Journal of Respiratory Medicine

Editorial Open Access

Potential Opportunities Provided by Digital Technologies in Respiratory Medicine

Nicolini Antonello*

Department of Pulmonology, Physiotherapy School, University of Genoa, United Kingdom

Introduction

In the context of respiratory disease, poor adherence to medication is a significant concern associated with poor patient outcomes, unnecessary escalation of medication and increased healthcare costs. Complex treatment regimens for patients with asthma and COPD, including both as needed medications for acute symptoms and long-term maintenance medications in a mixture of device types are among the barriers to adherence [1]. Furthermore, optimal self-management often requires multiple components in addition to adherence, such as measuring lung function and recording symptoms, which are not easy for patients to maintain [2]. To address the need for optimised adherence to maintenance medication in patients with respiratory diseases, a number of digital technologies have been developed. Strategies used to date include approaches to monitoring and improving adherence, such as electronic inhalers, text messaging and reminders, and self-management tools. Examples of digital interventions targeting adherence in patients with asthma and COPD that were published between 2007 and 2017, including electronic monitoring devices, text messaging, and web and mobile applications[3]. However, technology is rapidly advancing and additional features and enhancements are continually beingdeveloped.These advancements include strategies to better monitor adherence. In patients with chipped-nebulisers are available that provide objective date- and time-stamped adherence data. Inhalers and inhaler add-ons designed to measure and assess inhaler technique/quality of inhalation are also available, which can help identify and overcome unintentional poor adherence [4]. Smart inhalers have also been developed that wirelessly send data on inhaler usage directly to a mobile health platform or website. Such platforms offer several advantages, including visualisation of measurements and integration into a wider dataset, such as that contained in a patient's electronic medical records. Technologies are also available that remotely monitor physiological parameters, including Bluetooth-connected devices and mobile applications that measure peak flow, exhaled nitric oxide fraction, physical activity and ambient pollution[5]. These data can link adherence management with other aspects of patient self-management and may be used to provide appropriate information to promote healthy behaviours [6]. Such connected information may also provide mechanistic insights into the effect of treatment adherence on health outcomes. New and detailed information can also be obtained from wearable biosensors that continuously monitor respiratory and cardiac parameters using acoustic signals. Taken together, digital approaches targeting adherence and advances in physiological monitoring of disease open up arrange of possibilities for understanding the causes and consequences of poor adherence and, hence, a rational way to deliver effective adherence management[7]. Several attributes of digital technologies, which could be summarised under the headings of precision, penetration, prediction and personalisation, suggest how current and future technologies may be incorporated into the multidimensional nature of healthcare. Precision Longitudinal data on patients' adherence collected via digital applications, particularly when supported by digitally collected information on symptoms and physiological and environmental parameters can provide a detailed and precise basis for understanding an individual's disease [8]. For example, in patients with asthma, digitally collected real-time data on adherence and symptoms can help HCPs differentiate between symptoms or changes in lung function due to low adherence versus those indicating refractory disease or disease progression. Patterns of change in lung function based on digitally collected data on inhaler technique and inhaler use coinciding with peak expiratory flow [9]. Based on such data, HCPs can identify patients for whom additional training on inhaler technique or interventions to optimise inhaler use may be beneficial. Additionally, identifying inconsistencies between recorded data on symptom severity and measures of lung function may lead HCPto assess and adjust both reliever and controller medication. Such data can help HCPs to differentiate between low implementation and no persistence followed by re-initiation [10]. Digital solutions that effectively link symptoms, data recorded by electronic peak flow meters and adherence can be helpful in terms of accurately assessing medication use, as well as in helping patients understand and self-manage their disease

Acknowledgement

None

Conflict of Interest

None

References

1. Bidaisee S, Macpherson CNL (2014) Zoonoses and one health: a review of the literature. J Parasitol 2014:1-8.
2. Cooper GS, Parks CG (2004) Occupational and environmental exposures as risk factors for systemic lupus erythematosus. Curr Rheumatol Rep EU 6:367-374.
3. Parks CG, Santos ASE, Barbhaiya M, Costenbader KH (2017) Understanding the role of environmental factors in the development of systemic lupus erythematosus. Best Pract Res Clin Rheumatol EU 31:306-320.
4. Barbhaiya M, Costenbader KH (2016) Environmental exposures and the development of systemic lupus erythematosus. Curr Opin Rheumatol US 28:497-505.
5. Gergianaki I, Bortoluzzi A, Bertsias G (2018) Update on the epidemiology, risk factors, and disease outcomes of systemic lupus erythematosus. Best Pract Res Clin Rheumatol EU 32:188-205.

***Corresponding author:** Nicolini Antonello, Department of Pulmonology, Physiotherapy School, University of Genoa, United Kingdom, E-mail: Nicolini@gmail.com

Received: 27-Jun-2023, Manuscript No.JRM-23-108084; **Editor assigned:** 30-Jun-2023, PreQC No.JRM-23- 108084(PQ); **Reviewed:** 14-Jul-2023, QC No.JRM-23-108084; **Revised:** 19-Jul-2023, Manuscript No.JRM-23-108084 (R); **Published:** 26-Jul-2023, DOI: 10.4172/jrm.1000166

Citation: Antonello N (2023) Potential Opportunities Provided by Digital Technologies in Respiratory Medicine. J Respir Med 5: 166.

6. Cunningham AA, Daszak P, Wood JLN (2017) One Health, emerging infectious diseases and wildlife: two decades of progress? Phil Trans UK 372:1-8.

7. Sue LJ (2004) Zoonotic poxvirus infections in humans. Curr Opin Infect Dis MN 17:81-90.

8. Pisarski K (2019) The global burden of disease of zoonotic parasitic diseases: top 5 contenders for priority consideration. Trop Med Infect Dis EU 4:1-44.

9. Kahn LH (2006) Confronting zoonoses, linking human and veterinary medicine. Emerg Infect Dis US 12:556-561.