Postoperative Pain after colorectal surgery
– an Evaluation Using Mode and Maximum Values from Patient’s Ratings

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Conclusion
A continuous data collection using outcome measures from the Numeric Rating Scale (NRS) for evaluation of pain has resulted in improved pain management for patients with epidural treatment after colorectal surgery.

Background/introduction
Epidural analgesia after major colorectal surgery is recommended. Mode and maximum values has been shown as possible outcome measures in evaluations of postoperative pain. The values can contribute to a picture of experienced pain levels. NRS 0–3 is for most patients’ mild pain that allow rest and mobilization.

Aim
The aim was to use mode and maximum values from patient’s pain ratings in a quality improvement project evaluating postoperative continuous epidural analgesia after colorectal surgery.

Change of treatment policies
In 2005 70% of the patients received continuous epidural analgesia with local anesthetics and an opioid. Between 2006 and 2010 94% of the patients received this treatment. The others received local anesthetic alone.

Methods
A quantitative retrospective examination of monitoring records was conducted at a County hospital, Sweden in 2005 and repeated yearly until 2010. For pain, mode (i.e. the most frequent value) and maximum values were compiled for each patient (n=77–100/year, N= 518) postoperative day 1–3. Monitored side effects were nausea, motor blockage, sedation, and a respiratory rate <10/min.

Results
Patients with:
- Mode value 0–3 increased from 80% to 90%, figure 1.
- Maximum value 0–3 increased from 45% to 55%, figure 2.
- Nausea increased from 50% to 60%, new policies reduced nausea to 20%.
- Side effects (2005–2010): affected leg muscles 10%, sedation 0%, breaths <10 min 0.6%.

Figure 1. Patients pain after colorectal surgery treated with continuous epidural. Presented with mode value, % of NRS: 0–3, 4–6, 7–10 for 3 days (day of surgery and postoperative day 1–2)

Figure 2. Patients pain after colorectal surgery treated with continuous epidural. Presented with maximum value, % of NRS: 0–3, 4–6, 7–10 for 3 days (day of surgery and postoperative day 1–2)