The aim of these background papers is to stimulate thinking and debate about the future of health and care. Each paper focuses on one area, summarising key narratives, tensions and debates raised in stakeholder interviews and discussions before the event.

Complexity

What do we mean when we talk about health and care systems as complex systems?

Health and care systems are complex systems. They involve groups of interconnected people and organisations who act in ways that are often **not predictable, controllable or permanent**. Patterns and effects can be discerned but they cannot be foreseen from individual actions or small parts of the system. It can be difficult for those leading or working in a system to get a sense of the whole.

The process of turning good practice in one place into good practice elsewhere is not simply a case of identifying that good practice and trying to get others to do the same thing. Rather, each new place – department, practice, hospital, region, or system – has to be approached as a new challenge.

Learning health and care systems?

While simple and complicated systems can be managed through top-down control mechanisms, complex systems require different approaches. Developing a 'learning health system' involves developing tools and systems to **support continuous learning and improvement** at local levels throughout the system.

Putting such a 'learning health system' into practice creates a range of challenges. For example, data systems are currently largely epidemiological in nature and focused on accountability, producing centralised data that is available months or years after an event. To support learning, **data often needs to be available locally and immediately**, in order to provide feedback to the people concerned.

Blurring between research and care is a constant state of being for genomics. We are going to have to come to the realisation, that data generated during everyday healthcare should be used for research. It's a no brainer really. I would go along with this idea of a learning healthcare system.

Rethinking change in health and care

The approach to reshaping and improving health and care systems has historically been through a combination of technocratic tools (such as generating evidence and consolidating that evidence in guidelines) and managerial tools (such as hierarchical structures, contracts, financial incentives). There are **tensions between these relatively centralised tools of 'command and control' and more** iterative **processes of learning**.

Improvement in health and care systems involves a process of learning. This involves focusing on issues such as motivation, support, review and feedback. Adult learners (eg

senior managers, health and care professionals) who are already skilled and motivated are unlikely to respond well to being simply 'taught. They are likely to respond best when **actively engaged and supported in pursuing their own learning and improvement**, building on their own experience and that of colleagues, and developing locally owned and tailored solutions.

This represents a **fundamentally different way of thinking about change** in health and care systems. What would this mean for existing health and care systems and their process of performance monitoring and change? What do system leaders and the wider workforce need to do to bring about more fundamental change at system level?

Build the capacity into the system to take into account different types of evidence that matters to different groups. Don't just identify the solution and try to find ways to support it.

Health and care systems in developed countries involve substantial investments of public funds. There is an expectation that with this investment comes public accountability and transparency, in the form of performance standards and outcomes. Yet the approach of bottom-up learning runs counter to that, involving **local autonomy and variation** in different places. How can these tensions be reconciled?