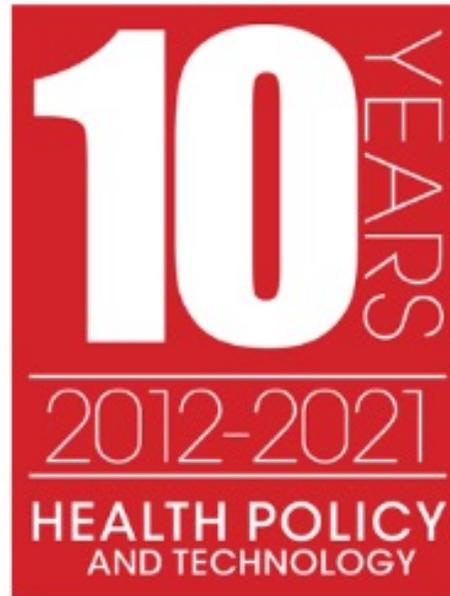




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Artificial Intelligence – Improving Health, from Smart Hospitals to Smart Homes

24 August 2021, 4pm UK



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WEBINAR:

Artificial Intelligence – Improving Health, from Smart Hospitals to Smart Homes

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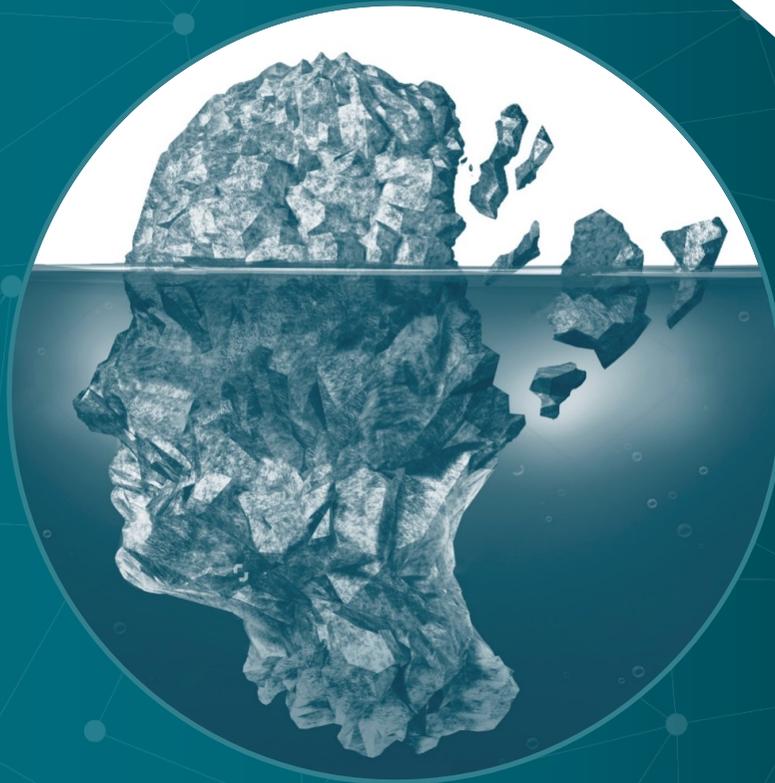
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Medicine
(Moderator)

