**Tervishoiukorralduslikud küsimused:**

**Kas ägeda valu ravi meeskonna tegevus tervishoiuasutuses parandab perioperatiivse valu ravi tulemust?**

**Bacground:**

Proposed benefits of an acute pain service include:

* better pain relief
* lower incidence of side effects
* lower postoperative morbidity/mortality
* a reduction in the incidence of persistent pain after surgery.

(Jack and Baggott. "Control of acute pain in postoperative and post-traumatic situations and the role of the acute pain service." *Anaesth Int Care Medicine* 12.1 (2011): 1-4.)

A review on APS and outcome from 2002 concluded that introduction of APS, though associated with improved pain relief, did not significantly improve other measures of post-operative outcome, with the exception of patient satisfaction and (likely) pulmonary complications (Werner et al. 2002). Very few comprehensive studies have since this review included economic and outcome issues.

A randomized controlled trial from 2010 and a systematic review on economic evaluations on APS programmes from 2007 concludes that ‘there is a lack of high-quality economic studies to support the cost-effectiveness and cost-benefits of APS’.Thus, APS clearly represent a valuable humanitarian instrument to improve pain relief,but the optimal structure and the economical effectiveness still need to be established. (Nielsen et al. 2012)

**Ravijuhendid**

**Kokkuvõte:**

Eduka valuravi eelduseks on tihe koostöö patsiendi ja kogu personali vahel. Ravijuhendites (DE-07 ja AU-10) tuuakse välja, et ägeda valu ravi meeskonna tegevuse tulemusel tervishoiu asutuses paraneb ägeda valu(ravi) juhtimine, väheneb ravimite kõrvaltoimete esinemissagedus ja paraneb valuraviga seotud dokumenteerimine. DE-07 juhendis on lisatud, et ägeda valu ravi meeskond on kuluefektiivne.

**1.“Behandlung   acuter   perioperativer   und   postraumatischer Schmertzen” 2009 (DE-­07)**

**Key messages: Ägeda valuravi meeskonna juurutamine tervishoiuasutuses tasub ennast ära. GoR: B**

Implementation of acute pain service may reduce postoperative pain intensity and occurence of sideeffects (Werner et al., 2002; Bardiau et al., 2003; Stadler et al., 2004). Review by McDonnell et al. (2003) which included 15 studies with great heterogenity could not become into the uniform desicion and showed only favourable tendences for acute pain services (McDonnell et al., 2003).

**2. Acute Pain Management: Scientific Evidence 2010 (AU10)**

**Key messages: Implementation of an acute pain service may improve pain relief and reduce the incidence of side effects. (U) (Level III-3)**



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| Search | Query | Items found |
| --- | --- | --- |
| 1 | **acute pain team**Filters: published in the last 5 years, Humans | [207](http://www.ncbi.nlm.nih.gov/pubmed/?cmd=HistorySearch&querykey=1) |
| 2 | **acute pain service** Filters: published in the last 5 years; Humans | 2441 |

**Süstemaatilised ülevaated**

**Kokkuvõte:**

Leitud süstemaatilistest ülevaateartiklitest ja kirjanduse ülevadetest selgus, et valuravi meeskonnad parendavad valu hindamist ja valuvaigistite kasutust, kuid ei mõjuta otseselt valu ennast.

1. **Helfand and Freeman.** "Assessment and management of acute pain in adult medical inpatients: a systematic review." *Pain medicine* 10.7 (**2009**): 1183-1199.

**Objective:** To review the literature addressing effective care for acute pain in inpatients on medical wards.

**Methods**: We searched Medline, PubMed Clinical Queries, and the Cochrane Database for systematic reviews published in 1996 - April 2007 on the assessment and management of acute pain in inpatients.

**Results:** **Pain management teams and other system-wide interventions improve assessment and use of analgesics, but do not clearly affect pain outcomes.**

Institutional interventions improved pain assessment and documentation and staff awareness of pain, and increased use of analgesics. There was only poor-quality evidence that these programs improved safety. Most importantly, the programs’ effect on patient levels of pain was inconsistent; in the relatively higher quality studies, programs did not improve pain.

