

## OVERVIEW | Asia

# Data, social determinants, and better decision-making for health: The report of the 3-D Commission

In April 2020, The Rockefeller Foundation and Boston University School of Public Health launched the Commission on Health Determinants, Data, and Decision-Making (3-D Commission) with the aim of creating a common language among health determinants, data science, and decision-making—both health and non-health related—toward the end of improving the health of populations. The report—an output of more than a year of discussion and research among a multisectoral group of distinguished experts representing academe, the private sector, civil society, and government—explores the key social and economic drivers that influence health outcomes and illustrates how data on social determinants of health (SDoH) can be integrated into decision-making processes. The report argues for a holistic definition of SDoH to drive cross-sectoral collaboration, address health inequities, and promote accountability and offers a set of principles and recommendations designed to support the development of a SDoH-based, data-driven approach to decision-making and foster demand for public and private investment in SDoH.

The recent proliferation of big data presents tremendous potential and opportunity both to understand SDoH better and to guide decision-making to improve the health of individuals and populations. However, a lack of leadership, priority setting, and investment has impeded progress in effective translation of such progress into data-driven action on SDoH. There are multiple challenges to achieving such goals—including data availability, data hierarchy, nonuniform definitions and measurements of SDoH, public mistrust in the use of big data, and lack of engagement of marginalized populations—that are experienced across high-income, middle-income, and low-income countries.

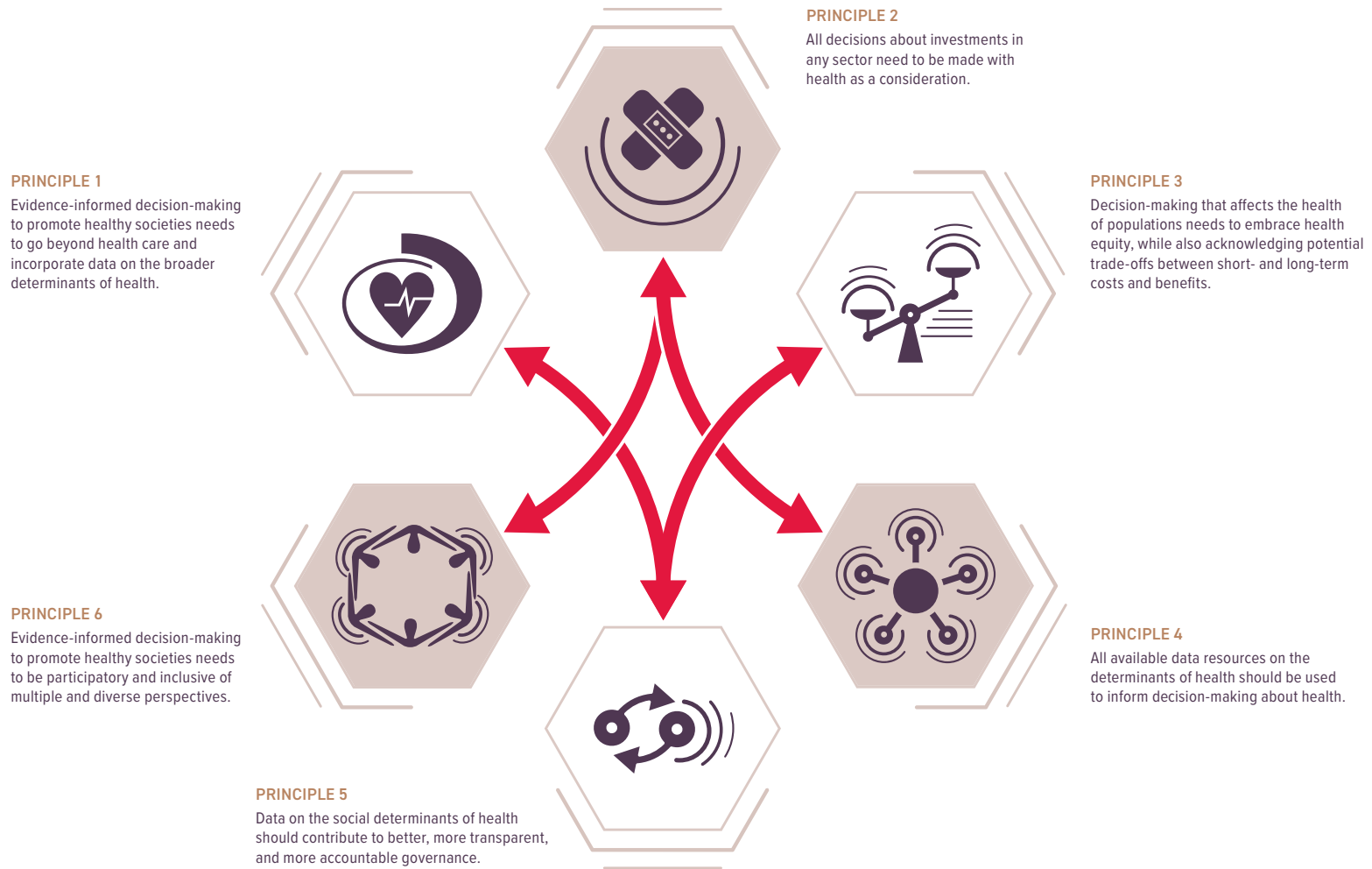
Despite increasing awareness of the need to incorporate SDoH into decision-making by academe and civil society, the uptake of evidence-informed policies and programs that tackle SDoH or build on the growing availability of data to improve health outcomes has been slow. Catalyzing action for health across different sectors requires a common language and an understanding that improved health should translate to returns on financial investment and gains in productivity as well as overall population well-being. Political will among decision-makers is also a critical challenge to enacting SDoH-focused policy. As the impact of policies addressing SDoH will likely be difficult to discern in the near term, promoting population health is a choice that the decision-maker must make consciously, sometimes irrespective of short-term political exigencies.

