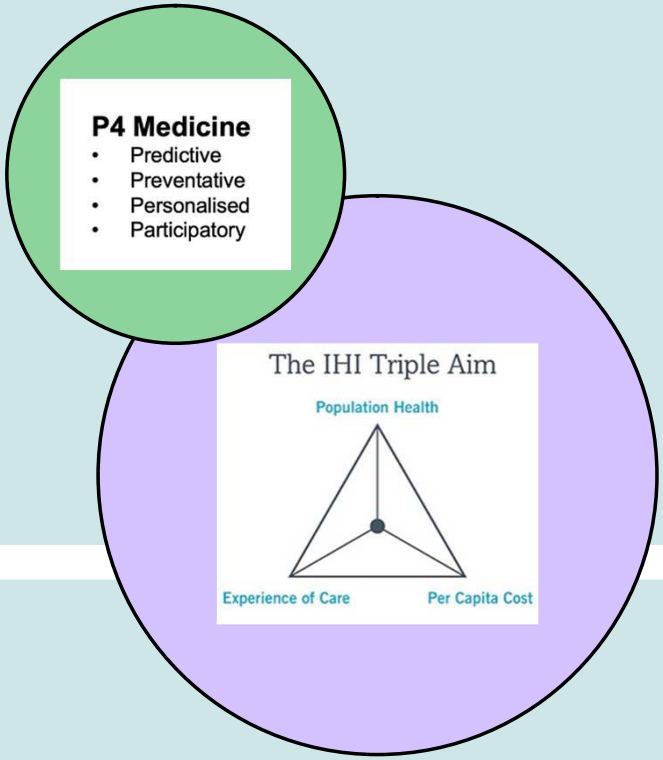
AI and the NHS: Getting it Right

Presented by Jessica Morley

The Hope

- By using data and AI, medicine can be more predictive, preventative, personalized, and participatory enabling earlier more effective interventions. More proactive care than reactive.

- This will hopefully enable healthcare systems to achieve the so called triple aim: simultaneoulsy improving the experience of care and population health, whilst reducing per capita cost.



10 Year Plan

“As well as wearables, we expect an expansion in the use of biosensors in the home, and even the workplace, providing a more constant flow of information. We will see miniature, highly accurate biosensors continuously monitor a wide array of physiological parameters (glucose, electrocardiogram, blood pressure, stress, complex biomarkers). Health monitoring will happen via smart fabrics and nanotechnology will enhance sensor capabilities. AI algorithms embedded in wearables will analysedata to detect early disease, predict adverse events and provide personalised coaching.”

The threat of disorganised complexity

Condition: designed to handle the complex and co-dependent development of multiple conditions.

Technology: deployed within clinical systems, vulnerable to legacy issues, entirely reliant on access to patient data, increasing accuracy & privacy risks.

Value Proposition: confused and limited evidence base.

Adopters: willingness to adopt is conditional, and currently to many barriers to these conditions being met.

Organisation(s): embedded in clinical workflows & existing systems, necessitating re-organisation of demands, sold by private companies.

External Context: uncertain regulatory context, economic and social challenges.

Adaptation over time: can adapt in real-time, potentially in a black box fashion, via an ungoverned process, affected by changes in underlying data & population.

Why is the current NHS info infra design resulting in ACDSS implementation failure? What changes are required to increase the likelihood of success?

