

Suchar A, Sumrow B, Karenz D, Bailey A

University of North Carolina at Chapel Hill , Chapel Hill , NC, USA

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**Introduction:** Dexmedetomidine is a highly specific and selective alpha-2 agonist with increasing clinical applications in children including premedication, sedation, prevention of emergence delirium, and as part of multimodal anesthetic regimens. Dexmedetomidine use has a significant cost to both hospital and patient. We report a retrospective analysis of the clinical impact and cost-effectiveness of the use of intravenous dexmedetomidine as part of the anesthetic regimen in dental rehabilitation at our institution.

**Methods:** An IRB approved retrospective chart review of 200 consecutive pediatric patients who underwent dental rehabilitation at the University of North Carolina Children's Hospital between January 2013 and July 2013 was conducted. Age, sex, weight, ASA classification, medical comorbidities, intraoperative medications, duration from first dexmedetomidine dose to out of OR, anesthesia OR time (induction to out of OR), surgical time, time from surgery end to extubation, PACU length of stay, initial PACU pain/sedation score, max PACU pain/sedation score, PACU medications administered, and weight based opioid amount administered were all recorded. Statistical analysis was performed utilizing the Student's t-test for parametric data and the Fisher exact test for nominal data. A  $P < 0.05$  was considered to be statistically significant.

**Results:** 113/200 patients received intraoperative dexmedetomidine. There were no significant differences in demographics or perioperative characteristics between those patients that received dexmedetomidine and those patients that did not (Table 1; results given as means). The dexmedetomidine group had a lower pain/sedation score on arrival to PACU, but this was not a sustained difference. Rescue narcotics were used equally in both groups, and discharge times did not vary. We did find that patients who had a midazolam premedication had higher pain/sedation on arrival and this was ameliorated with dexmedetomidine. Because both groups received comparable analgesics both intra- and postoperatively, the cost difference between the groups was largely due to dexmedetomidine. Hospital pharmacy provided hospital purchase price of 200mcg vial of dexmedetomidine of \$72.43 and patient charge of \$244.16.

**Discussion:** Intraoperative use of dexmedetomidine failed to demonstrate any difference in clinical outcomes that we measured with the exception of the first pain/sedation score on arrival to PACU. In our retrospective analysis, we did not find justification for the additional cost of \$72.43/case, all other costs being comparable. While dexmedetomidine may confer benefits in other clinical scenarios, the use in these patients did not justify its cost.

**Table 1**

	<b>No Dexmedetomidine (N=88)</b>	<b>Dexmedetomidine (N=113)</b>	<b>p value</b>
<b>Gender # F:M</b>	<b>41: 47</b>	<b>43: 70</b>	<b>0.22</b>
<b>Weight (kg)</b>	<b>22.22</b>	<b>25.32</b>	<b>0.18</b>
<b>ASA Classification</b>	<b>2</b>	<b>2.14</b>	<b>0.22</b>
<b>Anesthesia OR time (min)</b>	<b>119.3</b>	<b>121.71</b>	<b>0.70</b>
<b>Surgical Time (min)</b>	<b>92.24</b>	<b>93.08</b>	<b>0.89</b>
<b>Surgery End to Extubation (min)</b>	<b>7.76</b>	<b>7.49</b>	<b>0.69</b>
<b>Intraoperative Weight Based Fentanyl (mcg/ kg)</b>	<b>1.68</b>	<b>2.11</b>	<b>0.14</b>
<b>Initial PACU Pain/ Sedation Score</b>	<b>1.41</b>	<b>0.63</b>	<b>0.02</b>
<b>Maximum PACU Pain/ Sedation Score</b>	<b>2.67</b>	<b>2.17</b>	<b>0.19</b>
<b># of Patients who Received Narcotics in PACU</b>	<b>35/88</b>	<b>36/113</b>	<b>0.25</b>

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