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#BritainBreathing: Codesigned citizen science to map seasonal allergy symptoms across the UK

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Background

Seasonal allergies, hay fever and asthma affect approximately one in four people and the incidence is increasing. Whilst the causes are unknown, hypotheses propose associations with environmental changes, exposure to pollutants and decreased exposure to childhood infections. High resolution datasets on pollen count and pollution are available; however there is no equivalent for incidence of seasonal allergy symptoms. We planned a national citizen science project using smartphones to gather data from the general population on seasonal allergy symptoms, and where and when they occur. The resulting dataset will be linked with other publicly available data, enabling better understanding of allergy triggers. This is a joint project between the Royal Society of Biology, the British Society for Immunology, and The University of Manchester.

Methods

In spring 2015, two codesign workshops were held for members of the public with seasonal allergies and/or asthma (n=33). Guided by researchers, attendees used paper prototyping techniques to illustrate the functionalities of a mobile application. They also prioritised functions for inclusion within the app, discussed data sharing options and suggested material for the accompanying project website (www.britainbreathing.org). Following codesign workshops, designs and requirements were collated, refined and used to build the first version of the application in Android.

Results

Workshop feedback indicated that potential users prioritised simple, personal tracking. They also valued the ability to access information about symptom frequencies among other users locally. Support for academic research was high, although most

wanted some control over data sharing. People were comfortable with GPS data being collected, provided it did not impinge on privacy. We agreed to make data openly available via an interactive widget on the project website. The resulting first version of the application enables personal symptom tracking and will be released in March 2016 via the Google Play store (free of charge). A national media campaign will drive recruitment, alongside inclusion in the European City of Science 2016 programme in Manchester. Emerging data on the incidence of allergy symptoms by location will be presented.

Conclusion

Citizen science can be more than simply crowdsourcing data. We demonstrated that paper prototyping was a feasible and useful technique for codesigning an application with members of the public. Furthermore, workshop feedback indicated a high level of support for citizen science, provided users gained simple, personalised feedback. Further research is required to determine how codesign processes influence subsequent participant recruitment and engagement in citizen science projects.

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