Moving the Practice of Respiratory Therapy Forward

In this issue of Respiratory Care, Chatburn et al,[1] from the Cleveland Clinic, describe their experience with a respiratory therapy consult service at the main campus hospital compared with 2 off–main campus hospitals without a respiratory therapy consult service. These investigators found that the current rate of misallocation of respiratory treatments, represented by the agreement rate for the prescribed treatment with established local protocols and guidelines, was greater compared with benchmark rates at the same hospital 20 y ago (37% versus 14%); this seemed to be driven primarily by the misallocation of bronchopulmonary hygiene treatments.[1] However, they also observed that the agreement for non–respiratory therapy consult service based respiratory therapy orders at the main campus, where the respiratory therapy consult service was available for > 20 y, was greater compared with the off–main campus hospitals (71% versus 20%).[1] Despite the limitations of their investigation, as nicely outlined by the investigators, this study has several important implications for respiratory therapy departments when it comes to overseeing their practice protocols and guidelines, even if they do not have a formal respiratory therapy consult service. First and foremost, the comparative experience from these 3 hospitals supports the ability of standardized respiratory care approaches for attaining greater adherence with evidence-based practice standards. In addition, this study supported the role of a respiratory therapy consult service as a tool for improving in-patient medical care but also as a vehicle for enhancing the professional image of respiratory therapists.

The establishment of protocols and guidelines, and, presumably, respiratory therapy consult services for the delivery of medical services does not guarantee uniformity in terms of their current application, despite successful implementation of those same protocols and guidelines at an institution in the past. Over time, personnel changes, erosion of learned institutional experience or memory, and the reemergence of old biases or misconceptions can contribute to the degradation of the once observed impact of protocols or guidelines on patient outcomes and resource utilization. An important additional factor is the issue of hospital strain, a measure of increasing bed capacity or turnover relative to fixed resources, including personnel allocations. Increasing demand for services without concomitant increases in resources within a hospital, particularly within areas such as the emergency department and ICU or during high-use periods, as with influenza outbreaks, can lead to attrition in adherence to established protocols and guidelines. Examples of how hospital strain can result in reduced quality of in-patient medical care

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are the observed reductions in the administration of venous thromboembolism prophylaxis and greater occurrences of medication errors.[2,3] The increasing age, complexity, and numbers of patients hospitalized in developed countries, such as the United States and the United Kingdom, will undoubtedly increase hospital strain as a factor for protocol and guideline inefficiencies in the future.[4,5] Therefore, respiratory therapy departments must remain vigilant in terms of assessing the overall effectiveness of their standardized practices, even if they were shown to be effective in the past.

An important area in which respiratory therapy–focused protocols and guidelines have made significant inroads is the weaning of patients on mechanical ventilation.[6] However, even for such an accepted respiratory therapy–directed practice, supported by experts in the field as evidenced by publications and authorship of national guidelines and evidence-based guidelines, inefficiencies in application of this standard readily occur.[7,8] A recent systematic review identified several important barriers to the delivery of ABCDE (Awakening and Breathing Coordination, Delirium, and Early exercise/mobility bundles), which provides potential explanations for the less-than-optimal application of these practices.[9] More than 100 barriers to successful implementation of ABCDE bundles were identified and parsed into 4 groups: patient-related factors, including instability and safety concerns; clinician-related factors, such as a lack of knowledge and staff safety concerns; protocol-related issues, including unclear protocol criteria and cumbersome protocols to use; and contextual barriers, such as interprofessional team care coordination.[9] Similarly, a recent review of safety events reported to the Pennsylvania Patient Safety Reporting System identified

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8,745 missed respiratory treatments over a 5-y period and noted that many of these were attributed to the therapist not being available due to an emergency situation and increased work loads.[10] These types of reports highlight the need for continual reevaluation of standardized respiratory therapy practice delivery and the development of systematic methods for optimizing the influence of such standardized treatments on clinical and economic outcomes. Such systematic methods may include adaption and implementation of prospective quality-improvement initiatives, use of the electronic health record and informatics algorithms to identify both lapses in scheduled medical care and medical practices that are ineffective in improving outcomes, and the reengineering of the role and/or hierarchy of respiratory therapists.

