OTHER JOURNALS IN BRIEF

A selection of abstracts of clinically relevant papers from other journals.
The abstracts on this page have been chosen and edited by John R. Radford.

GAME THEORY

Game theory and the surgeon

Marco AP. *Bulletin* 2015; **97:** 335-337

But can a player '…profit by unilaterally deviating from their strategy'?

The author, a Professor of Anesthesiology from Wright State University, begins his essay by giving an overview of game theory. How should a committed carnivore 'game' when they dine with a vegan? If the meat eater is adamant on eating at a restaurant that serves only, for example 1.2kg Tomahawk steaks, 'instead of insisting on the big win', the outcome for both carnivore and vegan is optimised 'cooperative behaviour' by choosing an eating house that serves meat as well as black-bean burgers.

This paper then describes four positions in game theory and how they can be applied to health care. The first is the 'prisoner's dilemma'; in this described version, two prisoners are arrested for a petty felony, but are suspected of a more serious crime. They are kept in solitary confinement. Although the police have evidence only for the minor offense, if each prisoner keeps silent, they face only a short jail sentence. Instead they 'game'/'defect' and testify against the other. In return they expect a lighter sentence. But as each attests against the other, both end up with a harsher sentence. When applied to a health care setting, if a surgeon wants to add a patient to their list, the surgeon may 'defect' by misleading the team about the time needed to complete the operation. As a consequence the team may then disengage. On the other hand if the operating team 'defects', this may result in disciplinary action against them. If both surgeon and operating team 'defect', the outcomes for all, and most importantly the patient, are detrimental.

The second example is the 'tragedy of the commons'. Just as there are short-term gains for a herder when sheep are added to their flock, then there are also gains for a health care team when they insist on additional equipment or more staff. But in the long term, the quality of the pastures become depleted. Health care resources are finite; the unit is closed or strategic development for health care is compromised.

The third position explores 'cheating'; in small groups, 'reputation balances the urge to cheat, but as players become more numerous, reputation is less important and the prospective gain from cheating becomes larger'. This has parallels with the Mid Staffordshire NHS Foundation Trust debacle.

Asymmetrical information and how this plays into game theory, is particularly relevant for a dentist as some of their activities are 'discretionary surgical procedures', such as dental cosmesis. As an example, 'Top-notch surgeons might be willing to perform a procedure for $12,000, whereas a so-so surgeon would be willing to take $6,000.' But if the patient ('consumer') cannot discern between the outcome for a high- or low-quality surgeon, they will pay the lower price. As a consequence, fewer top-quality surgeons will carry out the procedure and in the long term, fewer total providers. Asymmetrical information squeezes out high quality surgery and when considering products, those that are superior.

CLINICAL GESTALT

Instinct, intuition and surgical decision–making

Sutton PA, Hornby ST *et al. Bulletin* 2015; **97:** 345-347

'…surgeons should probably trust their instincts more than the systems in which they work…'.

The Tooke inquiry into modernising medical careers, made a distinction between the roles of a doctor and other members of the multidisciplinary team. The doctor is the 'handler of (clinical) uncertainty and ambiguity'. In this thought provoking essay, the authors suggest that instinct is an important tool in dealing with uncertainty. Instinct can arise from a desire to cooperate. Cooperation is a component of game theory. Instinct, however, can be distorted by 'confirmation bias' in that there is a tendency to interpret and recall information selectively, ignoring that which does not fit. Other neutralisers of instinct, are the often competing priorities of managing risk and patient expectations, new techniques and materials and legal redress and regulation. Then there is the ever burgeoning evidence-base guidelines and clinical checklists. The authors argue 'it is widely accepted that protocols exist for the guidance of the wise and the blind obedience of idiots'. Clinical gestalt, (gestalt – the 'whole is other than the sum of the parts, often incorrectly translated as 'greater') is a key skill expected of a doctor. It 'entails the active organisation of clinical perceptions into coherent constructs', cogent that these processes may lead to instinct .

SELF–DECEPTION

Better not look down…

Marsh H. *Bulletin* 2015; **97:** 339-342

The influence of cognitive bias on treatment errors.

With insight and remorse that is real, the author who is a neurosurgeon, but now retired from operating, recounts the care of three patients whose treatment went terribly wrong. In the care of the first patient, the 'framing effect' (avoid risk when a positive frame is presented but seek risk with a negative frame) by the patient's husband and the high opinion he admitted he had of himself ('optimism bias'), all contributed to a tragic outcome. For the second patient, he delegated an operation to a senior trainee because of the 'halo effect' ('positive feelings in one area cause ambiguous or neutral traits to be viewed positively'). Sadly there was severe haemorrhage from the saggital (sagittal) sinus and the patient died. In mitigation, the author explored the tension between the responsibility he had to that patient at that time, and the future responsibilities he had to patients cared for by that trainee. Thirdly, he recounts operating on the wrong side as a consequence of 'anchoring' (relying too heavily on the first piece of information given).