9.
Abstract: Aims: Risk stratification after uncomplicated acute myocardial infarction is mostly applied by either symptom-limited post discharge exercise electrocardiography or pre-discharge submaximal exercise test. Aim of the present study was to determine if early pharmacological stress echocardiography and discharge within 24 hours of the test in cases without induced myocardial ischemia leads to lower costs and similar clinical outcome during 1 year follow up when compared to clinical evaluation and exercise electrocardiography after discharge. Methods and results: Four-hundred fifty-eight patients from 10 participating centers with a recent uncomplicated myocardial infarction were randomized to pharmacological stress echocardiography on day 3-5 followed by early discharge in the case of negative test result (early discharge strategy) (n=233) or clinical evaluation with hospital discharge on day 7-9 and symptom-limited post-discharge exercise electrocardiography at 2-4 weeks after myocardial infarction (usual care strategy) (n=225). At 1 year follow up there were 63 events (4 deaths, 9 non fatal reinfarctions, 50 chest pains requiring hospitalization) in patients randomized to early discharge, and 69 events (6 deaths, 13 reinfarctions, 50 chest pains requiring hospitalization) in usual care (p=ns). Total median individual costs calculated on the basis of hospitalizations, investigations and interventions during 1 year follow up were €3561 4E3561 for early discharge strategy vs €E3850 for usual care strategy (p<0.05). Conclusions: Early pharmacological stress echocardiography followed by early

discharge in case of negative test result gives similar clinical outcome and lower costs after uncomplicated myocardial infarction than clinical evaluation and delayed post-discharge symptom-limited exercise electrocardiography. copyright 2003 Published by Elsevier Ltd on behalf of The European Society of Cardiology

40. Donnelly M, Power M, Russell M, Fullerton K. Randomized controlled trial of an early discharge rehabilitation service: the Belfast Community Stroke Trial. Stroke 2004;35(1):127-33.
Abstract: BACKGROUND AND PURPOSE: To compare a community-based multidisciplinary stroke team (CST) approach with hospital-based rehabilitation in terms of hospital stay, functioning, quality of life, and service use and costs. METHODS: Stroke patients who met pre-agreed criteria were allocated randomly to the CST service (n=59) or to usual inpatient rehabilitation and follow-up care (n=54). Assessments were completed at randomization and 12 months later. Caregiver strain and satisfaction (n=55) were also assessed. Cost data were collected for a subsample of 38 patients. RESULTS: Almost 80% of surviving patients (n=691) were discharged home and a small number (n=55) were readmitted. Approximately 17% (113/649) were randomized. There were no statistically significant differences in hospital duration, costs, or outcome measures at baseline and 12 months except for higher satisfaction reported by CST patients. Overall, both groups recorded improvement in most domains over time. Carers reported a high level of satisfaction although the level of strain among carers is cause for concern. The community group (n=18) cost less than the hospital group (n=20). CONCLUSIONS: A mixed model of hospital-based and community-based rehabilitation services is likely to lead to increased patient choice and satisfaction and a potential reduction in bed pressures for less severe stroke patients

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Abstract: Cost-effectiveness reduces hospital stay for all patients with thyroid surgery but lacks information on medical comparability and patients' fulfilled expectations. The aim of this study was to assess if a hospital stay of 2 days after thyroid surgery had a negative influence on the medical quality or on health-related quality of life. In a controlled prospective randomized trial with 238 patients, a postoperative hospital stay of 2 days was compared to one longer than 2 days. The postoperative medical investigation included serum calcium levels, laryngeal nerve function, and suction drainage volume. Health-related quality of life was assessed on the day of admission before the operation and again 14 days after discharge. Fourteen days after discharge patients were also asked about their subjective health. Despite the study design, it was necessary, for ethical reasons, to let the patients decide when to leave the hospital. In the 2-day study group, 56.6% of the patients preferred hospitalization for more than 2 days (most choosing 3 days). Medical reasons were hyperthyroidism ($p < 0.02$) and postoperative hypocalcemia ($p < 0.03$). In the control group 28% left the hospital after 2 days. Only 35% of the patients left the hospital at the second postoperative day, but 60% of these patient supported this shorter hospitalization. Health-related quality of life and self-rated health was significantly higher in patients leaving the hospital on the second postoperative day. A 2-day hospital stay after thyroid surgery is possible and does not show medical or health-related quality of life disadvantages in patients with an uncomplicated postoperative course who consider themselves healthy

42. Fjaertoft H, Indredavik B, Lydersen S. Stroke unit care combined with early supported discharge: long-term follow-up of a randomized controlled trial. Stroke 2003;34(11):2687-91.

Abstract: BACKGROUND AND PURPOSE: Early supported discharge from a stroke unit reduces the length of hospital stay. Evidence of a benefit for the patients is still unknown. The aim of this trial was to evaluate the long-term effects of an extended stroke unit service (ESUS), characterized by early supported discharge. The short-term effects were published previously. METHODS: We performed a randomized controlled trial in which 320 acute stroke patients were allocated to either ordinary stroke unit service (OSUS) (160 patients) or stroke unit care with early supported discharge (160 patients). The ESUS consists of a mobile team that coordinates early supported discharge and further rehabilitation. Primary outcome was the proportion of patients who were independent as assessed by modified Rankin Scale (RS) (RS < or =2=global independence). Secondary outcomes measured at 52 weeks were performance on the Barthel Index (BI) (BI > or =95=independent in activities of daily living), differences in final residence, and analyses to identify patients who benefited most from an early supported discharge service. All assessments were blinded. RESULTS: We found that 56.3% of the patients in the ESUS versus 45.0% in the OSUS were independent (RS < or =2) (P=0.045). The number needed to treat to achieve 1 independent patient in ESUS versus OSUS was 9. The odds ratio for independence was 1.56 (95% CI, 1.01 to 2.44). There were no significant differences in BI score and final residence. Patients with moderate to severe stroke benefited most from the ESUS. CONCLUSIONS: Stroke service based on treatment in a stroke unit combined with early supported discharge appears to improve the long-term clinical outcome compared with ordinary stroke unit care. Patients with moderate to severe stroke benefit most

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44. Gralla O, Haas F, Knoll N, Hadzidiakos D, Tullmann M, Romer A, et al. Fast-track surgery in laparoscopic radical prostatectomy: basic principles. World J Urol 2007;25(2):185-91.
Abstract: Fast-track surgery describes innovative treatment concepts ensuring a faster convalescence phase. The aim of this study was to allow hospital discharge 3 days after surgery without additional complications in patients receiving LRPE for localized prostate cancer. Twenty-five patients each were randomized in the study groups to verify if a fast-track regimen could be transferred into clinical routine. The perioperative data, early complications, hospital stay as well as readmission rate were analyzed. The mean postoperative stay was 3.6 days in the fast-track group versus 6.7 days in the conventional group. The overall complications were significantly less in the fast-track procedure. The readmission rate was low and not significant. Patients receiving an LRPE benefit from a suitable fast-track concept. The postoperative hospital stay could be shortened nearly by half with a significantly decreased overall complication rate. Thus, fast-track concepts might contribute to saving resources in the long term. However, more evidence based on larger prospective trials is needed to achieve optimal quality of life for patients perioperatively

45. Grines CL, Marsalese DL, Brodie B, Griffin J, Donohue B, Costantini CR, et al. Safety and cost-effectiveness of early discharge after primary angioplasty in low risk patients with acute myocardial infarction. J Am Coll Cardiol 1998;31(5):967-72.
Abstract: OBJECTIVES: The second Primary Angioplasty in Myocardial Infarction (PAMI-II) study evaluated the hypothesis that primary percutaneous transluminal coronary angioplasty (PTCA), with subsequent discharge from the hospital 3 days later, is safe and cost-effective in low risk patients. BACKGROUND: In low risk patients with myocardial infarction (MI), few data exist regarding the need for intensive care and noninvasive testing or the appropri-

ate length of hospital stay. METHODS: Patients with acute MI underwent emergency catheterization with primary PTCA when appropriate. Low risk patients (age <70 years, left ventricular ejection fraction >45%, one- or two-vessel disease, successful PTCA, no persistent arrhythmias) were randomized to receive accelerated care (admission to a nonintensive care unit and day 3 hospital discharge without noninvasive testing [n = 237] or traditional care [n = 234]). RESULTS: Patients who received accelerated care had similar in-hospital outcomes but were discharged 3 days earlier (4.2+/-2.3 vs. 7.1+/-4.7 days, p = 0.0001) and had lower hospital costs ($9,658+/-5,287 vs. $11,604+/-6,125 p = 0.002) than the patients who received traditional care. At 6 months, accelerated and traditional care groups had a similar rate of mortality (0.8% vs. 0.4%, p = 1.00), unstable ischemia (10.1% vs. 12.0%, p = 0.52), reinfarction (0.8% vs. 0.4%, p = 1.00), stroke (0.4% vs. 2.6%, p = 0.07), congestive heart failure (4.6% vs. 4.3%, p = 0.85) or their combined occurrence (15.2% vs. 17.5%, p = 0.49). The study was designed to detect a 10% difference in event rates; at 6 months, only a 2.3% difference was measured between groups, indicating an actual power of 0.19. CONCLUSIONS: Early identification of low risk patients with MI allowed safe omission of the intensive care phase and noninvasive testing, and a day 3 hospital discharge strategy, resulting in substantial cost savings

46. Halimi F, Clementy J, Attuel P, Dessenne X, Amara W, OEDIPE t, I. Europace 2008;10(12):1392-9.
Abstract: AIMS: The OEDIPE trial examined the safety and efficacy of an abbreviated hospitalization after implantation or replacement of dual-chamber pacemakers (PM) using a telecardiology-based ambulatory surveillance programme. METHODS AND RESULTS: Patients were randomly assigned to (i) an active group, discharged from the hospital 24 h after a first PM implant or 4-6 h after replacement, and followed for 4 weeks with Home-Monitoring (HM), or (ii) a control group followed for 4 weeks according to usual medical practices. The primary objective was to confirm that the proportion of patients who experienced one or more major adverse events (MAE) was not higher in the active than in the control group. The study included 379 patients. At least one treatment-related MAE was observed in 9.2% of patients (n = 17) assigned to the active group vs. 13.3% of patients (n = 26) in the control group (P = 0.21), a 4.1% absolute risk reduction (95% CI -2.2 to 10.4; P = 0.98). By study design, the mean hospitalization duration was 34% shorter in the active than in the control group (P < 0.001), and HM facilitated the early detection of technical issues and detectable clinical anomalies. CONCLUSION: Early discharge with HM after PM implantation or replacement was safe and facilitated the monitoring of patients in the month following the procedure

47. Hedenbro JL, Frederiksen SG, Lundgren PO. Patients accept a shorter hospital time for vertical banded gastroplasty in a short stay unit: A randomized study. Obes Surg 1995;5(1):34-8.
Abstract: Background: vertical banded gastroplasty can be performed with a short post-operative hospital stay without this giving rise to more complications. An increased number of patients can be expected after the NIH consensus statement on Bariatric Surgery. Before cost-effective short stay units are employed for such surgery, patients' attitudes to short-term care should be investigated. Methods: we compared patient satisfaction in two groups of patients. They had been randomized to have a vertical banded gastroplasty in either a normal ward or a short stay unit, open Monday 7 am to Friday 1 pm. Results: there were no differences in patient satisfaction with either length of stay or quality of stay, despite the fact that short-stay unit patients stayed significantly shorter post-operatively (3.25 (0.62) days vs 4.70 (0.95); p = 0.0004; mean (SD)). Conclusion: it appears that vertical banded gastroplasty can be

performed with a short postoperative hospital stay without discomfort to the patient

48. Ho YH, Lee J, Salleh I, Leong A, Eu KW, Seow-Choen F. Randomized controlled trial comparing same-day discharge with hospital stay following haemorrhoidectomy. Aust N Z J Surg 1998;68(5):334-6.
Abstract: BACKGROUND: A randomized controlled trial was conducted to compare traditional hospital stay haemorrhoidectomy (STAY) with same-day discharge haemorrhoidectomy (DAY) with regard to costs, clinical outcome and patient satisfaction. METHODS: A total of 54 consecutive patients were randomized to either STAY or DAY groups. A standardized excision of three piles was performed and the wounds were left open. The DAY patients went home on the same day but the STAY patients remained in hospital until their bowels had opened. A linear analogue pain score and patient satisfaction questionnaire were administered. During a mean follow-up of 60.5 (standard error of mean = 1.2) weeks, the complications and the total medical costs were recorded RESULTS: There were no differences in the age and sex distributions in both groups (STAY: 11 men, 16 women; mean age 40.6 (+/- 1.8) years; DAY: 10 men, 17 women; mean age 40.6 (+/- 1.9) years). Despite accounting for any readmissions, the DAY patients accumulated shorter total hospitalization stays ($P < 0.001$) and incurred less total medical costs ($P = 0.04$). The pain scores, analgesia requirements, postoperative complications, patient satisfaction and time taken off work were not different between the two groups. However, more patients in both groups preferred to stay after surgery if they should need another haemorrhoidectomy. CONCLUSIONS: Haemorrhoidectomy (with excision of three piles) can be safely performed as a day procedure, with reduced hospitalization and medical costs.

49. Hutter AMJ, Sidel VW, Shine KI, DeSanctis RW. Early hospital discharge after myocardial infarction. N Engl J Med 1973;288(22):1141-4.

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Early hospital discharge after myocardial infarction

ADOLPH V. HUTTER, JR., MD; VICTOR W. SIDEL, MD; KENNETH I. SHINE, MD; ROMAN W. DE SANCTIS, MD

Cardiac Unit, Department of Medicine, Massachusetts General Hospital, Boston

N Engl J Med 288:1141-1144, 1973

The period of hospitalization for uncomplicated myocardial infarction has been reduced during recent years from 4-6 weeks to 3-4 weeks. However, in view of the high incidence of myocardial infarction and the ever increasing demands for and costs of hospital beds, makes it necessary to critically evaluate the need for long hospital stays. In this respect a prospective, randomized, controlled study of a two-week versus a three-week hospital stay was made in 138 patients with uncomplicated but definite myocardial infarction. There were no significant differences between the two groups except for some chance selection in previous cardiac status.

Patients with recurrent ventricular arrhythmias, definite heart block, persistent sinus tachycardia, hypotension, x-ray evidence of ventricular aneurysm, continued cardiac pain, or persistent heart failure were excluded from the study as they were considered to be at increased risk from this accelerated mobilization program and probably required longer periods of rest and slower mobilization. Of the total number of patients treated for myocardial infarction between November 1968 and July 1971 — 138/925 (15%) were included in the study.

The duration of hospital stay was prolonged in seven patients assigned to two-week stays and five patients assigned to three-week stays because of an extension of their myocardial infarction (in three and two) or other reasons.

Patients in the two-week group were mobilized as follows: *dangle* on day 7-9; *sit in chair* on day 10-11; *walk* on day 12-13; *discharge* on day 14. This schedule was modified for patients in the three-week group to days 10-12, 13-16, 17-20, and 21 respectively. After discharge, patients were instructed to remain essentially on one floor of their house until the 28th day after infarction.

Of the 69 patients assigned to a two-week stay: 58% returned to work; 29% did not return to work but did not require re-hospitalization; 9% required re-hospitalization and survived; 4% died. Of the 69 patients assigned to a three-week stay: 49% returned to work; 38% did not return to work but did not require re-hospitalization; 6% required re-hospitalization and survived; 7% died.

Paired analysis of the overall functional outcome six months after infarction revealed that 24 patients in the two-week-stay group and 17 patients in the three-week-stay group were probably or definitely better; with no difference in 28 patients.

The overall results of this study indicate no apparent additional benefit to the patient from a hospital stay of three weeks as compared to that of two weeks following an uncomplicated myocardial infarction. Since a substantial proportion of patients with myocardial infarction fall into this "good risk" category, it appears that an abbreviated hospital stay for appropriately selected patients will not diminish the quality of care, yet yield substantial savings in medical care dollars and hospital-bed utilization. The authors advocate individualization rather than slavish adherence to any preconceived treatment plan.

50. Innes HE, Smith DB, O'Reilly SM, Clark PI, Kelly V, Marshall E. Oral antibiotics with early hospital discharge compared with in-patient intravenous antibiotics for low-risk febrile neutropenia in patients with cancer: a prospective randomised controlled single centre study. Br J Cancer 2003;89(1):43-9.
Abstract: Neutropenic sepsis remains a potentially life-threatening complication of anticancer chemotherapy. However, it is possible to identify patients who are at low risk for serious complications and for whom less-intensive, more-convenient treatment may be appropriate. The aim of this study was to assess the efficacy and safety of oral antibiotics in conjunction with early hospital discharge in comparison with standard in-patient intravenous antibiotics in patients with low-risk neutropenic fever. In all, 126 episodes of low-risk neutropenic fever occurred in 102 patients. Patients were randomised to receive either: an oral regimen of ciprofloxacin (750 mg 12 hourly) plus amoxicillin-clavulanate (675 mg 8 hourly) for a total of 5 days, or a standard intravenous

regimen of gentamicin and tazocin (piperacillin/tazobactam) until hospital discharge. Patients randomised to oral antibiotics were eligible for discharge following 24 h of hospitalisation, if clinically stable and symptomatically improved. The efficacy of the two arms was similar: initial treatment was successful without antibiotic modification in 90% of episodes in the intravenous arm and 84.8% of episodes in the oral arm, P=0.55, absolute difference between the groups 5.2%; 95% confidence interval (CI) for the difference -7 to 17.3%. Only one episode in the oral arm was associated with significant clinical deterioration: this occurred within the initial in-patient assessment period. The median in-patient stay was 4 days in the intravenous arm (range 2-8) and 2 days in the oral arm (range 1-16 days), P&<0.0005. The reduction in hospital stay led to significant cost-savings in the oral arm. In conclusion, this study suggests that oral antibiotics in conjunction with early hospital discharge for patients who remain stable after a 24 h period of in-patient monitoring offers a feasible and cost-effective alternative to conventional management of low-risk neutropenic fever

51. Jirmar R, Widimsky P, Capek J, Hlinomaz O, Groch L. Next day discharge after successful primary angioplasty for acute ST elevation myocardial infarction. Int Heart J 2008;49(6):653-9.
Abstract: This study tested the feasibility and safety of next day hospital discharge after successful primary PCI for uncomplicated STEMI. Twenty-three p-PCI patients (out of 271 consecutive patients) who fulfilled the study inclusion criteria were enrolled in the pilot nonrandomized phase (transfer of patients from the coronary unit to a standard ward within 24 hours after their admission) of the study. The randomized phase of the study screened a total of 1946 consecutive STEMI patients undergoing p-PCI in the two participating centers. Only 56 (ie, 2.9% from all p-PCI) very low risk patients residing less than 20 km from the PCI center were selected. They were randomized 1:2 to either a standard hospital stay (group A, n = 19, age, 58 +/- 8) or first day discharge (group B, n = 37, age, 56 +/- 10; NS). There were no serious complications among 79 study patients within 30 days. The duration of hospital stay was 105 +/- 45 hours (group A) and 29 +/- 3 hours (P < 0.0001) in group B. Ejection fraction after 30 days was 56.8 +/- 6.5% in group A versus 57.3 +/- 7% in group B (NS). A patient comfort questionnaire showed a clear preference of first day discharge in all patients randomized into group B. The results indicate that next day discharge after successful p-PCI is feasible and safe in selected uncomplicated STEMI patients

52. Kaag ME, Wijkel D, de Jong D. Primary health care replacing hospital care--the effect on quality of care. Int J Qual Health Care 1996;8(4):367-73.
Abstract: In order to change current practice concerning hospital stays, a project was initiated in which shortening hospital stay was combined with shifting care to primary health care. Research was aimed at assessing quality of care of shortened hospital stays with home care by the community nurse and/or the general practitioner (GP). A randomized clinical trial was conducted with three subgroups: 1. traditional hospital stay; 2. hospital admission on the day of surgery, discharge the day after; two consultations at the outpatient department; one visit by the community nurse before surgery, two visits after; 3. mostly as for 2. with two GP visits replacing the two consultations at the outpatient department. The selected surgical procedures were: laparoscopic cholecystectomy, varicose veins, removal of osteosynthesis material, hernia surgery and other minor surgery (normal hospital stay 4-6 days). Every motivated patient meeting the inclusion criteria entered the study. During one year 120 patients were thus selected. Only minor differences were found between the three subgroups in the resulting quality of care. It is concluded that late admission and early discharge even without after discharge care is feasible in most cases for healthy patients

53. Mcnamee P, Christensen J, Soutter J, Rodgers H, Craig N, Pearson P, et al. Cost analysis of early supported hospital discharge for stroke. Age Ageing 1998;27(3):345-51.
Abstract: Objective: to measure the net costs to the health and personal social services of an early supported discharge policy for stroke Design and setting: cost analysis, using data from a pragmatic randomized controlled trial conducted in three hospitals in Newcastle upon Tyne, UK. Subjects: 92 people admitted with acute stroke within 72 h of onset from their own homes with no comorbidity likely to affect rehabilitation. Main outcome measures: health and personal social service costs. Results: early supported discharge reduced median length of hospital by almost half (14 days vs 26 days, P = 0.02). The costs of the service were and £7155 per patient compared with and £7480 for conventional hospital care. Sensitivity analysis demonstrated that this result was robust to changes in values of bed days and exclusion of particular resource use items. Sub-group analysis suggested that costs were related to physical dependency Conclusions: early supported discharge provided a cost-effective alternative in the management of stroke care. However, a larger study is required to assess the generalisability of the results and long-term cost effectiveness

54. Melin AL, Bygren LO. Efficacy of the rehabilitation of elderly primary health care patients after short-stay hospital treatment. Med Care 1992;30(11):1004-15.
Abstract: The purpose of this study was to evaluate the impact of a primary home care intervention program on patient outcomes after selected patients were discharged from a short-stay hospital. Random assignment of 249 frail, elderly patients was made to a group provided with physician-led primary home care, and home assistance service on a 24-hour basis, or to a control group given standard care. At randomization, patients were considerably disabled, had a mean age of 80.5 years, and had a high likelihood of long-stay hospital care. Medical and functional data were essentially the same at baseline for both groups. At 6-months follow-up, significant improvement in instrumental activities of daily living (P = 0.04) and outdoor walking (P = 0.03), and medical condition was found in the primary care intervention group compared with the controls and less utilization of long-stay hospital facilities was displayed in the team patients (P < 0.001) than in the controls. A selection of elderly, dependent patients can be cared for in their homes after short-stay hospital discharge and benefit from this primary home care intervention program in terms of improved medical and functional outcomes and less long-stay hospitalization.

55. Melin AL, Hakansson S, Bygren LO. The cost-effectiveness of rehabilitation in the home: a study of Swedish elderly. Am J Public Health 1993;83(3):356-62.
Abstract: OBJECTIVES. To investigate whether care of elderly and disabled patients could be more cost-effective after a short-term hospital stay, we examined the impact of a primary home care intervention program on functional status, use and costs of care after 6 months. METHODS. When clinically ready for discharge from the hospital, chronically ill patients with dependence in one to five functions in personal activities of daily living were randomized to physician-led primary home care with a 24-hour service, and the controls were offered ordinary care. Physical, cognitive, social, and medical functions were assessed in 110 team subjects and 73 controls. Data regarding inpatient days and outpatient visits were collected and converted to costs. RESULTS. Team patients demonstrated better instrumental activities of daily living and outdoor walking and significantly fewer diagnoses and drugs at 6 months. They used less inpatient and more outpatient care compared with the control patients. Significant cost reductions were found in the team group. CONCLUSIONS. This primary home care intervention program is cost-effective, at least for a selection of patients at risk for long-term hospital care.

56. Muller S, Zalunardo MP, Hubner M, Clavien PA, Demartines N. A Fast-Track Program Reduces Complications and Length of Hospital Stay After Open Colonic Surgery. Gastroenterology 2009;136(3):842-7.
Abstract: Background & Aims: A fast-track program is a multimodal approach for patients undergoing colonic surgery that combines stringent regimens of perioperative care (fluid restriction, optimized analgesia, forced mobilization, and early oral feeding) to reduce perioperative morbidity, hospital stay, and cost. We investigated the impact of a fast-track protocol on postoperative morbidity in patients after open colonic surgery. Methods: A randomized trial of patients in 4 teaching hospitals in Switzerland included 156 patients undergoing elective open colonic surgery who were assigned to either a fast-track program or standard care. The primary end point was the 30-day complication rate. Secondary end points were severity of complications, hospital stay, and compliance with the fast-track protocol. Results: The fast-track protocol significantly decreased the number of complications (16 of 76 in the fast-track group vs 37 of 75 in the standard care group; P = .0014), resulting in shorter hospital stays (median, 5 days; range, 2-30 vs 9 days, respectively; range, 6-30; P < .0001). There was a trend toward less severe complications in the fast-track group. A multiple logistic regression analysis revealed fluid administration greater than the restriction limits (odds ratio, 4.198; 95% confidence interval, 1.7-10.366; P = .002) and a nonfunctioning epidural analgesia (odds ratio, 3.365; 95% confidence interval, 1.367-8.283; P = .008) as independent predictors of postoperative complications. Conclusions: The fast-track program reduces the rate of postoperative complications and length of hospital stay and should be considered as standard care. Fluid restriction and an effective epidural analgesia are the key factors that determine outcome of the fast-track program. copyright 2009 AGA Institute

57. Munin MC, Rudy TE, Glynn NW, Crossett LS, Rubash HE. Early inpatient rehabilitation after elective hip and knee arthroplasty. JAMA 1998;279(11):847-52.
Abstract: CONTEXT: Inpatient rehabilitation after elective hip and knee arthroplasty is often necessary for patients who cannot function at home soon after surgery, but how soon after surgery inpatient rehabilitation can be initiated has not been studied. OBJECTIVE: To test the hypothesis that high-risk patients undergoing elective hip and knee arthroplasty would incur less total cost and experience more rapid functional improvement if inpatient rehabilitation began on postoperative day 3 rather than day 7, without adverse consequences to the patients. DESIGN: Randomized controlled trial conducted from 1994 to 1996. SETTING: Tertiary care center. PARTICIPANTS: A total of 86 patients undergoing elective hip or knee arthroplasty and who met the following criteria for being high risk: 70 years of age or older and living alone, 70 years of age or older with 2 or more comorbid conditions, or any age with 3 or more comorbid conditions. Of the 86 patients, 71 completed the study. INTERVENTIONS: Random assignment to begin inpatient rehabilitation on postoperative day 3 vs postoperative day 7. MAIN OUTCOME MEASURES: Total length of stay and cost from orthopedic and rehabilitation hospital admissions, functional performance in hospitals using a subset of the functional independence measure, and 4-month follow-up assessment using the RAND 36-item health survey I and the functional status index. RESULTS: Patients who completed the study and began inpatient rehabilitation on postoperative day 3 exhibited shorter mean (+/-SD) total length of stay (11.7+/-2.3 days vs 14.5+/-1.9, P<.001), lower mean (+/-SD) total cost ($25891+/-$3648 vs $27762+/-$3626, P<.03), more rapid attainment of short-term functional milestones between days 6 and 10 (36.2+/-14.4 m ambulated vs 21.4+/-13.3 m, P<.001; 4.8+/-0.8 mean transfer functional independence measure score vs 4.3+/-0.7, P<.01), and equivalent functional outcome at 4-month follow-up. CONCLUSION: These data showed that high-risk individuals were able to tolerate early intensive rehabilitation,

and this intervention yielded faster attainment of short-term functional milestones in fewer days using less total cost

58. Naylor M, Brooten D, Jones R, Lavizzo-Mourey R, Mezey M, Pauly M. Comprehensive discharge planning for the hospitalized elderly. A randomized clinical trial. Ann Intern Med 1994;120(12):999-1006.
Abstract: OBJECTIVE: To study the effects of a comprehensive discharge planning protocol, designed specifically for the elderly and implemented by nurse specialists, on patient and caregiver outcomes and cost of care. DESIGN: Randomized clinical trial. SETTING: Hospital of the University of Pennsylvania. PATIENTS: 276 patients and 125 caregivers. Patients were 70 years and older and were placed in selected medical and surgical cardiac diagnostic-related groups. MEASUREMENTS: Group differences in patient outcomes (length of initial hospital stay, length of time between initial hospital discharge and readmission, and rehospitalization rates) and charges for care (charges for initial hospitalization, rehospitalizations, health services after discharge, and nurse specialist services) were measured 2, 6, and 12 weeks after discharge. RESULTS: From the initial hospital discharge to 6 weeks after discharge, patients in the medical intervention group had fewer readmissions, fewer total days rehospitalized, lower readmission charges, and lower charges for health care services after discharge. No differences in these outcomes were found between the surgical intervention and control groups during this period. CONCLUSIONS: Study findings support the need for comprehensive discharge planning designed for the elderly and implemented by nurse specialists to improve their outcomes after hospital discharge and to achieve cost savings. The findings also suggest that this intervention had its greatest effect in delaying or preventing rehospitalization of patients in the medical intervention group during the first 6 weeks after discharge

59. Petrou S, Boulvain M, Simon J, Maricot P, Borst F, Perneger T, et al. Home-based care after a shortened hospital stay versus hospital-based care postpartum: an economic evaluation. BJOG 2004;111(8):800-6.
Abstract: OBJECTIVES: To compare the cost effectiveness of early postnatal discharge and home midwifery support with a traditional postnatal hospital stay. DESIGN: Cost minimisation analysis within a pragmatic randomised controlled trial. SETTING: The University Hospital of Geneva and its catchment area. POPULATION: Four hundred and fifty-nine deliveries of a single infant at term following an uncomplicated pregnancy. METHODS: Prospective economic evaluation alongside a randomised controlled trial in which women were allocated to either early postnatal discharge combined with home midwifery support (n= 228) or a traditional postnatal hospital stay (n= 231). MAIN OUTCOME MEASURES: Costs (Swiss francs, 2000 prices) to the health service, social services, patients, carers and society accrued between delivery and 28 days postpartum. RESULTS: Clinical and Psychosocial outcomes were similar in the two trial arms. Early postnatal discharge combined with home midwifery support resulted in a significant reduction in postnatal hospital care costs (bootstrap mean difference 1524 francs, 95% confidence interval [CI] 675 to 2403) and a significant increase in community care costs (bootstrap mean difference 295 francs, 95% CI 245 to 343). There were no significant differences in average hospital readmission, hospital outpatient care, direct non-medical and indirect costs between the two trial groups. Overall, early postnatal discharge combined with home midwifery support resulted in a significant cost saving of 1221 francs per mother-infant dyad (bootstrap mean difference 1209 francs, 95% CI 202 to 2155). This finding remained relatively robust following variations in the values of key economic parameters performed as part of a comprehensive sensitivity analysis. CONCLUSIONS: A policy of early postnatal discharge combined with home midwifery support exhibits weak economic domi-

nance over traditional postnatal care, that is, it significantly reduces costs without compromising the health and wellbeing of the mother and infant

60. Raffel A, Cupisti K, Dotzenrath B, Kruger B, Ohmann C, Schulte KM, et al. [Economic restraints shorten the length of hospital stay: thyroid operation as a model case]. Chirurg 2004;75(7):702-5.
Abstract: INTRODUCTION: Decreasing the length of stay is a possible means of cost control in the medical system. Therefore we performed a study to test the feasibility of reducing hospital stay to 2 days after thyroid operation. METHODS: In a controlled prospective trial, 238 patients were randomly assigned to group A (2 days of stay) or group B (more than 2 days). Studied were medical standard, practicability, patient acceptance, and quality of life. RESULTS: Of those in group A, 56.6% did not leave the hospital at the scheduled 2nd day post operation. Reasons were preoperative hyperthyroidism ($P<0.011$), postoperative hypocalcemia ($P<0.03$), or unspecific disturbances. In group B, 28% of the patients left before the established borderline of 3-4 days, and only 35% left on the 2nd postoperative day. CONCLUSION: Reduced length of stay has no negative influence on medical standards. The quality of life of patients leaving the hospital on the 2nd postoperative day was significantly higher. Reducing hospital stay after thyroid operation to 2 postoperative days is desirable and possible without a loss in quality of care, except in case of postoperative complications or unspecific complaints

61. Reilly KA, Beard DJ, Barker KL, Dodd CAF, Price AJ, Murray DW. Efficacy of an accelerated recovery protocol for Oxford unicompartmental knee arthroplasty--a randomised controlled trial. Knee 2005;12(5):351-7.
Abstract: Unicompartmental knee arthroplasty (UKA) is appropriate for one in four patients with osteoarthritic knees. This study was performed to compare the safety, effectiveness and economic viability of a new accelerated protocol with current standard care in a state healthcare system. A single blind RCT design was used. Eligible patients were screened for NSAID tolerance, social circumstances and geographical location before allocation to an accelerated recovery group (A) or standard care group (S). Primary outcome was the Oxford Knee Assessment at 6 months post operation, compared using independent Mann-Whitney U-tests. A simple difference in costs incurred was calculated. The study power was sufficient to avoid type 2 errors. Forty-one patients were included. The average stay for Group A was 1.5 days. Group S averaged 4.3 days. No significant difference in outcomes was found between groups. The new protocol achieved cost savings of 27% and significantly reduced hospital bed occupancy. In addition, patient satisfaction was assessed as greater with the accelerated discharge than with the routine discharge time. The strict inclusion criteria meant that 75% of eligible patients were excluded. However, a large percentage of these were due to the distances patients lived from the hospital

62. Reyes A, Vega G, Blancas R, Morató B, Moreno JL, Torrecilla C, et al. Early vs conventional extubation after cardiac surgery with cardiopulmonary bypass. Chest 1997;112(1):193-201.
Abstract: OBJECTIVES: Sedation and ventilation overnight after cardiac surgery is common practice. However, early extubation may be feasible with no increase in postoperative complications. This study examines (1) if early extubation is possible in a significant number of patients, (2) if it reduces ICU stay, and (3) if this practice increases postoperative complications. DESIGN: Prospective, controlled, randomized clinical trial. PATIENTS AND METHODS: We randomized 404 consecutive patients to early extubation (7 to 11 h postoperatively) (group A, 201 patients) or conventional extubation (between 8 and 12 AM the following day) (group B, 203 patients). Variables included type and severity of the disease, surgical risk, type of operation, operative incidences,

postoperative complications, duration of mechanical ventilation, intubation and ICU stay, bleeding, reoperation, vasoactive drugs, and mortality. RESULTS: Groups were comparable. Extubation within the preestablished time was successful in 60.2% of patients in group A and 74.4% in group B. Median ICU stay was 27 h in group A and 44 h in group B (p=0.008). Discharge from ICU within the first 24 h postoperatively was 44.3% in group A and 30.5% in group B (p=0.006). There was no significant difference in complications between groups. Successfully extubated patients in group A had more reintubation and prolonged ventilation than in group B. CONCLUSIONS: (1) Sixty percent of our patients were extubated within 11 h of operation. (2) As a result, the length of stay in ICU was reduced and the percentage of patients discharged within 24 h was increased. (3) There was no increase in clinically important postoperative complications

63. Richards SH, Coast J, Gunnell DJ, Peters TJ, Pounsford J, Darlow MA. Randomised controlled trial comparing effectiveness and acceptability of an early discharge, hospital at home scheme with acute hospital care. BMJ 1998;316(7147):1796-801.
Abstract: OBJECTIVE: To compare effectiveness and acceptability of early discharge to a hospital at home scheme with that of routine discharge from acute hospital. DESIGN: Pragmatic randomised controlled trial. SETTING: Acute hospital wards and community in north of Bristol, with a catchment population of about 224 000 people. SUBJECTS: 241 hospitalised but medically stable elderly patients who fulfilled criteria for early discharge to hospital at home scheme and who consented to participate. INTERVENTIONS: Patients' received hospital at home care or routine hospital care. MAIN OUTCOME MEASURES: Patients' quality of life, satisfaction, and physical functioning assessed at 4 weeks and 3 months after randomisation to treatment; length of stay in hospital and in hospital at home scheme after randomisation; mortality at 3 months. RESULTS: There were no significant differences in patient mortality, quality of life, and physical functioning between the two arms of the trial at 4 weeks or 3 months. Only one of 11 measures of patient satisfaction was significantly different: hospital at home patients perceived higher levels of involvement in decisions. Length of stay for those receiving routine hospital care was 62% (95% confidence interval 51% to 75%) of length of stay in hospital at home scheme. CONCLUSIONS: The early discharge hospital at home scheme was similar to routine hospital discharge in terms of effectiveness and acceptability. Increased length of stay associated with the scheme must be interpreted with caution because of different organisational characteristics of the services

64. Rodgers H, Soutter J, Kaiser W, Pearson P, Dobson R, Skilbeck C, et al. Early supported hospital discharge following acute stroke: pilot study results. Clin Rehabil 1997;11(4):280-7.
Abstract: OBJECTIVE: To establish the feasibility and method of evaluation of an early supported hospital discharge policy for patients with acute stroke. DESIGN: A randomized controlled trial comparing an early supported discharge service to conventional care. SETTING: Three acute hospitals in Newcastle upon Tyne. SUBJECTS: Ninety-two eligible patients with acute stroke admitted between 1 February 1995 and 31 January 1996. MAIN OUTCOME MEASURES: Placement, length of stay, readmission rates, mortality, functional ability (Nottingham Extended Activities of Daily Living (ADL) Scale), handicap (Oxford Handicap Scale), global health status (Dartmouth Coop Function Charts) and carer stress (General Health Questionnaire 30 item). RESULTS: The median length of stay for patients randomized to early supported discharge was 13 days compared to 22 days in the conventional care group (p = 0.02). The median Barthel ADL index at seven days post stroke of patients randomized to early supported discharge was 15, and 13 for those randomized to conventional care (NS). At three months post stroke the median Nottingham EADL score of pa-

tients randomized to early supported discharge was 10 compared to 7 for those who received conventional care (NS). There were no statistically significant differences in the global health status of patients or carer stress. CONCLUSION: An early supported discharge service following acute stroke with individualized rehabilitation in the community is feasible and can be evaluated by a randomized controlled trial but a larger multicentre trial is needed before such a service is widely adopted

65. Saenz P, Cerda M, Diaz JL, Yi P, Gorba M, Boronat N, et al. Psychological stress of parents of preterm infants enrolled in an early discharge programme from the neonatal intensive care unit: a prospective randomised trial. Arch Dis Child Fetal Neonatal Ed 2009;94(2):F98-F104.
Abstract: BACKGROUND: Psychological stress of parents of preterm infants is aggravated by prolonged hospitalisation. Early discharge programmes (EDPs) have been implemented to alleviate this situation. OBJECTIVE: To evaluate parental psychological stress in an EDP for the first 3 months after neonatal intensive care unit (NICU) discharge. Design/methods: Prospective randomised trial comparing parents of preterm infants assigned to EDP (n = 72) or standard discharge programme (SDP) (standard discharge) (n = 68). At discharge, parents were evaluated using the Hospital Anxiety and Depression Scale (HAD), and the Likert Scale for well-being every 10 days for 3 months. Parental narrative of Worrying and Helping issues was assessed using a semi-structured interview. RESULTS: Length of stay was greater in the SDP group ($p<0.01$). HAD showed no differences in anxiety, but SDP mothers scored higher in depression ($p<0.05$). Altogether, parents reported a worrisome emotional condition (EDP 87.2%; SDP 80%), which decreased at the end of the study (EDP 45.2%; SDP 34.5%). Their baby's physical well-being was the most relevant issue in the narrative for Worrying and Helping issues at discharge (EDP 69.2%; SDP 67.5%); however, it decreased at the end of the study (EDP 22.6%; SDP 24.1%). At discharge, the paediatrician's support was more for the SDP group. No differences on the Well-Being Scale were found, but the EDP group always scored better. CONCLUSIONS: Vulnerability of parents enrolled in an EDP did not increase after hospital discharge. Physical well-being of the baby was the most important issue for both groups. EDP parents requested less paediatric support and scored higher in the Well-being verbatim

