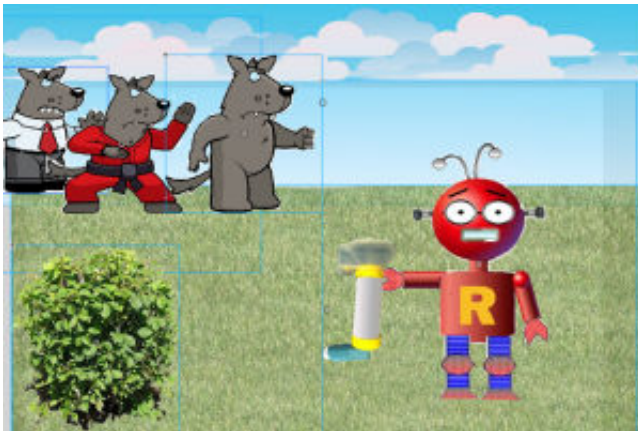


Smartphone game helps children to improve asthma inhaler technique

December 4 2014, by Jamie Brown



A screen shot from the game

Researchers at The University of Manchester and Central Manchester University Hospitals NHS Foundation Trust have developed a new interactive smartphone game can help children use a key asthma inhaler ('a spacer') far more effectively, allowing them to breathe more easily.

Their research was presented at the British Thoracic Society Winter Meeting yesterday (3 December).

A spacer device is a large plastic container - sometimes with a mask attached. A dose of asthma medication is sprayed into it, which is then inhaled without needing to co-ordinate breathing and pushing down on the [asthma inhaler](#) canister. It is particularly useful for babies and small

children who do not have this level of co-ordination.

But due to their size and unfamiliarity when first used, getting young children to breathe into 'spacers' is not always easy and can cause distress for both children and adults. Dr Tariq Aslam, a researcher from The University of Manchester and Consultant at Central Manchester University Hospitals NHS Foundation Trust was faced with such a problem for his son, Rafi, who experienced repeated distressing wheezing attacks.

This led Dr Aslam to create a new way of using a spacer by mounting a smartphone onto it programmed to display an interactive game linked to the outflow valve of the mask.

Whenever a child breathes properly into the spacer they see themselves winning on a game played on the screen. Specially designed on-screen characters respond to correct breathing technique as part of an ongoing game. For example – the child can 'blow away' unfriendly characters to the hero, or blow the hero's boat across a river.

After seeing the beneficial effects on his own son, Dr Aslam developed the new spacer with crucial help from a colleague, Dr Clare Murray, an expert in children's breathing disorders.

Together they arranged for the game and module to be tested on 14 children admitted to hospital with acute wheezing along with a survey to assess the child's reaction - and gained both the parents' and children's assessment of the benefits of the device.

100% (13/13) of the children who filled in a survey enjoyed the activity and 91% (10/13) felt the spacer helped them take their medication.

Some of the benefits of the inhaler voiced by parents in the survey included – it was enjoyable, it made their child calmer and helped in

their inhalation technique – and that it would be useful at home. The study was funded by a grant from Central Manchester University Hospitals NHS Foundation Trust.

Dr Clare Murray, Senior lecturer and Consultant in Respiratory Paediatrics at The University of Manchester and Central Manchester University Hospitals NHS Foundation Trust - and member of the British Thoracic Society said: "As parents are well aware, children are not always the greatest fans of taking medicine or using new treatment devices. And we know some young children do feel anxious about taking their asthma medication through a spacer.

"The good news is that the appliance of new technology, and the power of 'fun' really seemed to reap benefits in our study. The interactive game encouraged many of the children to use the spacer effectively. And it also helped tackle the stress and anxiety in both parents and children.

"In our research the inhalers were used to deliver medication to help children with acute asthma problems in a hospital setting. But we believe they also have the potential to work with more regular [asthma medication](#) at home as well.

"So in the future we hope the device might play a key role in supporting [young children](#) to breathe easier."

Asthma is a condition that affects the airways – the small tubes that carry air in and out of the lungs. When a person with asthma comes into contact with something that irritates their airways (an asthma trigger), the muscles around the walls of the airways tighten and become narrower, and the lining of the airways becomes inflamed and starts to swell, causing difficulty in breathing and leading to symptoms of asthma.

The UK has among the highest prevalence rates of asthma symptoms in

children worldwide, and there were 25,073 emergency hospital admissions for [children](#) in the UK in 2011-2012. That means on average there were 69 per day, or one every 21 minutes.

Provided by University of Manchester

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