Empowered patients
Sustainable healthcare

Using routinely collected healthcare data to predict and prevent exacerbation

Opportunities and challenges

Dr Joachim Werr, Founder of HN

Digital Health Rewired 2022

Empowered patients
Sustainable healthcare

HN - Your trusted Population Health Partner

- ***Using routine and reliable health data***
- ***Applying advanced machine learning***
- ***Accurately identify patients at real risk of deterioration***
- ***Providing fully clinically staffed, technology-enabled, virtual wards, preventing disease progression and hospital admissions.***

NHS Vale of York Clinical Commissioning Group

NHS Stafford and Surrounds Clinical Commissioning Group

NHS Kent and Medway Clinical Commissioning Group

NHS Mid Essex Clinical Commissioning Group

UKs largest RCT on AI-guided case finding of patients at risk of exacerbation and hospitalisation followed by remote support

SBRI HEALTHCARE

Significant SBRI R&D funding and collaboration with Nuffield trust and Warwick University on large clinical programme within the NHS

nuffieldtrust

WMG THE UNIVERSITY OF WARWICK

WARWICK MEDICAL SCHOOL

Personalised Care Institute

HN is accredited by the PCI for its personalised clinical health coaching programme

Tim’s story

"If you are brave enough to take control with the help of the coach who helps you through this, you truly can make a difference to the immediate crises as they turn up…

In my case I went from being an asthmatic, to someone who happens to have asthma.

I went from six admissions to none within a couple of months."

– **Tim**, patient receiving the AICC intervention in York

Our AI-Guided Clinical Coaching (AICC) digital health technology

Finding and supporting the right patients to build self-management and monitoring capabilities, building confidence, improving outcomes and keeping patients at home

HN Empowered patients Sustainable healthcare

L2S2 TRANSFORMING DIGITAL HEALTH

HSCN

Daily data from acute & ambulance, general practice, social care & community.

PATIENT FINDER

AI-guided, near real-time identification of patients

Clinical coach (reg. nurse)

Manual screening & invitation

Internet

CE

Remote clinical coaching & supported self-care

Discharge and reporting

Evaluate

Assess

Alert

Monitor

Patient

Clinical coach (reg. nurse)

Remote monitoring and Support Platform

Regulatory compliant and state of art information governance

Accreditations/ certifications: NHS Digital · DS&P Toolkit · Cyber Essentials · bsi. ISO 13485 Medical Devices Quality Management · bsi. ISO/IEC 27001 Information Security Management

