

VIEWPOINT

Victor R. Fuchs, PhD
Stanford Institute for
Economic Policy
Research, Stanford
University, Stanford,
California.

Is US Medical Care Inefficient?

Is US medical care inefficient? Many health policy experts maintain it is, whereas others prefer a verdict available to juries in Scotland—"not proven." The correct answer is that no industry is either efficient or inefficient in abstract terms. Efficiency describes the relation between the input(s) and output(s) of a product (eg, an engine), an organ (eg, the heart), or an industry. Each industry has a unique set of inputs and outputs and set of technologic, economic, and socio-political constraints.

It may be possible, however, to compare the efficiency of US medical care with the efficiency of medical care in other countries if the inputs, outputs, and constraints are sufficiently similar; if they differ, it is possible to adjust for those differences. For example, per capita spending for medical care in the United States is approximately double the spending in the United Kingdom, but life expectancy at birth is almost 3 years lower in the United States than in the United Kingdom. Some of the difference is probably attributable to a poverty rate of 17% in the United States compared with only 10% in the United Kingdom. Using a slightly different metric, the poverty rate in the United States

It is more likely that the US medical system as a whole is inefficient at the macro level, that is, it misallocates health care resources.

exceeds the poverty rate of 10 other high-income countries at 6.6 percentage points higher than the mean of the other 10.¹

Not only is it necessary to consider all the significant determinants of life expectancy, it is also important to recognize other outputs of medical care (ie, health outcomes) in addition to extending life. For example, age-adjusted utilization of knee replacement surgery is 80% higher in the United States than in the United Kingdom. Much of this "output" in the United States may reflect improved quality of life as measured by relief of pain and ability to participate in daily and leisure activities rather than increased length of life.

A variable that probably warrants additional investigation is exogenous morbidity. Morbidity encompasses both disease and disability. Exogenous morbidity excludes any morbidity attributable to failures or mistakes of medical care and represents morbidity that results from genetic differences, social conditions, personal behaviors, and the interaction of these factors. If age-specific exogenous morbidity is higher in the United States than in other countries, that would help explain lower life expectancy even if US medical care was

as efficient as care in other countries. Why might age-specific morbidity be higher in the United States? One answer may involve firearm injuries. In 2015, firearms accounted for 11 deaths per 100 000 population and more than twice as many nonfatal injuries.² Many survivors of firearm injuries require extensive medical care and have long-term disability. Unsuccessful suicide attempts and nonfatal motor vehicle crashes also may be higher in the United States than in some other countries.

There is no summary measure of disease morbidity in the United States relative to other high income countries. A possible "leading indicator" is diabetes, which is more prevalent in the United States. Many of the dietary and activity factors that have led to an increase in diabetes in recent years are also risk variables for other morbidities, such as cardiovascular disease. Another promising leading indicator of exogenous morbidity is the percentage of the adult population (aged ≥ 15 years) that is obese or overweight. The prevalence of obesity and overweight in the United States is 70%; the mean prevalence for the other 10 high-income countries is 54%.¹ Because individuals who are obese or overweight are at increased risk for other major diseases (such as diabetes and cardiovascular disease), it seems probable that the United States has above-average morbidity.

To compare medical care systems across countries, it is important to know much more about the relative importance of medical and nonmedical determinants of health outcomes and about the contributions of medical care to well-being other than life expectancy. If, after controlling for these variables, US life expectancy is still relatively low, the conclusion that US medical care is inefficient gains credibility. For policy purposes, it will be useful to distinguish 2 types of inefficiency: "micro" and "macro." Micro-inefficiency is present when individual patient-physician interventions (preventive, diagnostic, therapeutic, or palliative) have poor results relative to the same interventions in other countries. Micro-inefficiency asks how well an intervention is made. Macro-inefficiency is concerned with what is being done.

