MySpira® placement with reference to the CYP national bundle of care.

Introduction

This short report aims to examine to what level MySpira® can support attainment of the deliverables within the National Bundle of Care. It is important to note that the deliverables within the bundle of care, aim to comprehensively cover multiple elements of asthma care. Use of digital technology such as educational applications, is only one such element. The bundle of care is not structured for applications to replace the delivery of the clinical pathway but to act as a supportive tool to augment clinical care.

There are a number of digital "Apps" and solutions available, aimed at supporting different steps of the asthma clinical pathway. One app does not provide a solution the overall complexity of the problem. Furthermore, it is unlikely that any app could be seen as a replacement of a clinical pathway, but more as a supportive tool to augment clinical care. Lastly patients and professionals bond with, and use apps differently to an individual level….one app does not fit all.

Asthma is the most common long-term medical condition in children in the UK, with around 1 in 11 children and young people living with asthma[1]. The UK has one of the highest prevalence, emergency admission and death rates for childhood asthma in Europe[2]. Outcomes are worse for children and young people living in the most deprived areas[3].
Asthma can be perceived as a mild disease and research shows that it is often not taken seriously enough. A study showed that 1 in 6 people in the UK do not know or are unsure if the condition can be fatal.[4]

In September 2021 the National Children and Young People's Transformation Programme published National Bundle of Care for Children and Young People with Asthma (Phase 1)[5]. NHS England and NHS Improvement's ambition is to reduce avoidable harm to children and young people from asthma and improve their quality of life.

The bundle covers each of the following components represented by expert steering groups:

- Environmental Impacts (EI)
- Early and Accurate Diagnosis (EAD)
- Effective Preventative Medicine (EPM)
- Management of exacerbations (ME)
- Asthma Competencies, Training and Education Needs (AC)
- Severe Asthma (SA)
- Data and Digital (DD)

What is MySpira®

MySpira® (Orbital Media) is the first augmented reality asthma inhaler training platform for 6–13 year olds[6]. The app uses augmented reality that it is designed to incentivise achievement through each of the individual levels, and provides more interactive learning than a standard educational app. It aims to be a fun way for asthmatic children to learn the skills needed to manage their condition and is aimed at volume education, reaching sectors of the patient population who might be in contact with healthcare for the first time, or who are under low intensity regular review. It is not designed to augment complex or severe disease management.

MySpira® a child takes 20 minutes to complete 8 fun and contains critical chapters developed by Healthcare Professionals including:

- ✓ Asthma Keywords – these includes dust and pollen, important environmental allergens, Symptoms such as coughing or wheezing, Inhalers and spacer devices. It introduces preventer and reliever inhalers, and inhaler and spacer techniques
- ✓ Asthma scenarios
- ✓ How to prepare an inhaler before use
- ✓ Preventer and Reliever medication, blue and brown inhalers
- ✓ Triggers and symptoms a range of environmental aero allergens
- ✓ What happens in the lungs – airways disease video emphasises the difference between relievers and preventers and importance of preventers
- ✓ How to inhalers with a spacer
- ✓ Breathing techniques with Spacer
- ✓Shows how to complete an asthma action plan

These could be used to support the following key elements of the CYP asthma bundle key workflows in the following ways:

MySpira® "learning chapters"	EI	EAD	EPM	ME	AC	SA	DD
✓ Asthma keywords	✓	✓	✓	✓	✓	✓	
✓ Asthma scenarios	✓	✓	✓	✓	✓		
✓ How to prepare an inhaler			✓	✓	✓		
✓ Preventer and Reliever			✓	✓	✓		
✓ Triggers and symptoms	✓		✓	✓	✓		
✓ What happens in the lungs	✓	✓	✓	✓	✓	✓	
✓ How to use a spacer			✓	✓	✓	✓	
✓ Inhaler procedure			✓	✓	✓		
✓ Asthma action plan	✓		✓	✓	✓	✓	✓

<u>Environmental Impacts (EI)</u>
MySpira® incorporates age-appropriate educational material to cover air pollution and common environmental allergens and their seasonality. Air Pollution has been linked to serious health conditions such as cancer, asthma, and cardiovascular disease. The findings of several studies underline an urgent need to reduce children's exposure to air pollution in order to reduce a child or young person's likelihood of developing or aggravating asthma and other allergic disease[7-10]. In a landmark case, coroner's findings concluded that air pollution from road traffic made a significant contribution to the death of a 9-year-old girl with asthma[11].
(Necessary Additions re Indoor air quality and smoking*, **) [11-13]

<u>Early and Accurate Diagnosis (EAD)</u>
MySpira® is closely aligned to the output of the Early and Accurate Asthma diagnosis Steering Group[14-16]. The group surveyed CYP and staff, asking: "what are the top 3 things that CYP/carers/ parents should know about diagnosing asthma". Themes identified included

- WHAT IS ASTHMA? - including the nature of disease, clinical history, clinical features, different types of asthma, and triggering factors
- TREATMENT- including correct use of treatment, timing of treatments, technique, autonomy of treatment, concerns and questions related to treatments

- LONGTERM MANAGEMENT- including surveillance, adherence, treatment response, and risks of poor control