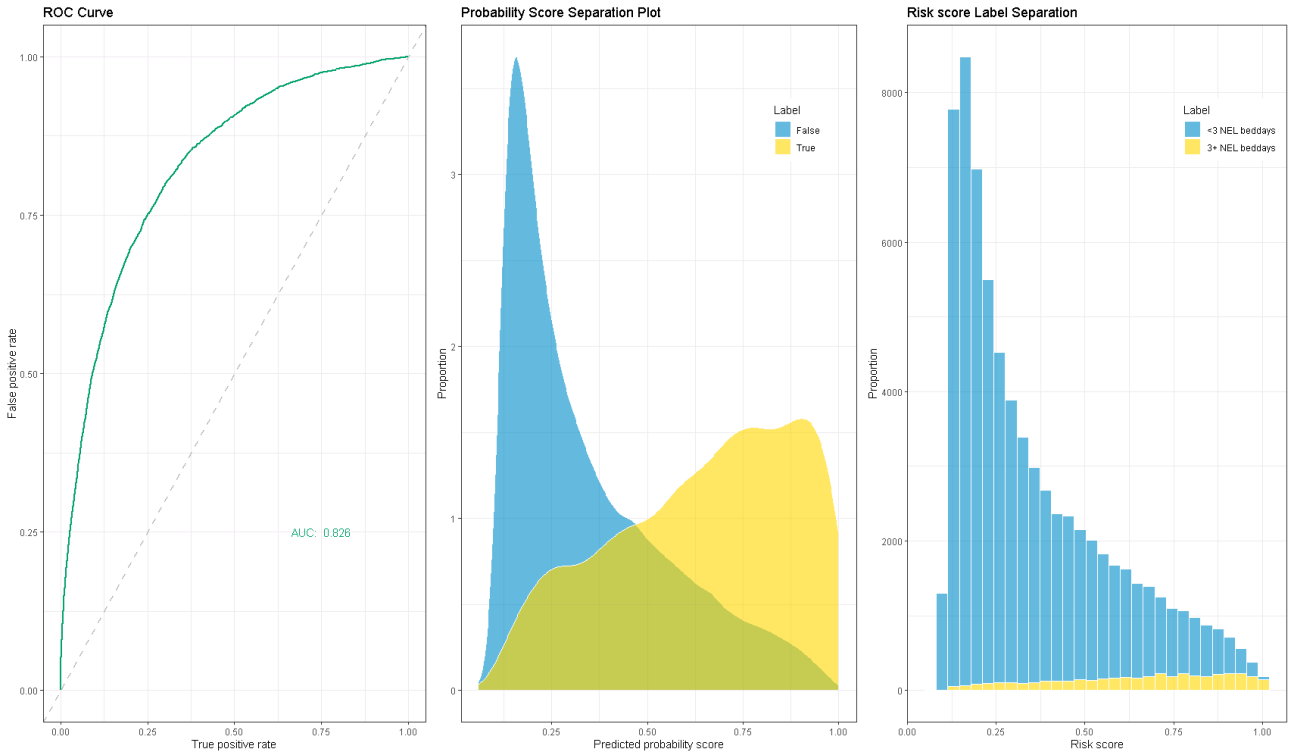
HN's AI patient screening & identification model validation on Glasgow City dataset: 8 out of 10 can be identified

PATIENT FINDER

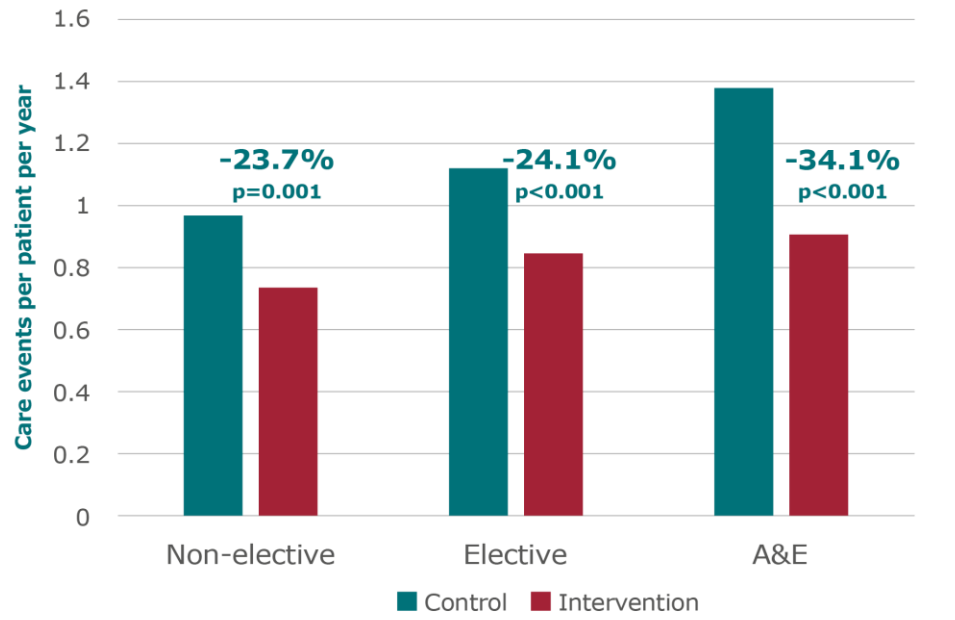
Predictive accuracy
- **ROC[1]** = 0.826