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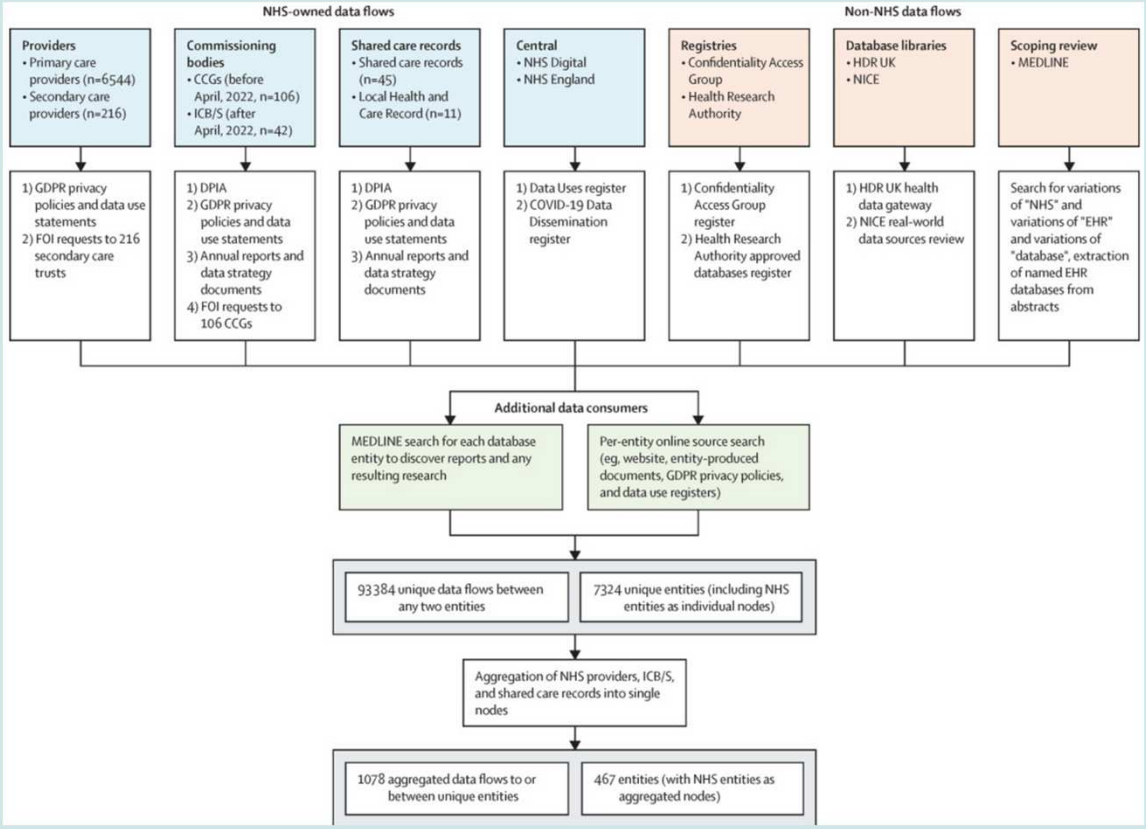
