

**DR. STEPHEN DUCKETT  
PRESIDENT AND CHIEF EXECUTIVE DIRECTOR  
ALBERTA HEALTH SERVICES**

**“THINKING ECONOMICALLY IN THE HEALTH SECTOR”  
PRESENTED TO THE ECONOMICS SOCIETY OF NORTHERN  
ALBERTA**

**EDMONTON PETROLEUM CLUB  
11110 – 109 STREET, EDMONTON**

**FRIDAY, NOVEMBER 13, 2009  
12:00 P.M.**

Thank you for inviting me to address you about “thinking economically in the health sector”.

The science of economics is cast in all sorts of ways. Sometimes it is portrayed as being about naive cost cutting, but that is not what I think people in this room would understand about economics. As you all know, economics is about how to allocate scarce resources, the science of scarcity if you will. I will address how techniques of this science of scarcity are relevant to health care in this speech.

Economics is also a behavioral science that is, it is about what impact financial incentives might have on individuals and organizations and how to tailor those incentives to get the most efficient allocation of those scarce resources. In this talk I will also discuss economic incentives on providers.

As you have been told, my original training was in economics and that foundation, the way of thinking that is instilled in economists, influences me in my day-to-day work and approaches. Concepts such as analysis of decisions at the margin and opportunity cost, for example, are in almost daily use in my work.

The application of economics to health care requires considerations that go well beyond those that apply to the normal market place. Economists have long recognized that the ordinary rules of economics have to be tempered in their application to health care.

In the jargon of economics, health care is characterized by market failure. There are five key reasons why markets might fail in allocating some health goods and services. First, markets assume that the buyers and sellers have perfect information. This is clearly not so, and providers in the health sector, almost by definition, have a greater level of information than consumers because of the providers’ training or expertise. This ‘information asymmetry’ means that consumers most often have to rely on providers to advise them about what health care they ‘need’. Some producers may withhold information about the characteristics of their products, so consumers are not able to weigh up the advice they are being given, and thus make a fully informed choice when purchasing the product.

A second assumption of markets that is often violated in the health sector relates to ‘externalities’. The operation of markets assumes that the costs and benefits of both production and consumption fall in the same place. For example, policies to reduce the prevalence of passive smoking are designed to ensure that smokers do not cause costs of smoking to fall on other consumers.

A third situation that leads to markets being an inappropriate way of allocating health resources is associated with the inherent characteristics of some health care goods. In particular, some aspects of health care (such as provision of medical care) are regarded as ‘merit goods’, that is, they are considered to be ‘meritorious’ so that

society benefits by provision over and above the benefit which that would be ordinarily provided in the market. Thus members of a society benefit from seeing that other members have adequate access to medical care. Societies may judge various components of the health care system differentially in terms of having characteristics of 'merit goods'. In Canada, this plays out in terms of the Canada Health Act provisions: there is very strong support for government intervention in ensuring that hospital and medical services are available to all consumers, but there is not such a strong consensus that routine dental care ought to be freely available, and hence one can assume that dentistry is not yet perceived as having the characteristics of a 'merit good'.

Fourth, economics identifies certain goods as being 'public goods'. Markets assume that goods allocated in the market have two characteristics: rivalness and excludability. The assumption of rivalness means that if a consumer consumes a good, it is not available to be consumed by another person. Excludability means that it is possible to exclude consumers from consumption of a particular product. Some aspects of health care, especially public health, do not exhibit these characteristics. The most obvious is the consumption of unpolluted air, as consumption of air by one person does not stop another person consuming it, and similarly, it is almost impossible to exclude anyone from consumption of air. Other examples may be provision of health information on billboards. The absence of excludability or rivalness means that there is no effective mechanism for a market to operate in these areas.

Finally, markets assume that there are many buyers and many sellers and that there are no imperfections on either the supply or the demand side. But competition does not operate perfectly in the health care market. For example, there are barriers to entry to many of the professions in the form of long training requirements. To the extent that free competition among potential suppliers of health care is not operating, the benefit of market allocations will not accrue.

Not every element of the health sector is characterised by these examples of market failure. Government intervention in the health market can be justified for some segments of the health system on the basis of different sources of market failure. Further, economic efficiency is not the only ground for government intervention, and pursuit of equity may require government intervention.

Market failure doesn't negate market principles, it just makes the application of economics to health care policy making more interesting. The work of one of this year's Nobel Laureates in Economics, Oliver Williamson, is of particular relevance in health care. Building on the work of another Laureate, Ronald Coase, Williamson advanced transaction cost economics or institutional economics, which amongst other contributions addressed the question of when might markets be the best way of allocating resources and when might hierarchical decision making and resource allocation be appropriate. He pointed to attributes of a particular market such as

whether the products can be well defined, whether there were multiple transactions and so on in his theory. Some health care “products” can be described in a way which would allow a market to work, but this of course does not apply to all aspects and so hierarchies abound in health care as a way of managing the business.

