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Governability Framework for the Evaluation and Implementation of Complex Public Health Functions

Joe Varghese[1,2] and V. Raman Kutty[2]

Abstract

Background: The dominant theoretical basis of our public health practice originates from a positivist or reductionist paradigm. It fails to take into account the complexity emerging out of public health's multiple influences originating from biological and social worlds. A deeper understanding of the interaction of elements that characterize the implementation of public health functions will enhance our ability to generate evidence and learn further. *Objective:* The "interactive governance theory" by Jan Kooiman introduced here offers an analytical framework that uses the concept of "governability." It is a measure of how governable a particular social system is that takes care of a public function. Assessment is facilitated by breaking down and describing the social system into constituent parts and by

[1] Community Health Department, Christian Medical Association of India, New Delhi, India
[2] Achutha Menon Centre for Health Science Studies, SCTIMST, Kerala, India

Corresponding Author:
Joe Varghese, Sree Chitra Tirunal Institute for Medical Science and Technology, Thiruvananthapuram, Kerala 695011, India
Email: vakkan2000@yahoo.com

exploring the properties, qualities, and the way in which they interact with each other. Further, by deliberating a complex public health function such as immunization services in the context of developing countries, we explore the application of the interactive governance theory and governability. *Conclusion:* The theory offers new insights into how interactive and holistic approaches can be integrated into public health practice. The advantage of the concept of "governability" is that it enables us to explore why some governance systems deliver what they are expected to, while others do not. This might help us to identify areas where governance can be improved.

Keywords
methodological development, program implementation, design and evaluation of programs and policies, program design and development, program theory

Background

Public health functions are a set of fundamental activities that address the determinants of health, protect population's health, and treat disease (World Health Organization [WHO] 2002). In spite of several achievements, public health functions even in well-developed and resourced countries struggle to cope with multiple challenges. The challenges for public health functions are more visible in developing country settings where the persistent failures in the delivery of public health programs and policies are resulting in unwanted maternal and child deaths and failure to control diseases.

Understanding the delivery of public health functions is complex as it is embedded in a system that involves multiple actors and entities that are connected by mutually influencing interactions. Plsek and Greenhalgh (2001) identify the systems dealing with public health functions as complex adaptive systems which they define as collections of individual agents with freedom to act in ways that are not totally predictable. Their actions are interconnected so that one agent's action changes the context of other agents. They can simultaneously form members of several other systems. For example, a primary health center is embedded in the local community as it is also part of a wider health system. "These multiple shadow systems can thwart or aid the delivery of a public function which makes it difficult for us to know one system

without reference to others" (Savigny and Adam 2009). The complexity is further increased by the dynamic nature of the actors and entities involved. The outcome of such interactions is always different than the mere sum of its parts: sometimes more, sometimes less.

The dominant knowledge base of current public health practice is confined to a positivist paradigm that limits our ability to understand the complexity involved (Atwood, Colditz, and Kawachi 1997; Tarlov 2000; Susser and Susser 1996). Practitioners and evaluators, when using conventional positivist approaches, find it challenging to explain why public health functions are delivered more efficiently in some contexts compared to others. There are several reasons why a positivist conceptualization fails to generate evidence in the context of complexity.

Traditional positivist model assumes linear logic (that A follows B, and B follows C) does not explain the interaction that leads to reinforcing and balancing loops (Holland and Lien 2001). As reinforcing loops show how small changes can grow into large consequences in the same direction, the balancing loops explain how one change produces less change in the same direction. By not taking it into consideration, the positivist approaches fail to explain how small differences in the initial variables lead to huge differences in outcome (Plsek and Greenhalgh 2001; Sanderson 2000).

The traditional, positivist approaches are founded upon the assumptions of stability and equilibrium rather than the consideration of complexity. Such frameworks consider relationship between variables and proportionality of change in response to causal influences. It identifies causal relationship between a public health problem and its risk factors which in turn inform the selection, development, and evaluation of interventions. The interventions designed using such limited information have a narrow focus on targeting the individuals health related behavior (Ogilvie et al. 2009; Hawe, Shiell, and Riley 2009).

In a reductionist conceptualization, the boundaries of the system that deals with a public health function are fixed. However, in reality they have fuzzy boundaries. Its members can change; agents can be simultaneously members of other systems which can lead to unexpected actions in response to change (Craig et al. 2008). Therefore, it is important to understand parts by looking at the whole. It provides an understanding of how parts are interconnected, how one part affects the behavior of other parts, and how such relationships affect outcomes overtime (Holland and Lien 2001). This requires the evaluators of complex interventions to focus on processes as much as the outcomes.

