

# Low value care

*The problem and the opportunity  
- a cognitive perspective*

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# Low value care

- Use of an intervention where evidence suggests:
  - confers no or very little benefit on patients
  - risk of harm exceeds likely benefit
  - added costs of the intervention do not provide proportional added benefits
- Very few interventions are clearly of low value in most or all patients
- Many interventions are 'at the margin' where genuine uncertainty exists as to who will and will not benefit from them
- What constitutes low-value care lies in the eye of the beholder

» Scott, Duckett Med J Aust 2015

# Low value care

- Between 30% and 50% of trials which test established practices show little or no benefit in contradiction to prevailing assumptions
  - » Prasad et al. Arch Intern Med 2011
- Medical reversal—when a current practice is found to be no better than, or inferior to, a prior standard—is common and inconsistently translated into practice
  - » Prasad et al. Mayo Clin Proc 2013;88:790-798.
  - » Tatsioni et al JAMA 2007;298:2517-2526.
- Considerable geographic variation in use of procedures and outcomes unexplained by demographic differences
  - » ACQSHC Australian Atlas of Healthcare Variation 2016

# Low value care

- More aggressive case finding and intensive management are assumed to be good things
  - more use of healthcare services and higher costs
- More interventions do not automatically lead to better care and outcomes
- US studies found no relation between improvement in disease specific outcomes, physician satisfaction, or patient satisfaction and intensity (and cost) of healthcare
  - higher intensity areas had worse outcomes
    - Fisher et al Ann Intern Med 2003, 2004
- Nearly all treatments—medical or surgical—have their own risks and unintended consequences.

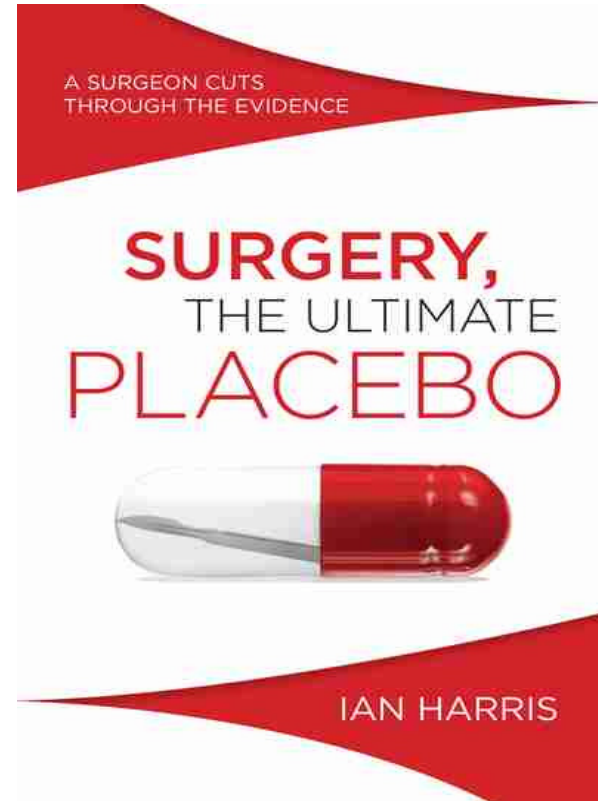
# Low value care

- HRT for prevention of CVD in postmenopausal women
- Tympanostomy tube insertion for persistent OM
- Vitamin D and calcium for prevention of fractures
- PCI for stable non-critical coronary artery disease
- Arthroscopic procedure for osteoarthritis of the knee
- Vertebroplasty of osteoporotic vertebral fractures
- Rosuvastatin treatment of hemodialysis patients
- Intensive glucose control in critically ill patients
- Revascularization for treatment of renal artery stenosis
- Intensive BP control in type 2 diabetes patients
- Early dialysis in end-stage renal failure
- Routine replacement of IV cannulae

# Low value care



Professor Ian Harris



# Low value care

- **Spinal fusion** for degenerative conditions in older patients
- **Stem cell injections** for knee osteoarthritis and very expensive
- **Tennis elbow surgery**
- **Appendectomy** for uncomplicated appendicitis
- **Knee arthroscopy** for uncomplicated osteoarthritis
- **Epidural steroid injections** for back pain or sciatica
- **Caesarean section**
- **Spinal cord stimulators** for chronic back pain

