Report on experiences and understanding of spirometry in asthma clinics

SPIROmetry to Manage Asthma in Children (SPIROMAC) Study – Parent Perspectives on Spirometry

Date: December 2023

Summary

- Children and young people (CYP) generally do not mind doing spirometry, and many find the experience positive or neutral.
- Parents (and CYP) have a limited understanding of why spirometry is done in asthma clinics, how to interpret results, or how it influences treatment decisions.
- Parents report differing experiences of the relationship between spirometry and their child's asthma control. While many perceive it as useful, others see it as only one part of a wider picture.

Background

Spirometry is recommended in guidelines for assessing and monitoring asthma in CYP. Despite this, spirometry is not done routinely in many areas. Additionally, there remains uncertainty among clinicians and families about how to interpret results and how spirometry should be used to inform management decisions.

The SPIROMAC (*SPIROmetry to Manage Asthma in Children*) study aims to investigate whether adding spirometry to usual care reduces asthma attacks in children. This report summarises findings from a parent survey and a focus group, designed to explore three questions:

- What is the experience of CYP in doing spirometry?
- What do parents understand about why spirometry is done?
- What benefit do parents see from spirometry, including what they are told by clinicians?

Methodology and participant demographics

Survey

The survey was conducted by Asthma + Lung UK for the SPIROMAC study between September and November 2023. It was distributed through the Asthma + Lung UK Respiratory Voices Network and Parent Carer Network via email and social media.

- **Respondents:** 61 started; 35 completed (completion rate 57%)
- **Participants:** Parents of children aged 2–16 years with confirmed, suspected, or possible asthma

Demographics

- **Gender of child:** Female 51%; Male 49%
- **Age of child:** Majority (31%) aged 8–10 years with a mean age of 8.8 years

- **Ethnicity of parents:** 77% White; 9% Asian; 9% Mixed; 6% Black

Asthma diagnosis and care

- 63% (n=22) had a confirmed diagnosis of asthma
- 34% (n=12) had suspected (but not confirmed) asthma
- 3% (n=1) child was being investigated for asthma 43 (n=15) received hospital or specialist clinic care;
- 40% (n=14) received GP care only
- 17% (n=6) did not see any doctor or nurse regularly for their asthma

Spirometry access

- 46. (n=16) reported that their child had undergone spirometry
- Of these, 81 (n=13) were tested in hospital settings
- None of the children aged 2–8 years had undergone spirometry
- Frequency varied from monthly to annually

Focus group

A parent focus group was conducted in December 2023. Participants were recruited from the same networks.

- **Participants:** 5 parents representing 6 children (ages 10–20 years)
- **Setting:** Online discussion
- **Context:** All children had hospital-based spirometry under consultant-led teams.

Results

Theme one: experience of spirometry

Survey findings

Older children (9–16 years) generally understood and managed the spirometry test without difficulty.

- **13** had at least some understanding of the test's purpose.
- **7** were indifferent; **3** disliked the test; the remainder enjoyed it.
- Some parents noted that younger or more anxious children found it challenging or tiring.

"There was a knack to it – it had to be repeated a few times."

"My child does not have the confidence to perform the test in front of others."

Focus group findings

Parents reported that children largely enjoyed the test, especially if there was "game-like" interactive features. Also friendly, supportive staff.

- Children felt in control when allowed to choose the game or see results.

- Older children linked results to motivation or disappointment depending on performance.

“He actually really enjoys them and enjoys picking which game he’s going to do.”

“When it was just him trying to blow a balloon, for a child that was actually fun…it became a lot easier for him.”

“My daughter being able to look at the result works wonders when it was a good result”

Theme two: understanding about spirometry

Survey findings

Parents demonstrated limited understanding of what spirometry measures or how it relates to asthma control.

- Many could describe the process but not the interpretation.
- Several expressed a desire for clearer explanations or written information.

“It would be helpful to be told what spirometry tests and what the results show.”

Focus group findings

- Parents valued spirometry but struggled to interpret charts or percentages.
- Explanations were often verbal and easily forgotten.
- Several parents took photos of the results to review later.

“All the curves and things on the chart didn’t really make sense to me.”

“"A leaflet or a website or a link to a YouTube video that explains it [would really help] …There’s so much more about that appointment than just the test…You can’t absorb all the information at the time..”

“I feel like I have something tangible that I can look at it and say his asthma is improving or not. Whereas it’s very generic conversation when we don’t have it.”

Theme three: perceived benefit

Survey findings

Parents generally perceived spirometry as a useful monitoring tool, particularly for guiding treatment adjustments and tracking progress:

- **10** found spirometry beneficial for asthma management.
- **9** rated its usefulness as 4 or 5 out of 5.

“It’s a good way to measure changes at each appointment.”

“The results always reflect how symptomatic/or not he is at the time of the test.”

However, 6 were unsure of its usefulness, and 3 rated it as not helpful, noting discrepancies between results and symptoms.

“Her spirometry is good but her asthma continues to disrupt her sleep.”

“It may not be a true indication of how she is at the time.”

Focus group findings

- Parents linked spirometry to diagnosis, treatment changes, and reassurance.
- The test was viewed as part of a broader picture alongside symptoms, FeNO results, and clinical review.

“It was a complete gamechanger for us because we were round and round in circles, obviously he was struggling, working off a peak flow.”

“It felt like we were being heard.”

Some described indirect benefits, such as motivating lifestyle changes:

“Without that test result, I don't know if I would have taken that drastic a step [of engaging a personal trainer]... basically her lung function has shot up from that.”

Summary of key findings

Theme	Key findings
Children’s experiences	Spirometry is generally well tolerated; interactive elements and supportive staff make it positive. Younger children may need adaptations.
Parental understanding	Parents recognise spirometry’s purpose in assessing lung function but lack understanding of results and implications. They want clearer explanations and take-home information.
Perceived benefits	Parents see it as valuable for diagnosis and monitoring, particularly in hospital care. However, some parents question its utility when results do not align with symptoms.
Broader context	Parents view spirometry as credible and concrete but recognise it as one tool within a wider clinical picture.

Conclusions

Children generally tolerate spirometry well, suggesting its continued use is feasible and acceptable within paediatric asthma services. Parents value spirometry as a component of asthma care but often lack sufficient understanding of its purpose and meaning. Clearer communication, educational materials, and consistent use across care settings may enhance engagement and confidence in its role.