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Diagnosis from Afar: Is Remote Multidisciplinary Discussion Appropriate for Interstitial Lung Disease Care?

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Assigning a definitive diagnosis with high confidence in cases of interstitial lung disease (ILD) remains challenging for many cases because of the substantial overlap of clinical, radiologic, and histopathologic features among this heterogeneous group of pulmonary diseases. Erroneous diagnoses have real implications for patients, such as the administration of steroids or immunosuppressive agents in a disease where these drugs have been shown to be harmful, or the inappropriate initiation of

antifibrotic agents for diseases where the safety and efficacy are unknown. The wrong diagnosis may also affect the entire ILD community at large by enrolling the wrong patients into randomized clinical trials. As consensus diagnostic criteria exist for only some ILDs, multidisciplinary discussion (MDD) has been recommended as a key part of diagnostic decision-making for idiopathic pulmonary fibrosis and the other idiopathic interstitial pneumonias (1, 2). Although the specific composition and format of MDD varies by center, most consist of a pulmonologist, radiologist, and pathologist; meet at least weekly; involve data presentation by the clinician directly caring for the patient; and use a consensus

approach to diagnosis (3). Although studies have examined interobserver agreement in ILD diagnosis among individual clinicians (4–6), as well as concordance between MDDs from different international centers (7), the utility of MDD for remote

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cases in which no member present has personally assessed the patient has not been addressed.

In this issue of the *AnnalsATS*, Grewal and colleagues (pp. 455–462) report on the effect of MDD on the diagnosis and management of ILD in patients evaluated by internal ILD pulmonologists, as well as of external cases reviewed remotely (8). In this retrospective cross-sectional study, 209 internal patients and 91 external patients with similar clinical characteristics were reviewed, with data extracted from standardized MDD documentation. MDD resulted in a change in diagnosis in 36% of internal patients and 48% of external patients, and established a confident ILD diagnosis in 44% of patients lacking a previous working diagnosis. Among those without a working diagnosis, patients undergoing surgical lung biopsy were significantly more likely to receive a confident diagnosis (78%) compared with those without a surgical lung biopsy (37%). Consistent with the frequency of revised diagnoses after MDD, a change in treatment was recommended in 45% (26/58) of patients already receiving ILD-directed therapy, and starting treatment was recommended in 45% (108/242) of patients not previously receiving therapy. The study also included an anonymous survey completed by 14 of the external referring general pulmonologists, with 93% indicating they were very or somewhat satisfied with the MDD of external patients, although many wished for more explicit recommendations from the MDD.

These are indeed intriguing results with exciting possibilities for patient care. Consider the example of an elderly patient with idiopathic pulmonary fibrosis who lives hundreds of miles from a specialty center. Can remote MDD effectively replace an in-person assessment? We agree with the authors that external review is not equivalent to an in-person assessment for diagnosis or management. However, although telemedicine visit might be a useful adjunct for some cases, the benefits of important services such as specialist nurses and support groups may be less available to those not completing an in-person visit. Using remote MDD for patients otherwise unable to access such expertise may be an efficient and cost-saving use of limited

resources; however, its efficacy cannot be assumed by extrapolation from internal MDD results. No published studies exist comparing clinical outcomes after single-discipline decision making versus MDD (1), nor is this likely to occur, given the widespread acceptance of MDD as the best approximation of a gold standard for ILD diagnosis. How can this approach be tested? One admittedly time-intensive model could compare diagnostic and treatment outcomes of external patients reviewed by MDD remotely versus those reviewed by MDD after an in-person visit with an ILD specialist by discussing all referrals in an MDD format before and after visits. Further study is needed to clarify the role of MDD in the remote assessment of patients.