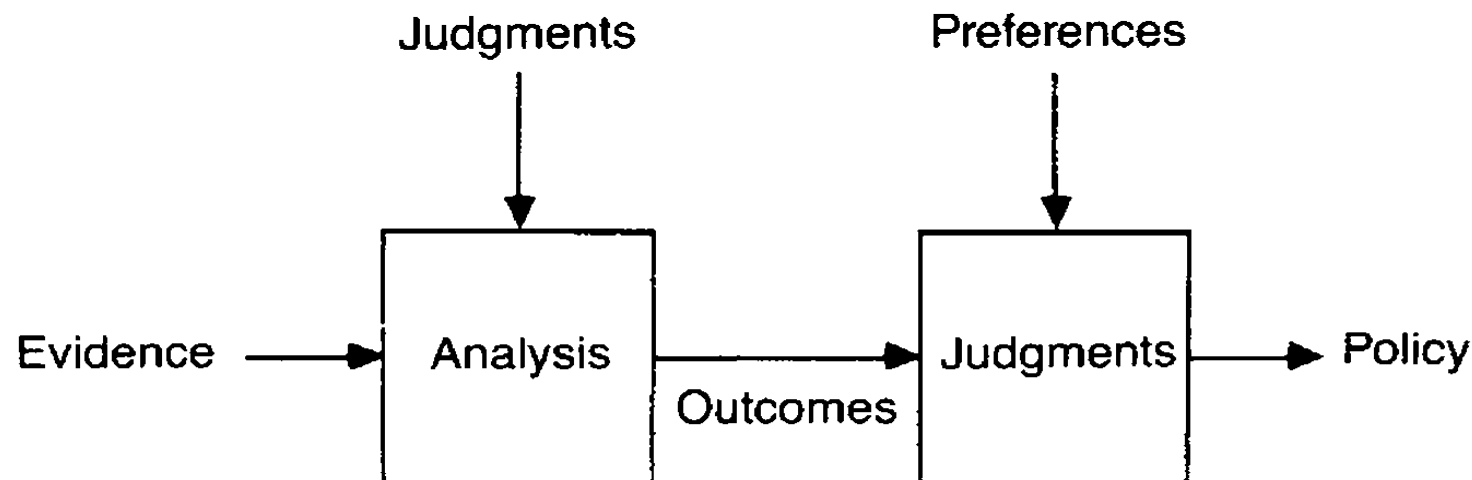
# Low value care

- "The problem is that doctors often (unknowingly) rely on biased evidence: what others have taught them, what is common practice, what appears to work, and on studies that fit with their beliefs"
- "The fear of having someone harmed from a missed opportunity is a strong and emotive driver of over-treatment. So is the belief that non-operative treatment equates with neglect, or no treatment."