This article argues that the implications of complexity are highly problematical for positivist science because the empirical irregularities mislead our understanding of how the complex systems actually work. Such methods often churn out results which are of little value to the public health policy making and implementation process.

How can the complex situations be simplified in order to better understand the implementation of public health policies and programs? One way to deal with complexity is to understand the interactions of the parts of the system that deals with the public health function. It is possible to make practically useful conclusions about the behavior of complex systems by understanding the linkages, relationships, and interactions among the actors and elements that characterize the entire system (Trochim et al. 2006; Potvin et al. 2005). An evidence base that gives more attention to information on how societies organize themselves to manage public health affairs is the need of the hour. This requires our enquiry to encompass a broader canvass and look into the interrelationships between people, context, institutions, and behaviors.

There have been growing interests in developing conceptual and theoretical frameworks that integrate broader evidences for implementing and evaluating complex interventions in health. For example, the realist evaluation project by Pawson and Tilley (2001), which explores how programs work, conceptualizes interventions as embedded in social systems. The assessments of how each stakeholder interpret and act upon intervention strategies is an important consideration of the approach. Likewise, the National Cancer Institute (2007) describes four basic considerations for evidence synthesis of public health programs operating in a complex system. They include understanding the overarching normative and regulatory frameworks; analysis of the interactions of all individual and institutional stakeholders; understanding the dynamic nature of how the behavior of a system is formed and, finally, how information flows drive the system toward change. The proponents of these frameworks acknowledge that the systematic exploration of complexities is a challenge, as it requires integration of several theoretical perspectives to understand what works in program implementation. Such frameworks need to offer a generic set of robust and sensitive variables that would help in comprehending the complexities which make up and surround the implementation of public programs.

An imperative issue addressed in this article is to conceptualize the variables of an analytical framework to understand the organization of complex systems that deliver public health functions.

Discussion

Governability as System Thinking in Health

The concept of "governability of a social system dealing with public function" introduced by Dutch academician, Jan Kooiman (2003), offers new insights to understand the way society organizes its public functions. Governability is a measure of how governable a particular societal system or entity is and recognizes the presence of a broad range of actors, structural factors, and their interactions as key variables (Kooiman 2003, 2008; Chuenpagdee, Kooiman, and Pullin 2008). Governability is closely connected to the art of governing and is rooted in the "governmentality" literature that originates in the work of Michael Foucault (Crawley and Chaloupka 2000). In the political science literature, the term governability is referred to governance that works and denotes well functioning management and control (Burris, Kempa, and Shearing 2008).

Governability is assessed as the balancing between the capacity of the Governance System (GS) and the needs of the System to be Governed (SG) with governance interactions playing the intermediary role (see Figure 1). The GS needs capacity to bring about, organize, and carry out governing interactions in the face of diversity, complexity, and the dynamic nature of the SG. A highly diverse, complex, and dynamic SG is considered difficult to govern, even though the characteristics of the GS make it more or less governable.

The diversity of the SG is made up of the natural world and the social world. The way of life of people including their environment, their culture, their political system, their ideas around health and well-being, all form part of the SG. It can be also considered as part of a hierarchy of several nested systems. The complexity of the SG is formed by the mutually influencing actions of the actors and entities representing ecological, social, economic, cultural, ethical, and political world. The complexity invites examination of the diverse interdependent interactions among actors and entities. The dynamic character is explained by changing nature of the governance actors and entities and their interactions. The regularity or irregularity with which developments occur in a system can create the potential for change, but can also have disruptive consequences (Kooiman et al. 2008).

The theory analyses GS in terms of orders, elements, and modes of governance. Governance order analyses institutionalization that comprises formal or informal procedures, routines, norms, and conventions that are embedded in the organizational structure. An analysis of governance order addresses three closely connected aspects of institutional arrangements:

