Published in final edited form as:

Anesth Analg. 2018 January ; 126(1): 343–345. doi:10.1213/ANE.0000000000001990.

Pediatric Preoperative Assessment: six million missed opportunities for childhood obesity education

Olubukola O Nafiu, MD, FRCA, MS, Wilson T Chimbira, MD, FRCA, and Alan R Tait, PhD

Department of Anesthesiology, Section of Pediatric Anesthesiology, University of Michigan, Ann Arbor, Michigan, USA

Keywords

Children; Overweight; Obesity; Prevention; Perioperative Interview

Childhood obesity is the quintessential medical problem and one of the most serious threats to the health and longevity of contemporary American children (1). Obesity affects about 12.7 million children in the United States and it is associated with a wide variety of health and fiscal consequences (2,3). Obesity is a complex problem to deal with because it represents an interplay of social, physical, environmental, economic and medical factors and many of these factors have bi-directional relationships with one another (4).

Although the secular trend and long-term consequences of childhood obesity are well characterized (5), very few studies about obesity among children undergoing surgery and anesthesia have been published (6,7). Given that about 6 million children undergo anesthesia and surgery in the US every year (8), and about a third of these are either overweight or obese, this represents a substantial missed opportunity for obesity screening and dissemination of lifestyle and healthy living information. The spectacular inadequacy of current approaches to obesity prevention suggests that a one-size-fits-all strategy simply does not work. This calls for novel strategies aimed at tackling the obesity crisis. One such approach could be incorporation of health education and delivery of childhood obesity prevention information into the perioperative encounter.

Barriers to obesity education in the health care setting

Despite the U.S. Preventive Services Task Force's recommendation that clinicians screen children age 6 years and older for obesity and refer, or offer, intensive counseling and behavioral interventions for obese children (9); the reality is that most clinicians are ill-equipped with the necessary skills to assist their weight counselling efforts (10). Even among primary care physicians who interact with patients in non-hospital settings, obesity

Address correspondence and request for reprints to: Olubukola. O. Nafiu (MD, FRCA, MS), 1500 East Medical Centre Drive, University of Michigan Health System, Room UH 1H247, Ann Arbor, Michigan 48109-0048. Phone: 734-936-4280. Fax: 734-936-9091. onafiu@med.umich.edu.

Olubukola O Nafiu: This author helped with idea concept, literature review and manuscript preparation

Wilson T Chimbira: This author helped with manuscript preparation and editing

Alan R Tait: This author helped with idea development and manuscript preparation

Conflict of interest: none for any of the authors have any conflict of interest to declare

education is not commonly addressed during clinic visits (11). There are several reasons for this often silent response to the obesity epidemic by clinicians. First, many health care providers either do not see obesity as a disease or are ill-equipped to broach the subject with parents of obese children, often preferring parents be the ones to bring up the discussion (10). Secondly, there is considerable social stigmatization associated with obesity, which is often seen as a disorder of self-control for which the doctor can do very little (10). Indeed, because of the social stigmatization associated with obesity, many people consider this a taboo subject (10). Thirdly, there is widespread parental obliviousness to obesity in children (11). This tendency for parents to be unaware that their children are obese until they are in the clinically severely obese range (age and sex-specific BMI above the 97th percentile) has been aptly termed *oblivobesity* (12).

This pervasive culture of “ignoring the elephant in the room” allows obesity to thrive in the population. Whereas people do not always fix a problem they are aware of, a problem ignored or overlooked almost never gets fixed. Obesity, especially in children is an unfortunate disorder that even discussing the problem is apt to be misconstrued as “blaming the victim” (13).

The sad reality about obesity as a nutritional disorder is that most clinicians would not ignore a child who is severely undernourished. For example, if a child presents to a healthcare facility with features of marasmus or kwashiorkor in contemporary America, one can safely assume that we, as healthcare providers would not just raise our collective eyebrows, but would inquire about the child's nutritional history and in all likelihood, involve child protection services in the child's care. This would likely be the reaction irrespective of whether the child presents to the emergency department or the preoperative suite.