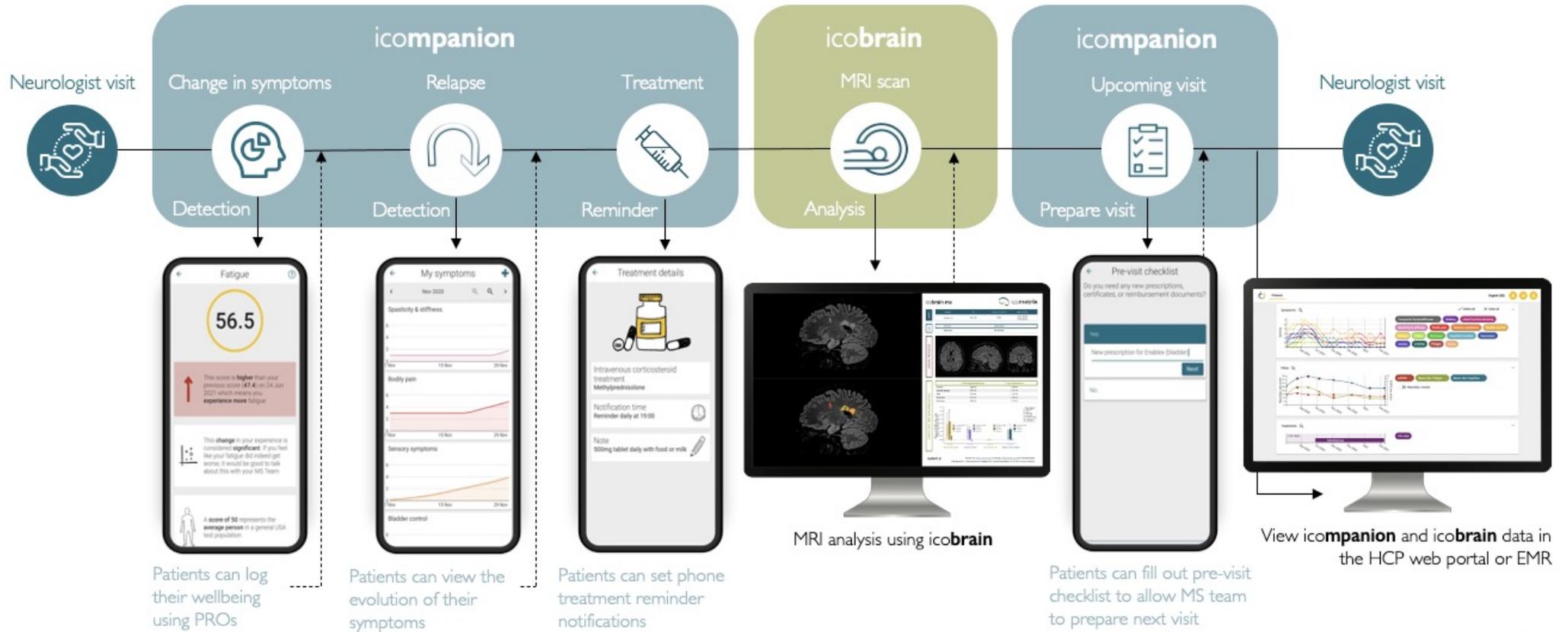
Media Partner: **VitalTransformation** 

**How AI can enable
patient-centric care in
multiple sclerosis**



A novel digital care platform for multiple sclerosis

Aimed at detecting clinical and subclinical disease activity



Presentation by Richard Barker of



FPM webinar, August 24th, 2021

AI/machine learning applications in healthcare

- Image analysis – now well established as matching/exceeding/supplementing human radiologists
- Operations optimisation – significant use cases of practical value, mainly in the acute sector
- Clinical decision-making – potential to leverage multi-parametric, through-time AI-based analysis to improve quality, consistency and personalisation: of care
 - Cancer
 - Other sub-segmentable major diseases (auto-immune etc)
 - Multiple morbidities (eg cardiometabolic conditions)

AI for clinical decision-making: issues to confront

- Schizophrenic attitudes to patient level data utilisation
- Continuing fragmentation of data sources
- Complex and slow information governance processes
- Explainability challenges vis a vis clinicians and patients
- UK/NHS a good 'living lab' but a poor source of financial sustainability

The prize(s) - business Cases for AI in clinical decision-making

Clinical

- Prioritise patients for earlier/more aggressive treatment
- Manage co-morbidities more effectively
- Reduce 'noise' in clinical judgments
- Increase alignment with guidelines
- Improve personalization of care

