SMART RESPIRATORY & PEARL CHEMIST GROUP

White Paper: Clinical Results of Piloting an MDI Optimisation Service at the Pearl Chemist Group (PCG) - A Neighbourhood Health Initiative

Date: March 2026 **Authors:** Darshan Negandhi, Clinical Research Team (Smart Respiratory & Pearl Chemist Group) **Target Audience:** ICB Respiratory Leads, Primary Care Networks (PCNs), Integrated Neighbourhood Teams (INTs), GPs & GP Federations, Pharmacists.

Executive Summary

Asthma management in the UK has long been hampered by a systemic "crisis-response" cycle. Despite advancements in pharmacology, patient outcomes are frequently undermined by poor adherence and a lack of objective monitoring. The Pearl Chemist Group (PCG) conducted an MDI Optimisation Service Pilot to evaluate a digitally enhanced community pharmacy model, designed to bridge this clinical gap and support the Neighbourhood Health agenda. Supported by the **NICE Digital Asthma Management Early Value Assessment (EVA)**, which recommends the use of Smart Asthma technology within the NHS, this pilot engaged a cohort of 47 patients at high clinical risk. By integrating face-to-face pharmacist consultations with objective data from the Smart Inhaler Assistant, the service achieved a mean ACT improvement of +5.3 points in the most severe cases. Financially, the programme demonstrated an in-year cashable saving of £960 per very poorly controlled patient, representing a return on investment (ROI) of 15.2:1 against a service cost of £63.

1. The Clinical Challenge: The Adherence Blind Spot

The Failure of Self-Reporting

Inhaler adherence is the single most significant modifiable factor in asthma control. However, the current clinical review process relies almost exclusively on patient self-reporting, which is often skewed by recall or social desirability bias. This "Adherence Blind Spot" prevents clinicians from making accurate assessments of whether a patient is refractory to treatment or simply not taking it.

Treatment Drift and Resource Wastage

Without objective data, clinicians are often forced into "treatment drift": unnecessarily escalating therapy to higher doses or expensive biologics when the underlying issue is behavioural. The MDI Optimisation Service provides the first objective "window" into real-world patient behaviour, allowing for targeted interventions as highlighted in the **NICE EVA**.

2. Study Design & Scientific Rationale

The pilot was structured as a prospective cohort study of 47 unique baseline patients. The model creates a collaborative framework where GP Federations and practices refer patients to community pharmacists for the service.

- **Intervention:** Initial community pharmacy consultation, issuance of the Smart Inhaler Assistant, and 4-8 weeks of digital self-monitoring.
- **Follow-up:** A second consultation where pharmacists use objective data from the clinician dashboard to guide reviews, correct technique, and transition patients to MART regimes where appropriate.

3. Clinical Results and Symptomatic Outcomes

Following an audit of the 47 baseline patients, the responsive population demonstrated improvements that far exceeded standard clinical expectations:

- **Very Poorly Controlled (ACT 5-15):** Achieved a mean improvement of **+5.3 points**.
- **Not Well Controlled (ACT 16-19):** Achieved a mean improvement of **+3.3 points**.
- **Clinical Significance:** A change of 3 points is recognized as the Minimal Clinically Important Difference (MCID). The +5.3 point gain in the highest-risk cohort indicates a transformative impact on quality of life.

Safety and Accessibility

- **Empty Inhalers:** 9% of patients were using empty ICS inhalers, inhaling only propellant.
- **Digital Inclusion:** Pharmacists assisted up to 88% of patients with setup, ensuring technology remained an enabler rather than a barrier.

4. Economic Impact and Cost-Benefit Analysis

Calculations were conducted on an Intention-to-Treat (ITT) basis, applying the full £63 service cost to every participant. The following table focuses on direct cashable savings to the ICB.

Metric (Per Patient)	Cohort A (VPC: 15)	Cohort B (NWC: 13)
In-Year Cashable Hospital Savings	£960.00	£244.00
Service Delivery Cost	(£63.00)	(£63.00)
Net Cashable Savings	**£897.00**	**£181.00**
Cashable Benefit-to-Cost Ratio	**15.2:1**	**3.9:1**

Note: Total Economic Value (including Primary Care capacity and QALY gains) rises to £3,576 per VPC patient.

5. Conclusions

The MDI Optimisation Service Pilot, aligned with **NICE EVA** recommendations, provides a definitive clinical and financial mandate for the integration of digital monitoring into the Neighbourhood Health agenda. By removing the "Adherence Blind Spot," we enable pharmacists and GPs to identify patients at risk before they reach the hospital. With a 15.2:1 cashable return for high-risk patients, this model offers a scalable solution for modern respiratory care.

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