66. Siggeirsdottir K, Olafsson O, Jonsson H, Iwarsson S, Gudnason V, Jonsson BY. Short hospital stay augmented with education and home-based rehabilitation improves function and quality of life after hip replacement: randomized study of 50 patients with 6 months of follow-up. Acta Orthop 2005;76(4):555-62.
Abstract: BACKGROUND: Because of current cost restrictions, we studied the effect of a shorter hospital stay on function, pain and quality of life (QOL) after total hip replacement (THR). PATIENTS AND METHODS: 50 patients from two hospitals were randomized into a study group (SG) of 27 patients receiving preoperative and postoperative education programs, as well as home visits from an outpatient team, and a control group (CG) of 23 patients receiving "conventional" rehabilitation often augmented by a stay at a rehabilitation center. RESULTS: Mean hospital stay was shorter for the SG than for the CG (6.4 days and 10 days, respectively; $p < 0.001$). During the 6-month study period, there were 9 non-fatal complications in the SG and 12 in the CG ($p = 0.3$). The difference in Oxford Hip Score between the groups was not statistically significant before the operation, but was better for the SG at 2 months ($p = 0.03$) and this difference remained more or less constant throughout the study. The overall score from the Nottingham Health Profile indicated a better QOL in the SG. INTERPRETATION: Our preoperative education program, followed by postoperative home-based rehabilitation, appears to be safer and more effective in improving function and QOL after THR than conventional treatment

67. Sigurdsson E, Siggeirsdottir K, Jonsson H, Gudnason V, Matthiasson T, Jonsson BY. Early discharge and home intervention reduces unit costs after total hip replacement: results of a cost analysis in a randomized study. Int J Health Care Finance Econ 2008;8(3):181-92.
Abstract: Total hip replacement (THR) is a common and costly procedure. The number of THR is expected to increase over the coming years. Two pathways of postoperative treatment were compared in a randomized study. Fifty patients from two hospitals were randomized into a study group (SG) of 27 patients receiving preoperative and postoperative education programs, as well as home visits from an outpatient team. A control group (CG) of 23 patients received "conventional" rehabilitation augmented by a stay at a rehabilitation center if needed. All costs for the two groups both in hospitals and after discharge were collected and analyzed. On average total costs for the SG were $8,550 and $11,952 for the CG, a 28% cost reduction. Total inpatient costs were $5,225 for the SG and $6,515 for the CG. In a regression analysis the group difference is statistically significant. Adjusting for changes in the Oxford Hip Score gives effective costs (C/E). The ratio of the SGs C/E to the CGs is 0.60. That is a cost-effectiveness gain of 40%. A shorter hospital stay augmented with better preoperative education and home treatment appears to be more effective and costs less than the traditional in hospital pathway of treatment

68. Simell T, Kaprio EA, Maenpaa J, Tuominen J, Simell O. Randomised prospective study of short-term and long-term initial stay in hospital by children with diabetes mellitus. Lancet 1991;337(8742):656-60.
Abstract: To assess how an isolated change in the pattern of care influences outcome of care and hospital use, a randomised prospective 2-year study was done in which 31 of 61 consecutive children with newly diagnosed insulin-dependent diabetes mellitus (IDDM) were admitted to hospital at disease onset for about a week and compared with the other 30 children who were admitted for about 4 weeks. Insulin treatment and education about diabetes were similar in the two groups. Duration of initial stay in hospital had no effect on metabolic control during the 2 years but time since diagnosis was significant with respect to effect on haemoglobin A1 (p = 0.001), haemoglobin A1c (p = 0.004), and insulin dose (p less than 0.001). At 2 years, 45% of the children in the short-term group and 29% in the long-term group were C-peptide positive (p = NS); C-peptide positivity correlated with age. A change in the pattern of care of children with IDDM, led to a pronounced decrease in hospital use by this patient group. Irrespective of the length of initial stay in hospital, equally good metabolic control was obtained in both groups for 2 years

69. Simell T, Moren R, Keltikangas-Jarvinen L, Hakalax J, Simell O. Short-term and long-term initial stay in hospital of children with insulin-dependent diabetes: adjustment of families after two years. Acta Paediatr 1995;84(1):41-50.
Abstract: A randomized prospective trial on the effect of the length of initial hospital stay (23 +/- 4 days and 9 +/- 3 days) in 61 consecutive children with newly diagnosed diabetes was carried out. Since the metabolic outcome was similar in the treatment groups for the first two years, we analyzed the adjustment and subjective well-being of families to the diabetes after a two-year follow-up period. A semi-structured interview by a psychologist who was blinded to the initial treatment length and medical history of the child showed that 74% of the families in the short-term and 58% in the long-term treatment groups had good overall psychosocial ability to function (ns); there were no unusual fears in 37% and 15% of the families (ns), respectively. After short-term treatment, families needed slightly but not significantly less time to be confident about the management of diabetes in the family. These findings show that the short-term initial hospital stay does not unfavorably affect the adjustment of the family to diabetes and should probably be preferred over the long-term initial hospital stay

70. Simpson JE, Cox AG, Meade TW, Brennan PJ, Lee JA. "Right" stay in hospital after sugery: randomised controlled trial. Br Med J 1977;1(6075):1514-6.
Abstract: A randomised controlled trial was carried out on 100 patients to compare the effects of discharge after certain pre-specified clinical criteria had been fulfilled--"right" stay--with those of discharge at an arbitrary 10 days after surgery--"fixed" stay. The operations concerned (cholecystectomy and vagotomy) were more hazardous than those previously included in studies of early discharge. Patients in the right-stay group were discharged, on average, 7-6 days after operation--that is, two days earlier than those in the fixed-stay group. In terms of clinical progress, social factors such as return to work, and the acceptability to patients and relatives of the implications of right stay, patients in this group fared as well as those in the fixed-stay group, and in some respects slightly better. Right stay entailed the transfer of some work from hospital to community medical and nursing staff, but this also was acceptable. The concept and use of the right-stay principle is of value in planning the postoperative discharge of suitable patients

71. Smith-Hanrahan C, Deblois D. Postpartum early discharge: impact on maternal fatigue and functional ability. Clin Nurs Res 1995;4(1):50-66.
Abstract: The purpose of this study was to determine the impact of a postpartum early discharge program, with home follow-up by hospital nursing staff, on the maternal fatigue and functional ability of low-risk mothers with healthy neonates. A quasi-experimental design was used. Subjects were randomly assigned to one of two groups receiving the early-discharge program (hospital stay less than 60 hours plus home follow-up by hospital-based nurses; n = 35) or traditional hospital care (hospital stay more than 60 hours and no home follow-up by hospital staff; n = 17). A third group emerged from those originally assigned to traditional care but later transferred to early discharge due to bed shortages (n = 29). The Rhoten Fatigue Scale and the Inventory of Functional Status After Childbirth were used to collect the data at discharge and 1 and 6 weeks postpartum period. No significant differences between groups were found, suggesting that early discharge with adequate home follow-up does not affect the low-risk mother's fatigue and functional ability to any significantly greater extent than traditional care. It was also noted that, regardless of type of care, the proportion of subjects reporting severe fatigue was relatively large (25%, 31%, and 19% at discharge, 1 and 6 weeks postpartum period), highlighting the need for further study of maternal fatigue in the postpartum period

72. Stern JM, Bruemmer B, Moinpour CM, Sullivan KM, Lenssen P, Aker SN. Impact of a randomized, controlled trial of liberal vs conservative hospital discharge criteria on energy, protein, and fluid intake in patients who received marrow transplants. J Am Diet Assoc 2000;100(9):1015-22.
Abstract: OBJECT: To determine if adult patients who received marrow transplants had faster resumption of oral energy and nutrient intake and shorter duration of intravenous (i.v.) fluid requirement if discharged from the hospital earlier than is customary. DESIGN: Randomized, controlled trial of patients remaining hospitalized because of inadequate oral intake. Consenting patients were assigned randomly to remain hospitalized (hospital group) or be discharged to an ambulatory setting (ambulatory group). SUBJECTS: Seventy-eight patients of the Fred Hutchinson Cancer Research Center who were consuming less than 33% of estimated energy requirement and requiring up to 3,000 mL of fluids per day intravenously. INTERVENTION: Participants received nutrition counseling by a registered dietitian to promote resumption of oral intake. Daily oral intake records were analyzed to determine energy and nutrient content. MAIN OUTCOME MEASURES: Days after study enrollment to consume 33% of energy and protein requirements and total number of days of i.v. fluid support were analyzed by group until discharge from the center, approximately 100 days after transplantation. STATISTICAL ANALYSES:

Demographic data were defined by group means. Differences between treatment procedures were determined by Cox regression analysis. No variables were confounding. RESULTS: The hospital group took fewer days than the ambulatory group to resume oral energy intake (4.5 vs 8.0, P = .004) and to discontinue i.v. fluids (30.5 vs 48.5, P = .019). There was no difference between groups in days of parenteral nutrition support (P = .817) or days to resume oral protein intake (P = .470). APPLICATIONS/CONCLUSIONS: Oral and gastrointestinal complications delay resumption of oral energy and protein intakes after transplantation. Earlier hospital discharge can achieve cost savings but may delay resumption of oral energy intake. Because of continued high-risk nutrition status and potential for rapid change in medical status, nutrition assessment and counseling are necessary in both the hospital and ambulatory setting to promote resumption of oral intake and discontinuation of i.v. fluids

73. Suwanwela NC, Phanthumchinda K, Limtongkul S, Suvanprakorn P, Thai Red Cross Volunteers Bureau. Comparison of short (3-day) hospitalization followed by home care treatment and conventional (10-day) hospitalization for acute ischemic stroke. Cerebrovasc Dis 2002;13(4):267-71.
Abstract: This prospective randomized controlled study was designed to compare the treatment efficacy, safety and quality of life of ischemic stroke patients treated with conventional (10-day) hospitalization or short (3-day) hospitalization followed by home care treatment. One hundred and two patients with acute ischemic stroke who arrived within 48 h after symptom onset and met the inclusion criteria were studied. Patients were randomly assigned to either of two groups of treatment. Patients in the 'hospitalization' group were hospitalized for 10 days, whereas those in the 'home care' group were admitted only for the first 3 days and were followed at home under the home care program. The baseline characteristics were similar in the two groups. There was no difference in the number of deaths or dependency defined by the Modified Rankin scale more than or equal to 3 between the two groups at 6 months. The relative risk was 0.85 with a 95% confidence interval between 0.35 and 2.04. There was also no difference in the number of patients who had good outcome (NIHSS between 0 and 2 and Barthel index between 75 and 100) at 6 months. One patient in the home care group died due to massive intracerebral hemorrhage. Seventy-nine percent of patients in the home care group were satisfied with the home treatment program

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Abstract: BACKGROUND AND PURPOSE: Early supported discharge (ESD) for stroke has been shown to yield outcomes similar to or better than those of conventional care, but there is less information on the impact on costs and on the caregiver. The purpose of this study is to estimate the costs associated with an ESD program compared with those of usual care. METHODS: We conducted a randomized controlled trial of stroke patients who required rehabilitation services and who had a caregiver at home. RESULTS: Acute-care costs incurred before randomization when patients were medically ready for discharge averaged $3251 per person. The costs for the balance of the acute-care stay, from randomization to discharge, were $1383 for the home group and $2220 for the usual care group. The average cost of providing the 4-week home intervention service was $943 per person. The total cost generated by persons assigned to the home group averaged $7784 per person, significantly lower than the $11 065 per person for those assigned to usual care. A large proportion of the cost differential between the 2 groups arose from readmissions, for which the usual care group generated costs more than quadruple those of the home intervention group. CONCLUSIONS: Providing care at home was no more (or less) expensive for those with greater functional limitation than for those with

less. Caregivers in the ESD group scored consistently lower on the Burden Index than caregivers with usual care, even caregivers of persons with major functional limitations. For persons recovering from stroke and their families, ESD provides a cost-effective alternative to usual care

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Abstract: Background: Early supported discharge (ESD) with continued rehabilitation at home has shown a beneficial effect on extended activities of daily living 5 years after stroke. The long-term effect of ESD on resource use has not been explored. Methods: At 5 years, 54 patients with mild to moderate disability, enrolled in a randomized controlled trial of ESD, were followed up. Data were collected from a county register and by interviewing the patient or the patient's spouse. Results: There were differences in mean length of hospitalization, 51 versus 32 days (P =.02). There was no significant difference between the groups in regard to total outpatient rehabilitation, ESD visits included, but there was a difference in where the services were obtained. The ESD group had more rehabilitation at home (ESD service) and the control group had more outpatient rehabilitation (P =.04), including physiotherapy in primary care (P =.05). There were no other differences. Conclusion: We conclude that, 5 years after stroke, our ESD service was favorable with regard to resource use. copyright 2006 National Stroke Association. Copyright © 2009 Elsevier B. V., Amsterdam. All Rights Reserved

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Abstract: To evaluate the feasibility and cost savings of hospital discharge three days after acute myocardial infarction, we screened 507 consecutive patients prospectively for clinical complications and exercise-test performance. Of 179 patients whose condition was classified as uncomplicated (no angina, heart failure, or arrhythmia 72 hours after admission), 126 underwent early exercise testing and 90 had no provocable myocardial ischemia. Eighty of these patients were randomly assigned to early (day 3) or conventional (days 7 to 10) hospital discharge. Seventy-six of them had received coronary reperfusion therapy (thrombolysis, angioplasty, or both). At six months of follow-up, there were no deaths or new ventricular aneurysms, and the early-discharge and conventional-discharge groups had similar numbers of hospital readmissions (6 and 10), reinfarctions (none and 5), and patients with angina (3 and 8). In the early-discharge group, 25 of 29 previously employed patients returned to work 40.7 +/- 21.9 days (mean +/- SD) after admission, as compared with 25 of 27 patients in the conventional-discharge group, who returned to work after a mean of 56.9 +/- 30.3 days (P = 0.054). The mean cumulative hospital and professional charges were $12,546 +/- 3,034 in the early-discharge group, as compared with $17,868 +/- 3,688 in the conventional-discharge group (P less than 0.0001). In carefully selected patients with uncomplicated myocardial infarction, hospital discharge after three days is feasible and leads to a substantial reduction in hospital charges. Before this strategy can be widely recommended, however, its safety must be confirmed in larger prospective clinical trials

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Abstract: Objective: To evaluate the safety and cost-effectiveness of short-stay intensive care (SSIC) treatment for low-risk coronary artery bypass patients. Design: Randomized clinical equivalence trial. Setting: University Hospital Maastricht, the Netherlands. Patients: Low-risk coronary artery bypass patients. Interventions: A total of 600 patients were randomly assigned to undergo either SSIC treatment (8 hrs of intensive care treatment) or control treatment (care as usual, overnight intensive care treatment). Measurements: The primary outcome measures were intensive care readmissions and total hospital stay. The secondary outcome measures were total hospital costs, quality of life, postoperative morbidity, and mortality. Hospital costs consisted of the cost of hospital admission or admissions and outpatient costs. Main Results: The difference in intensive care readmission between the two groups of 1.13% was very small and not significantly different (p = .241; 95% confidence interval, -0.9% to 2.9%). The total hospital stay (p = .807; 95% confidence interval, 1.2 to -0.4) and postoperative morbidity were comparable between the groups. The SSIC group's quality of life improved more compared with the control group's quality of life (p = .0238; 95% confidence interval, 0.0012 to 0.0464). The total hospital costs for SSIC were significantly lower (95% confidence interval, €-1,581 to €-174) compared with those for the control group (€4,625 and €5,441, respectively). The estimated incremental cost-effectiveness ratio (cost/delta quality-adjusted life months) thus showed the dominance of SSIC. Bootstrap and sensitivity analyses confirm the robustness of the study findings. Conclusions: Compared with usual care, SSIC is a safe and cost-effective approach. SSIC can be considered as an alternative for conventional postoperative intensive care treatment for low-risk coronary artery bypass graft patients. Copyright copyright 2005 by the Society of Critical Care Medicine and Lippincott Williams & Wilkins

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Abstract: The high cost of medical care prompted us closely to evaluate our practice of keeping all coronary artery bypass patients in the postoperative intensive care unit a minimum of 2 days. Thirty-seven patients were randomly assigned to a 1 or 2 day postoperative stay in the intensive care unit after routine bypass grafting. Nineteen patients in Group I stayed 1 day and 18 in Group II stayed 2 days. Eighteen Group I and 17 Group II patients were evaluated. No differences in type or rate of complications occurred in either group. No deaths occurred. Total hospital costs were $340 less for Group I (not statistically significant, p greater than 0.4), room costs were $361 less for Group I (p less than 0.01), total laboratory costs were $165 less for Group I (p greater than 0.5), and costs for arterial blood gases were $325 less for Group I (p less than 0.001). No adverse effect on patient safety was found by reducing the stay in the intensive care unit from 2 days to 1 day. This and other economies can significantly reduce hospital costs for this group of patients

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Abstract: BACKGROUND AND PURPOSE: This study sought to evaluate early supported discharge and continued rehabilitation at home after stroke, at a minimum of 6 months after the intervention, in terms of patient outcome, resource use and health care cost. METHODS: Eighty-three patients, moderately impaired 5-7 days after acute stroke, were included in a randomized controlled

trial, 42 being allocated to the intervention and 41 to routine rehabilitation. One-year follow-up of patient outcome included mortality, motor capacity, dysphasia, activities of daily living, social activities, perceived dysfunction, and self-reported falls. Resource use over 12 months included inpatient hospital care, outpatient health care, use of health-related services, informal care, and cost of health care. RESULTS: On univariate analysis there was no difference in patient outcome. Multivariate regression analysis showed that intervention had a significant effect on independence in activities of daily living. A significant difference in inpatient hospital care, initial and recurrent, was observed, with a mean of 18 (intervention) versus 33 days (control) (p = 0.002). Further significant differences were that the control group registered more outpatient visits to hospital occupational therapists (p = 0.02), private physical therapists (p = 0.03) and day-hospital attendance (p = <0.001), while the intervention group registered more visits to nurses in primary care (p = 0.03) and home rehabilitation (p = <0.001). Other differences in outcomes or resource utilization were nonsignificant. CONCLUSION: In Sweden, early supported discharge with continued rehabilitation at home proved no less beneficial as a rehabilitation service, and provided care and rehabilitation for 5 moderately disabled stroke patients over 12 months after stroke onset for the cost of 4 in routine rehabilitation

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Abstract: A 6-month follow-up of a single-blind, randomized, controlled trial in Southwest Stockholm was performed in order to evaluate the effect of early supported discharge and continued rehabilitation at home after stroke. Eighty-three stroke patients with moderate neurological impairments, continent, independent in feeding, and mental function within normal limits one week after onset were included in the study. The patients were allocated 1:1 to early supported discharge and continued rehabilitation at home by a specialized team, versus routine rehabilitation. Patient outcomes measured were motor capacity, dysphasia, activities of daily living, social activities, perceived dysfunction, mortality and reported falls. Data on length of stay in hospital; initial and recurrent during 6 months were compared. The 6-month follow-up of 78 patients showed no statistically significant differences in patient outcome. The results of multivariate logistic regression analysis suggest a positive effect of home rehabilitation on activities of daily living. At 3-6 months the frequency of significant improvements was higher in the intervention group. Death or dependency in activities of daily living was 24% in the intervention group compared with 44% in the control group. The mean initial hospitalization was 29 days in routine rehabilitation group versus 14 days in the home rehabilitation group. We conclude that for moderately disabled stroke patients with mental function within normal limits, early supported discharge and continued rehabilitation at home had no less a beneficial effect on patient outcome than routine rehabilitation, reduced initial hospitalization significantly and had no adverse effects on mortality and number of falls

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Abstract: Early discharge, defined as hospital leave 24-48 hours after birth, was introduced at Falun Hospital in 1984. 164 women interested in participating in an evaluative study of the program were randomly allocated in late pregnancy to an Experimental group (EG) offered early discharge, and a Control group (CG) offered the regular postpartum care in hospital. After medical and other withdrawals 24 h after the birth, 50 women remained in EG and 54 in CG. Infant morbidity and number of prescribed medicaments during the first 6

months after the birth were lower in EG than in CG, but the difference was not statistically significant. EG mothers made fewer visits to the Child Health Centre nurse than did CG mothers (p less than 0.05). No significant difference in puerperal complications was demonstrated, but the intake of sedatives by EG mothers was smaller than that of CG mothers during the first puerperal week (p less than 0.01)

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Abstract: The father's involvement in his baby's care was studied in three groups of fathers: 49 randomly allocated to an experimental group (EG) with mother and infant discharged from hospital 24-48 h after birth, 52 allocated to a control group (CG) with traditional hospital postpartum care, and 237 randomly selected from parents not interested in participating in an evaluative study of early discharge (NPG). The ordinary length of hospital postpartum stay was 5-6 days. Fathers in EG spent more time with the baby (nappy changing, bathing, holding etc...) than fathers in CG during days 2-4 after the birth. No effect of this extended contact was observed measured as father involvement in infant care during the 2nd and 6th week after the birth, and utilization of parental leave during the first year

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Abstract: BACKGROUND AND PURPOSE: This study describes the methodology, patient outcome, and use of hospital and rehabilitation services at 3 months of a population-based randomized controlled trial. The purpose was to evaluate rehabilitation at home after early supported discharge from the Department of Neurology, Huddinge Hospital, for moderately disabled stroke patients in southwest Stockholm. METHODS: The patients were eligible if they were continent, independent in feeding, had mental function within normal limits, and had impaired motor function and/or aphasia 1 week after stroke. Patients were randomized either to early supported discharge with continuity of rehabilitation at home for 3 to 4 months or to routine rehabilitation service in a hospital, day care, and/or outpatient care. The home rehabilitation team consisted of two physical therapists, two occupational therapists, and one speech therapist; one of the therapists was assigned as case manager for the patient. The rehabilitation program at home emphasized a task- and context-oriented approach. The activities were chosen on the basis of the patient's personal interests. Spouses were offered education and individual counseling. A total of 81 patients were followed up for a minimum of 3 months. Patient outcome was assessed by the Frenchay Social Activity Index, Extended Katz Index, Barthel Index, Lindmark Motor Capacity Assessment, Nine-Hole Peg Test, walking speed over 10 m, reported falls, and subjective dysfunction according to the Sickness Impact Profile. Patient use of hospital and home rehabilitation service and patient satisfaction with care were studied. RESULTS: Overall there were no statistical significant differences in outcome. Multivariate logistic regression analysis suggested a systematic positive effect for the home rehabilitation group in social activity, activities of daily living, motor capacity, manual dexterity, and walking. A considerable difference in resource use during such a 3-month period was seen. A 52% reduction in hospitalization was observed: from 29 days in the routine rehabilitation group to 14 days in the home rehabilitation group. Patient satisfaction was in favor of the latter group. CONCLUSIONS: Early supported discharge with continuity of home rehabilitation services for the majority of moderately disabled stroke patients during the first 3-month period after acute stroke is not less beneficial than routine rehabilitation and can be a rehabilitation service of choice if follow-up at 6 and 12

months confirms the suggested effectiveness and considerable reduction in use of health care

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Abstract: The aim of the study reported in this paper was to examine the effect of postnatal stay on breast-feeding rates at one month using a randomized control trial. Participants were recruited during parent-craft classes at a large teaching hospital in the north of England. Nulliparous women in the last trimester of pregnancy were randomly allocated to a short hospital postnatal stay (6-48 hours), or a longer stay (more than 48 hours). The mothers were contacted at one month following the birth to ask about the method of feeding. The study was approved by the hospital ethical committee, and participation was voluntary. The results demonstrated no significant effect of postnatal stay on breast-feeding rates at one month. The main limitation of the study was the reluctance of the mothers in the long stay group to stay in hospital for longer than three days. This resulted in only a small difference between the lengths of hospital stay of the two interventions. The overall breast-feeding rate for the study group had increased significantly when compared with local city wide rates. This increase may be as a result of a sampling bias or a Hawthorne effect

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Abstract: Research confirms that laparoscopic cholecystectomy (LC) results in shorter lengths of hospital stay and earlier return to usual activity than the traditional cholecystectomy procedure. Research in this area, however, focuses more on the medical aspects of patient recovery, but very few studies have evaluated how these patients manage their recovery at home or what types of problems they encounter. A total of 28 LC patients were randomly assigned to two groups: (1) 23 h stay (overnight) in a general surgical ward or (2) day procedure unit (DPU) stay. Data was collected by a self-administered Postoperative Symptoms Diary and telephone interview. Results showed no significant difference between the two groups of patients recovery symptoms scores. Problems with mobility, pain and elimination recorded the highest mean scores for both groups of patients. Overnight patients also experienced problems with tiredness and eating. All DPU patients were able to manage their postoperative symptoms, compared to only 44% of patients who had stayed in overnight. Carer assistance was needed with regard to activities of daily living, child care and reassurance. Results showed that with careful selection of patients, LC cases performed as day procedures did not impact at all on the patients' recovery trajectory

Andre antatt prospektive studier med kontroll

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Abstract: Early discharge after hospital delivery is common in other countries. In Sweden it was not introduced until recent years. Previous investigations have mainly focused on medical risk factors. However, few investigations have been done regarding psychological factors. This study, comprising 44 families (7 primaparae and 37 multiparae) in an early discharge group (discharge 0-2 days after hospital birth) and a late discharge group (discharge 5-6 days), indicates that parents in the early discharge group had more negative experiences of their earlier postpartum stay. The mothers in the early discharge group experienced less sibling revalry compared to the mothers in the control group. There were no other differences between the groups. The parents were equally satisfied with their choices in both groups. Early discharge, as a voluntary al-

ternative, presents an increased service for parents, since the parents may choose the most suitable postpartum care

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Abstract: A recent study at the Prince of Wales Hospital (PoW) compared health outcomes and user satisfaction for conventional clinical pathways with a shortened pathway incorporating day of surgery admission (DOSA), early discharge and post acute care domiciliary visits for two high volume, elective surgical procedures (herniorrhaphy and laparoscopic cholecystectomy). This paper quantifies cost differences between the control and intervention groups for nursing salaries and wages, other ward costs, pathology and imaging. The study verified and measured the lower resource use that accompanies a significant reduction in length of stay (LOS). Costs of pre- and post-operative domiciliary visits were calculated and offset against savings generated by the re-engineered clinical pathway. Average costs per separation were at least $239 (herniorrhaphy) and $265 (laparoscopic cholecystectomy) lower for those on the DOSA pathway with domiciliary post acute care

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Abstract: OBJECTIVE: To evaluate the relationship between early perinatal hospital discharge and several parenting outcomes during infancy, including breastfeeding, mother-infant interaction, and mother-infant attachment. STUDY DESIGN: A prospective, longitudinal, nonrandomized study of mother-infant dyads discharged </=36 hours after birth (early discharge), compared with those discharged >36 hours after birth (late discharge). METHODS: Demographic, perinatal, and psychosocial factors were determined from medical record review and maternal questionnaires. Questionnaires also assessed maternal perceptions of the hospital stay and breastfeeding rates. Mother-infant interaction was assessed at 3 months after birth using the NCAST Feeding Scale and at 9 months after birth using the NCAST Teaching Scale. Security of attachment was measured in the Ainsworth Strange Situation at 12 months after birth. RESULTS: Early and late discharge groups were similar with respect to major demographic, perinatal, and psychosocial characteristics and perceptions of the hospital stay. Even after adjusting for these factors in regression analyses, no significant association was found between early discharge and breastfeeding at 3 months, NCAST scores at 3 and 9 months, and security of attachment at 12 months. CONCLUSION: Parenting outcomes, such as breastfeeding, mother-infant interaction, and attachment, are not influenced by early perinatal hospital discharge

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Abstract: Study objective - To see whether a shorter postoperative length of stay (LOS) for a major procedure, abdominal hysterectomy for benign conditions, was associated with health outcome, the use of formal and lay care after discharge, cost, and satisfaction. Design - Prospective cohort study. Setting - Three hospitals in London and three in Hertfordshire and Bedfordshire. Patients - A total of 363 women undergoing total abdominal hysterectomy with or without oophorectomy: 112 with a short postoperative LOS (five days or less) and 251 with a standard LOS (six days or more). Main outcome measures - Wound infection within 10 days and six weeks; change in general health status (Nottingham health profile) after six weeks; general health and change in social activity (lifestyle index) three months after surgery. Mean cost difference for hospitals, use of formal and lay care after discharge, and patient satisfaction. Results - Short LOS was associated with benefits: a lower risk of wound infec-

tion in the first 10 days (odds ratio 0.44; p = 0.03) and no deterioration in physical mobility (measured using the NHP) after six weeks - and with adverse outcomes: constipation six weeks later (OR 0.48; p < 0.001) and moderate or severe urinary symptoms six weeks (OR 0.69; p < 0.004) and three months (OR 0.65; p < 0.008) later. On multivariate analysis, the only outcome to remain significantly associated with LOS was physical mobility after six weeks (p = 0.024). There was no significant difference between short and standard stay women as regards their use of formal or lay care after discharge from hospital. The mean cost of hospital care was £251 (in 1992) less for short than for standard stay patients. Most women (73% at six weeks) felt their LOS was appropriate. Short stay women were more Likely to feel it was too short, though the difference was not statistically significant. Conclusions - Short postoperative stays do not seem to be associated with any adverse outcomes and result in modest financial saving to the health service. There is potential for greater use of early discharge

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Abstract: BACKGROUND: Multi-modal rehabilitation programmes may improve early postoperative body composition, pulmonary function, exercise capacity, and reduce hospital stay. So far, no data are available on convalescence after discharge. AIM: The objectives were to compare convalescence data (fatigue, sleep, time to resume normal activities, and functional capabilities) and need for nursing care and contact to general practitioner with fast-track multimodal rehabilitation compared with conventional care after colonic surgery. METHODS: Non-randomised, prospective controlled study in 30 consecutive patients undergoing fast-track rehabilitation with continuous epidural analgesia, enforced oral nutrition, mobilisation, planned early discharge, and 30 consecutive patients undergoing conventional care. Patients were interviewed preoperatively and 14 and 30 days postoperatively. RESULTS: Median hospital stay was 2 vs. 8 days in the fast-track vs. conventional care group, respectively (p < 0.01). Fourteen days postoperatively, total and mid-day sleep were increased in the conventional care group when compared with the fast-track group (p < 0.01). Fatigue was increased significantly at 14 days (p < 0.05) and throughout the study period compared with the fast-track group (p < 0.01). Similarly, ability to walking stairs, cooking, house keeping, shopping and walking outdoor was significantly less reduced at 14 days in the fast-track group, who also regained leisure activities earlier (p < 0.05). There was no significant difference between groups at 30 days or between need for nursing care and visits to general practitioners. Readmission for surgery-related events occurred more frequently (5 vs. 1 patient) in the fast-track group. CONCLUSION: Fast-track rehabilitation with early discharge after colonic surgery results in earlier resumption of normal activities with reduced fatigue and need for sleep postoperatively compared to conventional care, and without increased need for nursing care or visits to general practitioners. However, readmissions may occur more frequently

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Abstract: The present study was carried out at a single surgical unit of AIIMS, to evaluate the risk and benefit of short post-operative stay in adult population after inpatient surgery under general anaesthesia for various intra-abdominal, Genitourinary, breast and thyroid disorders including emergency procedures. The age of the patients ranged from 17-71 years. Patients with minor surgical procedures were excluded from the study. A total number of 138 patients were included in the study comprising of Test group. The patients were discharged within 5 days of the operative procedure. There was no major morbidity or

mortality related to early discharge. The mean duration of postoperative length of hospital stay was 5.25 days in test group of patients as compared to 10.20 in control group of patients. In conclusion therefore, short hospitals stay following major procedures is safe and effective in reducing the cost of hospital care to the patient and hospital both

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Abstract: The aim of this study was to determine the effectiveness of 'fast-tracking' in an academic emergency department (ED) during a period of limited resources and space constraints. This was a prospective, double-blind, comparative clinical trial. Fast-tracking was applied every other day between 08.00 and 17.30 hours. Patients meeting fast-tracking criteria, which were determined as allergy, dyspepsia, hypertension, urinary tract infection, urolithiasis, gastroenteritis, upper airway infection, minor lacerations, and soft tissue injuries with no sign or symptom of life-threatening illness or acute abdomen, were treated by a designated fast-tracking team. In the alternate days fast-tracking was not done, and the patients having the same criteria were recorded and followed as the control group. ED length of stays were determined for each patient, and at time of discharge a questionnaire was applied to determine patient satisfaction. Follow-up was performed by telephone survey at the 5th day of discharge. The median length of stay was 36 minutes for the fast-tracked group compared with 63 minutes for the control group. The application of fast-tracking decreased ED length of stay and improved patient satisfaction in patients presenting with allergy, dyspepsia, upper airway infection, minor laceration, and soft tissue injury, but not in patients with gastroenteritis, urinary tract infection, hypertension, and urolithiasis. The rate of follow-up was 81% (n = 217), and there were no complications or hospitalizations to another hospital. It is concluded that fast-tracking is an applicable and useful system in an academic ED with limited resources, and decreases ED length of stay and improves patient satisfaction in a selected group of patients. Determination of fast tracking criteria must be individualized for each hospital according to resources. Additionally, fast-tracking seems to be safe when performed under strict criteria for patient selection

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Abstract: There is no consensus on the optimal length of stay and timing of release from hospital in patients admitted with acute asthma. We hypothesize that it might be safe to discharge patients from hospital once they have responded clinically to intensive anti-asthma treatment. In a non-randomized prospective controlled study, we compared two discharge protocols in consecutive patients admitted for acute severe exacerbations of bronchial asthma. Patients in group A were discharged after remission of signs and symptoms and those in group B after improvement but before complete remission of signs and symptoms. Peak expiratory flow rates (PEFR) were monitored but were not used as discharge criteria for either group. Patients with complicating disease and who were likely to be non-compliant were excluded. The length of hospital stay (LOS) and best PEFR at discharge were significantly lower in group B (87 admissions) than group A (80 admissions). The mean (+/-SD) LOS was 1.8(+/- 1) days vs. 3.5(+/- 1.4) days and best PEFR was 58(+/- 17)% predicted versus 71(+/- 15)% predicted respectively ($P < 0.001$ for both variables). No patient in either group relapsed within 4 weeks of discharge from hospital. We concluded that the release of asthmatics who respond promptly to intensive treatment and are compliant with medication despite incomplete resolution of symptoms, signs and PEFR at the time of discharge from hospital may not be associated with increased risk of early relapse

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Abstract: OBJECTIVES: Early discharge has been proposed as a means of containing the escalating cost of health care in cardiac surgery. The aim of this study was to investigate whether shortening the length of hospital stay after coronary artery bypass surgery is safe and cost effective. METHODS: Patients (n=198) undergoing elective bypass surgery by two surgeons for a period of 12 months were prospectively entered into the study but not randomized. The anaesthetic and surgical treatments were identical in all patients with the exception that one of the surgeons used intermittent cold crystalloid cardioplegia ('normal discharge' group; n=119) and the other used intermittent ischaemia without cardioplegia ('early discharge' group; n=79). Previous to the study both surgeons discharged patients on the 7th-8th postoperative day. For the present study, one of the two surgeons adopted the new policy of discharging patients on the 4th postoperative day ('early discharge' group). The criteria for hospital discharge included: presence of sinus rhythm, absence of pyrexia and wound infection, normal routine blood tests, satisfactory chest X-ray and ECG and full mobility. RESULTS: The clinical characteristics were identical in the two groups. The number of grafts per patient was 2.8+/-0.8 and 3.2+/-1.0, and the total ischaemic time 47+/-13 and 46+/-14 min in the normal and early discharge groups, respectively (P=NS in each instance). In the normal discharge group the mean hospital stay was 7.7+/-3.3 days whereas in the early discharge group it was 4.7+/-2.0 days (P<0. 0001) with 73.5% of the patients being discharged within the first 4 days following surgery. The shortening of hospital stay resulted in a mean reduction of costs of pound750/patient. There was no operative mortality (<30 days following surgery) and the incidence of non-fatal perioperative complications were similar in the two groups, with the exception that the incidence of supraventricular arrhythmias was significantly higher in the normal discharge group than in the early discharge group (33% vs. 6.3% respectively; P<0. 0001). These rhythm abnormalities occurred within the first 4 days in 89% of patients following surgery and were the cause of readmission in only one patient in the normal discharge group. There were a total of ten (8.4%) readmissions in the normal discharge group and three (3.8%) in the early discharge group. CONCLUSION: Shortening the postoperative hospital stay to 4 days following elective coronary bypass surgery appears to be safe and can be a means of reducing the cost of care. This in turn may result in a greater availability of resources and in an effective way of reducing waiting lists

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Abstract: PURPOSE: To assess the variation in length of stay for patients hospitalized with community-acquired pneumonia and to determine whether patients who are treated in hospitals with shorter mean stays have worse medical outcomes. SUBJECTS AND METHODS: We prospectively studied a cohort of 1,188 adult patients with community-acquired pneumonia who had been admitted to one community and three university teaching hospitals. We compared patients' mean length of stay, mortality, hospital readmission, return to usual activities, return to work, and pneumonia-related symptoms among the four study hospitals. All outcomes were adjusted for baseline differences in severity of illness and comorbidity. RESULTS: Adjusted interhospital differences in mean length of stay ranged from 0.9 to 2.3 days (P <0.001). When the risk of each medical outcome was compared between patients admitted to the hospital with the shortest length of stay and those admitted to longer stay hospitals, there were no differences in mortality [relative risk (RR) = 0.7; 95% CI, 0.3 to 1.7], hospital readmission (RR = 0.8; 95% CI, 0.5 to 1.2), return to usual activities (RR = 1.1; 95% CI, 0.9 to 1.3), or return to work (RR = 1.2; 95% CI, 0.8 to

2.0) during the first 14 days after discharge, or in the mean number of pneumonia-related symptoms 30 days after admission (P = 0.54). CONCLUSIONS: We observed substantial interhospital variation in the lengths of stay for patients hospitalized with community-acquired pneumonia. The finding that medical outcomes were similar in patients admitted to the hospital with the shortest length of stay and those admitted to hospitals with longer mean lengths of stay suggests that hospitals with longer stays maybe able to reduce the mean duration of hospitalization for this disease without adversely affecting patient outcomes

97. Polder JJ, van Balen R, Steyerberg EW, Cools HJM, Habbema JD. A cost-minimisation study of alternative discharge policies after hip fracture repair. Health Econ 2003;12(2):87-100.
Abstract: It is widely assumed that health care costs can be reduced considerably by providing care in appropriate health care institutions without unnecessary technological overhead. This assumption has been tested in a prospective study. Conventional discharge after hip fracture surgery was compared with an early discharge policy in which patients were discharged to a nursing home with specialised facilities for rehabilitation. We compared costs for both strategies from a societal perspective, using comprehensive and detailed data on type of residence and all kinds of medical consumption during a 4-month follow-up period.As expected, early discharge reduced the hospital stay (with 13 days, p=0.001). More patients were discharged to a nursing home (76% versus 53%). Total medical costs during follow-up were reduced from an average of euro;15338 to euro;14281, representing relatively small and not significant savings (p=0.3). There are two explanations for this unexpected result. First, costs incurred by hip fracture patients were relatively less while in hospital. Hence, nursing home costs almost equalled hospital costs per admission day. Second, compared with the conventionally discharged group early discharged patients were subjected to more medical procedures during the first post-operative days. We conclude that: (1). early discharge shifted rather than reduced costs; (2). the details of costing have a major influence on the cost-effectiveness of alternative discharge policies. Copyright 2002 John Wiley & Sons, Ltd

