Improved Efficiency and Increased Adherence with Smart Asthma Virtual Monitoring Service

A Multi-Centre Service Evaluation of a Digital Health Intervention in Respiratory Care

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1. Background and Aim

Traditional asthma care faces significant challenges: inefficient pathways, poor patient adherence, and a lack of objective, real-world data. The switch to MART/AIR regimes in the new BTS/NICE/SIGN NG245 asthma guidelines, together with the three shifts in the NHS 10 Year Plan, are changing how asthma is managed. Digital health solutions, such as remote monitoring, can address these issues by providing a data-driven approach to care.

This poster presents the findings from a multi-centre, three-month service evaluation of the Smart Asthma Virtual Monitoring service on children and adults, demonstrating its impact on healthcare efficiency, patient adherence, and clinician confidence.

2. Methods

This evaluation involved 667 patients across 26 NHS and HSE Ireland centres. The service included three components: patient apps, cost-effective sensors, and a clinician dashboard.

The evaluation was split into two services:

- Active Respiratory Monitoring Service (ARMS): 368 patients recorded Peak Expiratory Flow (PEF), symptoms, and reliever inhaler use
- Active Inhaler Monitoring Service (AIMS): 299 patients used a sensor to track inhaler use

Data on patient adoption, recording frequency, and feedback from both patients and clinicians were collected and analysed using descriptive statistics.

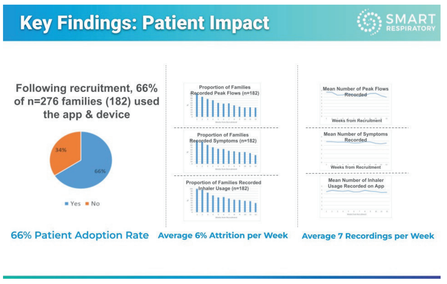
3. Key Findings

3.1 Patient Impact

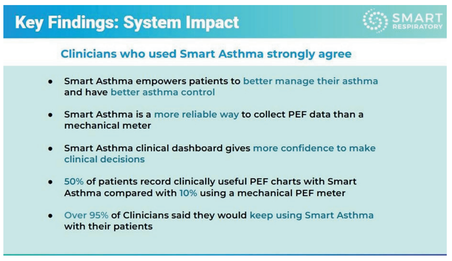
High Adoption: The service had a 66% adoption rate

Active Engagement: Patients recorded an average of 7 data points per week

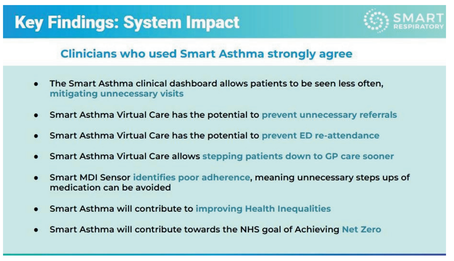
Positive Feedback: Patients found the digital system more convenient than paper records and valued the ability to share data with clinicians and receive notifications



3.2 Clinician Impact



3.3 System-Level Impact



4. Health Economic Evaluation

A detailed health economic analysis revealed that the service is a high-value, cost-effective intervention. The service cost of £69 per patient for three months is significantly outweighed by the estimated annual financial benefits.

Financial Benefit Area	Estimated Per-Patient Benefit (Annualised)	Alignment with NHS Strategy
Mitigating Unnecessary Visits	£46.80	Shift to community care
Preventing Unnecessary Referrals	£36	Reduced waiting lists
Preventing ED Re-attendance	£12	From sickness to prevention
Stepping Patients Down to GP Care Sooner	£18	Efficient resource allocation
Avoiding Unnecessary Medication Step-ups	£100	Financial sustainability; Medication optimisation
Total Estimated Financial Benefit	**£213.80**	
Net Financial Value (per £69 service cost)	**£143.80**	**Return on Investment**

5. Conclusion

This service evaluation demonstrates that the Smart Asthma Virtual Monitoring service is a transformative digital health solution, and it aligns well with the NHS 10 Year Plan's three shifts, in particular as a tool for neighbourhood teams in the community to focus on prevention rather than treatment. It enhances patient engagement and medication adherence whilst simultaneously improving healthcare efficiency and reducing healthcare utilisation.

The financial benefits, particularly from avoiding unnecessary medication step-ups, make a compelling business case for its widespread adoption as a strategic, cash-releasing investment.

6. Contact Information

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