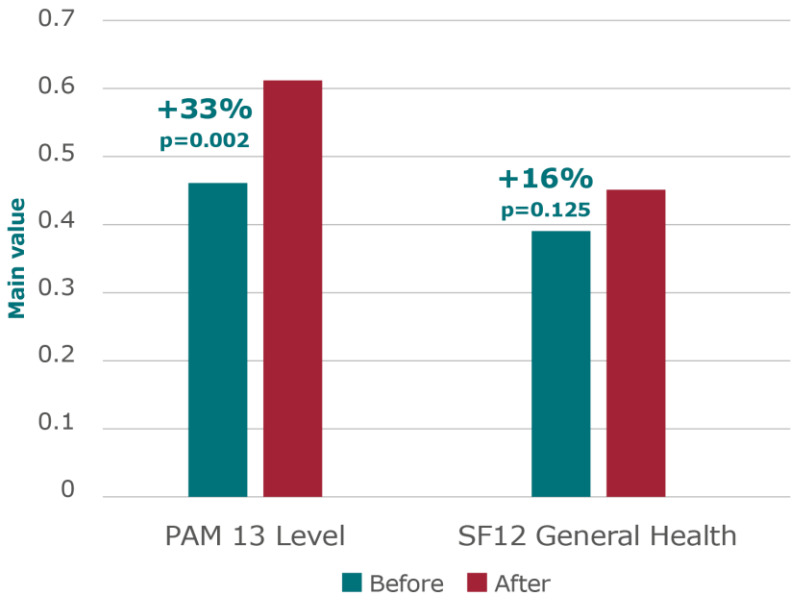
Patients correctly identified
- **Sensitivity** = 0.81 (81%)

Patients missed *(we want to minimise this metric)*
- **False Negative rate** = 0.19 (19%)
- **Specificity** = 0.68 (68%)
- **Balanced accuracy** = 0.75 (75%)



Safely reducing demand and improving outcomes

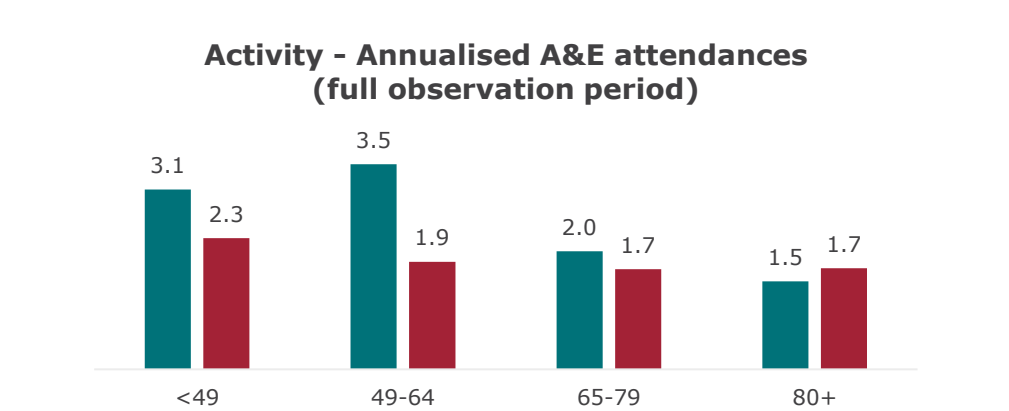


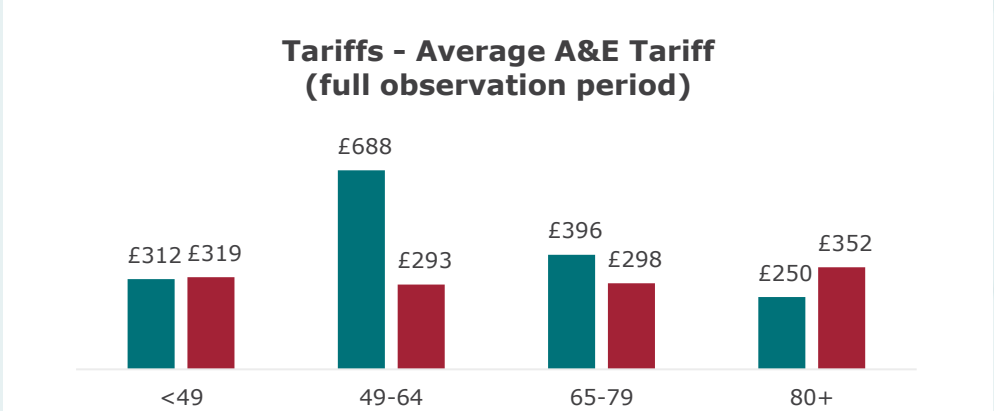


Source: Vale of York CCG Interim Analysis of NHS RCT - December 2018. (n=776 left, n=288 right)

