

Snakes, ladders, and spin

How to make a silk purse from a sow's ear—a comprehensive review of strategies to optimise data for corrupt managers and incompetent clinicians

David Pitches, Amanda Burls, Anne Fry-Smith

The introduction of performance league tables for UK surgeons and hospitals has forced them to learn how to present data in the best possible light. Though there is an urgent need for guidance, official guidelines on how to optimise performance data are lacking

Department of
Public Health and
Epidemiology,
University of
Birmingham,
Birmingham
B15 2TT2

David Pitches
specialist registrar
Amanda Burls
senior clinical lecturer
Anne Fry-Smith
information specialist

Correspondence to:
D Pitches
d.wpitches@
bham.ac.uk

BMJ 2003;327:1436–9

Surgeons' and hospitals' positions in league tables can make or break their reputations. They therefore need to learn how to present data in the best possible light. Although some may protest about "sexing up" poor performance data, "creative accounting" adds a positive spin. In contrast to the plethora of clinical guidelines, there is still no official advice on how to optimise performance data, and wide variations in practice persist. This review provides a timely, evidence based response to the urgent need for guidance.

Methods

We searched Medline for empirical examples of creative accounting (using the search terms "gaming", "mortality", "league table\$", "upcoding", "fraud\$", "quality", and "quality indicators, health care/") and identified 284 papers, of which we reviewed the most relevant for suitable examples. We also searched the web with Google using "examples hospital healthcare fiddling figures." We included anecdotes from personal experience.

Categories of creative accounting

In addition to fraudulent or biased research, which has been thoroughly reviewed elsewhere,¹ we identified three broad categories of creative accounting:

- Gaming of non-clinical performance data
- Fraudulent reimbursement claims
- Gaming of clinical data.

Manipulation of non-clinical performance targets

This is particularly important for managers when meeting so called P-45 targets—an expression used by Tony Wright MP while examining Sir Nigel Crisp for the House of Commons Select Committee on Public Administration² and meaning targets for which failure to meet can result in redundancy (in Britain the P-45 is the tax form people receive when leaving employment). A House of Commons investigation in 2002 uncovered strategies to bring waiting times and numbers of patients waiting for treatment within national targets.³ Records were altered, patients were



Various gaming strategies can help to disguise less than perfect clinical performance

inappropriately suspended from waiting lists, and some hospitals did not report patients waiting longer than government targets. Though such techniques are readily exposed, one in 10 healthcare managers admitted to "fiddling figures" in a recent survey.⁴

More intelligent managers inquire when patients intend to go on holiday and then offer an appointment during this period. Few patients cancel their holiday for medical reasons, preferring to postpone their appointment. Since the patients initiate these delays, their wait is no longer recorded. A related strategy offers patients non-existent appointments at impossibly short notice to attend; cancellation shifts them to the back of another list whose waiting times are not officially recorded. If you identify patients waiting longer than the permitted limit, you could arrange admission when their consultant is on holiday; then apologise profusely for the cancellation of their operation and offer a new date for surgery in the distant future.⁵

In Scotland the waiting lists record only patients receiving inpatient care. To reduce the numbers of patients on published waiting lists you should ensure wherever possible that patients already offered inpatient treatment get treated as outpatients.⁶

If you cannot place a patient on an unpublished waiting list, use the date you periodically update the waiting list, rather than the date of referral, as the starting point. This can knock several weeks off apparent waiting time.⁶ Variations include not placing patients on the waiting list until the month of their appointment or failing to reinstate previously suspended patients.

We applaud advance warning of assessment, as this allows managers time to ensure that systems are in place to meet targets. We particularly commend the Department of Health for choosing one week each year to record waiting times in accident and emergency departments.⁷ Cancelling unnecessary operations and keeping extra beds open that week ensures your hospital meets the national target (90% of patients seen by a doctor within four hours of arrival) at least once a year. A BMA survey in 2003 found that 72% of accident and emergency departments introduced exceptional arrangements during the audit week, including hiring agency staff, introducing double shifts, and cancelling routine operations.⁸ This strategy proved highly effective at meeting government targets: during the audit week 85% of hospital trusts met the target, but the following week only 63% still met target waiting times.