In this speech though, I want to highlight particular aspects of health care and of the challenge of allocating scarce resources. In health economics we identify three sorts of efficiency which are important to pursue: allocative, technical and dynamic efficiency. In brief technical efficiency can be defined as efficiency in production; normally operationalised as minimizing inputs, such as costs, divided by outputs (for example patients treated). Dynamic efficiency is the extent to which a system is able to adapt to change. Allocative efficiency can be defined as ensuring that there is an optimum allocation of resources so that the marginal dollar spent on any program yields the same level of marginal benefit as the last dollar spent in any other program.

Allocative efficiency thus involves a focus on outcomes (such as improved quality of life) relative to inputs. A simple decomposition shows that allocative efficiency (inputs per outcome) incorporates technical efficiency (inputs per output) and moves beyond it to incorporate a focus on effectiveness (outputs per outcome). Improving allocative efficiency (reducing inputs per outcome or increasing outcomes per input) can thus be achieved by improving technical efficiency (reducing inputs per output) or improving effectiveness (reducing outputs needed to achieve a given outcome or increasing outcomes for each output).

Health economics, of course, is not only concerned with the efficient allocation of resources. As John Stuart Mill pointed out, the market has two roles: allocating resources and distributing income (or wealth). Markets may be efficient in the former task but need to be tempered in the latter. In health care we particularly need to take into account the impact on equity of our decisions. Although I will not address equity issues in this speech, we all know that the incidence of ill health is unevenly distributed in our society, with the old, the poor and aboriginal communities facing greater health needs relative to the average person. Allocation decisions must also take into account the incidence of costs and benefits and how they contribute to ensuring equity of health care access and outcomes.

But to return to the allocation decision, as I have argued we cannot achieve allocative efficiency in health care without first achieving technical efficiency. Williamson’s contribution that I referred to earlier, immediately highlights the fact that this can only be achieved if we can describe the products of health care. In some areas this is easy to do.

Developments over the last 30 years, for example, have advanced the science of how to describe hospital care. A way of standardising for hospital ‘casemix’, or the

differences between patients with more or less complex conditions, is therefore required so that hospitals can be held accountable for efficiency variations in how they treat similar patients. One of the key advances in health economics and health services research over the last few decades has been the development of Diagnosis Related Groups (DRGs) called in Canada, Case Mix Groups (CMGs). DRGs and CMGs are ways of describing the inpatient activity of hospitals. Because of their design characteristics, in particular resource homogeneity (patients in the same DRG are expected to consume similar amounts of resources), DRGs can be used to standardise for differences in the casemix of hospitals to allow comparisons of hospital efficiency and for payment purposes.

Under 'casemix funding' or activity based funding as we are calling it here in Alberta, Alberta Health Services corporately would assume the risk for cost variations caused by variations in the number and type of patients treated, by setting differential prices for different types of patients and allowing budgets to vary somewhat with volume of patients treated. Each hospital or other funded entity therefore becomes more clearly accountable for variation in the efficiency of the services it provides. Hospital payment should include incentives on hospital management to provide appropriate care efficiently. Hospitals should assume responsibility for the number of days of stay and number of services provided (pathology tests, nursing interventions), as well as the costs of each day of stay and of each service.

Similar arguments apply to seniors' care, but with different approaches to defining activity. Once it becomes possible to identify the services that a hospital or a seniors' facility supplies, it immediately begs the question as to whether you should use these metrics to pay for those services. Funding on the basis of product descriptors does not equate to privatization or turning health care over to the market "red in tooth and claw", but rather it can be about an attempt to use market-like discipline in hierarchical decision making. This approach can be described as creating a 'quasi-market'.

So turning to a specific application, nursing homes. At present in Alberta, nursing homes across the province are funded on a variety of bases. Essentially each of the previous regions developed different ways of paying for the capital costs of nursing homes, different ways of paying operating costs and different effective prices for a day of stay. Until a few years ago funding for nursing homes varied in accordance with the acuity of the residents of the nursing home, but this is not currently the case.

The same issues apply for other types of seniors accommodation such as designated assisted living. Again the funding arrangements vary across the province, the capital funding differs, and the amount that residents might contribute to their costs of accommodation and food etc. also varies. This is clearly inequitable to both providers and consumers.

Assuming we can describe the acuity of a resident of a nursing home adequately, is it not reasonable that proprietors of nursing homes get reimbursed in line with the types of residents they are caring for? Or phrased another way, if it is not reasonable to have proprietors' remuneration vary in line with the acuity of the resident, what would be a rational basis for funding?

