Journal of Hospital Infection xxx (2018) 1–7

Available online at www.sciencedirect.com

Journal of Hospital Infection

journal homepage: www.elsevier.com/locate/jhin

Lowbury Lecture

Make economics your friend

N. Graves*

Public Health, Queensland University of Technology, Brisbane, Queensland, Australia

ARTICLE INFO

Article history:
Received 4 July 2018
Accepted 6 July 2018
Available online xxx

Keywords:
Economics
Healthcare-associated infection
Infection prevention

SUMMARY

In this essay I define the discipline of economics and say why it's useful. I review methods for measuring economic outcomes relevant to those working to prevent infections, and review how decision-makers should use the information to help choose the best among competing programmes. I finish by arguing that good economics can improve the amount of health gained from an infection prevention service working under conditions of scarce resources.

What is economics and why is it useful?

Economics is the study of human behaviour as a relationship between our many 'wants' and the inevitable situation of 'scarce resources'. After you have paid your mortgage, the monthly bills and completed the food shopping the question of whether you spend your last £300 on a pair of curtains or cowboy boots is an economic one. If you judge the boots as having greater value than new drapery then you are being efficient with your scarce resources by purchasing the boots. You have gained more than you have lost with your decision-making, you are better off than you would have been, and you have used economics to get to this useful position. Economics is the study of how individuals, businesses, governments, and nations make choices about allocating scarce resources to satisfy their wants and needs [1]. Powerful and successful economies employ scarce resources wisely and generate large economic benefits for the population; these benefits are then distributed fairly, meaning that many citizens are content. Poorly managed economies waste scarce resources on corrupt and non-productive activities, meaning that many people are poor and likely less happy.

As a healthcare professional, you work in an economy of healthcare and the resources available are scarce. The health system you work in – by various mechanisms – will allocate resources to services that could have either a high or low value for patients. A strong healthcare system will consistently choose high-value services that generate large health benefits as compared to low-value services that do not. An example of low-value healthcare is endovascular repair of abdominal aortic aneurysms in an asymptomatic high-risk patient with limited life expectancy [2]. By contrast, a total hip replacement for a patient with diseases of the hip that causes chronic discomfort and functional impairment can give excellent long-term health benefits [3]. Because resources are scarce we cannot provide every service to every patient all of the time.

Economics is useful because it provides opportunity to improve the allocation of scarce resources in economic systems, shifting activities from low to high value, and this is

* Address: Public Health, Queensland University of Technology, Victoria Park Road, Kelvin Grove, Brisbane, QLD 4059, Australia. Tel.: +61 7 3240 7106; fax: +61 7 3864 3369.
E-mail address: n.graves@qut.edu.au.