Another way to shorten waiting times in accident and emergency departments is to refuse to book in ambulance patients until your clinical staff are ready to assess them.⁵ Although patients are on hospital premises, you choose when to “start the clock,” and until then the patients officially remain under the care of paramedics (jeopardising their performance targets instead of yours).

Remember to “stop the clock” once you have transferred patients from trolley to bed since they have now been admitted (even if they remain in the department for the next two days). Once patients have seen a doctor, discharge them from the computer rather than wait for their transport to arrive and take them home.³ If your hospital is full, simply remove the wheels of a trolley to transform it into a bed, and erect a partition in the corridor to create an “observation ward.”⁹

Academic units are not immune from the need to enhance reputations by undertaking and publishing trials. If you cannot be bothered to do the research in the first place you may be able to persuade a journal to publish a trial under your name that has been conducted elsewhere and published in another journal. For example, it is intriguing that two randomised clinical trials comparing surgical techniques should include the same number of patients and find identical results, despite obviously being carried out in different hospitals on different continents.^{10 11}

Fraudulent reimbursement claims

You should be aware of the various types of fraud described and prohibited by law in the United States and elsewhere. The False Claims Act prohibits misrepresenting the level of care offered or billing for services not rendered. The Anti-Kickback statute prohibits inducements with the intent to influence the purchase of healthcare services. Self referrals, in which physicians refer patients to facilities where they have a financial interest, are outlawed.¹²

The prospective payment system in the United States, in which healthcare costs are paid prospectively, based on a standard sum for well defined medical conditions (the diagnosis-related group, DRG) has created a golden opportunity to maximise profits without extra work. When classifying your patient's illness, always “upcode” into the highest treatment category possible. For example, never dismiss a greenstick fracture as a simple fracture—inspect the x ray for tiny shards of bone. That way you can upgrade your patient's break from a simple to a compound fracture and claim more money from the insurance company. “DRG creep” is a well recognised means of boosting hospital income by obtaining more reimbursement than would otherwise be due.¹³

Another reason for upcoding your patients' illnesses is to manipulate reimbursement rules for your patients' benefit. A recent national survey of US doctors showed 39% had used such tactics—including exaggerating symptoms, changing billing diagnoses, or reporting signs or symptoms that patients did not have—to secure additional services felt to be clinically necessary.¹⁴ Medical fraud is estimated to account for 10% of total US spending on health care (some \$120bn) in 2001.¹⁵

Reducing mortality figures—gaming and clinical performance data

Many clinicians worry about public release of clinical performance data, as above average mortality figures can unfairly damage your reputation. In reality half of all hospitals have above average (technically, above median) mortality, and various gaming strategies can help to disguise less than perfect clinical performance.

Upcoding of morbidities

“Coding creep” refers to the excessive or inappropriate coding of those risk factors that are required for calculating risk adjusted mortality. A slight decline in observed mortality from coronary artery bypass graft surgery in New York in the early 1990s was accompanied by an unexpected rise in the (calculated) expected mortality. However, 66% of the increase in predicted mortality was attributed to an increase in the severity of recorded risk factors.¹⁶ Between 1989 and 1991, the proportion of patients recorded preoperatively as having chronic obstructive pulmonary disease increased from 6.9% to 17.4% (at one hospital this increased from 1.8% to 51.9%). If a major risk factor is recorded in a higher proportion of patients before surgery the unit's predicted mortality will increase, as will the likelihood that the unit's actual mortality falls within or below the expected range.

Clearly smokers have an increased risk of dying during surgery, so any patients who deny smoking when their history is taken should be questioned further. Perhaps they stopped recently, they might enjoy a cigarette on social occasions, or they may share a house or workplace with a smoker—in which case record them as being a smoker. Similarly, even a faint wheeze in any patient over 40 years old who has ever been exposed to cigarette smoke could signify early chronic obstructive pulmonary disease, and patients with this condition have a higher risk of dying. By placing as many patients as possible in a high risk category, your figures for risk adjusted mortality will be reduced.



