

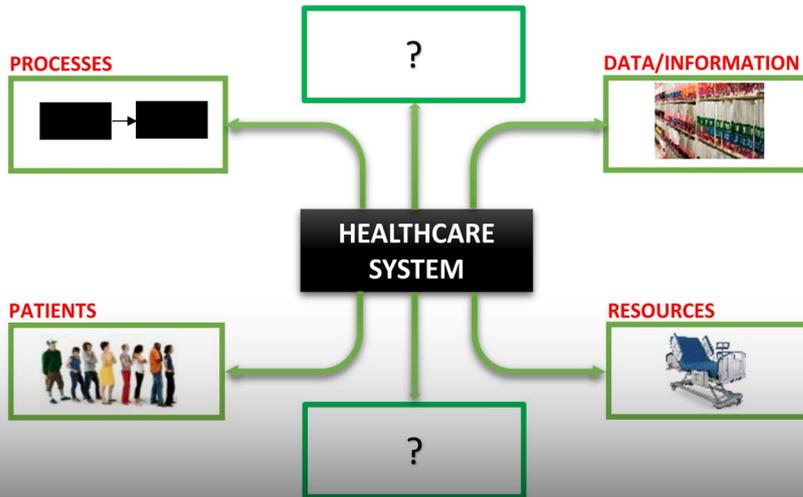
# Collaboration for Leadership in Applied Health Research and Care East of England

## CLAHRC BITE

CLAHRC EoE BITE no 9

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A bite-sized summary of CLAHRC research: Designing the “anatomy” of healthcare delivery systems: A focus on complexities in mental health



“Systems that work do not just happen; they have to be planned, designed and built.”

### What?

This systems-modelling research aims to deepen understanding of how care delivery systems work as a whole. Key elements of a mental health service are being identified and a simple, intuitive diagrammatic language for describing them is being developed. This has scope for being applied to other service domains.

### Who?

Designing services that consistently meet patients’ needs is a complex task. Clinicians, managers, commissioners and service users involved in service design need several tools, concepts and methods to help them achieve results that work in the long term.

### Why?

Consistently safe and good quality care depends on the whole service working well; the best clinicians, treatment and technologies in a badly designed system may still result in poor patient outcomes. The need to design better delivery systems seems more pressing now than ever.

## Background

A structured and systematic approach to design has been the key to overcoming many challenges in the world. Engineers consistently make use of diagrams and drawings. They use drawings in designing and delivering complex engineering systems such as cars, aeroplanes, rockets and computer software. Historically, diagrams have not only been used for designing systems in engineering but also processes. Processes refer to how things are done or how any kind of work is carried out. This also applies to healthcare processes.

The first known record of the use of diagrams in analysing the productivity and efficiency of processes was by Frank and Lillian Gilbreth in 1921. They presented the use of flow charts as the “first steps in finding the one best way to do work” at the 1921 annual meeting of the American Society for Mechanical Engineers (ASME). In that paper, they argued that “every detail of a process is more or less affected by every other detail; therefore the entire process must be presented in such form that it can be visualized all at once before any changes are made in any of its subdivisions”.

Unlike the industry sector that employs thousands of design and systems engineers, the vast majority of the people who design healthcare systems and services have little or no formal training in the design or engineering of systems. Subsequently, underlying this research is the belief that a healthcare-specific diagramming language will enhance shared understanding and improve communication and problem solving amongst stakeholders. This by implication should lead to safer and better quality of care.

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## References

Komashie A. and Clarkson, PJ. Can Diagrams Help Improve Healthcare Systems Design and Care Delivery? In Proceedings of the 14th International Design Conference (DESIGN 2016), Dubrovnik, Croatia, 16-19 May, 2016 (pp 1885 - 1894)

Elliot C. and Deasley P. (2007) Creating systems that work: Principles of engineering systems for the 21st century, London: Royal Academy of Engineering, UK.

## What is NIHR CLAHRC East of England?

The National Institute for Health Research (NIHR) Collaboration for Leadership in Applied Health Research and Care (CLAHRC) East of England is a five year programme of applied health and social care research which focuses on the needs of people with complex problems, often vulnerable, when multiple agencies are involved in their care: young people, frail older people, those with dementia, learning disabilities, acquired brain injuries or mental ill health.

The CLAHRC East of England collaboration encompasses some thirty-six organisations, with research hubs in the Universities of Cambridge, Hertfordshire and East Anglia working closely with individuals and organisations involved in the whole care pathway.

Service users and carers are at the heart of what we do, in parallel with an ambitious public health research programme.

Co-production and collaboration at all stages of the research process are fundamental to making a positive impact through applied health research.

### For more information:

Websites: <http://www.dahrc-eoe.nihr.ac.uk/2015/06/how-to-represent-complex-healthcare-systems/>

<https://www-edc.eng.cam.ac.uk/people/ak670.html>

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