



## Application of systems thinking in health: opportunities for translating theory into practice

### Comment on “Constraints to applying systems thinking concepts in health systems: a regional perspective from surveying stakeholders in Eastern Mediterranean countries”

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#### Abstract

Systems thinking is not a new concept to health system strengthening; however, one question remains unanswered: How policy-makers, system designers and consultants with a system thinking philosophy should act (have acted) as potential change agents in actually gaining opportunities to introduce systems thinking? Development of Comprehensive Multi-Year Plans (cMYPs) for Immunization System is one such opportunity because almost all Low- and Middle-Income Countries (LMICs) develop and implement cMYPs every five years. Without building upon examples and showing practical application, the discussions and deliberations on systems thinking may fade away with passage of time. There are opportunities that exist around us in our existing health systems that we can benefit from starting with an incremental approach and generating evidence for longer lasting system-wide changes.

**Keywords:** Systems Thinking, Comprehensive Multi-Year Plans (cMYPs), Health System, Low- and Middle-Income Countries (LMICs), Immunization

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While exploring the barriers that may hinder the application of systems thinking in ten countries of Eastern Mediterranean Region, El-Jardali *et al.* (1) found that experience with application of systems thinking is limited in Low- and Middle-Income Countries (LMICs). The existing approaches of designing health policies are considered as reactive and fragmented. The authors conclude that political endorsement, adoption of systems thinking at leadership level and capacity building of human resources are the key strategies for applying systems thinking concepts in health systems particularly in LMICs. The authors have rightly highlighted that the recent political changes in several countries of Eastern Mediterranean Region will have important implications towards health systems strengthening and may create new opportunities where systems thinking concepts can be applied.

Systems thinking is not a new concept to health system strengthening; however, more emphasis is being paid to it now because health systems are complex adaptive systems in nature and behavior and in many of the instances have no capacity to measure or understand their own weaknesses and shortcomings (2). Consequently, very limited or no scientific evidence is available about the constraints deeply rooted in unpredictable system behavior that policy-makers can actually use while introducing new interventions to strengthen their health systems. Therefore, it is not surprising that even very simplest interventions often fail to

achieve the desired goals.

A wide range of literature is available that analyses theories, methods and tools to understand the theoretical underpinning and potential application of systems thinking concepts (3). A recent Series by the Alliance for Health Policy and Systems Research has presented a diverse range of research work for advancing the application of systems thinking in health. The main objective is to support the shift from abstract concepts to actual applications and experiences of systems thinking in health, particularly in LMICs (4). This Series provides evidence from a range of systems thinking methods, tools, and approaches, including system dynamics modeling, causal loop diagrams, and social network analysis. It also provides evidence on how researchers have used other established frameworks to understand and unravel the underlying complexity of their research questions including: complex adaptive systems framework, realist evaluation and policy analysis.

Despite availability of all this critical evidence on advancing our knowledge in untangling the underlying complexities of health systems, one question remains unanswered: How policy-makers, system designers and consultants with a system thinking philosophy should act (have acted) as potential change agents in actually gaining opportunities to introduce systems thinking applications (5)? El-Jardali *et al.* provide some insights by prescribing certain strategies that they ‘should act’ at leadership level and muster political

endorsement in order to pave way for action (1). Other researchers have also emphasized upon the urgent need for collaborative efforts by all the stakeholders through building upon each other's strengths and plugging in the gaps (6) for achieving greater than sums (7). However, still there is limited evidence available on how the concerned stakeholders 'have acted' if such an opportunity was available. It is a matter of changing gear from theory into practice. Again, being confronted with complex adaptive health systems, we do not find easy solutions.

Systems thinking is considered a shift of mindsets from opting for short-term quick fix solutions to looking towards long-term strategic thinking and planning. However, the decisions to introduce a change in health system are by large influenced by perceptions about the level of crisis among political leadership and policy-makers. Different types of windows of opportunities open up depending upon whether decisions are made under politics-as-usual or politics-in-crisis (8). The history of health system reforms in LMICs indicates that some governments opt for a piecemeal or incremental change whereas others embark upon major reforms across different components of their health systems (9). Therefore, it is imperative to explore what opportunities exist or are expected to arise within the existing health policy arrangements that may provide some avenues to demonstrate application of systems thinking philosophy.