98. Sala E, Alegre L, Carrera M, Ibars M, Orriols FJ, Blanco ML, et al. Supported discharge shortens hospital stay in patients hospitalized because of an exacerbation of COPD. Eur Respir J 2001;17(6):1138-42.
Abstract: This prospective, controlled, but not formally randomized study investigates the feasibility and efficiency of an alternative to standard hospitalization for patients with exacerbated chronic obstructive pulmonary disease (COPD), based upon supported discharge with nurse supervision at home. Over a 12-month period, emergency physicians, not directly involved in the study, admitted 205 patients with exacerbated COPD to the authors' respiratory unit. Patients were included in the supported discharge group (n=105) if they voluntarily chose to participate in the programme and lived in the city of Palma de Mallorca (where adequate home support could be provided). Patients not fulfilling these criteria (mainly residents outside the city) served as controls (n=100). Inpatient treatment was standardized in all patients and included oxygen therapy, bronchodilators, antibiotics and steroids. Both groups were comparable in terms of age (mean +/- SD: 70 +/- 10 versus 65 +/- 11 yr for supported discharge and control group, respectively), severity of airflow obstruction (forced expiratory volume in one second 45 +/- 18% reference versus 46 +/- 19% ref.), comorbidity and socioeconomic status. Length of hospital stay (LOS) in the supported discharge group was shorter (5.9 +/- 2.8 versus 8.0 +/- 5.1 days, p < 0.001). After discharge, a respiratory nurse visited supported discharge patients at home during 7.3 +/- 3.8 days. Only one patient (1%) required hospital readmission during this period of time. The reduced LOS resulted in a lower utilization of hospital beds at any given point in time through-

out the study period. Within the framework and potential limitations of this study, the results indicate that the supported discharge programme in Spain: 1) allows a significant reduction in the length of hospital stay of patients hospitalized because of an exacerbation of chronic obstructive pulmonary disease; 2) does not result in an inappropriately increased rate of hospital readmissions; and 3) reduces the utilization of hospital resources

99. Stricker KH, Cavegn R, Takala J, Rothen HU. Does ICU length of stay influence quality of life? Acta Anaesthesiol Scand 2005;49(7):975-83.
Abstract: BACKGROUND: Patients with prolonged stay in the intensive care unit (ICU) use a disproportionate share of resources. However, it is not known if such treatment results in impaired quality of life (QOL) as compared to patients with a short length of stay (LOS) when taking into account the initial severity of illness. METHODS: Prospective, observational case-control study in a university hospital surgical and trauma adult ICU. All patients admitted to the ICU during a 1-year period were included. Patients with a cumulative LOS in the ICU > 7 days, surviving up to 1 year after ICU admission and consenting were identified (group L, n = 75) and matched to individuals with a shorter stay (group S). Matching criteria were diagnostic group and severity of illness. Health-related quality of life (HRQOL) was assessed 1 year after admission using the short-form 36 (SF-36) and was compared between groups and to the general population. Further, overall QOL was estimated using a visual analogue scale (VAS) and willingness to consent to future intensive care, and was compared between groups L and S. RESULTS: Based on ANCOVA, a significant difference between groups L and S was noted for two out of eight scales: role physical (P = 0.033) and vitality (P = 0.041). No differences were found for the physical component summary (P = 0.065), the mental component summary (P = 0.267) or the VAS (P = 0.316). Further, there was no difference in expectation to consent to future intensive care (P = 0.149). As compared to the general population, we found similar scores for the mental component summary and for three of eight scales in group L and five of eight scales in group S. CONCLUSIONS: When taking into account severity of illness, HRQOL 1 year after intensive care is comparable between patients with a short and a long LOS in the ICU. Thus, prolonged stay in the ICU per se must not be taken as an indicator of future poorer HRQOL. However, as compared to the general population, significant differences, mostly in physical aspects of QOL, were found for both groups of patients

100. Thompson JF, Roberts CL, Currie MJ, Ellwood DA. Early discharge and postnatal depression: A prospective cohort study. Med J Aust 2000;172(11):532-6.
Abstract: Objectives: To determine whether women discharged from hospital [less-than or equal to] 72 hours after childbirth (early discharge) were at greater risk of developing symptoms of postnatal depression during the following six months than those discharged later (late discharge), their reasons for early discharge and their level of postnatal support. Design and setting: Population-based, prospective cohort study with questionnaires at Day 4, and at 8, 16 and 24 weeks postpartum, conducted at all birth sites in the Australian Capital Territory (ACT). Participants: Women resident in the ACT giving birth to a live baby from March to October 1997. Main Outcome measure: A score > 12 on the Edinburgh Postnatal Depression Scale (EPDS). Results: 1295 (70%) women consented to participate; 1193 (92%) were retained in the study to 24 weeks and, of these, 1182 returned all four questionnaires. Of the 1266 women for whom length-of-stay data were available, 467 (37%) were discharged early and 799 (63%) were discharged late. There were no significant differences between the proportion of women discharged early who ever scored > 12 on the EPDS during the six postpartum months and those discharged late (17% v. 20%), even after controlling for other risk factors (adjusted OR, 0.67; 95% Cl, 0.44-1.01). Of women discharged early, 93% had at least one postnatal visit at home

from a midwife and 81% were 'very satisfied' with the care provided. Most women (96%) reported they had someone to help in practical ways. Conclusions: Women discharged early after childbirth do not have an increased risk of developing symptoms of postnatal depression during the following six months

101. Wichmann MW, Eben R, Angele MK, Brandenburg F, Goetz AE, Jauch KW. Fast-track rehabilitation in elective colorectal surgery patients: a prospective clinical and immunological single-centre study. ANZ J Surg 2007;77(7):502-7.
Abstract: BACKGROUND: Recent clinical data indicate that fast-track surgery (multimodal rehabilitation) leads to shorter postoperative length of hospital stay, faster recovery of gastrointestinal function as well as reduced morbidity and mortality rates. To date, no study has focused on the effects of fast-track surgery on postoperative immune function. This study was initiated to determine whether fast-track rehabilitation results in improved clinical and immunological outcome of patients undergoing colorectal surgery. METHODS: Forty patients underwent either conventional or fast-track rehabilitation after colorectal surgery. In addition to clinical parameters (return of gastrointestinal function, food intake, pain score, complication rates and postoperative length of stay), we determined parameters of perioperative immunity by flow cytometry (lymphocyte subgroups) and enzyme-linked immunosorbent assay (interleukin-6). RESULTS: Our findings indicate a better-preserved cell-mediated immune function (T cells, T-helper cells, natural killer cells) after fast-track rehabilitation, whereas the pro-inflammatory response (C-reactive protein, interleukin-6) was unchanged in both study groups. Furthermore, we detected a significantly faster return of gastrointestinal function (first bowel movement $P<0.001$, food intake $P<0.05$), significantly reduced pain scores in the postoperative course ($P < 0.05$) and a significantly shorter length of postoperative stay ($P<0.001$) in patients undergoing fast-track rehabilitation. CONCLUSION: Fast-track rehabilitation after colorectal surgery results in better-preserved cell-mediated immunity when compared with conventional postoperative care. Furthermore, patients undergoing fast-track rehabilitation suffer from less pain and have a faster return of gastrointestinal function in the postoperative course. In addition, postoperative length of hospital stay was significantly shorter in fast-track patients

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Abstract: A prospective trial was conducted to see whether suction drains could safely be removed and patients discharged within 48 h of major breast surgery. Data from two consecutive groups of 50 patients each were compared. Statistical analysis confirmed demographic homogeneity between the two groups with regard to age, tumour size, lymph node involvement, grade of operating surgeon, procedures performed and the 48 h drainage volume. The first group of patients were discharged when drainage was considered acceptable (mean postoperative stay 4.5 days) (long stay). The second group had their drains removed and were discharged after 48 h (short stay). No seromas developed in either group when the total drainage volume (TDV) was less than 150 ml. Seromas developed in 3 (6%) of the long stay group and 5 (10%) of the short stay group ($P > 0.05$, chi 2 test). No seromas in either group required more than two aspirations. We conclude that it is safe to discharge patients after removal of drains on the 2nd postoperative day

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103. Harrison DM, Stewart AS, Koneru B, Holman MJ. Reduction in hospital stay after liver transplantation. Transplant Proc 1996;28(2):896.

104. Kaul P, Newby LK, Fu Y, Mark DB, Califf RM, Topol EJ, et al. International differences in evolution of early discharge after acute myocardial infarction. Lancet 2004;363(9408):511-7.
Abstract: BACKGROUND: Early discharge of low-risk patients with acute myocardial infarction is feasible and can be achieved at no additional risk of adverse events. We aimed to identify the extent to which countries have taken advantage of the opportunity for early discharge. METHODS: The study population consisted of 54174 patients enrolled in GUSTO-I, GUSTO-III, and ASSENT-2 studies (enrollment period 1990-98) in the USA, Canada, Australia, New Zealand, Belgium, France, Germany, Spain, and Poland. We identified patients with uncomplicated acute myocardial infarction who were eligible for early discharge on the basis of previously established criteria, and assessed the extent to which these patients were discharged early--defined as discharged alive within 4 days of admission. The economic consequences (defined as potentially unnecessary hospital days consumed per 100 patients enrolled) were also investigated. FINDINGS: Patients in all European countries had significantly longer stays than did those from non-European countries. Over the study period, the number of eligible patients discharged on or before day 4 increased in the USA, Canada, Australia, and New Zealand. Despite this increase, no more than 40% of patients who were eligible for early discharge were actually discharged early. The rate of early discharge of eligible patients was consistently low (<2%) in Belgium, France, Germany, Spain, and Poland. In ASSENT-2, which is the most recent trial in this study, the number of potentially unnecessary hospital days (per 100 patients enrolled) ranged from 65 in New Zealand to 839 in Germany. INTERPRETATION: Despite more than a decade of research, there is still a lot of variation between countries in international length-of-stay patterns in acute myocardial infarction. The potential for more efficient discharge of low-risk patients exists in all countries investigated, but was especially evident in the European countries included in the study (Belgium, France, Germany, Spain, and Poland).

105. Khatri S, Webb JG, Carere RG, Amis A, Woolcott J, Chugh S, et al. Safety and cost benefit of same-day discharge after percutaneous coronary intervention. Am J Cardiol 2002;90(4):425-7.

106. Liu LL, Clemens CJ, Shay DK, Davis RL, Novack AH. The safety of newborn early discharge. JAMA 1997;278(4):293-8.
Abstract: CONTEXT: While early discharge of newborns following routine vaginal delivery has become common practice, its safety has not been firmly established. OBJECTIVE: To assess the risk for rehospitalization following newborn early discharge. DESIGN: Population-based, case-control study. SETTING: Washington State linked birth certificate and hospital discharge Abstracts covering 310578 live births from 1991 through 1994. PATIENTS: Case patients were 2029 newborns rehospitalized in the first month of life. Control subjects were 8657 randomly selected newborns not rehospitalized and frequency matched to case patients on year of birth. Cesarean deliveries, multiple births, and births at less than 36 weeks' gestation were not included. MAIN OUTCOME MEASURE: Stratified analyses and logistic regression were performed to assess the risk for rehospitalization within a month of birth after early discharge (<30 hours after birth) compared with later discharge (30-78 hours after birth). RESULTS: Seventeen percent of newborns were discharged early. Newborns discharged early were more likely to be rehospitalized within 7 days (odds ratio [OR], 1.28; 95% confidence interval [CI], 1.11-1.47), 14 days (OR, 1.16; 95% CI, 1.03-1.32), and 28 days (OR, 1.12; 95% CI, 1.00-1.25) of discharge than newborns sent home later. Subgroups at increased risk for rehospitalization following early discharge included newborns born to primigravidas (OR,1.25; 95% CI, 1.07-1.45), mothers younger than 18 years (OR, 1.22; 95% CI, 0.79-1.91), and mothers with premature rupture of membranes (OR, 1.41; 95%

CI, 0.85-2.36). Early discharge was also associated with an increased risk of readmission for jaundice, dehydration, and sepsis. CONCLUSION: Newborns discharged home early (<30 hours after birth) are at increased risk for rehospitalization during the first month of life

107. Maisels MJ, Kring E. Length of stay, jaundice, and hospital readmission. Pediatrics 1998;101(6):995-8.
Abstract: OBJECTIVE: To evaluate the effect of postnatal age at the time of discharge on the risk of readmission to hospital with specific reference to readmission for hyperbilirubinemia. DESIGN: Case-control study based on chart review. SETTING: Large suburban community hospital in southeastern Michigan, delivering more than 5000 infants annually. PATIENTS: Newborn infants, born between December 1, 1988, and November 30, 1994, who were readmitted to hospital within 14 days of discharge, were compared with a randomly selected control group who were not readmitted. RESULTS: Of 29,934 infants discharged, 247 (0.8%) were readmitted by the age of 14 days. One hundred twenty-seven (51%) were admitted because of hyperbilirubinemia and 74 (30%) with the diagnosis of "rule out sepsis." The factors associated with an increased risk of readmission to the hospital were: infant of diabetic mother [odds ratios (OR), 3.45; 95% confidence limits (CL), 1.39 to 8.60]; gestation < or = 36 weeks (OR, 4.56; CL, 1.45 to 14.33), and 37 1/7 to 38 weeks (OR, 2.95; CL, 1.63 to 5.35) versus > or = 40 weeks; presence of jaundice in the nursery (OR, 1.73; CL, 1.14 to 2.63); breastfeeding (OR, 1.78; CL, 1.13 to 2.81); male sex (OR, 1.58; CL, 1.07 to 2.34); length of stay < 48 hours (OR, 1.91; CL, 1.15 to 3.16) and 48 to < 72 hours (OR, 2.09; CL, 1.25 to 3.50) versus > or = 72 hours. Factors associated with readmission for jaundice were gestation < or = 36 weeks (OR, 13.2; CL, 2.70 to 64.6), 36 1/7 to 37 weeks (OR, 7.7; CL, 2.69 to 22.0), 37 1/7 to 38 weeks (OR, 7.2; CL, 3.05 to 16.97) versus > or = 40 weeks; jaundice during nursery stay (OR, 7.80; CL, 3.38 to 18.0); length of stay < 48 hours (OR, 2.40; CL, 1.09 to 5.30) and 48 to < 72 hours (OR, 3.15; CL, 1.40 to 7.09) versus > or = 72 hours; male sex (OR, 2.89; CL, 1.46 to 5.74); and breastfeeding (OR, 4.21; CL, 1.80 to 9.87). Infants whose length of stay was < 48 hours were at no greater risk for readmission for jaundice or other causes than those whose length of stay was > or = 48 hours to < 72 hours. CONCLUSIONS: Discharge at any time < 72 hours significantly increases the risk for readmission to hospital and the risk for readmission with hyperbilirubinemia when compared with discharge after 72 hours. The American Academy of Pediatrics recommends that infants discharged < 48 hours should be seen by a health care professional within 2 to 3 days of discharge. Our observations, as well as those of others, suggest that this recommendation should also be extended to those discharged at < 72 hours after birth. One approach to decreasing the risk of morbidity and readmission, particularly from hyperbilirubinemia, would be to help mothers to nurse their infants more effectively from the moment of birth

108. Malkin JD, Garber S, Broder MS, Keeler E. Infant mortality and early postpartum discharge. Obstet Gynecol 2000;96(2):183-8.
Abstract: OBJECTIVE: To assess additional risk of newborn death owing to early discharge. METHODS: This was a historical cohort study using Washington State linked birth certificates, death certificates, and hospital discharge records that covered 47,879 live births in 1989 and 1990. Logistic regression was used to assess risk of death within the first year of life after early discharge (less than 30 hours after birth) compared with later discharge (30-78 hours after birth). RESULTS: Newborns discharged early were more likely to die within 28 days of birth (odds ratio [OR] 3.65; 95% confidence interval [CI] 1.56, 8.54), between 29 days and 1 year (OR 1.61; 95% CI 1.10, 2.36), and any time within the first year (OR 1.84; 95% CI, 1.31, 2.60) of life than newborns sent home later. Newborns discharged early also were more likely to die of heart-related

problems (OR 3.72; CI 1.25, 11.04) and infections (OR 4.72; CI 1.13, 19.67) within 1 year of birth than newborns discharged later. CONCLUSION: Newborns discharged within 30 hours of birth are at increased risk of death within the first year of life

109. Malkin JD, Keeler E, Broder MS, Garber S. Postpartum length of stay and newborn health: a cost-effectiveness analysis. Pediatrics 2003;111(4 Pt 1):e316-e322.
Abstract: OBJECTIVE: To evaluate the cost-effectiveness of increasing lengths of brief postpartum hospitalizations. METHODS: A cost-effectiveness model extrapolating from secondary data was used. Social costs in 2000 US dollars were estimated using several sources, including a randomized controlled trial, a retrospective study, and survey data. Life-years saved from reduced infant mortality were estimated from administrative data from Washington State. A total of 113147 singleton newborns who were born in nonmilitary hospitals in Washington State in 1989 or 1990 and had postpartum stays short enough to be affected by length of stay legislation were studied. The cost-effectiveness of increases in postpartum lengths of stay similar to those that would occur if all mothers and singleton newborns used at least the time allotted to them under the federal length of stay legislation was measured. RESULTS: Estimated lower-bound cost per newborn life-year saved was 19 800 dollars (95% confidence interval: 11600-61300 dollars) when only neonatal deaths were considered. The corresponding upper-bound estimate was 94800 dollars (95% confidence interval: 55200-286800 dollars). The results were very sensitive to assumptions about the discount rate for future life-years and the time from birth during which averted deaths are considered (neonatal deaths, postneonatal infant deaths, or all infant deaths). CONCLUSIONS: At hospitals that do not experience additional capacity costs as a result of increased lengths of stay, lengthening short postpartum stays seems to be more cost-effective than many common health interventions and well below cost-effectiveness thresholds suggested by the literature. Even at hospitals that experience additional capacity costs, the cost-effectiveness of lengthening short postpartum stays seems to be roughly equal to the benchmark of 100000 dollars per quality-adjusted life-year suggested by the literature

110. Milerad J, Broberger U, Olofsson E, Thomassen P. [Early discharge from maternity wards.] Lakartidningen 1993;90(32-33):2667-9.

111. Sward-Comunelli S, Welhoelter J, Harris K, Hall RT. Bilirubin levels and weight change in infants with early hospital discharge versus prolonged hospital stay. J Perinatol 1996;16(3 Pt 1):211-4.

112. Taheri PA, Butz DA, Greenfield LJ. Length of stay has minimal impact on the cost of hospital admission. J Am Coll Surg 2000;191(2):123-30.
Abstract: BACKGROUND: Hospital cost containment, cost reduction, and alternative care delivery systems continue to preoccupy health care providers, payers, employers, and policy makers throughout the United States. The universal metric for gauging the success of these efforts is hospital length of stay (LOS). Reducing the LOS purportedly yields large cost savings. The purpose of this study is to assess precisely how much hospitals save by shortening LOS. STUDY DESIGN: We reviewed the cost-accounting records of all surviving patients (n = 12,365) discharged from our academic medical center during fiscal year 1998 with LOS of 4 days or more. Actual costs were identified through the University of Michigan cost-accounting system. Individual patient costs were broken out on a daily basis and then decomposed further into variable direct, fixed direct, and indirect categories. The population was analyzed by determining the incremental resource cost of the last full day of stay versus the total cost for the entire stay. The data were also stratified by LOS and by surgical costs.

An analysis of all trauma patients was then performed on all patients discharged from the hospital's adult level I trauma center (n = 665). Costs were determined on specific days, including admission day, each ICU day, day of discharge from the ICU, and each of the last 2 days before the discharge day. RESULTS: The incremental costs incurred by patients on their last full day of hospital stay were $420 per day on average, or just 2.4% of the $17,734 mean total cost of stay for all 12,365 patients. Mean end-of-stay costs represented only a slightly higher percentage of total costs when LOS was short (e.g., 6.8% for patients with LOS of 4 days). Even when the data were stratified to focus on patients without major operations, the $432 average last-day variable direct cost was only 3.4% of the $12,631 average total cost of care. A focus on the trauma center helps to explain this phenomenon. For our trauma center, variable direct costs accounted for 42% of the mean total cost per patient of $22,067. The remaining 58% was hospital overhead (fixed and indirect costs). The median variable direct cost on the first day of admission is $1,246, and the median variable direct cost on discharge is $304. Approximately 40% of the variable costs are incurred during the first 3 days of admission. CONCLUSIONS: For most patients, the costs directly attributable to the last day of a hospital stay are an economically insignificant component of total costs. Reducing LOS by as much as 1 full day reduces the total cost of care on average by 3% or less. Going forward, physicians and administrators must deemphasize LOS and focus instead on process changes that better use capacity and alter care delivery during the early stages of admission, when resource consumption is most intense

113. The Netherlands Organisation for Health Research and Development (ZonMw). Introduction of a breast cancer care programme in ultra short stay (ambulatory/24 hour stay setting) in 4 early adopter centres: implementation and evaluation (project) (Project record). 2005. HTA: http://www.mrw.interscience.wiley.com/cochrane/clhta/articles/HTA-32005001093/frame.html

114. The Netherlands Organisation for Health Research and Development (ZonMw). Quantifying COPD patients preferences for early assisted discharge and inpatient hospital care for COPD exacerbations: a discrete choice experiment (project) (Project record). 2006. HTA: http://www.mrw.interscience.wiley.com/cochrane/clhta/articles/HTA-32006001372/frame.html

HVA ER EFFEKTEN AV ULIKE OMSORGSNIVÅER (DAG-BEHANDLING VERSUS INNLEGGELSE) FOR RESSURSBRUK OG BEHANDLINGSKVALITET GENERELT ELLER VED ULIKE DIAGNOSER?

Tabell 2 Søketreff fordelt på kilder

Cochrane Library	2000
MEDLINE	370
EMBASE	233

Her søkte vi etter systematiske oversikter og randomiserte kontrollerte studier. Etter dublettkontroll gjensto totalt 2253 referanser som vi gikk gjennom. Av disse ble 103 referanser vurdert som potensielt relevante for problemstillingen:

Oversiktsstudier

1. Ahmad NZ, Byrnes G, Naqvi SA. A meta-analysis of ambulatory versus inpatient laparoscopic cholecystectomy. Surg Endosc 2008;22(9):1928-34.
Abstract: BACKGROUND: Laparoscopic cholecystectomy is increasingly used on an ambulatory basis. This study aimed to examine its effectiveness for carefully selected patients. METHODS: A systematic review of Cochrane, Embase, and Medline using the keywords "ambulatory," "laparoscopic," and "cholecystectomy" was performed. Postoperative complications leading to admissions and readmissions were compared between day care and inpatient laparoscopic cholecystectomy groups. Postoperative quality of life, patient satisfaction, and cost effectiveness also were analyzed. RESULTS: The search process identified seven clinical trials suitable for meta-analysis. These trials, consisting of 598 patients, compared day care and inpatient procedures. The unplanned admission rate in the ambulatory group was comparable with the prolonged hospitalization of inpatients (odds ratio [OR], 1.979; 95% confidence interval [CI], 0.846-4.628). There was no significant difference between the readmission rates of the two groups (OR, 0.964; 95% CI, 0.318-2.922). The quality-of-life indicators were similar for the ambulatory and overnight-stay patients (p = 0.195). The cost effectiveness was better for the day care procedures because of the shorter mean hospital stay. CONCLUSION: Ambulatory laparoscopic cholecystectomy can be performed safely for selected patients, with reduced cost and a high level of patient satisfaction. [References: 45]

2. Clar C, Waugh N, Thomas S. Routine hospital admission versus out-patient or home care in children at diagnosis of type 1 diabetes mellitus. Cochrane Database Syst Rev 2003;(3):CD004099.
Abstract: BACKGROUND: In many places, children newly diagnosed with type 1 diabetes mellitus are admitted to hospital for metabolic stabilisation and training, even if they are not acutely ill. Out-patient or home based management of these children could avoid the stress associated with a hospital stay, could provide a more natural learning environment for the child and its family, and might reduce costs for both the health care system and the families. OBJECTIVES: To assess the effects of routine hospital admission compared to out-patient or home-based management in children newly diagnosed with type 1 diabetes who are not acutely ill, on metabolic control, wellbeing and self-efficacy of the patient and his/her family. SEARCH STRATEGY: We searched

the Cochrane Library (including the Cochrane Controlled Trials Register), Medline, Embase, Cinahl, and the British Nursing Index. Additionally, we searched reference lists of relevant studies identified and contacted one of the trialists about further studies. Date of latest search: February 2003. SELECTION CRITERIA: Comparative studies of initial hospitalisation compared to home-based and/or out-patient management in children with newly diagnosed type 1 diabetes. DATA COLLECTION AND ANALYSIS: Studies were independently selected by two reviewers. Data extraction and quality assessment of trials were done independently by two reviewers. Any differences in opinion were resolved by discussion. Authors of included studies were contacted for missing information. Results were summarised descriptively, using tables and text. MAIN RESULTS: Six studies were included in the review, including a total of 237 children in the out-patient/home group. Two studies were randomised controlled trials, three were retrospective cohort studies, and one was a prospective cohort study. Except for one randomised controlled trial that included children in the intervention group who were initially hospitalised for a brief period, studies were of low quality.The one high quality trial identified suggested that home-based management of children with newly diagnosed type 1 diabetes may lead to slightly improved long term metabolic control (at two and three years follow-up). No differences between comparison groups were found in any of the psychosocial and behavioural variables assessed or in rates of acute diabetic complications within two years. Parental costs were found to be decreased, while health system costs were increased, leaving total social costs virtually unchanged. None of the other studies assessing metabolic control found a difference between the comparison groups. There seemed to be no differences in hospitalisations or acute diabetic complications between the out-patient/home groups and the hospital groups. Results with respect to psychosocial and behavioural variables were inconclusive, with only one study finding significant results on some selected subscales of tests used. In another study, the out-patient/home group did significantly better on the assessments of treatment adherence, familial relationship and sociability, but upon further analysis this only seemed to apply to selected socioeconomic subgroups, with no clear explanations offered. REVIEWER'S CONCLUSIONS: Due to the generally low quality or limited applicability of the studies identified, the results of this review are inconclusive. On the whole, the data seem to suggest that out-patient/home management of type 1 diabetes in children at diagnosis does not lead to any disadvantages in terms of metabolic control, acute diabetic complications and hospitalisations, psychosocial variables and behaviour, or total costs. Primary research, ideally a high quality randomised controlled trial, is required. [References: 39]

3. Danish Centre for Evaluation and Health Technology Assessment (DACEHTA). Laparoscopic surgery in out-patient or in-patient management (co-funded by DACEHTA) - Primary Research (project) (Project record). 2001. HTA: http://www.mrw.interscience.wiley.com/cochrane/clhta/articles/HTA-32002000130/frame.html

4. Dekker R, Drost EA, Groothoff JW, Arendzen JH, van Gijn JC, Eisma WH. Effects of day-hospital rehabilitation in stroke patients: a review of randomized clinical trials. Scand J Rehabil Med 1998;30:87-94.
Abstract: The purpose of this study was to review the literature on the effects of day-hospital rehabilitation (DHR) in stroke patients. In The Netherlands DHR concerns a multidisciplinary approach to decrease disability and handicap and to optimize quality of life in an outpatient setting. Data were collected by a computer-aided search of published randomized trials. Fifteen articles reporting on seven randomized controlled trials were selected. Data extraction included a score for quality of the methods, based on four categories: "study population", "interventions", "effects" and "data presentation and analysis". To

each criterion a weight was attached and the maximum score was set at 100 points. In judging the methodological quality of the selected studies, one study proved insufficient. Of the remaining studies the sum score varied from 34 to 67, with a mean of 50. Comparison of the results of the studies is complicated by different definitions of DHR, different natures of the control group and the study population, and the variety of measurement instruments applied. Often instruments were applied whose reliability and validity was not proven. As of now it is not possible to prove that DHR for stroke patients is effective. In future research a standardized definition of DHR, a uniform control group, and acceptable research methodology and adequate measurement instruments must be applied.

5. Fedorowicz Z, Lawrence D, Gutierrez P. Day care versus in-patient surgery for age-related cataract. Cochrane Database Syst Rev 2005;(1):CD004242.
Abstract: BACKGROUND: Age-related cataract accounts for more than 40% of cases of blindness in the world with the majority of people who are blind from cataract found in the developing world. With the increased number of people with cataract there is an urgent need for cataract surgery to be made available as a day care procedure. OBJECTIVES: To provide reliable evidence regarding the safety, feasibility, effectiveness and cost-effectiveness of cataract extraction performed as day care versus in-patient procedure. SEARCH STRATEGY: We searched the Cochrane Central Register of Controlled Trials - CENTRAL (which contains the Cochrane Eyes and Vision Group Trials Register) on The Cochrane Library (Issue 3 2004), MEDLINE (1966 to July 2004), EMBASE (1980 to August 2004) and LILACS (July 2004). SELECTION CRITERIA: This review includes randomised controlled trials comparing day care and in-patient surgery for age-related cataract. The primary outcome was the achievement of a satisfactory visual acuity six weeks after the operation. DATA COLLECTION AND ANALYSIS: Although two trials are included in the review, adequate data were available for only one trial and therefore pooling of data from studies was not attempted. A descriptive summary is presented. MAIN RESULTS: Two trials, involving a total of 1284 people, are included in this review. One trial reported statistically significant differences in early postoperative complication rates in the day care group, with an increased risk of increased intraocular pressure, which had no clinical relevance to visual outcomes four months postoperatively. The mean change in visual acuity (Snellen lines) of the operated eye four months postoperatively was 4.1 (standard deviation (SD) 2.3) for the day care group and 4.1 (SD 2.2) for the in-patient group and not statistically significant. The four-month postoperative mean change in quality of life score measured using the VF14 showed minimal differences between the two groups. Costs were 20% more for the in-patient group and this was attributed to higher costs for overnight stay. One study only reported hotel costs for the non-hospitalised participants making aggregation of data on costs impossible. AUTHORS' CONCLUSIONS: This review provides some evidence that there is a cost saving but no significant difference in outcome or risk of postoperative complications between day care and in-patient cataract surgery. This is based on one detailed and methodologically sound trial conducted in the developed world. The success, safety and cost-effectiveness of cataract surgery as a day care procedure appear to be acceptable but additional well-designed trials are required to confirm these perceptions. [References: 17]

6. Forster A, Young J, Lambley R, Langhorne P. Medical day hospital care for the elderly versus alternative forms of care. Cochrane Database Syst Rev 2008;(4):CD001730.
Abstract: BACKGROUND: The proportion of the world's population aged 60 or over is increasing. This review sets out to examine the effectiveness and resource implications of geriatric medical day hospital attendance for elderly people. This is an update of a Cochrane review first published in 1999. OBJEC-

TIVES: To examine the effectiveness of attendance at a medical day hospital for elderly people in preventing death, disability, and institutionalisation and improving subjective health status. SEARCH STRATEGY: We searched the EPOC group specialist register (March 2008), Cochrane Central Register of Controlled Trials (CENTRAL) (The Cochrane Library, Issue 1, 2008), MEDLINE (1996 to January 2008), EMBASE (1996 to 2008 week 5), and other databases. SELECTION CRITERIA: Randomised and quasi-randomised studies comparing attendance at a geriatric medical day hospital with alternative forms of care for elderly medical patients (usually > 60 years). DATA COLLECTION AND ANALYSIS: Three review authors independently assessed research reports to determine eligibility, categorise trial type and extract data. MAIN RESULTS: Thirteen trials involving 3007 participants were included. These compared day hospital with a) comprehensive elderly care (five trials), b) domiciliary care (five trials), or c) no comprehensive elderly care (three trials).There were no significant differences between day hospital attendance and the sub-categories of comparison treatments for the outcomes of death, death or requiring institutional care, death or deterioration in ADL. When death or a 'poor' outcome at follow up was examined there was a significant difference in favour of day hospital attendance when compared to no comprehensive elderly care (odds ratio (OR) 0.73; 95% confidence interval (CI) 0.53 to 1.00; P < 0.05).Dependency was measured in 12 trials using a variety of ADL measures; two described short-term improvement for the day hospital group, one reported improved outcome for the comparison group, while in the remaining trials there was no statistically significant difference. Using the outcome of deterioration in ADL among survivors, day hospital patients showed a reduced odds of deterioration when compared with those receiving no comprehensive elderly care (OR 0.60; 95% CI 0.38 to 0.97; P < 0.05).When resource use was examined the day hospital group showed trends towards reductions in hospital bed use and placement of survivors in institutional care. AUTHORS' CONCLUSIONS: Medical day hospital care for the elderly appears to be more effective than no intervention but may have no clear advantage over other forms of comprehensive elderly medical services. MEDICAL DAY HOSPITAL CARE FOR THE ELDERLY VERSUS ALTERNATIVE FORMS OF CARE: Geriatric day hospitals are an important component of elderly care designed to assist with in-hospital services. They are out-patient facilities where older patients attend for a full or near full day and receive multidisciplinary rehabilitation in a health care setting. Thirteen trials involving 3007 participants were included in this review, and results show that attendance at a day hospital offers benefits over no treatment including improved activities of daily living and decreased use of hospital beds. There appears to be little advantage of medical day hospital when compared to other forms of comprehensive elderly services

7. Forster A, Young J, Langhorne P. Systematic review of day hospital care for elderly people. BMJ 1999;318(7187):837-41.
Abstract: OBJECTIVE: To examine the effectiveness of day hospital attendance in prolonging independent living for elderly people. DESIGN: Systematic review of 12 controlled clinical trials (available by January 1997) comparing day hospital care with comprehensive care (five trials), domiciliary care (four trials), or no comprehensive care (three trials). SUBJECTS: 2867 elderly people. MAIN OUTCOME MEASURES: Death, institutionalisation, disability, global "poor outcome," and use of resources. RESULTS: Overall, there was no significant difference between day hospitals and alternative services for death, disability, or use of resources. However, compared with subjects receiving no comprehensive care, patients attending day hospitals had a lower odds of death or "poor" outcome (0.72, 95% confidence interval 0.53 to 0.99; P<0.05) and functional deterioration (0.61, 0.38 to 0.97; P<0.05). The day hospital group showed trends towards reductions in hospital bed use and placement in institutional care. Eight trials reported treatment costs, six of which reported that day

hospital attendance was more expensive than other care, although only two analyses took into account cost of long term care. CONCLUSIONS: Day hospital care seems to be an effective service for elderly people who need rehabilitation but may have no clear advantage over other comprehensive care. Methodological problems limit these conclusions, and further randomised trials are justifiable

8. Gurusamy KS, Junnarkar S, Farouk M, Davidson BR. Day-case versus overnight stay for laparoscopic cholecystectomy. Cochrane Database Syst Rev 2008;(3):CD006798.
Abstract: BACKGROUND: Although day-case elective laparoscopic cholecystectomy can save bed costs, its safety remains to be established. OBJECTIVES: To assess the safety and benefits of day-case surgery compared to overnight stay in patients undergoing elective laparoscopic cholecystectomy. SEARCH STRATEGY: We searched The Cochrane Hepato-Biliary Group Controlled Trials Register, the Cochrane Central Register of Controlled Trials (CENTRAL) in The Cochrane Library, MEDLINE, EMBASE, and Science Citation Index Expanded until April 2008 for identifying randomised trials using search strategies. SELECTION CRITERIA: Only randomised clinical trials, irrespective of language, blinding, or publication status, comparing day-case and overnight stay in elective laparoscopic cholecystectomy were considered for the review. DATA COLLECTION AND ANALYSIS: We collected the data on the characteristics of the trial, methodological quality of the trials, morbidity, prolonged hospitalisation, re-admissions, pain and quality of life from each trial. We analysed the data with both the fixed-effect and the random-effects models using RevMan Analysis. For each outcome we calculated the risk ratio, weighted mean difference, or standardised mean difference with 95% confidence intervals (CI) based on available case-analysis. MAIN RESULTS: Five trials with 429 patients randomised to the day-case group (215) and overnight stay group (214) were included in the review. All the trials were of high risk of bias. The trials recruited 49% of patients undergoing cholecystectomy. The selection criteria varied, but most included only patients without other diseases. The patients were living in easy reach of the hospital and with a responsible adult to take care of them. On the day of surgery, 81% of day-case patients were discharged. The drop-out rate after randomisation varied from 6.5% to 12.7%. There was no significant difference between day-case and overnight stay group as regards to morbidity, prolongation of hospital stay, re-admission rates, pain, quality of life, patient satisfaction and return to normal activity and work. AUTHORS' CONCLUSIONS: Day-case elective laparoscopic cholecystectomy seems to be a safe and effective intervention in selected patients (with no or minimal systemic disease and within easy reach of the hospital) with symptomatic gallstones. Because of the decreased hospital stay, it is likely to save costs. DAY-CASE LAPAROSCOPIC CHOLECYSTECTOMY SEEMS TO BE SAFE AND CAN BE DONE SUCCESSFULLY IN MORE THAN THREE-QUARTERS OF SELECTED PATIENTS: Although day-case laparoscopic cholecystectomy (removal of gallbladder through keyhole surgery) can save bed costs, its safety has to be established. In this systematic review of randomised clinical trials, we included five trials with 429 patients randomised to day-case group (215 patients) and to overnight stay group (214 patients). Four of the five trials were of low risk of bias. The trials recruited 49% of patients undergoing cholecystectomy (removal of gallbladder). The selection criteria varied, but most included only patients without other diseases. The patients were living in easy reach of the hospital and with a responsible adult to take care of them. 81% of day-case patients were discharged on the day of surgery. The drop-out rate after randomisation varied between 6.5% and 12.7%. There was no significant difference between day-case and overnight stay group as regards to complications, prolongation of hospital stay, re-admission rates, pain, quality of life, patient satisfaction, and return to normal activity and work. Day-case elective laparoscopic cholecystectomy seems to be

safe and effective treatment in selected patients (with no or minimal systemic disease and within easy reach of the hospital) with symptomatic gallstones. Because of the decreased hospital stay, it is likely to save costs.