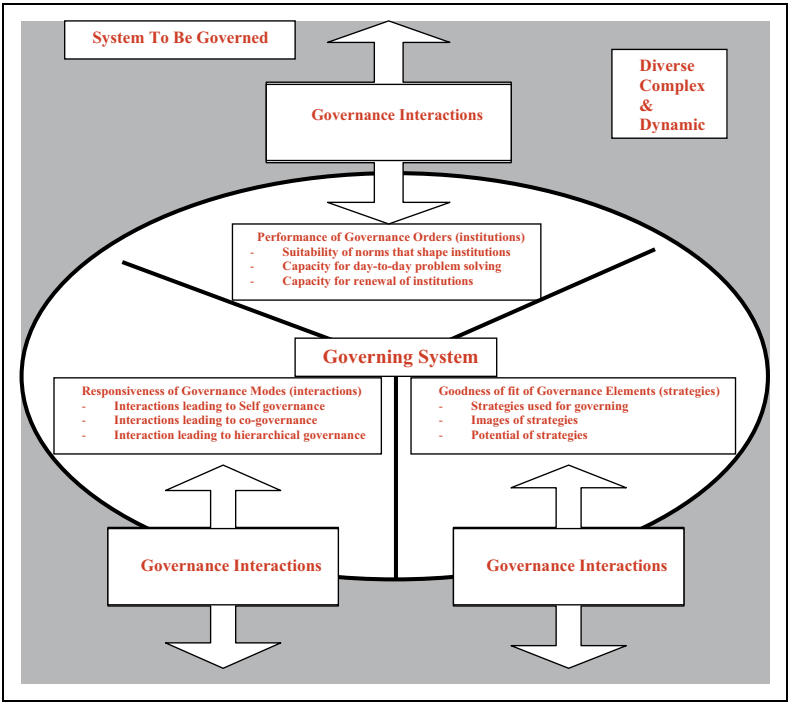

Figure 1. Diagrammatic representation of analytical framework.

(i) The appropriateness of ethical norms, values, and principles that guide the institutionalization process
(ii) Its capacity to solve day-to-day problems and create opportunities and
(iii) Its capacity to renew and adapt the institutional mechanisms in the context of lack of order and chaos

The capacity of the three aspects of governance order to lead to the desirable outcome is the measure of governability. This is possible only if each of the three orders is complementary to the others.

The governance theory identifies three closely connected elements of GS; governing instrument, governing images, and governance potential. "Governing instrument" refers to strategies or tools that governors use to move from one state to the other (strategies are also sometimes used to prevent from moving to another situation). They vary from soft ones such as

information and advice to hard ones such as taxes and regulations. The design, choice, and application of instrument and the resource base (knowledge base, financial base, and legal base) from which they are drawn are important considerations here. "Governing images" refers to both implicit and explicit ideas the governing actors have of the strategies they use for governing. For every actor, the images are determined by their aspirations and interests which in turn are influenced by socially embedded values, cultures, and experiences. How the actors perceive, classify, and attribute cultural meaning and attach values to governance strategies determine the way they react to it.

The third "governing potential" points to the drive factors that make a governing strategy work. It includes variables such as the ability of a strategy to mobilize actors, to ensure commitment to organization, to create motivational environment, or tap into existing social capital. Even when right strategies are identified and used, it may not result in good outcome unless one considers the "drive factor."

The quality of fit of these three governance elements affects governability. The willingness or ability of actors to apply or respond to instruments, whether the images are supportive and whether their potential can be employed are considerations for governance analysis.

The next level of theoretical consideration is the modes of governance. Society's participation in public responsibilities occurs in different modes of interaction. Interferences are least formalized interactions forming the primary societal process. The capacity for self-governance depends on the space made available of such interaction. The second category of interaction is interplays where there is no formal authority, domination, or subordination between actors. It is evident in the partnership between state, market, and civil society and is normally expressed in organizational forms such as networks and comanagement. In the third category of interaction, interventions dominate in hierarchical governance carried out by the state. Interventions are the formal kind of societal interactions such as those formalized by laws, instructions, or formal procedures.

All three modes are important and according to the interactive governance theory, governability is explained by the ability of all governance actors to interact in different modes to respond to a public function.

Appling Governability Concepts to Public Health Functions

In the context of delivery of public health functions, the analytical framework based on governability approach can be used to understand how

the society organizes its public health functions. It provides a coherent set of variables for empirical observation of various aspects of public health governance at different levels: local, national, international, and overall. Public health has several functions and the GS of each of these has different characteristics with respect to its components. By deliberating a complex public health function such as an immunization service in a developing country context, we can explore the application of the interactive governance theory and governability.

Even though vaccines have been widely used as a public health intervention since 1900, it has received emphasis as one of the core components of primary health care interventions for developing countries since the mid-1980s. The generation of herd immunity to protect communities against vaccine preventable diseases was the core objective of Universal Immunization programs. However, this program has also been criticized for its technocratic and vertical approach to problems of child health (Banerji 1990; Wright 1995). Immunization interventions are often conceived oversimplistically as a package of actions (such as better logistics, special immunization drives or improvement in supervision and monitoring) or targeted educational messages. The conventional positivist approach assumes that the collective vaccination programs will run smoothly when it has been designed to be technically sound and a certain management order is installed (Streefland 1995). This assumption is, however, based on a static view of society that public health interventions like collective vaccinations are highly programmable.

