

New definitions and measures—Standing the test of time

What gets measured gets managed...

(Caulkin)

In this issue of *Pediatric Anesthesia*, Haase et al provide a new technique to reproducible and simple measurement technique of the newborn head position.¹ As such, the traditional descriptions of the “neutral” or “sniffing” position become defined in a simple and anesthesia relevant manner for the first time in this population.

Definitions and measurements are common in medicine. They are applied to all aspects of clinical practice from prehospital to palliative care, from neonates to geriatrics, from administration to billing services. However, what makes a definition or measurement effective and useful for (clinical) decision making? What makes it a widely used and ensures longevity? The answer lies in probably in its ease of use, influence, and determination on relevant outcomes and ultimately the ability to cross specialty boundaries. Only very few definitions are available in airway management that are widely accepted and are commonly used. The Cormack-Lehane scoring for direct laryngoscopy was proposed in 1984 in obstetric patients.² Despite its popularity and clear description of the visualization of the vocal cords (visible or not), the discriminatory power for anticipating a difficult endotracheal intubation is low. Whereas it is accepted that most patients with a Cormack-Lehane score of 3 or 4 are difficult to intubate, problems are also encountered in children with a grade 1 and 2.³ Despite this fundamental problem, the Cormack-Lehane score remains popular until today, likely due to its simplicity.

Another critical aspect of airway management such as the positioning of the patient in the neutral, “sniffing the morning air,” flexed or extended position of the neck is only poorly defined. The lack of a clear definition is surprising as positioning of the patients head positioning forms the basis of our practice and is at least in difficult cases also the prerequisite for successful airway management. An anatomical “neutral” position of the head was proposed in 1882 by the German Anthropological Society and is used for cephalometric definitions in surgical specialties for craniosynostosis and maxillofacial surgery. This Frankfurt horizontal plane or eye-ear plane is determined by the inferior margin of the orbit and the upper margin of the auditory canal and allows the orientation of the skull in a horizontal plane. The lack of anesthesia reference to this plane is an indication of the lack of simplicity or understanding of the importance to define this position.

The “sniffing position” presented in this paper¹ is described as a vertical plane and defined as a line between the subnasale and middle of the external auditory canal (porion). The authors tested the simplicity and reproducibility of this plane in 24 (near) term infants and set out the proposition to use this plane in future studies to correlate

head position with airway obstruction. While the authors only refer to the neonatal head position, the “sniffing” position may also be defined for older patients and other airway scenarios in need of standardization. It represents an essential measure for future airway management trials ranging from the native airway, use of face mask, insertion position of a supraglottic airway devices to the optimal head positioning for endotracheal intubation for research, teaching, and daily care routine. Such a simple definition and measurement may challenge and prevent evidence-based recommendations and practices that have previously led to patient harm. An adoption of this standard may allow simple comparisons of perceived benefits of practices related to daily tasks. It allows documentation of actual rather than perceived difficulties in airway management practice that remain ambiguous when using subjective criteria of difficult intubation.⁴ In order to achieve an unobstructed airway teachers, textbook and guidelines recommend that infants always need something under their shoulder while others will categorically insist something under their head. Of course, both are right and wrong as the individual child is the only one that determines what is required rather than a blanket expert statement. An infant with a prominent occiput (like almost every “normally” delivered newborn) needs a roll under their shoulders. Another child with sturdy shoulders and brachycephaly requires something to lift the head up. Therefore, the systematic error of such recommendations is a description of a technique without a measure of the intended effect.

It is difficult to include children into clinical research. Therefore, we must strive to use the best possible tools for measurement and clinical application in these trials to be of direct clinical use. Thoughtful selection of appropriate definitions and measurements have the potential to higher quality research arising from research involving children. By clearly defining a measure of the “sniffing position,” Haase et al provide a tool for potentially ending uncertainty related to the head positioning in children. However, it may also be necessary to add another simple measurement to define the horizontal plane to their definition. This may be in the form of a line between the external auditory meatus and the humeral head or sternal notch. However, this still requires to be defined and documented. The present paper correctly described this measurement as a research tool and may be in need of further adjustment. It is a critical step in the right direction of providing a measurement of our daily airway management practice. It is stark reminder of the lack of precision and ambiguity that is still common in our specialty and daily clinical routine. Will it become a definition that will be useful and popular and one that will withstand the test of time? Only future studies will provide an answer to this question.

DATA AVAILABILITY STATEMENT

No data sharing is applicable as no new data were created or analyzed.

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