

GlideScope Video Laryngoscope and direct laryngoscope in paediatric patients with difficult airways—a pilot study. *Anaesthesia* 2010; 65:353-7

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### In Reply:

We thank Xue *et al.* for their recent letter regarding our recent article<sup>1</sup> and are happy to respond to their questions and comments.

Their first question related to the number of neonates included in the study. We had two neonates in our study; one was randomized to the GlideScope (Verathon Medical, Bothell, WA) and the other to direct laryngoscopy (Heine, Dover, NH). We routinely use a size 1 Miller blade in the normal neonatal population without difficulty in our institution and reserve the size 0 mostly for premature neonates. Xue *et al.* further questioned our choice of blade size for the GlideScope Cobalt. Before conducting our study, we piloted various sizes of the GlideScope blade and found that the size 2 blade provided optimal views in our patient population. All our patients fell within the manufacturer body weight guidelines for the size 2 blade; however, manufacturer guidelines are not always consistent with individual patient requirements. The GlideScope device and blade sizes have evolved and have been redesigned several times. For example, a size 3 blade was recommended for patients weighing more than 10 kg at the time of our study. It would have been physically impossible to place a size 3 blade in the pharynx of a normal 11-kg 1-yr-old patient because of the blade's size. Recently, a new size 2.5 blade has been introduced, and weight guidelines have been adjusted accordingly. Manufacturer-suggested blade sizes in children should be accepted cautiously until validated by clinical evaluation.

Xue *et al.* state that optimum external laryngeal manipulation should be used with poor laryngoscopic views to improve visualization. We agree with this assertion, and optimum external laryngeal manipulation was permitted in our study and used when the view was poor. However, we did not track the number of maneuvers performed to optimize laryngoscopic view. Although this information may have been useful, we chose to capture this as a component of the time to best view. This could be one of the contributing factors to the difference in time to best view between the GlideScope and traditional direct laryngoscopy (median time GlideScope = 8.1 s, direct laryngoscopy = 9.9 s,  $P = 0.03$ ).

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## Whole Blood: More than the Sum of the Parts

### To the Editor:

Dr. Weiskopf's editorial, "Reconstructing Deconstructed Blood for Trauma,"<sup>1</sup> should prompt serious examination of conventional blood banking practices, not just as they pertain to trauma, but also to other areas of patient care that involve significant blood component transfusion. He mentions two small trials in adult cardiac surgery that have had less-than-convincing results,<sup>2,3</sup> but he omitted one landmark study in pediatric cardiac surgery. Manno *et al.* at the Children's Hospital of Philadelphia, Pennsylvania, compared use of whole blood and "reconstituted" blood (packed erythrocytes, fresh frozen plasma, and platelets) in children undergoing cardiac surgery with cardiopulmonary bypass.<sup>4</sup> This study showed that in the highest risk group, children less than 2 yr of age having high complexity surgery, postoperative blood loss in the group receiving reconstituted blood was around twice that of the whole blood group. Very fresh whole blood did not have a significant advantage over whole blood stored for 24–48 h. In addition, they showed that the platelets in reconstituted blood had significantly more abnormal aggregation in response to adenosine diphosphate, epinephrine, and collagen, suggesting that preservation of platelet function may be one reason for the superiority of whole blood in treating the postcardiopulmonary bypass coagulopathy. Lavee *et al.* showed a similar effect of whole blood on preservation of platelet function by showing that platelet aggregation as assessed by electron microscopy after cardiopulmonary bypass in adult patients was restored by 1 unit of whole blood to a level equivalent to 8–10 platelet units.<sup>5</sup> It is not only patients (of trauma and otherwise) who would benefit from more widespread use of whole blood in terms of clinical outcome and limitation of their exposure to donors. Somewhat counterintuitively, use of whole blood may also help eke out a dwindling blood supply by being substantially more efficient than components, particularly platelets, which may have lost much of their efficacy in the process of being separated and stored apart. It will require effort by clinicians to convince the blood bank community that the whole is more than the sum of the parts.

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#### In Reply:

I thank Drs. Pitkin and Rice for their interest in my editorial, "Reconstructing Deconstructed Blood for Trauma,"<sup>1</sup> and the issue of the utility of whole blood. Although my editorial focused on trauma, I agree with Drs. Pitkin and Rice that the potential for the appropriate utilization of whole blood applies to other clinical circumstances of substantial blood volume replacement, as well.

When citing the limited supportive clinical trial literature,<sup>2,3</sup> I was careful to indicate that those studies addressed adults. I did not cite the study performed in pediatric cardiac surgery patients<sup>4</sup> because it was not fully blinded and only partially randomized, thus making interpretation of the results quite problematic. In addition, the analysis in that publication of a subpopulation (whose removal from the overall analysis reduced the results to statistical nonsignificance in the remaining population: those younger than 2 yr with surgery of lesser difficulty, and all those studied who were older than 2 yr) appears to have been *post hoc*, thus providing an interesting hypothesis, but not proof.

As I wrote,<sup>1</sup> determination of platelet efficacy is not straightforward and requires careful analysis of source, and storage conditions (time, temperature, and medium), as well as the timing and method of assessment. Platelet quantity and quality are critical components of coagulation, making transfusion of viable, functional platelets an important consideration for the use of whole blood.

The author has a relationship with or consults for the following companies and organizations that have an interest in erythrocyte, plasma, or whole blood transfusion: US Food and Drug Administration (Rockville, Maryland), US National Heart, Lung, and Blood Institute/National Institutes of Health (Bethesda, Maryland), US Department of Defense (Washington, D.C.), Caridian BCT (Lake-wood, Colorado), CSL Behring (King of Prussia, Pennsylvania), Entegriion (Research Triangle, North Carolina), OPK Biotech (Cambridge, Massachusetts), and Sangart Inc. (San Diego, California). The author was project/corporate vice president and executive scientific advisor at Novo Nordisk A/S (Bagsvaerd, Denmark) 2005-2007.

Whole blood has potential indications other than that of trauma, although current studies and greatest interest are focused on trauma. The U.S. military continues to use whole blood for some combat injuries, but the road to the return for its use in civilian practice will require a concerted effort by interested clinicians, such as Drs. Pitkin and Rice.

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## 'Evidence' for Practice Guidelines for Central Venous Access?

#### To the Editor:

Although we applaud the American Society of Anesthesiologists (ASA) in the development of evidence-based guidelines and the effort and expertise of esteemed leaders of our field in their preparation, we are concerned with several aspects of the guidance section in the recently published practice guidelines for central venous access.<sup>1</sup>

The prologue to the guidelines emphasize their application to "anesthesiologists or health care professionals under the direction/supervision of anesthesiologists" (in the Focus section) and intent "for use by anesthesiologists and individuals under the supervision of an anesthesiologist" (in the Application section). As such, the dearth of level I evidence presented by anesthesiologists is disconcerting.

For adults, only one of the three presented studies for static ultrasound use for internal jugular access, and only one of the eight presented for real-time ultrasound use, are from anesthesiologists, incongruent to the preceding admonition in the preamble. Examination of the referenced adult studies and their subsequent meta-analysis is disturbing for their heterogeneity, which does not necessarily reflect the practice of average ASA members, and is apparent as such in the ASA member survey responses.

The majority of the referenced studies (all fewer than 100 subjects) include hemodialysis and central line access by both nephrologists and interventional radiologists and multiple studies by nonanesthesia critical care physicians, including