

My Dental Buddy

(MDBuddy)



Oral Health Report

2025

1	Introduction and Methodology	3
2	Quantitative Findings	5
3	Qualitative Findings	6
4	Understanding Impact	7
5	Policy Implications	8
6	Recommendations for National Impact	9
7	Conclusion	10
8	References & Study Information	11

Transforming Children's Dental Health Through Innovation

A comprehensive analysis of digital and dentist intervention impact on primary school children's oral hygiene

Introduction

The childhood oral health crisis demands urgent innovation. With 22.1% of UK children showing visible plaque buildup¹ and tooth decay remaining the leading cause of hospital admissions for 5-9 year olds,²⁻⁴ traditional approaches have fallen short. The MDBuddy pilot programme represents a groundbreaking shift - combining clinical expertise with digital engagement to deliver measurable improvements in just three weeks.

Our key finding: A revolutionary 45% reduction in plaque scores across all participants, demonstrating that school-based, dentist-led interventions coupled with digital tools can dramatically improve children's oral health outcomes.

The Current Landscape: Why Change is Essential

Children's oral health in the UK paints a concerning picture. National data reveals that **22.4% of five-year-olds have experienced dental decay**,¹ meaning nearly a quarter already show signs of dental disease before starting school. Regional variations are stark and highlight profound health inequalities:

Regional Prevalence of Dental Decay (2024):¹

- East of England: 17.5%
- North West: 28.7%
- Yorkshire and The Humber: 24.9%
- London: 27.7%

At local authority level, disparities are even more dramatic, ranging from 11.4% in Wiltshire to 43.4% in Brent—a nearly four-fold difference.¹

The treatment gap is equally alarming. The

majority (81.4%) of all decayed teeth in children remain untreated,¹ with care indices varying dramatically across regions from 7.3% in the West Midlands to 15.9% in London.¹ This represents thousands of children experiencing pain, infection, and reduced quality of life.

Traditional dental education has struggled to create lasting behavioural change. Children often view dental visits with anxiety, and parents frequently lack the knowledge or tools to maintain effective home routines.

The scale of the problem is evident: in 2023/2024, 19,381 children aged 5-9 were admitted to hospital due to tooth decay—making it the leading cause of hospital admissions in this age group, exceeding acute tonsillitis admissions by more than 50%.^{2,3} The MDBuddy pilot sought to address these fundamental challenges through innovation.

Methodology: A New Approach to Oral Health Education

Study Design

The MDBuddy pilot employed a robust before-and-after evaluation across **six primary schools**, reaching children aged 3-6 years in nursery, reception, and Year 1 settings (146 Children). Our approach was methodologically rigorous:

- **Clinical Standards:** All assessments were conducted by GDC-registered dentists and dental nurses using standardised protocols. Plaque scores (0-3 scale) were recorded across four tooth zones using consistent buccal surface examination with dental mirrors and BPE probes.
- **Intervention Groups:** Three schools received supervised brushing programmes with access to the MDBuddy School Dashboard, whilst three schools received education sessions with access to the home-based digital app.
- **Ethical Framework:** Comprehensive parental consent was obtained for all clinical assessments, with **98% of families also consenting to fluoride varnish application**—demonstrating exceptional engagement with the programme.

The MDBuddy Innovative Intervention

Our intervention represented a paradigm shift from traditional dental education:

- **Dentist-Led Classroom Sessions:** Rather than clinical settings that often provoke anxiety, qualified dentists delivered engaging sessions directly in familiar classroom environments, using interactive demonstrations and child-friendly materials.
- **Dual Digital Integration:** Children were introduced to the MDBuddy ecosystem comprising both a gamified mobile app encouraging regular brushing through rewards, progress tracking, and family engagement features, and for schools participating in supervised brushing, an innovative School Dashboard—an online platform supporting teachers to organise and engage children in brushing sessions with improved technique and consistent duration.
- **Personalised Clinical Care:** Each child received individual plaque scoring and tailored advice, with findings shared sensitively with families and teachers.
- **Professional Fluoride Varnish Application:** Clinical-grade preventive treatment was applied by qualified dental professionals, with 98% parental consent demonstrating exceptional community acceptance of this comprehensive approach.