Improving and sustaining the effectiveness of standardized practices require a well-thought-out plan and organizational infrastructure. However, the type of infrastructure and plan will vary, depending on the size of the institution involved (clinic versus hospital) and the availability of local resources. Quality improvement is the key buzzword that represents the overlying framework for carrying out these types of processes. As nicely noted on the American Association of Respiratory Care web site,[11] measurements are "crucial" for improving respiratory therapy practices and, by inference, the quality of those practices. However, obtaining such measurements should not be seen as prohibitive to carrying out and delivering quality services. Rather, these should be viewed as a means for determining the overall effectiveness of the delivered services and whether practice pattern changes need to occur. The report by Chatburn et al[1] identified bronchopulmonary hygiene practices at the main campus hospital and overall ordering of respiratory therapy at the non–main campus hospitals as standardized practices that required reevaluation to enhance their delivery. These investigators should be given credit for carrying out this investigation and obtaining these data to identify specific practice issues that can be improved as part of their ongoing quality-improvement process. Similarly, at Barnes-Jewish Hospital, we recognize that erosion in the delivery of evidence-based respiratory therapy occurs for the reasons noted above, despite having focused on protocol development and implementation for $>$ 20 y.[12,13] This resulted in our regular reevaluation of practices and attempts at changing their delivery to better achieve our departmental goals.[14,15]

The Institute for Healthcare Improvement has provided a framework for how to better carry out quality improvement in the hospital area.[16] The Institute for Healthcare Improvement states that the key to sustaining practice improvements is to focus on the daily work of frontline individuals, supported by a high-performance management system that prescribes standard tasks and responsibilities at all levels of the organization.[16] This type of approach should ensure that practices are delivered in a way that best matches the goals of the respiratory therapy department and the institution. Some elements that can advance accomplishing these goals in a sustained manner are provided in Table 1. Similarly, the Agency for Healthcare Research and Quality has provided guidance for effectively carrying out quality-improvement initiatives.[17] As with the Institute for Healthcare Improvement, the Agency for Healthcare Research and Quality[16,17] places a premium on accurate measurements of processes or outcomes that can now be generated by the electronic health record in most hospitals. Such measurements provide a quantitative measure for reducing the disparities in health-care delivery and assessing the impact of the quality-improvement initiative. Both the Institute for Healthcare Improvement and the Agency for Healthcare Research and Quality also emphasize the importance of having local key opinion leaders who support and/or guide the quality-improvement program as well as lead the acceptance of the practice changes that result from the quality-improvement process.

Table 1. Methods for Improving the Delivery of Standardized Medical Care

Method
Cross-train staff (note this does not negate the need for each team member to work at his or her highest level)
Reduce variability in provider practice styles (this should include discussions on how work gets done and can help identify opportunities for standardized approaches that promote efficiency across the larger care team)
Use team communication methods to enhance care delivery (these include brief huddles, impromptu and scheduled team meetings, and staff meetings with leadership)
Ensure that staff work to the highest level of experience, skills, and licensure (this implies that pathways are in place to enhance staff training and credentialing for accomplishing the team's treatment goals)
Establish standardized care protocols (these should be evidence based and supported by local key opinion leaders)
Limit interruptions in care delivery (these are frequently due to administrative inefficiencies and supply issues)
Manage contracted supplies (to support the standardized practices)

It must also be recognized that improving the delivery of respiratory care services is important for retaining therapists in this increasingly competitive health-care environment. A recent report from New York State emphasized this important issue by assessing the results of a survey administered to 435 therapists from that state.[18] Seventy percent of 415 respondents agreed that the practice of respiratory care is at risk of losing practitioners. The most important incentive identified for retention of practitioners in the field was professional growth and an expanded scope of clinical practice. Specifically, the most important of these roles was of gaining the ability to assess patients, developing a plan of care, and receiving reimbursement for services. Having locally developed and accepted evidence-based treatment protocols in place is one strategy

Table 2. Potential Primary Roles of the Advanced Practice Respiratory Therapist

Role
1. Facilitating implementation of clinical respiratory treatment protocols
2. Facilitating management and weaning of patients from mechanical ventilation
3. Improving timeliness, coverage, and efficiency of respiratory patient care
4. Reducing the length of stay and hospital readmission
5. Ensuring delivery of best practice of respiratory care, which should be documented by
a. Improved patient clinical outcomes
b. Improved patient safety
c. Optimized allocation of respiratory care resources

for enhancing the work environment of therapists. Other approaches include the use of a respiratory therapy consult service as employed at the Cleveland Clinic and utilization of advanced-practice respiratory therapists. The development of an advanced-practice respiratory therapist pathway represents a way for respiratory therapists to enhance their presence in the patient-care area. The goals that utilization of advanced-practice respiratory therapists could achieve are highlighted in Table 2. However, there are hurdles for the success of all of these approaches, which include physicians who do not believe in or who are skeptical of evidence-based medicine delivered by non-physicians, department managers restrained by budgetary limitations, and administrators who may not recognize the added value that respiratory therapists provide to their hospitals.

