

Evidence-based care system design – part 2. Systems within systems

In the previous edition of *Future Healthcare Journal*, there was a focus on using a systems engineering approach to healthcare design and improvement.¹ Review articles highlighted the development of this approach in healthcare, with both concept translation into a framework, the approach in patient safety, training requirements, and application in international settings. In this edition we get down to more of the 'brass tacks' with a number of very concrete examples of applying a systems approach to care redesign.

Commonly changes and innovations in healthcare delivery are based on 'a good idea', or perceived best practice that may have a varying level of evidence to support it, or are pragmatic because of a pressing need. Evaluation is key, but not easy, particularly as by its very nature the system within which the change is made is likely to have undergone other changes. This edition of the journal shows how this evaluation is possible, retrospectively, as we make the changes, and increasingly prospectively.

A pressing need for change is outlined in the recent RCP report *Outpatients: The future*.² Shared medical appointments or group visits are an alternative approach to traditional outpatients, and Jones *et al* explore how these have evolved to address different needs at different times in people's life course.³ They very clearly illustrate the key components of a systems approach that is an understanding of the system, people, design and risk, with iterative, learning focussed implementation and ongoing evaluation of proposed benefits. A complimentary model of care to this is IT enabled care for a population as demonstrated by Aziz *et al* with their web based remote care for local people with inflammatory bowel disease, with early evaluation showing impressive results of patient activation, and reduced healthcare utilisation.⁴ Group visits and remote web based care will undoubtedly be features of local healthcare delivery across the UK in the future.

We all experience the continuous pressures in acute care and the need for service design to meet the challenges of demand, workforce, and efficiency. Acute care is certainly more data rich than outpatient care, and this affords us the opportunities not only to evaluate the impact of changes that may be a helpful consequence of larger change, such as more specialty care for people with acute heart failure in Northumbria,⁵ and multiple acute medical pathway changes in Medway,⁶ but also to model what we need. The WRaPT process, described by Kanagaratnam *et al*,⁷ has significant potential for us to take a more informed approach to service change based on demand, workforce and 'realist' assessment of how we work. In addition, demand modelling with scenario testing as shown by Lawton *et al* for critical care in Bradford enables us to plan how we use our workforce and physical capacity to meet predictable demand with the ability to flex this when required.⁸ More detailed assessment and change of a system within and across systems is described by

Silvester,⁹ the importance of understanding the current systems and their interactions, as well as not being constrained by current paradigms is very apparent in this work.

Systems of care are very local and context specific, and therefore the impact of a change achieved in one place cannot be assumed in another. The interdependency of multiple systems within a system is critical to outcomes for patients and staff. It is important to note that almost all of the service evaluations highlighted used data that is currently available in most healthcare communities in the UK. Therefore building our capability as clinicians, technicians and managers to use these approaches, and protecting the time to do it is essential to maximise the benefits of service improvement, and prevent us wasting precious time, energy and resources on less evidence based approaches. The RCP Quality Improvement faculty is here to help.¹⁰ ■

John Dean

**Clinical director for quality improvement and patient safety,
Royal College of Physicians**

References

- 1 Dean J, Clarkson J. Moving towards evidence-based care system design. *Future Healthcare Journal* 2018;5:148.
- 2 Royal College of Physicians. *Outpatients the Future*. London: RCP, 2018. www.rcplondon.ac.uk/projects/outputs/outpatients-future-adding-value-through-sustainability [Accessed 21 December 2018].
- 3 Jones T, Darzi A, Egger G *et al*. A systems approach to embedding group consultations in the NHS. *Future Healthcare Journal* 2019;6:8–16.
- 4 Aziz A, Reynolds R, Ansari A. A population-based model of care for people with inflammatory bowel disease – patient-reported outcomes. *Future Healthcare Journal* 2019;6:30–35.
- 5 Wilkinson C, Thomas H, McMeekin P, Price C. A cohort study to evaluate the impact of service centralisation for emergency admissions with acute heart failure. *Future Healthcare Journal* 2019;6:41–46.
- 6 Kanagaratnam S, Dholakia S, Wood J *et al*. The WRaPT process – a novel and patient-centred approach to workforce planning by a clinically active workforce. *Future Healthcare Journal* 2019;6:21–24.
- 7 Leach RM, Banerjee S, Beer G *et al*. Supporting a hospital in difficulty: experience of a 'buddying' agreement to implement a new medical pathway. *Future Healthcare Journal* 2019;6:67–75.
- 8 Lawton T, McCooe M. A novel modelling technique to predict resource requirements in critical care – a case study. *Future Healthcare Journal* 2019;6:17–20.
- 9 Silvester K. Systems engineering case study: Improving patient safety and system productivity by reducing lead-times for blood tests. *Future Healthcare Journal* 2019;6:25–29.
- 10 Dean J. Update from RCP Quality Improvement: Quality improvement faculty and partners network. *Future Healthcare Journal* 2019;6:6–7.