

VIEWPOINT

Challenges in International Comparison of Health Care Systems

Irene Papanicolas,
PhD

London School of Economics, London, England; and Department of Health Policy and Management and Harvard Global Health Institute, Harvard T.H. Chan School of Public Health, Cambridge, Massachusetts.

Ashish K. Jha, MD,
MPH

Department of Health Policy and Management and Harvard Global Health Institute, Harvard T.H. Chan School of Public Health, Cambridge, Massachusetts.

International comparisons of health system performance exert major influence on the public and on policy makers. These comparisons allow for reflection on and evaluation of national performance, provide empirical bases to drive reform, and serve as a way to promote accountability. Most international comparisons seek to identify high performers, often conceptualized as health systems with the best outcomes or most value for money. Even though these notions seem relatively straightforward, operationalizing them is difficult. There are at least **3 key challenges** of conducting international comparisons: drawing the **boundaries** of the **health system**, managing **limitations** of **data**, and accounting for **different values** inherent in national systems. Without understanding and addressing these challenges, cross-national comparisons will fail to improve health policy and may lead to misinterpretations and poor policy making.

What Constitutes the Responsibilities of a Health System?

To compare health systems around the world, it is important to first **define what** should be **compared**. This gives rise to a particular set of challenges, as different nations and stakeholders include a wider or narrower set of institutions and health determinants in

International comparisons provide enormous opportunity to identify potential improvements, but they must be accompanied by a deeper understanding of reasons for difference.

the "health system." Health is the product of numerous factors, including but not limited to the delivery of health care. So what counts? Should **highway safety regulations, which prevent deaths from motor vehicle crashes, be considered part of the health system?** Should a nation with a long tradition of **bicycle** use and therefore **lower** rates of **obesity** and diabetes mellitus be deemed to have a **better health system?** Or should a country with **greater poverty** and therefore more poverty-related health problems be seen as having a **low-performing** health system? A host of factors, some of which are characterized as social determinants of health, influence health; determining the extent to which comparisons of health systems should consider these is critical.¹

These issues are particularly **salient** for efforts to benchmark health systems that **use population health**

outcomes to measure health.² While some measures, such as **amenable mortality**, which considers mortality for conditions considered **responsive to timely and effective health care**, are better at addressing this issue, they too have **challenges**. For example, **how much of ischemic heart disease mortality is amenable** to the performance of the **health care system?** **Variations** in underlying **genetics** and **environmental** factors across nations will have a profound influence on cardiovascular mortality rates, as will advances in medical care. In the **United States**, **mortality** from **ischemic** heart disease is **128** per 100 000 deaths, just above **average** among high-income countries (as measured by the Organisation for Economic Co-operation and Development [OECD]), yet **mortality following a hospital admission for acute myocardial infarction** is **5.5%**, **much lower** than the **OECD average (8.0%)**. Both numbers are useful, but each leads to different conclusions about the relative performance of the US health care system.³ One of the measures often used to compare health care systems is **infant mortality**, but countries **vary widely** in the **birth registration procedures** they have in place, particularly around births at the **borderline of viability** (such as infants born at gestational ages of **22-24 weeks** or with **birth weight <500 g**).⁴ For example, although the **United States** is ranked **worse** than the **OECD average** in **infant mortality**, the **United States** is ranked among the **best** in the world in the **survival of infants with extremely low birth weights**.⁴

How Comparable and Useful Are the Available Data?

Too often, international comparisons are made with information that is routinely collected, rather than in areas of policy importance or the greatest need. For example, **mental illness** accounts for one of the leading burdens of illness globally, yet most international **comparisons have few, if any, metrics** available in this area.⁵ Even in areas in which there are data, that information often is not identified or collected in a uniform manner, making cross-national comparisons difficult. Policy makers are left to make decisions about an entire system assuming that the areas for which data are available are indicative of broader performance.

There are also challenges with the population-level data that are available because **countries vary in how they identify patients with certain conditions**. For instance, comparability of **cancer survival** is **critically** dependent on **consistent approaches to diagnosis**. A country with **aggressive screening** programs will **identify** a **higher proportion** of its population with **cancer**. Yet if this

Corresponding Author: Ashish K. Jha, MD, MPH, Department of Health Policy and Management, Harvard T.H. Chan School of Public Health, 42 Church St, Cambridge, MA 02138 (ajha@hsph.harvard.edu).

identification confers no survival benefit, survival will seem longer despite the time of death remaining unchanged, a phenomenon known as *lead-time bias*. Therefore, countries with efforts like universal screening programs will have, on average, higher rates of cancer survival. This has little to do with how well the health care system is able to manage patients and much more with timing of diagnoses.