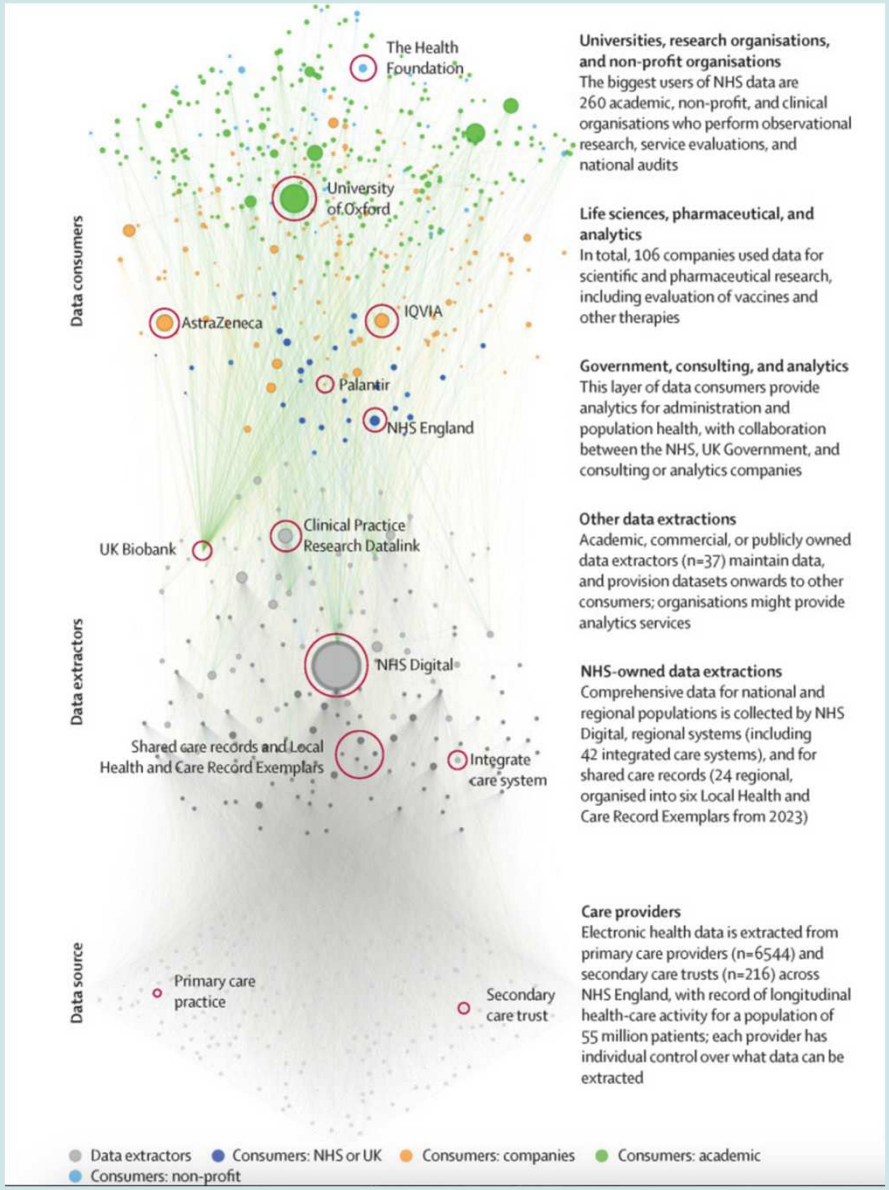
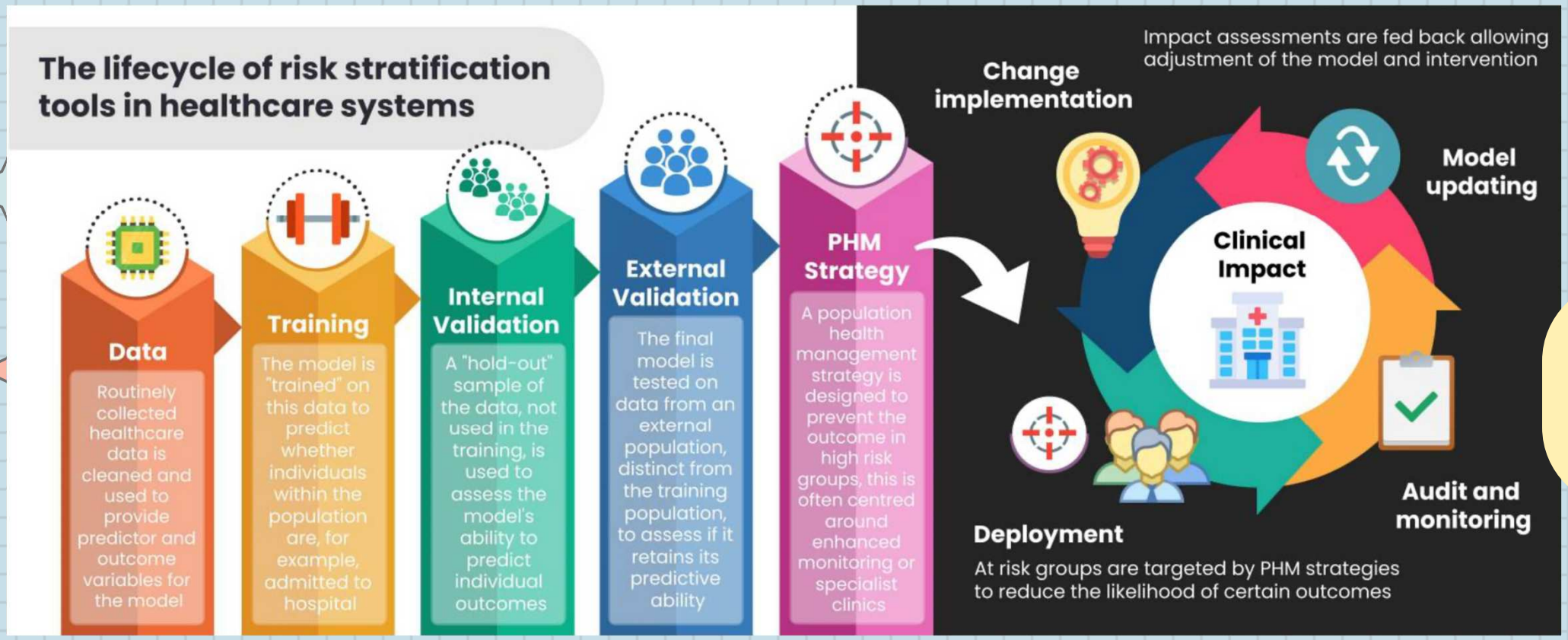




