



Alder Hey Children's Hospital
NHS Foundation

The Alder Hey Blueprint: Driving Sustainable Innovation in Paediatric Health

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The Four Pressures Stretching Capacity and Productivity

£1.2bn

Missed Appointments

8.0 million DNAs in 2023–24,
costing the NHS annually

30%

Administrative Burden

Doctors spend this much time on
tasks not directly related to
patient care

90%

High Bed Occupancy

Bed occupancy since September
2021, breaching the 85% safety
line

26.6%

Staff Sickness

Anxiety/stress/depression
account for this percentage of
days lost



Complication: Why Traditional Fixes Fail

1 **Tech for tech's sake, not problem-driven**

Adopting technology without defining clear, patient-centric problems first.

2 **Integration Barriers**

External innovation labs face significant barriers to clinical adoption.

3 **Clinician burnout driven by admin overload**

Heavy administrative documentation detracts from direct patient care.

4 **Data silos block AI insights**

Siloed, fragmented data is a significant barrier to effective AI use.

Our Strategy is Guided by Five Core Questions

How can we responsibly harness AI and automation to solve these deep-rooted problems?



Pre-emptive Care

Shift from reactive to using "pre-emptive AI" to anticipate patients' needs.



Augmenting Expertise

Provide clinicians with intelligent tools while keeping final decisions with professionals.



Liberating Clinical Time

Free clinical staff from low-value administrative tasks to focus on patients.



Ethical Implementation

Implement technologies while adhering to NHS governance and ethical frameworks.



Solution Scaling & Sustainability

Ensure innovations scale across the NHS, creating sustainable value.

The Engine Room: The Innovation Hub and Ecosystem

Our Innovation Hub is the largest purpose-built paediatric innovation centre in the UK.



AI & Data Lab

Advanced analytics and machine learning development



Rapid Prototyping

Quick iteration of physical healthcare solutions



Simulation/UX Lab

Testing solutions in realistic healthcare scenarios



Immersive Lab

Virtual and augmented reality healthcare applications

The Bedrock Robust Governance at Every Stage

Our governance framework enables safe and ethical innovation, not hinders it.

Information Governance

Every project requires a DPIA to evaluate privacy risks under GDPR.

Ethical Oversight

Projects require NHS Research Ethics approval and monitor for algorithmic bias.



Human Oversight

All AI systems keep clinical professionals in the decision loop.

Clinical Safety

Tools assessed against NHS DCB0129/0160 standards by Clinical Safety Officers.

Regulatory Compliance

We determine if tools require MHRA/UKCA marking and follow NHS AI Code.

Case Study: Addressing a £150M Problem Rooted in Inequality

Missed appointments for patients under 19 ('Was Not Brought') cost the NHS £150 million annually.

These disproportionately impact children from economically disadvantaged communities.

Barriers include transport costs and difficulty taking time off from low-wage jobs.

This creates a cruel irony where vulnerable children who need care most are least likely to receive it.

- 1 Transportation costs
- 2 Difficulty taking time off work
- 3 Childcare for siblings

From Prediction to Proactive, Targeted Intervention

Data Modelling

Anonymised patient data and social determinants processed by AI

Risk Prediction

80% accuracy in identifying families at risk of non-attendance

Proactive Outreach

Direct contact with highest-risk families

Practical Support

Offering tangible solutions like pre-paid transport

This enables a shift from reactively recording a problem to proactively preventing it with targeted support.



