

CORRESPONDENCE

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In Reply:—We read with interest the letter from Drs. Goudas and Carr. We agree that their proposed graphic analysis may improve the presentation of results in some studies involving analgesic drugs. However, in the case of our work, it would be extremely difficult to present the results from eight different experimental groups in the fashion suggested. In addition, Drs. Goudas and Carr should detail specifically what kind of synergistic or additive interactions between drugs that this kind of presentation would provide. Typically synergistic or additive interactions are evaluated using a formal isogolographic analysis, an analysis that we do not believe was feasible in our study.

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Pulse Oximetry Probe Adhesive Disks: A Potential for Infant Aspiration

To the Editor:—The risk of ingestion and foreign body aspiration in infants and young children is well known.^{1,2} Neonates and infants may be particularly prone to aspiration because of immature swallowing mechanisms involving cricopharyngeal dysfunction and absence of laryngeal elevation.³ Objects as seemingly innocuous as toy balloons and tissue paper have lead to infant death from asphyxiation.^{4,5} We report an accidental ingestion of a pulse oximetry probe adhesive disk cover by an infant scheduled for elective surgery.

A 10-month-old, 8-kg boy underwent routine inhalation induction of anesthesia for bilateral inguinal hernia repair. On initial laryngoscopy for tracheal tube placement, a 1-cm diameter paper disk was noted over the epiglottis, and a Magill forceps was used in an unsuccessful attempt to recover it. After continuing mask ventilation for a second retrieval attempt, the disk was no longer visible. We then elected to intubate the trachea, and in the absence of abnormal auscultatory lung findings, decreased lung compliance, or decreased arterial hemoglobin oxygen saturation (Sp_{O_2}) suggestive of foreign body aspiration, we continued the planned procedure. On examining the oral airway used during inhalation induction, we found the 1-cm paper disk adhered to its side. We determined that the disk was the protective covering of one of six "adhesive dots" packaged with the Nellcor Oxisensor II I-20 and N-25 (fig. 1). Because we could not locate the rest of the packaged dots and, in particular, because we could not account for the blue-tipped plastic adhesive dot attached to the retrieved paper disk, we conducted direct and indirect laryngoscopy and nasopharyngoscopy before extubation. Although minor alveolar ridge bleeding resulted from this inspection, no other foreign body was found, and the infant was extubated and recovered in the postanesthesia care unit without further incident.

At the Children's Hospital of Philadelphia, our day surgery nursing staff routinely measures patient vital signs and Sp_{O_2} on the child's arrival to the hospital preoperative registration area approximately 1 h before surgery. After Sp_{O_2} measurement, the pulse oximetry probe is removed from the finger or toe and kept with the medical record. The Nellcor probes we use have an attached set of six paper-covered adhesive dots that are intended for probe reapplication after ≥ 8 h of use. To prevent inadvertent discard of these dots with the probe packaging, a smooth paper backing is attached to the probe cord itself.

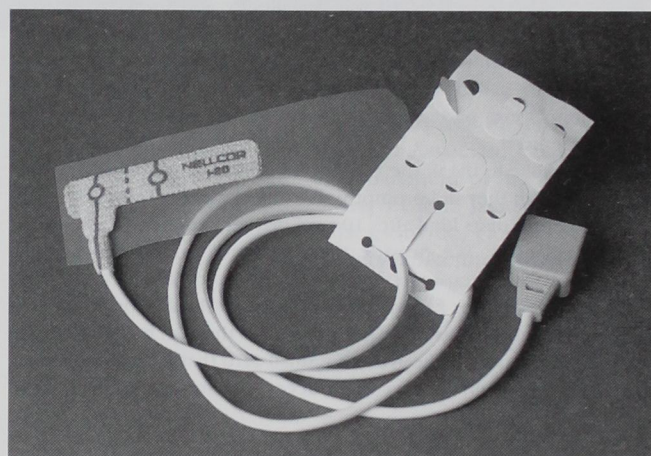


Fig. 1. The Nellcor Oxisensor II I-20 probe with its attached set of six paper-covered adhesive dots. Note the 1-cm paper disk cover folded back to partially expose the upper left blue-tipped plastic adhesive dot.

Because it is our personal practice in the operating room to immediately remove and discard the dots and paper backing into a waste container before reapplying the pulse oximetry probe, we strongly suspect this infant had ingested the paper cover during the initial assessment in the preoperative registration area. It is conceivable, however, that a plastic dot adhered to one of our gloves without our notice and that we unintentionally introduced the paper cover during mask ventilation or oral airway insertion. In general, adhesive dots and covers could be transferred to a patient's airway by a tongue depressor, oral airway, laryngoscope, or tracheal tube if any of these items were to have come in contact with the pulse oximetry probe and set of adhesive disks at the anesthesia work station.

Since this incident, our staff routinely removes the set of adhesive dots from the probe before measuring preoperative Sp_{O_2} . Although there were no manufacturing or packaging defects in this case, the incident was reported to Nellcor Puritan Bennett, Inc. (Pleasanton, CA). We recom-

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ment that hospital staff detach the set of adhesive dots before pulse oximetry probe use and remain vigilant in preventing opportunities for infants and young children to ingest this or other foreign material.

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In Reply:—We concur with the Drs. Reddy and Cook-Sather that clinicians caring for infants and children should make every effort to minimize opportunities for ingestion or aspiration of foreign bodies. This represents a substantial challenge to the bedside care of this patient population, particularly in an era during which so many disposables are used.

We would like to thank the authors for bringing this incident to our attention, which they did promptly after the actual clinical event. This is the first report of its kind after 10 yr of market experience with these sensor accessories. We provide the referenced adhesive dots as a convenience for our customers who wish to extend the service life of an oximetry sensor for a given patient. Because the sensor frequently remains with the child as he or she progresses through hospitalization, we have provided the adhesives on a small card that is attached to the oximetry cable itself, making them accessible for use in each new

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Complication of Bullard Laryngoscope: Dislodgment of Blade-extender Resulting in an Upper Airway Foreign Body

To the Editor:—We will describe a previously unreported complication involving the use of the Bullard laryngoscope.

Some versions of the Bullard laryngoscope come with a separate, attachable plastic blade-extender intended to facilitate use in the larger male patient. We have recently observed two cases in which the plastic blade-extender became dislodged into the patient's hypopharynx. Both cases involved resident physicians who had limited experience with the Bullard laryngoscope. In both cases, the loss of the blade-extender was recognized immediately, and a direct laryngoscope and McGill forceps were used to retrieve the blade-

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location. We might suggest that this card be intentionally secured by the involved clinicians at the opposite end of the oximetry cable to keep it out of a child's reach. Additionally, the card containing the adhesive dots can be removed entirely if there is concern about accessibility to the child.

We thank the authors for bringing this event to our attention. It will receive both recognition and serious consideration as we continually strive to make our products the best and safest available.

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extender from the patient's hypopharynx. Neither patient suffered significant morbidity.

The blade-extender snaps onto the Bullard blade with a distinct click and requires moderate force to place into proper position. Individuals unfamiliar with the blade-extender can slide it onto the blade without actually snapping it into place. The Bullard can be used successfully with the blade-extender in such an "incorrect" position. Figure 1 illustrates proper and improper placement of the blade-extender. Improper placement with subsequent displacement probably accounts for the two cases that are reported here.