

Why budgets fail

The simple answer is that the mathematical reality behind the calculation of financial risk is incompatible with current financial management in health care. Shall I explain? Your income is set by a capitated formula; call it an insurance premium paid to you for the care of your patients. Your costs are driven by the volatility associated with health care demand. How volatile is health care demand? Unfortunately it is far higher than you have ever been told. This intrinsic volatility (i.e. not under your direct control) is determined by three forces:

1. Common cause variation which arises from random variation around the average (described by something called Poisson statistics). Poisson distributions are skewed with a tail higher than the average. For example, if the average is 1 heart transplant per year you could pay for anywhere between 0 and 9 heart transplants in a single year. If we assume 200 GP commissioning groups in England (around 300,000 head) there are only 83 HRG where the combined elective and emergency admissions are greater than 200 per annum and 120 HRG where the activity is less than 10. The reality of health care is that we are on the whole dealing with, in statistical terms, what are small number events. Multiplying relatively small number events by relatively large prices leads to high financial risk. Studies show that anything costing more than £3,000 to £5,000 represents a high financial risk event (see link below for a full list of references and discussion papers in this vital area of health care management). Increasing size confers protection against the effects of statistical-based risk. Figure 1 gives a good approximation to the level of risk experienced by health care budgets for acute care when there is a mix of low to high cost events within the budget.

Figure 1: Simple chance-based risk and budget size for acute inpatient care



Footnote: Data is a compilation of studies conducted by Dr Rod Jones.

2. Special cause variation due to the high levels of geographic variability in:
 - the weather (shifts between weather types, temperature, air pressure, dew point, precipitation, air quality, noise levels, etc) which all influence the likelihood of a wide range of conditions including heart attacks, etc) and
 - the geographic granularity behind infectious outbreaks (influenza, norovirus, respiratory syncytial virus, etc).
 - The risk associated with the above two factors is around 2- to 3-times higher than that arising from simple statistical variation. Increasing size does not confer protection against this source of financial risk.

3. Systematic bias in local costs due to:
 - imperfections within the HRG tariff which allow acute Trusts to count a variety of outpatient- and A&E-like events as an 'inpatient' and thereby reap the benefits of a higher price than the real cost;
 - differences in how the same admission gets coded in different ways arising from the natural diagnostic ambiguity associated with medicine & differences in the process of information capture and clinical coding at different acute sites
 - differences in the assumptions behind the capitation formula and the acute HRG tariff which lead to systematic higher- and lower-acute cost pressures for particular localities which depend mainly on age structure
 - different intervention thresholds for elective procedures
 - local environmental factors influencing health status (proximity to motorways, background radon levels, nuclear accidents such as at Windscale in West Cumbria, etc)

For the above reasons, the acute budget (especially that associated with emergency admissions) is subject to very high levels of volatility and this explains why those in primary care have to switch money between budgets in an apparently random way to get the entire budget to work.

Is the NHS managed in a way that is sensitive to this reality? Of course not! You get blamed, receive a cuff around the ear, and get admonished about being a 'rubbish' manager. A brown envelope (or a reorganisation) soon follows.

What needs to be done? Firstly, do not pretend you can run the business using fixed budgets. Apply process control methods to detect when budgets are drifting 'out of the ordinary' and most of all inform everyone ahead of time which budgets will be plundered first.

So while ring fencing money for improving public health is a good idea it has the serious disadvantage of leaving a smaller pool of money to cope with the intrinsic financial volatility, which is probably greater than the short-term ability to save money.

Do not try and dodge this issue as it is absolutely vital to running 'the business' of health care. If an important issue is not openly discussed and understood then it is easy to blame people for perceived 'failure' when things seem to be going wrong. For further background information go to:

<http://www.hcaf.biz/financialrisk.html>

For an additional series of articles discussing how the trends in emergency admission are acting to cause the appearance of cycles in cost pressures see:

<http://www.hcaf.biz/emergencyadmissions.html>

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