"Accurate hospital statistics are much more rare than is generally imagined" (Florence Nightingale, 1863)

Selection of risk adjustment procedure

When calculating risk adjusted mortality, you can enter a bewildering number of risk factors into multivariate equations, and many proprietary risk adjustment formulas are available. Rankings of individual hospitals vary widely depending on how you adjust for disease severity, and in principle your hospital could "shop around" for whichever adjustment measure shows it in the best possible light.¹⁷

Transfer of patients

The first person to produce a "league table" of hospital mortality was Florence Nightingale. Her attempts to compare mortality between different hospitals were widely criticised, not least because she accused certain hospitals of discharging hopelessly ill patients back home, and she conceded that accurate statistics were difficult to obtain: "Accurate hospital statistics are much more rare than is generally imagined, and at the best they only give the mortality which has taken place in the hospital, and take no cognizance of those cases which are discharged in a hopeless condition, to die immediately afterwards, a practice which is followed to a much greater extent by some hospitals than by others."¹⁸

Many hospital databases record only those deaths that occur in the hospital of operation, so deaths in continuing care facilities may be overlooked when calculating mortality. Conversely, if your hospital seems to have a particularly high mortality perhaps it is admitting more terminally ill patients. Consider opening an off-site hospice in order to discharge the sickest patients to die there.¹⁹

Change of operative class

The only major cardiac surgical procedure for which mortality data have been publicly reported in the United States is coronary artery bypass grafting (CABG). When confronted with a high risk patient, or if things start going wrong during an operation, just convert the procedure to an unreported operation.²⁰ Simply adding a few extra stitches can convert a conventional CABG to a CABG plus mitral valve repair. The apparent mortality in your CABG series falls, albeit at the expense of more deaths from the (unreported) combined procedure.

You could even invent an entirely new condition by means of computer enhanced images and allocate your highest risk patients to that category (so called pixel-byte syndrome²¹). This could be of particular interest to doctors who are approaching retirement but who have not yet been credited with an eponymous syndrome.

Refusing to operate

Despite reassurances that risk adjustment techniques do not penalise surgeons who operate on high risk patients, an anonymous survey of all cardiac surgeons in New York state found that 62% had refused to operate on at least one high risk CABG patient, mainly because of fear of public reporting.²²

Cream skimming

It is in the interests of health insurance plans to recruit only the most profitable patients ("cream skimming").²³ One US health insurance company recruited members at a dinner dance, realising that elderly people who are fit enough to dance are healthy. Clinicians benefit too from pruning high risk patients from their lists: for example, doctors who are high outliers can dramatically improve their profile simply by removing their three patients with the highest haemoglobin A_{1c} levels.²⁴

Reporting risks

Always report absolute rather than relative risks.^{25 26} If your hospital's mortality figure is 6% and the average rate is 4%, you should point out that the absolute death rate is only 2% higher than average. If people insist on reporting your unit as having a 50% higher mortality than average, you can retort that the average is actually only 33% lower.

Discussion

One feature is common to all examples hitherto discussed—the individuals or institutions that used these techniques were discovered. Further research is needed to uncover the truly compelling examples of creative accounting. Future dishonest researchers, incompetent surgeons, and corrupt managers will have to devise more devious ways to avoid falling foul of the 11th commandment, "Thou shalt not get caught."

On a serious note, however, despite claims of widespread gaming and manipulation, there are comparatively few documented examples. This review highlights some dilemmas faced by those under pressure to ensure that healthcare providers conform to performance targets. These include competing targets, in which achieving success in one area comes at the expense of failing another. We also demonstrate the consequences of gaming, especially in sensitive targets such as mortality figures—and where gaming exists, the entire credibility of targets is undermined.

We are profoundly grateful to those anonymous health professionals whose anecdotes were unwittingly provided while under the influence of varying quantities of ethanol. We cannot be held responsible for any consequences that may result from attempting to use any of the techniques discussed in this review.

Funding: If only.