https://doi.org/10.1016/j.jhin.2018.07.008
0195-6701/

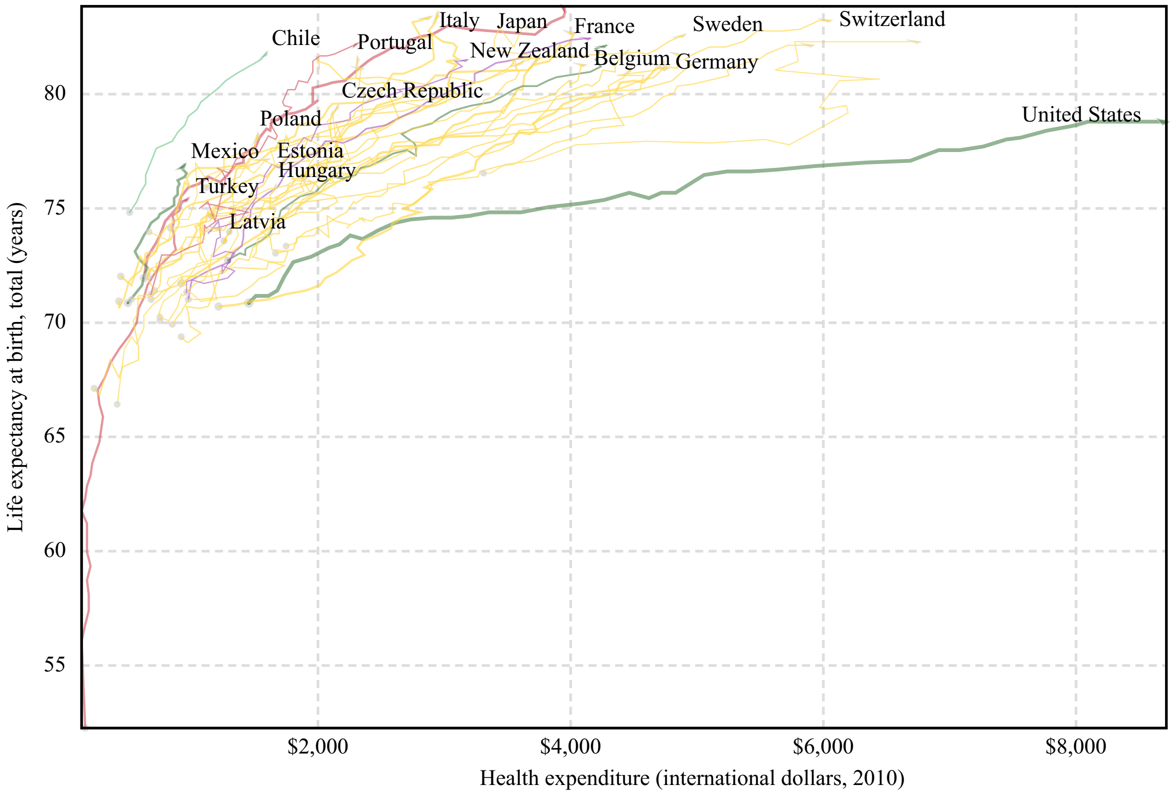

Figure 1. Life expectancy vs health expenditure, 1970 to 2015. Health financing is reported as the annual per capita health expenditure and is adjusted for inflation and price level differences between countries (measured in international dollars, 2010).

achieved by interpreting information and mostly quantitative data. Figure 1 summarizes spending on health services and the average life expectancy for many countries over time. Of course other factors determine life expectancy, such as social disadvantage, lifestyle choices, transport and working conditions [4]. Not all the responsibility for poor health outcomes should be laid at the steps of the health department. Nevertheless the data in Figure 1 could indicate that health services in the USA — by various mechanisms — select services that generate fewer health benefits per dollar invested more frequently than any other country. It has been suggested that about 30 percent of medical spending in the USA is for services that generate no health benefit and might even be harmful [5]. And Atwal Gawande proposes that 'Millions of Americans get tests, drugs, and operations that won't make them better, may cause harm, and cost billions' [6].

Economics can offer a positive response to this poor allocation of resources by establishing incentives to disinvest in low-value care and to reinvest the resources freed up for higher-value services. Many economists have argued that private health insurance, prevalent in the USA, is a poor way to answer the difficult questions of how to organize a healthcare economy and that government control of healthcare via social insurance schemes generates greater health benefits from scarce resources and distributes them appropriately [7,8].

Responding to scarcity of resources is at the heart of economics. We can never have enough resources to meet all the wants and needs for health-related conditions. Scarce resources can be used any number of different ways. Economics is about how we decide to use scarce resources.

Economics is useful to you — striving to control infection — because it provides an opportunity to improve the allocation of your scarce resources by revealing the costs and health benefits of all competing programmes or interventions you might use. You might wish to increase hand hygiene compliance, but this means you cannot afford to do as much screening and decolonization. You might wish to enhance your antimicrobial stewardship programme, but this means doing less surveillance. Or you might want to buy a cleaning robot, but this means you can't afford the latest machine for rapid diagnoses. Choosing between competing programmes such that you get the greatest health benefits from your scarce resources requires measurements of some key economic outcomes.

Methods for measuring economic outcomes

The economic outcomes you need to measure are the change to 'total costs' from a decision to adopt a new programme. And then the associated change to the 'value of health benefits'.

Estimating changes to 'total costs' from competing prevention programmes

Measuring changes to 'total costs' requires information about the implementation costs and then the cost savings from effective infection prevention programmes. Some detailed methods for estimating implementation costs have been published by Page *et al*. [9]. The key points are that you make a list