In addition, NHS E/I commissioned the Association of Young People's Health to publish a scoping review of all CYP asthma engagement to date. The review identified key areas for future focus that would support young people to better manage their asthma and enable them to take greater control over their health management. These included:

- Access to trusted information in formats that work for young people and use non-clinical language
- Asthma - potential severity and recognition of an asthma attack
- Symptoms that should warrant review by a healthcare professional

<u>Effective Preventative Medicine (EPM) and Management of Exacerbations (ME)</u>

Asthma is a serious, chronic illness that can result in attendance or admission to hospital and sometimes death. Research shows that it is often not taken seriously enough. An essential element of any prescription for inhaled therapies includes a consideration of the drug, the device, the rationale as to why the medication needs to be taken, and training on appropriate use of devices. Without education and training inhaled treatments cannot be reliably delivered to children. Effective delivery of medication to the lungs of younger children and infants requires the use of spacer device. MySpira® provides age-appropriate educational material that covers the outline requirements of EPM 1-9 and the Severe asthma clinic, by using a combination of augmented reality, video explanation and game play to provide the rationale behind the use of acute reliever and long term preventer medications, and gamification to instruct on correct inhaler technique and produces a asthma action plan.

Carbon Footprint has recently been added to the Effective Preventative Medicine agenda
73 Million inhalers used by children are prescribed in the UK every year. The average carbon footprint per inhaler is 20kg[17] It is estimated that Children in England produce an average carbon footprint of 91,052,535 kg / yr. Overuse alone is responsible for 250.000 tonnes of Co2. Better education around inhaler technique has been predicted to reduce inhaler use from 3 to 2 per annum[18], use of medication through better education to children and their families would help reduce overall MDI usage and reduce carbon footprint[17].

<u>Asthma Competencies, Training and Education Needs (AC)</u>

MySpira® is closely aligned to the developing asthma curriculum. It is designed to be used without GP or Health Professional intervention, and could be issued at any point of patient contact. Research by University of Suffolk found that MySpira® outperformed other learning materials, including leaflets and videos, especially in children aged between six and nine years[19]. The augmented-reality app aims to teach children how to use their inhalers correctly - as research shows that 97% of young asthma sufferers don't use the breathing aids correctly. It allows children to learn and practice their inhaler technique, resulting in better control of asthma and hence fewer serious or fatal attacks.

MySpira® may enhance the level of available asthma care and education which may attempt to resolve one of the major problems facing asthma suffers and their carers, that of non-adherence to medication.

The interaction and gamification is what's key to the high degree of learning engagement and outcomes. In collaboration with University of Suffolk, MySpira® was involved in a research study comparing 3 types of learning in a cohort of 96 children. In collaboration with University of Suffolk, MySpira® was involved in a research study comparing 3 types of learning in a cohort of 96 children. MySpira® was 69% more effective than leaflets, the videos were 33% more effective than leaflets,

and the gamification of asthma education 36% more effective than videos alone. 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)[20-21].

MySpira® may enhance the level of available asthma care to resolve one of the major problems facing asthma suffers and their careers. GP surgeries, A&E and walk-in departments, discharge summaries, pharmacies, schools, sport centres and playgroups[21].
Augment existing point of care education: During an asthma appointment (average 9.22 – 10.22 minutes 3-4), HCPs would love to spend more time with each patient but there's simply a lack of resource available. With an app, the child can take it home and continue to learn and practice in an environment they are in which they are comfortable and receptive.

Data and Digital (DD)
MySpira® includes additional activities that enable the construction of a Personalised Asthma Action Plan (PAAP)[18]. PAAP and education are also recognised to improve asthma care. The MySpira® app can introduce a PAAP to children that can then download it at home, shared with the healthcare professional.

MySpira® offers limited support to the Severe asthma workflow.

Conclusion
As an age specific (6-13yrs), volume based app MySpira® would appear to be well positioned to augment many of the ideals of the "National Bundle of Care for Children and Young People with Asthma: Phase One" workflows.

Dr Richard Iles
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Appendix 1 - Limitations

No app can do it alone, there needs to be a system guide to inform the commissioning team / ICS on what would need to do alongside the release to embed it into a local pathway, ie who "prescribes" the App.

To be attractive to commissioning teams there needs to be built in evidence of uptake of licences matched with completion of all levels of the App, asthma action plan and potentially sharing of the plan with notification or feedback to the prescriber.

There could be a prepared outline business case which should include how is the use of the app is targeted to certain populations, details of a structured staff information / education program prior to roll-out / implementation and further evaluation.

Has there been any work / modelling on:

- how is uptake encouraged?
- What are the best environments for use?
    - Within a school accompanied by practical inhaler practice).
    - QR code with link to on each CYP prescription, asthma discharge letter etc?

- QR code with link to MySpira® in ED depatments

Necessary Additions

* - Parental Smoking & Indoor pollutants – the link between parental smoking and an increased risk of asthma in CYP is well documented. In a European study, children with high early-life exposure to tobacco smoke were more likely than unexposed children to have early transient and persistent asthma. Discouraging maternal smoking is understood to be particularly crucial in improving asthma outcomes for CYP.

**Indoor Air Quality - children are spending more and more of their lives indoors, and the health impact of the air within our homes and schools needs to be taken seriously as a significant source of ill health. Social deprivation and poor housing quality are strongly associated with asthma morbidity.

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