

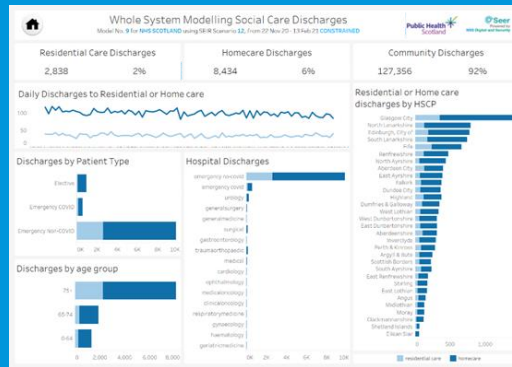
WSM – Whole System Modelling

Following the pandemic, there were several complex issues facing health and social care. A Whole System perspective considers the influx of emergency and elective admissions into the healthcare system, and the subsequent demand flow into secondary care and social services. In Whole System Modelling, what-if scenarios are defined and simulated via a discrete event simulation implemented in R, in order to assess the impact of scenario changes like respiratory disease infection rates, hospital and staff capacity, or capacity in Health and Social Care Partnerships. The model supports decision making and management of the complex factors and interactions surrounding a patient.

NSS National Services Scotland's Data and Analytics team operates, supports, and improves the Whole System Modelling hosting platform and data warehouse, enabling a

Key benefits

- ✓ Support public health and service managers in understanding demand and capacity.
- ✓ Predict impact of different scenarios such as winter demand, or surges of Covid-19 cases.
- ✓ Together with other models, provide a wide range of insights into the health and social care sector.



collaboration between Public Health Scotland and NHS Scotland's health boards.

Insights generated by the model inform and support decision making at all government levels.

Technologies & Activities:

Model data ingestion and preparation using SAP Data Services and Denodo.

Development and support of a Python API to host the R model.

Enabling simulation model development on the Azure ML platform.

Support of version control through a GitHub repository and deployment through Jenkins pipelines: Automated deployment on scalable Kubernetes platform for high-speed cloud computations.

Hosting of simulation and model data. Migration from Oracle to AWS/Snowflake.

Support result visualisation using Tableau.



Testimonial

Public Health Scotland (PHS) and NHS National Service Scotland (NSS), Digital and Security (DaS) have been engaged in a complex collaboration (also involving other partners) to develop modelling and dashboarding tools to support the COVID-19 response and recovery. DaS continue to bring essential skills to the collaboration on system architecture, data science and dashboard build and design. Working in an integrated and agile manner this partnership has allowed us to deliver critical products at rapid pace.

Andrew Lee, Service Manager, Whole System Modelling, PHS

Work with us

For further information or to arrange an informal discussion about your place in our team:

NSS.BIrecruitment@nhs.scot

