# The world's first augmented reality asthma inhaler training app MYSPIRA®

ORBITAL | MEDIA

## The Problem

**822,392 UK children are suffering from Asthma** [1]

Asthma is the most common long-term medical condition for children and the most common reason for urgent admissions to hospital in children and young people in England[2].

There is a lack of time to provide proper asthma healthcare training (the mean duration of a GP surgery consultation is **between 9.22 - 10.22 minutes**)[3,4].

**93%** of asthma sufferers use their inhalers incorrectly[5].

## Primary Care

**Incorrect teaching and assessment increases use of healthcare resources, wastes medicines and ultimately means worsening symptoms.** [6]

**Just 7%** Of HCPs, have sufficient knowledge of inhaler techniques in order to educate their patients effectively in their use. [6]

Caring for people who experience an asthma attack costs **3.5 times** more than caring for those whose asthma is well managed. [7]

**69%** of parents with asthmatic children take time off work to look after asthmatic children. [8]

Patients who see a GP or asthma nurse within **48 hours** of leaving hospital, or ideally on the same day if they did not need hospital treatment. [9]

## Hospital Admissions

**Every 10 seconds someone is having a potentially life-threatening asthma attack and unable to breathe.** [9]

**75%** of asthma admissions are thought to be preventable; small improvements could significantly reduce admissions. [10]

75% of hospital admissions for asthma and as many as **90%** of the deaths from asthma are preventable. [11]

**1 in 6** people treated in hospital for an asthma attack need hospital care again within **2 weeks.** [12]

An asthma related hospital emergency admission costs on average **£722** [13]

The burden of asthma is greater than the cost to the NHS, accruing approximately **two million** sick days off work and school because of their poorly controlled asthma or from having asthma attacks across a **12-month period.** [14]

## Carbon Footprint

**73 Million** inhalers used by children are prescribed in the UK every year. [15] It is estimated that Children in England produce an average carbon footprint of **91,052,535 kg / yr.**

The **average** carbon footprint per inhaler is **20kg** [16]

Landfill disposal of inhalers is harmful to the environment both in material waste and greenhouse gas emissions. [17]

## SABA Use

**The UK has high levels of SABA use indicating poor disease management. SABA does not address inflammation but only immediate symptom relief.** [18]

High SABA use (>3 SABA canisters / yr) has been observed in over **one-third** of UK asthma patients. [18]

Overuse is responsible for **250.000 tonnes** of CO2. [19]

Average number of inhalers per patient per year is **x3** [16]

## WHAT IS MYSPIRA®

First augmented reality asthma inhaler training platform for 6 – 13 year olds addressing incorrect inhaler use and asthma management. A fun medically approved AR healthcare tool to engage the user with the learning experience.

### HOW

Using a mobile device, a child takes 20 minutes to complete 8 fun and critical chapters developed by Healthcare Professionals including:

- ✔ Asthma Keywords
- ✔ Asthma scenarios
- ✔ Triggers and symptoms
- ✔ What happens in the lungs
- ✔ How to prepare an inhaler
- ✔ Preventer and Reliever
- ✔ How to use a spacer
- ✔ Inhaler procedure

With a clearer understanding of the disease, children are better equipped to manage their symptoms.

## Key Features

- ✔ Award winning AR experience available on most mobile devices bridging the gap between virtual and physical spaces
- ✔ Uses gamification principles in teaching and behavioral change
- ✔ A feedback loop that encourages learning and provides intrinsic and extrinsic rewards
- ✔ Meet fun-loving characters in 3D
- ✔ Create personalised Asthma Action Plan
- ✔ Asthma Trigger Tracker
- ✔ Bonus AR game

GET IT ON Google play

Available on the App Store

## Approach

After the HCP consultation, the child can take it home and continue to learn and practice in an environment they are comfortable in.
The interaction and gamification is what's key to the high degree of learning engagement and outcomes.

