The economics of healthcare

The National Health Service (NHS) is the main system of healthcare provision in England, Wales and Scotland. It was established in 1948 with the aim of providing healthcare that was 'comprehensive, universal and free, from cradle to grave'. Recent controversy suggests that things are not working out as planned. **Jennifer Roberts** investigates

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Surveys have shown that people in the UK are extremely proud of the NHS. However, recently there have been numerous reports that the NHS is 'in crisis'. In March 2017, BBC News reported that NHS providers warned that services were facing a 'mission impossible' — frontline services did not have enough money, and longer waits for hospital operations and more delays in Accident and Emergency were predicted. At the same time, the government claimed that the NHS had sufficient funds.

The economics behind the headlines

Some people express surprise, even distaste, that economics is involved in decisions about healthcare. A little more thought should reveal that the provision of healthcare is a classic problem of how best to allocate scarce resources.

Demand for healthcare is virtually unlimited, but its supply (such as drugs, medical devices and staff time) is finite. The NHS has to manage this problem without a price mechanism to balance supply and demand. In a normal market, like that for drinks from coffee shops, if demand outstrips supply the price rises. This encourages an increase in supply (new coffee shops open and existing shops supply more) and a reduction in demand, and this restores the market equilibrium. This does not happen in the NHS because most healthcare is provided free at the point of consumption.

Key concepts

health economics, market failure, merit goods, opportunity cost

The demand for healthcare

The demand for healthcare is derived from the demand for health. We do not consume healthcare for its own sake (in fact it can be unpleasant) but because it contributes to the ultimate good, which is our health. Health is seen as a basic human right, important to both individuals and societies. While health is a good it cannot be traded — you cannot directly purchase improvements in health but you can consume healthcare in an effort to improve your health.

The relationship between healthcare and health is complex. We can think of this as a production function — health is the output and healthcare is one of the inputs. We cannot be sure how much health is produced for any given healthcare input. The results vary between individuals because of their biomedical make-up and because healthcare is only one determinant. Health is also strongly influenced by things like housing, diet, education and lifestyle (for example, how much you exercise and whether or not you smoke), which are closely associated with income.

In a normal market we assume consumer sovereignty — consumers are best placed to know what goods and services benefit them the most. We cannot make the same assumption about the demand for healthcare. Consumers do not generally know how much, and what type of, healthcare they need.

Demand vs need

Demand and need are different things. Need is not a relevant concept in the market for coffee — you may want a cappuccino because it will taste nice but this is not need. Need exists where we have defined the outcome as a basic human right. An individual needs healthcare when they have some capacity to benefit from it — it may improve their health, or stop it from deteriorating. Doctors act as our agents in the healthcare market because they have better information about the relationship between health and healthcare than we do (there is asymmetric information), and they tell us what we need.

Not all demand is a need. In the NHS demand is partly managed by general practitioners (GPs) acting as gatekeepers controlling access to hospital services and prescriptions. You cannot choose to go directly to hospital or to buy antibiotics, you must visit your GP first for a decision on whether you need that level of care.

Why is demand growing?

The need for healthcare is growing because the population is ageing and because many more people are living with chronic (long-term) disease. Chronic health problems are also increasing among younger people, partly because of poor health behaviours and lifestyle. For example, 25% of the adult population of the UK is obese. Obesity increases the risk of many serious illnesses, such as Type 2 diabetes, high blood pressure, heart disease, stroke and cancer.

Demand for healthcare is also growing because people expect more of the healthcare system. As drugs and medical devices improve, our expectations of healthcare increase. For example, the proportion of women who die within 5 years of receiving a breast cancer diagnosis has declined substantially over the past 50 years as a result of improved diagnostic screening and testing, as well as advances in chemotherapy to treat tumours. This means that many more people now seek diagnosis and treatment, because their expectations of recovery have increased.