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| --- | --- | --- | --- |
| **Key Question** | **Type of Evidence** | **GRADE of****Evidence\*** | **Comments** |
| Do acute pain managementteams and other institutionalinitiatives improveeffectiveness, adverseeffects, and safety inmedical inpatients? | 1 uncontrolledsystemwideintervention and1 controlled trial | Moderate | 1 uncontrolled collaborative VHA/IHI study of institution-widestrategies showed **measurable improvements in the prevalence of****severe pain, frequency of assessment and documentation of plan****of care, and provision of patient education on pain management.**A controlled trial of a multifaceted intervention achieved increasedassessment of pain but **did not alter pain intensity or duration** |
| Do acute pain managementteams and other institutionalinitiatives improveeffectiveness, adverseeffects, and safety in othersettings? | 2 systematicreviews ofbefore-after oruncontrolledstudies | Low | Most primary studies in these reviews were in postop orcancer pain, and were uncontrolled. While **pain management****teams and other systemwide interventions improved the timeliness****and frequency of pain assessment**, the findings were mixed forimprovement in pain outcomes. In controlled studies, **Acute Pain****Services reduced pain intensity and improved functional ability**, the magnitude of these effects was not always clinically important |

* Merlin et al. Institutional approaches to pain assessment and management (008PAI). A systematic literature review. Commissioned by the National Institute of Clinical Studies, Melbourne, Victoria: NICS; October 2002.
* Cleeland et al. Rapid improvement in pain management: The Veterans Health Administration and the institute for healthcare improvement collaborative. Clin J Pain 2003;19:298–305.
* Morrison et al. Improving the management of pain in hospitalized adults. Arch Intern Med 2006;166:1033–9.
* Goldberg GR, Morrison RS. Pain management in hospitalized cancer patients: A systematic review. J Clin Oncol 2007;25:1792–801.
1. **McDonnell, A. et al (2003)** "Acute pain teams and the management of postoperative pain: a systematic review and meta-analysis“ Journal of Advanced Nursing 41(3), 261–273

**Background**. The introduction of acute pain teams (APTs) in every hospital performing surgery in the UK has been recommended in order to reduce postoperative

pain. However, recent evidence suggests that many APTs are under-resourced. Purchasers may be more prepared to invest in these services if they are persuaded that they result in measurable improvements in patient outcomes.

**Aim**. **A systematic review of the literature and meta-analysis were performed to determine the effectiveness of APTs in improving the quality of analgesia and ohter postoperative outcomes of adult patients undergoing surgery.**

**Methods**. A broad search strategy using the terms ‘pain team’ and ‘pain service’ was

adapted for a variety of databases. Key journals were hand-searched and reference lists of selected reports were reviewed. Subject experts and study authors were contacted. Studies describing the impact of the APT/acute pain service (APS) on postoperative pain relief, other postoperative outcomes or the processes of postoperative pain were included. Study quality was assessed using a multidimensional instrument. A broad qualitative overview of the included studies was conducted. Continuous outcome data for pain in the first 24 hours postoperatively (in one case worst pain at 24–48 hours) were pooled.

**Results.** Fifteen studies were included in the review. There were considerable differences in study design and quality, the nature of the APT and the outcomes measured. Of the nine studies measuring pain, it was possible to present data as Standardized Mean Differences for only four studies. Quantitative synthesis indicates a statistically significant overall estimate of effect using a fixed effects model only. Limitations. Only published studies in English were included. Study inclusion decisions and data extraction were performed by one reviewer only.

**Conclusion.** **There is insufficient robust research to assess the impact of APTs on**

**postoperative outcomes of adult patients or on the processes of postoperative pain.**

1. **Werner et al**. "Does an acute pain service improve postoperative outcome?" *Anesthesia & Analgesia* 95.5 (**2002**): 1361-1372.

**Aim:** to critically review the literature on APSs regarding outcome: pain relief, side effects of the postoperative pain treatment, patient satisfaction, therapy-related adverse events, morbidity, hospital stay, and cost issues.

**Method:** Literature was identified by a MEDLINE search from March 1966 to February 2001.

**Results**: 154 papers were retrieved and systematically evaluated, 58 were classified as expert opinions (editorials or personal experience), 48 as audits, 18 as general reviews (pain, organization, and pain-relief methods), 17 as surveys (regional, national, and international), and 13 as clinical trials.

**Implementation of APSs is associated with a significant decrease in patients’ postoperative pain ratings**. However, there are several unanswered issues: the contribution of increased awareness and importance of postoperative analgesia, the introduction of more effective regimens (i.e., epidural analgesia), the placebo or undefined effects of the twice-a-day visits of the APS (87,88), and whether there are any specific advantages of APS interventions in high-risk or acute surgical patients.

**Side effects:** Few studies have systematically and in a prospective, controlled manner investigated the incidence and severity of side effects in an APS-based postoperative setting. The introduction of an APS may have been associated with less PONV and urinary retention, but these effects are again difficult to separate from common awareness and improved treatment strategies of these postoperative problems, as opposed to specific effects of improved analgesia by the APS. Also, the large variability in APS function and provided service preclude firm conclusions on potential improvement in outcome.

