Managing new health technologies

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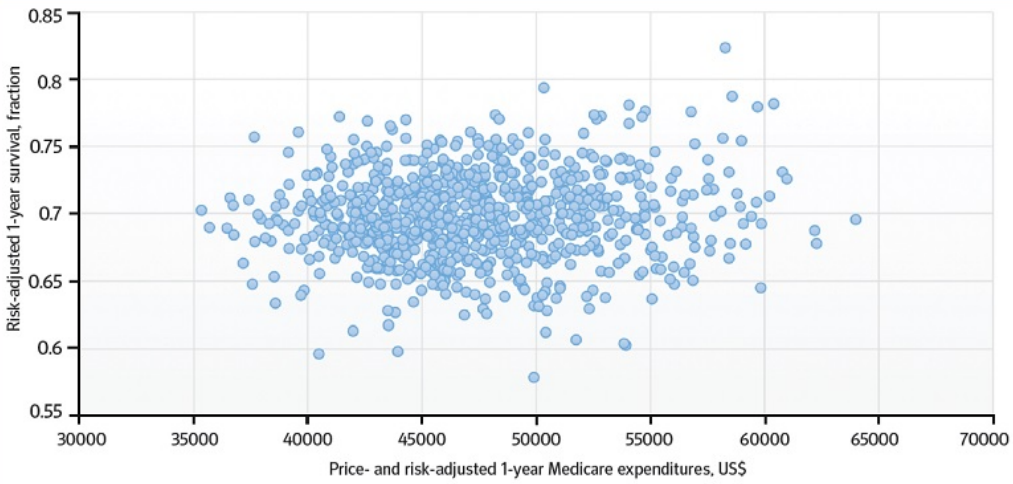
Countries around the world are struggling with rising healthcare bills. Every introduction of pricey new biologics, surgical procedures, and exotic "precision" treatments causes ever-increasing fiscal stress, leading to deficit spending, cutbacks in other government services, and insurance costs shouldered by firms and employees alike. Yet, freezing budgetary allocations is clearly not an option, as citizens in our ageing societies are likely to demand more and better access to new health innovations, and essential healthcare services. What can be done?

Good management is key, both for anticipating budgets needed for new treatments, and for assessing any new technological innovations coming on the market. Take the first of these principles, which requires that policymakers make sure that there is sufficient budgetary space to allow for the most valuable new treatments and innovations when they become available. There are a variety of ways of doing this, none easy, and all of which follow the basic logic of cost-effectiveness– that is, if a treatment is expensive, we should expect it to deliver real health benefits for every penny spent. And it is not just about specific treatments or drugs, but about hospitals and medical practices too: such cost-effectiveness analysis should be applied to actual delivery systems as much as to new drugs and devices.

Consider our chart, for example, which shows US data on treatments for heart attack patients during 2007-11, based on a new unpublished study with Dr Carrie Colla at Dartmouth. We examined the performance of larger hospitals (with at least 400 AMI patients over the period of analysis) in terms of one-year survival and one-year expenditures to characterise the association between spending and health outcomes. Both expenditures and survival are risk-adjusted for both clinical and socioeconomic status.

Spending and 1-year survival, elderly Medicare patients with acute myocardial infarction, 2007-11



Source: Chandra, Colla, and Skinner (2016). Each dot represents a hospital with at least 400 heart attack (acute myocardial infarction) patients over the period 2007-11; this reduces the amount of random statistical noise.

What seems clear is that the best performers are not necessarily the highest spenders. In fact, as the chart demonstrates, there is nearly two-fold variation in spending across hospitals in price- and risk-adjusted expenditures, reflecting different approaches to post-acute treatments such as testing and exams, late stenting, cardiac rehabilitation, and nursing home care. Most of these high expenses reflect the wider use of treatments among patients, regardless of their

cost-effectiveness. Notice also the large variation in risk-adjusted survival rates, with striking differences between the lowest and highest-performing hospitals.

Some of them (in the northwest quadrant of the graph) provide excellent care at low cost, while others (in the southeast quadrant) are poor performers, with high costs and poor outcomes.