One can envisage another scenario where a child presents to the hospital with severe hyperglycemia or a blood pressure of 180/120mmHg. In all likelihood, all available resources will be deployed to establish a diagnosis and manage these potentially life-threatening problems. Consider another scenario in which a child presents for surgery with severe pain; it is highly improbable that healthcare providers will ignore this symptom and not “want to do something about it”. Because diabetes, hypertension or severe pain are not viewed as the “patient's problem”, healthcare providers may be more likely to respond with compassion and action. We would argue that obesity deserves the same level of commitment and action from healthcare providers.

Lack of studies addressing the feasibility or efficacy of lifestyle counselling in the preoperative setting is not surprising given the unique nature of the preoperative encounter. A typical pediatric pre-anesthesia interview is conducted a few moments before the child is transported to the operating room for induction of anesthesia and start of surgery. This is often a period of high anxiety for both the child and the parents or caregivers (14). The time-limited and stressful nature of this encounter may create an illusion that this period does not lend itself to the delivery of health or lifestyle changing information. We would however argue that the preoperative interview represents a teachable moment, an opportunity to

capitalize on an important encounter with the healthcare system for the delivery of lifestyle counseling and obesity prevention.

Teachable moments (TMs) in healthcare are events or scenarios during which individuals are highly motivated to adopt lifestyle changes (15). TMs are by their nature very likely to produce a “blunderbuss effect” albeit for all the right reasons. For example, delivering information about obesity prevention and active lifestyle to a family that adheres to the advice will likely lead to a drop in obesity in the index patient. Consequently, the patient may see an improvement in his or her asthma symptoms, significant improvement in OSA symptoms, glycemic control and a general improvement in self-esteem and overall well-being. These gains could potentially spill over to the child's immediate family members and friends. This represents substantial increase in “herd immunity” against the vagaries of obesity in our society and efforts to increase the utilization of TMs should be intensified in the national effort to curb the rising obesity rates.

Role of the Pediatric Perioperative Personnel in Obesity Prevention

So how can perioperative health care providers (anesthesiologists, surgeons and nurses) contribute to the national and global “war against childhood obesity”? The first step is to recognize that childhood obesity is a serious problem that deserves the same if not greater attention as acute perioperative problems such as low oxygen saturation or high numeric pain score (6,7). Increasing awareness among perioperative health care professionals about the importance of BMI measurement as a useful screening tool is also essential. With the widespread availability of electronic medical record system (16), calculating BMI including displaying age and sex-specific BMI categories should be relatively easy. It should also be easy to build into available computerized anesthesia information systems, alerts that prompt providers that a child's BMI is high with suggestions to discuss this finding with the parents.

At the national level, professional organizations such as the Society for Pediatric Anesthesia (SPA) and the American Society of Anesthesiologists (ASA) need to develop active education of their members, encouraging them to get involved in perioperative obesity education of patients. Presently, considerable attention is being given to anesthesia-associated encephalopathy, a rare complication described with certain anesthetic agents in experimental animals (17). While we agree that anesthesia neurotoxicity may not be a phantom problem, we would argue that some of these efforts should be focused on tackling childhood obesity prevention, a much bigger, present and increasing danger to the long-term health of American children. The absence of a vigorous perioperative response to the childhood obesity epidemic represents a critical missed opportunity to engage parents and children who might be interested in adopting a healthier lifestyle.

Anesthesiology has long being involved in patient safety and public health initiatives and the current childhood obesity epidemic presents unique opportunities to “get involved”. For this reason, expanding screening for obesity and delivery of lifestyle information to non-traditional care settings, such as preoperative interviews, post-anesthesia care units or reaching parents and care givers while their children are in the operating room, may substantially improve childhood obesity recognition and control.

Although awareness programs may not be enough to solve the enormous challenges of childhood obesity, they are essential for promoting a national and hospital-wide dialogue about broader solutions to address this problem and develop useful initiatives that could help children and parents alike. Disease-awareness campaigns have been successful in reducing heart disease, stroke deaths, and cancer. In the perioperative setting, complications from unrecognized esophageal intubations and hypoxic brain damage are now almost unheard of given the widespread adoption of monitoring devices. Similarly, perioperative pain is now regularly assessed and managed with the widespread adoption of pain as a fifth vital sign initiative (18). The time to turn our attention and enthusiasm to childhood obesity prevention in the perioperative setting is now!

