NIHR | Applied Research Collaboration

Impact Inclusion Innovation Investment

Analogue to digital

The Health Service Modelling Associates Programme

PenARC (now NIHR ARC South West)

The challenge
PenARC's Health Service Modelling Associates (HSMA) programme is transforming how NHS and social care organisations use data by helping staff move from traditional, manual ways of working to digital, analytical approaches.

The approach
Over 15 months, participants learn data science and operational modelling techniques and apply them directly to operational challenges in their own services.

Since beginning in 2016 with just six participants, HSMA has expanded nationally, training more than 300 staff through fully virtual, open-source–based learning accredited by the Association of Professional Healthcare Analysts. Alumni continue to share digital tools, code, models and guidance through an active online community, further accelerating digital adoption.

The outcomes and impact
The programme has led to significant real-world digital impact. At University College London Hospitals, associates built a digital patient-flow model that allowed leaders to test redesign options virtually before implementing changes. This modelling directly informed new layouts and staffing rotas, leading to shorter waits and better experience, and the approach is now being replicated in other Emergency Departments.

Elsewhere, participants have developed digital tools to speed up neurodevelopmental assessments, redesign cardiac pathways using geographic modelling, map firearm-related violence for national intelligence, and automate health equity assessment, reducing analysis time by a factor of 80.

READ MORE