

Delivering internet-based spirometry training for health care workers in four countries: The FRESH AIR H2020 experience

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Aim: Spirometry, a measure of lung function, is central to the diagnosis and management of chronic lung diseases such as asthma and chronic obstructive pulmonary disease (COPD).^{1,2,3} Access to spirometry in Low- or Middle-Income Countries (LMICs) is limited⁴. We aimed to deliver an internet-based spirometry training and feedback program to health care workers (HCWs) in four LMICs.

Method: UW provided access to Spirometry 360⁵ an online, evidence-based training program. Based on ATS/ERS standards, it is designed both for primary care test administrators and treating providers. Participating teams also submit de-identified spirometry tests to the secure Feedback Reporting System. Each team receives several monthly feedback reports summarizing the quantity and quality of their tests and recommending specific corrective action. To overcome language barriers, we translated the training materials into Vietnamese and Russian. Four main measures have been followed since July 2016. These include 1) training resource logins and 2) completions, 3) number of spirometry tests submitted, and 4) proportion of clinically acceptable (“passing”) tests.

Results: A wide range of HCWs have participated in the program and a wide range of approaches taken for its delivery. To date, 78 HCWs have logged into the training, ranging from 38 to 1 per country. The overall completion rate was 44%, ranging from 92% to 0%. Since September 2016, a total of 266 spirometry tests have been submitted by three countries, ranging from 195 to 28 tests per country. The baseline-passing rate was 66% (range 73%-33%), and improved to a “best month” of 97% (range 100%-85%) in September 2017. Participant feedback has been uniformly positive.

Conclusion: Although it is feasible to deliver an internet-based spirometry training and feedback program in LMICs, uptake is variable, and influenced by a variety of barriers including language, cultural acceptability of the test, competing priorities, and equipment and internet availability.

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References and Clinical Trial Registry Information

References

1. From the Global Strategy for the Diagnosis, Management and Prevention of COPD, Global Initiative for Chronic Obstructive Lung Disease (GOLD) 2017. Available from: <http://goldcopd.org>
2. Global Initiative for Asthma. Global Strategy for Asthma Management and Prevention, 2017 (Page 18). Available from: www.ginaasthma.org
3. Levy, ML et al. Diagnostic Spirometry in Primary Care. DOI:10.4104/pcrj.2009.00054
4. Obaseki, D et al. Gaps in Capacity for Respiratory Care in Developing Countries, Nigeria as a Case Study. DOI:10.153/AnnalsATS.201410-443AR
5. www.spirometry360.org