While these results are based on US data, a 2014 OECD study shows similar patterns across all OECD countries and among nearly every medical or surgical procedure.

The key message from this and other research is that spending more doesn't guarantee better results. We can certainly learn from these high-performing hospitals–what's their secret sauce? But we can take practical action by channelling patients away from poor performers into the high-performing hospitals–for example, by directing ambulances to bypass the low-quality hospitals–which can ease spending pressures, and save lives as well.

The hard part is identifying the low-quality health systems, because it requires a national system of data collection with detailed information on patient costs, patient histories and patient outcomes. This is where many European governments have an advantage over the US, whose patchwork quilt of insurers and payers means that it is very hard to measure the performance of the overall delivery system and improve it. European governments, on the other hand, will have to show political courage to let underperforming delivery systems fail. The threat of failure encourages improvement in healthcare, while the promise of a government bailout, whether to protect managers or jobs or any interest other than that of patients, does not.

Our second general good management principle is to weigh up alternatives by considering the opportunity cost of adopting a new technological advance compared with other choices. Buying a new robotic surgical machine or covering an expensive drug could involve not only imposing higher taxes or out-of-pocket costs to cover the extra expenses, but foregoing an appealing alternative, such as hiring an additional primary school teacher or construction worker for an infrastructure project. This principle underlies cost-effectiveness, that if a treatment or service costs a great deal of money, it should provide considerable health benefits in return across the board. Benefits that are asserted, but cannot be quantified for high-cost treatments, such as proton-therapy for prostate cancer, should be viewed with intense scepticism because the opportunity cost of covering them is high, particularly if to pay for them means cutting spending on the likes of education, whose health benefits are known and substantial.

Several new innovations will fail the grade on this basis, for example, very high cost drugs that at best extend median lifespan by several months. Offering to pay on the basis of how well the drug works is one approach to address this problem, since over time, competition and better experience with how best to use new

drugs can convert a previously cost-ineffective drug into an effective one. That said, we recognise the excruciating ethical decisions that have to be made in the clinic–how can one really say no to a human patient who sees an expensive (and unapproved) drug as her last-ditch hope to beat a fatal disease?

Time and competition can help. An example comes from the recent introduction of Sovaldi and Havarti, initially costing US$84,000 or more in the US for a round of treatment of hepatitis C. These are unusual drugs because even at that very high price, they are still cost-effective, because the lives saved (and future healthcare costs reduced) are so large relative to their higher price. Yet the sheer size of the hepatitis C population led to budgetary pressures on health ministries around the world, leading to rationing and restrictions for patients who might have benefited from the treatment. Fortunately, however, competition from a new drug, Zepatier, and bargaining at the country level have brought prices down over time, in some cases by as much as two-thirds of the original price.

One class of innovations that will prove difficult to achieve such pricing dynamics is novel treatments such as gene and cell-therapies developed for "orphan" conditions (those with fewer than 200,000 patients), so that competition will be less likely because of small market size. Two forces–high benefit and less competition– make high prices inevitable. Still, even here, it may make sense to think about paying off the amount over time rather than in the current year's budget to ease the cost impact.

Could clamping down on cost-ineffective treatments turn off the tap of new innovations? So long as health systems pay when the innovation is cost-effective, the answer is no, though it could be an incentive to shut down cost-ineffective drug development. By paying for such cost-ineffective treatments, the US has inadvertently made it harder for other countries to refuse these budget-busting drugs, particularly in smaller countries with less bargaining power and alternatives of their own.

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So, to control costs and improve effectiveness for the long term, policymakers should first think carefully about how to make room in the healthcare budget for new and effective treatments, and clearing out old closets by speeding up the "exnovation" of outmoded technologies, or discouraging (or even closing) providers providing poor quality at high cost.

And second, countries should not rush to adopt every new bright and shiny treatment cooked up by the medical drug or device industry, but focus on treatments that generate good outcomes at affordable costs for patients and society more widely. This would also send an unambiguous signal to drug manufacturers–that society will pay handsomely only if what they build is truly worth it.

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