Delivering Measurable Impact Across a 10-Trust Alliance

£1.25M

Investment

Across the Children's Hospital
Alliance

25%

Reduction

Average decrease in non-
attendance rates

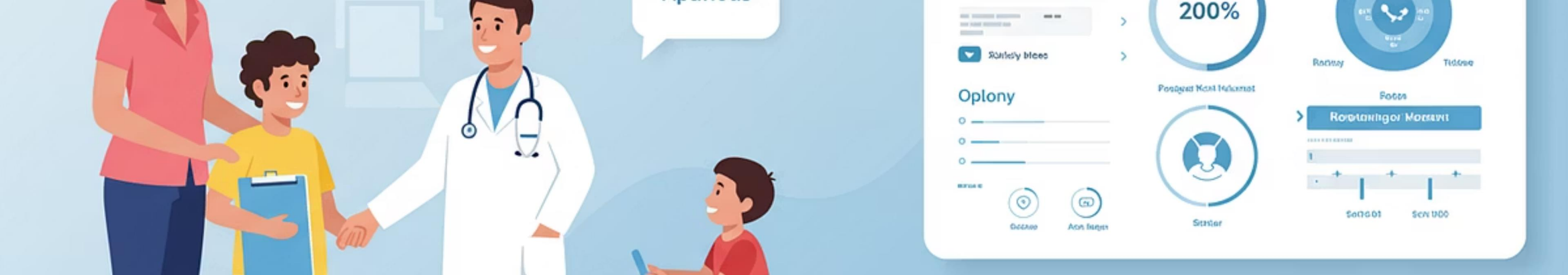
The programme was validated at scale through the Children's Hospital Alliance, a collaborative of ten specialist NHS trusts.

Impact was greatest for those who needed it most, demonstrating the power of targeted interventions to address healthcare inequalities.

52-68%

Improvement

Reduction in the most at-risk
patient groups



A Clear Return on Social and Financial Investment

4,000+

Appointments Saved

In just a two-month period

£3M

Cost Savings

Estimated over two years

27,500+

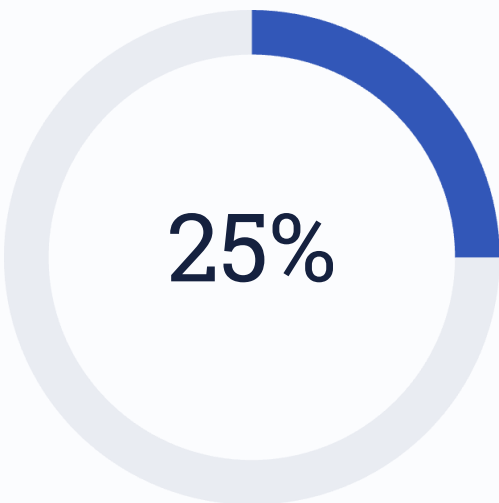
Appointments Freed

Across the alliance

The WNB tool demonstrates using AI not just for efficiency, but as a proactive instrument to ensure equitable access to care.

We are now finalising a commercial model to make this solution available nationally.

Results: Impact on Care and Efficiency



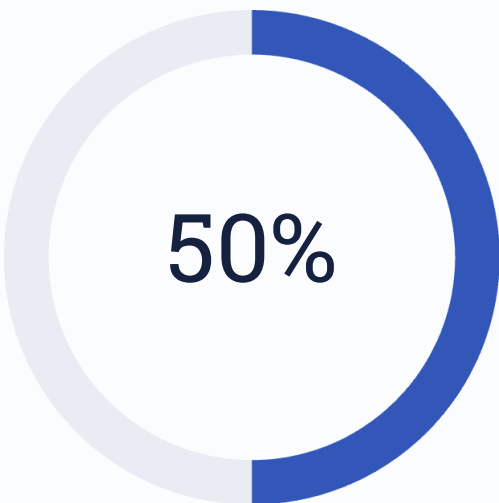
Reduction in No-Shows

Our 'WNB' AI enabled 27,500 more appointments and saved £3M across 10 hospitals.



Hours Saved

RPA saved over 20,000 hours of manual administrative time.



Fewer Readmissions

Little Hearts @ Home cut emergency readmissions, saving >£100k per patient.



Staff Enthusiasm

Of clinicians on waiting list to use Ambient AI Scribe, saving significant admin time.



4 Takeaways: Our Blueprint for Sustainable NHS Innovation

1. Anchor to Real-World Need

Start with problems identified by frontline staff and patients, not with technology for its own sake.

2. Cultivate Multidisciplinary Teams

True innovation happens at the intersection of clinical, data, and technical expertise.

3. Embrace Pragmatism with "Build-Buy-Partner"

Take a flexible approach to technology acquisition that balances speed, cost, and control.

4. Prioritise Data Quality and Governance

AI is only as good as the data it's built on. Ensure ethical, safe innovation.

Thank You and Questions

Interested in collaborating on pediatric healthcare innovation?

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