

# Navigating the new landscape of mobile apps: how can sport and exercise medicine clinicians and patients choose apps wisely?

Osman Hassan Ahmed,<sup>1,2</sup> Hopin Lee,<sup>3,4</sup> Hannah Marchant,<sup>5</sup> Rhiannon Jones,<sup>5</sup> Eric E Hall<sup>6</sup>

When Christopher Columbus first set foot on the Americas in 1492, he stared on the landscape with wonder and trepidation. Over 400 years later, sport and exercise medicine (SEM) clinicians may feel similar emotions as they scan the landscape of smartphone apps in healthcare for patient engagement.<sup>1,2</sup> Mobile apps pose challenges for patients and clinicians due to the emergent and (partially) unregulated nature of apps in healthcare. Healthcare apps represent a transient form of healthcare and are often short-lived in popularity, as the example of Pokemon Go demonstrates.<sup>3</sup>

Not all apps are well-designed, user-friendly, and importantly, many lack evidence-based content. SEM clinicians may be reluctant to recommend such apps, especially if the clinicians themselves find the apps awkward and cumbersome to use. In addition, SEM clinicians may not be familiar with the apps available for a particular condition, and thus will not be able to recommend relevant apps to patients under their care. For patients, having apps with dubious management information may be waste of money, not accelerate their rehabilitation, or at worst cause negative changes and delay recovery.

## ADDRESSING THESE CONCERNS

To combat concerns of regulation of healthcare apps, efforts are currently

<sup>1</sup>Faculty of Health and Social Sciences, Bournemouth University, Bournemouth, England

<sup>2</sup>The FA Centre for Disability Football Research, St Georges Park, Burton-Upon-Trent, Staffordshire, UK

<sup>3</sup>School of Medical Sciences, Neuroscience Research Australia, University of New South Wales, Sydney, New South Wales, Australia

<sup>4</sup>School of Medicine and Public Health, University of Newcastle, Newcastle, Australia

<sup>5</sup>Paediatric Department, Poole Hospital NHS Foundation Trust, Poole, Dorset, England

<sup>6</sup>Department of Exercise Science, Elon University, Elon, North Carolina, USA

**Correspondence to** Dr Osman Hassan Ahmed, Faculty of Health and Social Sciences, Bournemouth University, Bournemouth, England BH1 3LT, UK; [osman.hassan.ahmed@gmail.com](mailto:osman.hassan.ahmed@gmail.com)

underway on both sides of the Atlantic Ocean to improve quality control. In the USA, healthcare apps are screened by the US Food and Drug Administration (FDA) to ensure that the quality (and safety) of the app is sufficient to be released to the public.<sup>4</sup> In the UK, the National Health Service (NHS) is due to release of the NHS app library in March 2017.<sup>5</sup> Despite this, apps with misleading information continue to be available to the public,<sup>6</sup> highlighting the need for a more robust monitoring system.

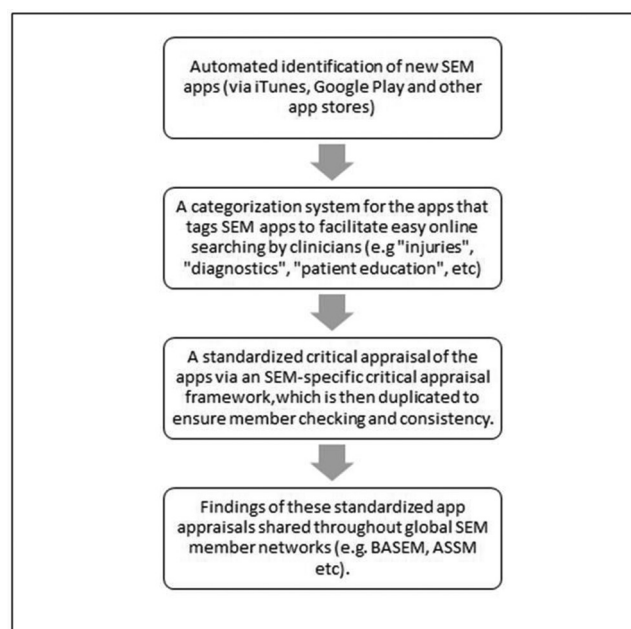
FDA and NHS regulations for apps are not profession-specific, and the global SEM community does not currently have a central resource that they are able to refer to with confidence. The *BJSM* provides some recommendations and critiques of selected SEM apps with the 'Mobile App Review' section. Nevertheless, a limitation of this approach is the likelihood of selection bias in the apps represented, a non-standardised evaluation process, and the limited scope of apps selected to be reviewed

in comparison to the vast number of SEM-related apps in existence. No single journal can scratch the surface of the estimated 165 000 health-related apps on the Apple store alone.<sup>7</sup>

To increase the confidence of SEM clinicians in recommending apps, a positive approach would be to actively involve them in the review process of developing new apps. In parallel with this, patient involvement (via consultation during the design phase) would also add value to the process. The creation of a standardised, critical appraisal framework for SEM apps would allow coherent evaluation of SEM apps, which could then be made available in a centralised repository. This could be easily accessed and distributed to focused SEM clinicians, with additional reviews of the same app providing consistency via member checking. This would ensure that SEM clinicians receive up-to-date information about new and existing apps, with confidence in their clinical value and safety.