Any change in the existing healthcare delivery system requires sustainable financial support. Our experience shows that the government decisions to introduce any health reform range between mere expressions of intention to introduce a change in the existing policy to a formal decision of implementing a new health reform (10). The latter is mostly accompanied by budgetary allocation for implementation which is generally not the case when they simply announce their intentions to reform. In such scenarios, any evidence on system reforms becomes more attractive when packaged along with financial projections. Explicit evidence on potential financial benefits and getting value for money through fostering synergies between the existing health system components is more likely to influence decision-making processes towards systems thinking.

In this context, the system thinking advocates and researchers need to identify platforms and forums where system thinking approach can potentially be applied for in-depth analysis of health system problems and bottlenecks and then testing potential solutions. Below mentioned is a list of factors that can be used as a checklist for identification of such opportunities:

1. Health sector planners are required to develop long-term strategic plans (3–5 years), preferably on a continuous basis;
2. Long-term strategic plans are always accompanied by financial projections for assessment of resource requirement and funding gap analyses;
3. Tools and techniques are used during planning phase for creating multiple scenarios for program implementation so that different policy choices are available for decision-makers.

Apparently this looks like a stringent criteria to comply with. However, it can benefit in applying systems thinking concepts towards improving health system outcomes in three ways.

Firstly, working with long-term strategic planning process provides enough opportunity to involve systems thinking experts as a permanent part of the planning processes so that they have enough time to revisit and re-strategize their actions in real time. Secondly, the evidence from forecasting financial projections and analyzing funding gaps can facilitate linking the desired programmatic objectives with the costs that a country can afford and sustain. Thirdly, creating different scenarios for program implementation and linking those with potential financial implications can provide the evidence that policy-makers would like to use in decision-making, especially for resource allocation, because the governments are generally concerned about increasing costs of healthcare and are eager to reduce expenditures.

What practical opportunities do we have today? Development of Comprehensive Multi-Year Plans (cMYPs) for Immunization System is one such avenue which fulfills the above mentioned criteria (11). Almost all the LMICs are developing cMYPs along with projections on resource requirement and funding gap analysis every five years. These plans are expected to be reviewed, revised and updated on a yearly basis. Expenditures on procurement of vaccines and injection supplies are one of the major cost drivers in primary healthcare settings. Increasingly governments are concerned about the share of costs because external funding from donor is on a decline. The cMYPs are being used as financing instruments by the donors including Global Alliance for Vaccines and Immunization (GAVI). As per the latest guidelines, the cMYPs planning process adapts World Health Organization's (WHO's) system building blocks framework as the basic foundation for developing program objectives, strategies and activities (11,12). Every implementation strategy and activity is monetized to forecast resource requirement and analyze funding gap analysis. It is expected that 45–50 countries will either develop new cMYPs or update their existing cMYPs by the end of 2016.

This provides a wonderful opportunity for the policy-makers, managers and researchers to experiment their learning on systems thinking at a sub-system level (immunization system in this case) but across nations and continents. Such a focused approach will not only help us in understating how such processes actually evolve, what are the potential limitations both in terms of application and scaling up and also on how the constraints highlighted by El-Jardali *et al.* can be addressed in real time (1).

It is the right time to take benefit of those stepping stones that can potentially facilitate practical application of systems thinking concepts at a sub-system level. We need to think globally but act locally. By demonstrating the practical application and generating scientific evidence in country-specific contexts, and drawing upon comparative analyses between different countries and regions, the systems thinking supporters will be better placed to influence decision-making at higher levels of the health system. Without building upon examples and showing practical application, the discussions and deliberations on systems thinking might remain limited to academia and fade away with passage of time. There are opportunities that exist around us in our existing health systems that we can benefit from starting with an incremental approach and generating evidence for longer

lasting system-wide changes.

#### Ethical issues

Not applicable.

#### Competing interests

Author declares that he has no competing interests.

#### Author's contribution

AUM is the single author of the manuscript.

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