Inpatient Teams: Evaluations of Interventions

Anderson, R. M., Donnelly, M. B., Gorenflo, D. W., Funnell, M. M., & Sheets, K. J. (1993). Influencing the attitudes of medical students toward diabetes. results of a controlled study. *Diabetes Care, 16*(2), 503-505.
This study was designed to determine the effect of two different educational interventions on the attitudes of medical students toward diabetes. The study population consisted of 67 Junior and Senior medical students who were assigned to one of two interventions. The first intervention was a one-week living-with-diabetes simulation that involved injections, blood glucose monitoring, diet, exercise and record keeping. The second intervention involved reading an autobiography about living with diabetes and watching a video about the psychosocial impact of diabetes. No significant impact was found between the two intervention groups and both interventions were followed by a modest positive change in attitudes regarding the importance of patient autonomy and value of team based care in treatment of diabetes. Because the treatment did not contain a non-intervention group, the results can not be certain. The gain in attitudes related to team based care did not persist.

Birbeck, G. L., Zingmond, D. S., Cui, X., & Vickrey, B. G. (2006). Multispecialty stroke services in california hospitals are associated with reduced mortality. *Neurology, 66*(10), 1527-1527-1532.
This study sought to evaluate whether a multispecialty service, a distinct hospital ward, protocols, or a specialist are associated with reduced mortality among patients with stroke. The study concluded that multispecialty stroke services are underutilized despite their association with reduced stroke mortality.

Biro, M. A., Waldenstrom, U., & Pannifex, J. H. (2000). Team midwifery care in a tertiary level obstetric service: A randomized controlled trial. *Birth (Berkeley, Calif.), 27*(3), 168-173.
This study was designed to compare a new model of materniry care, utilizing midwifery care from early pregnancy through to the postpartum period, with the standard maternity care. The study was a randomized control trial of 1000 women who booked at the antenatal clinic and met eligibility criteria. Women were randomlys assigned to receive continuity of midwife care (team care involving a group of 7 midwives in collaboration with obstetric staff) or standard care (a variety of midwives and obstetric staff). The primary outcome measures were procedures in labor, maternal outcomes, neonatal outcomes, and length of hospital stay. The results of the study showed that women assigned to the team care group experienced less augmentation of labor, less electronic fetal monitoring, less use of narcotic and epidural analgesia, and fewer episiotomies but more unsutured tears. Team care women stayed in hospital 7 hours less than women in standard care. More babies of standard care mothers were admitted to the special care nurseries for more than 5 days because of preterm birth, and more babies of team care mothers were admitted to the nurseries for more than 5 days with intrauterine growth retardation. No differences occurred in perinatal mortality between the two groups. The authors conclude that continuity of midwifery care was associated with a reduction in medical procedures in labor and a shorter length of stay without compromising maternal and perinatal safety. Continuity of midwifery care is realistically achievable in a tertiary obstetric referral service.

Durbin, C. G. (2006). Team model: Advocating for the optimal method of care delivery in the intensive care unit. *Critical Care Medicine, 34*(3), S12-S12-S17.
A review of the literature focused on published data on the team model of intensive care unit care delivery. The team model for delivery of ICU care reduces mortality, ICU length of stay, hospital length of stay, and cost of care. Current shortages of all ICU health care providers is a barrier to universal implementation of the team model.

Evans, A., Perez, I., Harraf, F., Melbourn, A., Steadman, J., Donaldson, N., et al. (2001). Can differences in management processes explain different outcomes between stroke unit and stroke-team care? *Lancet, 358*(9293), 1586-1592. doi:10.1016/S0140-6736(01)06652-1
This study was conducted to compare difference in management and complications of patients with acute stroke who were admitted to a stroke unit or to a general ward as part of a previous

randomized study. The study population consisted of 304 patients, 152 of which had been randomly assigned to stroke units, and 152 of which had been assigned to general wards with a stroke specialist team. Prospective data was gathered on the frequency of prespecified interventions for each of the major aspects of stroke care. Daily observations were taken for the first week and taken every week for the next 3 months by independent observers. Assessment of the differences in management on outcome were done at 3 months using the modified Rankin score, dichotimized to good (0-3) and poor (4-6) outcome. Findings showed that patients in the stroke unit were monitored more frequently and more patients received oxygen, antipyretics, measures to reduce aspiration, and early nutrition than those in general wards. Complications were less frequent in patients in the stroke unit than those in general wards, with fewer patients having progression of stroke, chest infection, or dehydration. Measures to prevent aspiration, early feeding, stroke unit management, and frequency of complications independently affected outcome. The authors conclude that there are substantial differences in management and complications between the stroke unit and general wards, even when specialist support is provided. Such differences could be responsible for the more favourable outcome seen in patients on stroke units than those on general wards.