## Expected Benefits

- **Improved child engagement and understanding of the disease.**
- **Improvud long-term recall of important asthma information and inhaler technique.**
- **Reducing unnecessary MDI usage reduces environmental impact, including CO2 footprint & landfill.**
- **Supporting and complimenting the GP intervention.**
- **Better inhaler education means opportunities for both NHS cash release and cost savings.**
- **Improved wellness reduces unnecessary illness and mortality rates**

## Hospital Admissions

**In 2019/20 for children aged 5-15 years, asthma accounted for 14,807 emergency admissions costing the NHS £10,690,654[21] (Each admission costs £722).[12]**

Where proper inhaler training programs have been put in place, emergency admissions have reduced by **50%** and asthma associated deaths by **75%.**[15]

**5,775** emergency admissions. Potential saving in reduction of emergency admissions £4.1m

**4,260** emergency admissions. Potential saving in reduction of emergency admissions £3m

**3,080** emergency admissions. Potential saving in reduction of emergency admissions between £2.1m - £2.9m

**Scenario 1 - 50% cost saving based on NICE findings**
Where proper inhaler training programmes have been put in place emergency admissions have reduced by 50%[15]

**Scenario 2 - assuming that 20% of the emergency admissions had effective inhaler training**

**Scenario 3 - assuming that 50% of the emergency admissions had effective inhaler training**

For £2.00 per patient MySpira could potentially save the NHS millions in admissions **(5-15 years - £4.1m - £3m).** Average number of children with asthma within an ICS is 19,580. Based on the average number the cost per ICS for MySpira would be £39,160.

## Primary Care

**An Asthma appointment costs the NHS on average: £10.33 for an Asthma nurse (lasting 15.5 minutes) and £33.70 for a GP to carry out (lasting 9.22 minutes).** [24]

Calculations indicate that on average, approximately **£9 million** is spent by the NHS on pediatric asthma appointments every year. Additionally, only **7%** of HCPs have sufficient knowledge of inhaler techniques [25], indicating a potential wastage of **£7.9m per annum.**

MySpira is designed to be used without HCP intervention, takes 20 minutes to complete and costs just **0.1p / min**

The average cost to implement MySpira within each ICS territory would be just **£39,162 + VAT**

## SABA Use

**Effective asthma education and adherence is likely to reduce SABA use to less than 3 times a week equating to 2 inhalers per annum.** [15]

**38%** OR 574,913 asthma sufferers have been noted as having high SABA usage in the UK. [18]

Potential savings from a reduction of **1/3** of prescribed SABA inhalers to 5-15 year olds.

Potential savings to the NHS per annum **£1,156,283**

Reduction of over 250,000 tonnes of CO2 per annum. [19]

## Carbon Footprint

**70%** of inhalers in the UK are prescribed as MDIs with an average carbon footprint of **20kg** per inhaler but often it can be **double** this amount. [26]

In an eligible population of 534,555 5-15 year olds in England that equated to a carbon output of **91,052,535kg per year**

If every inhaler user in the UK returned all their inhalers for one year this could save **512,330 tonnes of CO2** [27] the same as a VW Golf being driven around the world **88,606 times**

Better education around inhaler technique has been predicted to reduce inhaler use from **3 to 2** per annum [15], reducing the carbon footprint per paediatric patient by **20kg** [16], meaning an annual saving **10,691,100kg** of CO2 in the UK every year.

## Research Case Study

### Examining the Efficacy of a Novel Augmented Reality Mobile Delivery PlaGorm for the Enhancement of Asthma Care Education for Children[23]

**University of Suffolk**

In collaboration with University of Suffolk, MySpira was involved in a research study comparing 3 types of learning in a cohort of 96 children.

The findings indicate that MySpira surpasses the traditional educational materials, specifically in terms of enjoyment rating, the use of different inhalers' techniques, particularly in the younger group (aged 6-9 years). MySpira may enhance the level of available asthma care in an attempt to resolve one of the major problems facing asthma suffers and their carers.

**MySpira is 69% more effective than leaflets (baseline change)**

**Video's are 33% more effective than a leaflets (baseline change)**

**MySpira is 36% more effective than video's (baseline change)**

> Spira is a creative app that will give children with Asthma an opportunity to fully understand their condition. The learning process will help them to take better control and gain more independence.
>
> **Karyn McBride, Senior Asthma Nurse at NHS Stowhealthw**

> In my opinion the application is suitable for children. The important educational information has been designed to be easily accessible, through gamification, to the target age range of this application.
>
> **Dr Simon Rudland (FRCGP)**

> We know that allergies can trigger asthma exacerbations in up to 90% of children with asthma, and whilst it is a condition that cannot currently be cured, it can be controlled with a good action plan and inhaler technique. 21st Century children are digital natives, so it makes perfect sense to use technology as a means of educating and engaging them about their health.
>
> **Amena Warner, Head of Clinical Services at Allergy UK**

> It really helps if you want to learn about your inhalers. If you don't use your inhalers properly, your chest will go all funny.
>
> **Crawford Church of England Primary School student**


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**Granular data for your ICS available**

We would be happy to provide this data for your ICS region, so please contact us either through our website www.MySpira.com or via email on hello@myspira.com