Zhang, Joe, Jess Morley, Jack Gallifant, Chris Oddy, James T Teo, Hutan Ashrafian, Brendan Delaney, and Ara Darzi. “Mapping and Evaluating National Data Flows: Transparency, Privacy, and Guiding Infrastructural Transformation.” The Lancet Digital Health 5, no. 10 (October 2023): e737–48. https://doi.org/10.1016/S2589-7500(23)00157-7.



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Oddy C, Zhang J, Morley J, Ashrafian H. Promising algorithms to perilous applications: a systematic review of risk stratification tools for predicting healthcare utilisation. BMJ Health Care Inform. 2024 Jun 19;31(1):e101065. doi: 10.1136/bmjhci-2024-101065. PMID: 38901863; PMCID: PMC11191805.

Technically feasible, & ethically justifiable?

Patient-Centricity

High-quality care

Available for all

Information: Epistemic Certainty

1. **Consistent data quality**
2. **Sufficient data quantity**
3. **Reliable data interpretability**

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Technology: Robust Information Exchange

1. User Friendly EHR
2. Privacy Preserving Data Access
3. Seamless Integration
4. Protection from vendor Lock-In

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Process: Validated Outcomes

1

Clearly Stated Outcomes

2

Mindful Model Development

3

- Rigorous technical validation
- Rigorous clinical evaluation
- Careful local calibration

4

Ongoing Impact Monitoring

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Staff & Knowledge: Autonomous Staff

1. **Data Literate Senior Leaders**
2. **Valued Analytics Workforce**
3. **Epistemic Authority**

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Management Systems: Meaningful Accountability

1. Fit for purpose IG
2. Regulated Medical Devices
3. Clinician and Patient Proection
4. Auditability

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Patient Centricity

Risks

- AI risks narrowing what ‘counts’ as evidence (EHR data > lived experience)
- Rise of the ‘data patient’ over the physical person
- Patients risk being reclassified as 'bad patients' if they cannot meet AI standards

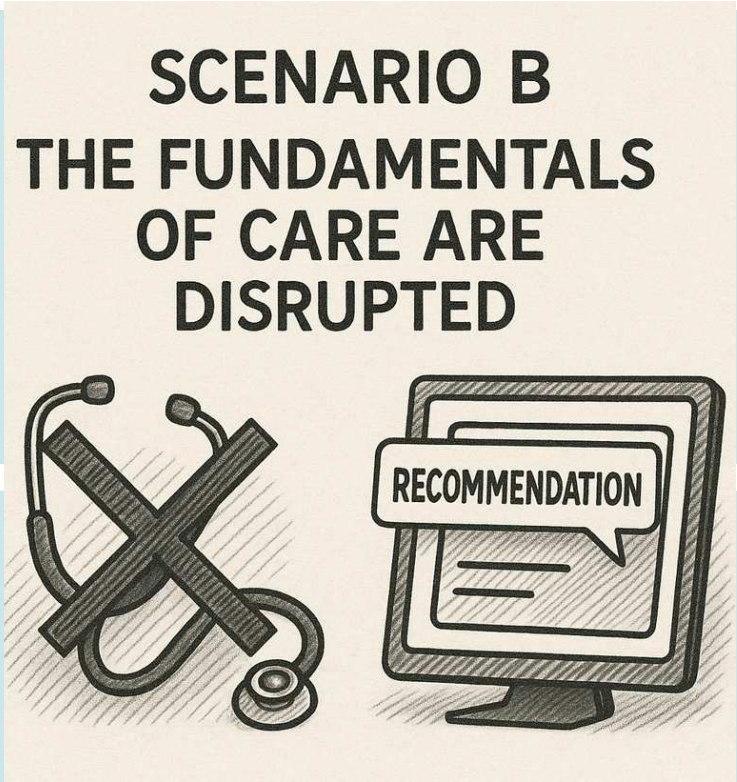
Drivers

- Overreliance on quantifiable metrics
- Constant risk scoring: permanent ‘sick role’
- Erosion of right not to know