The complexity considerations should envisage the social system dealing with immunization service as one consisting of multiple interacting entities (tradition, culture, history, norms, distribution of power in society, organization of services, etc.) and actors (family members, community members, community health worker, health staff, alternate health care providers, policy makers etc). After almost three decades of intervention, the governability challenges are insurmountable with persistently low coverage in many developing countries. The resistance against vaccinations is as strong as it was a few decades back (Clements and Ratzan 2003; Streefland, Chowdhury, and Ramos-Jimenez 1999). There have been cases where vaccination coverage has dropped after reaching desirable levels. The acceptance of vaccines is particularly important as they are given to healthy individuals on a mass scale. Increased media access expose people to conflicting messages related to vaccines. In addition, the increasing choice of vaccines facilitated by the recent discoveries and changing disease epidemiology have made vaccination-related decisions

more complicated, right from household to national health policy making (Madhavi 2008).

Table 1 explains the application of governability variables while analyzing how society governs immunization function.

Understanding of the governance orders in the context of immunization services deals with various ethical notions that govern institutionalization of immunization programs. It also requires an analysis of the capacity of the institutions to respond to the governance challenges. The policy choice surrounding immunization programs including allocation decisions, choice of vaccines, reach to the disadvantaged population, and restricting individuals' choice to refuse vaccination are influenced by competing ethical values (Field and Caplan 2008; Colgrove 2006; Ruger 2008). For example, the utilitarian considerations in the political philosophy of a country often decide the prescriptive or promotive nature of immunization policies. The norms which decide the state's vaccination programs can be in conflict or confluence with the normative principles of beneficence and nonmalfeasance which are at the core of moral values underpinning medical practice (Krantz, Sachs, and Nilstun 2004). Equally important is the understanding of values at the societal level, which influence the decision of parents to immunize their children.

The Universal Immunization program, originally designed at the global level, involves uniformly designed institutions for planning, delivering, and monitoring of immunization services. These mechanisms ensure timely supply of materials, maintenance of the cold chain, promoting community participation, and monitoring and surveillance of the program (WHO 2005). The performance of governance institutions to deliver immunization in different country and regional contexts is determined not only by their capacity to deal with day to day problems but also by their readiness to adapt and change to bring order and avoid chaos. Nevertheless, vertically organized immunization programs with their rigid organizational structures have been criticized precisely for the lack of this (Banerji 1990; Wright 1995).

The second part of the governing system, governance elements revolve around strategies employed to improve or sustain the immunization coverage. Information persuasion, community participation, campaigns for specific vaccine initiatives, and organization of activities are some of the strategies. The success or failure of each of these strategies in governing immunization services is influenced by both implicit and explicit images possessed by various actors. This is reflected in the goals, interests, and wishes which each governance actors conceive about immunization function and the various strategies employed. For example, giving information to potential beneficiaries about vaccination, such as which vaccines are

Table 1. Application of Governability Concepts for the Evaluation of Immunization Services

Parts of Governance System	Evaluation Questions	Examples of Variables
Governance orders 1. Meta Governance—Governance systems for immunization services are rooted in welfare and ethical considerations 2. First-order Governance—Institutionalization helping day-to-day problem solving in governance 3. Second-order Governance—Renewal and adaptation of institutions	1. How the ethical considerations of governors influence immunization policies and service provision? 2. What is the capacity of present institutional mechanism to follow-up, evaluate, correct both short-term and long-term issues in immunization programs 3. How the institutional arrangement in the immunization programs reduces chaos and brings order?	• Welfare notions that govern the state policies toward health • Core logic of action that govern immunization—utilitarian, libertarian, and ethics of care notions • Ethical norms at policy level versus ethical norms at the service delivery level • Notions of community solidarity versus individual utility • The extent that day-to-day activities are organized in formal structures • Rules, regulations, and practice related to vaccine logistics, communications, service delivery, and supervision and monitoring are dealing with expected and unexpected consequences

(continued)

Table 1. (continued)