9. Kelly AJ, Alfirevic Z, Dowswell T. Outpatient versus inpatient induction of labour for improving birth outcomes. Cochrane Database Syst Rev 2009;(2):CD007372.
Abstract: BACKGROUND: More than 20% of women undergo induction of labour in some countries. The different methods used to induce labour have been the focus of previous reviews, but the setting in which induction takes place (hospital versus outpatient settings) may have implications for maternal satisfaction and costs. It is not known whether some methods of induction that are effective and safe in hospital are suitable in outpatient settings. OBJECTIVES: To assess the effects on outcomes for mothers and babies of induction of labour for women managed as outpatients versus inpatients. SEARCH STRATEGY: We searched the Cochrane Pregnancy and Childbirth Group's Trials Register (December 2008). SELECTION CRITERIA: Published and unpublished randomised and quasi-randomised trials in which inpatient and outpatient methods of cervical ripening or induction of labour have been compared. DATA COLLECTION AND ANALYSIS: Two review authors independently assessed trial reports for inclusion. Two review authors carried out data extraction and assessment of risk of bias independently. MAIN RESULTS: We included three trials, with a combined total of 612 women in the review; each examined a different method of induction and we were unable to pool the results from trials.1. Vaginal PGE2 (One study including 201 women). There were no differences between women managed as out- versus inpatients for most review outcomes. Women in the outpatient group were more likely to have instrumental deliveries (risk ratio (RR) 1.74; 95% confidence interval (CI) 1.03 to 2.93). The overall length of hospital stay was similar in the two groups.2. Controlled release PGE2 10mg (one study including 300 women). There was no evidence of differences between groups for most review outcomes, including success of induction. During the induction period itself, women in the outpatient group were more likely to report high levels of satisfaction with their care (satisfaction rated seven or more on a nine-point scale RR 1.42; 95% CI 1.11 to 1.81), but satisfaction scores measured postnatally were similar in the two groups.3. Foley catheter (one study including 111 women). There was no evidence of differences between groups for caesarean section rates, total induction time and the numbers of babies admitted to neonatal intensive care. AUTHORS' CONCLUSIONS: The data available to evaluate the efficacy or potential hazards of outpatient induction are limited. It is, therefore, not yet possible to determine whether induction of labour is effective and safe in outpatient settings. OUTPATIENT VERSUS INPATIENT INDUCTION OF LABOUR: Up to a quarter of pregnant women may need their labour started artificially, or induced, with the use of medication or by other means. With most methods of induction it takes some time for labour to actually start. This means that it may be more convenient to women, and cheaper for health service providers, if they are cared for in outpatient settings, such as in their own homes. Women who are at low obstetric or medical risk could be assessed in hospital, given the induction agent and then return home with clear instructions. The use of outpatient induction of labour attempts to balance possible improvements in maternal satisfaction, convenience, reduced length of stay in hospital and lower cost with the safety of both the mother and baby.Three randomised controlled trials with a combined total of 612 women assessed the effects of induction of labour for women managed as outpatients versus inpatients. The induction agents differed in each trial. The limited information from these trials did not support more successful induction within 24 hours, shorter length of stay in hospital or differences in need for further induction or the mode of giving birth. The information avail-

able was limited and it is, therefore, not yet possible to determine whether induction of labour is effective and safe in outpatient settings

10. Kröner CC, Turnbull DA, Wilkinson CS. Antenatal day care units versus hospital admission for women with complicated pregnancy. Cochrane Database Syst Rev 2001;(4):CD001803.
Abstract: BACKGROUND: The use of antenatal day care units is widely recognized as an alternative for inpatient care for women with complicated pregnancy. OBJECTIVES: The objective of this review was to assess the clinical safety, plus maternal, perinatal and psychosocial consequences for the women and cost effectiveness of this type of care. SEARCH STRATEGY: The Group's Specialised Register of Controlled Trials was searched in May 2001 as well as the Cochrane Controlled Trials Register (CENTRAL/CCTR), CINAHL (1982-04 to 1998-10) and Current Contents (Life Sciences/Clinical Medicine 1995-05 to 1999). Conference proceedings of PSANZ (Perinatal Society of Australia and New Zealand) and FIGO (Fédération Internationale de Gynécologie et d'Obstétrie) (1997) were searched. SELECTION CRITERIA: Randomized trial comparing day care with inpatient care for women with complicated pregnancy. DATA COLLECTION AND ANALYSIS: Trial quality was assessed by two reviewers independently. The author of the study was contacted for additional information. Data were extracted by the same two reviewers independently. MAIN RESULTS: One trial involving 54 women was included. This trial was of average quality. It was found that day care assessment for non-proteinuric hypertension can reduce inpatient stay (difference in mean stay: 4.0 days; 95% confidence interval (CI): 2.1 to 5.9 days). Also a significant increase in the rate of induction of labour in the control group was found (4.9 times more likely: 95% CI: 1.6 to 13.8). The other clinical outcomes did not show a statistically significant difference between the control and intervention group. No other significant differences were observed. AUTHORS' CONCLUSIONS: Admission to day care for non-proteinuric hypertension reduces the amount of time spent in the hospital and proportion of women induced for labour. However, one trial of 54 women is not sufficient to draw sound conclusions. Additional studies are needed to give more solid evidence to confirm the advantages of antenatal day care units. ANTENATAL DAY CARE UNITS VERSUS HOSPITAL ADMISSION FOR WOMEN WITH COMPLICATED PREGNANCY: Some evidence exists that admission to antenatal day care units may help reduce the length of time spent in hospital for women with a complicated pregnancy.Complications during pregnancy can include high blood pressure, excessive vomiting, threatened early labour or abnormal and heavy bleeding (haemorrhage). Admission to hospital is necessary but disruptive to the mother and her family. Sometimes this care can be given without the need for an overnight stay in hospital. Day care units can provide a more relaxed atmosphere and better access for families, while still providing high quality medical and midwifery care. The review of trials found some evidence that inpatient stay and the rate of induced labour was reduced by admission to day care units but more research is needed

11. Langhorne P, Dey P, Woodman M, Kalra L, Wood-Dauphinee S, Patel N, et al. Is stroke unit care portable? A systematic review of the clinical trials. Age Ageing 2005;34(4):324-30.
Abstract: Background: It is not known if mobile stroke teams can achieve the good results seen in trials of geographically discrete stroke wards (stroke units). Objective: To establish the effectiveness of mobile stroke teams. Design: Systematic review of controlled clinical trials that compared peripatetic systems of organised stroke care (stroke team care) with alternative hospital services. Methods: Systematic review and meta-analysis (using Cochrane Collaboration methodology and involving the primary trialists). Clinical outcomes included death, dependency, the need for institutional care and measures of the process of care such as the delivery of key investigations and treatments. Re-

sults: Six clinical trials (1,085 patients) were identified; five (781 patients) compared some form of stroke team care with conventional care in general medical wards and one (304 patients) compared team care with a comprehensive stroke unit. Compared with care in general wards, stroke team care improved some aspects of the process of care, but clinical outcomes were similar. Compared with a comprehensive stroke unit, stroke team patients were significantly less likely to survive (P< 0.001), return home (P< 0.001) or regain independence (P< 0.0001). Most aspects of the process of care were also poorer than in the stroke unit. Conclusions: Care from a mobile stroke team had no major impact on death, dependency or the need for institutional care. copyright The Author 2005. Published by Oxford University Press. All rights reserved

12. Makaryus AN, Hametz CD, Cohen TJ, Jadonath RL. Should the initiation of antiarrhythmic therapy for atrial fibrillation occur in the hospital or out of the hospital?: a review of the literature. J Invasive Cardiol 2004;16(1):31-4.
Abstract: BACKGROUND: Initiation of antiarrhythmic therapy for atrial fibrillation is a key step in the treatment of this disorder. Much controversy remains as to the risks and benefits of initiating therapy as an inpatient versus an outpatient. OBJECTIVE: To explore the various issues of debate and to determine the importance and validity of these various issues when it comes to the evaluation of patients for in- versus out-of-hospital initiation of antiarrhythmic therapy for atrial fibrillation. METHODS: A MEDLINE search of English language journal articles since 1966 and a hand search of bibliographies included in pertinent retrieved articles was undertaken. Articles used included review articles, retrospective studies, and meta-analyses. RESULTS: The literature is full of articles for and against outpatient initiation of antiarrhythmic therapy. One side feels that the risks of antiarrhythmic therapy initiation are serious enough in all patients and easy enough to reverse or ameliorate if the patient is in the safety of the monitored hospital setting. The other side argues that these complications are infrequent enough except in certain commonly identifiable patients, that not all need hospitalization during antiarrhythmic initiation. The issues at the heart of the dispute include: the presence or absence of underlying heart disease; the period of monitoring after initiation of therapy; the choice of antiarrhythmic agent used; and even the seriousness and prevalence of the arrhythmia which can be induced. CONCLUSIONS: The issue of in versus out-of-hospital initiation of antiarrhythmic therapy for atrial fibrillation remains a widely disputed topic. Many factors come under consideration when this topic is studied. At present, we recommend that patients with significant structural heart disease, conduction disease, and/or QT prolongation be strongly considered for in-hospital initiation of antiarrhythmic medications. Further prospective studies are necessary to assess the magnitude of the difference of initiating antiarrhythmic therapy as an inpatient versus as an outpatient. [References: 19]

13. Mirnezami R, Sahai A, Symes A, Jeddy T. Day-case and short-stay surgery: The future for thyroidectomy? Int J Clin Pract 2007;61(7):1216-22.
Abstract: Day-case and short-stay thyroid surgery is carried out routinely around the world. In the UK longer postoperative stay is usually advocated to circumvent/identify potentially catastrophic complications following thyroidectomy. In the current climate of the National Health Service with focus on patient-centred service, reduced hospital stay and cost cutting, we conducted a review to provide a comprehensive assessment of day-case and short-stay thyroidectomy. A systematic electronic literature search using MEDLINE, Ovid, Embase, PubMed and Cochrane databases revealed 22 original studies that met our inclusion criteria. Generally studies demonstrated encouraging results regarding the feasibility of these approaches. Complication rates appeared equivocal to traditional longer stay thyroidectomy and only one patient died.

The majority of life-threatening complications occurred in the immediate postoperative period. Of concern, some late haemorrhage has been documented at 5 days postsurgery. Complication rates following day-case/short-stay thyroid surgery appears comparable with inpatient thyroidectomy. Further study is required to determine whether this approach is truly safe. copyright 2007 The Authors

14. Ng R, Mullin EJ, Maddern GJ. Systematic review of day-case laparoscopic Nissen fundoplication. ANZ J Surg 2005;75(3):160-4.
Abstract: BACKGROUND: Laparoscopic Nissen fundoplication is increasingly being performed on a day-case basis. The aim of the present paper was to systematically review published data on day-case or ambulatory laparoscopic fundoplication and discuss the differing criteria for patient selection, postoperative management and patient outcomes presented in each series. METHODS: An optimally sensitive search strategy of subject headings and text words were used and the databases used included MEDLINE, PubMed and the Cochrane Library. All databases were searched from 1 January 1994 onwards. RESULTS: A total of seven papers were included in the present review, of which six were prospective single-cohort studies. Overall, there was large heterogeneity among the studies but with similar complication and readmission rates. CONCLUSIONS: Short-term outcomes for laparoscopic Nissen fundoplication in terms of complications and readmission rates are comparable to inpatient procedures. However there is a paucity of published data. [References: 16]

15. Ogilvie D. Hospital based alternatives to acute paediatric admission: a systematic review. Arch Dis Child 2005;90(2):138-42.
Abstract: AIMS: To synthesise published evidence of the impacts of introducing hospital based alternatives to acute paediatric admission. METHODS: Systematic review of studies of interventions for children with acute medical problems. Main outcome measures were: admission or discharge, unscheduled returns to hospital, satisfaction of parents and general practitioners, effects on health service activity, and costs. RESULTS: Twenty five studies were included: one randomised controlled trial, 23 observational or cross-sectional studies, and one qualitative study. Many studies were of uncertain quality or were open to significant potential bias. About 40% of children attending acute assessment units in paediatric departments, and over 60% of those attending acute assessment units in A&E departments, do not require inpatient admission. There is little evidence of serious clinical consequences in children discharged from these units, although up to 7% may subsequently return to hospital. There is some evidence that users are satisfied with these services and that they are associated with reductions in inpatient activity levels and certain hospital costs. Evidence about the impact of urgent outpatient clinics is very limited. CONCLUSIONS: Current evidence supports a view that acute paediatric assessment services are a safe, efficient, and acceptable alternative to inpatient admission, but this evidence is of limited quantity and quality. Further research is required to confirm that this type of service reorganisation does not disadvantage children and their families, particularly where inpatient services are withdrawn from a hospital. [References: 40]

Antatt randomiserte kontrollerte studier

16. Bäckman K, Carlsson P, Kentson M, Hansen S, Engquist L, Hallert C. Deep venous thrombosis: a new task for primary health care. A randomised economic study of outpatient and inpatient treatment. Scand J Prim Health Care 2004;22(1):44-9.
Abstract: OBJECTIVE: A health economic evaluation of two alternative treatment settings, inpatient care and outpatient care, for acute deep venous

thrombosis. DESIGN: A randomised multicentre trial in a defined population in regular clinical practice. SETTING: Hospitals and related health care centres in the Jönköping county council in Sweden. INTERVENTIONS: Patients were randomised to either an inpatient strategy (n = 66) or an outpatient strategy (n = 65) using low-molecular-weight heparin, dalteparin, administered subcutaneously once daily and adjusted for body weight. SUBJECTS: Of 224 eligible patients, 131 entered the trial and 124 completed the economic part of the study. MAIN OUTCOME MEASURES: Direct medical and direct non-medical costs during a 3-month period. RESULTS: Total direct costs were higher for those in the inpatient strategy group, i.e. Swedish Crowns (SEK) 16400 per patient (Euro 1899) compared to SEK 12100 per patient (Euro 1405) in the outpatient strategy group ($p < 0.001$). More patients in the outpatient group received assistance when they returned home. Few patients in either group reported sick leave. There was no difference in total number of days between the two groups. CONCLUSIONS: Total direct costs were significantly lower for the outpatient treatment strategy for deep venous thrombosis compared to the inpatient treatment strategy. No significant difference in health impact could be detected. Deep venous thrombosis can to a greater extent than previously be treated in primary care, safely, at a lower cost, and in accordance with patient preferences

17. Barthelsson C, Anderberg B, Ramel S, Bjorvell C, Giesecke K, Nordstrom G. Outpatient versus inpatient laparoscopic cholecystectomy: a prospective randomized study of symptom occurrence, symptom distress and general state of health during the first post-operative week. J Eval Clin Pract 2008;14(4):577-84.
Abstract: BACKGROUND: Few randomized clinical trials focus on patients' symptoms of the first post-operative week following outpatient (OPS) versus inpatient (IPS) laparoscopic cholecystectomy (LC). The objective was to compare these treatment modalities with regard to patients' perceptions of pain and other post-operative symptoms, amount of distress, level of anxiety and general state of health during the first post-operative week. METHODS: One hundred patients were randomized. Seventy-three LC patients were valid for efficacy (OPS n=34, IPS n=39). Data were collected by means of questionnaires. RESULTS: The main result was that no differences were seen between the groups regarding the occurrence of post-operative symptoms or symptom distress. Approximately 90% of the patients in both groups perceived pain, reduced mobility and tiredness on day 1. Nausea and loss of appetite were reported by half of the patients. Post-operative day 1, both groups reported much or very much distress related to pain and reduced mobility (approximately 40%) and nausea (approximately 20%). Although both groups reported less symptoms on day 7, one-third still experienced pain, but only one patient reported this to be distressing. CONCLUSION: Laparoscopic cholecystectomy patients in both groups recover equally well, indicating that a greater proportion of LC patients should be offered the outpatient modality

18. Bhattacharya S, Cameron IM, Mollison J, Parkin DE, Abramovich DR, Kitchener HC. Admission-discharge policies for hysteroscopic surgery: a randomised comparison of day case with in-patient admission. Eur J Obstet Gynecol Reprod Biol 1998;76(1):81-4
Abstract: OBJECTIVE: To study the effectiveness and acceptability of day case hysteroscopic surgery. DESIGN: Prospective randomised controlled trial. SETTING: Aberdeen Royal Infirmary. SUBJECTS: One hundred and ninety four consecutive women who underwent hysteroscopic endometrial ablation. INTERVENTION: Seventy three women were allocated to day case surgery and 37 to inpatient admission; 84 women though otherwise fit for day case surgery were scheduled for in-patient admission as they lived more than 20 miles away. All women completed a questionnaire 24 h after their operations. Readmission

rates were obtained from case notes. Satisfaction rates 12 months after the operation were recorded by means of a follow-up questionnaire. RESULTS: Post-operative pain was absent or slight in 48 (75%) of the women in the day case group 27 (84%) of women in the in-patient group, and 55 (82%) in the non-randomised in-patient group. Post-operative analgesia was necessary in 34 (52%) women in the day case group, 24 (75%) women in the in-patient group and 36 (53%) women in the non-randomised in-patient group. Hospital costs were significantly less in the day case group. Satisfaction with stay 92% in the day case group, and 100% in the other two groups. CONCLUSION: In this setting, day care is a safe acceptable and less expensive alternative to in-patient care for hysteroscopic endometrial ablation

19. Biem SR, Turnell RW, Olatunbosun O, Tauh M, Biem HJ. A randomized controlled trial of outpatient versus inpatient labour induction with vaginal controlled-release prostaglandin-E2: effectiveness and satisfaction. J Obstet Gynaecol Can 2003;25(1):23-31
Abstract: BACKGROUND: Outpatient management in obstetrics is expanding, but evidence to support outpatient labour induction is needed. OBJECTIVE: To compare the effectiveness, acceptability, duration of hospitalization, and safety of outpatient and inpatient induction of labour with intravaginal controlled-release prosta-glandin-E2 (CR-PGE2). METHODS: A prospective, randomized, controlled trial enrolled 300 women at term with parity < or = 5 and singleton pregnancies in cephalic presentation. Each had an unscarred uterus, a normal non-stress test (NST), and a Bishop score of < or = 6. After insertion of the CR-PGE2, and 1 hour of monitoring, those in the outpatient group were discharged home, to return with onset of labour or 12 hours later for an NST. If not already in labour 24 hours later, the women returned for inpatient induction. Vaginal examination was not repeated before 24 hours unless the patient was contracting and required analgesia. Inpatients remained on the antepartum ward but were otherwise treated similarly. The women in both groups reported ratings of satisfaction, pain, and anxiety over the telephone until they were in labour. RESULTS: There were 150 women randomized to outpatient and 150 women to inpatient induction of labour. The number of women who were in labour or who delivered by 24 hours in the outpatient group was 115 (0.77, 95% confidence interval [CI] 0.70-0.84) and in the inpatient group was 107 (0.72, 95% CI 0.64-0.79). The median times to labour were 9.8 hours (95% CI, 8.1-11.4) and 11.4 hours (95% CI, 10.1-12.7), and to delivery were 21.4 hours (95% CI, 19.2-23.5) and 20.7 hours (95% CI, 18.4-23.0), for the outpatient and inpatient groups, respectively. In the outpatient group, 56% of women reported high satisfaction during the initial 12 hours of induction compared to 39% in the inpatient group ($p < 0.008$). Ratings of pain and anxiety during the first 12 hours of induction were similar. In the outpatient group, women were at home for a median of 8 hours (95% CI, 6.7-9.4) before labour and delivery. There were no significant differences in adverse outcomes. CONCLUSIONS: This study suggests that outpatient induction of labour with intravaginal CR-PGE2 may be a reasonable option for selected low-risk women; however, further study is needed to confirm the safety of this approach

20. Blair O, Fletcher H, Kulkarni S. A randomised controlled trial of outpatient versus inpatient cervical cerclage. J Obstet Gynaecol 2002;22(5):493-7
Abstract: Fifty patients with cervical incompetence were randomised to have cervical cerclage either as inpatients, spending 3 days in hospital post-procedure on supervised bed rest or as outpatients spending the time at home on bed rest. Both groups had a clinical diagnosis of cervical incompetence and both had either McDonald or Shirodkar cerclage with mersilene tape. Both groups were given salbutamol tablets for tocolysis, postoperatively. There were no significant difference in the demographic variables between the groups such as previous cerclage, gestational age at insertion, parity and gestational age at

delivery. There were also no significant differences in early complications such as bleeding. Most late complications were also not different, including the spontaneous abortion rate, premature rupture of membranes, cervical dystocia and preterm delivery. However, more patients in the outpatient group had premature contractions (26.1% vs. 4.3% P=0.0479). More patients in the inpatient group had a delivery of a live neonate, 86.9% vs. 78.3%, but the difference was not statistically significant. In conclusion, out patient cerclage appears to be a valid option, the higher rate of premature contraction in this group is not a cause for concern in view of the similar mean gestational age at delivery

21. Block PC, Ockene I, Goldberg RJ, Butterly J, Block EH, Degon C, et al. A prospective randomized trial of outpatient versus inpatient cardiac catheterization. N Engl J Med 1988;319(19):1251-5.
Abstract: To evaluate the safety and cost of outpatient cardiac catheterization, we conducted a randomized trial at three hospitals of outpatient (n = 192) as compared with inpatient (n = 189) cardiac catheterization in low-risk patients. Outpatients had the following complication rates as compared with inpatients: hematoma, 12 versus 8.5 percent; numbness or weakness of extremity, 0.5 versus 1.6 percent; cold or blue extremity, 1.6 versus 1.1 percent; and acute myocardial infarction, 1.6 versus 0.5 percent. None of these differences were statistically significant. No deaths or strokes occurred in either group. Twenty-three patients (12 percent) assigned to the outpatient group required hospitalization because of complications of catheterization. In the outpatient group, the relative risk for hematoma was 1.42 (95 percent confidence interval, 0.77 to 2.29), and the relative risk for myocardial infarction within one week was 2.95 (95 percent confidence interval, 0.3 to 28.1). There were no significant differences between the two groups in whether they resumed normal activities or in the rates of rehospitalization within one week of the procedure. Total catheterization-related charges per patient were $679 lower for outpatients, with a savings in total hospital charges (including charges for subsequent therapeutic procedures) of $885 per patient. We conclude that elective cardiac catheterization as an outpatient procedure for selected patients is feasible and safe. Given the small size of our sample, however, we urge caution in interpreting these findings, since they do not exclude a small increase in complication rates with outpatient cardiac catheterization

22. Burns R, Nichols LO, Graney MJ, Cloar FT. Impact of continued geriatric outpatient management on health outcomes of older veterans. Arch Intern Med 1995;155(12):1313-8.
Abstract: BACKGROUND: Although previous trials have proved inpatient-based geriatric assessment to be beneficial, to our knowledge, the effectiveness of outpatient geriatric assessment has not been established. We examined the effectiveness of an outpatient geriatric evaluation and management (GEM) clinic. METHODS: Hospitalized veterans aged 65 years or older with impairment of activities of daily living, chronic disease, polypharmacy, or two or more hospitalizations in the previous year were randomized to an outpatient GEM team clinic (n = 60) or usual care (n = 68). After an initial comprehensive assessment, they received long-term management in the geriatric clinic. Principal outcomes included health status (mortality, hospitalizations, health perception, and medications), function (activities of daily living, instrumental ADL, and social activity), affect (Center for Epidemiologic Studies-Depression test score and life satisfaction), and cognition (Mini-Mental State examination score). RESULTS: At randomization, no significant differences were noted between the groups. The average age of the patients was 71 years (range, 65 to 93 years). At 1 year following randomization, GEM clinic patients compared with subjects receiving usual care had significantly improved health perception, took fewer medications despite increased number of diagnoses, reported greater social activity, had improved Center for Epidemiologic Studies-Depression scale scores,

and had higher life satisfaction scores. There was a trend toward improved performance of activities of daily living for GEM clinic patients. The GEM clinic patients had a 54% lower mortality (6.8% vs 14.9%). Overall, no differences were observed in the total number of hospitalizations between the groups. CONCLUSIONS: The combination of long-term management following comprehensive outpatient assessment significantly improved aspects of health status (including health perception and medications), function (including social activity), and affect (including depression and life satisfaction) for older veterans and may influence mortality and function

23. Burns R, Nichols LO, Martindale-Adams J, Graney MJ. Interdisciplinary geriatric primary care evaluation and management: two-year outcomes. J Am Geriatr Soc 2000;48(1):8-13.
Abstract: BACKGROUND: The long-term efficacy of interdisciplinary outpatient primary care Geriatric Evaluation and Management (GEM) has not been proven. This article focuses on results obtained during the 2 years of the study. METHODS: In this 2-year randomized clinical trial, at the Veterans Affairs Medical Center, Memphis, TN, 128 veterans, age 65 years and older, were randomized to outpatient GEM or usual care (UC). Two-year follow-up analyses are based on the 98 surviving individuals. Study outcome measurements included health status, function, and quality of life including affect, cognition, and mortality. RESULTS: At 2 years, there were positive intervention effects for eight of 1 outcome measures, five of which had attained significance at 1 year. GEM subjects, compared with UC subjects, had significantly greater improvement in health perception (P = .001), smaller increases in numbers of clinic visits (P = .019) and instrumental activities of daily living (IADL) impairments (P = .006), improved social activity (P<.001), greater improvement in Center for Epidemiologic Studies-Depression (CES-D) scores (P = .003), general well-being (P = .001), life satisfaction (P<.001), and Mini-Mental State Exam (MMSE) scores (P = .025). There were no significant treatment effects in activities of daily living (ADL) scores (P = .386), number of hospitalizations (P = .377), or mortality (P = .155). CONCLUSIONS: These findings suggest that a primary care approach that combines an initial interdisciplinary comprehensive assessment with long-term, interdisciplinary outpatient management may improve outcomes for targeted older adults significantly. Findings suggest further that outcomes may continue to improve over time and that the GEM care model provides an effective way to manage health care of older adults

24. Carratalà J, Fernández-Sabé N, Ortega L, Castellsagué X, Rosón B, Dorca J, et al. Outpatient care compared with hospitalization for community-acquired pneumonia: a randomized trial in low-risk patients. Ann Intern Med 2005;142(3):165-72.
Abstract: BACKGROUND: The Pneumonia Severity Index (PSI) has been advocated as an objective measure of risk stratification to help determine the initial site of treatment for patients with community-acquired pneumonia. OBJECTIVE: To determine whether outpatient care of PSI-defined low-risk patients with community-acquired pneumonia is as safe and effective as hospitalization. DESIGN: Unblinded, randomized, controlled trial. SETTING: 2 tertiary care hospitals. PATIENTS: 224 immunocompetent adults in risk class II or III (PSI scores <or=90 points) who received a diagnosis of community-acquired pneumonia in the emergency department and had no extenuating circumstances. INTERVENTION: Outpatient care with oral levofloxacin therapy or hospitalization with sequential intravenous and oral levofloxacin therapy. MEASUREMENTS: The primary end point was the percentage of patients with an overall successful outcome at the end of treatment, according to 7 predefined criteria. Secondary end points included patients' quality of life and satisfaction. RESULTS: Overall successful outcome was achieved in 83.6% of outpatients and 80.7% of hospitalized patients (absolute difference, 2.9 percentage points [95%

CI, -7.1 to 12.9 percentage points]). More outpatients were satisfied with their overall care (91.2% vs. 79.1%; absolute difference, 12.1 percentage points [CI, 1.8 to 22.5 percentage points]). Quality of life and the percentages of patients with adverse drug reactions (9.1% vs. 9.6%), medical complications (0.9% vs. 2.6%), subsequent hospital admissions (6.3% vs. 7.0%), and overall mortality (0.9% vs. 0%) were similar in the outpatient and hospitalization groups. LIMITATIONS: The power to detect a serious complication, such as death, was limited given the relatively small sample size. CONCLUSIONS: In selected patients who had community-acquired pneumonia, PSI risk class II and III, and were treated with levofloxacin, outpatient care in the absence of respiratory failure, unstable comorbid conditions, complicated pleural effusions, and social problems was as safe and effective as hospitalization and provided greater patient satisfaction

25. Castells X, Alonso J, Castilla M, Ribó C, Cots F, Antó JM. Outcomes and costs of outpatient and inpatient cataract surgery: a randomised clinical trial. J Clin Epidemiol 2001;54(1):23-9.
Abstract: The aim of this study was to compare clinical and perceived health outcomes and cost between ambulatory and inpatient cataract surgery. An unmasked randomised clinical trial was undertaken. Cataract surgery patients of three public hospitals in Barcelona (Spain) who met inclusion criteria for ambulatory surgery were randomly assigned to two groups: outpatient hospital and inpatient hospital. Primary outcome measures were early and late postoperative surgical complications and visual acuity. Secondary outcome measures were perceived visual function, overall perceived health status, and costs. A total of 464 outpatients and 471 inpatients were analysed. No statistically significant differences were observed between the two groups in visual acuity (P =.48), nor for the other clinical and perceived health outcome measures, except for early postoperative complications. Outpatients presented at least one complication in the first 24 h after surgery more frequently than inpatients (64 vs. 43; RR 1.6, 95% CI 1.1, 2.4), but 4 months after surgery the differences in complications rates between groups disappeared. The cost of surgery was lower for outpatients than for inpatients (1001 vs. 1218 Euros; P <.001). Ambulatory cataract surgery was more cost-effective than inpatient surgery. Despite the higher risk of early complications in the outpatient hospital group, these differences may not be clinically relevant because the 4-month postoperative outcomes were not affected

26. Chakravarty K, Pharoah PD, Scott DG. A randomized controlled study of post-injection rest following intra-articular steroid therapy for knee synovitis. Br J Rheumatol 1994;33(5):464-8.
Abstract: In order to assess the effect of 24 h observed bed rest following intra-articular steroid injection of the knee joint in patients with an inflammatory arthritis such as RA, AS or colitic arthropathy, 91 patients with inflammatory arthritis of one knee joint were randomized to receive 24 h bed rest in hospital following intra-articular steroid injection or were injected in outpatients. The clinical and laboratory assessments such as pain and stiffness on a 10-cm visual analogue scale, knee circumference (cm), 50 ft walking time (s), CRP and ESR were measured before receiving the steroid injection and at 3, 6, 12 and 24 weeks. Both groups of patients improved clinically and serologically at 3 weeks. By 12 weeks the degree of improvement in the pain score, stiffness score, knee circumference, 50 ft walking time and CRP was better in the rest group and these differences persisted to 24 weeks. For each outcome variable the summary measure of response was significantly better in the rest group compared to the no rest group. Intra-articular steroid injection of the knee joint followed by strict i inpatient bed rest for 24 h results in a greater degree of clinical and serological improvement, compared to routine outpatient injections for up to 6 months. It is therefore possible that 24-h post-injection rest will result in a pro-

longed duration of clinical response and reduce the need for frequent steroid injections and the risk of complications

27. Chatwin M, Nickol AH, Morrell MJ, Polkey MI, Simonds AK. Randomised trial of inpatient versus outpatient initiation of home mechanical ventilation in patients with nocturnal hypoventilation. Respir Med 2008;102(11):1528-35.
Abstract: BACKGROUND: Long-term home mechanical ventilation (HMV) is usually initiated in hospital. Admission to hospital has resource implications and may not be reimbursable in some healthcare systems. METHODS: Twenty-eight stable neuromuscular and chest wall disease patients with nocturnal hypoventilation (transcutaneous carbon dioxide (TcCO(2) >6.5 kPa), were randomised to start HMV either as an outpatient (n=14, age range 12-62 years) or inpatient (n=14, age range 14-73 years). We compared effects of HMV on nocturnal and diurnal arterial blood gas tensions, ventilator compliance, healthcare professional (HCP) contact time, and time in hospital. RESULTS: Improvements in nocturnal arterial oxygen saturation (SaO(2)) and daytime PaO(2) were equivalent in both groups. Peak nocturnal TcCO(2), improved in both groups; % time TcCO(2) >6.5 kPa fell in the inpatient group and daytime PaCO(2) decreased significantly ($p<0.05$) in the outpatient group. The mean (SD) inpatient stay was 3.8 (1.0) days, and the outpatient attendance sessions 1.2 (0.4). HCP contact time including telephone calls was: inpatient 177 (99) min; outpatient 188 (60) min (p=not significant); 2 month ventilator compliance was: inpatient 4.32 (7); outpatient 3.92 (8) (p=not significant) hours per night. CONCLUSION: Outpatient initiation of HMV is feasible with equivalent outcome in the outpatient and the inpatient groups

28. Chatwin M, Ward S, Nickol AH, Polkey MI, Sidmonds AK. A randomized trial of outpatient versus inpatient initiation of non-invasive ventilation (NIV) in nocturnal hypoventilation due to neuromuscular and chest wall disease: Health economic analysis [Abstract]. American Thoracic Society 2005 International Conference; May 20 25; San Diego, California 2005;C41.

29. Cheng MCE, Ng A, Seng KM, Ratnam SS. The safety of outpatient abortion, a controlled study. Annacadmedsingapore 1976;5(3):245-8.
Abstract: Between February 1974 and September 1974, a controlled study was carried out in the University department of Kandang Kerbau Hospital, Singapore, to determine the safety of outpatient abortion in patients between 7-12 weeks' gestation. 1,466 cases for abortion were randomly divided into those for outpatient abortion and those for inpatient abortion. In each group either general anaesthesia or local anaesthesia was used and the abortion was performed under a standard procedure. Patients were then followed up at 7 days and 28 days after the abortion and the attendance rate was 98.8%. When the results were analysed regarding satisfactory outcome or complications, it is concluded that outpatient abortion under local anaesthesia was a safe procedure. Copyright © 2009 Elsevier B. V., Amsterdam. All Rights Reserved

30. Cipolletta L, Bianco MA, Rotondano G, Marmo R, Piscopo R. Outpatient management for low-risk nonvariceal upper GI bleeding: a randomized controlled trial. Gastrointest Endosc 2002;55(1):1-5.
Abstract: BACKGROUND: Patients with acute nonvariceal upper GI hemorrhage are routinely hospitalized, regardless of clinical status or endoscopic findings. The aim of this study was to compare outcomes for outpatient versus hospital care of patients with nonvariceal upper GI hemorrhage at low risk of recurrent bleeding. METHODS: Endoscopic and clinical criteria were used to select patients at low risk for recurrent bleeding. Ninety-five consecutive patients were randomized for either early discharge and outpatient care (48) or hospital care (47). Baseline clinical and endoscopic features were comparable. During the first 30 days patients were examined daily by their primary care

physician and contacted by a gastroenterologist by telephone to assess clinical status. Rates of recurrent bleeding, hospitalization, surgery, and mortality were determined. RESULTS: All patients underwent endoscopy within 12 hours of the onset of hemorrhage. No patient underwent surgery or died. Rates of recurrent bleeding were 2.1% in the early discharge group and 2.2% in the hospital-treated group (1 patient in each group). Median costs were $340 for the outpatient group and $3940 for the hospital group (p = 0.001). CONCLUSIONS: Outpatient care of patients at low risk for recurrent nonvariceal upper GI hemorrhage is safe and can lead to significant savings in hospital costs

31. Corvera G, Céspedes B, Ysunza A, Arrieta J. Ambulatory vs. in-patient stapedectomy: a randomized twenty-patient pilot study. Otolaryngol Head Neck Surg 1996;114(3):355-9
Abstract: A prospective study was undertaken to determine whether stapedectomy can safely be performed in an outpatient setting. Twenty patients with otosclerosis amenable to surgical treatment were divided into two groups; those in the hospitalized group were admitted the day before surgery and discharged 24 hours after the procedure. The patients in the ambulatory group were admitted on the day surgery was scheduled and released 1 or 2 hours after the procedure. We analyzed the intensity and duration of postoperative vertigo, and the hearing gain obtained, studying the speech frequencies(500 to 2000 Hz) separately from the high frequencies (4000 to 8000 Hz). No significant difference was found at 1, 3, and 6 months of follow-up in any of the parameters studied, concluding that small-fenestra stapedectomy can safely be performed as an outpatient procedure

32. Crowther CA, Neilson JP, Verkuyl DA, Bannerman C, Ashurst HM. Preterm labour in twin pregnancies: can it be prevented by hospital admission? Br J Obstet Gynaecol 1989;96(7):850-3.
Abstract: Women attending a twin pregnancy antenatal clinic underwent cervical palpation to calculate a cervical score by subtracting dilatation from length. Those with a score of -2 or less at or before 34 weeks are at especially high risk of preterm labour. A total of 139 such women were randomly allocated either to receive bed-rest in hospital or to continue conventional outpatient management. No beneficial effect of bed-rest could be identified in prolonging twin pregnancy or improving fetal outcome

33. Crowther CA, Verkuyl DA, Ashworth MF, Bannerman C, Ashurst HM. The effects of hospitalization for bed rest on duration of gestation, fetal growth and neonatal morbidity in triplet pregnancy. Acta Genet Med Gemellol (Roma) 1991;40(1):63-8.
Abstract: Nineteen women attending a special multiple pregnancy antenatal clinic with a triplet pregnancy were randomly allocated to either bed rest in hospital from 24 weeks gestation onwards until delivery, or to continue conventional outpatient management. Conclusions are limited by the trial size, but the study suggests that routine hospitalization for bed rest decreases the incidence of preterm delivery and light-for-gestational age infants and reduces the need for intensive neonatal care. Although still compatible with change variation, the observations, if confirmed in a larger randomized study, would have considerable implications for clinical practice. The policy needs further evaluation in a large multicentered collaborative study

34. Cummings JE, Hughes SL, Weaver FM, Manheim LM, Conrad KJ, Nash K, et al. Cost-effectiveness of Veterans Administration hospital-based home care. A randomized clinical trial. Arch Intern Med 1990;150(6):1274-80.
Abstract: A randomized design was used to examine the cost-effectiveness of a Veterans Administration hospital-based home care program that case managed inpatient and outpatient care. Patients (N = 419) with two or more functional

impairments or a terminal illness were randomized to hospital-based home care (n = 211) or customary care (n = 208). Functional status, satisfaction with care, and morale were measured at baseline and at 1 and 6 months after discharge from the hospital; health care utilization was tracked for 6 months. Findings included significantly higher (0.1 on a three-point scale) patient and caregiver satisfaction with care at 1 month and lower Veterans Administration and private sector hospital costs ($3000 vs $4245) for the experimental group. Net per person health care costs were also 13% lower in the experimental group. We conclude that this model of hospital-based home care is cost-effective and that its expansion to cover these two patient groups throughout the Veterans Administration system can improve patient care at no additional cost

35. Cummings V, Kerner JF, Arones S, Steinbock C. An Evaluation of a Day hospital Service in Rehabilitation Medicine. Executive summary and Final rept. 30 Jun 74-31 Aug 80. 1980 Aug 203 p NTIS Order Number: PB81 209553 1980; Abstract: The purpose of the study was to evaluate a Day hospital in Rehabilitation Medicine as an alternative to intensive inpatient care. The study design called for patients who met all admission criteria for intensive inpatient rehabilitation, who had medicare or medicaid insurance coverage and who had a responsible other person living in the home, to be randomly assigned either to a Day hospital experimental group or an inpatient control group. Those in the Day hospital group were sent home after a short period of family training and then were transported to the hospital for treatment five days a week. Those assigned to the control group remained in the hospital on the rehabilitation service as inpatients and received the routine care provided to all other inpatients on that service. Data on utilization of health services, both during and after rehabilitation, the costs of services, medical, functional, psychological and social outcomes were collected for all study participants. This data was analyzed over time to assess the effects of Day hospital versus inpatient rehabilitation. Findings indicate that there was no essential difference between the experimental and control groups in physical or functional outcome, however at full capacity with the research costs removed, the Day hospital method proved to cost less than the inpatient control method. (Abstract by: NTIS)

36. Curet MJ, Contreras M, Weber DM, Albrecht R. Laparoscopic cholecystectomy: Outpatient vs inpatient management. Surg Endosc 2002;16(3):453-7. Abstract: Background: This study was undertaken to determine if patients undergoing laparoscopic cholecystectomy may be discharged home 4 h postoperatively with similar outcomes as patients admitted overnight. Methods: Patients were randomized to an outpatient group (OP), consisting of patients who were discharged after a 4-h stay in the Post Anesthesia Care Unit (PACU), or to an inpatient group. Variables compared between the two groups included patient demographics; degree of postoperative pain, nausea, vomiting, and patient satisfaction; amount of pain and nausea medication taken; and number of phone calls, readmissions, or complications. Statistical analysis was performed with students t-test, Fisher's exact test, and Wilcoxon's signed rank and rank sums tests as appropriate. Results: Eighty patients were initially enrolled. Two were converted and 4 required admission after being randomized to the OP group. Patients in the OP group received more oral pain medication prior to PACU discharge. Degree of pain, number of phone calls, readmission and complication rates, and patient satisfaction were similar between both groups. Of the 4 unexpected admissions, all were identified within the 4-h PACU stay. Conclusions: Patients undergoing laparoscopic cholecystectomy who are discharged home 4 h postoperatively will experience the same satisfaction with no increase in complications as patients admitted overnight. Number of References 20. Copyright © 2009 Elsevier B. V., Amsterdam. All Rights Reserved