The supply of healthcare

Healthcare is a large and growing component of most developed economies. In the UK total health spending is around 10% of GDP, which is about average for European countries. In the USA, where more of the expenditure is private, this proportion is closer to 20%. In the UK, because of our NHS system, most of this spending is by national and local government — health spending equates to 20% of all public expenditure. Healthcare is taking up an increasing proportion of GDP because of rising demand, and because the costs of providing healthcare are increasing and difficult to control.

NHS staffing

Like any good, the production of healthcare requires a number of inputs, the largest of which is labour. The NHS employs 1.7 million people (about 5% of the UK workforce). Increasing demand for healthcare means increasing demand for staff, but the NHS faces a shortage of trained staff so it uses a lot of overtime (paid at a higher rate than normal working hours) and high numbers of agency staff, who cost more than standard NHS employees.

Drugs

Drugs make up about 15% of NHS expenditure and the costs are rising all the time. The NHS drugs budget was £16.8 billion in 2016 and this has grown by 30% over the past 5 years. This increase is partly because of the development of new drugs, which represent improvements in technology. We can treat conditions that we could not previously and the treatments are more successful and have fewer side effects. Expenditure is also increasing because of the rising demand for drugs. For example, in the past 10 years, the number of prescriptions for the treatment of diabetes has risen by 67% and diabetes drugs alone cost the NHS almost £1 billion per year.

Some people argue that drug costs are too high because pharmaceutical companies have a high degree of market power. Pharmaceutical companies carry out research and development in order to produce new drugs. To reward them for this they are granted patent protection, which means that for a set time (up to 30 years) they have a monopoly in the production of that drug so that no other firm can compete with them to bring down the price. Once patents expire prices usually fall because cheaper generic (unbranded) versions of the drugs become available.

The healthcare market

In the UK, as in nearly all developed countries, the provision of healthcare is not left to the free market because of market failure and equity concerns. Market failure occurs because healthcare is a merit good — society believes that everyone should consume healthcare regardless of whether or not they want to. Education is another example of a merit good. Merit goods have two characteristics that distinguish them from normal private goods.

- They generate large positive externalities (spillover effects), meaning that people other than the individual consumer also benefit from their consumption. For example, vaccinating an individual against a contagious disease provides protection to the individual (a private benefit), as well as external benefits to other people who are now less likely to catch the disease.
- Even the private benefit of a merit good is not fully recognised at the time of consumption. We know how much benefit we obtain from consuming a cappuccino, but it is difficult for us to judge how much benefit we will derive from consuming healthcare, especially because much of this benefit will not be realised until later in our lives.

In a free market merit goods would be under-consumed, so the government plays a paternalistic role and decides on our behalf that we should consume more healthcare than we would if left to our own devices. This is better for us and better for society.

We do not only care about the efficiency of healthcare provision, we also care about equity. It is not simply a question of how much healthcare we can produce from the resources we have, but also about who obtains access to that healthcare. The basis of a universal healthcare system like the NHS is that a person's income should not determine their ability to access care.

How can the NHS crisis be resolved?

A solution to the NHS 'crisis' requires an increase in the supply of healthcare and/or a reduction in demand.

Taxation and productivity

On the supply side, to provide more resource to the NHS, the government could take money away from other public services, like education or defence, but this is unlikely to be popular with the electorate. Or, they could increase taxation to raise the extra revenue. This may not be very

Demand for healthcare in the UK is growing

popular either. Another way of increasing supply is to increase productivity so that more healthcare can be produced with the given resources. However, research has estimated that productivity in the NHS has already increased. Healthcare technology is continually improving and staff are working harder than ever, so there is limited capacity for further improvements in productivity.

Centralising care

One other possibility is to reduce the cost of providing care by exploiting economies of scale. Larger hospitals can often carry out procedures (like operations and diagnostic tests) more efficiently, and with better quality, than smaller hospitals. This is an advantage of specialisation. However, centralising care by closing smaller local hospitals and having specialist units in larger hospitals is very unpopular with the electorate because it means that patients have to travel further to access care.

