

ES9ZS-15 Operational Management and Clinical Systems Improvement

24/25

Department

School of Engineering

Level

Taught Postgraduate Level

Module leader

Dan Nunan

Credit value

15

Module duration

10 weeks

Assessment

100% coursework

Study location

University of Warwick main campus, Coventry

Description

Introductory description

This module goes beyond current approaches that are used to address challenges involving patient safety, system performance and management. It will familiarize students with systematic approaches in the analysis and design of health service systems for effective operational management leading to clinical systems improvement. Module materials will focus on areas such as managing patient flow, capacity, and resource utilization. Materials will also examine tool and techniques that are applied to monitor quality and service design including clinical guidelines quality benchmarks, thresholds and outcomes. Students will have the opportunity to review a range of quality improvement initiatives and associate techniques that have been used across various health systems in order to improve patient safety, efficiency, equity, effectiveness and person-centered care.

Module aims

The main aims of this module are to:

1. Examine factors that contribute to variability in the quality of care and service system performance

2. Critically review tools and techniques with respect to clinical systems improvement including the use of Payment by Result, hospital performance rating scores, report cards etc.
3. Understand and apply approaches that go beyond current lean principles for sustained quality and productivity, for e.g. evidence based co-design with patients.
4. Examine the role of operational management in clinical systems improvement including maintaining standards that monitor performance such as best practice guidelines and benchmarks.
5. Critically review different types of data and their function in the context of clinical systems improvement.
6. Develop an in-depth understanding of different models of improvement and their applicability in clinical systems improvement.

Outline syllabus

This is an indicative module outline only to give an indication of the sort of topics that may be covered. Actual sessions held may differ.

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1. Operational and managerial systems in health service delivery
2. Developing informed clinical systems improvement initiatives
3. Reducing variability in health service
4. Use of data and information for to design improvement projects
5. Analysis and assessment of targets and outcomes and their role in clinical systems improvement
6. Use and applications of statistical tools with health care data to design improvement projects

Learning outcomes

By the end of the module, students should be able to:

- Critically examine and distinguish factors that drive the need for clinical systems improvement
- Demonstrate in-depth understanding of the type of improvement needed along with underlying principles, and concepts necessary when developing a service improvement initiative
- Describe and apply different principles and techniques for quality improvement in healthcare settings and be able to distinguish the conditions under which these are most applicable.
- Integrate various theories/framework, methods and tools in order to design and implement a quality improvement project.
- Analyse strengths and weaknesses of the designs for quality improvement initiatives through application of the rules of evidence to the published literature.
- Understand and apply statistical tools to a set of data for when developing a clinical system improvement initiative

Indicative reading list

Sample bibliography:

Textbook: Ransom, E., Joshi, M., Nash, S. J., Nash, D.b., and Ransom, S.B. (2008). *The Healthcare Quality Handbook, Second Edition*, ISBN-13: 978-1567933017 ISBN-10: 1567933017 .

Hines, P. and Rich, N., *The seven value stream mapping tools*. *International Journal of Operations and Production Management* 1997. 16: p. 46-65.

Dickson, E.W., Singh, S., Cheung D.S., Wyatt, C.C., Nugent, A.S. (2009). *Application of Lean Manufacturing Techniques in the Emergency Department*. *The Journal of Emergency Medicine*, Vol. (37):2:177-182.

Eitel, D.R., Rudkin, S.E., Mavehy, A., Killeen, J.P., Pines, J.M. (2010). *Improving Service Quality by Understanding Emergency Department Flow: A White Paper and Position Statement Prepared for the American Academy of Emergency Medicine*. *The Journal of Emergency Medicine*, Vol. (38): 1:70–79.

Holden, R.J. (2010). *Lean Thinking in Emergency Departments: A Critical Review*. *Annals of Emergency Medicine*, Vol. (57):3: 265-278.

King, D.L., Ben-Tovim, D.I., & Bassham, J. (2006). *Redesigning emergency department patient flows: application of Lean Thinking to health care*. *Emergency Medicine Australasia*, Vol. (18):391-7.

Mould, G., Bowers, J. & Ghattas, M. (2010). *The evolution of the pathway and its role in improving patient care*. *BMJ Quality & Safety in Healthcare*, Vol. 19(5): 1 – 6.

Rath, F. (2008). *Tools for developing a quality management program: proactive tools (process mapping, value stream mapping, fault tree analysis, and failure mode and effects analysis)*. *International Journal of Radiation Oncology Biology Physic*, Vol. (71), (suppl):S187-90.

Treble, T.M., Hansi, N., Hydes, T., Smith, M.A. & Baker, M. (2010). *Process mapping the patient journey: an introduction*. *BMJ* 2010; 341:c4078 (13 August 2010).

Campbell, S.M., Reeves, D., Kontopantelis, E., Sibbald, B., and Roland, M. (2009). *Effects of pay for performance on the quality of primary care in England*. *New England Journal of Medicine*, Vol. 361: 368-378. DOI: 10.1056/NEJMsa0807651

Roland, M., and Campbell, S. (2014). *Successes and failures of pay for performance in the United Kingdom*, *New England Journal of Medicine*, Vol. 370: 20:1944-1949

Research element

This module incorporates elements of quantitative research such as maths and statistical techniques to transform data, descriptive statistics, inferential statistics, mixed methods applications, critiquing evidence and applying research in healthcare quality improvement.

Interdisciplinary

Healthcare operational management is a new emerging discipline that combines health science methodologies with engineering, statistics, quantitative elements of management with data science for quality and productivity improvement in the healthcare sector.

Subject specific skills

- Measurements
- Multivariate data analysis
- Variation

Philosophy of science

- Local versus generalizable knowledge
- High reliability approaches

Transferable skills

- Quality and efficiency in health systems
 - Mapping complex processes
 - Data analysis
 - Reporting and displaying information
 - Process mapping
 - Complexity and interdependencies
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Study

Study time

Type	Required
Lectures	10 sessions of 2 hours (13%)
Seminars	10 sessions of 1 hour (7%)
Private study	60 hours (40%)
Assessment	60 hours (40%)
Total	150 hours

Private study description

Pre-reading and preparation for lectures and seminars.

Costs

No further costs have been identified for this module.

Assessment

You must pass all assessment components to pass the module.

Assessment group A

	Weighting	Study time	Eligible for self-certification
Written Assignment	100%	60 hours	Yes (extension)

Single post module assignment comprised of two parts:
Part-1 around 3000 words (65%) and Part-2 around 1000 words (35%)

Feedback on assessment

Written feedback on post-module assignment.

Availability

Courses

This module is Core for:

- TESA-H1CA Postgraduate Taught Diagnostics, Data and Digital Health
 - Year 1 of H1CA Diagnostics, Data and Digital Health
 - Year 1 of H1CB Diagnostics, Data and Digital Health (Medical Diagnostics)
 - Year 1 of H1CC Diagnostics, Data and Digital Health (Medical Imaging)