Fuentes, B., & Tejedor, E. D. (2002). Re: Randomized controlled study of stroke unit versus stroke team care in different stroke subtypes. *Stroke; a Journal of Cerebral Circulation, 33*(7), 1740-1; author reply 1740-1.
This article is a response to the article "Randomized controlled study of stroke unit versus stroke team care in different stroke subtypes" by Evans et al. The authors, based on their own studies, agree with Evans' findings and believe that all stroke patients should be treated on stroke units.

Govan, L., Weir, C. J., Langhorne, P., & for the Stroke Unit Trialists' Collaboration. (2008). Organized inpatient (stroke unit) care for stroke. *Stroke; a Journal of Cerebral Circulation,* doi:10.1161/STROKEAHA.108.515510
This study sought to review literature (Cochrane Review) to test whether the use of an inpatient stroke unit resulted in improved patient outcomes. The study found that stroke unit care reduced the odds of death at final follow-up, death or institutionalized care, and death or dependancy.

Gow, P., Berg, S., Smith, D., & Ross, D. (1999). Care co-ordination improves quality-of-care at south auckland health. *Journal of Quality in Clinical Practice, 19*(2), 107-110.
Inpatient discharge surveys at Middlemore hospital, a 600 bed hospital in South Auckland, New Zealand, consistently rate communication and co-ordination of care as parameters in need of improvement. A case management model of care was suggested as a means of achieving this. The objective of this study was to determine the effectiveness of care co-ordination in an acute general medical setting in a pilot study over a 4 week period. A care co-ordinator identified 18 patients with complex problems among 48 patients admitted to a single medical ward under the care of a single multidisciplinary team, with their care being co-ordinated over the entire episode of illness. A control group of 59 similarly complex patients admitted to other wards and teams without care co-ordination over the same period was also studied and the outcomes compared. Communication and co-ordination, discharge information, involvement in discharge planning and information on post-discharge services were rated by the study patients as good or very good by 77, 85, 69 and 77%, respectively, compared with 62, 30, 41 and 45% in the control group. The same parameters were rated as poor or very poor by 13, 30, 36 and 15% of the control patients, compared with 0% in all these measures in the study group. Twenty-one clinical staff involved in the study agreed that there was an improvement in care co-ordination with respect to efficiency, reduction of workload and better communication, with approval ratings being 71, 76 and 76%, respectively. There was no difference in Average Length of Stay between the control and study groups, but three of the patients in the control group may have had their preventable readmissions within 10 days avoided if their care had been co-ordinated during their initial admission.

Gurses, A. P., & Xiao, Y. (2006). A systematic review of the literature on multidisciplinary rounds to design information technology. *Journal of the American Medical Informatics Association : JAMIA, 13*(3), 267-276. doi:10.1197/jamia.M1992

Multidisciplinary rounds (MDR) have become important mechanisms for communication and coordination of care. To guide design of tools supporting MDR, we reviewed the literature published from 1990 to 2005 about MDR on information tools used, information needs, impact of information tools, and evaluation measures. Fifty-one papers met inclusion criteria and were included. In addition to patient-centric information tools (e.g., medical chart) and decision-support tools (e.g., clinical pathway), process-oriented tools (e.g., rounding list) were reported to help with information organization and communication. Information tools were shown to improve situation awareness of multidisciplinary care providers, efficiency of MDR, and length of stay. Communication through MDR may be improved by process-oriented information tools that help information organization, communication, and work management, which could be achieved through automatic extraction from clinical information systems, displays and printouts in condensed forms, at-a-glance representations of the care unit, and storing work-process information temporarily.

Kucukarslan, S. N., Peters, M., Mlynarek, M., & Nafziger, D. A. (2003). Pharmacists on rounding teams reduce preventable adverse drug events in hospital general medicine units. *Archives of Internal Medicine, 163*(17), 2014-2014-2018.
It is proposed that having a pharmacist available when patients are evaluated during the rounding process may reduce the likelihood of preventable adverse drug events. The authors evaluated the effectiveness of having a pharmacist participate during rounds in general medicine units and documented their interventions made during the rounding process. It was concluded that pharmacist participation with the medical rounding team on a general medicine unit contributes to a significant reduction in preventable adverse drugs events.

