A NEW INTERACTIVE GAME DEVICE MAY IMPROVE COMPLIANCE WITH SPACER DEVICES IN VERY YOUNG CHILDREN

Background The use of spacers in young children is not always easy and can result in distressed children and parents. We aimed to develop and assess an interactive electronic game to improve ease of use and potentially compliance with inhalers in young children.

Methods The Respiratory Aid For Inhalers (RAFIhaler) consists of an electronic sensor adjacent to the outflow valve of a spacer mask, providing input every 0.1 seconds to a custom designed android application on a smartphone that is mounted, in full view of the child, on top of the spacer. The application displays on-screen characters designed to respond to correct breathing as part of a game storyline, for example by blowing away characters unfriendly to the hero (RAFI) or blowing his boat across a river. The RAFIhaler was developed through iterative testing and multiple redesigns of hardware and software until a satisfactory final module was completed.

This module was tested on 14 children admitted to hospital with acute wheeze by an independent researcher, along with a survey to assess the child’s reaction and the parent and child’s perceived benefit from RAFIhaler. Open-ended questions allowed further feedback.

Results Fourteen children (2–7 yrs, 7M:7F) participated; 13 children and 14 parents completed the survey. All children stated they enjoyed the activity. Eleven children responded further; 10 (91%) felt the RAFIhaler helped them taking medication. All but one parent felt that RAFIhaler helped their child take their medication. The RAFIhaler may be of use both in encouraging young children to use their inhaler/spacer, and in combating anxiety and stress associated with their use.