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Lockdown as the mother of invention: disruptive technology in a disrupted time



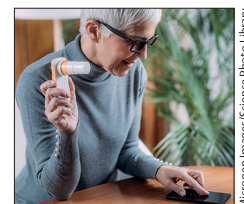
Comprehensive care for people with interstitial lung disease (ILD) requires careful monitoring and attention to detail. Many of the details that are important to inform best care in ILDs can now be monitored outside the clinic, thanks to advances in technology. Such monitoring includes remote measurement of lung function, monitoring of symptoms and treatment side-effects, and documentation of important health behaviours (such as medication adherence and physical activity). Marlies Wijsenbeek and colleagues provide a comprehensive overview of how these technologies have been applied in the care of people with ILD,¹ a topic of relevance to both research and clinical practice. A global survey, published in 2021, reported that 50% of health-care professionals are now using digital technologies in the care of people with ILD (mostly teleconsulting), up from only 8% before the COVID-19 pandemic.² More than 80% of people with ILD are very satisfied with their experience of telemedicine.³ Increased use of telemedicine has the potential to increase access to specialist care, which people living with ILD have identified as a high priority.⁴ It is no longer a question of whether it is feasible to monitor patients with ILD from a distance; the outstanding questions relate to how we can best implement these technologies in practice, and better understand their effect on specific outcomes.

Implementation of telemedicine in ILDs is not just about introducing a new technology, it also requires consideration of human factors, environmental context, and policy drivers. Although 97% of ILD health-care professionals believed that remote monitoring of variables such as spirometry and physical activity adds value to ILD care, only 22% are currently doing this monitoring.² Barriers to implementation include organisational structure, technical issues, no reimbursement, shortage of time, and absence of staff to monitor incoming data.^{2,5} There are also geographical disparities, with ILD health-care professionals in Asia and Africa less likely to use telemedicine than those in North or South America and Europe.² Even where telemedicine is available, some patients might choose not to use it. Over half of the patients attending a virtual ILDs clinic in the USA during the pandemic reported

that they preferred in-person visits to perform routine spirometry and allow their physician to listen to their lungs.³ Although remote monitoring would enable these assessments to be made at home, this could add to patient burden, with adherence to remote spirometry known to decrease over time.⁶ Patients with ILD who attended telemedicine consultations were more likely to be White, more affluent, and female compared with in-person clinic attendees in the pre-COVID-19 era.³ The number of patients attending telemedicine consultations who were Black or of low socioeconomic status was lower than expected, suggesting there might be barriers to accessing care in this manner. Older patients were more likely to experience technical issues.³ These data suggest that, beyond the pandemic, we will need to think carefully about how and when we should implement telemedicine solutions (and also when they do not add value), and what support is needed for patients and health systems to use these technologies most effectively.

It is early days for the application of telemedicine in ILDs, and its effect on the outcomes that matter to patients and the health system remains to be established. The Series paper by Wijsenbeek and colleagues¹ illustrates that, to date, studies in ILDs have largely focused on feasibility and validity of remote measurements or short-term clinical outcomes (such as change in lung function over days or weeks). In other chronic respiratory diseases it has been surprisingly difficult to show an effect of remote monitoring on important long-term outcomes, such as exacerbations and hospitalisations.⁷ It is not clear whether monitoring alone will be enough to improve health outcomes in ILDs, or whether a more comprehensive package of remote care is required. Telemedicine could also be used to deliver important ILD treatments such as pulmonary rehabilitation or palliative care, although this potential remains to be explored. Clinical trials that evaluate multicomponent telemedicine interventions and evaluate long-term outcomes, including cost-effectiveness, will be important to inform practice and policy.

It is clear that telemedicine will play an important role in ILD care, so the adoption of technology-enabled



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Lancet Respir Med 2022

Published Online
October 4, 2022
[https://doi.org/10.1016/S2213-2600\(22\)00291-0](https://doi.org/10.1016/S2213-2600(22)00291-0)

See Online/Series
[https://doi.org/10.1016/S2213-2600\(22\)00228-4](https://doi.org/10.1016/S2213-2600(22)00228-4)

models of care will not wait for the results of future trials. Many people with ILD are already using digital strategies to support self-management and expect to have access to their personal health data.⁸ Our opportunity is to leverage the benefits of technology to provide a personalised, comprehensive model of care that not only monitors the right things, but also delivers outcomes that matter.

We declare no competing interests.

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