Parts of Governance System	Evaluation Questions	Examples of Variables
Governance elements 1. Governing instruments—Refers to strategies used in immunizations like information and advice, subsidies, community mobilization, and so on that are used to improve coverage or sustain a desirable level of coverage 2. Governing Images—Wishes, interest, judgments, and ideas which each actors posse on various strategies used in immunization program and its cultural and historical roots 3. Governing Action or Potential—It deals with motivation, leadership, trust, capacity to coordinate action, etc. in the context of immunization	1. What strategies are used in governing immunization program implementation and what are the factors that contribute to its performance 2. What are the perception of governors and governed on various aspects of immunization program and how they are influencing the choice, design, and application of program strategies?	• Community perception about vaccination—what vaccinations do or what they prevent, perception of benefit, concerns of harm, active or passive demand for vaccinations, vaccinations as social norms, image of a free vaccine • Health workers perception—uncritical acceptability of vaccination, private interest in vaccination, consideration of vaccine safety, considerations of possible influence of cultural factors • Trust in source of information or information itself, willingness to comply with recommendations, desire to receive vaccinations from public/or private providers, what according to community is the motivation of health workers • Health workers motivation, team work • Willingness of community to join for a common cause

(continued)

Table 1. (continued)

Parts of Governance System	Evaluation Questions	Examples of Variables
Governance modes 1. Self-governance—Significant aspects of governance of vaccination occur in unregulated or rather self-regulated settings. Through household decisions regarding vaccinations, interactions between private providers and beneficiaries, etc. 2. Hierarchical governance—Universal Immunization programs are governed through top-down administrative mechanisms 3. Government, private sector, and civil society form several collaborative arrangements for immunization services	1. How the interdependency among the different governing agencies is ensuring adequate coverage for immunization service? 2. How the interactions of different actors are strategically directed toward serving collective interest	• Household level decision making regarding vaccination • Partnership arrangements for service delivery between public and private sector • Partnership for immunization services, goals, the extent to which participating organizations are oriented toward each other's goals • Historical development of health administration, particularly related to immunization services • Power transfer among and between actors

essential, where to access the services, what the benefits are, is a routine strategy employed by several planners and implementers of national or regional immunization programs. Images of each community as an empty vessel, to be filled with information and the assumption of a uniform active demand for vaccines once their benefits are known, have been an influential reductionist thinking behind such approaches in collective vaccination programs. Several studies have noted other influential images affecting immunization programs. They arise out of concerns such as safety of vaccines, credibility of research evidence among beneficiaries, or the assumption of the intention of vaccinators; all these make passive information persuasion a rather weak strategy in immunization programs (Lewendon and Maconachie 2001; Lewendon, Maconachie, and Elliston 2001; Wilson et al. 2008; Nichter 1995; Daley et al. 2007; Austin et al. 2008).

The third aspect of the GS deals with how different modes of governance interactions ensure the delivery of services to all sections of the society. One of the most important aspects of collective vaccination programs, the health-seeking behaviors are the self-governing informal interactions at the household level which leaves limited scope for outsider influence (Igun 1979; Berman, Kendall, and Bhattacharyya 1994). Likewise, the issue of partnership between public and private sectors and with civil society and how the services are shared between them are critical issues.

Summary

The governance theory by Kooiman offers a framework to bring together several variables for consideration in the implementation of a public health function. Understanding interactions between these multiple variables of the system that deal with a public health function can provide new insights to deal with the increasing diversity, complexity, and the dynamic nature of contemporary public health practice. Further exploration of this complex theory in the context of a public health function, such as immunization, explains the concepts in an abstract way.

The value of the governability concept lies in its acknowledgment of the impact of variables ranging from moral underpinnings of health-related decisions at all levels to diverse informal interactions that lead to self-governing actions. This assumes importance in the context of renewed interest in holistic approaches to public health such as primary health care (WHO 2008).

The potential of the governability framework is in its consideration of complexities of the system in which an intervention is introduced and not

just as a characteristic of the intervention itself. The top-down traditional approach to public health functions, however tries to reduce complexity through bureaucratic measures targeting health interventions. Such measures have been criticized for fragmenting the health system by taking it away from wider ecological and intersectoral aspects of public health (Banerji 1990). We argue that governability concepts provide more insights into what the GSs for public health can or should potentially do to enhance governability.

Authors' Note

Both the authors have contributed toward conceptualizing and writing the article.

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Bios

Joe Varghese, is MPH and PhD in public health and has over 12 years of experience in public health research and health policy analysis. His present work is in the area of research translation and implementation research in public health.

V. Raman Kutty, is a medical doctor with higher degrees in Child Health, Applied Economics, and Public Health. He teaches Epidemiology and Health Policy to Public Health students and is keenly interested in questions relating to both underdevelopment and health.