**Adverse events:** the role of an APS to prevent or reduce these events has not been established.

**Muud artiklid:**

**Kokkuvõte:**

Leitud artiklitest selgus, et valuravi meeskonna tegevuse tulemusena paraneb tervishoiuasutuses valu hindamine ja patsientide rahulolu valuraviga tõuseb. Leidus ka kaks uurimust, kus kulu-tulu analüüsi tulemusena selgub, et valuravi meeskond võiks olla kuluefektiivne.

1. **Lee et al**. "The costs and benefits of extending the role of the acute pain service on clinical outcomes after major elective surgery." *Anesthesia & Analgesia* 111.4 (**2010**): 1042-1050.

**BACKGROUND**: Acute pain services have received widespread acceptance and formal support from institutions and organizations, but **available evidence on their costs and benefits is scarce**. Although there is good agreement on the provision of acute pain services after many major surgical procedures, there are other procedures for which the benefits are unclear. Data are required to justify any expansion of acute pain services. In this randomized, controlled clinical trial we **compared the costs and effects of acute pain service care on clinical outcomes with conventional pain management on the ward.** Patients included in the trial were considered by their anesthesiologist to have either arm be suitable for the procedure.

**METHODS**: **423 patients** undergoing major elective surgery were **randomized** either to an **anesthesiologist-led, nurse-based acute pain service group with patient-controlled analgesia** or to a **control group with IM or IV boluses of opioid analgesia.** Both groups were treated with medications to treat opioid-related adverse effects and received the usual care from health professionals assigned to the ward. **The main outcome measures were quality of recovery scores, pain intensity measures, global measure of treatment effectiveness, and overall pain treatment cost**. Cost-effectiveness acceptability curves were drawn to detect a difference in the joint cost-effect relationship between groups.

**RESULTS**: There was **no difference in quality of recovery score on postoperative day 1 between treatment and control groups** (mean difference, 0; 95% [CI], −0.7 to 0.7; *P* = 0.94) **or in the rate of improvement in quality of recovery score** (mean difference, −0.1; 95% CI, −0.4 to 0.1; *P* = 0.34). The **proportion of patients with 1 or more days of highly effective pain management was higher in the acute pain service group** than in the control group (86% vs. 75%; *P* < 0.01). **Costs were higher in the acute pain service group** (mean difference, US$46; 95% CI, $44 to $48 per patient; *P* < 0.001). A cost-effectiveness acceptability curve showed that the **acute pain service was more cost effective than was control for providing highly effective pain management if the decision maker was willing to pay more than US$546 per patient per 1 day with highly effective treatment.**

**CONCLUSION**: In extending the role of the acute pain service to a specific group of major surgical procedures, the acute pain service was likely to be cost effective.

1. **Frigon et al**. "An acute pain service improves postoperative pain management for **children** undergoing selective dorsal rhizotomy." *Pediatric Anesthesia* 19.12 (**2009**): 1213-1219.

**Background:** A continuous epidural infusion of morphine is the pain treatment modality for children undergoing selective dorsal rhizotomy (SDR) in our institution. The **aim of the study was to evaluate the impact of having an organized acute pain service (APS) on postoperative pain management** of these children.

**Methods**: We conducted a retrospective cohort study using anesthetic records and the APS database to compare the postop pain management of children undergoing SDR before and after the introduction of the APS at the Montreal Children’s Hospital in April 2001. 92 consecutive children who had their surgery between January 1997 and July 2006 were included. We collected data regarding postoperative pain, opioid-induced side effects, complications (sedation, desaturations < 92%), and hospital length of stay.

**Results:** **Pain scores were documented more frequently after the implementation of theAPS** (61%vs 48.5%).

**Sedation scores were documented only after the implementation of the APS. Postoperative desaturation was significantly more frequent in the pre-APS group** compared to the APS group (45.5%vs 6.8%, P < 0.001). Despite the fact that the (3–3 25–75%ile)], the **duration of hospitalization was 1 day shorter in the APS group** compared to the pre-APS group [median of 5 (5–5 25–75%ile) vs 6 (5–6 25–75%ile) days, P < 0.001].

1. **Story, D.A** et al **(2006)** „Effect of an anaesthesia department led critical care outreach and acute pain service on postoperative serious adverse events.“ *Anaesthesia*, 61: 24–28

We examined whether a combined critical care outreach and acute pain service comprising both medical and nursing staff from the Department of Anaesthesia would **decrease the incidence of postoperative serious adverse events in a hospital with an established Medical Emergency Team**. We called this combined service IMPACT: Inpatient Management of acute Pain and Advice on Clinical Treatment. We conducted a prospective, before-and-after trial with a baseline phase (319 patients) of standard acute pain management followed by the IMPACT phase (271 patients), during which the IMPACT team systematically reviewed high-risk postoperative patients for the first three days after their return to the general wards. **The incidence of serious adverse events decreased from 23 events per 100 patients to 16 events per 100 patient**s. The 30-day mortality decreased from 9% to 3%, p = 0.004. An acute pain service providing critical care outreach may improve postoperative outcome but the workload is considerable.