37. Faucher C, Le Corroller A, Vey N, Damaj G, Stoppa A, Schiano J, et al. First results of a prospective randomized study comparing outpatient follow-up versus conventional hospitalization after high-dose chemotherapy and PBSC autologous transplantation for hematologic malignancies or solid tumors [abstract]. Bone Marrow Transplant 2003;31(Suppl 1):S278.
Abstract: 29th Annual Meeting of the European Group for Blood and Marrow Transplantation, 19th Meeting of the EBMT Nurses Group, Istanbul, Turkey, Mar 23-26,2003 [Abstract NO: N916]

38. Foo E, Sim R, Lim HY, Chan ST, Ng BK. Ambulatory anorectal surgery--is it feasible locally? Ann Acad Med Singapore 1998;27(4):512-4.
Abstract: Currently, anorectal procedures are done in an inpatient setting in most local hospitals. This study examines the feasibility of performing these procedures in an outpatient setting. Patients (age range 16 to 65 years) with anorectal complaints requiring surgery were randomized into 2 groups of 40 patients each. Procedures performed included haemorrhoidectomy, fistulotomy, lateral sphincterectomy, excision of rectal polyps and examination under anaesthesia. The first group was managed in the conventional inpatient setting with regional anaesthesia. The second group was done on an ambulatory basis with local anal block. Intravenous and oral ketorolac was used for postoperative pain control and patients were discharged about 4 hours postoperatively. No complications were noted in the second group while the first group had 2 cases of acute urine retention requiring temporary catheterisation and 2 cases of significant bleeding requiring hospitalisation. Pain and satisfaction scores for both groups were similar. Anorectal surgery can be performed in an outpatient setting locally with safety and efficacy. The cost savings can be significant

39. Frank D, Blättler W. [Comparison of ambulatory and inpatient treatment of acute deep venous thrombosis of the leg: subjective and economic aspects]. Schweiz Med Wochenschr 1998;128(36):1328-33.
Abstract: The frequency of clinical recurrence and pulmonary embolism in patients with acute deep venous thrombosis is reduced to the same extent by hospital treatment (with unfractionated heparin) as by treatment at home (with low-molecular-weight heparin). Very few data on subjective parameters of effectiveness have been published. We performed a prospective randomized trial comparing outpatient with in-hospital treatment in 28 patients. Six clinical and quality-of-life related parameters of effectiveness were assessed quantitatively: clinical course (with a score system), pain of venous congestion of the calf muscles (with Lowenberg's test), subjective perception of pain and general well-being (with visual analogue scales), satisfaction with the care provided, and absence from work. Subjective effectiveness was compared with the costs of each form of treatment. Outpatient treatment was significantly more effective than in-hospital treatment with regard to the objective parameters. It was, however, associated with less well-being and more pain than in-hospital treatment. The discrepancy is explained by eventually insufficient adjuvant treatment measures (which consisted of external leg compression by stockings and forced walking) and by anxiety brought on by the information that potentially lethal pulmonary embolism could occur despite anticoagulant therapy. Outpatient treatment was less costly. On the average and per patient it was CHF 3944 less expensive than treatment in hospital. An estimation reveals that the Swiss health care system would save about CHF 25 million per year if the 85% of patients with deep-vein thrombosis suitable for home care were given this form of treatment. We conclude that outpatient management is subjectively cost-effective but should be optimised to eliminate certain drawbacks associated with it

40. Frazee RC, Roberts J, Symmonds R, Snyder S, Hendricks J, Smith R. Prospective, randomized trial of inpatient vs. outpatient bowel preparation for elective colorectal surgery. Dis Colon Rectum 1992;35(3):223-6.
Abstract: A prospective, randomized trial of inpatient vs. outpatient bowel preparation for elective colorectal surgery was performed in 100 consecutive patients. Bowel preparation was standardized for both groups and consisted of 4 liters of Colyte (Reed & Carnrick, Piscataway, NJ) and oral neomycin and Flagyl (G. D. Searle & Co., Skokie, IL) the day before surgery. Patients were randomized into four subcategories: ileocolostomy, colocolostomy, abdominal perineal resection, and other. Tap water enemas were administered on the morning of surgery to ensure and adequate mechanical preparation. Ninety-six percent of the inpatient group and 97 percent of the outpatient group were able to drink three-fourths or more of the oral lavage preparation (P = 0.789, Fisher's exact text). A mean of 2.26 tap water enemas was required to achieve clear returns for the inpatient group, compared with 2.28 tap water enemas for the outpatient group (P = 0.221, Fisher's exact test). The adequacy of the bowel preparation as graded by the primary surgeon was good (84 percent), fair (12 percent), and poor (4 percent) in the outpatient group (P = 0.673, Fisher's exact test). Wound infection developed in 4 percent of the inpatient group and 4 percent of the outpatient group (P = 1.0, Fisher's exact test). Anastomotic leak of intra-abdominal abscess was seen in one patient in each group (P = 1.0, Fisher's exact test). We conclude that outpatient bowel preparation is as effective as inpatient bowel preparation for elective colorectal surgery and offers the advantage of cost savings and shorter hospitalization

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Abstract: A randomized prospective study of 100 consecutive cataract operations was designed to ascertain the need for hospitalization for this procedure. The results clearly indicate that immediate ambulation and discharge of the cataract patient do not detract from the very high success rate of this operation. The random nature of this study adds strong support to those surveys that have similarly concluded that hospitalization and postoperative restrictions are not necessary for the great majority of cataract patients

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Abstract: We evaluated the efficacy of initiating a second trimester medical abortion outside of a health care facility using patient self-administered serial intravaginal misoprostol. Patients scheduled for second trimester medical termination of pregnancy were randomized to an inpatient or outpatient group. Both groups received a single 200-microg vaginal misoprostol tablet every 6 h. No other abortifacients were used. The home group self-administered the misoprostol and returned to the hospital for clinical reasons or after 24 h and again at 48 h. Forty-two women were assigned to the inpatient and 45 to the outpatient groups. There was no difference between the groups in demographics or indications for terminations. The median hours from first misoprostol to delivery of the fetus was 12 and 14 (inpatient versus outpatient, respectively; p = 0.28). The total median hours in hospital were 24 versus 11 (inpatient versus outpatient, respectively; p <0.05). Two patients (4%) in the outpatient group delivered the fetus outside of the hospital. There were no cases of hemorrhage in either group. Outpatient initiation of second trimester medical termination with self-administered misoprostol is effective and decreases time of hospitalization

43. Gudex C, Sorensen J, Clausen I. Day surgery for gynaecological laparoscopy: Clinical results from an RCT. Ambul Surg 2006;12(4):151-7.
Abstract: This randomized controlled trial compared the clinical outcome from

inpatient and ambulatory laparoscopy for benign gynaecological conditions. While 658 consecutive patients were considered for inclusion into the study, data from 26 inpatients and 40 ambulatory cases were analysed. Inpatient surgery was undertaken by more senior surgeons ($p < 0.001$), but complication rates were similar. For remedial surgery (but not diagnostic), ambulatory laparoscopy had shorter anaesthetic and operating times ($p < 0.05$) than inpatient surgery. Both inpatient and ambulatory patients reported significant improvements ($p < 0.01$) in immediate postoperative pain; similar proportions (64% and 74%, respectively) experienced postoperative nausea; 39% of inpatients and 58% of ambulatory patients reported problems after hospital discharge. Severity of pelvic pain was lower for both groups 1 month after operation in comparison to preoperative levels (inpatients: from 8.0 to 5.0, ambulatory: 6.0 to 3.0; on a 0-10 VAS). It was concluded that clinical and patient outcome was similar for the patients undergoing inpatient and ambulatory surgery for gynaecological laparoscopy.

44. Haywood GA, Jones SM, Camm AJ, Ward DE. Day case permanent pacing. Pacing Clin Electrophysiol 1991;14(5 Pt 1):773-7.
Abstract: We have previously reported our preliminary experience of day-case permanent pacing in the United Kingdom. The study has now been extended to 50 patients with follow-up of 22 +/- 4 months. During the study period, all patients referred for permanent pacing, either to the senior author, or as in-hospital transfers, were considered for the study. Forty two percent of patients considered fulfilled inclusion and exclusion criteria, resulting in a total of 50 patients being randomized either to day case or conventional in-patient management. In the first month postimplantation, one patient in each group developed a complication requiring revision of system. Only one further pacing related complication occurred over the follow-up period, percutaneous extrusion of a fixation sleeve with spontaneously healing of the wound. This was in a day-case patient. Mean duration of in-patient stay was 5.7 hours in day-case patients, compared with 70.0 hours in those managed conventionally. Postimplantation local physician consultation rates were equal in both groups. Questionnaires were used to determine the relative acceptability to patients of the two management protocols; on a ten point score of acceptability, the mean score for both groups was 8.8. The difference in cost per patient using day-case management was approximately 430 ($817) pounds. We conclude that day-case permanent pacing in the United Kingdom is feasible, acceptable to patients, and has considerable economic benefits.

45. Helewa A, Bombardier C, Goldsmith CH, Menchions B, Smythe HA. Cost-effectiveness of inpatient and intensive outpatient treatment of rheumatoid arthritis. A randomized, controlled trial. Arthritis Rheum 1989;32(12):1505-14.
Abstract: Women with active rheumatoid arthritis who were judged to be in need of hospitalization were assigned at random to receive inpatient therapy (n = 35) or intensive outpatient therapy (n = 36). All relevant costs of treatment were measured. At 19 weeks, clinical outcomes, as summarized in a pooled index, were significantly better in the inpatient group (pooled index units: inpatient 0.72, outpatient 0.25; $F[1,69] = 10.9$, $P = 0.002$). Inpatient therapy produced a sustained three-fold increase in efficacy, at a 2.5-fold increase in cost to society

46. Heyde GS, Koch KT, de Winter RJ, Dijkgraaf MG, Klees MI, Dijksman LM, et al. Randomized trial comparing same-day discharge with overnight hospital stay after percutaneous coronary intervention: results of the Elective PCI in Outpatient Study (EPOS). Circulation 2007;115(17):2299-306.
Abstract: BACKGROUND: Percutaneous coronary intervention (PCI) in a day-case setting might reduce logistic constraints on hospital resources, but data on

safety are limited. We evaluated the safety and feasibility of same-day discharge after PCI. METHODS AND RESULTS: Eight hundred consecutive patients scheduled for elective PCI by femoral approach were randomized to same-day discharge or overnight hospital stay. Four hours after PCI, patients were triaged as suitable for early discharge or not. Suitable patients were discharged immediately or kept overnight, according to randomization. Patients with an indication for extended hospital stay were not discharged regardless of randomization. Primary end points were death, myocardial infarction, coronary artery bypass graft surgery, repeat PCI, or puncture-related complications occurring within 24 hours after PCI. A total of 403 patients were assigned to same-day discharge, of whom 77 (19%) were identified for extended observation; 397 patients were assigned to overnight stay, of whom 85 (21%) were identified for extended observation. Among all patients, the composite primary end point occurred in 9 (2.2%) same-day discharge patients and in 17 (4.2%) overnight stay patients (risk difference, -0.020; 95% CI, -0.045 to -0.004; P for noninferiority <0.0001). Among patients deemed suitable for early discharge, the composite end point occurred in 1 of 326 (0.3%) same-day discharge patients and 2 of 312 (0.6%) overnight-stay patients (risk difference, -0.003; 95% CI, -0.014 to 0.007; P for noninferiority <0.0001). The last 3 events were related to puncture site. CONCLUSIONS: Same-day discharge after elective PCI is feasible and safe in the majority (80%) of patients selected for day-case PCI. Same-day discharge does not lead to additional complications compared with overnight stay

47. Hidalgo M, Hornedo J, Lumbreras C, Trigo JM, Colomer R, Perea S, et al. Outpatient therapy with oral ofloxacin for patients with low risk neutropenia and fever: a prospective, randomized clinical trial. Cancer 1999;85(1):213-9. Abstract: BACKGROUND: Hospitalization and treatment with broad-spectrum intravenous antibiotics is the standard care for patients with neutropenia and fever. This randomized clinical trial evaluated the feasibility and efficacy of ambulatory care with oral ofloxacin for patients with low risk, chemotherapy-induced neutropenia and fever. METHODS: Patients with solid tumors who were treated with conventional dose chemotherapy, presented with fever (axillary temperature >38 degrees C on 2 occasions or >38.5 degrees C on a single occasion) and neutropenia (absolute neutrophil count, <500 cells/microL), and met low risk criteria were eligible for this study. They were randomized either to hospitalization and treatment with broad-spectrum intravenous antibiotics, which consisted of a combination of cefazidime and amikacin, or to outpatient treatment with oral ofloxacin. The definitions of fever of unknown origin, clinical and microbiologic infection, success, success with modification, and failure were the usual ones for this type of study. RESULTS: One hundred episodes were randomized, and 95 were evaluable (47 were randomized to ceftazidime/amikacin and 48 to ofloxacin). Baseline characteristics, as well as the proportion of patients with microbiologic and clinical infections, were similar in the two groups. In 91% of episodes in the inpatient group and 89% in the ofloxacin group, patients recovered uneventfully (P=1; 95% CI for the difference, -0.09 to 0.13), with 2 and 5 patients requiring modification of the antibiotics, respectively. Eight percent of episodes in the control group and 10.4% in the experimental group resulted in treatment failure. Eight patients (16%) in the outpatient group experienced failure with ambulatory care and were admitted to the hospital. CONCLUSIONS: Outpatient oral antibiotic therapy with oral ofloxacin for patients with low risk neutropenia and fever is safe and similar in efficacy to hospitalization and treatment with broad-spectrum parenteral antibiotics

48. Hollington P, Toogood GJ, Padbury RTA. A prospective randomized trial of day-stay only versus overnight-stay laparoscopic cholecystectomy. Aust N Z J Surg 1999;69(12):841-3.

Abstract: Background: Although the feasibility of laparoscopic cholecystectomy performed as day surgery has been established, cost and recovery time have not previously been evaluated in a prospective comparative fashion. Methods: Patients were randomized to day stay only or overnight stay, and a nurse assessed the former postoperatively at home. All patients were reviewed weekly or as required if problems occurred. Costing comparisons were made between the two groups using Trendstar software. Results: A total of 131 patients were evaluated after randomization (60 day-stay only patients and 71 overnight-stay patients). A total of 18.3% of the day-stay patients required in-hospital admission for nausea, vomiting, or pain, or after conversion to open operation; 18.3% of the overnight group required an extended length of stay for similar reasons. After discharge, two day-stay and three overnight- stay patients required readmission, only one had a significant complication. The mean times to return to normal activity averaged 1.8 weeks (SE: 0.1 weeks) and 1.9 weeks (SE: 0.1 weeks) for day-stay and overnight-stay groups, respectively (P = 0.63), and costs of $2732 (SE: $76) compared to $2835 (SE $110), respectively (P = 0.94). Conclusions: In the present randomized controlled study, day-stay management did not compromise postoperative patient outcome. In the setting of a major teaching hospital there was no cost advantage when compared to overnight-stay management

49. Hui E, Lum CM, Woo J, Or KH, Kay RL. Outcomes of elderly stroke patients. Day hospital versus conventional medical management. Stroke 1995;26(9):1616-9.
Abstract: BACKGROUND AND PURPOSE: Much controversy exists over the value of geriatric day hospitals in the rehabilitation of elderly patients, and cerebrovascular accident is a particularly common diagnosis among patients referred to these day hospitals. We carried out a prospective, randomized study to compare the outcomes of elderly stroke patients managed by a geriatric team using a day hospital facility versus conventional medical management. METHODS: One hundred twenty elderly patients with acute stroke were randomized to inpatient care on a stroke ward under the care of either a neurologist or a geriatric team. Those under the care of neurologists were hospitalized until the attending physician felt that the patients had reached full rehabilitation potential. Patients under the care of the geriatric team were discharged home as soon as the team felt they were able to cope and given follow-up rehabilitation at the day hospital. Family or community support was arranged when necessary for both treatment groups. On recruitment, patient demographics, medical history, clinical features related to stroke, and functional ability as measured by the Barthel Index were noted. Subjects were reviewed at 3 and 6 months to assess functional level, hospital and outpatient services received, general well-being, mood, and level of satisfaction. Costs of treatment of the two groups were also compared. RESULTS: Functional improvement (Barthel Index score) was greater in the group managed by the geriatricians with a day hospital facility compared with the conventional group at 3 months (P = .03). There were also fewer outpatient visits among the day hospital patients at 6 months (P = .03). No significant difference was found in costs between the two treatment groups. CONCLUSIONS: Compared with conventional medical management, care in the geriatric day hospital hastened functional recovery and reduced outpatient visits in elderly stroke patients without additional cost

50. Härkäpää K, Järvikoski A, Mellin G, Hurri H. A controlled study on the outcome of inpatient and outpatient treatment of low back pain. Part I. Pain, disability, compliance, and reported treatment benefits three months after treatment. Scand J Rehabil Med 1989;21(2):81-9.
Abstract: Outcome of inpatient and outpatient treatment of low back pain was studied in 459 patients (aged 35-54 years, 63% men); 156 inpatients, 150 outpatients and 153 controls. Changes in low back pain and in disability caused by

it, and adherence and accomplishment of back exercises were used as short-term outcome criteria. The overall results showed a significant decrease in pain and disability and better compliance in the two treated groups when compared to the controls. There was also a significant difference in treatment gains between the inpatients and outpatients; i.e. the decrease in pain was greater and the frequency of back exercises higher in the inpatients. The inpatients also estimated their treatment benefits more positively than the outpatients

51. Härkäpää K, Mellin G, Järvikoski A, Hurri H. A controlled study on the outcome of inpatient and outpatient treatment of low back pain. Part III. Long-term follow-up of pain, disability, and compliance. Scand J Rehabil Med 1990;22(4):181-8.
Abstract: The long-term outcome results of inpatient and outpatient treatment of low back pain (LBP) were studied in 476 subjects (aged 35-54, 63% men) randomly assigned to three study groups: inpatients (n = 157), outpatients (n = 159), and controls (n = 160). The study included changes in the severity of low back pain, grade and disability, compliance with self-care, data on disability pensions, and days of sickness allowance during a 2.5-year follow-up period. These variables were used as outcome criteria. Pain and disability had decreased significantly in the two treated groups up to the 3-month follow-up. LBP was still a little slighter in the inpatients at the 1.5-year and 22-month follow-ups, but there were no significant differences between the groups in disability caused by LBP. The refresher programme carried out 1.5 years after the first one did not bring about as clear short-term improvement in pain and disability as the first treatment. During the whole 2.5-year follow-up compliance with self-care was better in the two treated groups, especially in the inpatients. Days of sickness allowance had increased somewhat more in the controls than in the inpatients during the follow-up. No differences between the groups were found in the number of disability pensions granted

52. Ingram RM, Banerjee D, Traynar MJ, Thompson RK. Day-case cataract surgery. Trans Ophthalmol Soc U K 1980;100(Pt 1):205-9.
Abstract: This is a report of prospective trial to compare day-case and inpatient surgery for senile cataract. In this district, cataract extraction is usually delayed until bilateral surgery is warranted. Both eyes are then operated upon a week or so apart. Such patients are ideal for comparing the results of day-case and in-patient management, since if one eye is done by each method, there is a perfect match for age, sex, general medical health, and domestic circumstances. During a period of 27 months, 138 patients aged 50 years or over were included in this trial. Five more patients were dropped from the trial and 78 other cataract operations were performed outside the trial for various reasons. For those included in the trial, the eye with the worse vision was operated upon first and patients were randomly allocated to have this eye managed as a day-case or an inpatient. All these operations were performed by the same surgeon (D.B.). Details of events during the 48 hours after surgery were kept (M.J.T.) separate from the hospital records used for follow-up (R.M.I.) and refraction (R.K.T.), which were therefore done without knowledge of how each eye had been managed. Visual acuity and intraocular pressure were recorded 2 to 3 months and one year after operation for those in the trial. Visual acuity alone was recorded at 2 to 3 months for those not in the trial. It is concluded that provided the patients are carefully selected, the advantages of day-case surgery outweigh the disadvantages both for patient management and considerations of economy

53. Johansson M, Thune A, Nelvin L, Lundell L. Randomized clinical trial of day-care versus overnight-stay laparoscopic cholecystectomy. Br J Surg 2006;93(1):40-5.
Abstract: BACKGROUND: Laparoscopic cholecystectomy has been performed as a day-care procedure for many years. Few studies have been conducted with

primary focus on patient acceptance and preferences in terms of quality of life for this practice compared with overnight stay. METHODS: Data from 100 patients with symptomatic gallstones randomized to laparoscopic cholecystectomy performed either as a day-care procedure or with overnight stay were analysed. Complications, admissions and readmissions, quality of life and health economic aspects were assessed. Two instruments were used to assess quality of life, the Hospital Anxiety and Depression Scale (HADS) and the Psychological General Well-Being Index (PGWB). RESULTS: Forty-eight (92 per cent) of 52 patients in day-care group were discharged 4-8 h after the operation. Forty-two (88 per cent) of 48 in the overnight group went home on the first day after surgery. The overall conversion rate was 2 per cent. Two patients had complications after surgery, both in the day-care group. No patient in either group was readmitted. There was no significant difference in total quality of life score between the two groups. The mean direct medical cost per patient in the day-care group (3085 Euros) was lower than that in the overnight group (3394 Euros). CONCLUSION: Laparoscopic cholecystectomy can be performed as a day-case procedure with a low rate of complications and admissions/readmissions. Patient acceptance in terms of quality of life variables is similar to that for cholecystectomy with an overnight stay. The day-care strategy is associated with a reduction in cost. Copyright 2005 British Journal of Surgery Society Ltd.

54. Keulemans Y, Eshuis J, de Haes H, de Wit LT, Gouma DJ. Laparoscopic cholecystectomy: day-care versus clinical observation. Ann Surg 1998;228(6):734-40.
Abstract: OBJECTIVE: To determine the feasibility and desirability of laparoscopic cholecystectomy (LC) in day-care versus LC with clinical observation. SUMMARY BACKGROUND DATA: Laparoscopic cholecystectomy has been performed regularly as outpatient surgery in patients with uncomplicated gallstone disease in the United States, but this has not been generally accepted in Europe. The main objections are the risk of early severe complications (bleeding) or other reasons for readmission, and the argument that patients might feel safer when observed for one night. Quality-of-life differences hitherto have not been investigated. METHODS: Eighty patients (American Society of Anesthesiology [ASA] I/II) with symptomatic gallstones were randomized to receive LC either in day-care or with clinical observation. Complications, (re)admissions, consultations of general practitioners or the day-care center within 4 days after surgery, use of pain medication, quality of life, convalescence period, time off from professional activities, and treatment preference were assessed. The respective costs of day-care and clinical observation were determined. RESULTS: Of the 37 patients assigned to the day-care group who underwent elective surgery, 92% were discharged successfully after an observation period of 5.7+/-0.2 hours. The remainder of the patients in this group were admitted to the hospital and clinically observed for 24 hours. For the 37 patients in the clinical observation group who underwent elective surgery, the observation time after surgery was 31+/-3 hours. Three patients in the day-care group and one patient in the clinical observation group had complications after surgery. None of the patients in either group consulted a general practitioner or the hospital during the first week after surgery. Use of pain medication was comparable in both groups over the first 48 hours after surgery. There were no differences in pain and other quality-of-life indicators between the groups during the 6 weeks of follow-up. Of the patients in the day-care group, 92% preferred day-care to clinical observation. The same percentage of patients in the clinical observation group preferred at least 24 hours of observation to day-care. Costs for the day-care patients were substantially lower (approximately $750/patient) than for the clinical observation patients. CONCLUSION: Effectiveness was equal in both patient groups, and both groups appeared to be satisfied with their treatment. Because no differences were found with respect to

the other outcomes, day-care is the preferred treatment in most ASA I and II patients because it is less expensive

55. Klingelhöfer HE, Lätzsch A. [Comparing the economy of outpatient versus inpatient rehabilitation]. Gesundheitswesen 2003;65(3):163-6.
Abstract: This article outlines the findings of a project comparing the economic effects of outpatient and inpatient rehabilitation in Mecklenburg-Vorpommern. The study statistically covers the total population of applicants for orthopaedic-traumatologic rehabilitation who are suitable for outpatient rehabilitation. As a randomised and controlled study, it compares outcome parameters of the two variants of rehabilitation. Because the results are approximately equal, analysing the differences between amounts and periods of payments and costs for the pension insurance agency do not result in disadvantages for the patients. The results obtained from the investigation confirm that, in suitable patients, outpatient rehabilitation can achieve approximately the same outcomes as inpatient rehabilitation--but at distinctly lower cost

56. Klingelhöfer HE, Timm A. [Economic efficiency of outpatient rehabilitation -- final results of a study in Mecklenburg-Vorpommern]. Rehabilitation (Stuttg). 2005;44(1):1-13
Abstract: This article presents the final results of a project comparing the economic effects of outpatient and inpatient rehabilitation in Mecklenburg-Vorpommern. The data analysed have been derived from the total population of applicants for orthopaedic-traumatologic rehabilitation who are suitable for outpatient rehabilitation in all criteria. The randomized and controlled study at first verified whether the outcome parameters of the two variants of rehabilitation are approximately equal. If this condition is fulfilled the differences between amounts and periods of payments and costs incumbent on the pension insurance agency are analyzed. And in fact, the final results confirm that, in suitable patients, outpatient rehabilitation can achieve approximately the same outcomes as inpatient rehabilitation -- but at distinctly lower cost

57. Knopf WD, Cohen-Bernstein C, Ryan J, Heselov K, Yarbrough N, Steahr G. Outpatient PTCA with same day discharge is safe and produces high patient satisfaction level. J Invasive Cardiol 1999;11(5):290-5.
Abstract: Improved technology and enhanced clinical expertise have allowed physicians to become more cost effective and provide better patient care. A prospective, randomized study was done to determine the safety of same day discharge following PTCA. Of 1911 elective PTCA patients, 262 patients (14%) were stratified as low risk and candidates for same day discharge. Of the 262 eligible patients, 90 (34%) were randomized to either an in-patient (n = 47) or outpatient (n = 43) strategy. Similar procedural and clinical outcomes were found between the two groups, with 33 of 43 outpatients (77%) discharged on the same day as the procedure. No late complications (1 and 7 days post procedure) were observed in this outpatient group. Additionally, a satisfaction survey was conducted of all patients and their family members that showed an overwhelming ($p < 0.05$) preference and comfort with the same day discharge

58. Krywulak SA, Mohtadi NG, Russell ML, Sasyniuk TM. Patient satisfaction with inpatient versus outpatient reconstruction of the anterior cruciate ligament: a randomized clinical trial. Can J Surg 2005;48(3):201-6.
Abstract: OBJECTIVE: To compare satisfaction levels after reconstruction of the anterior cruciate ligament (ACL) between inpatients and outpatients by means of a valid and comprehensive outcome tool. METHODS: Fifty patients examined at a tertiary clinic who met the study's inclusion criteria (15-50 yr old, no previous ACL reconstruction, > 6 h after injury, living < 1 h from hospital, assigned a caregiver for outpatient management within 48 h of injury, no serious health condition, no known hypersensitivity to ASA/NSAIDs, bleeding

disorder or gastric ulcer, ability to cope at home after operation) were recruited and randomized into either the inpatient or outpatient groups. Inpatients stayed overnight in hospital after their ACL reconstruction and were discharged home the next day. Outpatients were discharged home on the day of the procedure. All patients attended a preoperative educational session and were required to meet the same discharge criteria (able to bear weight using crutches and to void, to be reasonably pain free, no nausea or vomiting, no excess bleeding or drainage, be alert, be given take-home medications and be in the company of a caregiver). Standardized anesthetic and postoperative analgesic protocols were used. One week after ACL reconstruction, patient satisfaction was quantified with a previously validated visual analogue questionnaire (maximum score of 100). RESULTS: We collected data on 21 inpatients and 19 outpatients. The mean overall-satisfaction score of the outpatient group was higher than that of the inpatient group (85.1 v. 78.2, p = 0.015). Between-group differences in postoperative pain, nausea, rate of readmission and complications were not significant. CONCLUSION: As determined by a comprehensive, population-specific, validated outcome, patient satisfaction is higher when ACL reconstruction is done on an outpatient basis

59. Lambert CM, Hurst NP, Forbes JF, Lochhead A, MacLeod M, Nuki G. Is day care equivalent to inpatient care for active rheumatoid arthritis? Randomised controlled clinical and economic evaluation. BMJ 1998;316(7136):965-9.
Abstract: OBJECTIVE: To test the clinical equivalence and resource consequences of day care with inpatient care for active rheumatoid arthritis. DESIGN: Randomised controlled clinical trial with integrated cost minimisation economic evaluation. SETTING: Rheumatic diseases unit at a teaching hospital between 1994 and 1996. SUBJECTS: 118 consecutive patients with active rheumatoid arthritis randomised to receive either day care or inpatient care. MAIN OUTCOME MEASURES: Clinical assessments recorded on admission, discharge, and follow up at 12 months comprised: the health assessment questionnaire, Ritchie articular index, erythrocyte sedimentation rate, hospital anxiety and depression scale, and Steinbrocker functional class. Resource estimates were of the direct and indirect costs relating to treatment for rheumatoid arthritis. Secondary outcome measures (health utility) were ascertained by time trade off and with the quality of well being scale. RESULTS: Both groups had improvement in scores on the health assessment questionnaire and Ritchie index and erythrocyte sedimentation rate after hospital treatment ($P < 0.0001$) but clinical outcome did not differ significantly between the groups either at discharge or follow up. The mean hospital cost per patient for day care, 798 Pounds (95% confidence interval 705 Pounds to 888 Pounds), was lower than for inpatient care, 1253 Pounds (1155 Pounds to 1370 Pounds), but this difference was offset by higher community, travel, and readmission costs. The difference in total cost per patient between day care and inpatient care was small (1789 Pounds (1539 Pounds to 2027 Pounds) v 2021 Pounds (1834 Pounds to 2230 Pounds)). Quantile regression analysis showed a cost difference in favour of day care up to the 50th centile (374 Pounds; 639 Pounds to 109 Pounds). CONCLUSIONS: Day care and inpatient care for patients with uncomplicated active rheumatoid arthritis have equivalent clinical outcome with a small difference in overall resource cost in favour of day care. The choice of management strategy may depend increasingly on convenience, satisfaction, or more comprehensive health measures reflecting the preferences of patients, providers, and service commissioners.

60. Lambert CM, Hurst NP, Lochhead A, McGregor K, Hunter M, Forbes J. A pilot study of the economic cost and clinical outcome of day patient vs inpatient management of active rheumatoid arthritis. Br J Rheumatol 1994;33(4):383-8.
Abstract: The aims of this pilot study, which compares day patient with inpatient care for management of active RA were (i) to test the feasibility of a trial

protocol design including the method of randomization and the practicality of data collection, and (ii) to obtain preliminary information on economic cost and clinical outcome of these two methods of management. Twenty consecutive patients requiring admission for management of active RA were randomized to receive either day patient or inpatient care. All hospital, transport, community and indirect costs incurred over a 6-month period from recruitment were collected for each patient. Disease activity and clinical outcome were assessed using the Ritchie articular index, ESR, Health Assessment Questionnaire, Functional Independence Measure and Hospital Anxiety and Depression Scale. The trial protocol was found to be feasible and no patient allocated to the day patient group requested or required to be transferred to inpatient care. Day care was significantly cheaper than inpatient care despite higher transport costs; the total cost of treating 10 day patients was UK 10,272 pounds compared with 14,528 pounds for 10 inpatients. Clinical outcome was comparable in both groups for all parameters studied and there was no obvious detrimental effect on patients receiving day care. This pilot study demonstrates that day care is feasible and acceptable to patients with active RA. The preliminary data suggest that day care is substantially cheaper than inpatient care and does not apparently compromise clinical outcome.

61. Lanzi G, D'Arrigo S, Termine C, Rossi M, Ferrari-Ginevra O, Mongelli A, et al. The effectiveness of hospitalization in the treatment of paediatric idiopathic headache patients. Psychopathology 2007;40(1):1-7.
Abstract: BACKGROUND: Headache is a disease that has a high social impact in the paediatric as well as in the adult population, often resulting in a significant reduction in the young patient's quality of life, reflected primarily in a greater number of days off school and increasingly frequent recourse to symptomatic drugs. The idea for this study came from the clinical impression that some paediatric headache patients might benefit more from inpatient than outpatient care. AIM: The aim of our study was to compare the effectiveness of hospitalization to outpatient care of patients with newly diagnosed frequent and disabling headache. METHODS: A pragmatic randomized open-label trial was conducted at the Child Neurology Clinic of the University of Pavia, Italy. Children and adolescents with a 2- to 6-month moderate-to-severe migraine or tension-type headache history were randomized to hospital admission or outpatient assessment and followed for 6 months. The efficacy of the two therapeutic strategies was measured by counting the number of responders in each arm. Other end points included the mean frequency and duration of attacks, the number of drug prescriptions taken to control pain, and the number of patients and physicians expressing satisfaction with treatment. RESULTS: The study population included 27 girls and 23 boys aged 8 through 18 years with migraine (23 cases) or tension-type headache (27 cases). Compared to outpatient assessment, hospital admission was correlated to a significant increase in the number of responders: 0 vs. 44% (1 month), 0 vs. 68% (3 months), and 12 vs. 68% (6 months). The mean frequency and duration of attacks were significantly lower in hospitalized patients ($p < 0.0001$). Hospitalization was correlated with a significant reduction of patients with severe headache ($p < 0.005$), a reduction of drug use, and a higher number of satisfied patients and physicians ($p < 0.05$). Logistic regression analysis confirmed the higher responder rate among hospitalized patients after adjusting for age, sex, diagnosis, and headache characteristics or admission. CONCLUSIONS: We think hospitalization reduces the emotional mechanisms that provoke stress in children and often induce or favour headache attacks. If these mechanisms can be interrupted, the management of disease may become easier and with enduring benefits

62. MacLennan AH, Green RC, O'Shea R, Brookes C, Morris D. Routine hospital admission in twin pregnancy between 26 and 30 weeks' gestation. Lancet 1990;335(8684):267-9.

Abstract: Of 141 women with twin pregnancies, 72 were randomly assigned to outpatient care and 69 to hospital admission between 26 and 30 weeks' gestation. There were no differences between the groups in the frequencies of major maternal complications in pregnancy and labour but more of those admitted to hospital than of the outpatient group had to be admitted after 30 weeks. There were no differences between the groups in the mean birthweights of the twins by birth order, or in their mean gestation at birth whether analysed by intention to treat or by the treatment given. 22 infants were delivered before 32 weeks' gestation in the inpatient group compared with 10 in the outpatient group. With the exception of small-for-dates infants, any trend towards greater morbidity or mortality was seen in the inpatient group. The policy of routine hospital admission of women with twin pregnancies from 26 weeks' gestation is not beneficial to mother or babies and should be abandoned

63. Malik IA, Khan WA, Karim M, Aziz Z, Khan MA. Feasibility of outpatient management of fever in cancer patients with low-risk neutropenia: results of a prospective randomized trial. Am J Med 1995;98(3):224-31.
Abstract: PURPOSE: We recently demonstrated the efficacy of single-agent oral ofloxacin in the management of hospitalized neutropenic febrile patients. Ofloxacin was particularly effective in patients with short duration of neutropenia and fever of undetermined origin. These results prompted us to study the feasibility of outpatient management of neutropenic febrile patients who are otherwise at low risk of morbidity and mortality. PATIENTS AND METHODS: This multi-institutional, prospective, randomized trial included 182 low-risk neutropenic febrile episodes. After an initial work-up for fever, patients were randomized to receive oral ofloxacin 400 mg immediately and twice daily thereafter in the hospital or as outpatients. Close monitoring and follow-up were carried out in all patients. Those who failed to respond and remained febrile were given parenteral antibiotics. Nonresponding outpatients were admitted to the hospital for parenteral therapy. RESULTS: One hundred sixty-nine episodes were evaluable. The hospital and outpatient treatment groups had comparable clinical characteristics. Pyrexias of undetermined origin (PUO) comprised 69% of episodes managed in hospital and 73% of episodes treated outside. The success rate with PUO was similar with inpatient and outpatient management. Patients with clinical and microbiologic infections fared less well than those with PUO. Overall, 78% of inpatient and 77% of outpatient fevers resolved with no modification of the initial treatment. Twenty-one percent of patients originally assigned to outside management required hospitalization. Mortality was 2% among inpatients and 4% among outpatients. One early death in a nonhospitalized patient underscores the need for close monitoring and surveillance in these cases. CONCLUSIONS: Outpatient management of low-risk neutropenic febrile patients with ofloxacin is as effective as inpatient management with the same agent. This approach should be limited to the subset of patients with low-risk factors who are not otherwise on quinolone prophylaxis

64. Marchionni N, Fattirolli F, Fumagalli S, Oldridge N, Del Lungo F, Morosi L, et al. Improved exercise tolerance and quality of life with cardiac rehabilitation of older patients after myocardial infarction: results of a randomized, controlled trial. Circulation 2003;107(17):2201-6.
Abstract: BACKGROUND: Whether cardiac rehabilitation (CR) is effective in patients older than 75 years, who have been excluded from most trials, remains unclear. We enrolled patients 46 to 86 years old in a randomized trial and assessed the effects of 2 months of post-myocardial infarction (MI) CR on total work capacity (TWC, in kilograms per meter) and health-related quality of life (HRQL). METHODS AND RESULTS: Of 773 screened patients, 270 without cardiac failure, dementia, disability, or contraindications to exercise were randomized to outpatient, hospital-based CR (Hosp-CR), home-based CR (Home-

CR), or no CR within 3 predefined age groups (middle-aged, 45 to 65 years; old, 66 to 75 years; and very old, >75 years) of 90 patients each. TWC and HRQL were determined with cycle ergometry and Sickness Impact Profile at baseline, after CR, and 6 and 12 months later. Within each age group, TWC improved with Hosp-CR and Home-CR and was unchanged with no CR. The improvement was similar in middle-aged and old persons but smaller, although still significant, in very old patients. TWC reverted toward baseline by 12 months with Hosp-CR but not with Home-CR. HRQL improved in middle-aged and old CR and control patients but only with CR in very old patients. Complications were similar across treatment and age groups. Costs were lower for Home-CR than for Hosp-CR. CONCLUSIONS: Post-MI Hosp-CR and Home-CR are similarly effective in the short term and improve TWC and HRQL in each age group. However, with lower costs and more prolonged positive effects, Home-CR may be the treatment of choice in low-risk older patients

65. Millar LK, Wing DA, Paul RH, Grimes DA. Outpatient treatment of pyelonephritis in pregnancy: a randomized controlled trial. Obstet Gynecol 1995;86(4 Pt 1):560-4.
Abstract: OBJECTIVE: To compare the safety and efficacy of outpatient and inpatient treatment of pyelonephritis in pregnancy. METHODS: We performed a randomized controlled trial of pregnant women with pyelonephritis before 24 weeks' estimated gestational age, comparing inpatient and outpatient treatment. Sixty inpatients received cefazolin intravenously until afebrile for 48 hours, and 60 outpatients received two injections of ceftriaxone intramuscularly. All patients completed a 10-day course of oral cephalexin. We performed a urine culture 5-14 days after completion of therapy. RESULTS: The two groups were similar with respect to age, parity, temperature, estimated gestational age, initial white blood cell count, and incidence of bacteremia. Escherichia coli was the major uropathogen isolated (86% of cultures, 95 of 111). Twelve percent (13 of 111) of bacteria were resistant to cefazolin. Eleven outpatients and 12 inpatients had positive urine cultures after therapy (relative risk 0.9, 95% confidence interval 0.4-1.9). Three patients in each group had recurrent pyelonephritis. We switched six inpatients to gentamicin because of a worsening clinical picture (two) or a prolonged febrile course (four); no outpatients required a change in antibiotic (Fisher exact test, P = .03). One preterm delivery occurred in an inpatient with recurrent pyelonephritis. CONCLUSION: Outpatient antibiotic therapy is effective and safe in selected pregnant women with pyelonephritis

66. Mor V, Stalker MZ, Gralla R, Scher HI, Cimma C, Park D, et al. Day hospital as an alternative to inpatient care for cancer patients: a random assignment trial. J Clin Epidemiol 1988;41(8):771-85.
Abstract: A stratified, random-assignment trial of 442 cancer patients was conducted to evaluate medical, psychosocial, and financial outcomes of day hospital treatment as an alternative to inpatient care for certain cancer patients. Eligible patients required: a 4- to 8-hour treatment plan, including chemotherapy and other long-term intravenous (i.v.) treatment; a stable cardiovascular status; mental competence; no skilled overnight nursing; and a helper to assist with home care. Patients were ineligible if standard outpatient treatment was possible. No statistically significant (p less than 0.05) differences were found between the Adult Day hospital (ADH) and Inpatient care in medical or psychosocial outcomes over the 60-day study period. The major difference was in medical costs--approximately one-third lower for ADH patients (p less than 0.001) than for the Inpatient group. The study demonstrates that day hospital care of medical oncology patients is clinically equivalent to Inpatient care, causes no negative psychosocial effects, and costs less than Inpatient care. Findings support the trend toward dehospitalization of medical treatment

67. Outpatient treatment as effective as inpatient for many with pneumonia. J Fam Pract 2005;54(5):406.
Abstract: The Pneumonia Severity Index-otherwise known as the Fine or Pneumonia Patient Outcomes Research Team (PORT) criteria-is a way to stratify patients with community-acquired pneumonia into 5 risk classes. Patients in class I have the lowest pneumonia severity and class Vs have a 30-day mortality of 27.0%. Patients in class I should be treated as outpatients, and those in classes IV and V should be admitted; this study evaluated the role of hospitalization in patients with class II or III pneumonia. The Barcelona-based researchers enrolled 224 immunocompetent adults who received a diagnosis of community-acquired pneumonia with no respiratory failure, complicated pleural effusions, or unstable comorbidities. The patients were randomized to be treated as inpatient or as outpatients. The patients had the usual pathogens of pneumonia, although (as is also typical) a cause was not determined for approximately 30%. All patients received levofloxacin (Levaquin) 500 mg daily for an average 10.19 days; out-patients were treated with oral therapy and inpatients were treated with intravenous therapy and then oral therapy for an average of 10 days, although they were hospitalized for an average 5.1 days. Outpatients received 1 nurse visit 48 hours after discharge for assessment and received a second visit if they did not seem to be improving. The investigators used a combined endpoint of success, including cure of pneumonia, absence of adverse drug reactions, absence of medical complications, no need for additional visits, no changes in initial treatment, and no hospital admission or death within 30 days. This outcome was achieved by 83.6% of outpatients and 80.7% of hospitalized patients. Readmission rates were similar in the 2 groups (6%-7%). Health-related quality-of-life scores measured at 7 and 30 days were similar in both groups. More outpatients than inpatients reported satisfaction with their overall care (91.2% vs 79.1%; P=.03).