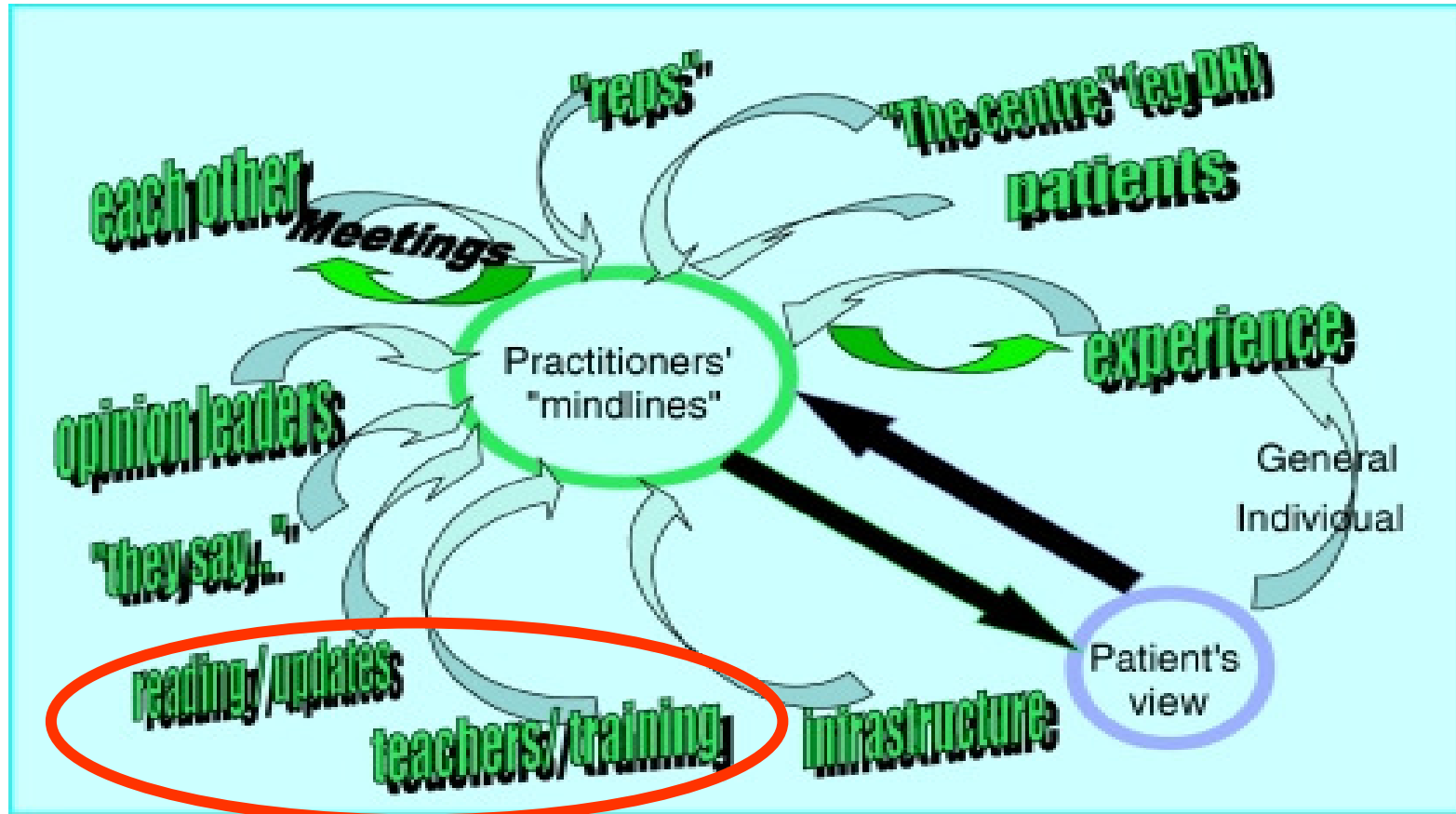


# Determinants of decision-making

- 2 critical steps for a decision
  - Scientific-focused analysis of evidence
  - Personal judgments, beliefs, preferences



# The role of 'mindlines'



Gabbay, le May Evidence based guidelines or collectively constructed "mindlines?" Ethnographic study of knowledge management in primary care. BMJ 2004;329(7473):1013

# System 1 and 2 decision-making

- System 1 processing: "intuitive, automatic, fast, frugal and effortless"
  - construction of mental maps and patterns, shortcuts and rules of thumb (heuristics), and "mindlines" (collectively reinforced, internalized tacit guidelines).
  - developed through experience and repetition, usually based on undergraduate teaching, brief written summaries, seeing what other people do, talking to local colleagues and personal experience.
- System 2 processing: careful, rational analysis and evaluation of all available evidence
  - Time-consuming, requires effort and skill
    - "A physician trained to do surgery or read a CT scan can no more be expected to research scores of articles, analyze experimental designs, adjust for biases, and perform calculations, than a statistician can be expected to remove an appendix"
- Data from a variety of environments demonstrates that human beings prefer to use System 1 processing whenever possible

# Cognitive determinants of decision-making

'Clinicians' perceptions of risks and benefits of medical interventions are influenced by selection biases in the patient they see .... [and cognitive biases in the way they think].'

'The processes required to remove established [but no longer effective] practices are not just those needed to initiate new [and effective practices] in reverse.'

# Cognitive dissonance

- Inability to reconcile new evidence with highly ingrained prior beliefs that both determine and are reinforced by routinised practice
  - *one believes so one does, and as one does, so one believes*
  - highly personal and internalised beliefs based on:
    - individual experience
    - interpretation of past research
    - exposure to views of respected peers
    - socialisation into norms (or culture) of a chosen specialty
  - what we believe (and want to believe) is tightly bound to the central human need to belong to, and seek affirmation within, a group that shares similar values and outlook
    - Groupthink (toeing the line, thinking inside the box, herd effect, bandwagon effect)
    - Social loafing (hiding in the crowd)
    - Group polarisation (taken to the extreme, hubris syndrome)
    - Escalation of commitment (throwing good money after bad or 'sunken costs fallacy')

# Cognitive dissonance

- When research supports strongly held beliefs, clinicians more readily accept the conclusions - despite major methodological flaws - and use them to reinforce current practice or in some cases add to current practice, even if the evidence is far from definitive
  - Confirmation bias
- When research runs counter to strongly held beliefs, even multiple studies involving patients representative of everyday practice may not prove persuasive
  - flaws in study designs (both real and imagined)
  - highly selected patients - limited applicability 'to my patients'
  - relevant outcomes not measured
    - COURAGE trial

