Editorial

Respiratory Therapist-Driven Protocols

ARE RESPIRATORY THERAPIST–DRIVEN protocols safe? Do they permit more timely and appropriate interventions in patients? Does this translate into better patient outcome? Do protocols save money and are these savings real or trivial? Many hospitals have adopted guidelines for a variety of respiratory therapy services. In this issue of THE WESTERN JOURNAL OF MEDICINE (see page 408), James K. Stoller, MD, proposes that respiratory therapy-driven protocols, as compared with traditional physician-driven practices, better apportion hospital resources and save money. While many hospitals have employed situation specific algorithms (e.g., weaning guidelines for the post-operative patient), Stoller, in previous work[1] has also advocated a respiratory therapy consult service.[1] In such a model, a physician requests consultation from a therapist evaluator (a senior respiratory therapist) who, after assessing the patient, chooses the most appropriate interventions (with accompanying algorithms) from the modalities available. From his study description, these therapists underwent extensive training that included lectures, review of algorithm care plans at each shift, and graded case studies every few months. Stoller found that use of a respiratory care consult service, as compared with physician ordered interventions, had a higher rate of "appropriate" respiratory orders. "Appropriate" was defined as in concurrence with algorithms from clinical practice guidelines of the American Association for Respiratory Care. Of note, chart review found that 15% of the initial orders written by this respiratory care consult service did not follow these same practice guidelines, despite the training listed above. Although this 15% was better than the 43% of physician orders for respiratory care that were discordant with clinical practice guidelines, this does raise some concerns for safety. In addition, would this low rate of "discordant" orders by therapists deteriorate over time? Would part-time and registry respiratory therapists be able to make similar quality assessments and plans for patients? Could this model be used successfully in other institutions? None of these answers is known.

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In the article in this month's journal,[2] Stoller reviews several articles that address the use and misuse of respiratory therapy resources. He found that over-ordering was more common than under-ordering in the studies that looked at both sides of resource allocation. Of note, five of the seven articles listed in Table 1 only addressed over-ordering. This bias may lead some institutions to think that that adoption of protocols may lead to substantial cost savings. It may not, if recognizing and correcting underutilization of resources is also a goal of protocols, as it should be. In Stoller's review, over prescription of supplemental oxygen was the most common misallocation. Is this important? Many physicians might argue that low flow oxygen is innocuous and provides a safety buffer despite adequate measurements of oxygenation at single points in time. Others may counter that while the cost to a single patient of low flow oxygen may seem trivial, the cumulative costs for a hospital over the course of a year could be substantial. Per Stoller's calculations, the potential savings with better allocation of supplemental oxygen for one year at his institution could be over $250,000. Even if the actual savings were a quarter of this estimate, the dollars saved could potentially be used for an additional respiratory therapist. Other examples of over-ordering in this review include inappropriately requested Arterial Blood Gases and Intermittent Positive Pressure Breathing treatments. Two of the six studies found misallocation of bronchodilator therapy.[3,4] Aerosolized bronchodilator therapy is commonly prescribed to in-patients despite the equivalent efficacy of bronchodilators by metered dose inhalers (MDIs) (if equivalent dosages of medication are given). Estimates that suggest that MDI use is significantly cheaper than nebulized therapy for hospitalized patients may not have had realistic labor costs for MDI use.[5] For an institution, a substitution protocol of MDI use for nebulized therapy may only be substantially cheaper if a significant portion of patients can self-administer their medication.

Beyond the issue of misallocation of resources, Stoller also cites articles that support improvement in specific scenarios by protocols such as earlier extubation of post surgical patients. We have had the same experience in our ICU; protocols have permitted earlier extubation and shorter ICU length of stay for our post coronary bypass patients without an increased rate of re-intubation or other adverse events.

In summary, this review by Stoller presents an increasing body of literature supporting the use of respiratory therapy driven protocols. Are they safe? There is evidence that respiratory therapy driven protocols follow expert opinion more closely than physician driven orders, at least in those institutions with expertise. This not quite the same issue as safety, and I would like to see more articles rate the "value" of misallocation of resources. To give the same example as above, prescribing low flow oxygen despite adequate oxygen saturation is unlikely to have the same medical consequences as not prescribing oxygen in a patient with hypoxemia. Do respiratory therapy driven protocols permit more timely and appropriate interventions in patients? I believe they do in specific pre-determined scenarios, such as earlier

extubation of post-surgical patients. Stoller also supports the concept of an evaluation and treatment respiratory consult service, with a broader scope of decision making. Regardless of the scope of care, the best protocols are developed as a collaborative process with input by therapists and physicians whose patients would be treated. Protocols developed solely by respiratory therapy departments without consulting the end-users may be poorly accepted by physicians. Do respiratory therapy driven protocols translate into better patient outcome? According to Stoller's previous work,[1] patients at least do not appear to have a worse outcome. Protocols that permit earlier extubation may translate into lower rates of nosocomial infection, but this remains to be demonstrated. Lastly, do respiratory therapy driven protocols save money and are these savings real or trivial? In Stoller's previous work,[1] the use of a respiratory care consult service did not decrease the cost of respiratory services, though he cites other examples of possible savings. Other estimates of potential cost savings have been extrapolated from short observational periods; it is unclear if significant savings can be realized. However, cost savings should be only one goal of such protocols. The primary goal should be better patient care.

LESLIE ZIMMERMAN, MD
Associate Professor of Clinical Medicine
University of California San Francisco School of Medicine
Division of Pulmonary/Critical Care Medicine
Medical Director, Intensive Care Unit
San Francisco Veterans Medical Center

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