In addition, when making comparisons about “value” across health systems, prices and actual expenditures are rarely considered. For instance, US physicians and nurses are paid more than comparable clinicians in other countries, at least in part because of underlying training costs that are incurred by those individuals. Given the contribution of labor costs to health care spending, high US health care spending is driven primarily by high prices. However, an orthopedic surgeon in the United States, who is paid significantly more than an orthopedic surgeon in England, is unlikely to produce significantly more health than his or her English counterpart. Failing to consider prices means that nations with high prices will appear to have low value.

Value Is About Values, and Different Nations Value Different Things

A final consideration is that indicators selected for comparison reflect inherent value judgments. Without recognizing these, it is difficult to understand the results of any corresponding analysis. Different health systems are optimized for different conditions and populations, reflecting their design and national priorities. Thus, to be able to learn what findings can be translated across countries and how to interpret variations in performance, it is necessary to understand how these features differ across countries.

For example, although readmission rates are higher in the United States than across many other European countries, median length of stay is shorter in the United States.⁶ The US health care system is optimized for short lengths of stay, tolerating a somewhat higher readmission rate (but fewer total days in the hospital per population). Whether this means that US performance is worse than performance in countries in which lengths of stay are much longer but readmission rates are lower is unclear.

Additionally, patients in different systems have different expectations regarding acceptable levels of performance, depending on

what they perceive to be normal. In the United Kingdom or Canada, for example, patients wait much longer to see a specialist than patients in the United States. However, surveys from these countries suggest that patients perceive fewer barriers to timely access, due largely to differing expectations.⁷

Moreover, taking a broader perspective, people in the United States are far more likely to see health care as an individual responsibility as opposed to a societal or governmental one. The US health care system therefore has greater inequities based on income—inequities that some individuals in the United States are more willing to tolerate.⁸ The US system is optimized for individuals with private insurance and Medicare (who compose approximately 65% of the population) and does less well for individuals who are uninsured and those with Medicaid.⁹ Yet international comparisons examining average effects fail to capture this variation. Comparing the entire United States with a homogeneous country like Finland with a population of 5.4 million (comparable to Minnesota) and a commitment to an equitable, tax-funded health care system may yield misleading conclusions.

International Comparisons: The Way Forward?

International comparisons provide enormous opportunity to identify potential improvements, but they must be accompanied by a deeper understanding of reasons for difference. Three issues are critical.

First, investigators who carry out comparisons should carefully delineate what they are comparing by explicitly defining what constitutes the health system in their analysis and elucidating the issues these definitions raise. Second, it is critical that data limitations (including issues of access and diagnosis rates), prices, and expectations be taken into account in the analysis and the interpretation as much as possible. Third, results need to be interpreted in light of national policies, values, and priorities. It might be that for patients in the United States with good health insurance, the health care system functions well and policy prescriptions should be to improve access to high-quality care for poorer patients. However, looking at average effects would suggest the system needs similar improvements for everyone, which can lead to efforts that fail to target those who would benefit the most.

ARTICLE INFORMATION

Published Online: July 27, 2017.
doi:10.1001/jama.2017.9392

Conflict of Interest Disclosures: All authors have completed and submitted the ICMJE Form for Disclosure of Potential Conflicts of Interest and none were reported.

REFERENCES

- Chetty R, Stepner M, Abraham S, et al. The association between income and life expectancy in the United States, 2001-2014. *JAMA*. 2016;315(16):1750-1766.
- Barber RM, Fullman N, Sorensen RJD, et al. Healthcare Access and Quality Index based on mortality from causes amenable to personal health care in 195 countries and territories, 1990-2015:

a novel analysis from the Global Burden of Disease Study 2015 [published online May 18, 2017]. *Lancet*. doi:10.1016/S0140-6736(17)30818-8

3. Organisation for Economic Co-operation and Development. *Health at a Glance 2015*. Paris, France: OECD Publishing; 2015.

4. Joseph KS, Liu S, Rouleau J, et al; Fetal and Infant Health Study Group of the Canadian Perinatal Surveillance System. Influence of definition based versus pragmatic birth registration on international comparisons of perinatal and infant mortality: population based retrospective study. *BMJ*. 2012; 344:e746.

5. Demyttenaere K, Bruffaerts R, Posada-Villa J, et al; WHO World Mental Health Survey Consortium. Prevalence, severity, and unmet need for treatment of mental disorders in the World

Health Organization World Mental Health Surveys. *JAMA*. 2004;291(21):2581-2590.

6. Kociol RD, Lopes RD, Clare R, et al. International variation in and factors associated with hospital readmission after myocardial infarction. *JAMA*. 2012;307(1):66-74.

7. Duckett S, Kempton A. Canadians' views about health system performance. *Healthc Policy*. 2012;7(3):85-101.

8. Alesina A, Angeletos G-M. Fairness and redistribution. *Am Econ Rev*. 2005;95(4):960-980. doi:10.1257/0002828054825655

9. Alghothani L, Jacks SK, Vander Horst A, Zirwas MJ. Disparities in access to dermatologic care according to insurance type. *Arch Dermatol*. 2012;148(8):956-957.