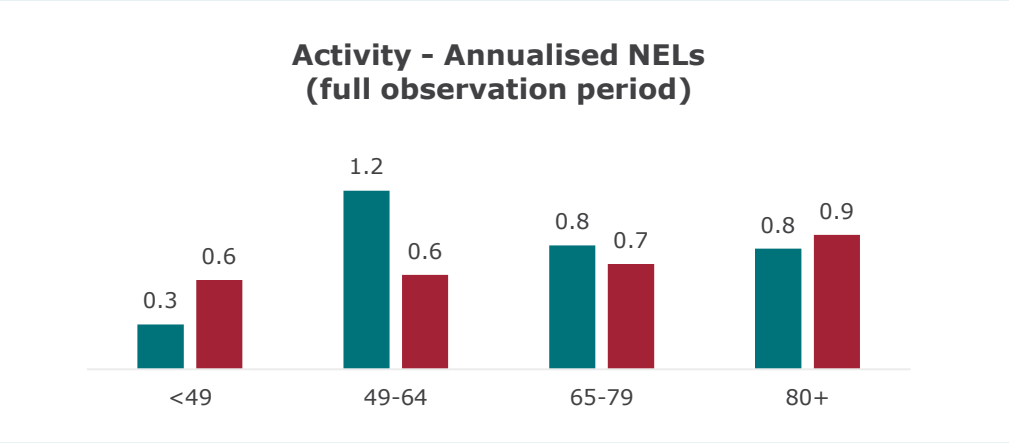
Staffordshire ICS results: breakdown by age

