

Simulation

Using a simulation model, the impact of future changes on service performance and resource utilisation can be quickly understood



ORH provides a bespoke modelling service based on proven Operational Research (OR) techniques.

ORH's simulation models replicate the key characteristics of an emergency service, and can be used to predict future behaviour and performance under a variety of different scenarios. Using a simulation model, the impact of future changes on service performance and resource utilisation can be quickly understood.

In ORH's discrete event simulation models, demand is generated in accordance with historical data. Vehicles within the model respond to this demand according to their proximity and the dispatch protocols fed into the model. The models can be set up to reflect different

operational practices across all emergency services, for example, ambulance dispatching protocols, fire appliance multiple response and police mobile patrol policies.

Using ORH's simulation modelling approach, a service can quickly understand how changes to controllable factors such as resource deployment, standby locations and dispatch protocols might affect performance, as well as the impact of uncontrollable factors such as rising demand or changes to clinical specialties offered by medical facilities. These can be modelled either individually or in combination, with years of operational time simulated in minutes, allowing many different options to be tested quickly.

MODELLING PROCESS

The modelling process involves four key steps:

- **Validation** – ensuring the model accurately reflects the current situation
- **Optimisation** – identifying the “best” solutions
- **Simulation** – predicting future service behaviour and answering “what if” questions
- **Sensitivity modelling** – ensuring that identified solutions are robust and future-proof

KEY BENEFITS

- Takes into account complex interrelationships
- Predicts the impact of controllable factors and prioritises areas for change
- Demonstrates the impact of changes in uncontrollable factors
- Can be used to examine the impact of individual factors, or of multiple simultaneous factors
- Provides a risk-free environment in which many different options can be considered quickly
- Produces evidence-based solutions to support management decision-making



Emergency Service Planning
Simulation