Waiting lists

On the demand side, in the absence of a price mechanism healthcare must be rationed in other ways. Waiting lists are one way of rationing care, meaning that people who require non-urgent procedures have to wait before they can receive them. Waiting lists are combined with rationing on the basis of need, so that people who need urgent care, such cancer diagnosis and treatment, are seen first. However, one problem is that people can end up waiting a long time for non-emergency care. A further problem is that it is often difficult to judge who needs care the most.

Increasing charges

Demand could also be managed by introducing a price mechanism into some parts of the NHS. For example, the NHS already charges for prescriptions and could increase the price. However, there are a large number of exemptions and only about 10% of all prescriptions dispensed are paid for, so a price increase may not do much to stem demand. An alternative is to charge for GP appointments, similar to the system in Australia and New Zealand. GP charges are controversial because while they may stop people visiting the GP with trivial complaints, they could also prevent people with real need from accessing healthcare in a timely fashion. This could adversely affect the health of those people and result in greater demand for expensive hospital resources further down the line.

Improving health

Demand for hospital care and drugs can also be reduced by improving the health of the population. For example, the government's Change4Life campaign is a public health programme designed to reduce obesity levels by improving diet and exercise. Change4Life works by helping people to change their behaviour and take more responsibility for their own health.

In contrast a fiscal policy like the 'sugar tax' on fizzy drinks has the same overall aim of reducing obesity but works more directly by using price to reduce demand for an unhealthy product.

The opportunity cost of healthcare

No matter how many resources are devoted to the NHS, and how productive these resources are, the supply of healthcare will still be finite and demand will continue to grow. Within a finite resource system, we cannot devote more resources to one type of care (like an expensive new drug to treat cancer) without taking them away from another type of care (like long-term care for people with dementia, or vaccinations against infectious diseases for children).

NICE

The National Institute for Health and Care Excellence (NICE) is a body established by government to help quantify the opportunity costs of providing different treatments. NICE aims to ensure that the NHS gets the maximum benefit from its limited resources (efficiency) and that people get access to the healthcare they need (equity). NICE uses systematic methods to estimate the amount of health benefit that is produced by different treatments, and how much the treatments cost. This allows them to make judgements on whether a treatment is cost effective. These estimates are used to make decisions on what treatments the NHS should provide and to what groups of patients. For example, NICE has recently announced guidance concerning a new cancer drug called Nivolumab. It has deemed that it is cost effective for use in some forms of cancer but not others.

When NICE turns down a treatment its decisions are often controversial and attract media attention. This is because healthcare is a very emotive issue. However, decisions like this are essential in a resource-constrained system. If a new expensive treatment is provided it means that other care is sacrificed. NICE committees include economists alongside doctors, other health professionals, patient representatives and members of the public, and in this way they inform decisions that can help to solve the perpetual problem of the best allocation of scarce resources in healthcare.

Key points

1 Recent media discussions have highlighted issues in the provision of healthcare through the NHS.
2 The demand for healthcare is virtually unlimited, but its supply is finite.
3 The demand for healthcare is derived from the demand for health, but there is asymmetric information — doctors act as our agents in the healthcare market.
4 For myriad reasons the demand for healthcare is growing.
5 The supply of healthcare depends upon the inputs into the activity — especially labour and medicines.
6 Market failure and equity concerns affect the provision of healthcare, which may be seen as a merit good.
7 A solution to the NHS crisis requires an increase in the supply of healthcare and/or a reduction in demand.
8 However the provision of healthcare shapes up in the future, it will always be necessary to tackle the key issue of opportunity cost.

Questions

1 What share of GDP does the UK spend on both public (NHS) and private healthcare? How does this compare with other countries in the EU?
2 In the article it states that in a normal market 'we assume […] consumers are best placed to know what goods and services benefit them the most.' Why might this not be true about the demand for healthcare?
3 Draw a demand and supply diagram to illustrate the market for non-urgent healthcare in the UK. Using this diagram, try and explain why in March 2017 nearly 130,000 people in England were waiting for an operation after being referred to a consultant.

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