In summary, experiences such as the one documented by Chatburn et al[1] offer opportunities for improving the delivery of health care to our most complex hospitalized patients. In moving forward, the profession of respiratory care should strive to enhance the way that it is viewed by physicians, nurses, and hospital leadership as not solely a means of administering needed treatments but also as an integral organizational component for improving the overall quality of the delivered medical care.

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REFERENCES

1. Chatburn RL, Demchuk A, Stoller JK. Re-assessing a respiratory therapy consult service after 20 years. Resp Care 2019;875-882.
2. Weissman GE, Gabler NB, Brown SE, Halpern SD. Intensive care unit capacity strain and adherence to prophylaxis guidelines. J Crit Care 2015;30(6):1303-1309.
3. Sutherland A, Ashcroft DM, Phipps DL. Exploring the human factors of prescribing errors in paediatric intensive care units. Arch Dis Child 2019. pii: archdischild-2018-315981.
4. National Health Service, United Kingdom. Hospital admissions hit record high as population ages. NHK Digital: Nov 11, 2016. Available at https://digital.nhs.uk/news-and-events/news-archive/2016-news-archive/hospital-admissions-hit-record-high-as-population-age. *Accessed March 5, 2019.*
5. Sun R, Karaca Z, Wong HS. Trends in hospital inpatient stays by age and payer, 2000-2015. HCUP Statistical Brief: Jan 2018. Available at https://www.hcup-us.ahrq.gov/reports/statbriefs/sb235-Inpatient-Stays-Age-Payer-Trends.jsp. *Accessed March 5, 2019.*
6. Kollef MH, Shapiro SD, Silver P, St John RE, Prentice D, Sauer S, et al. A randomized, controlled trial of protocol-directed versus physician directed weaning from mechanical ventilation. Crit Care Med 1997;25(4):567-574.
7. Ely EW, Meade MO, Haponik EF, Kollef MH, Cook DJ, Guyatt GH, Stoller JK. Mechanical ventilator weaning protocols driven by non-physician health-care professionals: evidence-based clinical practice guidelines. Chest 2001;120(6 Suppl):454S-463S.
8. Klompas M, Anderson D, Trick W, Babcock H, Kerlin MP, Li L, et al.; CDC Prevention Epicenters. The preventability of ventilator-associated events. The CDC Prevention Epicenters Wake Up and Breathe Collaborative. Am J Respir Crit Care Med 2015;191(3):292-301.
9. Costa DK, White MR, Ginier E, Manojlovich M, Govindan S, Iwashyna TJ, Sales AE. Identifying barriers to delivering the awakening and breathing coordination, delirium, and early exercise/mobility bundle to minimize adverse outcomes for mechanically ventilated patients: a systematic review. Chest 2017;152(2):304-311.
10. Wallace SC, Gardner LA, Roper C. Missed respiratory therapy treatments: underlying causes and management strategies. Pa Patient Saf Advis 2016;13(1):11-17.
11. American Association of Respiratory Care. Quality management and the respiratory therapist. AARC News. July 11, 2018. Available at http://www.aarc.org/nn18-quality-management. *Accessed March 7, 2019.*
12. Kollef MH, Shapiro SD, Clinkscale D, Cracchiolo L, Clayton D, Wilner R, Hossin L. The effect of respiratory therapist-initiated treatment protocols on patient outcomes and resource utilization. Chest 2000;117(2):467-475.
13. Zack JE, Garrison T, Trovillion E, Clinkscale D, Coopersmith CM, Fraser VJ, Kollef MH. Effect of an education program aimed at reducing the occurrence of ventilator-associated pneumonia. Crit Care Med 2002;30(11):2407-2412.
14. Silver PC, Kollef MH, Clinkscale D, Watts P, Kidder R, Eads B, et al. A respiratory therapist disease management program for subjects hospitalized with COPD. Respir Care 2017;62(1):1-9.
15. Clinkscale D, Spihlman K, Watts P, Rosenbluth D, Kollef MH. A randomized trial of conventional chest physical therapy versus high frequency chest wall compressions in intubated and non-intubated adults. Respir Care 2012;57(2):221-228.
16. Institute for Healthcare Improvement. Optimize the Health Team. Available at http://www.ihi.org/resources/Pages/Changes/OptimizetheCareTeam.aspx. *Accessed March 7, 2019.*
17. Agency for Healthcare Research and Quality. Quality improvement. Available at https://www.ahrq.gov/topics/quality-improvement.html. *Accessed March 7, 2019.*
18. Smith SG, Endee LM, Benz Scott LA, Linden PL. The future of respiratory care: results of a New York state survey of respiratory therapists. Respir Care 2017;62(3):279-287.