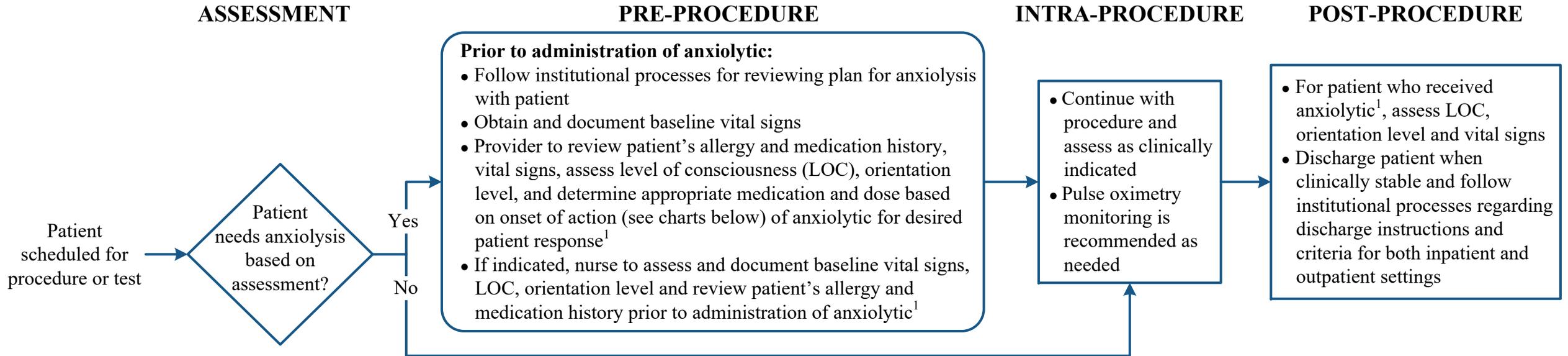


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**Note:** Refer to Anxiolysis (Minimal Sedation) for Procedures Policy (#CLN0502) for complete information.



| Adult Recommended Anxiolysis Dosing <sup>2,3,4</sup> |                          |          |                                |
|--|--------------------------|----------|--------------------------------|
| Drug   | Adult Dose               | Route    | Onset                          |
| Midazolam <sup>5</sup>                               | 2.5 - 10 mg              | PO       | 10-20 minutes                  |
| Lorazepam  | 0.5 - 2 mg<br>0.5 - 2 mg | PO<br>IM | 30-60 minutes<br>20-30 minutes |
| Diazepam   | 5 - 10 mg                | PO       | 30 minutes                     |
| Alprazolam   | 0.25 - 0.5 mg            | PO       | 60 minutes                     |

| Pediatric Recommended Anxiolysis Dosing <sup>3,4,6</sup> |   |       |               |
|--|---|-------|---------------|
| Drug   | Pediatric Dose  | Route | Onset         |
| Midazolam  | ≥ 6 months: 0.25 - 0.5 mg/kg for 1 dose<br><br>Maximum dose prior to procedure:<br>< 30 kg: 0.5 mg/kg<br>≥ 30 kg: 15 mg | PO    | 10-20 minutes |

<sup>1</sup> If an admitted patient receives a dose of IV benzodiazepine for anxiolytic purposes within 30 minutes of a procedure or test, it is recommended that the patient is monitored according to standards

<sup>2</sup> Dosing adjustments: use lower doses for patients > 60 years, debilitated patients, hepatic or renal impairment, and in combination with narcotics or with other central nervous system (CNS) depressants or synergistic sedative medications

<sup>3</sup> Flumazenil is available for patients requiring reversal of anxiolytics

<sup>4</sup> Adult and pediatric resuscitative equipment should be available or easily accessible

<sup>5</sup> Midazolam is preferred due to shorter half-life

<sup>6</sup> Pediatric considerations:

- Consider lower dose of dosing range for patients with cardiac or respiratory compromise, and those who received concomitant opiates, benzodiazepines or similar synergistic sedative medications

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## SUGGESTED READINGS

- Blumer, J. L. (1998). Clinical pharmacology of midazolam in infants and children. *Clinical Pharmacokinetics*, 35(1), 37-47. <https://doi.org/10.2165/00003088-199835010-00003>
- Coté, C. J., Cohen, I. T., Suresh, S., Rabb, M., Rose, J. B., Weldon, B. C., . . . Collins, P. (2002). A comparison of three doses of a commercially prepared oral midazolam syrup in children. *Anesthesia and Analgesia*, 94(1), 37-43. <https://doi.org/10.1097/00000539-200201000-00007>
- Crevoisier, C., Ziegler, W. H., Eckert, M., & Heizmann, P. (1983). Relationship between plasma concentration and effect of midazolam after oral and intravenous administration. *British Journal of Clinical Pharmacology*, 16(S1), 51S-61S. <https://doi.org/10.1111/j.1365-2125.1983.tb02271.x>
- Marshall, J., Rodarte, A., Blumer, J., Khoo, K. C., Akbari, B., Kearns, G., & Pediatric Pharmacology Research Unit Network. (2000). Pediatric pharmacodynamics of midazolam oral syrup. *The Journal of Clinical Pharmacology*, 40(6), 578-589. <https://doi.org/10.1002/j.1552-4604.2000.tb05983.x>
- MD Anderson Institutional Policy #CLN0502 – Anxiolysis (Minimal Sedation) for Procedures Policy
- O'Boyle, C. A. (1988). Benzodiazepine-induced amnesia and anaesthetic practice: A review. In: I. Hindmarch, & H. Ott (Eds.), *Psychopharmacology series: Vol. 6. Benzodiazepine receptor ligands, memory and information processing* (pp.146-165). Springer. [https://doi.org/10.1007/978-3-642-73288-1\\_11](https://doi.org/10.1007/978-3-642-73288-1_11)
- Olkola, K. T., & Ahonen, J. (2008). Midazolam and other benzodiazepines. In: J. Schüttler, & H. Schwilden (Eds.), *Handbook of experimental pharmacology: Vol 182. Modern Anesthetics* (pp. 335-360). Springer. [https://doi.org/10.1007/978-3-540-74806-9\\_16](https://doi.org/10.1007/978-3-540-74806-9_16)
- Reed, M. D., Rodarte, A., Blumer, J. L., Khoo, K. C., Akbari, B., Pou, S., . . . Pediatric Pharmacology Research Unit Network. (2001). The single-dose pharmacokinetics of midazolam and its primary metabolite in pediatric patients after oral and intravenous administration. *The Journal of Clinical Pharmacology*, 41(12), 1359-1369. <https://doi.org/10.1177/00912700122012832>
- Yaeger, J. (2011). Adding intranasal lidocaine to midazolam may benefit children undergoing procedural sedation. *The Journal of Pediatrics*, 159(1), 166. <https://doi.org/10.1016/j.jpeds.2011.05.010>

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## DEVELOPMENT CREDITS

This practice consensus statement is based on majority opinion of the Anxiolysis (Minimal Sedation) workgroup at the University of Texas MD Anderson Cancer Center for the patient population. These experts included:

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