Could the resources be used to greater advantage in some other intervention? Limited data suggest that the United States may be less micro-inefficient than 10 other high-income countries: US physicians left fewer foreign bodies related to surgical interventions per 100 000 patient discharges, had lower 30-day mortality per 1000 patients with acute myocardial infarction, and had fewer instances of obstetric trauma without instruments per 100 deliveries.¹ More data are needed to reach a reliable conclusion, but these comparisons do not support the view that micro-inefficiency relative

Corresponding Author: Victor R. Fuchs, PhD, Stanford Institute for Economic Policy Research, Stanford University, 366 Galvez, Stanford, CA 94305-6015 (vfuchs@stanford.edu).

to other countries is a significant cause of lower life expectancy in the United States.

Macro-inefficiency describes a misallocation of medical resources such that life expectancy could be greater if resources were allocated differently. Misallocation could be observed across patient categories or across individual patients. Several US specialty organizations suggest that there is misallocation and have urged members to reduce use of some interventions.³ Magnetic resonance imaging scans are 44% more numerous in the United States than the mean of 10 other high-income countries and cesarean deliveries 32% more common.¹

Inasmuch as price-adjusted total medical input is probably about the same in the United States as the average of the other countries, more use of some interventions in the United States implies less use of other interventions. Other countries typically have more physician visits and hospital bed-days per capita than the United States—"high touch" vs "high tech." Allocation of prescription drugs also differs; physicians in other countries are less likely to rush to prescribe newer, more expensive versions of drugs when equally effective older versions are available. Macro-inefficiency appears evident in the United States in the large amount of resources devoted to health insurance marketing and administration and to billing and collecting for millions of separate patient encounters.^{4,5} Still another misallocation probably results from greater income inequality and un-

even insurance coverage in the United States: medical resources are probably not applied where they might have the most effect on health outcomes.

Conclusions

That life expectancy is significantly lower in the United States than in other high-income countries does not prove that US medical care is inefficient. There are many other determinants of life expectancy, including socioeconomic factors, such as the higher percentage of the US population living in poverty. Also, it is possible that a greater percentage of US medical care output improves quality of life rather than length of life.

A reliable answer to the question of efficiency of US medical care relative to other countries requires more information about age-specific exogenous morbidity. If there is more disease and disability in the United States at earlier ages, this would help explain some lower life expectancy. It seems doubtful that US care is more inefficient at the micro level, that is, the individual patient-physician interaction. It is more likely that the US medical system as a whole is inefficient at the macro level, that is, it misallocates health care resources. The United States' fragmented financing of health care results in excessive administrative costs and may contribute to inefficiencies in other ways as well. Excessive use of some technologies in the United States may be another important factor.

ARTICLE INFORMATION

Published Online: September 6, 2018.
doi:10.1001/jama.2018.10779

Conflict of Interest Disclosures: The author has completed and submitted the ICMJE Form for Disclosure of Potential Conflicts of Interest and none were reported.

REFERENCES

1. Papanicolaos I, Woskie LR, Jha AK. Health care spending in the United States and other high-income countries [published correction

appears in *JAMA*. 2018;319(17):1824]. *JAMA*. 2018; 319(10):1024-1039. doi:10.1001/jama.2018.1150

2. Centers for Disease Control and Prevention. All injuries. <https://www.cdc.gov/nchs/fastats/injury.htm>. Updated May 3, 2017. Accessed June 19, 2018.

3. US Preventive Services Task Force. Final recommendation statement: screening for cardiovascular disease risk with electrocardiology. <https://www.uspreventiveservicestaskforce.org/Announcements/News/Item/final-recommendation-statement-screening>

-for-cardiovascular-disease-risk-with-electrocardiography. Published June 12, 2018. Accessed June 19, 2018.

4. Himmelstein DU, Jun M, Busse R, et al. A comparison of hospital administrative costs in eight nations: US costs exceed all others by far. *Health Aff (Millwood)*. 2014;33(9):1586-1594. doi:10.1377/hlthaff.2013.1327

5. Tseng P, Kaplan RS, Richman BD, Shah MA, Schulman KA. Administrative costs associated with physician billing and insurance-related activities at an academic health care system. *JAMA*. 2018;319(7):691-697. doi:10.1001/jama.2017.19148