

Dr. Stanley's concern about a possible GlideScope® letter to the patients, I am more concerned about anesthesiology residents getting less experience with direct laryngoscopy, especially in difficult intubation scenarios because of an increasing GlideScope® use. Direct laryngoscopy is an essential skill, and every effort should be made to maintain and improve it, especially in difficult scenarios, or else, future generations of anesthesiologists may find difficult airways more challenging, should such gadgets not be available for some reason.

**Deepak Sharma, M.D., D.M.,** Harborview Medical Center, University of Washington, Seattle, Washington. dsharma@uw.edu

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## In Reply:

Dr. Sharma makes some very valid observations about the efficacy of the GlideScope® (Verathon Medical, Bothell, WA) and how, with this device, visualization of glottic structures can sometimes be accompanied by a frustrating inability to actually pass an endotracheal tube. Nevertheless, the GlideScope® is just one of a wide variety of video-assisted intubation devices that are now being used with increasing frequency, often as a first-line instrument. My principal concern, which prompted the correspondence,<sup>1</sup> is that neither is there currently a standard for documenting the use of these devices nor is there a consistent means of informing the patient that such a device was used. This could have significant implications for a future anesthetic, particularly if the anesthesia provider does not have access to a video-assisted device.

In the time since my initial correspondence, I have devised a difficult-intubation letter, which takes the form of an Excel spreadsheet template (Microsoft Corporation, Redmond, WA); it has drop-down menu choices for all of the key elements of a patient's airway evaluation and instrumentation. It takes less than a minute to complete, has been adopted by our large group practice, and is currently being translated into a variety of languages. I am happy to share this with anyone who is interested.

**Glynn D. Stanley, M.B., Ch.B., F.R.C.A.,** North Shore Medical Center, Salem, Massachusetts, and Anesthesia Associates of Massachusetts, Westwood, Massachusetts. gdstanley@comcast.net

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## Postoperative Opioids Remain a Serious Patient Safety Threat

### To the Editor:

The characterization by Dahan *et al.*<sup>1</sup> of overt opioid-induced respiratory depression (OIRD) requiring intervention in postoperative patients as rare and uncommon is troubling.

"Failure to Rescue" and postoperative respiratory failure (also known as Code Blue) are the first and third most common patient safety-related adverse events affecting the Medicare population in U.S. hospitals, accounting for 113 events per 1,000 at-risk patient admissions, and they result in death or anoxic brain injury in the majority of cases.\* The resuscitation literature suggests that the most common antecedent vital sign abnormality to a cardiopulmonary arrest is respiratory in nature, and the worst outcomes often occur on the general care floor (GCF) and in patients whose preexisting morbidity score is low.<sup>2-4</sup> Fifty percent of Code Blue events involve patients receiving opioid analgesia.<sup>5</sup>

Diagnosing narcotic overdoses in hospitalized patients is difficult and often missed; yet, this circumstantial evidence implicating opioids in serious adverse events in the resuscitation literature is not apparent in the anesthesia literature. This may be because the anesthesia literature myopically focuses on surrogate measures of respiratory depression such as respiratory rate and SpO<sub>2</sub>. These measures not only provide very "limited information" and are "loose indicators" of ventilatory adequacy, as acknowledged by Dahan *et al.*, but our literature also suffers from a lack of standardization, uses arbitrary threshold criteria, and predominantly comprises retrospective analysis of intermittent and manually charted data.<sup>6</sup> As such, these data are unreliable when compared with

\* <http://www.healthgrades.com/media/dms/pdf/PatientSafetyInAmericanHospitalsStudy2009.pdf>. Accessed January 15, 2010.

automated and continuous vital sign measurements, are prone to undersampling, and are likely underpowered to “connect the dots” with regard to the outcomes in the resuscitation literature.

Our failure on the GCF is not one of “rescue” but of “recognition.” OIRD is a preventable adverse event, and 78% of cardiac arrests on the GCF are deemed avoidable in root cause analysis.<sup>3</sup> The odds of a potentially avoidable cardiac arrest were five times higher on the GCF than in an intensive care setting, and outcomes are worst during periods of decreased vigilance, such as nights and weekends.<sup>7,8</sup> Recent vital signs, such as a respiratory rate, are missing in as many as 75% of patients for whom a Code Blue or a rapid response team is summoned.<sup>9</sup>

The Anesthesia Patient Safety Foundation convened a symposium in 2006 on the dangers of postoperative opioids, and the consensus opinion was that OIRD remains a significant and preventable threat to patient safety for which institutions must have zero tolerance.<sup>†</sup> In recognition of the gravity of the problem, the 2011 edition of a preeminent nursing text on monitoring patients on opioids recommends that the monitoring interval for vital signs GCF could be greatly reduced, despite the additional burden imposed on the GCF nursing staff.<sup>10</sup>

Three demographic trends are likely to make OIRD more prevalent in the future. The population is aging and obesity is more common, both of which predispose patients to obstructive sleep apnea. Recurrent airway obstruction due to opioid-mediated suppression of the arousal response and the upper airway dilators is the predominant feature of respiratory compromise in postoperative patients with obstructive sleep apnea.<sup>11</sup> Chronic opioid use for both medical and nonmedical reasons is escalating, and these patients are predisposed to have ataxic breathing patterns and frequent central apneas.<sup>12</sup> This predisposition in combination with the higher opioid doses and multimodal opioid therapy they require for adequate pain relief places them at an increased risk of respiratory compromise. Yet, the irregular breathing patterns and transient desaturations that precede respiratory decompensation in these patients are unlikely to be detected by intermittent respiratory rate and SpO<sub>2</sub> measurements.

Improved understanding by clinicians of the complex pharmacologic nuances of opioids and expanded use of multimodal, opioid-sparing analgesic techniques are important contributors to reducing OIRD. But recognition of the scope of OIRD and improving its detection remain pressing unresolved issues in postoperative pain management.

**Frank J. Overdyk, M.S.E.E., M.D.,** Medical University of South Carolina, Charleston, South Carolina. [overdykf@muscc.edu](mailto:overdykf@muscc.edu)

<sup>†</sup> [http://www.apsf.org/resource\\_center/newsletter/2007/winter/01\\_opioids.htm](http://www.apsf.org/resource_center/newsletter/2007/winter/01_opioids.htm). Accessed May 19, 2010.

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## In Reply:

We thank Dr. Overdyk for his interest in our review article.<sup>1</sup> In his letter, Dr. Overdyk addresses the issue of incidence and detection of opioid-induced respiratory depression. Although the focus of our review was on rescue, treatment (with naloxone and alternative agents), and prevention, rather than recognition, we agree with Dr. Overdyk that the incidence of opioid-induced respiratory depression may be underreported, especially in certain high-risk populations. We report from the literature an incidence of opioid-induced respiratory depression that requires direct intervention between one in 200 and one in 50 in American Society of Anesthesiologists I and II patients. These data compare with the incidence of opioid-induced respiratory depression that we encounter in our academic institution in which pain