1. **Stadler** et al. "A cost-utility and cost-effectiveness analysis of an acute pain service." *Journal of clinical anesthesia* 16.3 (**2004**): 159-167.

**Objective:** To analyze, from a societal perspective, the cost-effectiveness and cost-utility of acute pain management after inception of a nurse-based Acute Pain Service (APS) in a general hospital.

**Design:** Open, observational, interventional study.

**Setting:**  Postanesthesia care unit and surgical wards of a university hospital center.

**Patients:**1975 surgical inpatients who had undergone various types of surgery.

**Interventions:** Visual analog scale (VAS) pain scores and all systemic analgesics prescribed by anesthesiologists and administered by ward nurses were recorded before and after APS inception. **All costs (drugs, disposal, and working time of nurses) related to the APS were identified**. Pain measurements were performed by VAS every 4 hours over 3 consecutive days post-surgery and transformed into a health state scale, with 0 being equivalent to absence of pain and 10 to the worst imaginable pain.Using these data, analgesic effectiveness (cost-utility analysis) was expressed as postoperative pain days averted (PPDA) in the two surveys. To perform the cost-effectiveness analysis, we focused on postoperative complications, duration of hospital stay, and postoperative mortality rate. (Note: At the time of the study, 1 EURO = 0.85 U.S. dollars.)

**Results:** **VAS pain scores decreased in the post-APS phase** (p < 0.001). One the first day, PPDA was 0.075, on the second day PPDA was 0.05, and the third day PPDA was 0.0375. **Cost of analgesic drugs and disposal, as well as nursing hours, increased.** The incremental cost of pain management after APS inception amounted to 19 EURO per patient per day, resulting in an incremental cost-effectiveness ratio of 350.77 EURO per PPDA gained. The cost-effectiveness analysis showed minor improvement (reduction of postoperative complication rate in some surgical specialties). Duration of hospital stay and postoperative mortality rate did not change.

**Conclusions:** A hospital-wide, comprehensive, postoperative pain management program provides an overall positive result for the health care system by improving postoperative pain and morbidity. **This service is cost-effective**, costing 19 EURO per patient per day. A cost-utility analysis for short-term assessment of quality of life showed no benefit in determining usefulness of such a pain management program.

1. **Sauerland** et al. "Effectiveness of an acute pain service in surgical patients—a hospital comparison study." *Acute Pain* 2.4 (**1999**): 181-188.

**Aim:** The implementation of an acute pain service (APS) has been advocated as the cornerstone of effective pain management. However, convincing evidence demonstrating the effectiveness of an APS in controlled studies is scarce.

**Method**: we compared both subjective and objective variables of surgical patients in two similar hospitals, one of which had established an APS.

**Results:** During the study period of 2 years 498 patients were prospectively enrolled. Pain and other related variables (appetite, mobility, need for sleep, fatigue, and general satisfaction) were assessed pre- and postoperatively by means of 10 cm VAS scales printed on two identical questionnaires. Additional data were retrieved from the patients' records.

**Those patients who were cared for by an APS suffered less pain** (25 mm VAS at rest), **sleepiness** (13 mm VAS), **mobility restriction, and loss of appetite**. For most measures the beneficial effects of the APS were present pre- and postoperatively. However, **hospital stay was similar in both hospitals** (13.7 vs 14.3 days; A vs B). Our data indicate large and patient-relevant benefits of an APS, but our study design was vulnerable to various kinds of bias.

**6. Shapiro** et al. "Establishing a nurse-based, anesthesiologist-supervised inpatient acute pain service: experience of 4,617 patients." Journal of clinical anesthesia 16.6 (**2004**): 415-420.

**Objectives:** To describe our nurse-based Acute Pain Services (APS) and present the results of 4617 patients treated by our service.

**Design:** Descriptive audit.

**Setting:** Large referral hospital.

**Patients:** 4617 patients treated by the APS.

**Measurement and main results:** Analgesic regimens [basic pain treatment, patient-controlled analgesia (PCA), epidural analgesia, spinal analgesia, and wound instillation], as well as the associated patient monitoring and event-response algorithms are detailed. The mean visual analog score (VAS) for pain was low. A VAS for pain greater than 30 mm was noted in 15.3% of all pain scores recorded. Bradypnea (respiratory rate < 10 breaths/min) was recorded in 19 patients (overall incidence = 0.4%). No complications resulting in sustained morbidity or mortality occurred. **Of the patients, 96% described their overall satisfaction with the APS as either good or excellent.**

**Conclusion:** A nurse-based APS provides effective and safe postoperative pain management.