Economic

- Target costliest therapies to patients of greatest need
- Reduce 'time to decision' (and therefore burnout risk) for clinicians
- Support new multi-skill treatment processes
- Reduce costly secondary care episodes

metadvice

The Metadvice AI solution

- Analyses the patient population to highlight those with negative trends
- Incorporates standard guidelines and 'precision medicine' = ie patient-specific factors, especially comorbidities
- Uses AI to analyse patient journey and highlight best course of action for complex 'cardiometabolic' cases
- Presents conclusions in real time during consultations, but leaves clinicians in the driving seat
- Fits the evolving model of primary care, equipping nurses, pharmacists and health workers alongside doctors
- Optimises clinical time and improves outcomes
- Developed with the NHS but suitable for global markets facing similar challenges

metadvice

What we have built so far

1. Cardiometabolic decision tool V1.0

Easy-to-use modern AI-driven interface

That

- a) highlights areas of immediate need
- b) provides actionable recommendations
- c) gives confidence and explains AI with evidence

The screenshot displays the 'Journey with Comorbidities' interface. It includes a 'Status summary' section with a legend for 'Under control' (green), 'Not under control' (yellow), and 'Urgent' (red). Below this are lists for 'ACTIVE CONDITIONS' (Type 2 diabetes, Obesity, Dyslipidaemia, Fatty liver disease, Hypertension), 'SUSPECTED CONDITIONS' (Diabetic retinopathy), and 'RISKS TO WATCH' (Cardio-vascular events, Diabetic eye disease, Diabetic foot ulceration, Diabetic kidney disease). A 'Management strategies' section allows sorting by 'Effectiveness'. The 'Status / Do Next Recommendations' panel shows related conditions, effectiveness (Moderate), evidence base (Strong), and a recommendation for a low-calorie diet. The 'Explainable AI' section features a decision tree starting with 'polyvascular CV events >= 1?' and branching into 'ckd==no?' and 'ckd==yes?'. Further branches include 'Statin-effect?', 'egfr >= 30 ml/min/1.73m2?', 'StatM', 'StatH', 'fam hyperchol?', 'LDL1stTreatment >= 3.5 mmol/l?', 'non fam hyper', '[32] lipid disease other than familial hypercholesterolemia : false', 'recurrent/polyvascular CV events >= 2?', 'LDL1stTreatment >= 4 mmol/l?', and 'LDL1stTreatment >= 3'.

Designed and tested by clinicians

Launching in GP practices in the UK in Q4 2021



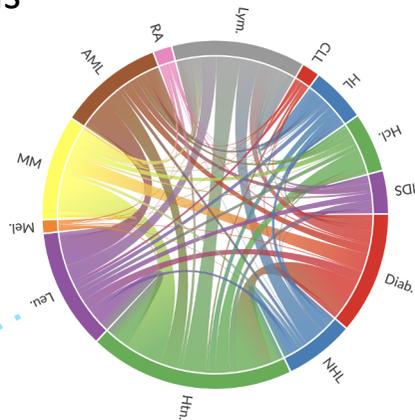
What we have built so far

2. Algorithms to analyse data across 10 diseases

Trained by data from world-class institutions

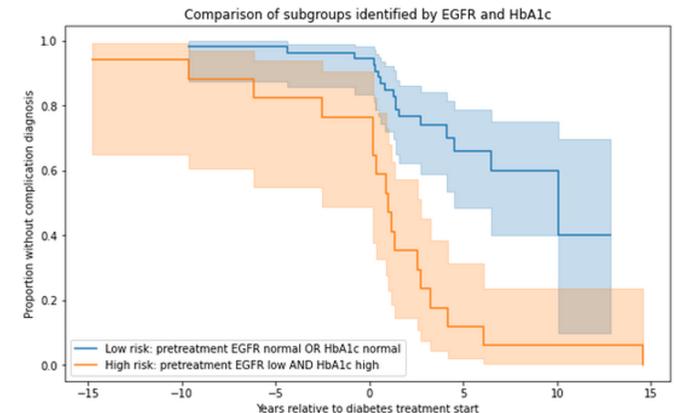
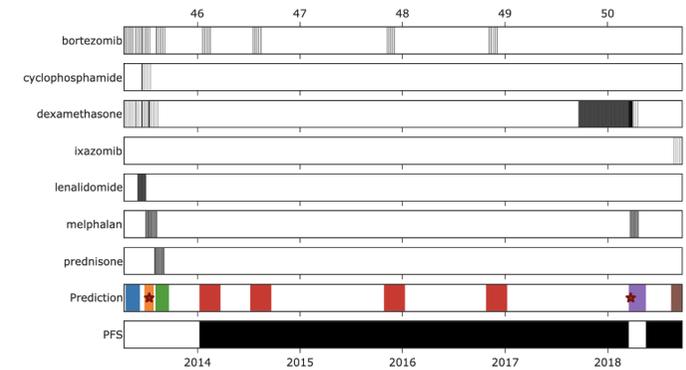