Breakthrough Results: Quantitative Findings

2

Overall Impact: A 45% Reduction in Plaque

The headline finding exceeded all expectations. Across 99 children who completed both pre- and post-intervention assessments, **total plaque scores dropped by 45% in just three weeks**—from an average of 2.39 to 1.32.

This dramatic improvement occurred across all demographic groups:

- **Boys:** 2.50 to 1.34 (46% reduction)
- **Girls:** 2.28 to 1.29 (43% reduction)

The consistency of results across genders demonstrates the universal appeal and effectiveness of the MDBuddy approach.

Age-Specific Insights: Six-Year-Olds Show Greatest Improvement

- Three-year-olds: 2.66 to 1.00 (62% reduction)
- Four-year-olds: 1.73 to 0.86 (50% reduction)
- Five-year-olds: 2.15 to 1.42 (34% reduction)
- Six-year-olds: 4.38 to 2.00 (54% reduction)

Three-year-olds achieved the highest percentage reduction (62%), whilst six-year-olds showed the greatest absolute improvement (2.38 plaque units) from the most concerning baseline scores. This suggests our hybrid intervention works effectively across all ages: three-year-olds respond exceptionally to interactive engagement during peak habit-formation years, whilst six-year-olds benefit from technology-enhanced support during the critical transition period where parental assistance diminishes as independent skills develop.

Clinical Excellence: Zero Plaque Achievement

- **Eight percent more children achieved zero plaque scores post-intervention**, moving from adequate to excellent oral hygiene. This demonstrates the programme's ability to help some participants achieve nearly perfect outcomes—a benchmark rarely seen in population health interventions.
- **Anatomical Patterns: Targeted Improvement Areas.** Analysis by tooth location revealed specific areas where the intervention proved most effective:
- **Upper back teeth showed 75% plaque reduction**—the greatest improvement observed. This suggests the programme successfully addressed one of the most challenging areas for children to clean effectively.
- **Lower back teeth remained the most problematic area**, highlighting a persistent challenge where future programme iterations could focus additional attention.

Exceptional Student Satisfaction

- 97.8% of children found the visit “fun and helpful”—a stark contrast to typical dental experiences. This extraordinarily high satisfaction rate demonstrates that clinical care can be delivered in ways that children genuinely enjoy.
- The classroom setting proved transformative. As one teacher noted: *“Children enjoyed the visit from an actual dentist and liked it was in the classroom and not the dental practice.”*

Sustained Behavioural Change

The programme achieved remarkable engagement with long-term oral health behaviours:

- 98% of students pledged to brush twice daily following the intervention, whilst 90% committed to using the MDBuddy app for their routine brushing.
- Most significantly, 91% of children reported brushing more frequently at the three-week follow-up assessment—evidence that initial enthusiasm translated into sustained behavioural change.

Teacher Excellence: Professional Validation

Educator feedback provided crucial validation of programme delivery quality:

- 100% rated the oral health education session clarity as excellent
- 100% rated overall planning and organisation as outstanding
- 96.7% rated student engagement, resource quality, and communication as outstanding

This professional endorsement confirms that the programme meets educational standards whilst delivering measurable health improvements.

The Power of Personalised Care

During screening, 146 children received comprehensive oral health assessments, with individualised advice provided based on clinical findings:

- 20% received tailored brushing technique guidance
- 18.2% received decay prevention and dietary advice
- 6% received guidance about dummy use and dental development
- 3% received advice about acid erosion and tooth wear

This personalised approach ensures families receive relevant, actionable guidance rather than generic recommendations.

Parental Engagement: The Missing Link

Teacher feedback highlighted a critical area for programme enhancement: parental involvement. Multiple educators emphasised: *“Parent engagement would be ideal, especially for children with cavities”* and suggested *“A talk for parents would be helpful.”*

The challenge of reaching parents—particularly those who don’t collect children personally—emerged as a key implementation consideration. Teachers recommended written feedback and digital resources to bridge this communication gap.