High-quality care

Risks

- AI may shift power away from clinicians
- Erosion of fiduciary responsibility
- Undermines relational trust
- Care becomes engineering: from shared decision-making to mechanistic ‘advice delivery



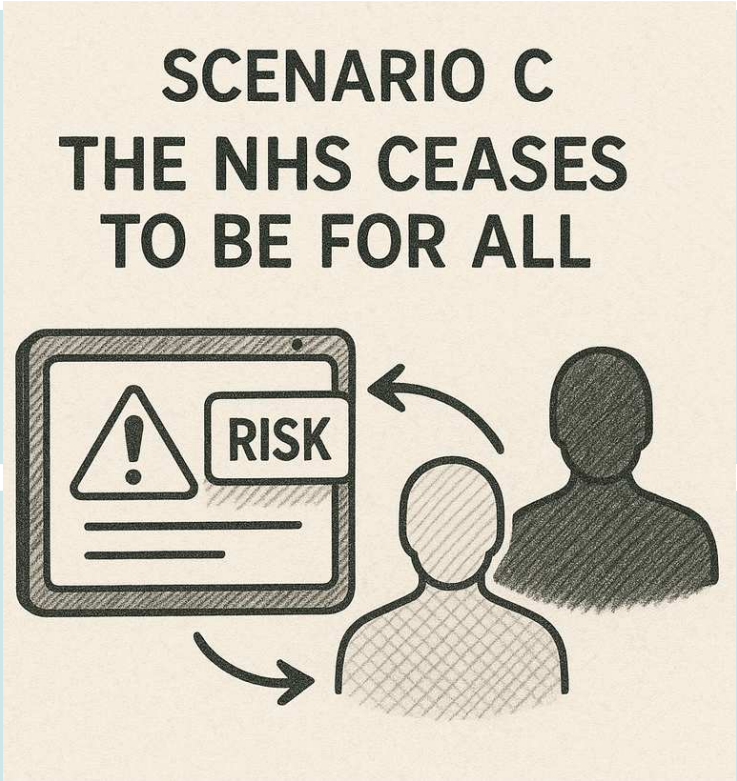
Drivers

- Automation bias & epistemic erosion
- Performance management by AI proxy
- Accountability gaps & safety governance lag

Available for all

Risks

- Biased training data = biased recommendations
- Feedback loops reinforce existing inequalities
- Inverse Care Law becomes Inverse Data Law



Drivers

- Dataset gaps (minorities, mental health, social care)
- Lack of local calibration or subgroup validation
- AI as a "health service for the already well"

Doomed to fail?

Not if we build infrastructure that embeds NHS values in design

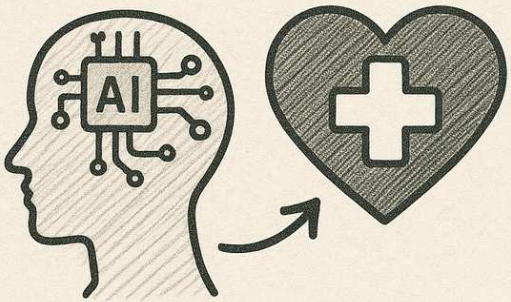
This means we need anticipatory ethics not *just 'risk management'*

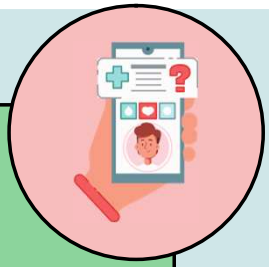
- Whose values are embedded in this system?
- What assumptions underpin this model?
- What happens when patients disagree with the algorithm?
- Who gets harmed if the system is wrong?

Tl;Dr

We must be careful what we wish for, and deliberate in what we build

AI IN THE NHS ISN'T JUST A TECHNICAL CHALLENGE—IT'S A NORMATIVE ONE





Thank You