Competing interests: The need to enhance the publications section of our curricula vitae.

Summary points

Performance managed healthcare settings encourage gaming and “creative accounting” of data

Creative accounting is driven by three dominant factors—attracting additional resources, meeting performance related targets, and improving position in league tables

Additional resources may be obtained through fraudulent claims, inducements, self referrals, and “DRG creep”

The non-clinical performance targets that lend themselves most readily to creative accounting are hospital waiting times

Position in clinical league tables may be enhanced by “coding creep,” choice of risk adjustment method, transfer of patients, change of operating class, denial of treatment, and “cream skinning” of healthier patients

- Farthing M, Lock S, Wells F. *Fraud and misconduct in biomedical research*. 3rd ed. London: BMJ Books, 2001.
- United Kingdom Parliament. House of Commons Select Committee on Public Administration. 30 January 2003: 942. www.parliament.the-stationery-office.co.uk/pa/cm200203/cmselect/cmpubadm/uc62-ix/uc6202.htm (accessed 15 Aug 2003).
- House of Commons Committee of Public Accounts. *Inappropriate adjustments to NHS waiting lists. Forty-sixth report of session 2001-2002*. London: Stationery Office, 2002. www.publications.parliament.uk/pa/cm200102/cmselect/cmpubacc/517/517.pdf (accessed 10 Dec 2003).
- BBC News. NHS managers 'fiddle figures.' 7 October 2002. <http://news.bbc.co.uk/1/hi/health/2299291.stm> (accessed 15 Aug 2003).
- BBC News. Transcript of BBC1 programme *Panorama: Fiddling the figures*. 29 June 2003. <http://news.bbc.co.uk/1/hi/shared/spl/hi/programmes/panorama/transcripts/fiddlingthefigures.txt> (accessed 15 Aug 2003).
- Auditor General, Audit Scotland. *Review of the management of waiting lists in Scotland*. Edinburgh: Auditor General, 2002. www.audit-scotland.gov.uk/publications/pdf/2002/02p03ag.pdf (accessed 10 Dec 2003).
- Revill J. Hospitals faking cuts in casualty wait times—operations axed to rig targets, documents reveal. *Observer*, 11 May 2003. <http://observer.guardian.co.uk/nhs/story/0,1480,953395,00.html> (accessed 15 Aug 2003).
- BMA. *BMA survey of A&E waiting times*. May 2003. [www.bma.org.uk/apnsf/Content/AESurvey/\\$file/AESurvey.pdf](http://www.bma.org.uk/apnsf/Content/AESurvey/$file/AESurvey.pdf) (accessed 15 Aug 2003).
- Gulland A. NHS staff cheat to hit government targets, MPs say [News]. *BMJ* 2003;327:179.
- Mehigan BJ, Monson JRT, Hartley JE. Stapling procedure for haemorrhoids versus Milligan-Morgan haemorrhoidectomy: randomised controlled trial. *Lancet* 2000;355:782-5.
- Helmy MA. Stapling procedure for hemorrhoids versus conventional haemorrhoidectomy. *J Egypt Soc Parasitol* 2000;30:951-8.
- Kalb PE. Health care fraud and abuse. *JAMA* 1999;282:1183-8.
- Simboug DW. DRG creep: a new hospital-acquired disease. *N Engl J Med* 1981;304:1602-4.
- Wynia MK, Cummins DS, VanGeest JB, Wilson IB. Physician manipulation of reimbursement rules for patients: between a rock and a hard place. *JAMA* 2000;283:1858-65.
- Hyman DA. Health care fraud and abuse: market change, social norms, and the trust “reposed on the workmen.” *J Legal Studies* 2001;30:531-67.
- Green J, Wintfeld N. Report cards on cardiac surgeons: assessing New York state's approach. *N Engl J Med* 1995;332:1229-32.
- Iezzoni LI. The risks of risk adjustment. *JAMA* 1997;278:1600-7.
- Nightingale F. *Notes on hospitals*. 3rd ed. London: Longman, 1863.
- BBC News. Stoke and Staffordshire local news. Hospital blames 'lack of hospice care.' 15 October 2002. www.bbc.co.uk/stoke/news/2002/10/121002.shtml (accessed 15 Aug 2003).
- Jones RH. In search of the optimal surgical mortality. *Circulation* 1989;79(6 Pt 2):1132-6.
- Cutrone M, Grimalt R. The true and the false: pixel-byte syndrome. *Pediatr Dermatol* 2001;18:523-6.
- Burack JH, Impellizzeri P, Homel P, Cunningham JN Jr. Public reporting of surgical mortality: a survey of New York State cardiothoracic surgeons. *Ann Thorac Surg* 1999;68:1195-200.
- World Bank Institute. Flagship program on health sector reform and sustainable financing. Glossary to distance learning module 1—Basics of health economics. www.worldbank.org/wbi/healthflagship/dl_glossary.html (accessed 15 Aug 2003).
- Hofer TP, Hayward RA, Greenfield S, Wagner EH, Kaplan SH, Manning WG. The unreliability of individual physician “report cards” for assessing the costs and quality of care of a chronic disease. *JAMA* 1999;281:2098-105.
- Bucher HC, Weinbacher M, Gyr K. Influence of method of reporting study results on decision of physicians to prescribe drugs to lower cholesterol concentration. *BMJ* 1994;309:761-4.
- Fahy T, Griffiths S, Peters TJ. Evidence based purchasing: understanding results of clinical trials and systematic reviews. *BMJ* 1995;311:1056-9.