68. Penfornis A, Millot L. Initiating insulin treatment in insulin-requiring type 2 diabetic patients: comparative efficiency and cost of outpatient and inpatient management. INNOV Study Group. Diabetes Metab 1998;24(2):137-42.
Abstract: The main objective of this randomised study was to compare glycaemic control (as determined by HbA1c levels) in two groups of insulin-requiring Type 2 diabetic patients three months after initiation of insulin therapy either on an inpatient (group A, n = 58) or outpatient (group B, n = 56) basis. Evaluation of the safety and cost of both methods was a secondary objective. Although HbA1c level at inclusion was slightly but significantly lower in group A than group B (10.17 +/- 0.19% vs. 10.87 +/- 0.22% respectively, P = 0.019), covariance analysis showed equivalent glycaemic control at 3 months in both groups (adjusted means with respect to inclusion values: 9.00 +/- 1.14% vs. 9.37 +/- 1.14% respectively; equivalence hypothesis: P = 0.01). A low and similar incidence of episodes of hypoglycaemia and hyperglycaemia with ketonuria was observed. Clinical tests, paramedical care and the cost of hospitalisation itself resulted in a direct cost of initiating treatment that was more than four times higher in group A than in group B (mean total cost per patient: FF 15,231 and FF 3,296 respectively). Insulin-requiring Type 2 diabetic patients can be efficiently and safely started on insulin as outpatients, and this approach to initiating insulin therapy is cost-effective

69. Peters J, Large RG, Elkind G. Follow-up results from a randomised controlled trial evaluating in- and outpatient pain management programmes. Pain 1992;50(1):41-50.
Abstract: This study reports a 9-18 month follow-up of a randomised controlled trial of pain management programmes for chronic, non-malignant pain. Twenty-two inpatients, 18 outpatients and 12 control subjects completed the follow-up assessments. Significant treatment effects were demonstrated by the

inpatient group on pain ratings, the Pain Behaviour Checklist, and General Health Questionnaire, with similar effects demonstrated by the outpatient group on the former 2 measures. The findings were confounded by higher inpatient scores at pretreatment, in comparison with the 2 other conditions. There was a high drop-out rate of subjects, particularly from the control condition which illustrates the limitations of controlled group designs in this area. Analgesic use, activity levels and pain ratings were also evaluated using the criteria for 'success' described by Malec et al. (1981). Results indicated that 68% of inpatients, 61% of outpatients and 21% of control subjects met all 3 criteria. Both treatment programmes were effective in returning patients to paid employment, whilst 3 control group patients gave up work. The cost-benefit implications of these changes are discussed. We conclude that pain management programmes contribute substantially to the rehabilitation of chronic pain sufferers

70. Peters JL, Large RG. A randomised control trial evaluating in- and outpatient pain management programmes. Pain 1990;41(3):283-93.
Abstract: This study investigated the clinical efficacy of in- and outpatient pain management programmes in comparison with a control group. Following physical examination and psychosocial assessments, and after obtaining informed consent, patients were randomly assigned to 1 of 3 groups: (1) a 4 week multidisciplinary inpatient pain management programme; (2) a 9 week (2 h/week) multidisciplinary outpatient programme; or (3) a control group. Self-report, behavioural and physiological measures were taken pre and post treatment. Patients in the treatment groups demonstrated significant improvement at posttreatment on measures of psychological distress, pain behaviour, health-related disability and pain intensity (following physical exertion) when compared with the control group. Little difference was demonstrated on the remaining measures. Difficulties encountered in conducting clinical research with this population and utilising a control group design are discussed

71. Ramsay IN, Ali HM, Hunter M, Stark D, McKenzie S, Donaldson K, et al. A prospective, randomized controlled trial of inpatient versus outpatient continence programs in the treatment of urinary incontinence in the female. Int Urogynecol J Pelvic Floor Dysfunct 1996;7(5):260-3.
Abstract: Seventy-four patients presenting with a mixed pattern of urinary symptoms were randomly allocated to undergo either inpatient or outpatient continence programs as initial treatment, without prior urodynamic investigation. Both programs consisted of physiotherapy, bladder retraining, fluid normalization, dietary advice and general support and advice. Nine out of 39 in the outpatient group and 8 out of the 35 of the inpatient group failed to complete the study. There was a significant decrease in frequency, nocturia, number of incontinent episodes and visual analog scores for both groups. In addition the outpatients had a significant reduction in loss on pad testing, and a significantly greater improvement in their visual analog score. In each group 63% were cured or improved to the extent that they did not require further treatment. Staff costs per outpatient were half those for an inpatient. We conclude that outpatient conservative treatment as detailed above is a successful first-line treatment of urinary incontinence in women. It is as successful and possibly better than inpatient treatment, and is significantly cheaper.

72. Rapoport BL, Sussmann O, Herrera MV, Schlaeffer F, Otero JC, Pavlovsky S, et al. Ceftriaxone plus once daily aminoglycoside with filgrastim for treatment of febrile neutropenia: early hospital discharge vs. Standard In-patient care. Chemotherapy 1999;45(6):466-76.
Abstract: BACKGROUND: In febrile neutropenic patients, ceftriaxone plus an aminoglycoside is effective for the treatment of infection, while filgrastim reduces the extent and duration of neutropenia. Because the once daily dosing regimen of this combination permits ambulatory treatment, there is a need to

test criteria for early hospital discharge. METHODS: Hospitalized adult patients with febrile neutropenia (following chemotherapy) considered to be potentially treatable on a follow-up out-patient basis were entered into this open-label, multinational study. Patients received a once daily combination of ceftriaxone for > or =5 days, aminoglycoside for > or =2 days, and filgrastim until the absolute neutrophil count was > or =1.0x10(9)/l for 2 days. Those initially responding to therapy (reduction of fever by > or =1 degrees C within 72 h, and clinical improvement) were randomized into standard in-patient or follow-up out-patient treatment groups, the latter patients being discharged from hospital early, after meeting defined criteria. RESULTS: 105 patients were enrolled, of whom 21 initial non-responders were not randomized. Efficacy was evaluable in 80 patients. Success (resolution of fever and symptoms, maintained for 7 days after cessation of therapy, and eradication of infecting pathogens) was similar among in-patients (40/42, 95%) and out-patients (34/38, 89%). The duration of hospitalization was shorter for out-patients than in-patients (median of 4 vs. 6 days, respectively). No hospital readmissions were necessary in out-patients. All other efficacy parameters assessed were comparable in both groups, as was tolerability/safety. One potentially drug-related death was reported. CONCLUSIONS: Patients who satisfy prospectively defined criteria for early discharge can be treated safely on an out-patient basis with a regimen of once daily ceftriaxone plus an aminoglycoside with filgrastim. In addition to reducing healthcare costs, it may improve patients' quality of life. Copyright Copyright 1999 S. Karger AG, Basel

73. Ryan G. Randomized controlled trial of inpatient vs outpatient administration of prostaglandin E2, gel for induction of labour at term. Am J Obstet Gynecol 1998;178(1 Pt 2):S92.
Abstract: 18th Annual Meeting of the Society of Perinatal Obstetricians; 1998, Feb 2-7; Miami Beach, Florida, USA

74. Ryan G. Randomized controlled trial of inpatient vs outpatient management of PPROM. Am J Obstet Gynecol 1999;180(1 Pt 1):S95.
Abstract: 19th Annual Meeting of the Society for Maternal-Fetal Medicine; 1999 January 18-23; San Francisco, California, USA

75. Rydman RJ, Roberts RR, Albrecht GL, Zalenski RJ, McDermott M. Patient satisfaction with an emergency department asthma observation unit. Acad Emerg Med 1999;6(3):178-83.
Abstract: OBJECTIVE: To compare levels of patient satisfaction between the diagnostic and treatment protocols in an ED-based asthma observation unit (AOU) and those with standard inpatient hospitalization. METHODS: This was a prospective, randomized, controlled trial with a sample of 163 patients presenting to the ED with acute asthma exacerbations over a 30-month period. Eligible patients were those who could not resolve their symptoms after three hours of standard ED therapy. Patients were then randomly assigned to an ED-based AOU (experimental group) or to customary inpatient care (control group). Patient satisfaction and problems with care processes were assessed by standardized instrumentation at discharge in both groups. RESULTS: The AOU patients scored higher than those randomized to the inpatient hospitalization protocol on four summary ratings of patient satisfaction measures: received service wanted, recommendation of the service to others, satisfaction with the service, and overall satisfaction. The AOU patients reported fewer total number of problems with care received, and fewer specific problems with communication, emotional support, physical comfort, and special needs, than did the inpatient group. However, the AOU patients reported more problems regarding their knowledge of financial costs and liabilities for their service than did the inpatients. CONCLUSION: Patients were more satisfied and had fewer problems with rapid diagnosis and treatment in the AOU than they did with

routine inpatient hospitalization. Since AOUs represent a new ambulatory service modality, patients would benefit from greater awareness of the costs and coverage for AOUs as compared with hospital inpatient care. These findings have important implications for the future short- and long-term success and feasibility of ED-based AOUs

76. Sciscione AC, Muench M, Pollock M, Jenkins TM, Tildon-Burton J, Colmorgen GH. Transcervical Foley catheter for preinduction cervical ripening in an outpatient versus inpatient setting. Obstet Gynecol 2001;98(5 Pt 1):751-6.
Abstract: OBJECTIVE: To compare use of the Foley catheter for preinduction cervical ripening in an inpatient versus outpatient setting. METHODS: A randomized trial was conducted from May 1998 to December 1999. Women with a term gestation in the vertex presentation, a reactive nonstress test, an amniotic fluid index above the fifth percentile, and a Bishop score of no more than 5 were included. The primary outcome variable was a change in Bishop score. A Foley catheter with a 30-mL balloon was placed through the cervix on gentle traction in each group. The outpatient group was then discharged home with written instructions and returned in the morning for induction. The inpatient group was admitted to labor and delivery, with induction started upon extrusion of the Foley. RESULTS: Sixty-one women were randomized into the outpatient group, and 50 women into the inpatient group. Maternal age, gravidity, previous cesarean delivery, and gestational age did not differ between the groups. The median Bishop score at entry was 3.0 for each group (P =.97). The mean change in Bishop scores after catheter placement was not different between the inpatient and outpatient groups (3.0 versus 3.0; P =.74). The maximum dose of oxytocin, time of oxytocin, epidural rate, induction time, 1-minute and 5-minute Apgar scores, and cord pH were not significantly different. The outpatient group on average avoided 9.6 hours of hospitalization. There were no adverse events or maternal morbidity in either group. CONCLUSIONS: The Foley bulb is as effective in the outpatient as the inpatient setting for preinduction cervical ripening

77. Staessen JA, Byttebier G, Buntinx F, Celis H, O'Brien ET, Fagard R. Antihypertensive treatment based on conventional or ambulatory blood pressure measurement: a randomized controlled trial. JAMA 1997;278(13):1065-72.
Abstract: Context. Ambulatory blood pressure (ABP) monitoring is used increasingly in clinical practice, but how it affects treatment of blood pressure has not been determined. Objective. To compare conventional blood pressure (CBP) measurement and ABP measurement in the management of hypertensive patients. Design. Multicenter randomized, parallel-group trial. Setting. Family practices and outpatient clinics at regional and university hospitals. Participants. A total of 419 patients (-18 years), whose untreated diastolic blood pressure (DBP) on CBP measurement averaged 95 mm Hg or higher, randomized to CBP or ABP arms. Interventions. Antihypertensive drug treatment was adjusted in a stepwise fashion based on either the average daytime (from 10 am to 8 pm) ambulatory DBP (n=213) or the average of 3 sitting DBP readings (n=206). If the DBP guiding treatment was above (>89 mm Hg), at (80-89 mm Hg), or below (<80 mm Hg) target, 1 physician blinded to the patients' randomization intensified antihypertensive treatment, left it unchanged, or reduced it, respectively. Main Outcome Measures. The CBP and ABP levels, intensity of drug treatment, electrocardiographic and echocardiographic left ventricular mass, symptoms reported by questionnaire, and cost. Results. At the end of the study (median follow-up, 182 days; 5th to 95th percentile interval, 85-258 days), more ABP than CBP patients had stopped anithypertensive drug treatment (26.3% vs 7.3%; P<.001), and fewer ABP patients had progressed to sustained multiple-drug treatment (27.2% vs 42.7%; P<.001). The final CBP and 24-hour ABP averaged 144.1/89.9 mm Hg and 129.4/79.5 mm Hg in the ABP group and 140.3/89.6 mm Hg and 128.0/79.1 mm Hg in the CBP group.

Left ventricular mass and reported symptoms were similar in the 2 groups. The potential savings in the ABP group in termsof less intensive drug treatment and fewer physician visits were offset by the costs of ABP monitoring. Conclusions. Adjustment of antihypertensive treatment based on ABP monitoring instead of CBP measurement led to less intensive drug treatment with preservation of blood pressure control, general well-being, and inhibition of left ventricular enlargement but did not reduce the overall costs of antihypertensive treatment.

78. Taylor AJ, Hotchkiss D, Morse RW, McCabe J. PREPARED: Preparation for Angiography in Renal Dysfunction: a randomized trial of inpatient vs outpatient hydration protocols for cardiac catheterization in mild-to-moderate renal dysfunction. Chest 1998;114(6):1570-4.
Abstract: BACKGROUND: IV hydration before and after cardiac catheterization is effective in preventing contrast-associated renal dysfunction for patients with mild-to-moderate renal insufficiency, but necessitates overnight hospital admission. We tested an outpatient oral precatheterization hydration strategy in comparison with overnight IV hydration. METHODS: We randomized 36 patients with renal dysfunction (serum creatinine > or = 1.4 mg/dL) undergoing elective cardiac catheterization to receive either overnight IV hydration (0.45 normal saline solution at 75 mL/h for both 12 h precatheterization and postcatheterization; n = 18) or an outpatient hydration protocol including precatheterization oral hydration (1,000 mL clear liquid over 10 h) followed by 6 h of IV hydration (0.45 normal saline solution at 300 mL/h) beginning just before contrast exposure. The predefined primary end point was the maximal change in creatinine up to 48 h after cardiac catheterization. RESULTS: The inpatient and outpatient groups were well matched for baseline characteristics and contrast volume. By protocol design, the outpatient group received a greater volume of hydration, although the net volume changes were comparable in the two groups. The maximal changes in serum creatinine in the inpatient (0.21+/-0.38 mg/dL; 95% confidence interval [CI], 0.02 to 0.39 mg/dL) and outpatient groups (0.12+/-0.23 mg/dL; 95% CI, 0.01 to 0.24 mg/dL) were comparable (p = not significant). There were no instances of protocol intolerance. CONCLUSIONS: A hydration strategy compatible with outpatient cardiac catheterization is comparable to precatheterization and postcatheterization IV hydration in preventing contrast-associated changes in serum creatinine. Hospital admission for IV hydration is unnecessary before elective cardiac catheterization in the setting of mild-to-moderate renal dysfunction

79. Tijhuis GJ, Zwinderman AH, Hazes JM, Breedveld FC, Vlieland PM. Two-year follow-up of a randomized controlled trial of a clinical nurse specialist intervention, inpatient, and day patient team care in rheumatoid arthritis. J Adv Nurs 2003;41(1):34-43.
Abstract: AIM: To compare the long-term effectiveness of care delivered by a clinical nurse specialist (CNS) with inpatient team care and day patient team care in patients with rheumatoid arthritis and increasing functional limitations. Background. The role of CNSs in the management of patients with rheumatoid arthritis (RA) is evolving, and their effectiveness in comparison with care provided by a rheumatologist alone has been established. However, long-term controlled studies showing how the effectiveness of CNSs compares with that of other forms of co-ordinated care, such as multidisciplinary team care, are lacking. METHODS: Two hundred and ten patients rheumatoid arthritis patients were randomized to care delivered by a CNS in a rheumatology outpatient clinic (12 weeks), inpatient team care (2 weeks) and day patient team care (3 weeks). Clinical assessments recorded on study entry, weeks 12, 26, 52, 78 and 104 comprised the health assessment questionnaire (HAQ) and MacMaster Toronto Arthritis (MACTAR) patient preference interview as primary outcome measures. Grip strength, walk test, RAND-36, Rheumatoid Arthritis Quality of Life questionnaire and disease activity score (DAS) were ap-

plied as secondary outcome measures. RESULTS: No significant differences in medical treatment, use of services of other health professionals, introduction of adaptive equipment or number of hospitalizations were observed between the three treatment groups during 2 year follow-up, except that visits to nurse specialists were more frequent and home help was less frequent in the CNS group. A comparison of clinical outcomes among the three groups and a comparison between the nurse specialist and inpatient and day patient care groups together did not show any significant differences. Within all three groups functional status, quality of life and disease activity improved significantly ($P < 0.05$). In general, the results obtained after 12 weeks remained stable until 104 weeks after the start of the study. CONCLUSION: Care provided by a CNS in an outpatient rheumatology clinic has a similar long-term clinical outcome to inpatient and day patient team care in patients with rheumatoid arthritis. A CNS intervention appears to be an effective innovation in the care for patients with rheumatoid arthritis

80. Tijhuis GJ, Zwinderman AH, Hazes JM, van den Hout WB, Breedveld FC, Vliet Vlieland TP. A randomized comparison of care provided by a clinical nurse specialist, an inpatient team, and a day patient team in rheumatoid arthritis. Arthritis Rheum 2002;47(5):525-31.
Abstract: OBJECTIVES: To compare in a randomized, controlled trial the clinical effectiveness of care delivered by a clinical nurse specialist, inpatient team care, and day patient team care in patients with rheumatoid arthritis (RA) who have increasing functional limitations. METHODS: Between December 1996 and January 1999, 210 patients with RA were recruited in the outpatient clinic of the rheumatology department of 6 academic and nonacademic hospitals. Clinical assessments recorded on study entry and weeks 6, 12, 26, and 52 included the Health Assessment Questionnaire (HAQ) and the McMaster Toronto Arthritis Patient Preference Disability Questionnaire as primary outcome measures, and the RAND-36 Item Health Survey, the Rheumatoid Arthritis Quality of Life questionnaire, the Health Utility Rating Scale, and the Disease Activity Score as secondary outcome measures. Patient satisfaction with care was measured on a visual analog scale in week 6 in all 3 groups and again in week 12 in the nurse specialist group. RESULTS: Within all 3 groups, functional status, quality of life, health utility, and disease activity improved significantly over time ($P < 0.05$). However, a comparison of clinical outcome among the 3 groups and a comparison between the nurse specialist group and the inpatient and day patient care groups together did not show any sustained significant differences. Subgroup analysis showed that age had a significant impact on differences between the 3 treatment groups with respect to functional outcome as measured with the HAQ ($P < 0.001$). With increasing age, the most favorable outcome shifted from care provided by a clinical nurse specialist and inpatient care to day patient care. Patients' satisfaction with care was significantly lower in the nurse specialist group than in the inpatient and day patient care groups ($P < 0.001$). CONCLUSION: Care provided by a clinical nurse specialist appears to have a similar clinical outcome in comparison with inpatient and day patient team care. Although all patients were highly satisfied with multidisciplinary care, patients who received care provided by a clinical nurse specialist were slightly less satisfied than those who received inpatient or day patient team care. Age appeared to be the only factor related to differences in functional outcome between the 3 treatment groups. The choice of management strategy may, apart from age, further be dependent on the availability of facilities, the preferences of patients and health care providers, and economic considerations

81. Tuffnell DJ, Lilford RJ, Buchan PC, Prendiville VM, Tuffnell AJ, Holgate MP, et al. Randomised controlled trial of day care for hypertension in pregnancy. Lancet 1992;339(8787):224-7.

Abstract: Our aim was to assess the effect of the introduction of a day-care unit on the care of women with non-proteinuric hypertension in pregnancy. A randomised controlled trial was carried out on 54 women who presented at 26 weeks of pregnancy or later with non-proteinuric hypertension (systolic blood pressure 150-170 mm Hg and/or diastolic pressure 90-105 mm Hg on two occasions at least 15 min apart). 30 women were allocated to care by the day unit and 24 were managed according to the established practice of their clinicians without access to the day unit (control group). Women in the control group spent on average 4.6 times longer as inpatients (difference in mean stay 4.0 days [95% confidence interval 2.1-5.9 days]) than the day-unit group and were 8.8 times (95% CI 3.0-25.8) more likely to be admitted to hospital. Induction of labour was 4.9 times (95% CI 1.6-13.8) more likely in the control than in the day-unit group and the development of proteinuria 11.4 times (95% CI 1.8-71.4) more likely. The control group had a mean of 1.5 fewer hospital outpatient visits (95% CI 0.36-2.64). The groups did not differ in their use of antihypertensive drugs. Day-unit care for hypertension in pregnancy significantly reduced the need for and the length of antenatal inpatient admissions and the number of medical interventions, at the cost of an increase in outpatient attendances. Our results are further evidence that inpatient care does not improve outcomes or prevent the development of proteinuria in this disorder

82. Turnbull DA, Wilkinson C, Gerard K, Shanahan M, Griffith CG, Kruzins G, et al. Clinical, psychological, and economic effects of antenatal day care for three medical complications of pregnancy: a randomised controlled trial of 395 women. Lancet 2004;363(9415):1104-9.
Abstract: BACKGROUND: Day care is increasingly being used for complications of pregnancy, but there is little published evidence on its efficacy. We assessed the clinical, psychosocial, and economic effects of day care for three pregnancy complications in a randomised trial of day care versus standard care on an antenatal ward. METHODS: 395 women were randomly assigned day (263) or ward (132) care in a ratio of two to one, stratified for major diagnostic categories (non-proteinuric hypertension, proteinuric hypertension, and preterm premature rupture of membranes). The research hypothesis was that for these disorders, as an alternative to admission, antenatal day care will reduce specified interventions and investigations, result in no differences in clinical outcome, lead to greater satisfaction and psychological wellbeing, and be more cost-effective. Data were collected through case-note review, self-report questionnaires (response rates 81.0% or higher) and via the hospital's financial system. Analysis was by intention to treat. FINDINGS: All participants were included in the analyses. There were no differences between the groups in antenatal tests or investigations or intrapartum interventions. The total duration of antenatal care episodes was shorter in the day-care group than in the ward group (median 17 [IQR 5-9] vs 57 [35-123] h; p=0.001). Overall stay was also significantly shorter in the day-care group (mean 7.22 [SE 0.31] vs 8.53 [0.44]; p=0.014). The median number of care episodes was three (range one to 14) in the day-care group and two (one to nine) in the ward group (p=0.01). There were no statistically or clinically significant differences in maternal or perinatal outcomes. The day-care group reported greater satisfaction, with no evidence of unintended psychosocial sequelae. There was no significant difference in either average cost per patient or average cost per day of care. INTERPRETATION: Since clinical outcomes and costs are similar, adoption by maternity services of a policy providing specified women with the choice between admission and day-unit care seems appropriate.

83. Turnbull DA, Wilkinson C, Griffith EC, Kruzins G, Gerard K, Shanahan M, et al. The psychosocial outcomes of antenatal day care for three medical complications of pregnancy: a randomised controlled trial of 395 women. Aust N Z J Obstet Gynaecol 2006;46(6):510-6.

Abstract: BACKGROUND: Although antenatal day care is becoming increasingly common, there is little evidence as to the psychosocial efficacy of this model of care. AIM: We aimed to assess the broader psychosocial impact of antenatal day care compared with admission to hospital. METHODS: We carried out a randomised trial of 395 women, randomly assigned in a 2 : 1 ratio between day care and antenatal ward, stratified for major diagnostic categories (proteinuric hypertension, non-proteinuric hypertension and preterm premature rupture of membranes). Main outcome measures--self-report questionnaires (response rates ranging from 80 to 90%) were sent to women's homes four days after randomisation and seven weeks after delivery. RESULTS: Overall, there were statistically significant differences favouring day care in 12 of 28 items at four days post-randomisation, with no differences in the two groups for the other 16 items. At seven weeks postdelivery, we found differences in eight of 28 items favouring day care, with no differences in the two groups for the other 20 items. The types of items indicating a sustained difference covered a range of aspects of care and included satisfaction with staff, continuity of carer, information transfer, and social support. There were no differences in relation to infant feeding and relationship with the baby. CONCLUSIONS: Day care has an effect on women's satisfaction with care but does not produce broader psychosocial outcomes

84. van den Hout WB, Tijhuis GJ, Hazes JM, Breedveld FC, Vliet Vlieland TP. Cost effectiveness and cost utility analysis of multidisciplinary care in patients with rheumatoid arthritis: a randomised comparison of clinical nurse specialist care, inpatient team care, and day patient team care. Ann Rheum Dis 2003;62(4):308-15.
Abstract: OBJECTIVE: To assess the relative cost effectiveness of clinical nurse specialist care, inpatient team care, and day patient team care. METHODS: Incremental cost effectiveness analysis and cost utility analysis, alongside a prospective randomised controlled trial with two year follow up. Included were patients with rheumatoid arthritis (RA) with increasing difficulty in performing activities of daily living over the previous six weeks. Quality of life and utility were assessed by the Rheumatoid Arthritis Quality of Life questionnaire, the Short Form-6D, a transformed rating scale, and the time tradeoff. A cost-price analysis was conducted to estimate the costs of inpatient and day patient hospitalisations. Other healthcare and non-healthcare costs were estimated from cost questionnaires. RESULTS: 210 patients with RA (75% female, median age 59 years) were included. Aggregated over the two year follow up period, no significant differences were found on the quality of life and utility instruments. The costs of the initial treatment were estimated at euro 200 for clinical nurse specialist care, euro 5000 for inpatient team care, and euro 4100 for day patient team care. Other healthcare costs and non-healthcare costs were not significantly different. The total societal costs did not differ significantly between inpatients and day patients, but were significantly lower for the clinical nurse specialist patients by at least euro 5400. CONCLUSIONS: Compared with inpatient and day patient team care, clinical nurse specialist care was shown to provide equivalent quality of life and utility, at lower costs. Therefore, for patients with health conditions that allow for any of the three types of care, the preferred treatment from a health-economic perspective is the care provided by the clinical nurse specialist

85. Vliet Vlieland TP, Breedveld FC, Hazes JM. The two-year follow-up of a randomized comparison of in-patient multidisciplinary team care and routine out-patient care for active rheumatoid arthritis. Br J Rheumatol 1997;36(1):82-5.
Abstract: The long-term effects of a period of 11 days of in-patient multidisciplinary team care were compared with routine out-patient care in 80 patients with active rheumatoid arthritis (RA). Endpoint measures included swollen and tender joint counts, the patient's assessment of pain, the patient's and the

physician's assessments of disease activity, the ESR and the Health Assessment Questionnaire (HAQ). Two years after hospitalization, all 39 patients randomized to the in-patient group and 39 out of 41 patients randomized to the out-patient group were evaluable. At 2 yr, in the in-patient group the improvement according to mean changes from baseline was greater than that in the out-patient group for all endpoint measures except for the HAQ score, the differences not reaching statistical significance. Averaged over the time points 2, 52 and 104 weeks, the improvement was significantly greater in the in-patient group than in the out-patient group, except for the ESR and HAQ score. In conclusion, a short period of in-patient multidisciplinary team care has a beneficial effect on disease activity over a period of 2 yr and should be considered as a useful treatment modality in patients with active RA

86. Vliet Vlieland TP, Zwinderman AH, Vandenbroucke JP, Breedveld FC, Hazes JM. A randomized clinical trial of in-patient multidisciplinary treatment versus routine out-patient care in active rheumatoid arthritis. Br J Rheumatol 1996;35(5):475-82.
Abstract: The aim of the present study was to compare the effects of in-patient multidisciplinary treatment with standard out-patient care in patients with active rheumatoid arthritis (RA). Eighty patients with active RA were randomized to receive 11 days of in-patient multidisciplinary treatment followed by standard out-patient care (n = 39), or to standard out-patient care only (n = 41). Patients were assessed at baseline, and after 2, 4, 12 and 52 weeks. In the in-patients, the improvement in variables of disease activity (weeks 2 and 4) and emotional status (weeks 4 and 12) was greater when compared with the out-patients ($P < 0.05$). The improvement in laboratory and functional measures did not differ between the groups. In the in-patient group, the percentage of patients responding to the American College of Rheumatology criteria for improvement was significantly greater at any time point during follow-up than in the out-patient group. A short period of in-patient multidisciplinary treatment for active RA has a direct beneficial effect on disease activity and emotional status with the favourable effect on disease activity remaining after 52 weeks

87. Vokes EE, Schilsky RL, Choi KE, Magid DM, Guarnieri CM, Whaling SM, et al. A randomized study of inpatient versus outpatient continuous infusion chemotherapy for patients with locally advanced head and neck cancer. Cancer 1989;63(1):30-6.
Abstract: This study was designed to evaluate the safety, reliability, and patient acceptance of outpatient continuous intravenous infusion (CVI) chemotherapy. Twenty-two patients with locally advanced head and neck cancer received induction chemotherapy with methotrexate, cisplatin and a 5-day CVI of 5-fluorouracil (5-FU). Patients were randomized to receive the 5-FU portion of cycle 1 either by a standard inpatient CVI chemotherapy delivery device (standard pump) or by the Infusor (Baxter Healthcare Corporation, Deerfield, IL), a portable chemotherapy delivery system that provides a constant flow of drug over a period of 24 hours. For cycle 2, patients crossed over to the alternative drug delivery method. Patients receiving chemotherapy via the Infusor could choose to be either inpatients or outpatients. Daily plasma concentrations of 5-FU were determined during the first two cycles of chemotherapy. There was no significant difference in the mean steady state plasma 5-FU levels achieved with either drug delivery method (329.7 +/- 95.8 ng/ml for infusor cycles vs. 352.8 +/- 114.9 ng/ml for standard pump cycles). Clinical toxicities consisted primarily of mucositis for both methods of drug delivery. Eight patients declined to receive CVI chemotherapy as outpatients citing as reasons fear of malfunction of the device, inconvenience of the frequent clinic visits necessitated by daily monitoring of plasma 5-FU concentrations, and restrictions in daily home activities. Eleven patients underwent CVI chemotherapy via Infusor as outpatients. All reported outpatient CVI chemotherapy as convenient and ef-

fective and, when eligible, chose it again in subsequent cycles. A comparison of estimated costs revealed reductions in daily costs of +366.00 (+2,200.00 per cycle) for outpatient chemotherapy. Outpatient CVI chemotherapy is a reliable drug delivery method that was accepted by a majority of patients in this study. These factors may help to establish outpatient CVI chemotherapy as a viable alternative to hospitalization

88. Wasowicz-Kemps DK, Bliemer B, Boom FA, De Zwaan NM, Van Ramshorst B. Laparoscopic gastric banding for morbid obesity: outpatient procedure versus overnight stay. Surg Endosc 2006;20(8):1233-7.
Abstract: BACKGROUND: In western countries, laparoscopic gastric banding is increasingly used in the surgical treatment of morbid obesity. This study aimed to investigate the feasibility, safety, morbidity, and costs of an outpatient procedure (OP) compared with an overnight stay (OS). METHODS: In a 2-year period, 50 consecutive patients were randomized to an OP group or an OS group. RESULTS: In the OP group, 76% of the patients were successfully discharged the same day, without readmissions. Four procedures were converted, and one complication occurred. The patients in the OP group seemed to experience more pain ($p = 0.009$). Satisfaction scores were 8.1 (OP) and 8.8 (OS) ($p = 0.06$). Half of the OP patients and most of the OS patients preferred a clinical admission. The OP treatment cost 600 euros less than OS. CONCLUSION: With proper patient selection, laparoscopic gastric banding can be performed safely and at lower cost as an outpatient procedure.