Naglie, G., Tansey, C., Kirkland, J. L., Ogilvie-Harris, D. J., Detsky, A. S., Etchells, E., et al. (2002). Interdisciplinary inpatient care for elderly people with hip fracture: A randomized controlled trial. *CMAJ : Canadian Medical Association Journal = Journal De l'Association Medicale Canadienne, 167*(1), 25-32.
THis study was conducted to determine the efficacy of postoperative interdisciplinary care, compared to usual care, in elderly patients with hip fracture. The study found that interdisciplinary care did not result in better 3 or 6 month outcomes in patients with hip fracture.

Rowley, M. J., Hensley, M. J., Brinsmead, M. W., & Wlodarczyk, J. H. (1995). Continuity of care by a midwife team versus routine care during pregnancy and birth: A randomised trial. *The Medical Journal of Australia, 163*(6), 289-293.
This study was designed to compare continuity of care from a midwife team with routine care provided by a variety of doctors and midwives. Women were randomly assigned to team care from a team of 6 midwives, or routine care from a variety of midwives and doctors. The main outcomes measured antenatal, intrapartum and neonatal events; maternal satisfaction; and cost of treatment. Results showed that team care women were more likely to attend antenatal classes, less likely to use pethidine during labor, and more likley to labor and deliver without intervention. Babies born to team care mothers recieved less neonatal resuscitation. However, there was no difference in Apgar scores at 5 minutes, and the stillbirth and neonatal death rates were the same for both groups. Team care was rated better than routine care for maternal satisfaction. Team care also resulted in cost reduction.

Sarajuuri, J. M., Kaipio, M. L., Koskinen, S. K., Niemela, M. R., Servo, A. R., & Vilkki, J. S. (2005). Outcome of a comprehensive neurorehabilitation program for patients with traumatic brain injury. *Archives of Physical Medicine and Rehabilitation, 86*(12), 2296-2302. doi:10.1016/j.apmr.2005.06.018
OBJECTIVE: To evaluate the outcome of a comprehensive neurorehabilitation program compared with that of conventional clinical care and rehabilitation for patients with traumatic brain injury (TBI). DESIGN: Nonrandomized, controlled trial with a 2-year follow-up. SETTING: Nationwide rehabilitation center and level I trauma center, both in Finland. PARTICIPANTS: We studied 19 consecutive adults with a significant TBI who underwent a comprehensive neurorehabilitation program and 20 control patients who received conventional rehabilitation referred by physicians in

the general health care system. The outcome of the control patients was not known before the selection. The groups were similar in age, sex, education, injury severity (assessed on the Glasgow Coma Scale, radiologic and neuropsychologic findings, neurosurgical interventions), time from the injury, and preinjury employment status. INTERVENTIONS: A postacute, intensive, interdisciplinary, 6-week rehabilitation program for TBI patients who are considered to have adequate potential to achieve productivity by this means; focus on neuropsychologic rehabilitation and psychotherapy with vocational interventions and follow-up support. MAIN OUTCOME MEASURE: Status of productivity, judged as productive (defined as working, studying, or participating in volunteer activities) or nonproductive, evaluated on questionnaires filled in by patients and their significant others at the time of follow-up evaluation. RESULTS: At follow-up, 89% of the treated patients were productive compared with 55% of the controls. The rehabilitation program was significantly predictive of the productive status at follow-up (odds ratio=6.96; 95% confidence interval, 1.26-38.44; P=.017). Other factors did not explain the better productivity of the treatment group. Two neuropsychologist-evaluators, who were blind to the rehabilitation history of patients and to each other's evaluations, were perfectly consistent in their classification of patients' productivity statuses. CONCLUSIONS: The findings support the proposition that comprehensive neuropsychologically oriented rehabilitation programs can improve psychosocial functioning in terms of productivity in postacute patients with moderate to severe TBI. Additional larger controlled studies are needed to establish the efficacy of TBI rehabilitation interventions.

Shields, L., Pratt, J., Davis, L. M., & Hunter, J. (2007). Family-centred care for children in hospital. *Cochrane Database of Systematic Reviews (Online), (1)*(1), CD004811. doi:10.1002/14651858.CD004811.pub2

A review to assess the effects of family-centered care models for hospitalized children, compared with standard/professionally-centered care, on the child, family, and health services outcomes. A literature search was conducted using MEDLINE, the Cochrane Central Register of Controlled Trials (CENTRAL), CINAHL, PsycINFO, ERIC, Sociological Abstracts, Social Work Abstracts, and AMI (Australasian Medical Index). Studies were selected that were randomised controlled trials (RCTs) or quasi-randomised controlled trials including cluster randomised trials and controlled clinical trials (CCTs), and controlled before and after studies (CBAs), which compared family-centred care models with professionally-centred models of care for hospitalised children. Studies also had to meet criteria for family-centredness and methodological quality. Two review authors undertook the searches, and three authors independently assessed trial quality and extracted data. No studies met inclusion criteria, and hence no analysis could be undertaken. Because of this, the authors concluded that there is an extreme lack of high quality quantitative research about family-centred care and a much more stringent examination of the use of family-centred care as a model for care delivery to children and families in health services is needed.