Get Peered!

Tom Jefferson, Karen Shashok, Elizabeth Wager

We present a new board game for *BMJ* readers who would like to become members of the House of Lords the hard way: by climbing the greasy pole of science. As it is Christmas, you may enjoy playing the game with family and friends huddled round a roaring log fire in the certainty that the situations described in each square are completely imaginary.

All you will need is a copy of the board, dice, and your own tokens. Beer bottle tops will do nicely, if you can't bring yourself to use your Royal College cuff links or the earrings you bought on your most recent drug company trip to Monte Carlo. You will also need your Big Pharma Company fake gold pen and headed notepaper to keep a tally of the scores.

Contributors: The idea for Get Peered! surfaced in an email from KS to TJ during the 2002-3 Christmas season. TJ and EW drafted the rules and the content of the squares, with additional contributions from KS. Sadly, none of the authors could think of a suitably eminent guest author to join the line-up, and all three authors are too poor to employ a ghost writer; however,

all three had more fun developing the game than a yacht full of grant reviewers for NICE at a drinks party in the Seychelles. Stefano Jefferson devised an early version of the board, which was then road tested by technical editors Margaret Cooter, Julia Thompson, Richard Hurley, Karl Sharrock, Barbara Squire, and Greg Cotton and brought to life by Malcolm Willett.

Sources of funding: TJ, KS, and EW were supported by benevolent funds from the FLCPR Foundation, a fictitious NGO for freelancers concerned about peer review.

Competing interests: TJ co-edited the book *Peer Review in Health Sciences* and co-authored the book *How to Survive Peer Review*. EW published two chapters in the book *Peer Review in Health Sciences* and co-authored the book *How to Survive Peer Review*. Drawing attention to peer review could enhance sales of both books and benefit the authors financially. EW also runs courses about peer review; Get Peered might either make such training redundant or suggest to potential customers that she doesn't take the subject seriously enough. KS is a science publishing consultant, so drawing attention to peer review could attract potential clients and benefit her financially—although it could also scare them away. All authors are active peer reviewers and have published articles in peer reviewed journals.

Via Adige 28a,
00061 Anguillara
Sabazia, Italy
Tom Jefferson
*peer reviewer and
author (executioner
and victim)*

C Compositor Ruiz
Aznar 12, 2-A,
18008 Granada,
Spain

Karen Shashok
*peer reviewer and
author*

Sideview, 19 Station
Road, Princes
Risborough
HP27 9DE
Elizabeth Wager
*peer reviewer and
author*

BMJ 2003;327:1439-41