

# Infrastructure Matters: A New Model for Strengthening Public Health

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## Description

The global public health response to the Covid-19 pandemic has seen basic functions, such as surveillance, laboratory testing, and contact tracing, stretched beyond surge capacity. Similarly, previous responses to emerging or re-emerging public health hazards have exposed serious and long-standing deficiencies in our public health capacity [1]. When funding has been dedicated for novel outbreaks and urgent public health threats, it is typically episodic, fragmented, and unsustainable. The question becomes how can we better understand and communicate our urgent need for substantial and sustainable investments that provide a public health infrastructure necessary for addressing current and future threats? [2,3]. We feel strongly that public health must strategically make the case that strengthening the public health system and improved health outcomes are linked in a manner that establishes infrastructure as an essential prerequisite. To help policy-makers and public health leaders more effectively make their case for increased funding, we proposed a new conceptual model that describes in simple terms how investments in infrastructure, using our knowledge of essential functions and foundational public health services, creates the building blocks upon which individual public health programs can succeed in protecting and promoting the public's health while preventing disease [4]. In this commentary, we share the basic conceptual model and highlight several meaningful approaches that support agencies, organizations and institutes in building sustainable public health infrastructure and capacity.

## The Proposed Model

The US public health community has made great strides towards defining public health, what constitutes public health infrastructure and organizational capacity, and how to define and measure improvements [5]. Following the publication of the Institute of Medicine's report The Future of Public Health [6], a serious decades-long stepwise approach involving local, state, federal, tribal, territorial, academic, and philanthropic participation has clearly defined public health's core functions and essential services, established rigorous standards and metrics, and provided a framework for accrediting public health agencies [7,8]. Our proposed model seeks to merge the public health concept of translating knowledge into action with our desire to strengthen our public health system. In our model "knowledge" of infrastructure and organizational capacity is defined by EPHS (Essential Public Health Services), accreditation standards and measures, and core competencies for public health professionals; and "action" is a measure of strengthening organizational and workforce capacity (i.e., public health infrastructure). As viewed in Figure 1, it follows that our foundational knowledge of essential public health services provides the framework for the development of organizational standards and measures that are used to define a public health agency's core functions and expected performance. As you apply this knowledge to build organizational capacity, you are simultaneously improving and strengthening the infrastructure that supports the multitude of public health programs that impact health outcomes.

Simply stated, without the initial investments in building the organization and its basic infrastructure, no amount of direct funding allocated to individual programs will create a sustainable or fully functioning public health system. Insufficient infrastructure will cripple the potential for broader community impacts. For example, if additional funding becomes available for combating the COVID-19 crisis in a particular community and this community is without an existing and fully functioning public health infrastructure that would support this programmatic effort, then chances of success are greatly diminished.