And if we are to submit the question of MDD to clinical trials, we will have to ensure uniform practice for MDDs. Or more practically, are all MDDs the same? The 2018 clinical practice guideline for the diagnosis of idiopathic pulmonary fibrosis defines MDD as “an interaction between a pulmonologist (and rheumatologist on a case-by-case basis), radiologist, and pathologist,” allowing wide variability of what can be classified as MDD from center to center and case to case (1). MDDs, including thoracic-specialized radiologists and pathologists, preferably with many years of focus in ILD, as well as ILD-specialized pulmonologists will bring added value to that offered by general radiologists, pathologists, and pulmonologists, with such expertise often limited to academic centers. The additive input of a skilled rheumatologist can be invaluable to diagnosis and treatment recommendations of an MDD, and should be considered for inclusion within most MDDs. The Vancouver MDD consisted of ILD pulmonologists, chest radiologists, and lung pathologists, but details regarding the experience of such radiologists and pathologists in the field of ILD are not addressed, and clinicians must consider the limitations of the knowledge and experience of their colleague, and themselves, when assigning diagnostic certainty. In determining the generalizability of any MDD study, the effect of local regulatory and insurance factors on the cases evaluated must also be considered, a

problem more peculiar to practice in the United States. Given the high cost of the currently available antifibrotics, local policies differ on diagnostic steps required before starting these medications; specifically, whether the MDD is tasked with controlling the prescription of antifibrotic therapies or not (9). Future studies and guidelines should address the composition, scope of cases, implications of local policies, and consistency of MDDs between centers to optimize the performance of MDDs and clarify the generalizability of studies to other institutions.

The report by Grewal and colleagues is notable for establishing the feasibility of a remote MDD and the perceived value of this service by the referring clinician, an important first step toward validating the use of remote MDD. Further research addressing outcomes of MDD for external patients versus those reviewed after in-person assessment is needed to establish which patients require an in-person assessment, which patients need at least remote discussion, and whether certain groups are appropriate for single discipline diagnosis only. With the rapid expansion of telemedicine into clinical practice, remote MDD holds great potential to expand the diagnostic and management recommendations of expert ILD pulmonologists to a wider catchment of patients, without the increased burden of travel for an in-person visit. Still, until further studies have assessed the validity of remote MDD, we cannot assume equivalency between remote and traditional MDD, and must maintain a low threshold to recommend that patients be seen in person. Clinicians will continue to struggle with management of patients with ILD when weighing the benefits of the convenience and timeliness of remote evaluation versus a potentially incomplete assessment leading to the wrong diagnosis, and all the potentially erroneous treatment decisions downstream, until further studies are available. The implications of these decisions for our patients are simply far too important to ignore. ■

Author disclosures are available with the text of this article at www.atsjournals.org.

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Mechanical Ventilation Survivorship: A Tale of Two Countries

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Nearly 1 million Americans undergo mechanical ventilation annually, of whom up to one-third die during their hospitalizations (1). Historically, the success of mechanical ventilation has been

measured by patient survival. However, in more recent years, as advances in therapeutics and technologies have led to improvements in mortality associated with critical illness, attention has shifted to survivorship outcomes. The many morbidities associated with surviving mechanical ventilation (2, 3) lead to substantial healthcare use after episodes of acute care, such as use of nonacute inpatient care and subsequent rehospitalization (4, 5). Measures of resource use—length of inpatient stay, discharge disposition, and hospital readmission, for example—are not only important to hospitals and policymakers; they are also endorsed by patients and their families as important patient-centered outcomes (6).

Patterns of care for mechanical ventilation survivors across different countries are not well described. It is known that patients admitted to ICUs, as are most mechanically ventilated patients, remain in acute care hospitals for shorter durations in the United States than in other countries (7). However, whether this difference translates

into actual differences in healthcare use and overall outcomes is unknown. In this issue of *AnnalsATS*, Wunsch and colleagues (pp. 463–470) report the results of a retrospective observational study of postacute care and outcomes in two contemporary cohorts: mechanical ventilation survivors admitted to hospitals from 2010 through 2012 in New York State and in Ontario (8). They found that although initial hospital length of stay was similar in the two populations overall, length of stay was consistently shorter in New York than in Ontario among patient subgroups of comparable acuity. Furthermore, more patients in New York were discharged to nonhome destinations and had higher 30-day hospital readmission rates. Subgroup analyses demonstrated particularly strong associations with 30-day hospital readmissions in New York among patients with new tracheostomies, patients who required hemodialysis during hospitalization, and patients discharged to nonhome destinations. Interestingly, they also found that hospital-free days out to 2 months after the initial hospitalization (i.e., days alive and not admitted to an acute

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