Acknowledgments

Financial statement: National Institute of General Medical Sciences (NIGMS) grant number K23 GM104354 supported Dr. Nafiu's work.

References

1. Ogden CL, Carroll MD, Kit BK, Flegal KM. Prevalence of childhood and adult obesity in the United States, 2011–2012. *JAMA*. 2014; 311(8):806–14. [PubMed: 24570244]
2. Daniels SR. The consequences of childhood overweight and obesity. *Future Child*. 2006; 16(1):47–67. [PubMed: 16532658]
3. Lobstein T, Baur L, Uauy R. Obesity in children and young people: a crisis in public health. *Obesity Reviews*. 2004; 5(Suppl 1):4–104. [PubMed: 15096099]
4. August GP, Caprio S, Fennoy I, Freemark M, Kaufman FR, Lustig RH, Silverstein JH, Speiser PW, Styne DM, Montori VM. Endocrine Society. Prevention and treatment of pediatric obesity: an endocrine society clinical practice guideline based on expert opinion. *J Clin Endocrinol Metab*. 2008; 93(12):4576–99. [PubMed: 18782869]
5. Juonala M, Magnussen CG, Berenson GS, Venn A, Burns TL, Sabin MA, Srinivasan SR, Daniels SR, Davis PH, Chen W, Sun C, Cheung M, Viikari JS, Dwyer T, Raitakari OT. Childhood adiposity, adult adiposity, and cardiovascular risk factors. *N Engl J Med*. 2011; 365(20):1876–85. 17. [PubMed: 22087679]
6. Nafiu OO, Reynolds PI, Bamgbade OA, Tremper KK, Welch K, Kasa-Vubu JZ. Childhood body mass index and perioperative complications. *Paediatr Anaesth*. 2007; 17:426–430. [PubMed: 17474948]
7. Tait AR, Voepel-Lewis T, Burke C, Kostrzewa A, Lewis I. Incidence and risk factors for perioperative adverse respiratory events in children who are obese. *Anesthesiology*. 2008; 108(3):375–380. [PubMed: 18292674]
8. Cullen KA, Hall MJ, Golosinskiy A. Ambulatory surgery in the United States, 2006. *Natl Health Stat Report*. 2009; 11:1–25.
9. Barton M. Screening for obesity in children and adolescents: US Preventive Services Task Force recommendation statement. *Pediatrics*. 2010; 125(2):361–7. [PubMed: 20083515]
10. Mikhailovich K, Morrison P. Discussing childhood overweight and obesity with parents: a health communication dilemma. *J Child Health Care*. 2007; 11(4):311–22. [PubMed: 18039733]
11. Rietmeijer-Mentink M, Paulis WD, van Middelkoop M, et al. Difference between parental perception and actual weight status of children: A systematic review. *Matern Child Nutr*. 2013; 9:3–22. [PubMed: 23020552]
12. Katz DL. Oblivobesity: Looking over the overweight that parents keep overlooking. *Child Obes*. 2015; 11:225–226. [PubMed: 25923983]
13. Kraschnewski JL, Sciamanna CN, Stuckey HL, Chuang CH, Lehman EB, Hwang KO, Sherwood LL, Nembhard HB. A silent response to the obesity epidemic: decline in US physician weight counseling. *Med Care*. 2013; 51(2):186–92. [PubMed: 23047128]

14. August DA, Everett LL. Pediatric ambulatory anesthesia. *Anesthesiol Clin*. 2014; 32(2):411–29. [PubMed: 24882128]
15. Lassman J. Teachable moments: a paradigm shift. *J Emerg Nurs*. 2001; 27:171–5. [PubMed: 11275867]
16. Bordowitz R, Morland K, Reich D. use of an electronic medical record to improve documentation and treatment of obesity. *Fam Med*. 2007; 39(4):274–279. [PubMed: 17401772]
17. Culley DJ, Xie Z, Crosby G. General anesthetic-induced neurotoxicity: an emerging problem for the young and old? *Curr Opin Anaesthesiol*. 2007; 20(5):408–13. [PubMed: 17873593]
18. Morone NE, Weiner DK. Pain as the fifth vital sign: exposing the vital need for pain education. *Clin Ther*. 2013; 35(11):1728–32. [PubMed: 24145043]