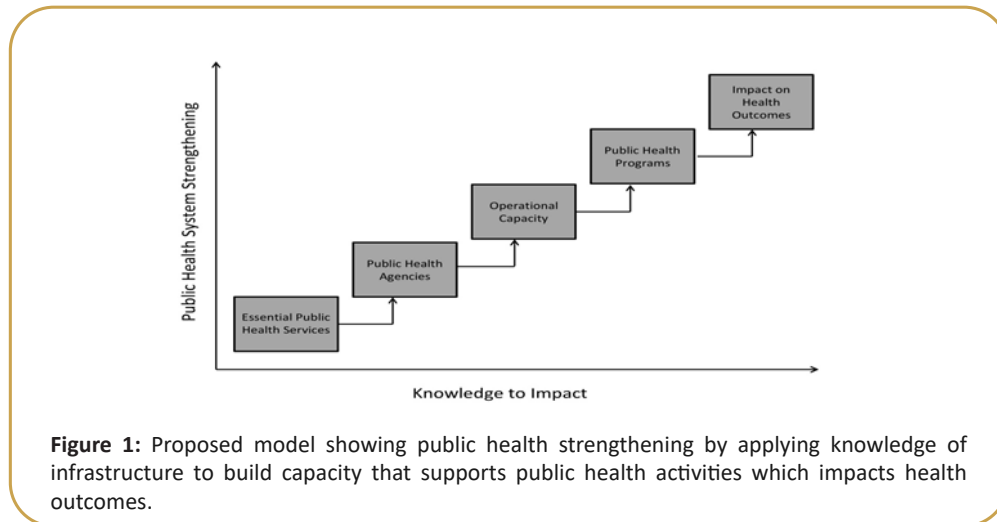
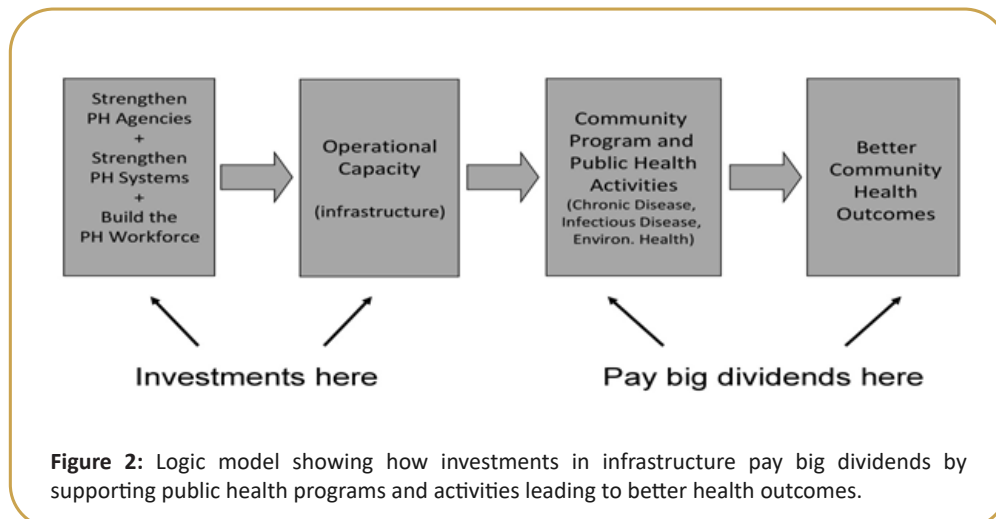


Figure 2 illustrates how upfront investments ensure adequate organizational capacity, which pays substantial dividends by supporting all programmatic efforts targeting community health concerns. Together, Figures 1 and 2 provide a logical description of the importance of systems strengthening as a prerequisite to building and maintaining quality public health programs and services that improve health outcomes and address existing and emerging public health threats.



### Approaches to Strengthening Public Health Infrastructure and Capacity

In the US, public health agencies (state, local, tribal and territorial) are encouraged to seek voluntary accreditation through the Public Health Accreditation Board (PHAB) as a means to improve capacity and measure progress towards achieving established standards [9]. Agency accreditation is a powerful way to demonstrate to policy makers and community leaders the value for having met national standards and expectations for public health performance [10].

The World Health Organization has developed standards and measures (International Health Regulations 2005) directed at strengthening national-level public health systems to prevent and control national outbreaks and global pandemics [11]. We have had experience working closely with the European Regional Office in the early development of their Public Health Operations that have contributed substantially to defining, measuring and improving infrastructure and capacity across the European Union [12].

The collaboration between US CDC and the International Association of National Public Health Institutes (IANPHI) maintains a robust set of tools and processes for individual national public health institutes to assess and improve their national-level capacity. These tools and processes are supported by an established program that offers in-county support for those lesser-resourced countries seeking to build and improve their national public health institute

### **Summary**

Our proposed model seeks to provide policy makers and public health leaders with a logical and straightforward description of the importance and value of infrastructure investments as a prerequisite for achieving sustainable improvements in public health outcomes. To change the current paradigm of underfunded investments in public health infrastructure, not only are new and additional models needed, but also complementary strategies that elevate preparedness expectations and funding on par with other preventive and response governmental agencies. Under ideal circumstances, public health would enjoy the same proactive funding for preparedness and readiness capacity afforded other preventive public service response agencies, such as the fire and police departments, EMS, Red Cross and others.

### **Conclusion**

There is a clear need to convey the understanding that infrastructure and standby costs are a necessary predicate to responding to both routine and unexpected or unanticipated threats and disasters. We should take a page from the playbook used by other governmental response agencies and utilize our vast trove of personal stories and localized experiences related to real constituents' needs and expectations that, when coupled with relevant data fitted to our model, would have the potential to persuade policy-makers to provide critical funding for infrastructure and capacity. If we can effectively communicate that "infrastructure matters" then our aspirational aims of improving health outcomes and protecting communities from public health threats will have a greater chance of success.

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