There are three interconnected, pragmatic areas needed for the vision of the 3-D Commission to translate into actionable policies and programs: political will, technical capacity, and community engagement. First, creating political will requires developing a common language with decision-makers in different sectors, highlighting the potential returns on investment for other sectors, and nuancing and broadening metrics of societal advancement beyond economic indicators. Second, technical capacity is needed to translate a new appreciation for data and SDoH into actionable directives that can be used to improve policy decisions and population health outcomes. Third, engaging communities in decision-making processes can then lead to better decisions being made. Inclusion in the decision-making process means that decision-makers listen to a wide range of stakeholders while formulating decisions: this diversity of thought and perspective helps to compensate for the lack of perfect data. The three areas also require a basic level of trust from the population, which, in turn, can lead to greater levels of trust that will inform, support, and reinforce better decision-making for health.

To improve the health of populations and address health disparities caused by social structural inequities—and exacerbated by COVID-19—a whole-of-society approach is needed. This will require a concerted effort to reframe key issues and adopt common understandings of cross-sector challenges that

affect health. All relevant actors must understand the role that SDoH plays in shaping health outcomes; therefore, critical questions on data collection and use will need to be addressed. This report—and its principles and associated recommendations—offers a roadmap for making these goals a reality.

### 3-D Commission principles



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## 3-D Commission recommendations

- ◉ Relevant international, regional, national, and local entities, including funders, should **systematically collect and make available, in real time, quality data characterizing the full range of determinants of health—including for example, education, housing, economics—to decision-makers and communities locally and nationally.**
  - ◉ National governments should **develop transparent systems that collect data about the social determinants of health, and explicitly use these data in decision-making processes.**
  - ◉ Relevant international, regional, national, and local entities, including funders, should **embed follow-through monitoring processes to ensure accountability for data-informed decision-making around health.**
  - ◉ Relevant international, regional, national, and local entities, including funders, should **center community engagement in acquisition and interpretation of data and make such data widely available to relevant communities.**
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## Case study: Understanding the long-term implications of addressing lead exposure among children in South Asia

Lead is a naturally occurring toxic metal and its widespread use has resulted in extensive environmental contamination, human exposure, and significant public health problems in many parts of the world.<sup>1</sup> Unfortunately, young children are particularly vulnerable to the toxic effects of lead and can suffer extreme and permanent adverse health effects, including biological and neurological damage linked to cognitive and behavioral impairment.<sup>2</sup> Hazardous waste problems are especially severe in lower-income Asian countries, where environmental regulations can be non-existent, non-specific or poorly enforced.<sup>3</sup> Approximately 1 in 3 children—up to 800 million globally—have blood lead levels at or above 5 micrograms per deciliter (µg/dL), a level that requires intervention. Nearly half of these children live in South Asia.<sup>4</sup>