Tilling, K., & Wolfe, C. (2002). Re: Randomized controlled study of stroke unit versus stroke team care in different stroke subtypes. *Stroke; a Journal of Cerebral Circulation, 33*(7), 1741-2; author reply 1741-2.

In response to the article "Randomized controlled study of stroke unit versus stroke team care in different stroke subtypes" by Evans et al, this letter by Tilling and Wolfe raises some important issues on the subgroup analysis and interpretation of data as well as on the delicate balance between presenting details of statistical analysis versus presenting a clear clinical message.

Vliet Vlieland, T. P., Breedveld, F. C., & Hazes, J. M. (1997). The two-year follow-up of a randomized comparison of in-patient multidisciplinary team care and routine out-patient care for active rheumatoid arthritis. *British Journal of Rheumatology, 36*(1), 82-85.

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.

Vliet Vlieland, T. P., & Hazes, J. M. (1997). Efficacy of multidisciplinary team care programs in rheumatoid arthritis. *Seminars in Arthritis and Rheumatism, 27*(2), 110-122.
This study was designed to assess the efficacy of multidisciplinary team care in rheumatoid arthritis. Data were obtained through a Medline and manual literature search. The study concludes that short-term inpatient team care, when compared to standard outpatient care, showed favorable outcomes.

Walders, N., Kercsmar, C., Schluchter, M., Redline, S., Kirchner, H. L., & Drotar, D. (2006). An interdisciplinary intervention for undertreated pediatric asthma. *Chest, 129*(2), 292-299. doi:10.1378/chest.129.2.292
The objective of this study was to examine the effectiveness of an interdisciplinary intervention for pediatric asthma through an asthma management intervention. The primary outcome measure was change in asthma symptoms, and secondary outcomes included health-care utilization and asthma-related quality of life. Both groups demonstrated significant reductions in asthma symptoms and improvements in quality of life without any between-group differences identified over the course of follow-up. In contrast, the intervention group demonstrated less frequent health-care utilization over the 12-month follow-up period. While the intervention did not result in improvements in asthma symptoms, it accomplished modest reductions in the utilization of acute medical care.

Wells, J. D., & Nicosia, S. (1993). The effects of multidisciplinary team care for acute spinal cord injury patients. *The Journal of the American Paraplegia Society, 16*(1), 23-29.
The care of 169 survivors of spinal injury receiving acute treatment at the Hamilton General Hospital in Ontario, Canada, was studied. This paper compares treatment of groups of patients before and after formation of a multidisciplinary Acute Spinal Cord Injury Team. The establishment of multidisciplinary team care for acute spinal cord injury patients in our tertiary referral center correlates with clinically and statistically significant reductions in length of stay in the acute care hospital, alterations in the rate of surgical treatment for them, changes in the use of radiological resources, and reduction in the average number of days febrile. The team also brought stronger representation of allied health professionals to the hospital records of acute spinal cord injury patients. These important changes result from implementation of an effective multidisciplinary medical team without the addition of new funds, personnel, or hospital facilities and without alteration in referral patterns. Our team did not reduce mortality, duration of intensive care unit stay, or work for physicians.

Wood-Dauphinee, S., Shapiro, S., Bass, E., Fletcher, C., Georges, P., Hensby, V., et al. (1984). A randomized trial of team care following stroke. *Stroke; a Journal of Cerebral Circulation, 15*(5), 864-872.
A randomized controlled trial was conducted to examine the effects of interdisciplinary team care on acute hospitalized stroke patients. After obtaining baseline information on 42 stroke victims receiving conventional care in a general hospital, 130 stroke patients were stratified and randomly assigned either to Traditional or Team care. Assessments by independent evaluators permitted comparisons between Team and Traditional groups with reference to patient survival, motor performance and functional abilities. Data obtained prospectively from charts and treatment logs allowed the care process across groups to be compared. Results demonstrated that Team and Traditional patients fared similarly in survival. However there was an unexpected difference in survival depending upon sex. For motor performance, male survivors performed better with Team care and female survivors with the Traditional method. In terms of functional abilities, male patients receiving Team care again

performed better than their Traditional counterparts, whereas in women there was no difference between the treatment groups.