A conversation with Dr. Dean Jamison, January 9, 2017

Participants

- Dr. Dean Jamison – Professor Emeritus of Global Health, University of California, San Francisco (UCSF) School of Medicine and University of Washington, Seattle; Lead Editor, Disease Control Priorities, 3rd edition
- Josh Rosenberg – Senior Research Analyst, GiveWell

Note: These notes were compiled by GiveWell and give an overview of the major points made by Dr. Dean Jamison.

Summary

GiveWell spoke with Dr. Jamison about priorities in global health and ethical considerations in cost-effectiveness analysis. Conversation topics included age weighting and other tradeoff discussions in global health, and additional health programs that GiveWell could research in 2017.

Tradeoff discussions in global health

Age weighting

To assist in the process of making tradeoffs between different global health interventions, Dr. Jamison is interested in how best to assign relative weights to deaths averted at different ages ("age weighting") – e.g., 20-year-olds versus newborns.

Academic literature

- Dr. Julian Jamison conducted an empirical study on age weighting that is soon to be published.
- Chapter six of *Global Burden of Disease and Risk Factors* (GBD) 2006 discusses events near the time of birth, including early newborn deaths and stillbirths. The chapter touches on different ways to incorporate these events into the burden of disease framework, which requires assigning relative weights to stillborn infants, one-day-old infant deaths, and 25-year-olds. The chapter reviews relevant literature and includes some calculations on the magnitude of burden of these events.
- The Global Health 2035 Commission on Investing in Health, co-chaired by Dr. Lawrence Summers and Dr. Jamison, performed a benefits-cost analysis (BCA) and included age weighting of health outcomes in its published report. The commission assigned different weights to stillbirths averted and adult deaths averted, relative to infant deaths averted. These weights are similar to those in chapter six of GBD 2006.

Pushback on age weighting

Global burden of disease estimates made by the Institute for Health Metrics and Evaluation and the World Health Organization typically assign the most weight to

averting under-5-year-old deaths because this is expected to avert the largest number of years of life lost. This assumption is also dominant in the cost-effectiveness literature generally, and there is pushback to attempts to introduce other assumptions.

Engaging other academics

To date, the discussion of age weighting and other ethical considerations in cost-effectiveness analysis has been limited. However, this may be an opportune moment to foster it by convening academics interested in this topic for a one-day in-person discussion. Potential participants in the conversation could include:

- **Dr. Joseph Millum** – Bioethicist, National Institutes of Health.
- **Dr. Ole Frithjof Norheim** – Physician and professor of medical ethics, University of Bergen. Dr. Norheim is currently editing *Priorities in Global Health 2020*, a book that focuses on the philosophical aspects of setting global health priorities. This will include some material on the question of age weighting.
- **Dr. Harvey Fineberg** – President of the Gordon and Betty Moore Foundation and Board Chair of the William and Flora Hewlett Foundation.
- **Dr. Milton Weinstein** – Professor of Health Policy and Management and Professor of Medicine, Harvard University.

Dr. Fineberg and Dr. Weinstein were involved in the 1985-1986 National Academy of Medicine study *New Vaccine Development: Establishing Priorities*. In this study, the researchers consulted with members of their committee to establish criteria for judging priorities in vaccine development. They used infant deaths as their standard unit of health burden and put all health outcomes – including adult deaths, stillbirths, and nonfatal outcomes, e.g., paralysis from polio – in terms of infant deaths.

Disease Control Priorities (DCP) project

The World Bank will publish the third edition of *Disease Control Priorities* (DCP3) in nine volumes. Four of the volumes have already been published, and four more are complete, except for the initial synthesizing chapters of each volume. The latter volumes should be published in spring of 2017.

A discussion of age weighting is not likely to be included in DCP3, partially due to time constraints in finishing the project. However, Dr. Jamison has been advocating for presenting the health outcomes in DCP3 as a dashboard with a range of variety of different indicators – e.g., adult deaths, child deaths, specific forms of disability, financial loss, etc. Presenting the specific indicators in this way would show decision-makers the tradeoffs being made.

BCA of health outcomes

There tends to be resistance in the health economic evaluation community to using BCA to compare health outcomes. While environmental economists assign dollar

values to lives and come up with different figures in different countries, they weight lives at all ages equally. However, now may be a timely moment to advocate for reconsidering how these analyses are done.

Harvard University BCA project

A BCA project is currently being run at Harvard University. The leadership team includes four members: Lisa Robinson and James K. Hammitt (Harvard University), Dr. Jamison, and David de Ferranti (Results for Development Institute).

The project is being funded by the Bill & Melinda Gates Foundation and is scheduled to be completed in 18 months. An overview of the project is here: https://cdn1.sph.harvard.edu/wp-content/uploads/sites/113/2016/11/BCA-reference-case-project-summary-October-2016.pdf.

