

# Monitoring for early warning signs of asthma attacks and response to treatment with oral corticosteroids using the Albus Home contactless monitoring system

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## Background

An asthma attack is a serious event which can be fatal and cause significant burden on patients, families, and health care systems. However, the existing tools for early identification of asthma attacks in children rely on subjective symptom reporting by patients, carers. Peak flow recordings are limited by effort dependence and adherence. Novel tools to monitor change in the patient's home could help detect deterioration early and provide a window for early intervention to prevent asthma attacks. We describe objective changes in physiological parameters that occurred before and after an asthma attack in 2 children that used the Albus Home, a contactless and automated bedside nighttime monitoring solution.

## Method

School age children recruited as part of the Childhood Home Asthma Monitoring Study (CHAMP) were monitored nightly using the Albus Home, a bedside device that collects information about coughing, breathing sounds and respiratory rate. The changes in each parameter over time were compared to the child's baseline, and incorporated into a proprietary risk scoring algorithm. The resultant nightly risk score comprised a composite measure of change for each patient. The risk score was plotted over time around severe exacerbations (from 6 weeks before until 6 weeks after).

## Results

The data from 2 children (8 yr, male- figure 1a, 7 yr, female- figure 1b) shows Albus Home device identifying change in the composite risk score a week before the asthma attack. The changes in respiratory rate, cough frequency and breathing sounds return to the patients baseline within 2 weeks after the attack.

## Conclusion

A contactless nocturnal monitor enabled early objective identification of worsening asthma control thereby providing a window for intervention to stop attacks in children. The data from the monitor may support post attack management by monitoring the resolution of symptoms following treatment.

Figure 1a:

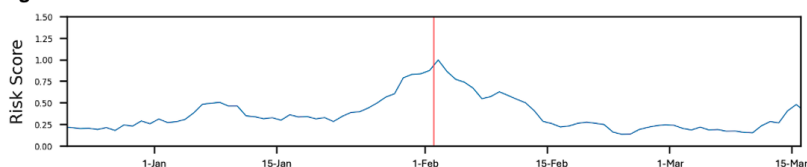


Figure 1b:

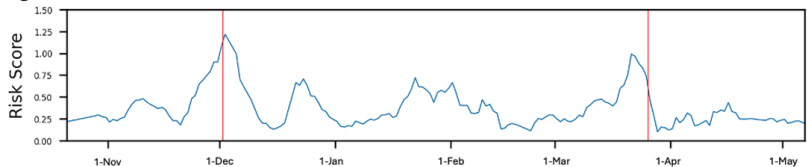


Fig. 1a,b. Line charts showing changes in nightly risk score over a period of 6 weeks preceding the first attack to 6 weeks after the last attack. Vertical red lines mark a severe asthma attack defined as a prescribed course of systemic steroids.

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