89. Wilimas JA, Flynn PM, Harris S, Day SW, Smith R, Chesney PJ, et al. A randomized study of outpatient treatment with ceftriaxone for selected febrile children with sickle cell disease. N Engl J Med 1993;329(7):472-6.
Abstract: BACKGROUND. Because of their susceptibility to pneumococcal sepsis, children with sickle cell disease and fever are usually hospitalized for antibiotic therapy. Outpatient treatment may be a safe and less expensive alternative for selected patients. METHODS. After evaluation in the emergency room, children ranging from 6 months to 12 years of age who had sickle hemoglobinopathies and temperatures exceeding 38.5 degrees C were randomly assigned to treatment as either inpatients or outpatients. We excluded from randomization children at higher risk of sepsis (as defined by specific criteria, including temperature above 40 degrees C, white-cell count below 5000 per cubic millimeter or above 30,000 per cubic millimeter, and the presence of pulmonary infiltrates) or with complications of sickle cell disease (such as a hemoglobin level below 5 g per deciliter, dehydration, or severe pain); these children were treated as inpatients. All patients received an initial intravenous dose of ceftriaxone (50 mg per kilogram of body weight). Those treated as outpatients returned 24 hours later for a second dose of ceftriaxone, whereas the in patients were treated as directed by their physicians. RESULTS. None of the 86 patients (with a total of 98 febrile episodes) in the randomized groups had sepsis, as compared with 6 of the 70 patients (7 of 86 episodes) excluded because of higher risk ($P = 0.004$). Among the 44 children (50 episodes) assigned to outpatient treatment, there were 11 hospitalizations (22 percent of episodes) within two weeks after treatment (95 percent confidence interval, 12 to 36 percent), whereas after inpatient care only a single patient (2 percent of episodes) was rehospitalized. When the randomized groups were compared, outpatient treatment saved a mean of $1,195 per febrile episode. The median hospital stay was 3 days (range, 1 to 6) for the children randomly assigned to inpatient care and 4 days (range, 1 to 18) for the higher-risk children treated as inpatients ($P < 0.001$). CONCLUSIONS. With the use of conservative eligibility criteria, at least half the febrile episodes in children with sickle cell disease can be treated safely on an outpatient basis, with substantial reductions in cost

90. Williams AC, Richardson PH, Nicholas MK, Pither CE, Harding VR, Ridout KL, et al. Inpatient vs. outpatient pain management: results of a randomised controlled trial. Pain 1996;66(1):13-22.
Abstract: Inpatient and outpatient cognitive behavioural pain management programmes for mixed chronic pain patients were compared. Patients were randomly allocated to the 4 week inpatient programme or to the 8 half day per week outpatient programme, or to a waiting list control group. Staff, teaching materials, and setting were the same for the two treatment groups. Patients were assessed pre-treatment, and at 1 month after discharge, and treated patients also at 6 months and 1 year after discharge, by assessors blind to treatment group; assessments included physical, functional and psychological measures, and medication use. In total, 121 mixed chronic pain patients (mean age 50 years; mean chronicity 8.1 years) were included in the study, following medical examination to ensure that no further medical treatment was appropriate. There was no change in the control group; inpatients and outpatients, comparable before treatment, both made significant improvements in physical performance and psychological function, and reduced medication use. Inpatients made greater gains, and maintained them better at 1 year; they also used less health care than outpatients. There were no outstanding predictors of improvement other than treatment group

91. Wing DA, Paul RH, Millar LK. Management of the symptomatic placenta previa: a randomized, controlled trial of inpatient versus outpatient expectant management. Am J Obstet Gynecol 1996;175(4 Pt 1):806-11.
Abstract: OBJECTIVE: Our purpose was to determine the safety, efficacy, and costs of inpatient and outpatient management of symptomatic placenta previa. STUDY DESIGN: Fifty-three women with the initial diagnosis of placenta previa at 24 to 36 weeks' gestation who required hospitalization for vaginal bleeding were stabilized and then randomized to receive either inpatient or outpatient expectant management. Twenty-seven inpatients were placed at bed rest with minimal ambulation, received weekly corticosteroids until 32 weeks of gestation, and underwent ultrasonographic examination at 2-week intervals to assess fetal growth and placental location. Twenty-six outpatients were discharged home after > or = 72 hours of hospitalization. Each week they also received corticosteroids, until 32 weeks' gestation, and ultrasonographic evaluations. Outpatients with recurrent bleeding were readmitted for evaluation. All subjects who reached 36 weeks' gestation with persistent placenta previa underwent amniocentesis. When fetal lung maturity was present, cesarean delivery was electively performed. RESULTS: There were insignificant differences between inpatients and outpatients for mean age, parity, race, type of previa (complete or partial), number of prior vaginal bleeding episodes, and initial hemoglobin value. The mean estimated gestational age at enrollment was 29.1 +/- 3.1 (SD) weeks for inpatients and 29.9 +/- 3.1 weeks for outpatients. In eight patients the placenta was found to no longer cover the internal os by 36 weeks' gestation. There were seven patients in each group who did not complete the protocol for initial treatment assignment. The average estimated gestational age at delivery for the inpatients was 34.5 +/- 2.4 weeks and 34.6 +/- 2.3 weeks for the outpatients (p = 0.90), whereas the mean birth weights were 2413.7 +/- 642.7 gm and 2607.8 +/- 587.1 gm, respectively (p = 0.28). Thirty-three patients (62.3%) had recurrent episodes of bleeding, with 26 requiring expeditious cesarean delivery. Four (14.8%) inpatients and one (3.7%) outpatient required blood transfusion (p = 0.67). There was no difference in neonatal morbidity (defined as the presence of respiratory distress syndrome, intracranial hemorrhage, or culture-proved sepsis) between the two groups (relative risk 1.16, 95% confidence interval 0.66 to 2.02). There were no neonatal deaths. The mean number of maternal hospital days differed significantly between the two groups: inpatients required an average of 28.6 +/- 20.3 days and outpatients remained hospitalized for an average of 10.1 +/- 8.5 days (p <

0.0001). Cost analysis based on maternal hospital days reveals a net savings of +15,080 per patient if women with symptomatic placenta previa initially diagnosed before 37 weeks' gestation are treated as outpatients. CONCLUSIONS: For selected patients, outpatient management of symptomatic placenta previa appears to be an acceptable alternative to traditional conservative expectant inpatient management

92. Yost NP, Bloom SL, McIntire DD, Leveno KJ. Hospitalization for women with arrested preterm labor: a randomized trial. Obstet Gynecol 2005;106(1):14-8.
Abstract: OBJECTIVE: To determine whether hospitalization of women with arrested preterm labor has an effect on delivery at 36 weeks or greater when compared with women discharged home. METHODS: All women with a singleton gestation and a diagnosis of arrested preterm labor with intact membranes between 24 and 33 weeks, 4 days of gestation were randomly assigned to home or hospital management. Upon completion of a dexamethasone course, women assigned to outpatient management were promptly discharged, and women in the inpatient group were advised to continue hospitalization until 34 weeks. Decreased activity was encouraged in both groups. Bed rest was not strictly enforced. The primary outcome was delivery at 36 weeks or greater. RESULTS: A total of 101 women of a planned 188 were enrolled at the time of an interim analysis. There was no difference in the primary study outcome between the 2 groups and the trial was terminated. Among the hospitalized women, 71% reached 36 weeks or greater, compared with 72% of those discharged home (P = .89). The mean cervical dilatation in hospitalized women was 2.7 +/- 0.5 cm, compared with 2.6 +/- 0.5 cm in women discharged home (P = .16). The overall length of hospital stay for the women allocated to hospitalization was 16 +/- 13 days. CONCLUSION: Compared with hospitalization, outpatient management of women with arrested preterm labor and intact membranes had no effect on the rate of preterm birth. LEVEL OF EVIDENCE: I

Annet

93. Baker MD, Bell LM, Avner JR. Outpatient management without antibiotics of fever in selected infants. N Engl J Med 1993;329(20):1437-41.
Abstract: BACKGROUND. In many academic centers it is standard practice to hospitalize all febrile infants younger than two months of age, whereas in community settings such infants are often cared for as outpatients. METHODS. We conducted a controlled study of 747 consecutive infants 29 through 56 days of age who had temperatures of at least 38.2 degrees C. After a complete history taking, physical examination, and sepsis workup, the 460 infants with laboratory or clinical findings suggestive of serious bacterial illness were hospitalized and treated with antibiotics. The screening criteria for serious bacterial illness included a white-cell count of at least 15,000 per cubic millimeter, a spun urine specimen that had 10 or more white cells per high-power field or that was positive on bright-field microscopy, cerebrospinal fluid with a white-cell count of 8 or more per cubic millimeter or a positive Gram's stain, or a chest film showing an infiltrate. The 287 infants who had unremarkable examinations and normal laboratory results were assigned to either inpatient observation without antibiotics (n = 148) or outpatient care without antibiotics but with reexaminations after 24 and 48 hours (n = 139). RESULTS. Serious bacterial illness was diagnosed in 65 infants (8.7 percent). Of these 65 infants, 64 were identified by our screening criteria for inpatient care and antibiotic treatment (sensitivity = 98 percent; 95 percent confidence interval, 92 to 100). Of the 287 infants assigned to observation and no antibiotics, 286 (99.7 percent) did not have serious bacterial illness. Only two infants assigned to outpatient observation were subsequently admitted to the hospital; neither was found to have a serious illness. Outpatient care without antibiotics of the febrile

infants at low risk for serious illness resulted in a savings of about $3,100 per patient. CONCLUSIONS. With the use of strict screening criteria, a substantial number of febrile one-to-two-month-old infants can be cared for safely as outpatients and without antibiotics

94. Cummings V, Kerner JF, Arones S, Steinbock C. Day hospital service in rehabilitation medicine: An evaluation. Arch Phys Med Rehabil 1985;66(2):86-91.
Abstract: The purpose of this study was to evaluate Day hospital care in rehabilitation medicine as an alternative to intensive inpatient care. The study design called for two groups of randomly selected patients who met all admission criteria for intensive inpatient rehabilitation, who had medicare or medicaid insurance coverage, and who had a responsible other person living in the home. Those in the Day hospital group were sent home after a short period of family training and then were taken to the hospital for treatment five days a week. The control group remained in the hospital on the rehabilitation service as inpatients and received the routine care provided to all other inpatients on that service. Data on utilization of health services, both during and after rehabilitation, cost of services, medical, functional, psychologic and social outcomes were collected for all study participants and analyzed. Findings showed no essential difference between the two groups in physical or functional outcome; however at full capacity with the research costs removed, the Day hospital method proved the more cost effective.

95. Dahlstrand C, Thune A, Hedelin H, Grenabo L, Pettersson S. Laparoscopic ligature of the spermatic veins. A comparison between outpatient and hospitalised treatment. Scand J Urol Nephrol 1994;28(2):159-62.
Abstract: The preferable operation for varicocele is ligation of all venous trunks of the spermatic vein above the internal orifice of the inguinal canal, traditionally performed by a retroperitoneal approach. An alternative method is laparoscopic ligature of the spermatic veins. To evaluate this procedure and to see if it can be done on an outpatient basis, 24 patients were operated upon laparoscopically. The patients were allocated to two series, one scheduled to be operated upon on an outpatient basis and one hospitalised. In 22 out of 24 patients the varicocele had disappeared completely at follow-up 1-3 months after the operation. Three of the patients operated upon late during the day in the outpatient group had to stay overnight. No complications occurred. The costs were more than 50% lower in the outpatient group. Laparoscopic ligature of the spermatic veins seems to be an attractive way to treat varicoceles, with good postoperative results and, if performed on an outpatient basis, with a substantial reduction of costs

96. Francabandera FL, Holland NJ, Wiesel-Levison P, Scheinberg LC. Multiple sclerosis rehabilitation: inpatient vs. outpatient. Rehabil Nurs 1988;13(5):251-3.

97. Graf von der Schulenburg JM, Greiner W, Klettke U, Wahn U. Economic aspects in treatment of cystic fibrosis with chronic pulmonary pseudomonas infection. Ambulatory intravenous therapy in comparison with inpatient treatment. Med Klin 1997;92(10):626-9.
Abstract: BACKGROUND: Due to limited resources within the health service and the continuous discussion on cost containment, economic criteria should also be considered when assessing therapy concepts. Particular results in terms of economic efficiency reserves are to be expected from a transfer of care from the in-patient to the out-patient sector. METHODS: In a prospective, direct cost recording of all relevant uses of resources, the direct and indirect costs of the treatment of 14 patients with cystic fibrosis (CF) were included in the cross-over-design. The quality of life was recorded at least once for each patient using

the EuroQol. In-patient intravenous antibiotic therapy carried out during the block of out-patient care served as one of the disqualification criteria when selecting patients. RESULT: Over an observation period of nine months, the average direct cost recorded were DM 35,706 for out-patient and DM 40,143 for in-patient treatment (+15%). As far as indirect costs are concerned, the losses of production in the national economy recorded for in-patient treatment were 80% higher. CONCLUSION: The direct and indirect costs for in-patient CF-therapy are in total higher than for out-patient care. Whether these cost advantages have to be "bought" with lower medical effectiveness needs to be demonstrated by further clinical studies. In the sense of the disease management approach, the results of this study should be used to help rationally weigh up the costs of out-patient care against alternative treatment concepts

98. Hughes AS, De Lacy G, Mar FM. Ambulatory vs inpatient laparascopic cholecystectomy - cost vs benefit in Australia [abstract]. ANZ J Surg 2002;72 Suppl:A46.
Abstract: Presented at the Annual Scientific Congress Joint Meeting with the Royal College of Surgeons of Edinburgh, Adelaide, Australia, 11-15 May 2002

99. Kennedy N, Stokes E, O'Shea E, Murphy TB, Bresnihan B, FitzGerald O. Inpatient and outpatient rehabilitation for patients with rheumatoid arthritis: a clinical and economic assessment (Provisional abstract). J Med Econ 2007;10:515-28.

100. Kornhall S, Olsson AM. Ambulatory inguinal hernia repair compared with short-stay surgery. Am J Surg 1976;132(1):32-3.
Abstract: Two groups of patients operated on for inguinal hernia, one outpatient group and one inpatient group, are compared with respect to subjective distress and immediate postoperative complications. The groups were chosen at random and matched for sex and age. A large number of those who received treatment as outpatients suffered marked distress during the first postoperative days. Some form of intermediary or light nursing should be tried out for the outpatients so that if necessary they can stay the night after operation at the hospital. The number of postoperative complications was equal in the two groups. With suitable patient selection and with a small number of reserve places in a light-care ward, the majority of inguinal hernia operations can be performed on outpatients, resulting in a considerable economic saving and shorter waiting time

101. Lemos P, Regalado A, Marques D, Castanheira C, Malafaia F, Almeida M, et al. The economic benefits of ambulatory surgery relative to inpatient surgery for laparoscopic tubal ligation. Ambul Surg 2003;10(2):61-5.
Abstract: This prospective economic study aims to evaluate the costs of both outpatient and inpatient laparoscopic tubal ligation (LTL) and compares this with the price proposed by the Institute for Informatics and Financial Health Management (Instituto de Gestao Informatica e Financeira da Saude (IGIFS)). The study included 24 patients, all candidates for a day surgery programme, assigned to two groups of 12 patients: GROUP A (ambulatory surgery (AS)) and GROUP I (inpatient). A highly significant statistical difference was found ($P<0.01$) between the average surgery times for the two groups: GROUP A=26.75 min, and GROUP I=45.42 min. The study showed an average saving of 62.4% (euro 593.22) for each LTL performed on an outpatient basis compared with the inpatient regime. Extrapolating these results to all LTL procedures, the authors concluded that there would have been a saving of euro 107.372, 82 if the 181 LTP carried out in the Hospital Geral Santo Antonio in 1999 had been performed under the ambulatory regime. The current economic evaluation highlights the urgent need to develop effective AS programmes in

Portuguese public hospitals, especially at a time when National Health Service costs in Portugal are steadily rising

102. Merkesdal S, Bernitt K, Busche T, Bauer J, Mau W. [Comparison of costs-of-illness in a year before and after inpatient and outpatient rehabilitation in persons with spinal disorders]. Rehabilitation (Stuttg) 2004;43(2):83-9.
Abstract: The present economic analyses of orthopaedic inpatient and outpatient rehabilitation (IPR resp. OPR) focus but on the evaluation of the expenses from the cost carrier's perspective. Lower intervention costs were related to OPR, whereas comparable social and clinical outcome was achieved. Comprehensive assessment of the economic consequences (resource utilization and lost productivity) of low back pain have not been performed up to now. Therefore, as part of a prospective follow-up study (1) a comparison of overall cost-of-illness and cost components 12 months prior and after IPR and OPR, respectively, was carried out in patients with low back pain and (2) the relative changes of these cost components were compared in a full-cost-analysis from a societal perspective. A total of 150 matched pairs (SR and AR) were followed prospectively over 12 months. Disease related costs in the year prior to the intervention were evaluated retrospectively. Prior to IPR and OPR overall costs amounted to 7010 and 7710 Euro, respectively, per person and year in patients with low back pain. As the main cost component of overall costs, sick leave (SL) periods account for 74% (IPR) and 76% (OPR), respectively. Inpatient costs represent the main component of direct costs. In the year after the intervention the costs due to sick leave periods still represent the major cost component (46 and 52%, resp.) of overall costs (3370 and 3600 Euro, resp.). Disease related cessation of work including work disability accounts for about 10% of productivity costs after IPR and OPR. Indirect costs still make up for the major part of overall costs (58 and 62%, resp.). No differences of cost components and their relative changes can be seen between patients participating in IPR and OPR, respectively, within both time frames. The comparison of overall costs in the 12 months before and after IPR and OPR reveals a cost reduction of 52% (IPR) and 53% (OPR), resp. This decrease of costs is mainly related to the reduction of SL periods, though costs due to inpatient treatment decrease as well. Summarizing, the present full-cost-analysis from a societal perspective shows no differences of cost components and cost changes between orthopaedic IPR and OPR in the 12 months prior to and after the intervention. Comprehensive cost-analyses reveal no obstacles for further implementation of OPR in the treatment of low back pain. Future development and diversification of rehabilitation measures should aim at evaluating real resource consumption during the intervention in detail as a basis for further allocational decision making

103. Ogborn CJ, Soulen JL, DeAngelis C. Hospitalization vs outpatient treatment of young febrile infants: 10-year comparison. Arch Pediatr Adolesc Med 1995;149(1):94-7.

104. Percival SP, Setty SS. Prospective audit comparing ambulatory day surgery with inpatient surgery for treating cataracts. Qual Health Care 1992;1(1):38-42.
Abstract: OBJECTIVES--To compare the cost effectiveness and safety of inpatient cataract surgery (with one night in hospital postoperatively) with ambulatory day case surgery under local anaesthesia. DESIGN--Prospective study of patients receiving inpatient (group 1) or day case (group 2) surgery. SETTING--One ophthalmic surgical firm. PATIENTS--100 patients in each group, excluding those with coexisting ocular conditions, contraindications to local or request for general anaesthesia, ill health, or lack of agreed minimum social care; four patients died during follow up. INTERVENTIONS--Envelope method and implantation of the posterior chamber lens into the capsular sac in both groups. MAIN MEASURES--Perioperative complications, operating and turnover times, visual outcome at three to six days and 10 weeks to six months after

operation, patient satisfaction (according to self administered questionnaire) at three to six days, and total costs (1989 salaries) for both groups. RESULTS--Patients in both groups did not differ significantly in age or sex, perioperative complications, visual outcome (6/9 or better in 78 patients in group 1 and 75 in group 2 at one month after operation and 6/12 or better in 92/98 in group 1, 90/98 in group 2 at final follow up), or patient satisfaction. The mean total cost per patient for group 1 patients was 365.99 pounds and for group 2, 221.62 pounds. CONCLUSIONS--Day case surgery for cataract is safe and more cost effective. IMPLICATIONS--Day case surgery should be recommended to increase availability of cataract surgery and thereby improve quality of life for more patients. (Abstract by: Author)

105. Rapoport BL, Forero A, Otero RJC, Pavlovsky S, Schlaeffer F, Uys A. Open label comparative study of inpatient versus outpatient treatment in cancer patients with presumed infection with empiric ceftriaxone plus an aminoglucoside (AG) and filgrastim: a test of criteria for early hospital discharge: final report. Support Care Cancer 1999;7 Suppl:170.

106. Scaife JM, Campbell I. A comparison of the outcome of day-care and inpatient treatment of paediatric surgical cases. J Child Psychol Psychiatry 1988;29:185-98.
Abstract: The outcome of day-care versus inpatient surgery for two equivalent groups of children is examined. Ratings were made of medical outcome, behaviour change in the children at 1 week and 3 mths post-discharge from a pre-admission criterion, convenience and subjective anxiety for parents, and relative costs of the two procedures. Results showed trends in favour of the day-care procedure. Argument is made that day-care should be the preferred option for minor surgery in young children

107. Topuz O, Topuz B, Deniz S, Ozgen M, Ardic F, and Ardic FN. Comparison of inpatient and outpatient vestibular rehabilitation on chronic unilateral vestibular dysfunction. XVIII IFOS World Congress Rome, Italy, 25 30 June, 2005;Abstract.

108. van den Belt AG, Bossuyt PM, Prins MH, Gallus AS, Buller HR. Replacing inpatient care by outpatient care in the treatment of deep venous thrombosis: an economic evaluation. Thromb Haemost. 1998 Feb;79(2):259-63.
Abstract: Two clinical trials in patients with acute deep venous thrombosis have indicated that the outpatient management with fixed-dose, subcutaneous low-molecular-weight heparin is at least as effective and safe as inpatient treatment with unfractionated intravenous heparin with respect to recurrent venous thromboembolism and major bleeding. We performed an economic evaluation alongside one of these trials to assess the cost consequences of the outpatient management strategy. Data were collected through case record forms, complemented by a prospective questionnaire in 78 consecutive patients, interviews with health care providers, and hospital data bases. Our study demonstrated that seventy-five percent of patients allocated to low-molecular-weight heparin received treatment either entirely at home or after a brief hospital stay. Fifteen percent of these patients required professional domiciliary care. Within-centre comparisons of resource utilisation in terms of natural units showed that outpatient management with low-molecular-weight heparin reduced the average number of hospital days in the initial treatment period in nine centres by 59 percent (95% CI: 43 to 71 percent) accompanied by a limited increase in outpatient and professional domiciliary care. The average reduction in hospital days at the end of follow up was 40 percent (95% CI: 25 to 54 percent). A cost-minimisation analysis, focusing on resource utilisation directly related to the treatment of deep venous thrombosis and associated costs in one centre demonstrated a cost reduction of 64 percent (95% CI: 56 to 72

percent) with the outpatient management with low-molecular-weight heparin. These data suggest that outpatient management of patients with proximal venous thrombosis using low-molecular-weight heparin reduces resource utilisation and total treatment cost. Implementation should be preceded by a cautious evaluation of a potential cost shifting and organisational prerequisites.

HVA ER EFFEKTEN AV INNLEGGELSE VED SYKEHUS SAMMENLIGNET MED INNLEGGELSE PÅ INTERMEDIÆRT NIVÅ FOR BEHANDLINGSKVALITET, KOSTNADER ELLER TILGJENGELIGHET FOR PASIENTENE FOR ULIKE DIAGNOSER ELLER PASIENTKATEGORIER?

Tabell 3 Søketreff fordelt på kilder

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Vi søkte etter systematiske oversikter, randomiserte kontrollerte forsøk og obsrvasjonsstudier. Etter dublettkontroll gjensto totalt 905 referanser som vi gikk gjennom. Av disse ble 30 referanser vurdert som potensielt relevante for problemstillingen:

Oversiktsstudier

1. Ali W, Rasmussen P. What is the evidence for the effectiveness of managing the hospital/community interface for older people? A critical appraisal of the literature. 2004. http://nzhta.chmeds.ac.nz/publications/hospital_community.pdf [REVIEW SCOPE: Studies were included for review if they reported on intermediate care services with a focus on evidence for the effectiveness of service design and delivery outcomes rather than clinical treatment protocols, although it is recognised that both have an impact on outcomes for older people. The key components of the service reviewed are assessment, treatment, rehabilitation and clinical advice/liaison. This includes links with other related services including primary and community health care, disability support services (both home-based and residential care) and hospital-based services.]

2. Beard H. Does intermediate care minimize relocation stress for patients leaving the ICU? Nurs Crit Care 2005;10(6):272-8.
   Abstract: Relocation stress is a phenomenon in which physical and psychological disturbances are experienced following transfer from one environment to another [Carpenito LJ. (2000). Nursing Diagnosis. Application to Clinical Practice, 8th edn]. The purpose of this review was to identify whether a period of intermediate care minimizes the problems associated with relocation stress after discharge from the intensive care unit (ICU) and before transfer to the ward. Methods of retrieving the literature involved identifying key terms, utilizing a range of databases and applying specific criteria in order to delineate the boundaries of the search. Using electronic and manual search methods, 11 studies were selected, both primary and secondary research. Following tabulation and critiquing of the studies, the findings of the review suggest that the factors which contribute towards relocation stress are the loss of one-to-one nursing, a reduction of visible monitoring equipment, lack of continuity of care and inadequate preparation of the patient for the transfer. The evidence also indicates that in order to minimize these factors, early planning and preparation of the patient for transfer are required, incorporating strategies of gradual reduction in nursing attention and monitoring equipment and the provision of information. Although the benefits of intermediate care are established as be-

ing advanced monitoring, appropriate nurse-to-patient ratio, heightened demonstration of expert knowledge and skill, there is no sufficient evidence to indicate a period of intermediate care that can ease the transition from the ICU to the ward. [References: 25]

3. Brady BK, McGahan L, Skidmore B. Systematic review of economic evidence on stroke rehabilitation services. Int J Technol Assess Health Care 2005;21(1):15-21.
Abstract: Objectives: Given the resource-intensive nature of stroke rehabilitation, it is important that services be delivered in an evidence-based and cost-efficient manner. The objective of this review was to assess the evidence on the relative cost or cost-effectiveness of three rehabilitation services after stroke: stroke unit care versus care on another hospital ward, early supported discharge (ESD) services versus "usual care," and community or home-based rehabilitation versus "usual care." Methods: A systematic literature review of cost analyses or economic evaluations was performed. Study characteristics and results (including mean total cost per patient) were summarized. The level of evidence concerning relative cost or cost-effectiveness for each service type was determined qualitatively. Results: Fifteen studies met the inclusion criteria: three on stroke unit care, eight on ESD services, and four on community-based rehabilitation. All were classified as cost-consequences analysis or cost analysis. The time horizon was generally short (1 year or less). The comparators and the scope of costs varied between studies. Conclusions: There was "some" evidence that the mean total cost per patient of rehabilitation in a stroke unit is comparable to care provided in another hospital ward. There is "moderate" evidence that ESD services provide care at modestly lower total costs than usual care for stroke patients with mild or moderate disability. There was " insufficient" evidence concerning the cost of community-based rehabilitation compared with usual care. Several methodological problems were encountered when analyzing the economic evidence

4. Griffiths P, Edwards M, Forbes A, Harris R. Post-acute intermediate care in nursing-led units: a systematic review of effectiveness. Int J Nurs Stud 2005;42:107-16.
Abstract: OBJECTIVE: In order to determine whether post-acute intermediate care in nursing-led inpatient units (NLUs) is effective in preparing patients for discharge from hospital we conducted a systematic review of the evidence. REVIEW METHODS: The Cochrane Library, Effective Practice and Organisation of Care specialist register, Medline, Cinahl, Embase, British Nursing Index and the HMIC databases were searched for all available dates up to mid-2003. The science and social science citation indices were searched for papers that cited key works. Authors of papers were asked to identify additional research. Randomised controlled trials, controlled clinical trials, controlled before and after studies and interrupted time-series designs that compared the NLU to usual post-acute inpatient care for adults were included in the review. Studies were assessed for quality. Statistical meta-analysis on the results of controlled trials was performed. Sensitivity analyses were conducted to determine the impact of methodological quality on conclusions. OUTCOMES: Outcomes considered were mortality, institutionalisation after discharge, functional status early readmission, length of inpatient stay and cost. RESULTS: Nine random or quasi-random controlled trials involving 1669 patients were reviewed. Quality was variable. The mean age of patients in all studies was over 70 years. There was no statistically significant difference in inpatient mortality between NLU and usual inpatient care (OR 1.10, 95% CI 0.56-2.16). The NLU was associated with reduced odds of discharge to institutional care (OR 0.44 95% CI 0.22-0.89), better functional status at discharge (SMD 0.37, 95% CI 0.20-0.54) and reduced odds of early readmission (OR 0.52 95% CI 0.34-0.80). Length of stay until discharge home was increased by 5.13 days (WMD) (95% CI-0.5-10.76

days). At longest follow up (3-6 months) there was no statistically significant difference in the proportion of patients in institutional care (OR 0.97, 95% CI 0.60-1.58). The results were not generally sensitive to study quality. CONCLUSIONS: The NLU successfully functions as a form of intermediate care, so far there is no evidence of adverse outcome from the lower level of routine medical care. However, more research is required to confirm safety. Patients discharged from NLUs have higher levels of function although it is unclear if the benefit is simply a product of an increased stay. There is no evidence of benefit over the longer term.

5. Griffiths PD, Edwards ME, Forbes A, Harris RG, Ritchie G. Effectiveness of intermediate care in nursing-led in-patient units. Cochrane Database Syst Rev 2007;(2):CD002214.
Abstract: BACKGROUND: The Nursing led inpatient Unit (NLU) is one of a range of services that have been considered in order to manage more successfully the transition between hospital and home for patients with extended recovery times. This is an update of an earlier review published in The Cochrane Library in Issue 3, 2004. OBJECTIVES: To determine whether nursing-led inpatient units are effective in preparing patients for discharge from hospital compared to usual inpatient care. SEARCH STRATEGY: We searched The Cochrane Library, the Specialized Register of the Cochrane Effective Practice and Organisation of Care (EPOC) group, MEDLINE, CINAHL, EMBASE, BNI and HMIC databases. Citation searches were undertaken on the science and social science citation indices. Authors were contacted to identify additional data. The initial search was done in January 2001. The register search was updated in October 2006, the other database searches were updated in November 2006 and the citation search was run in January 2007. SELECTION CRITERIA: Controlled trials and interrupted time series designs that compared the NLU to usual inpatient care managed by doctors. Patients over 18 years of age following an acute hospital admission for a physical health condition. DATA COLLECTION AND ANALYSIS: Two reviewers independently extracted data and assessed study quality. MAIN RESULTS: Ten random or quasi-random controlled trials reported on a total of 1896 patients. There was no statistically significant effect on inpatient mortality (OR 1.10, 95% CI 0.56 to 2.16) or mortality to longest follow up (OR 0.92, 95% CI 0.65 to 1.29) but higher quality studies showed a larger non-significant increase in inpatient mortality (OR 1.52, 95% CI 0.86 to 2.68). Discharge to institutional care was reduced for the NLU (OR 0.44 95% CI 0.22 to 0.89) and functional status at discharge increased (SMD 0.37, 95% CI 0.20 to 0.54) but there was a near significant increase in inpatient stay (WMD 5.13 days 95% CI -0.5 days to 10.76 days). Early readmissions were reduced (OR 0.52 95% CI 0.34 to 0.80). One study compared a NLU for the chronically critically ill with ICU care. Mortality (OR 0.62 95% CI 0.35 to 1.10) and length of inpatient stay differ did not differ (WMD 2 days, 95% CI 10.96 to -6.96 days). Early readmissions were reduced (OR 0.33 95% CI 0.12 to 0.94). Costs of care on the NLU were higher for UK studies but lower for US based studies. AUTHORS' CONCLUSIONS: There is some evidence that patients discharged from a NLU are better prepared for discharge but it is unclear if this is simply a product of an increased length of inpatient stay. No statistically significant adverse effects were noted but the possibility of increased early mortality cannot be discounted. More research is needed. EFFECTIVENESS OF INTERMEDIATE CARE IN NURSING-LED IN-PATIENT UNITS: Patients who suffer an acute illness and are admitted to hospital are often admitted into an acute care ward with many services provided. But while recovering from the illness they may not need those intense services and will need to prepare to go home. Nursing led inpatient units, which are managed by nurses as opposed to physicians, have been designed to prepare patients for home. Ten studies, including over 1800 patients, were analysed to determine if patients sent to a nursing led inpatient unit benefited or at least fared no worse

than patients in a unit providing usual care. Compared to usual care, patients in nursing led inpatients units functioned better and experienced greater well-being; more patients were discharged home and not to an institution after about 3 months (but not after 6 months); fewer were readmitted back into hospital soon after discharge; but they stayed in hospital longer. The number of deaths during stay in hospital and 3 to 6 months after discharge was similar between the units (but there was a trend for more deaths early while in nursing led inpatients units that needs to be researched further). It is still not known whether nursing led inpatient units save money - studies in the United Kingdom found them more expensive than usual care units but studies in the United States found them cheaper

6. Muthu V, Fischbacher C. Free-standing midwife-led maternity units: a safe and effective alternative to hospital delivery for low-risk women? Evidence-Based Healthcare and Public Health 2004;8:325-31.
Abstract: Article Outline: Key points; Background Review of the evidence; Search strategy; Inclusion/exclusion criteria; Data extraction and synthesis; Results; Conclusions; References

7. Ward D, Drahota A, Gal D, Severs M, Dean TP. Care home versus hospital and own home environments for rehabilitation of older people. Cochrane Database Syst Rev 2008;(4):CD003164.
Abstract: BACKGROUND: Rehabilitation for older people has acquired an increasingly important profile for both policy-makers and service providers within health and social care agencies. This has generated an increased interest in the use of alternative care environments including care home environments. Yet, there appears to be limited evidence on which to base decisions.This review is the first update of the Cochrane review which was published in 2003. OBJECTIVES: To compare the effects of care home environments (e.g. nursing home, residential care home and nursing facilities) versus hospital environments and own home environments in the rehabilitation of older people. SEARCH STRATEGY: We searched the Cochrane Effective Practice and Organisation of Care Specialised Register and Pending Folder, MEDLINE (1950 to March Week 3 2007), EMBASE (1980 to 2007 Week 13), CINAHL (1982 to March, Week 4, 2007), other databases and reference lists of relevant review articles were additionally reviewed. Date of most recent search: March 2007. SELECTION CRITERIA: Randomised controlled trials (RCTs), controlled clinical trials (CCTs), controlled before and after studies (CBAs) and interrupted time series (ITS) that compared rehabilitation outcomes for persons 60 years or older who received rehabilitation whilst residing in a care home with those who received rehabilitation in hospital or own home environments. DATA COLLECTION AND ANALYSIS: Two review authors independently assessed trial quality and extracted data. MAIN RESULTS: In this update, 8365 references were retrieved. Of these, 339 abstracts were independently assessed by 2 review authors, and 56 studies and 5 review articles were subsequently obtained. Full text papers were independently assessed by two or three review authors and none of these met inclusion criteria. AUTHORS' CONCLUSIONS: There is insufficient evidence to compare the effects of care home environments versus hospital environments or own home environments on older persons rehabilitation outcomes. Although the authors acknowledge that absence of effect is not no effect. There are three main reasons; the first is that the description and specification of the environment is often not clear; secondly, the components of the rehabilitation system within the given environments are not adequately specified and; thirdly, when the components are clearly specified they demonstrate that the control and intervention sites are not comparable with respect to the methodological criteria specified by Cochrane EPOC group. The combined effect of these factors resulted in the comparability between intervention and control groups being very weak. LOCATION OF REHABILITA-

TION SERVICES FOR THE ELDERLY: For a number of reasons, there has been an increased interest in providing elderly people with appropriate rehabilitation services. Not only are there more elderly people, but the importance of 'rehab' after a stroke, hip fracture, or an illness in general, has been recognised. With this, is the increasing pressure to use health care resources efficiently, ensure hospital beds are available to people who need acute hospital care and that rehab facilities and community services are in place. To ensure that elderly people can receive rehabilitation services, different ways of providing rehab have been developed. An important difference in the services is where the rehab takes place. Some services take place in care home environments, such as nursing homes, residential care homes and nursing facilities, while other services can take place in the hospital or at home. To determine and compare the effects of the different places for rehab on elderly people, a review was conducted. After searching for all possible relevant studies, no studies were found. Studies are needed

8. Wilson A, Richards S, Camosso-Stefinovic J. Older people's satisfaction with intermediate care: A systematic review. Rev Clin Gerontol 2007;17(3):199-218.
Abstract: Although intermediate care takes a variety of different forms and has developed somewhat differently in different countries, we believe that intermediate-care schemes have enough in common to make it meaningful to examine the relationship between this method of care and the views of older patients receiving either it or its alternatives. This is particularly important as one of the underlying principles of intermediate care is to extend patient choice; furthermore, most intermediate-care services target older people. In this review we examine evidence about whether older people prefer intermediate or hospital care, and what they like and dislike about intermediate care.

Antatt randomiserte kontrollerte studier

9. 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.

10. 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, 2007. Article Number
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. copyright 2007 Garasen et al; licensee BioMed Central Ltd

11. 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(2):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 patients were in need of community care services, and significantly fewer patients died during the 12-month follow-up time. copyright 2008 the Nordic Societies of Public Health

12. Goulet C, Gevry H, Lemay M, Gauthier RJ, Lepage L, Fraser W, et al. A randomized clinical trial of care for women with preterm labour: home management versus hospital management. CMAJ 2001;164(7):985-91.
Abstract: BACKGROUND: Preterm labour occurs in about 10% of all pregnancies and is the most important cause of premature birth. Women with preterm labour are admitted to hospital to have the contractions stopped. Thereafter, many women remain in hospital until delivery. We conducted a randomized clinical trial to compare hospital care with home care of women who had been admitted to hospital for preterm labour. METHODS: After they had received treatment for an acute episode of premature labour, women at 2 regional perinatal centres associated with teaching hospitals were randomly assigned to

home care or hospital care. Eligible women (n = 250) were aged 18 years or older, lived within 50 km of the hospital, had a gestational age between 20 and 35 weeks, had no prior preterm delivery and were experiencing their first episode of preterm labour and first admission to hospital for preterm labour. Analysis was by intention to treat. RESULTS: There were no significant differences between the 2 groups in mean gestational age at delivery (home: 37.52 weeks, hospital: 37.50 weeks) or in mean birth weight (home: 2974 g, hospital: 3020 g). There were no significant differences between the 2 groups with respect to the proportions of babies born before term or the mean duration of neonatal hospital stay, neonatal intensive care unit stay and intermediate care nursery stay. The mean duration of the first stay in hospital for the women in the home group (3.8 days) was significantly shorter than the mean duration for women in the hospital group (6.1 days). In addition, the mean duration of all maternal stays in hospital was significantly shorter for the women in the home group (3.7 days) than in the hospital group (5.0 days). INTERPRETATION: Home care management is an efficient and acceptable alternative to hospital care for women experiencing preterm labour

13. Griffiths P, Harris R, Richardson G, Hallett N, Heard S, Wilson-Barnett J. Substitution of a nursing-led inpatient unit for acute services: randomized controlled trial of outcomes and cost of nursing-led intermediate care. Age Ageing 2001;30(6):483-8.
Abstract: OBJECTIVES: To evaluate the outcome and cost of transfer to a nursing-led inpatient unit for 'intermediate care'. The unit was designed to replace a period of care in acute hospital wards and promote recovery before discharge to the community. DESIGN: Randomized controlled trial comparing outcomes of care on a nursing-led inpatient unit with the system of consultant-managed care on a range of acute hospital wards. SETTING: hospital wards in an acute inner-London National Health Service trust. SUBJECTS: 175 patients assessed to be medically stable but requiring further inpatient care, referred to the unit from acute wards. INTERVENTION: 89 patients were randomly allocated to care on the unit (nursing-led care with no routine medical intervention) and 86 to usual hospital care. MAIN OUTCOME MEASURES: Length of hospital stay, discharge destination, functional dependence (Barthel index) and direct healthcare costs. RESULTS: Care in the unit had no significant impact on discharge destination or dependence. Length of inpatient stay was significantly increased for the treatment group (P=0.036; 95% confidence interval 1.1-20.7 days). The daily cost of care was lower on the unit, but the mean total cost was pound sterlings 1044 higher-although the difference from the control was not significant (P=0.150; 95% confidence interval - pound sterlings 382 to pound sterlings 2471). CONCLUSIONS: The nursing-led inpatient unit led to longer hospital stays. Since length of stay is the main driver of costs, this model of care-at least as implemented here-may be more costly. However, since the unit may substitute for both secondary and primary care, longer-term follow-up is needed to determine whether patients are better prepared for discharge under this model of care, resulting in reduced primary-care costs

14. Griffiths P, Wilson-Barnett J, Richardson G, Spilsbury K, Miller F, Harris R. The effectiveness of intermediate care in a nursing-led in-patient unit. Int J Nurs Stud 2000;37(2):153-61.
Abstract: In order to assess the potential for a nursing-led in-patient unit (NLIU) to substitute for a period of care in the acute hospital environment and promote recovery before discharge, a randomised controlled trial was conducted. The setting was an acute inner London hospital trust, part of the UK's national health service. Of patients referred to a NLIU from acute wards, 80 were randomly assigned to usual care (remain in normal hospital system) and 97 to the NLIU (nursing-led care with no routine medical involvement). Patients were identified as medically stable but in need of additional nursing in-

tervention by referring medical staff prior to full nursing assessment of suitability. Outcomes compared included functional dependence (Barthel Index), discharge destination and length of hospital stay. Inputs from nursing, paramedical and medical staff were measured. There was no significant difference in functional independence at discharge (p0.05). Patients undergoing usual care stayed in hospital for less time (mean difference 18 days, p<0.01) but the same number of patients were in hospital 90 days after recruitment (23% NLIU, 24% usual care p0.05) due to re-admissions. The model of care implemented differed considerably from that described in the literature with the NLIU having significantly fewer qualified nurses (RNs). Although the anticipated benefits of the NLIU were not demonstrated, the study does not conclude that the model should be rejected. Factors driving length of stay need to be further investigated, as does the possibility of post-discharge benefits. The NLIU does offer some potential to substitute for acute care but also appears to substitute for a period of primary care

15. Harris R, Richardson G, Griffiths P, Hallett N, Wilson-Barnett J. Economic evaluation of a nursing-led inpatient unit: the impact of findings on management decisions of service utility and sustainability. J Nurs Manag 2005;13(5):428-38.
Abstract: AIMS: The nursing-led inpatient unit is designed to substitute for a period of care in acute hospital wards and to improve patient outcome prior to discharge to the community. This paper aims to evaluate the cost, from the UK National Health Service perspective, of transfer to a nursing-led inpatient unit for intermediate care and to discuss the impact of these findings to the future development and sustainability of the nursing-led inpatient unit. BACKGROUND: Recent economic analyses have showed that nursing-led inpatient units are associated with increased costs of care with length of stay as the main driver of inpatient costs. METHOD: The cost-effectiveness analysis was part of a randomized-controlled trial with a sample size of 175, of which 89 were in the nursing-led inpatient unit arm and 86 in the control arm. Resource use data included length of stay, investigations performed, multiprofessional input and nursing input. Clinical outcome was measured using Barthel Index, a functional status measure. RESULTS: Cost per day was lower on the nursing-led inpatient unit although cost per hospital stay was higher due to significantly increased length of stay. Postdischarge community care costs were lower. The incremental cost-effectiveness ratio of the treatment was 1044 pounds sterling per point improvement of the Barthel Index. CONCLUSIONS: The nursing-led inpatient unit was associated with higher costs however, the question of whether the nursing-led inpatient unit is cost-effective has not been clearly answered because of the limited follow-up period of the study. The increased cost of care on the nursing-led inpatient unit was not a major factor in local management decisions about the future of the unit. The changes in the context of service provision within which the nursing-led inpatient unit operated as a result of substantial investment in intermediate care did have a major impact

16. O'Reilly J, Lowson K, Young J, Forster A, Green J, Small N. A cost-effectiveness analysis within a randomised controlled trial of post-acute care of older people in a community hospital. BMJ 2006;333:228-31.
Abstract: OBJECTIVE: To assess the cost effectiveness of post-acute care for older people in a locality based community hospital compared with a department for care of elderly people in a district general hospital, which admits patients aged over 76 years with acute medical conditions. DESIGN: Cost effectiveness analysis within a randomised controlled trial. SETTING: Community hospital and district general hospital in Yorkshire, England. PARTICIPANTS: 220 patients needing rehabilitation after an acute illness for which they required admission to hospital. INTERVENTIONS: Multidisciplinary care in the district general hospital or prompt transfer to the community hospital. MAIN

OUTCOME MEASURES: EuroQol EQ-5D scores transformed into quality adjusted life years (QALYs), and health and social service costs over six months from randomisation. RESULTS: The mean QALY score for the community hospital group was marginally non-significantly higher than that for the district general hospital group (0.38 v 0.35) at six months after recruitment. The mean (standard deviation) costs per patient of the health and social services resources used were similar for both groups: community hospital group 7233 pounds sterling (euros 10,567; 13,341 dollars) (5031 pounds sterling), district general hospital group 7351 pounds sterling(6229 pounds sterling), and these findings were robust to several sensitivity analyses. The incremental cost effectiveness ratio for community hospital care dominated. A cost effectiveness acceptability curve, based on bootstrapped simulations, suggests that at a willingness to pay threshold of 10,000 pounds sterling per QALY, 51% of community hospital cases will be cost effective, which rises to 53% of cases when the threshold is 30,000 pounds sterling per QALY. CONCLUSION: Post-acute care for older people in a locality based community hospital is of similar cost effectiveness to that of an elderly care department in a district general hospital.

