

Several newspapers, radio stations and journals have reported that anesthetics may harm young children (under 3 years of age).<sup>1,2</sup> In December 2016, the FDA declared that all anesthetic and sedative medications will carry a label that they may harm the brains of young children if they receive anesthesia for long periods or for repeat anesthetics. They also stated that “a single, relatively short exposure to general anesthetic...in infants... is unlikely to have negative effects on behavior or learning.”<sup>3</sup>



Parents whose young children require general anesthesia may be worried and confused about this information and may have questions. This brochure explains the most recent studies of the effects of anesthesia on brain development in children and seeks to address concerns parents may have.

## Background

The largest, multicentered study compared a single general anesthetic with a spinal anesthetic in young children who required hernia repair (less than 2 hours) and the preliminary analysis determined that anesthesia caused no harm to the children.<sup>4</sup> In addition, a study of identical twins and a second study of siblings showed that children less than 3 years of age who received a single general anesthetic had the same IQ test results at 11 years of age as their siblings who did not receive anesthesia.<sup>5,6</sup>

Two studies (2016) that included more than 100,000 young children from Ontario<sup>7</sup> and Manitoba<sup>8</sup> in Canada and a third (2017) from Sweden<sup>9</sup> showed that intellectual testing of children who had general anesthesia before 2-4 years of age was similar to that of children who were older than 2 years of age when they had anesthesia. They also noted that intellectual testing was unaffected if the children had received multiple anesthetics.



The December 2016 FDA warning was based solely on animal data and is inconsistent with recent studies in children. To date, there is no definite proof that anesthesia causes harm in young children. However, because of the importance of this subject, pediatric anesthesiologists continue to study this issue.

## What do we think?

As anesthesiologists who provide the highest quality of care to infants and children, we never undertake anesthesia lightly or for purely elective reasons. To deliver children through stressful and difficult surgeries, we remain steadfast that thorough discussions of the risks and benefits of surgery and anesthesia are best addressed before the day of surgery. We welcome the opportunity to discuss the risks and benefits of anesthesia with you at your convenience.

## References:

1. Denise Grady, NY Times, Feb 25, 2015
2. Laurie McGinley, Wall Street Journal, Dec 14, 2016
3. FDA Drug Safety Communications. Dec 14, 2016
4. Davidson AJ, et al. GAS study. Lancet 2016:387, 239-50
5. Bartels M, et al. Twin Research Human Genetics 2009:12, 246
6. Sun LS, et al. JAMA 2016:315, 2312
7. O'Leary JD, et al. Anesth. 2016:125, 272
8. Graham MR, et al. Anesth. 2016:125, 667
9. Glatz P, et al. JAMA Peds 2017:171, e163470

For further information and to reach a pediatric anesthesiologist to answer your questions, please contact:

**Department of Anesthesia**  
**Oishei Children's Outpatient Center**  
Conventus  
1001 Main Street  
Suite K-3502  
Buffalo, NY 14203  
(716) 323-6570  
[www.greatlakesanesthesiology.com](http://www.greatlakesanesthesiology.com)

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## Are Anesthetics Harmful to Young Children?



Great Lakes Anesthesiology, PC