# #BritainBreathing: CODESIGNING A CITIZEN SCIENCE PROJECT TO MAP SEASONAL ALLERGY SYMPTOMS

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## Background

Approximately one in four people suffer from seasonal allergies such as hay fever and asthma and this incidence is increasing. The causes are not yet known, although hypotheses propose this might be related to changes in our environment, exposure to pollutants and decreased exposure to childhood infections.

We planned a citizen science project to gather data from the general population on seasonal allergy symptoms, and where and when they occur. These data will be used to build a clearer picture of the pattern and frequency of allergy incidence across the UK. This is a joint project between the Royal Society of Biology, the British Society for Immunology, and The University of Manchester.

## #BritainBreathing

#BritainBreathing is a free to use smartphone app that allows the public to record their allergy symptoms in a simple and straightforward way and use it to help manage their own symptoms. The data can also be safely shared with the research team and combined with other publicly available data (such as weather, pollen, or pollution statistics) to build a better understanding of allergy incidence and triggers nationally.

## Codesign Workshops

As this is a citizen science project, we wanted members of the public to help design the app and build ways to keep people engaged throughout the project. In March and May 2015, 33 people with allergies and/or asthma took part in codesign workshops. Using 'paper prototyping' techniques, attendees sketched out the functionalities of a mobile application, using mock phone screens, printed buttons, 'widgets', pencils and paper (see figure 1.). They also prioritised the most important functions to include in the app.

## Key Messages

The workshop discussions provided important feedback for the development of the prototype app and our future research. Feedback included:

- The app should be very quick and easy to use and provide personal feedback, to encourage regular and ongoing logging of symptoms.
- The most useful feature seemed to be personal symptom tracking and alerts about symptoms in the local area, to help inform management and prevention strategies.
- People liked the idea of interactive maps, based on community data. People were comfortable with the app collecting GPS (location) data, provided the level of granularity used did not overly intrude on privacy.
- Online social networks should be used to promote the application and recruit more participants, but users perceived little value for sharing or discussing symptoms.
- There was support for sharing the data for academic research, although most preferred some level of user control.

*"The best thing about today was being involved in a creative way with something exciting and for future research" – Workshop Attendee*

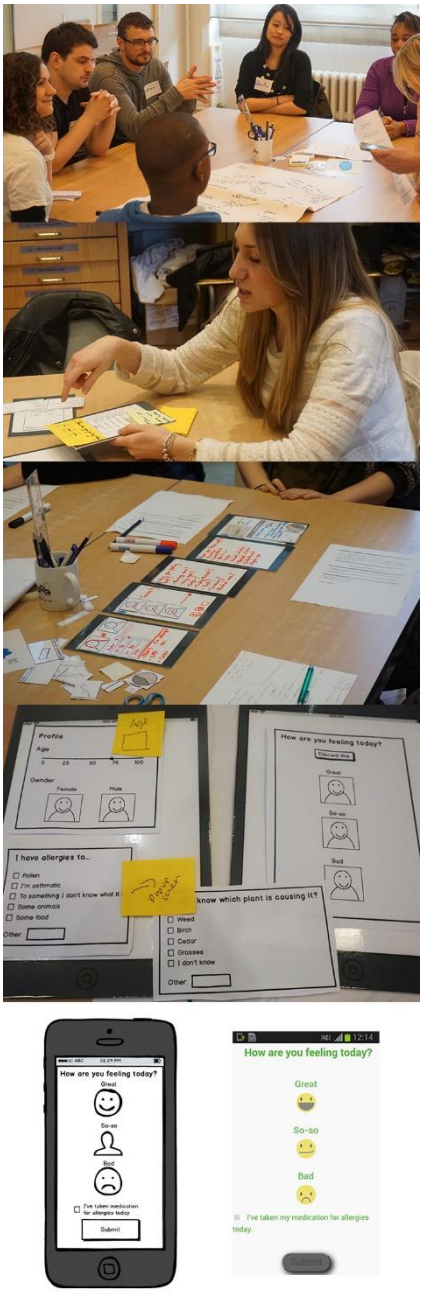


*Figure 1. The #BritainBreathing app from discussion, to paper, to reality.*

## Future Plans

Following the codesign workshops, we collated the designs and gained funding to build the first version of the app, in Android. This version enables personal symptom tracking and includes data sharing options. Other prioritised features will be added in later versions, as further funding becomes available. We are currently seeking funding to develop an iPhone version.

We have also secured funding to develop a web-based widget for citizens to explore the dataset. Once developed, we envisage that the dataset will be used as the basis of multiple research projects exploring the relationship between allergy symptoms with the weather, pollen counts and/or pollution.

The free #BritainBreathing app was released in March 2016 and is available for download now via the Google Play store or www.britainbreathing.org

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