There are limited numbers of options for funding nursing homes: history, rhetoric, politics, or, the method I favour, something based on the needs of the residents measured by their acuity. In order to fund nursing homes based on the needs of the residents, as Williamson pointed out, you need to have a way of describing that product. Here we are in luck. There has been considerable work done, mainly out of University of Michigan Institute of Gerontology, to develop internationally accepted methods of measuring the dependency of nursing home residents, using a tool known as the Resident Assessment Instrument and, from that instrument, clustering the characteristics of the residents into 30 or so clusters which are clinically meaningful and yet represent groups of residents who are homogeneous in terms of expected resource consumption. These groups can then be used as a method of reimbursement. This approach is known as activity-based, service based or case mix funding. So under this approach the nursing home would get paid on the basis of its activity or rather the acuity of the residents of the nursing home.

Alberta Health Services has indicated its intention to move towards activity based funding for nursing homes commencing at the start of the next financial year, 1 April 2010. The design of the activity based funding arrangement is not yet complete, and it will require a transition period as we move from the old funding arrangement to the new.

We are considering implementing activity based funding for designated assisted living commencing 1 April 2011 and the same sort of timeframe for hospitals and emergency medical services. As those timeframes are further into the future, the details of how we will approach that and the choices that need to be made in this funding design, are still under consideration.

Activity-based funding in hospitals is somewhat more complex than for nursing homes, in part because hospitals are themselves more complex than nursing homes with a broader range of activities that need to be incorporated in activity-based funding. So with hospitals, for example, one needs to identify and fund appropriately a heterogeneous range of "products": teaching, research, outpatients and inpatients.

Activity-based funding thus helps to ensure the technical efficiency of funded services, that is there would be a financial incentive on the managers and proprietors to ensure that their costs are within the bounds of the funding envelope.

Implementation of activity based funding is not simple, of course, because you need to ensure that the things that are not able to be measured easily, such as the quality of care, are protected and here again in the case of nursing homes the work of the University of Michigan group has focused on ways in which one can measure quality in nursing homes.

But the goal of economics is not simply technical efficiency.

Allocation of scarce resources also should pursue allocative efficiency, that is that we are getting the best health care outcome for our financial investment. Merely producing more and more operations or accommodating more and more people in nursing homes does not necessarily mean we are getting the best health care outcome.

Seniors' accommodation in Alberta has essentially focused on one type of accommodation, paradoxically the one involving the highest dependency, nursing homes. This means that there is a big step between living at home and living in a nursing home rather than intermediate steps such as designated assisted living. The same, incidentally, is true in mental health care – we have a much more bed-based system in Alberta than would be the norm elsewhere. But back to seniors' care, our policy is to expand the choices available to Alberta's seniors so that when they need to leave home they can be accommodated in a facility which provides the least restriction on their independence rather than the most, if that is the care that is suitable for them. Accommodating people in a facility which involves higher restrictions on their independence involves a welfare loss and is thus not consistent with allocative efficiency.

Allocative efficiency requires us to think about the right mix of investments in the health care system. Take orthopedic services for example, is it better to expand our investments in operating rooms and hospital beds to accommodate people who fall over and break their hip or is it better to invest in prevention to reduce the incidence of falls? The same trade offs occur in a number of other areas.

So what we need to do is put in place mechanisms which would promote allocative efficiency in the same way that activity based funding promotes technical efficiency. Alberta is well placed to do this and, for example, already has a basis for evaluating new technologies so we can assess whether the cost of the new technology is worthwhile in terms of the benefits that might be gained. This technology assessment process is one of the necessary pieces of infrastructure to promote allocative efficiency, but it is not sufficient.

Alberta Health Services is also creating “clinical networks”: multi-disciplinary groups of clinicians who will come together to guide and provide advice on the development

of the relevant area. Clinical networks are proposed to be established initially in Cardiac, Pulmonary, Stroke, Cancer, Mental Health, Bone and Joint, Surgery, Emergency and ICU. Some of these clinical networks will be able to address the question of allocative efficiency in their area. As part of any planning in orthopedic services for example, what should we be doing about prevention? The same is true in other areas.

Economics has a lot to offer here and in particular has developed a technique known as program budgeting and marginal analysis which brings to health care the science of economics, in terms of looking at the incremental benefit that accrues from an incremental investment. It is my hope that as the clinical networks become better established, they will be able to turn their mind to these important issues of allocative efficiency, perhaps using formal economic techniques. Some of you in this room may be able to help here through provision of your skills to assist this process.

In conclusion, what I have hoped to show today is that economics has a lot to contribute to decision making in the health care system. At present we face a number of budget challenges in the province as a whole, as well as in the health sector in particular. It thus behooves us to ensure that when we spend the scarce resources allocated to us, we spend them in the best way possible to get the best benefit for Albertans. First, we need to ensure that what we do, we do efficiently. Doing the thing right, as a summary.

But more importantly, we need to ensure that as the province returns to financial health and as we look to make further investments in the health care sector, we ensure that those investments are the most appropriate ones, that we are getting the best health outcome for the investment that we make. Doing the right thing if you will. Similar consideration, ought also to apply as we make the tough budget decisions we are currently facing. And it is here that economics also has a lot to offer.

Thus, the more we think economically in health care, the better will be the health outcomes of Albertans.

Thank you.