be expected to expose habits that waste blood. A further caveat was provided by Karen Safcsak, R.N. and Loren Nelson, M.D., from Vanderbilt University. These authors analyzed the arterial blood gas (ABG) ordering patterns in their surgical intensive care unit where oximetry was available for each patient. From 101 "routinely" ordered ABGs, 5 were considered helpful (needed for appropriate weaning decision), 92 not helpful, and 4 counter-productive resulting in additional ABGs. In their institution, approximately 18,000 ABGs are drawn per year at a cost of $1 million. If pulse oximetry and capnometry are going to take their rightful place in management of intensive care medicine, how long can our health care system afford the health care provider who still orders "arterial blood gas every 6 hours?" How will we be able to justify $1 million worth of ABGs when no one responded or changed care in relation to 95 percent of those drawn?

The Gronbeck/Miller study describes only 506 arterial lines in 8 years, but they have shown how to approach the situation. I agree with these authors that respiratory therapists are skilled providers who can place these lines. Firm guidelines for credentialing, performance, and documentation of complication rates must be part of any respiratory therapy initiative for arterial line placement. In addition, we should all realize that it is easy in most situations to place these lines, and that infections are not a major problem with good placement protocols in place. The increase in arterial line placement during the last 2 years of the Gronbeck/Miller study may be either a "blessing or a wolf in sheep's clothing."

The major battleground is to change long-standing habits. When we make our rounds in the intensive care unit and decide daily that all the arterial lines are justified, should we not also ask ourselves if we are drawing frequent laboratory profiles for convenience? The time has come to "cover ourselves legally" by good sound documentation of our medical reasoning rather than exsanguinating our patients with superfluous testing.

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Palliation of Central Airway Stenoses with the Dumon Silicone Stent

Few situations in surgical practice are as terrifying to the patient, or as anxiety-producing to the surgeon, as acute or progressive airway obstruction. Upper airway obstruction can be controlled directly by cricothyrotomy or tracheostomy. The treatment of distal tracheal and mainstem bronchial (central-airway) obstruction, particularly from malignancies, is less clear. The risks and benefits of various types of treatments for central airway obstruction must be considered. External beam radiation therapy is effective, but difficulty arises in achieving immediate palliation. Laser ablation or mechanical fulguration alone will relieve dyspnea; however, the neoplasm frequently recurs necessitating additional procedures. Expandable metal stents such as the Gianturco stent, intended for intravascular use, have been used successfully for strictures of the airway. Endobronchial tumors, however, may grow through the interstices of the stent.

In this issue of Chest (see page 1653), Dr. Bolliger and colleagues from University Hospital in Basel, Switzerland, have reviewed their treatment of 31 patients using the Dumon silicone stent for central airway obstruction. Patients were treated with a combination of laser resection and/or mechanical dilations to create a lumen. Stents were placed for residual obstructions greater than 50 percent. Stent placement, repositioning, and removal were easily accomplished. Patients had "immediate and lasting relief of dyspnea and improvement of performance status ... was achieved in 90 percent of patients."

One noticeable advantage of the Dumon silicon endoprosthesis over metal stents is that it can be adjusted after insertion into the airway. Metal stents once placed cannot be adjusted or moved easily if at all. Additional stents may be required. Complications were rare and easily treatable. The authors describe migration of the stent although this was a minor limitation and easily corrected. One intraoperative fire occurred during a laser procedure with a stent in
place. This complication was avoided in subsequent patients by temporary removal of the stent prior to laser treatment. Three patients had fatal hemoptysis after stent placement (not in the stent area); one occurred a few hours after laser treatment.

The authors examined the effects of adjuvant radiation therapy on stent patency. The number of treated patients with stage-specific malignancy was small (five patients per group), and the results should be considered cautiously. Patients with stage IIIb squamous cell carcinoma of the lung were treated with local adjuvant radiation therapy: either percutaneous radiotherapy (iridium implants) or brachytherapy (endobronchial radiation therapy). Treated patients, even when prior radiation had been given, had prolonged stent patency over similar patients with stent placement alone. Survival was not influenced by this radiation treatment, although further studies with larger patients numbers are needed to test this hypothesis.

The authors have demonstrated that palliation of central airway stenoses was easily accomplished with the Dumon silicone stent, and they should be congratulated on this further refinement of palliation of central airway obstruction. The combination of mechanical ablation, stent placement, and radiation provided excellent palliation for this morbid condition. Efficacy of treatment (palliation) was demonstrated by prolonged airway patency. Stents were maintained with only minor additional adjustments. The combination of mechanical enlargement of the tracheal/mainstem lumen and stent placement for acute and chronic central airway obstruction is valuable and efficient palliation. Additional adjuvant radiation therapy, particularly in patients with underlying malignancy, may enhance central airway obstruction-free survival in part related to improved local delivery of radiation.

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