Digital Respiratory Transformation

Insights from a Digital Peak Flow Assisted Asthma Care Clinic (DAACC)

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This work is part of a collaborative working project in conjunction with Bloomfield Medical Centre and Chiesi (UK Limited)

Introduction and Aims

Despite advances in care and treatment asthma deaths continue to rise and are close to 1500/year[1]. The majority may be preventable[2]. Fewer than a quarter had a personalised asthma action plan (PAAP)[2]. Behavioural insight work[1] has found a third of patients are disengaged from asthma care and many rely on their reliever inhaler to manage their condition, despite high SABA use being associated with an increased risk of exacerbations[3] and respiratory death[4].

Bloomfield Medical Centre in Blackpool, Lancashire, serves ~17,000 patients living in some of the most economically deprived neighbourhoods in the country. Asthma prevalence is nearly 25% higher than the national average. This co-exists with higher rates of many of the risk factors[5] for reduced adherence to treatment and increased risk of exacerbations and death.

"Analogue to digital" is one of the three big strategic shifts announced in the 10-year NHS plan[6]. Current NICE/BTS/SIGN guidance[7] states that there may be person-specific reasons for using regular peak expiratory flow (PEF) monitoring, such as it forming part of the PAAP. GINA guidelines[3] note that it may be useful in difficult to control asthma. Some patients struggle to accurately apply symptom-based triggers. The objectivity of PEF may support this and may also help identify whether symptoms are linked to airflow limitation or alternative causes.

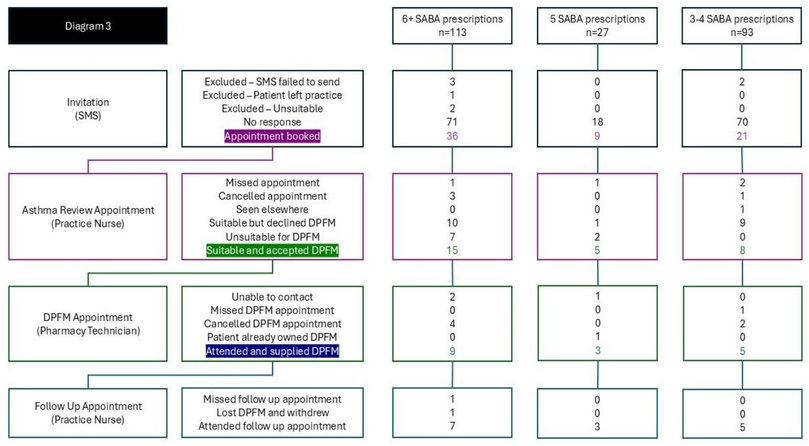
We developed a collaborative project exploring the use of digital peak flow meters (DPFM; Smart Peak Flow) in "digitally enabled" patients with indicators of poor control, to identify how they could be incorporated into asthma care and gather patient and healthcare professional experiences of using them.

Methods and Delivery

Searches of the electronic patient management system (EMIS Web) were used to identify patients aged 16 or over, included on the asthma register but not on the COPD register, whose record contained a mobile telephone number, and who were registered online users ("digitally enabled"). Then:

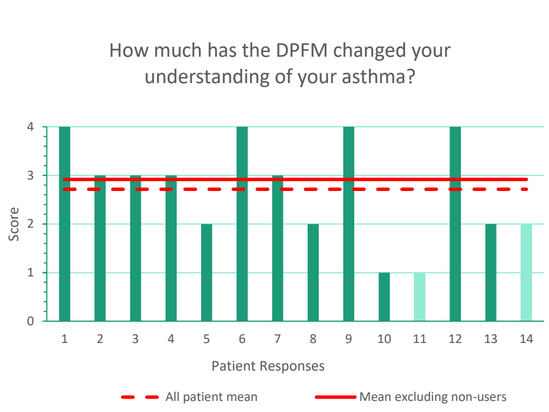
- Patients were stratified by the number of SABA prescriptions in the previous 6 months, focusing on those with 3+ issues.
- SMS messages with a self-booking link were sent via AccuRx to invite patients for an asthma review.
- Appointments delivered by two practice nurses covered all usual aspects of an asthma review, plus DPFM suitability.
- Where suitable, an appointment was arranged with the Pharmacy Technician to check compatibility, help app download and set up, and provide the device. Follow up contact occurred after two weeks to identify and resolve any problems.
- Follow up asthma appointments occurred after 4-6 weeks.
- Patient feedback was sought through telephone interviews using a standardised set of questions developed for the project.
- Pharmacy Technician also obtained healthcare professional feedback through interviews with the nurses.