## THE SEM APP STRATEGY

Our suggestion for a new, collective approach towards governance of SEM apps is outlined in the SEM app strategy (SAS) (see [figure 1](#)). We call for the SEM community to generate a comprehensive, centralised repository of SEM apps that are systematically organised and appraised by peers in the SEM community. Using an approach similar to that of Cochrane,<sup>8</sup> we propose the creation of a community of systematic reviewers from a multidisciplinary background. This



**Figure 1** The SEM app strategy (or the 'SAS'). SEM, sport and exercise medicine.

community would include both clinicians and researchers but could also consist of other relevant stakeholder groups, such as health informatics professionals and patients. Appropriate individuals could register as a reviewer in a similar way to that of Cochrane reviewers, and the success of the volunteer system employed by Cochrane suggests that this model is a potentially viable one.

Financial costs associated with this approach would be for the personnel to manage the database, the hosting fees for the website and expenses for the indexing system. Conservative estimates for these costs are around £5–6000/year, making the endeavour a feasible one with a relatively modest investment required. One potential source of support could be from a non-partisan and major cross-sporting organisation (such as the International Olympic Committee), as it would be in the interests of such an organisation to assist its members in this regard. Potential financial costs could also be lowered if the organisation embraced the innovation and hosted it through its own online platform.

An approach such as the SAS provides an enhanced opportunity to create an SEM

community which is better informed and more involved in the use of smartphone apps in SEM. When allied with potential new methods of evaluating smartphone apps, this new landscape of SEM apps should be easy to navigate and ultimately provide exciting and beneficial horizons for the clinician to explore.

**Contributors** All authors contributed in conception and creation of the initial draft and subsequent revisions and final version of this paper.

**Competing interests** None declared.

**Patient consent** Not obtained.

**Provenance and peer review** Not commissioned; externally peer reviewed.

© Article author(s) (or their employer(s) unless otherwise stated in the text of the article) 2017. All rights reserved. No commercial use is permitted unless otherwise expressly granted.



CrossMark

**To cite** Ahmed OH, Lee H, Marchant H, *et al.*  
*Br J Sports Med* Published Online First: [please include  
Day Month Year]. doi:10.1136/bjsports-2017-097911

*Br J Sports Med* 2017;**0**:1–2.  
doi:10.1136/bjsports-2017-097911

## REFERENCES

- 1 Financial Times (2017). How smartphones are transforming healthcare. <https://www.ft.com/content/1efb95ba-d852-11e6-944b-e7eb37a6aa8e> (retrieved 24 Mar 2017).
- 2 Verhagen E, Bolling C. Protecting the health of the @hlete: how online technology may aid our common goal to prevent injury and illness in sport. *Br J Sports Med* 2015;49:1174–8.
- 3 Mobi Health News (2017). Declining user base shows Pokemon Go not immune to trend of health app attrition. <http://www.mobihealthnews.com/content/declining-user-base-shows-pokemon-go-not-immune-trend-health-app-attrition> (retrieved 26 Mar 2017).
- 4 FDA (2015). Mobile Medical Applications. <http://www.fda.gov/MedicalDevices/DigitalHealth/MobileMedicalApplications/ucm255978.htm> (accessed 23rd February 2017).
- 5 Digital Health (2017). NHS app library to be launched this month. <https://www.digitalhealth.net/2017/03/nhs-app-library-launched-in-march/> (retrieved 24 Mar 2017).
- 6 Modern Healthcare (2017). N.Y. attorney general nets penalties from health apps for misleading consumers. <http://www.modernhealthcare.com/article/20170323/NEWS/170329949> (retrieved 24 Mar 2017).
- 7 The Guardian (2017). Health apps could be doing more harm than good, warn scientists. <https://www.theguardian.com/science/2017/feb/21/health-apps-could-be-doing-more-harm-than-good-warn-scientists> (retrieved 26 Mar 2017).
- 8 Cochrane (2017). What is Cochrane evidence and how can it help you? <http://www.cochrane.org/what-is-cochrane-evidence> (retrieved 17 Sep 2017).