Cultural Sensitivity and Accessibility

An important insight emerged regarding families with English as an Additional Language (EAL). One teacher noted: *“Some families may need support to access the dentist—children from Africa—parents don’t speak English.”*

This highlights the need for culturally sensitive approaches and multilingual resources to ensure equitable programme access.

The Follow-Up Effect

Schools that received follow-up visits reported enhanced programme impact: *“The return visit to follow up the initial session was a nice touch—it was welcomed by the children.”*

This suggests that reinforcement visits may significantly amplify programme effectiveness and should be considered in future implementations.

Addressing Health Inequalities Through Local Authority Leadership

The MDBuddy results demonstrate that targeted, school-based interventions can achieve population-level oral health improvements. With 45% plaque reduction achieved across diverse school populations, this approach offers significant potential to narrow the dramatic regional variations in children's dental health outcomes—from 17.5% decay prevalence in the East of England to 28.7% in the North West.

Local authorities considering oral health programmes now have compelling evidence that innovative, digitally-enhanced interventions can deliver measurable results within existing educational frameworks. The combination of clinical expertise and digital scalability addresses both immediate health needs and long-term behaviour change, making it an attractive proposition for commissioners seeking maximum impact from limited resources.

Digital Integration and Scalability Advantages

The exceptional parental consent rate (98% for fluoride varnish) coupled with outstanding teacher satisfaction demonstrates strong community acceptance of technology-enhanced school-based dental programmes. For local authorities exploring digital interventions, the MDBuddy model provides a proven framework that combines clinical rigour with engaging technology platforms.

The scalability of digital components—mobile apps, school dashboards, and data analytics—enables cost-effective expansion across multiple settings whilst maintaining programme fidelity. This represents a significant advancement over traditional one-off interventions that struggle to achieve sustained impact.

NHS Integration: The Strategic Imperative

Given current pressures on paediatric dental services—with 19,381 children aged 5-9 requiring hospital admission for tooth decay in 2023/2024—NHS integration represents the most sensible procurement pathway. The programme's alignment with existing NHS priorities, from prevention strategies to hospital admission reduction targets, positions it as a natural complement to current service provision.

NHS commissioning of the MDBuddy approach could significantly reduce the treatment burden on hospital services whilst improving population-level oral health outcomes. The cost-effectiveness of prevention compared to emergency treatment makes this integration both clinically and financially compelling.

Immediate Actions Already Implemented

- **Enhanced Parental Engagement:** We have developed multilingual resources, digital communication strategies, and structured feedback mechanisms to extend programme impact into home environments, directly addressing the parental involvement gap identified in our pilot.
- **Optimised Resource Allocation:** Following pilot feedback, we have implemented robust supply chain management and extended time allocation protocols for individual clinical assessments, ensuring no child misses out on personalised care.
- **Technology Enhancement:** Clear app demonstrations and comprehensive parent-facing digital materials have been integrated into our programme delivery, with video tutorials and digital platform integration already operational.

Strategic Development Framework

- **Follow-Up Integration:** Reinforcement visits are now embedded within our programme architecture to amplify and sustain initial improvements, building on the strong positive response observed in pilot schools.
- **Cultural Adaptation:** Targeted resources and culturally sensitive approaches for diverse communities are actively being developed, ensuring equitable programme access across all populations.
- **Systematic Outcome Tracking:** Comprehensive data collection systems are operational to monitor long-term behavioural change and clinical outcomes across all programme implementations.

Conclusion: A New Era for Children's Oral Health

7

The MDBuddy pilot programme represents more than incremental improvement—it demonstrates transformational change in how we approach children's oral health education. A 45% reduction in plaque scores within three weeks, coupled with 97.8% satisfaction rates and sustained behavioural change, provides compelling evidence that innovation can succeed where traditional approaches have struggled.