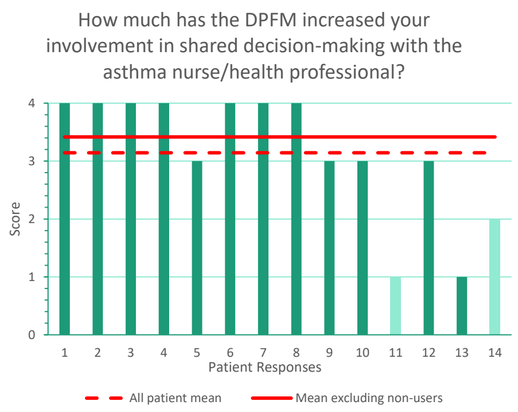
Diagram below shows patient flow through the project

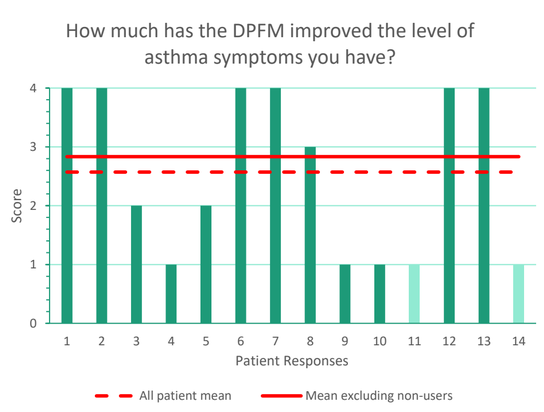


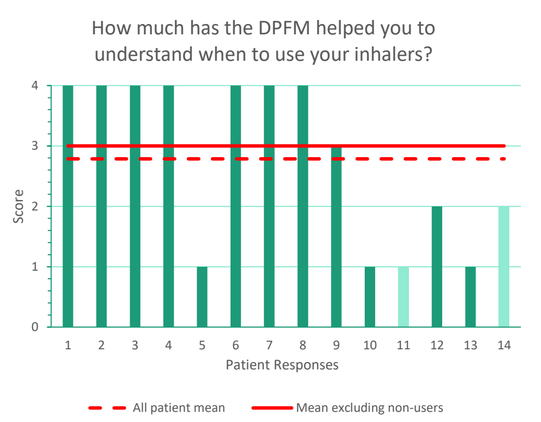
Results

- Demographics were consistent between groups – approximately two-thirds female, average age approximately 50 years (range 17-82).
- The most common (n=10) reason for accepting the DPFM was nurse recommendation. Most (n=10) patients hoped it would help improve understanding, control and reassurance.
- Most (n=11) patients had no/minor difficulties using the DPFM. Two patients were unsuccessful using the DPFM (lighter columns; non-users), all others intended to keep using it.
- Some patients felt the app was too temperamental and several (n=7) had problems with the device failing to operate in low light.
- Patients declining the DPFM cited reasons such as no interest, not being able to perform PEF, lack of time, feeling it is stressful.
- Follow up interviews were successful with 14 patients. Results of scored questions are shown in graphs below (1 = not at all, 2 = a little, 3 = a moderate amount, 4 = a lot).









- The proportion of female patients fell to approximately 40%, in the group accepting the DPFM.
- Nurses noted that PEF readings on the app could seem higher than clinic checks – a known phenomenon with DFPMs[8].
- They also noted that the app can categorise asthma control based on single readings and may interpret values too cautiously, advising patients to take action even when they felt fine.
- There were some issues with the app during the lifetime of the project relating to Android compatibility and patient visibility in the dashboard.

Discussion and Conclusions

- The project demonstrates the feasibility and value of integrating digital tools into asthma care, whilst underscoring the challenges of patient engagement.
- In this cohort, uptake of invitations for an asthma review was low – less than a third booked an appointment.
- Approximately half of those seen were suitable for, and accepted the offer of, a DPFM demonstrating that they may have a limited scope of uptake.
- Our approach was simple and is readily replicable. Training for patients and staff was minimal. There were no ongoing costs for the practice, although the DPFM and app do carry a cost for patients (£60, including VAT with one year's pro app access).
- Although data are extremely limited (creating uncertainty about reproducibility and generalisability) patient feedback demonstrates beneficial outcomes of potential importance to care.
- The open, uncontrolled nature was pragmatic but limits how far we can attribute these effects directly to the DPFM and app.
- We have identified a number of points which could improve the technology and the patient and healthcare professional experience.
- Our project aligns well with current national guidelines[7] – regular PEF monitoring needs a clear patient-specific reason and should be integrated into the PAAP.
- Further study in a wider group is warranted to better characterise the impact of DPFMs, how they are best utilised, which patients are most likely to benefit, and how to overcome barriers around engagement and digital literacy.
- Any scaling up would need to address the challenges around integration into the routine care pathway and the costs of this investment.
- Whilst digital technology can be a helpful enabler in healthcare we must remain cautious that it does not, in itself, become a barrier for others.

References

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Acknowledgements

The project was undertaken as a collaborative working project, meaning pooling of resources between Chiesi Ltd and Bloomfield Medical Centre enabled this project to be undertaken. All patient encounters were conducted by practice staff. All data were extracted and analysed by practice staff

For further information please see the project executive summary which can found on the Chiesi website
https://www.chiesi.uk.com/collaboration/our-projects