17. Reynell PC. Intermediate coronary care. Br Heart J 1975;37(2):166-8.
Abstract: A controlled trial of intermediate coronary care was carried out over a five-year period at a district general hospital. One thousand male patients under 65 were allocated at random into a group kept in the same ward as the coronary care unit (CCU) and a control group discharged from the CCU to a general medical ward. The intermediate care patients were nursed by the CCU staff, resuscitation equipment was immediately available and there was an efficient emergency call system. The mortality was the same in both groups and no more patients survived cardiac arrest to leave hospital in the intermediate care group than among the controls, though initial resuscitation was more often successful. The failure of intermediate coronary care was attributed to the rarity of primary ventricular fibrillation after discharge from the CCU

18. Richardson G, Griffiths P, Wilson-Barnett J, Spilsbury K, Batehup L. Economic evaluation of a nursing-led intermediate care unit. Int J Technol Assess Health Care 2001;17(3):442-50.
Abstract: OBJECTIVES: The aim of this paper is to examine the costs of introducing a nursing-led ward program together with examining the impact this may have on patients' outcomes. METHODS: The study had a sample size of 177 patients with a mean age of 77, and randomized to either a treatment group (care on a nursing-led ward, n = 97) or a control group (standard care usually on a consultant-led acute ward, n = 80). Resource use data including length of stay, tests and investigations performed, and multidisciplinary involvement in care were collected. RESULTS: There were no significant differences in outcome between the two groups. The inpatient costs for the treatment group were significantly higher, due to the longer length of stay in this group. However, the postdischarge costs were significantly lower for the treatment group. CONCLUSIONS: The provision of nursing-led intermediate care units has been proposed as a solution to inappropriate use of acute medical wards by patients who require additional nursing rather than medical care. Whether the treatment group is ultimately cost-additive is dependent on how long reductions in postdischarge resource use are maintained

19. Santolaya ME, Alvarez AM, Aviles CL, Becker A, Cofre J, Cumsille MA, et al. Early hospital discharge followed by outpatient management versus continued hospitalization of children with cancer, fever, and neutropenia at low risk for invasive bacterial infection. J Clin Oncol. 2004 Sep 15;22(18):3784-9.
Abstract: PURPOSE: To compare outcome and cost of ambulatory versus hospitalized management among febrile neutropenic children at low risk for invasive bacterial infection (IBI). PATIENTS AND METHODS: Children presenting

with febrile neutropenia at six hospitals in Santiago, Chile, were categorized as high or low risk for IBI. Low-risk children were randomly assigned after 24 to 36 hours of hospitalization to receive ambulatory or hospitalized treatment and monitored until episode resolution. Outcome and cost were determined for each episode and compared between both groups using predefined definitions and questionnaires. RESULTS: A total of 161 (41%) of 390 febrile neutropenic episodes evaluated from June 2000 to February 2003 were classified as low risk, of which 149 were randomly assigned to ambulatory (n = 78) or hospital-based (n = 71) treatment. In both groups, mean age (ambulatory management, 55 months; hospital-based management, 66 months), sex, and type of cancer were similar. Outcome was favorable in 74 (95%) of 78 ambulatory-treated children and 67 (94%) of 71 hospital-treated children (P = NS). Mean cost of an episode was US 638 dollars (95% CI, 572 dollars to 703 dollars) and US 903 dollars (95% CI, 781 dollars to 1,025 dollars) for the ambulatory and hospital-based groups, respectively (P =.003). CONCLUSION: For children with febrile neutropenia at low risk for IBI, ambulatory management is safe and significantly cost saving compared with standard hospitalized therapy.

20. Sridhar M, Taylor R, Dawson S, Roberts NJ, Partridge MR. A nurse led intermediate care package in patients who have been hospitalised with an acute exacerbation of chronic obstructive pulmonary disease. Thorax 2008;63(3):194-200.
Abstract: OBJECTIVES: To determine the effects of a nurse led intermediate care programme in patients who have been hospitalised with an acute exacerbation of chronic obstructive pulmonary disease (AECOPD). DESIGN: Randomised controlled trial. SETTING: Community and hospital care in west London. PARTICIPANTS: 122 patients with COPD. INTERVENTION: A care package incorporating initial pulmonary rehabilitation and self-management education, provision of a written, personalised COPD action plan, monthly telephone calls and 3 monthly home visits by a specialist nurse for a period of 2 years. MAIN OUTCOME MEASURE: Hospital readmission rate. Secondary outcomes: Unscheduled primary care consultations and quality of life. RESULTS: There were no differences in hospital admission rates or in exacerbation rates between the two groups. Self-management of exacerbations was significantly different and the intervention group were more likely to be treated with oral steroids alone or oral steroids and antibiotics, and the initiators of treatment for exacerbations were statistically more likely to be the patients themselves. 12 patients in the control group died during the 2 year period, eight as a result of COPD, compared with six patients in the intervention group, of whom one died from COPD. This is a significant difference. When the numbers were adjusted to reflect the numbers still alive at 2 years, in the intervention group patients reported a total of 171 unscheduled contacts with their general practitioner (GP) and in the control group, 280 contacts. The number needed to treat was 0.558--ie, for every one COPD patient receiving the intervention and self-management advice, there were 1.79 fewer unscheduled contacts with the GP. CONCLUSIONS: An intermediate care package incorporating pulmonary rehabilitation, self-management education and the receipt of a written COPD action plan, together with regular nurse contact, is associated with a reduced need for unscheduled primary care consultations and a reduction in deaths due to COPD but did not affect the hospital readmission rate

21. Steiner A, Walsh B, Pickering RM, Wiles R, Ward J, Brooking JI, et al. Therapeutic nursing or unblocking beds? A randomised controlled trial of a post-acute intermediate care unit. BMJ 2001;322(7284):453-60.
Abstract: OBJECTIVES: To compare post-acute intermediate care in an inpatient nurse-led unit with conventional post-acute care on general medical wards of an acute hospital and to examine the model of care in a nurse-led unit. DESIGN: Randomised controlled trial with six month follow up. SETTING:

Urban teaching hospital and surrounding area, including nine community hospitals. Participants: 238 patients accepted for admission to nurse-led unit. Interventions: Care in nurse-led unit or usual post-acute care. MAIN OUTCOME MEASURES: Patients' length of stay, functional status, subsequent move to more dependent living arrangement. RESULTS: Inpatient length of stay was significantly longer in the nurse-led unit than in general medical wards (14.3 days longer (95% confidence interval 7.8 to 20.7)), but this difference became non-significant when transfers to community hospitals were included in the measure of initial length of stay (4.5 days longer (-3.6 to 12.5)). No differences were observed in mortality, functional status, or living arrangements at any time. Patients in the nurse-led unit received significantly fewer minor medical investigations and, after controlling for length of stay, significantly fewer major reviews, tests, or drug changes. CONCLUSIONS: The nurse-led unit seemed to be a safe alternative to conventional management, but a full accounting of such units' place in the local continuum of care and the costs associated with acute hospitals managing post-acute patients is needed if nurse-led units are to become an effective part of the government's recent commitment to intermediate care

22. Walsh B, Steiner A, Pickering RM, Ward-Basu J. Economic evaluation of nurse led intermediate care versus standard acute care for post-acute medical patients: Cost minimisation analysis of data from a randomised controlled trial. Br Med J 2005;330(7493):699-702.
Abstract: Objective: To undertake an economic evaluation of nurse led intermediate care compared with standard hospital care for post-acute medical patients. Design: Cost minimisation analysis from an NHS perspective, comprising secondary care, primary care, and community care, using data from a pragmatic randomised controlled trial. Setting: Nurse led unit and acute general medical wards in large, urban, UK teaching hospital. Participants 238 patients. Outcome measure Costs to acute hospital trusts and to the NHS over six months. Results: On an intention to treat basis, nurse led care was associated with higher costs during the initial admission period (nurse led care £7892 ($14 970; €11 503), standard care £4810, difference £3082 (95% confidence interval £1161 to £5002)). During the readmission period, costs were similar (nurse led care £1444, standard care £1879, difference - £435, - £1406 to £536). Total costs at six months were significantly higher (nurse led care £10 529, standard care £7819, difference £2710, £518 to £4903). Sensitivity analyses suggested that the trend for nurse led care to be more expensive was maintained even with substantial cost reductions, although differences were no longer significant. Conclusion: Acute hospitals may not be cost effective settings for nurse led intermediate care. Both inpatient and total costs were significantly higher for nurse led care than for standard care of post-acute medical patients, suggesting that this model of care should not be pursued unless clinical or organisational benefits justify the increased investment

23. Young J, Sykes A. The evidence base for intermediate care. CME Journal Geriatric Medicine 2005;7(3):117-25.
Abstract: The origins of intermediate care as a health policy are discussed leading up to its national implementation programme in England through the National Service Framework for Older People. The randomised controlled trial evidence for the various intermediate care service models is reviewed from the perspectives of clinical, service and economic outcomes. Strengths and weaknesses of the service models are discussed and areas for future research highlighted. It is suggested that the hospital-at-home form of intermediate care has sufficient research evidence to support its use in routine care as an early discharge service

Andre antatt prospektive studier med kontroll

24. Bertolini G, Confalonieri M, Rossi C, Rossi G, Simini B, Gorini M, et al. Costs of the COPD. Respir Med 2005;99(7):894-900.
Abstract: Introduction: To assess whether respiratory intermediate care units (RICUs) are cost effective alternatives to intensive care units (ICUs) for patients with exacerbation of chronic obstructive pulmonary disease (COPD). Patients and methods: Multi-centre, prospective, bottom-up cost study performed in 15 ICUs and 6 RICUs. COPD patients staying longer than 48 h were recruited; those coming from other ICUs/RICUs, with immune-deficiency or stroke, were excluded. After the ICU sample was standardised to the RICU distribution of the reason-for-admission and infusion of a vasoactive drug on admission, 60 ICU patients and 65 RICU patients remained, of the original 164 recruited. For each patient, besides clinical data on admission and discharge, daily information about the resources consumed were recorded and analysed in terms of their costs. Results: Total cost per patient was lower in RICUs than in ICUs (754 vs. 1507 Euro; P<0.0001). In all items, except drugs and nutrition, we found a significant lower cost in RICUs. Dead patients were noticeably different in terms of disease severity between ICUs and RICUs, while surviving ones were not. Conclusions: Our study suggests that some COPD patients, less severe and with pure respiratory failure, could be successfully and less costly treated in RICUs. copyright 2004 Elsevier Ltd. All rights reserved

25. Boston NK, Boynton PM, Hood S. An inner city GP unit versus conventional care for elderly patients: prospective comparison of health functioning, use of services and patient satisfaction. Fam Pract 2001;18(2):141-8.
Abstract: BACKGROUND: GP units are generally nurse-led wards, where GPs have direct admitting rights and retain clinical responsibility for their patients. While GP-led wards are not new, they are relatively uncommon in urban areas. In addition, there has been little comparative evaluation of this type of service. OBJECTIVES: The aim of the present study was to compare patients admitted to an inner city GP unit with comparable patients in conventional care (e.g. district nursing, nursing/residential homes, acute care of the elderly wards) in terms of mental and physical functioning, use of health and social services and patient satisfaction. METHODS: Study group patients were those admitted to the GP unit; comparison group patients were identified by GP practices or conventional services who had agreed to participate in the study. Suitable patients were aged 65 years or over and fitted the eligibility criteria for the GP unit. Patients were interviewed at three time points: admission to either the GP unit or conventional care, and at 1 and 3 months after admission. Baseline comparability was assessed by demographic and medical data, cognitive function, mental state, social support, use of health and social services, and mental and physical functioning (SF-12). Mental and physical functioning and use of health and social services were compared between the groups over time. Patient satisfaction with their care was also compared between groups. RESULTS: Change in the mental and physical functioning between patients on the GP unit (n = 67) and those in conventional care (n = 60) did not differ when the groups were compared at any of the three time points. However, the mental function of patients in the GP unit significantly improved between admission and 1 month after admission (P: < 0.05). This effect was not sustained at 3 months after admission. GP unit patients were consistently more positive about the care they received than patients receiving conventional care; this included communication and information, staff, care and the facilities. Both groups of patients were high users of health and social services, with similar patterns of use in both groups, which did not alter over time. CONCLUSIONS: Patients who received care on the GP unit experienced a similar physical outcome to patients in conventional settings; however, they appeared to enjoy a short-term improvement in mental functioning and were consistently more positive about the quality of their care.

This study has important policy implications with regard to planning future intermediate care services and will be of particular interest to health service planners and those responsible for clinical governance

26. Gaspoz J-M, Lee TH, Weinstein MC, Cook EF, Goldman P, Komaroff AL, et al. Cost-effectiveness of a new short-stay unit to 'rule out' acute myocardial infarction in low risk patients. J Am Coll Cardiol 1994;24(5):1249-59.
Abstract: Objectives. This study attempted to determine the safety and costs of a new short stay unit for low risk patients who may be admitted to a hospital to rule out myocardial infarction or ischemia. Background. One strategy to reduce the costs of ruling out acute myocardial infarction in low risk patients is to develop alternatives to coronary care units. Methods. The short-term and 6-month clinical outcomes and costs for 592 patients admitted to a short-stay coronary observation unit at Brigham and Women's Hospital with a low ([less-than or equal to]10%) probability of acute myocardial infarction were compared with those for 924 consecutive comparison patients who were eligible for the same unit but were admitted to other hospital settings or discharged home. Actual costs were calculated using detailed cost-accounting methods that incorporated nursing intensity weights. Results. The rate of major complications, recurrent myocardial infarction or cardiac death during 6 months after the initial presentation of the 592 patients admitted to the coronary observation unit was similar to that of the 924 comparison patients before and after adjustment for clinical factors influencing triage and initial diagnoses (adjusted relative risk 0.86, 95% confidence interval 0.49 to 1.53). Their median total costs (25th, 75th percentile) at 6 months ($1,927; 1,455, 3,650) were significantly lower than for comparison patients admitted to the wards ($4,712; 1,868, 11,187), to stepdown or intermediate care units ($4,031; 2,069, 9,169) or to the coronary care unit ($9,201; 3,171, 20,011) but were higher than for comparison patients discharged home from the emergency department ($403; 403, 927) before and after the same adjustments (all adjusted $p < 0.0001$). Conclusions. These data suggest that the coronary observation unit may be a safe and cost-saving alternative to current triage strategies for patients with a low risk of acute myocardial infarction admitted from the emergency department. Its replication in other hospitals should be tested

27. Round A, Crabb T, Buckingham K, Mejzner R, Pearce V, Ayres R, et al. Six month outcomes after emergency admission of elderly patients to a community or a district general hospital. Fam Pract 2004;21(2):173-9.
Abstract: Background. Emergency admissions account for 40% of National Health Service bed usage. Recent policy is to increase the role of intermediate care, which includes the use of community hospitals (CHs). However, the proposed expansion presumes that CH care is as effective as acute hospital care. No direct comparison of outcomes between CHs and district general hospitals (DGHs) has been undertaken. Objectives. The aim of this study was to compare patient-based outcomes at 6 months following emergency admission to a DGH or CH. Methods. We designed a prospective cohort study, with strict eligibility criteria. The study was set in one DGH and five CHs in Devon, UK. Study participants were people aged >70 years with an acute illness requiring hospital admission, but whose condition could have been treated in either hospital setting. A cohort of people admitted to each setting was identified and followed-up for 6 months. The primary outcome measure was change in quality of life 6 months after admission, as measured by SF-36 and EuroQol. Secondary outcome measures were death, readmission and place of residence at 6 months. The use of drugs and investigations during the hospital stay were also measured. Results. A total of 376 patients were recruited and completed baseline measures, 254 of whom were followed-up at the 6-month stage (136 CH, 118 DGH). There were no differences in outcome between settings, with a small increase in quality of life scores at 6 months in both cohorts: the mean change in

EuroQol 5D in CH was 6.6 points (95% confidence interval, 2.8-10.4) and in DGH was 6.5 (2.4-10.7); P = 0.97. Mortality and place of residence at 6 months were similar in the two groups. The numbers of investigations (median CH four investigations, DGH 22; P < 0.001) and of prescribed medications during the hospital stay (median CH eight drugs, DGH 11; P < 0.001) were significantly higher in the DGH. Conclusions. The quality of life and mortality in the CH cohort was similar to those in the DGH cohort. CH care can be used as an alternative to DGH care for a wide range of conditions requiring emergency admission. copyright Oxford University Press 2004, all rights reserved

28. Young JB, Robinson M, Chell S, Sanderson D, Chaplin S, Burns E, et al. A whole system study of intermediate care services for older people. Age Ageing 2005;34(6):577-83.
Abstract: Background: Intermediate care (IC) services have been widely introduced in England and have the strategic objectives of reducing hospital and long-term care use. There is uncertainty about the clinical outcomes of these services and whether their strategic aims will be realised. Setting: A metropolitan city in northern England. Design: A quasi-experimental study comparing a group of older people before and after the introduction of an IC service. A quota sampling method was used to match the groups. Subjects: Patients presenting as emergency admissions to two elderly care departments with falls, confusion, incontinence or immobility. Intervention: A city-wide service in which a joint care management team (multi-agency, multi-disciplinary) assessed patient need and purchased support and rehabilitation from sector-based IC teams. Outcomes: Nottingham Extended Activities of Daily Living score, Barthel Index, Hospital Anxiety and Depression score, mortality, readmission to hospital, and new institutional care placement at 3, 6 and 12 months post-recruitment. Results: There were 800 and 848 patients, respectively, in the control and intervention groups. Clinical outcomes, hospital and long-term care use were similar between the groups. Uptake of IC was lower than anticipated at 29%. An embedded case-control study comparing the 246 patients who received IC with a matched sample from the control group demonstrated similar clinical outcomes but increased hospital bed days used over 12 months (mean +8 days; 95% CI 3.1-13.0). Conclusion: This city-wide IC service was associated with similar clinical outcomes but did not achieve its strategic objectives of reducing long-term care and hospital use. copyright The Author 2005. Published by Oxford University Press on behalf of the British Geriatrics Society. All rights reserved

Annet

29. Cohen L, Counsell CM. Cost analysis of intermediate care versus intensive care for the neurosurgery patient. J Nurs Adm 1996;26(7-8):3+18.

30. Mayhew L, Lawrence D. The costs and service implications of substituting intermediate care for acute hospital care. Health Serv Manage Res 2006;19:80-93.
Abstract: Intermediate care is part of a package of initiatives introduced by the UK Government mainly to relieve pressure on acute hospital beds and reduce delayed discharge (bed blocking). Intermediate care involves caring for patients in a range of settings, such as in the home or community or in nursing and residential homes. This paper considers the scope of intermediate care and its role in relation to acute hospital services. In particular, it develops a framework that can be used to inform decisions about the most cost-effective care pathways for given clinical situations, and also for wider planning purposes. It does this by providing a model for evaluating the costs of intermediate care services provided by different agencies and techniques for calibrating the model locally. It finds that consistent application of the techniques over a period of time, cou-

pled with sound planning and accounting, should result in savings to the health economy.

Diskusjon

Vi har utført et omfattende søk etter forskningsstudier i flere databaser. Vi identifiserte 3012 referanser til studier på grunnlag av tittel og sammendrag for problemstilling 1, 2253 referanser til studier for problemstilling 2 og 905 referanser til studier for problemstilling 3. Fra disse referanselistene plukket vi ut henholdsvis 114, 108 og 30 referanser for de respektive problemstillingene. De studiene som disse referansene henviser til kan muligens belyse sammenhenger mellom liggetid og omsorgsnivå på den ene siden og medisinsk behandlingskvalitet, pasienttilfredshet og ressursbruk på den andre siden. Studiene er imidlertid ikke innhentet i sin helhet og de er ikke kvalitetsvurdert, så det kan finnes flere referanser til studier som ved innhenting i fulltekst kan vise seg å ikke være relevante for problemstillingen. Noen referanser manglet sammendrag og måtte vurderes for inklusjon på grunnlag av tittelen. En tittel kan gi for liten informasjon til å vurdere relevans, så vi kan ha gått glipp av noen studier av denne grunn.

Vi brukte både emneord og tekstord i søkestrategiene og søkte i flere databaser. Når det gjelder søket for problemstilling 1 om lengde av liggetid, måtte vi begrense søket i MEDLINE og EMBASE til at publikasjonen skulle ha liggetid (length of stay) som hovedemneord, for at det i det hele tatt skulle gi en håndterlig mengde referanser. Ved fullt søk i MEDLINE gir treff på 'length of stay' med underordnede termer og begrenset med 'health care quality' med underordnede termer, i seg selv 31 491 referanser som treff. Søket i Cochrane Library som returnerer systematiske oversikter, randomiserte kontrollerte forsøk, metode-vurderinger og kostnadsstudier, ble imidlertid ikke begrenset til at 'length of stay' skulle være hovedemneord. Det vil si at det først og fremst er for observasjonsstudier og de helt nyeste eksperimentelle studier, der Cochrane har et etterslep, at det er en viss mulighet for at vi kan ha gått glipp av relevante referanser. Det er mulig at også emneordet 'Patient discharge' kunne ha vært aktuelt å benytte for denne problemstillingen. Emneordet defineres imidlertid som "The administrative process of discharging the patient, live or dead, from hospitals or other health facilities", så vi vurderte dette emneordet til å være litt på siden av vår problemstilling. Det er imidlertid ikke alltid like lett å avgjøre hvordan et emneord anvendes i praksis.

Søkealgoritmen for problemstilling 2 returnerte 2000 referanser bare i Cochrane Library. For denne problemstillingen har vi derfor ikke søkt etter observasjonsstudier. Dette ville ha utvidet søkeresultatet med 5-6000 referanser, avhengig av hva slags filter for observasjonsstudier som brukes.

For den tredje problemstillingen var utfordringen at 'intermediate care' kan foregå på sykehjem, lokale sykehus eller i en egen avdeling på store sykehus. Dette gjør det meningsløst å søke på disse mer generelle termene fordi man ikke har noen mulighet til å skille de studiene som undersøker intermediære tjenester ved disse institusjonene fra de studiene som dreier seg om sykehjem og forskjellige former for sykehus i alle andre sammenhenger. Vi valgte derfor å begrense søket ved å kreve at referansene enten skulle ha emneordet 'intermediate care facilities' eller at den helsetjenesten det var snakk om skulle kalles' intermediate' eller 'intermediary' i en gitt sammenheng. Dette betyr at vi kan ha mistet referanser til studier som har sammenlignet mindre ressurskrevende helsetjenester med mer ressurskrevende, men uten å benytte det aktuelle ordet i teksten, så sant da ikke referansen har fått emneordet 'intermediate care facilities'.

Vedlegg 1

SØKESTRATEGIER

Problemstilling 1

Database: Cochrane Library
Dato: 30.06.2009
Antall treff: 1472

ID	Search Cochrane Library
#1	**MeSH descriptor** Length of Stay **explode all trees with qualifiers:** CO,EC,MO,ST,SN,SD,OG
#2	**short* near/3 hospital*:ti,ab**
#3	**long* near/3 hospital*:ti,ab**
#4	**(#2 AND #3)**
#5	**(delay* or late*) near/3 discharge:ti,ab**
#6	**earl* near/3 discharge:ti,ab**
#7	**(#5 AND #6)**
#8	**discharge next within:ti,ab**
#9	**(#1 or #4 OR #7 OR #8)**
#10	**MeSH descriptor** Treatment Outcome **explode all trees**
#11	**MeSH descriptor** Quality of Life **explode all trees**
#12	**MeSH descriptor** Quality of Health Care **explode all trees**
#13	**quality near/3 treatment:ti,ab**
#14	**patient near/3 satisfaction**
#15	**MeSH descriptor** Costs and Cost Analysis **explode all trees**
#16	**(#10 OR #11 OR #12 OR #13 OR #14 OR #15)**
#17	**(#9 AND #16)**

Database: Ovid MEDLINE(R) 1950 to June Week 3 2009

Filter: Filter for systematiske oversikter og observasjonsstudier: Kunnskapssenterets filter basert på SIGN. Observasjonsstudie-filteret ble begrenset til epidemiologiske og kohortstudier. Filter for randomiserte kontrollerte forsøk: CRD og Cochrane Highly Sensitive Search Strategy - Max sensitivity and precision (Revidert 2008).

Dato: 02.07.2009

Antall treff: 1499

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1. *"Length of Stay"/
2. (short$ adj3 hospital$).tw.
3. (long$ adj3 hospital$).tw.
4. 2 and 3
5. ((delay$ or late$) adj3 discharge).tw.
6. (earl$ adj3 discharge).tw.
7. 5 and 6
8. discharge within.tw.
9. 8 or 4 or 1 or 7
10. exp treatment outcome/
11. "Quality of Life"/
12. exp "Quality of Health Care"/
13. (quality adj5 treatment).tw.
14. (patient adj5 satisfaction).tw.
15. exp "Costs and Cost Analysis"/
16. or/10-15
17. 9 and 16
18. randomized controlled trial.pt.
19. controlled clinical trial.pt.
20. randomized.ab.
21. placebo.ab.
22. clinical trials as topic.sh.
23. randomly.ab.
24. trial.ti.
25. 18 or 19 or 20 or 21 or 22 or 23 or 24
26. humans.sh.
27. 25 and 26
28. Meta-analysis/
29. meta analy$.tw.
30. metaanaly$.tw.
31. meta analysis.pt.

32. ((systematic or comprehensive or literature or quantitative or critical or integrative or evidence$) adj2 (review$1 or overview$1)).tw.
33. literature study.tw.
34. (critical adj (appraisal or analysis)).tw.
35. exp Review Literature/
36. cochrane.ab.
37. medline.ab.
38. embase.ab.
39. (psychlit or psyclit).ab.
40. (psychinfo or psycinfo).ab.
41. (cinahl or cinhal).ab.
42. science citation index.ab.
43. bids.ab.
44. cancerlit.ab.
45. reference list$.ab.
46. bibliograph$.ab.
47. hand-search$.ab.
48. relevant journals.ab.
49. manual search$.ab.
50. selection criteria.ab.
51. data extraction.ab.
52. 50 or 51
53. review.pt.
54. 52 and 53
55. or/28-49,54
56. comment.pt.
57. letter.pt.
58. editorial.pt.
59. animal/
60. human/
61. 59 not (59 and 60)
62. or/56-58,61
63. 55 not 62
64. Epidemiologic studies/
65. exp cohort studies/
66. (cohort adj (study or studies)).tw.
67. cohort analy$.tw.
68. (follow up adj (study or studies)).tw.
69. (observational adj (study or studies)).tw.
70. or/64-69

71. case reports.pt.
72. comment.pt.
73. letter.pt.
74. editorial.pt.
75. animal/
76. human/
77. 75 not (75 and 76)
78. or/71-74,77
79. 70 not 78
80. 17 and 27
81. 17 and 63
82. 17 and 79
83. 80 or 81 or 82

EMBASE

Database: Ovid EMBASE 1980 to 2009 Week 26

Filter: Filter for systematiske oversikter og observasjonsstudier: Kunnskapssenterets filter.
Filter for randomiserte kontrollerte forsøk: Kunnskapssenterets filter basert på SIGNs.

Dato: 30.06.2009

Antall treff: 207

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1. (short$ adj3 hospital$).tw.
2. (long$ adj3 hospital$).tw.
3. 1 and 2
4. ((delay$ or late$) adj3 discharge).tw.
5. (earl$ adj3 discharge).tw.
6. 4 and 5
7. discharge within.tw.
8. *"length of stay"/
9. 3 or 6 or 7 or 8
10. exp health care quality/
11. exp "quality of life"/
12. (quality adj5 treatment).tw.
13. (patient adj5 satisfaction).tw.
14. exp treatment outcome/
15. exp economic evaluation/ or exp "health care cost"/
16. or/10-15
17. 9 and 16
18. Clinical Trial/

19. Randomized Controlled Trial/
20. Randomization/
21. Double Blind Procedure/
22. Single Blind Procedure/
23. Crossover Procedure/
24. PLACEBO/
25. placebo$.tw.
26. randomi?ed controlled trial$.tw.
27. rct.tw.
28. random allocation.tw.
29. randomly allocated.tw.
30. allocated randomly.tw.
31. (allocated adj2 random).tw.
32. single blind$.tw.
33. double blind$.tw.
34. ((treble or triple) adj blind$).tw.
35. Prospective study/
36. or/18-35
37. Case study/
38. case report.tw.
39. Abstract report/
40. Letter/
41. Human/
42. Nonhuman/
43. ANIMAL/
44. Animal Experiment/
45. 42 or 43 or 44
46. 45 not (41 and 45)
47. or/37-40,46
48. 36 not 47
49. Systematic Review/
50. meta analysis/
51. metaanaly$.tw.
52. meta analy$.tw.
53. ((systematic or comprehensive or literature or quantitative or critical or integrative or evidence$) adj2 (review$1 or overview$1)).tw.
54. literature study.tw.
55. (critical adj (appraisal or analysis)).tw.
56. cochrane.ab.
57. medline.ab.

58. embase.ab.
59. (psychlit or psyclit).ab.
60. (psychinfo or psycinfo).ab.
61. (cinahl or cinhal).ab.
62. science citation index.ab.
63. bids.ab.
64. cancerlit.ab.
65. reference list$.ab.
66. bibliograph$.ab.
67. hand-search$.ab.
68. relevant journals.ab.
69. manual search$.ab.
70. selection criteria.ab.
71. data extraction.ab.
72. 70 or 71
73. review.pt.
74. 72 and 73
75. or/49-69,74
76. editorial.pt.
77. letter.pt.
78. Animal/
79. Nonhuman/
80. 78 or 79
81. Human/
82. 80 not (80 and 81)
83. or/76-77,82
84. 75 not 83
85. Clinical study/
86. case control study/
87. Family study/
88. Longitudinal study/
89. Retrospective study/
90. Prospective study/
91. Randomized controlled trials/
92. 90 not 91
93. Cohort analysis/
94. (Cohort adj (study or studies)).tw.
95. (Case control adj (study or studies)).tw.
96. (follow up adj (study or studies)).tw.
97. (observational adj (study or studies)).tw.

98. (epidemiologic$ adj (study or studies)).tw.

99. or/85-89,92-98

100. 17 and 48

101. 17 and 84

102. 17 and 99

103. or/100-102

Problemstilling 2

Database: Cochrane Library
Dato: 07.07.2009
Antall treff: 2000

ID	Search
#1	MeSH descriptor **Hospitals** explode all trees
#2	MeSH descriptor **Hospitalization**, this term only
#3	hospitali?ation:ti,ab
#4	inpatient*:ti,ab
#5	MeSH descriptor **Inpatients**, this term only
#6	(**#1** OR **#2** OR **#3** OR **#4** OR **#5**)
#7	MeSH descriptor **Outpatients**, this term only
#8	MeSH descriptor **Ambulatory Care**, this term only
#9	MeSH descriptor **Outpatient Clinics, Hospital** explode all trees
#10	outpatient*:ti,ab
#11	MeSH descriptor **Day Care**, this term only
#12	ambulatory*:ti,ab
#13	(day next hospital* or day next care or day next clinic*):ti,ab
#14	pol?clinic*:ti,ab
#15	(#7 OR #8 OR #9 OR #10 OR #11 OR #12 OR #13 OR #14)
#16	mental next health:ti,ab
#17	schizophreni*:ti,ab
#18	psychiatr*:ti,ab
#19	psychoti*:ti,ab
#20	antipsychotic
#21	borderline:ti,ab

#22 "personality disorder":ti,ab

#23 "mental illness"

#24 "opiate dependent":ti,ab

#25 "substance abuse"

#26 alcohol near/5 use

#27 alcoholics

#28 (#16 OR #17 OR #18 OR #19 OR #20 OR #21 OR #22 OR #23 OR #24 OR #25 OR #26 OR #27)

#29 (#6 AND #15)

#30 (#29 AND NOT #28)

MEDLINE

Database: Ovid MEDLINE(R) 1950 to June Week 3 2009

Filter: Ovids spesifikke filter for systematiske oversikter. Filter for randomiserte kontrollerte forsøk: CRD og Cochrane Highly Sensitive Search Strategy - Max sensitivity and precision (Revidert 2008)

Dato: 01.07.2009

Antall treff: 370

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1. Outpatients/
2. Ambulatory Care/
3. exp Outpatient Clinics, Hospital/
4. Day Care/
5. (outpatient$ or out-patient$).tw.
6. ambulatory$.tw.
7. (day hospital$ or day care$ or day clinic$).tw.
8. pol#clinic$.tw.
9. or/1-8
10. Hospitalization/
11. exp Hospitals/
12. Inpatients/
13. inpatient$.tw.
14. hospitali?ation.tw.
15. or/10-14
16. exp Hospitals, Psychiatric/
17. 15 not 16
18. 17 and 9
19. (mental health or shizophren$ or psychiatr$ or psychot$ or antipsychotic$ or borderline or personality disorder or mental illness or substance abuse or alcoholic$).tw.

20. (op$ adj2 dependenc$).tw.

21. (alcohol adj3 "use").tw.

22. or/19-21

23. 18 not 22

24. randomized controlled trial.pt.

25. controlled clinical trial.pt.

26. randomized.ab.

27. placebo.ab.

28. clinical trials as topic.sh.

29. randomly.ab.

30. trial.ti.

31. 24 or 25 or 26 or 27 or 28 or 29 or 30

32. humans.sh.

33. 31 and 32

34. 33 and 23

35. limit 34 to yr="2008 -Current"

36. 23

37. limit 36 to "reviews (specificity)"

38. 35 or 37

EMBASE

Database: EMBASE 1980 to 2009 Week 26

Filter: Ovids spesifikke filtere for systematiske oversikter og randomiserte kontrollerte forsøk

Dato: 07.07.2009

Antall treff: 233

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1. exp ambulatory care/

2. exp outpatient department/

3. exp outpatient care/

4. day care/

5. outpatient/

6. (outpatient$ or out-patient$).tw.

7. ambulatory$.tw.

8. (day hospital$ or day care or day clinic$).tw.

9. pol#clinic$.tw.

10. or/1-9

11. hospitalization/

12. hospital/ or community hospital/ or general hospital/ or geriatric hospital/ or pediatric hospital/ or public hospital/ or hospital department/ or exp ward/ or exp teaching hospital/

13. exp hospital patient/

14. inpatient$.tw.

15. hospitali?ation.tw.

16. or/11-15

17. exp mental hospital/

18. 16 not 17

19. 18 and 10

20. (mental health or shizophren$ or psychiatr$ or psychot$ or antipsychotic$ or borderline or personality disorder or mental illness or substance abuse or alcoholic$).tw.

21. (op$ adj2 dependenc$).tw.

22. (alcohol adj3 "use").tw.

23. or/20-22

24. 19 not 23

25. limit 24 to ("treatment (2 or more terms high specificity)" and yr="2008 -Current")

26. limit 24 to "reviews (1 term high specificity)"

27. 25 or 26

Problemstilling 3

Database: Cochrane Library
Dato: 30.06.2009
Antall treff: 137

ID	Search Cochrane Library
#1	MeSH descriptor **Intermediate Care Facilities** explode all trees
#2	intermediate next care:ti,ab
#3	intermediary near/5 care:ti,ab
#4	"cottage hospital"
#5	intermediate near/4 facilit*:ti,ab
#6	intermediate next level:ti,ab
#7	intermediary near/4 level:ti,ab
#8	(#1 OR #2 OR #3 OR #4 OR #5 OR #6 OR #7)

Database: Ovid MEDLINE(R) 1950 to June Week 2 2009

Filter: Filter for systematiske oversikter og observasjonsstudier: Kunnskapssenterets filter basert på SIGN.

Filter for randomiserte kontrollerte forsøk: CRD og Cochrane Highly Sensitive Search Strategy - Max sensitivity and precision (Revidert 2008).

Dato: 23.06.2009

Antall treff: 383

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1. exp Intermediate Care Facilities/
2. intermediate care.tw.
3. intermediary level.tw.
4. intermediary care.tw.
5. ((treatment or care) adj3 intermediate level).tw.
6. cottage hospital.tw.
7. intermediate facility.tw.
8. or/1-7
9. Epidemiologic studies/
10. exp case control studies/
11. exp cohort studies/
12. case control.tw.
13. (cohort adj (study or studies)).tw.
14. cohort analy$.tw.
15. (follow up adj (study or studies)).tw.
16. (observational adj (study or studies)).tw.
17. longitudinal.tw.
18. retrospective.tw.
19. cross sectional.tw.
20. Cross-sectional studies/
21. or/9-20
22. case reports.pt.
23. comment.pt.
24. letter.pt.
25. editorial.pt.
26. animal/
27. human/
28. 26 not (26 and 27)
29. or/22-25,28
30. 21 not 29
31. randomized controlled trial.pt.
32. controlled clinical trial.pt.
33. randomized.ab.

34. placebo.ab.
35. clinical trials as topic.sh.
36. randomly.ab.
37. trial.ti.
38. 31 or 32 or 33 or 34 or 35 or 36 or 37
39. humans.sh.
40. 38 and 39
41. Meta-analysis/
42. meta analy$.tw.
43. metaanaly$.tw.
44. meta analysis.pt.
45. ((systematic or comprehensive or literature or quantitative or critical or integrative or evidence$) adj2 (review$1 or overview$1)).tw.
46. literature study.tw.
47. (critical adj (appraisal or analysis)).tw.
48. exp Review Literature/
49. cochrane.ab.
50. medline.ab.
51. embase.ab.
52. (psychlit or psyclit).ab.
53. (psychinfo or psycinfo).ab.
54. (cinahl or cinhal).ab.
55. science citation index.ab.
56. bids.ab.
57. cancerlit.ab.
58. reference list$.ab.
59. bibliograph$.ab.
60. hand-search$.ab.
61. relevant journals.ab.
62. manual search$.ab.
63. selection criteria.ab.
64. data extraction.ab.
65. 63 or 64
66. review.pt.
67. 65 and 66
68. or/41-62,67
69. comment.pt.
70. letter.pt.
71. editorial.pt.
72. animal/

73. human/

74. 72 not (72 and 73)

75. or/69-71,74

76. 68 not 75

77. 8 and 30

78. 8 and 40

79. 8 and 76

80. 77 or 78 or 79

Database: **EMBASE** <1980 to 2009 Week 25>

Søkestrategi: Louise Forsetlund

Filter: Kun fjernet kommentarer, leser- og redaksjonsinnlegg

Dato: 24.6.09

Antall treff: 600

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1. intermediate facility.tw.
2. intermediate care.tw.
3. intermediary level.tw.
4. intermediary care.tw.
5. ((treatment or care) adj3 intermediate level).tw.
6. cottage hospital.tw.
7. or/1-6
8. (comment or letter or editorial).pt.
9. 7 not 8