VANDERBILT
UNIVERSITY
MEDICAL
CENTER



- a) **multimorbidity** analysis
- b) therapeutic **trajectory mapping**
- c) early, **precise diagnosis**
- d) **prediction of complications and therapy response**

Integration into the CDS platform and for pharma-facing projects for early revenue





AI & The Real World

Nige Hughes, Janssen Global Epidemiology, 24th August 2021

The opinions expressed in this presentation and on the following slides are solely those of the presenter and not necessarily those of Janssen. Janssen does not guarantee the accuracy or reliability of the information provided herein

Donna Williams, *Discovery*
Donna Williams, an autistic artist,
author and renowned autism advocate, was
diagnosed with breast cancer in 2011



Watch the Hype Cycle and future destinations....2020

Hype Cycle for Emerging Technologies, 2020



[gartner.com/SmarterWithGartner](https://www.gartner.com/SmarterWithGartner)

Sources: Gartner
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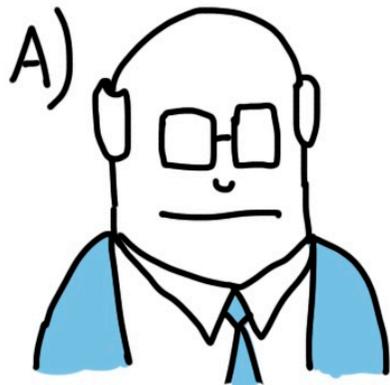
Gartner

2020 list highlights five unique trends:

- Composite architectures
- **Algorithmic trust**
- Beyond silicon
- **Formative artificial intelligence (AI)**
- Digital me

Clearly Some Trends Have Been Accelerated by COVID-19

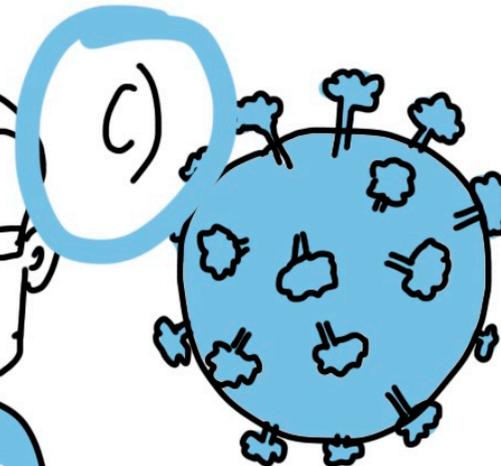
WHO LED THE DIGITAL TRANSFORMATION
OF YOUR COMPANY ?



THE CEO



THE CTO



COVID-19

Hype and AI during the COVID-19 Pandemic

Hundreds of AI tools have been built to catch covid. None of them helped.

Some have been used in hospitals, despite not being properly tested. But the pandemic could help make medical AI better.



AP

When covid-19 struck Europe in March 2020, hospitals were plunged into a health crisis that was still badly understood. "Doctors really didn't have a clue how to manage these patients," says Laure Wynants, an epidemiologist at Maastricht University in the Netherlands, who studies predictive tools.

But there was data coming out of China, which had a [four-month head start](#) in the [race to beat the pandemic](#). If [machine-learning algorithms](#) could be trained on that data to help doctors understand what they

Throughout the pandemic, data science and AI have been in the public eye as never before.

Four key aspects of AI during COVID-19:

- Remarkable & diverse contribution
- Better data would enable a better response
- Inequality & exclusion
- Public domain communications

AI: A virtuous circle.....