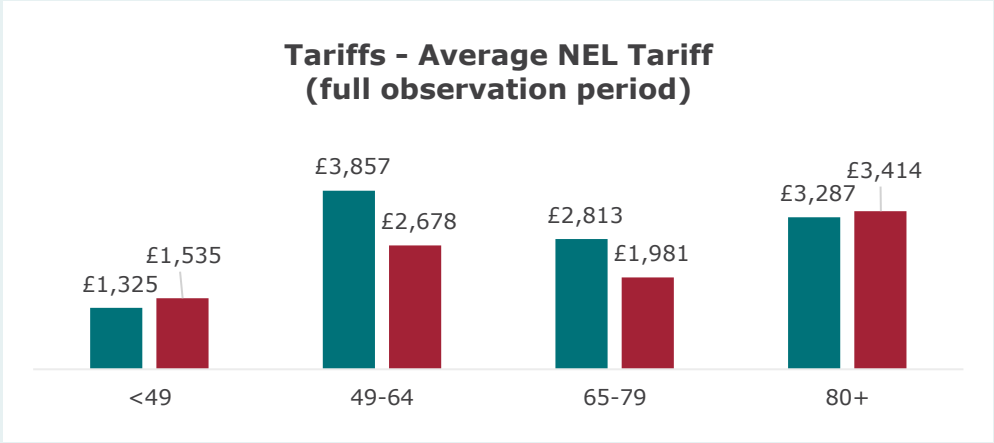
A&E attendances





NELs

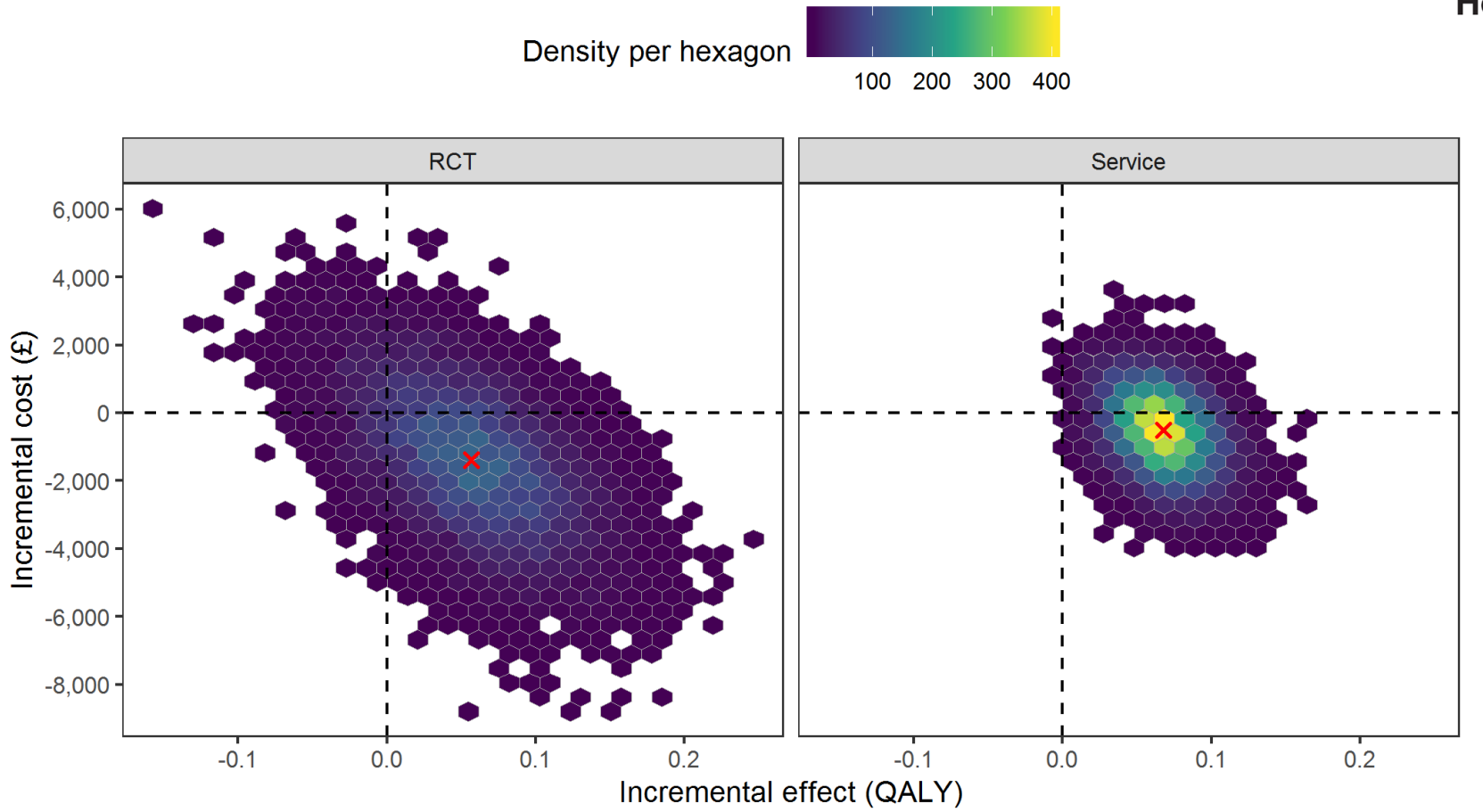




On average, patients have been observed for 457 days.
Results for patients recruited at Burton, UHNM and RWT (n=329, 214 in intervention)

AICC Health Economics

East Kent Hospitals University NHS Foundation Trust



The opportunity: AI delivers quick & sustainable wins for the new integrated landscape

Changing ICS landscape

Opportunity to work across primary and acute settings

Benefits for the entire integrated system

The challenge: Despite pressing needs and solid clinical evidence, we face barriers to adoption

Lack of innovation funding

Poor evidence of effectiveness for other Proactive Care models

AI-driven case finding is a new approach

Remote care models challenge existing conceptions