

# Cambridge Elements

Elements of Improving Quality and Safety in Healthcare

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## OPERATIONAL RESEARCH APPROACHES

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## Operational Research Approaches

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**Abstract:** Operational research is a collection of modelling techniques used to structure, analyse, and solve problems related to the design and operation of complex human systems. While many argue that operational research should play a key role in improving healthcare services, staff may be largely unaware of its potential applications. The authors explore operational research's wartime origins and introduce several approaches that operational researchers use to help healthcare organisations: address well-defined decision problems, account for multiple stakeholder perspectives, and describe how system performance may be impacted by changing the configuration or operation of services. The authors draw on examples that illustrate the valuable perspective that operational research brings to improvement initiatives and the challenges of implementing and scaling operational research solutions. The authors discuss how operational researchers are working to surmount these problems and suggest further research to help operational researchers have greater beneficial impact in healthcare improvement. This title is also available as Open Access on Cambridge Core.

**Keywords:** computer simulation modelling, heuristic search, multi-criteria decision analysis, operational research, location and allocation analysis

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