

# Applying systems thinking to strengthen health systems

Systems thinking represents a unique theoretical and practical contribution. It facilitates ways to cross disciplines, and brings previously unused tools and approaches to tackle global health implementation differently. Future Health Systems (FHS) has played a major role in applying and advocating for the approach as a means to holistically understand health systems in low- and middle-income countries, as well as adaptation and scale-up of the project's interventions.

## Background

Many global development actors have attempted to find magic bullet interventions that can be swiftly and effectively scaled-up from one context to another. For example, the movement behind the spread of user fees in the late 1980s, or the adoption of performance based financing more recently, assumed that the same intervention could be adopted successfully, almost regardless of context. In practice this assumption has proved to be foolhardy – user-fees in Sub-Saharan African contexts led to very different outcomes to user-fees in South East Asia where the policy was originally explored. Based on decades of experience in health systems strengthening and confronting challenges in implementation and scale-up, the health systems community increasingly recognizes that interventions interact with the complex context in which they are implemented, often leading to unpredictable effects. More adaptive, flexible implementation approaches that can take account of these effects and adapt strategies accordingly – known as systems thinking – are needed.

FHS researchers at Johns Hopkins University (JHU) and the Institute of Development Studies first brought their interests in complexity and systems thinking into the work of the Consortium in 2011. In 2012, FHS JHU researchers published [a review of systems thinking for the scale-up of health services](#), which garnered attention amongst global health actors. Additionally the Alliance for Health Policy and Systems Research at WHO (Alliance), who had already begun working on systems approaches, engaged FHS in its work, which proved crucial for moving forward with the work on complexity and systems thinking.

## What changes took place?

There have been two critical areas of change:

- 1 FHS has contributed to global conversations about more sophisticated approaches to implementation by:

- a. increasing awareness among global-level stakeholders of the need to recognise complexity, and helping them feel more comfortable using the language of complexity;
- b. changing attitudes of development practitioners and implementers who are increasingly talking about systems thinking and recognising it in their work.

- 2 FHS research teams have incorporated systems thinking in their studies in multiple ways: they have by experimented with different approaches to implementing interventions and have adopted flexible implementation strategies allowing them to adapt interventions as needed. They have also explored different ways to engage key stakeholders in their work through participatory planning, or in evaluation approaches.

Critically, FHS contributions to awareness about the importance of systems thinking for tackling “wicked problems”, and the work of FHS teams in using such approaches in the field, confirm that systems approaches can lead to more responsive implementation and stakeholder engagement strategies.

## How did FHS contribute to change?

### Capacity building and stimulating new research in systems thinking

FHS has conducted capacity building on understanding and using systems thinking. FHS researchers from JHU and the China National Health Research and Development Center held a well-received three day training workshop, resulting in a paper on how systems thinking could inform the essential drug list in China. Further, the FHS China team leader applied the ideas from this lecture to Chinese health reform, and presented these ideas to officials from all Chinese counties. In Uganda, FHS researchers held a training session on using systems thinking tools in research, which led to the Ugandan

team incorporating some of these tools in their work plans. Other trainings include a two day workshop during the 2014 annual FHS meeting. More recently, FHS has expanded this program of teaching into a full online course and a massive open online course (MOOC) on Systems Thinking in Public Health developed by the FHS JHU team.

### Convening expertise on systems thinking and engaging policy audiences

FHS has shared its experience of applying systems thinking *principles* and tools through workshops for USAID's flagship Maternal and Child Survival Program (MCSP), and presenting at conferences and workshops, including all of the Global Symposia for Health Systems Research since 2010, and the USAID Scaling for Impact Summit in Bangkok in 2015.

The FHS-hosted D.C. Health Systems Board held a meeting with researchers from the Alliance and the Swiss Tropical Institute to discuss the Alliance publication Systems Thinking for Health Systems Strengthening and to introduce the research to a Washington D.C. audience. In 2014, another D.C. Health Systems Board event focused on systems tools for the science of delivery.

The Alliance spearheaded parallel work which engaged decision-makers. FHS and The Alliance have mutually reinforced each other's work in this sphere and engaged similar audiences.

### Contributing to key publications

Two widely cited journal supplements led by the Alliance (HARPS 2014 and HPP 2012) had significant FHS contributions, focused both on theory and methods for systems thinking as well as drawing examples from country work.

## What next?

There is growing interest in many quarters in better understanding systems thinking and spreading these competencies. For example, the USAID MCSP, is interested in applying systems thinking approaches.

While understanding of the principles of systems thinking is increasing, FHS continues to investigate opportunities to apply systems thinking tools and approaches more formally through participatory engagement and modelling, and the development of systems dynamics or agent based models. While we have developed theoretical models (e.g. spending on preventive versus curative care), these have not yet really captured health systems complexity.

Accordingly, given the growing attention to integrating systems thinking into health systems strengthening and development more broadly, we foresee substantial space in which to build capacity and experiment with more tools and approaches, including new ways of participatory engagement, and modelling complex phenomena and systems (e.g. through system dynamics, agent-based models, dynamic network models).

Systems thinking, including the work being done by FHS, can help actors like DFID think through critical metrics to assess what strengthens health systems. It can help define what is happening in health systems and how to bring about improvements. It can bring precision on terms (e.g. coherence, connectivity), and it can map a shared vision of how what happens in health systems is connected to other areas. All of this will allow the field to move past the limited framework of the health systems building blocks.

## CREDITS

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## Key references

- Akin JS, Birdsall N and De Ferranti DM (1987) Financing health services in developing countries: an agenda for reform, Washington D.C.: World Bank
- Bishai D, Paina L, Li Q, Peters DH and Hyder AA (2014) Advancing the application of systems thinking in health: why cure crowds out prevention, *Health Research Policy and Systems*, 12:28
- Hecht R, Baston A and Brenzel L (2004) Making health care accountable: why performance-based financing of health services in developing countries is getting more attention, Finance and Development, Washington DC: IMF
- Gilson L (1997) The lessons of user fee experience in Africa, *Health Policy and Planning*, 12(4): 273-285
- Paina L and Peters DH (2012) Understanding pathways for scaling up health services through the lens of complex adaptive systems, *Health Policy and Planning*, 27(5): 365-373
- Peters DH (2014) The application of systems thinking in health: why use systems thinking?, *Health Research Policy and Systems*, 12:51
- Xiao Y, Zhao K, Bishai DM and Peters DH (2012) Essential drugs policy in three rural counties in China: What does a complexity lens add?, *Social Science and Medicine*, 93: 220-8



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