Lead poisoning can cause brain injury that results in a higher incidence of behavior problems,<sup>5</sup> and a higher incidence of violent crimes has been attributed to lead exposure in children.<sup>6,7</sup> These behaviors may increase the risks of children requiring more intensive and costly behavioral interventions, entering the juvenile justice system and, in some cases, entering the adult criminal justice system. The cost to society to support these programs over the medium- or long-term could be mitigated by an early health intervention, but these medium- and long-term costs (and potential benefits and savings) are generally not accounted for when determining the benefits of a health intervention or when measuring its impact. In fact, there is a growing body of literature that highlights the economic costs and risks of lead poisoning among children.<sup>8</sup> For example, research has found that individuals with elevated childhood blood lead levels show increased criminal offending throughout adulthood. Aggregate-level research has also linked estimated exposure to environmental lead with higher rates of crime.<sup>9</sup> When addressing lead poisoning

among children in South Asia, decision-makers need to acknowledge these broader potential tradeoffs—outside of direct costs and health outcomes—between short- and long-term costs and benefits.

The costs to society to support these more intensive educational or correctional programs can be mitigated by the health intervention that addresses lead exposure in children, but these costs or savings are generally not accounted for or attributed to the health intervention in measuring the overall impact in these other sectors. As demonstrated in the 3-D Commission report, there are substantial returns to investing in lead hazard control, particularly in targeted early intervention in those communities with children that are most likely at risk. Given the high, longer-term societal costs of inaction, lead hazard control is worth the immediate investment. Having access to comprehensive and informed data across sectors allows policy makers to more accurately measure the full impact of a health intervention, including its overall societal impact, which ultimately contributes to more effective policies and improved societal outcomes.

1 World Health Organization. Lead Poisoning and Health. *World Health Organization*; 2019. <https://www.who.int/news-room/fact-sheets/detail/lead-poisoning-and-health>

2 Gould, Elise. Childhood Lead Poisoning: Conservative Estimates of the Social and Economic Benefits of Lead Hazard Control. *Environmental Health Perspectives* vol. 117,7 (2009): 1162-7. [doi:10.1289/ehp.0800408](https://doi.org/10.1289/ehp.0800408)

3 Carvanos J, Chatham-Stephens K, Ericson B, Landrigan PJ, Fuller R. The burden of disease from pediatric lead exposure at hazardous waste sites in 7 Asian countries. *Environ Res.* 2013 Jan; 120:119-25. [doi:10.1016/j.envres.2013.06.006](https://doi.org/10.1016/j.envres.2013.06.006). Epub 2013 Sep 20. PMID 22999658.

4 A third of the world's children poisoned by lead, new groundbreaking analysis says. *Unicef*; 2020.

<https://www.unicef.org/press-releases/third-worlds-children-poisoned-lead-new-groundbreaking-analysis-says>

5 World Health Organization. Lead Poisoning and Health. *World Health Organization*; 2019.

<https://www.who.int/news-room/fact-sheets/detail/lead-poisoning-and-health>

6 Reyes, J. Environmental Policy as Social Policy? The Impact of Childhood Lead Exposure on Crime. *National Bureau of Economic Research*; 2007. <https://www.nber.org/digest/may08/impact-childhood-lead-exposure-adult-crime>

7 Boutwell BB, Nelson EJ, Qian Z, et al. Aggregate-level lead exposure, gun violence, homicide, and rape. *PLoS ONE.* 2017;12(11):e0187953. [doi:10.1371/journal.pone.0187953](https://doi.org/10.1371/journal.pone.0187953)

8 Gould, Elise. Childhood Lead Poisoning: Conservative Estimates of the Social and Economic Benefits of Lead Hazard Control. *Environmental Health Perspectives* vol. 117,7 (2009): 1162-7. [doi:10.1289/ehp.0800408](https://doi.org/10.1289/ehp.0800408)

9 Ibid.