Additional global health areas for GiveWell to explore in 2017

There are three main areas within global health that are not currently recommended by GiveWell but that could be impactful in improving health outcomes: later childhood health and development, surgery, and tuberculosis.

Later childhood health and development

There is less research on the development of children aged 5-14 than on development in the first 1,000 days after conception. There is also a dearth of long-term, sustained interventions – e.g., lasting 10-15 years – or studies of childhood development. However, mortality in children aged 5-14 is substantial, with approximately 1.5 million deaths in this age range each year. This is about a quarter of the deaths of children aged zero to five, but it is roughly five times the number of maternal deaths and roughly three times the number of all malaria deaths each year. Older children are less likely to receive proactive care and tend to be treated after they become ill and are taken to a clinic.

Challenging the first 1,000 days as the critical development period

Volume eight of DCP3 covers child and adolescent health and development, including education. The volume challenges the conventionally accepted idea that the first 1,000 days of life – from conception to age two or three – is the only window of opportunity to positively impact a child's development. It has generally been thought that this is the only time period in which a child's IQ can be improved, and that IQ remediation is not possible afterwards.

The volume argues that while this time period is important, it is possible to substantially remediate a child's development later in life. It is trying to establish the concept of the first 8,000 days (conception through age 21) as an alternative to the first 1,000 days. Several lines of evidence are provided to support this conclusion.

Potential programs in this area

- **Hybrid health and development programs** – There is a need for large-scale research and operational programs that provide comprehensive

healthcare to 5-14 year olds and monitor outcomes later in life. These programs would need to work with schools to deliver health services – targeting, e.g., pneumonia, diarrheal illness, respiratory illness, malaria, and nutrition. They could be modeled on the many successful and well-run programs that address these health outcomes in younger children. These programs would be complex and multifaceted, covering many types of outcomes and focusing on development rather than mortality. However, the lack of charities working on these types of programs makes it difficult for GiveWell to support this area. Dr. Jamison has been arguing for these types of programs but does not know of any groups that are implementing anything similar.

Measuring impact

To measure the impact of a long-term child health and development program, a number of indicators of good health and development would need to be defined for people aged 15 to 20 – e.g., distribution of height, fraction of pregnant females, survival, obesity, and developmental outcomes like scores on internationally-recognized mathematics exams and income.

Before the intervention, the region of a country where the program is to be implemented should be benchmarked according to these outcomes. A cohort of approximately 1,000 five-year-olds could be examined along a range of health indices, in order to determine how to reach the desired outcomes later in life. It is likely that patterns would emerge from this background research to inform program design.

Surgery

DCP2 and DCP3 point to the importance of surgery overall – not any specific procedure – at the district hospital level. There has been growing interest in surgery in the global health community, and the DCP project will continue to emphasize its importance relative to the degree of attention it receives.

DCP3 contains a volume on surgery, describing the essential surgical package as containing 43-44 procedures. Three-fourths of these are first-level hospital procedures. The volume does not evaluate individual procedures. Instead, it discusses a) the annual cost of running a district hospital's surgical capacity, including all staff and equipment, and b) what impact this has on mortality reduction in a given epidemiological environment.

Researchers working in this area

In contrast to later childhood development, this area has attracted the interest of many in the medical community and could be more tractable to fund. Surgeons and anesthesiologists, especially younger practitioners at UCSF, Harvard Medical School, the Karolinska Institute, and in Uganda are thinking about issues in this area – e.g., how to extend surgical capacity in resource-constrained environments, how to train

personnel, what priorities and procedures to teach first, priorities for safety and anesthesia, etc.

Surgeons working in this area include Dr. Atul Gawande of Harvard University, Dr. John Meara of Harvard Medical School, and Dr. Charles Mock of the University of Washington. There is also a new institute at UCSF run by trauma surgeons that focuses on global surgery and increasing surgical capacity. It is not tied to a specific non-governmental organization and seeks funding wherever it is available.

Tuberculosis

The "grand convergence" health package of the Global Health 2035 commission also recommends work on tuberculosis, which causes substantially more deaths each year than AIDS but does not receive as much attention.

Drug resistance

There is concern that drug resistance will make tuberculosis impossible to treat, causing substantial social disruption. While scientists are working on how to tackle this problem, it is uncertain how best to implement tuberculosis control programs given this concern. It is likely that a significant effort will be needed on treatment, and programs will need to include second-line drugs to deal with drug resistance. However, this will make these programs more costly.

Based on the cost-effectiveness models for drug-sensitive tuberculosis in compliant patients, tuberculosis appears to be a very cost-effective disease to treat successfully. However, tuberculosis researchers are not satisfied with treating only these cases, and Dr. Jamison agrees that tuberculosis programs should be designed with preventing drug resistance in mind.

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