Most importantly, this programme shows that clinical excellence, local oral health programmes, and child-centred care are not mutually exclusive. By bringing dental expertise into familiar educational settings, integrating fluoride varnish applications with personalised clinical assessments, and combining these with engaging digital tools, we can create positive dental experiences that children genuinely enjoy whilst achieving measurable health improvements.

The power of digital intervention extends far beyond the classroom. Our mobile app and school dashboard create sustained engagement pathways that traditional one-off interventions cannot match. However, the current landscape of digital oral health tools remains underdeveloped, presenting significant opportunities for scaling innovative platforms that combine clinical rigour with technological accessibility.

Looking Forward: The Next Phase of Innovation

Following our pilot success and digital MVP launch, we are now advancing into the next phase of development. With funding support from Greater Manchester Combined Authority, we are developing cutting-edge AI modules that will further personalise oral health interventions and enhance our digital platform capabilities. Over the next 12 months, both our mobile app and school dashboard will undergo significant expansion, incorporating machine learning algorithms that adapt to individual user patterns and provide increasingly sophisticated support for sustained behaviour change.

This technological evolution, anchored in the proven clinical framework demonstrated by our pilot, positions MDBuddy at the forefront of digital health innovation. The integration of artificial intelligence with dentist-led programmes represents the future of preventive oral health care—scalable, personalised, and evidence-based.

The path forward is clear: systematic implementation of local oral health programmes enhanced by advanced digital intervention, strengthened NHS integration, and continued technological innovation. With childhood tooth decay remaining the leading cause of hospital admissions for young children, the MDBuddy approach offers hope for a generation of children who will grow up with both healthy teeth and positive attitudes towards dental care.

The revolution in children's oral health begins in the classroom, scales through digital innovation, and transforms lives through sustained technological advancement. The results speak for themselves, and the future is bright.

1. Office for Health Improvement and Disparities. (2024). National Dental Epidemiology Programme (NDEP) for England: oral health survey of 5 year old schoolchildren 2024. Department of Health and Social Care. Available at: <https://www.gov.uk/government/statistics/oral-health-survey-of-5-year-old-schoolchildren-2024>
2. Royal College of Surgeons. (2024). Dental Surgeons: too many children admitted to hospital for tooth decay. Available at: <https://www.rcseng.ac.uk/news-and-events/media-centre/press-releases/fds-dental-admissions-sept-24/>
3. Tooth decay remains ‘leading reason’ children admitted to hospital. (2024). BDJ In Practice, 37, 407. <https://doi.org/10.1038/s41404-024-2928-y>
4. Royal College of Paediatrics and Child Health. State of Child Health: Oral health. Available at: <https://stateofchildhealth.rcpch.ac.uk/evidence/prevention-of-ill-health/oral-health/>

Disclaimer and Study Information

This report represents analysis of the MDBuddy self-funded pilot programme conducted across six primary schools with 146 children aged 3-6 years within Greater Manchester between May 2025-June 2025. All clinical assessments were performed by GDC-registered dentist and dental nurses using standardised protocols in accordance with BASCD guidelines.

The programme was designed to align with EYFS statutory requirements and NHS oral health improvement objectives. Results presented are specific to this pilot study population and setting. Individual outcomes may vary. The programme does not constitute medical advice or treatment recommendations. Parents should consult qualified healthcare professionals for personalised oral health guidance.

Participation in the programme was voluntary with full informed parental consent. All data collection and analysis followed appropriate ethical guidelines and data protection requirements.

Contact: For more information about the MDBuddy programme methodology and implementation, visit www.MyDentalBuddy.com or contact Team@mydentalbuddy.com

© MDBuddy UK LTD 2025 - For Local Authority Use

This document may be shared within your organisation and with relevant NHS partners for evaluation purposes. Please contact Team@mydentalbuddy.com before external publication or reproduction.



My Dental Buddy

team@mydentalbuddy.com
www.mydentalbuddy.co.uk



Innovate
UK

Knowledge
Transfer
Partnerships