# Cognitive dissonance

- Cognitive dissonance increases if a decision to accept harms of clinical interventions is not balanced with a belief that benefits of the interventions will be better than the outcome in the absence of such interventions
  - Strong advocacy for many screening tests for cancer and other diseases from people who are convinced such interventions have saved more lives, and at less harm, than a cautious view of the science would justify
  - As a result people who would have lived and died from other causes, or been diagnosed at a later stage without any loss in longevity, are converted into 'survivors' who believe that the intervention saved them (false causality assumption; outcome bias)
  - Overestimation by both clinicians and patients of treatment benefits and safety
    - Optimism bias
    - Framing effects
      - Relative risk vs absolute risk and NNT/NNH
        - » Hoffman, del Mar JAMA Intern Med 2015
        - » Goff et al JAMA Intern Med 2014

# Cognitive biases

- Clinician regret at not administering a treatment which *may* lead to benefit (regret of omission) overpowering regret for the *real* consequences of an unnecessary treatment (regret of commission)
  - Loss (or risk) aversion
    - Stronger reaction to the same situation when it is framed in terms of critical losses
      - the occasional patient may die from disease if intervention is not given
    - than framed in terms of gains
      - many patients who would not have died from disease will be saved from harm or discomfort if intervention is not given
  - 'Softer' outcomes are often considered in a different way (or not considered at all)



# Cognitive biases

- Availability heuristic: judgements of intervention value are influenced by uncommon, salient, emotionally charged and vivid cases that come easily to mind and which distort probability judgements
  - Specialty bias
  - Base rate neglect
  - Breast surgeon recalling a heart rendering case of a young patient dying of advanced breast cancer who had not undergone screening mammography
    - Bias towards more mammography
  - Sleep specialist who recalls patient presenting with atypical symptoms and few risk factors who was shown to have severe OSA and near death in car crash
    - Bias towards more sleep studies

# Cognitive biases

- Pro-intervention bias, especially among younger clinicians, towards choosing action over inaction even if marginal benefits of action are very small
  - The need to be seen to be doing something
  - Must give the patient every chance
  - What have we got to lose?
  - More is better
  - All or nothing
- Overdiagnosis
  - Use of increasingly sensitive tests that identify abnormalities that are indolent, non-progressive, or regressive (overdetection)
  - Expanded definitions of disease—for example, attention-deficit/hyperactivity disorder and dementia—and lowering of disease thresholds, such as osteoporosis (overdefinition)
  - Creation of pseudodiseases (also called disease mongering), such as low testosterone and restless leg syndrome
  - Faith in early detection unmodified by its risks

# Cognitive bias

- Quest for certainty and reassurance
  - 'What we have to fear most is fear itself'
  - Patient satisfaction metrics conflict with need for more parsimonious care
    - » Kachalia et al Ann Intern Med 2015
    - » van Ravesteijn et al Patient Educ Couns 2012
- Fear of patient approbation or litigation (defensive medicine)
  - » Hoffman, Kanzaria BMJ 2014
- McNamara fallacy
  - Ignorance or under-appreciation of adverse effects of well-intended interventions
    - Disregard that which cannot be measured easily and presume it is not important or does not exist

# Cognitive biases

- Authority bias
  - Having greater confidence in decisions validated by an authority or charismatic figure (infallibility bias)
- Affect bias
  - What feels good (or appealing or popular) may influence decisions even if it is not justified
- Self-serving bias
  - Internal reward systems reflecting wider group or professional norms may lead to self-deception and rationalisation of actions

# Cognitive biases

- 'Innovation' (or novelty) bias towards too readily believing that newer tests and treatments for an expanded set of clinical indications confers proportionately greater benefits
  - Much more excitement and glory come from creating something new than taking down something old
  - Often associated with overconfidence bias where outcomes are over-attributed to an intervention (or even personal expertise)

# Cognitive biases

- Endowment effect
  - When technologies are taken away, patients and specialists tend to place a greater value on them than they would have otherwise
- Overreliance on pathophysiological or anatomical reasoning, or surrogate outcomes, that do not necessarily translate into patient-important benefits
  - » Prasad, Ho J Clin Epidemiol 2014

# Cognitive biases

- Extrapolation bias
  - What is proven to be beneficial in a particular patient population with a specific condition will most likely be beneficial (perhaps even more so) in a different population with the same condition
    - 'indication creep'
      - Hypothermia in witnessed, defibrillation-eligible rhythms to unwitnessed arrest with no identifiable or defibrillation-ineligible rhythms
      - Hyperbaric oxygen in diabetic ulcers to chronic non-diabetic ulcers

# Cognitive biases

- Automation bias
  - Supplantation of human reasoning and responsibility by CDSS and other automated systems
  - Rigid and uncritical use of such systems, especially at times of heavy workloads, stress or sleep deprivation (when decision-making defaults to system 1) may lead to low value care

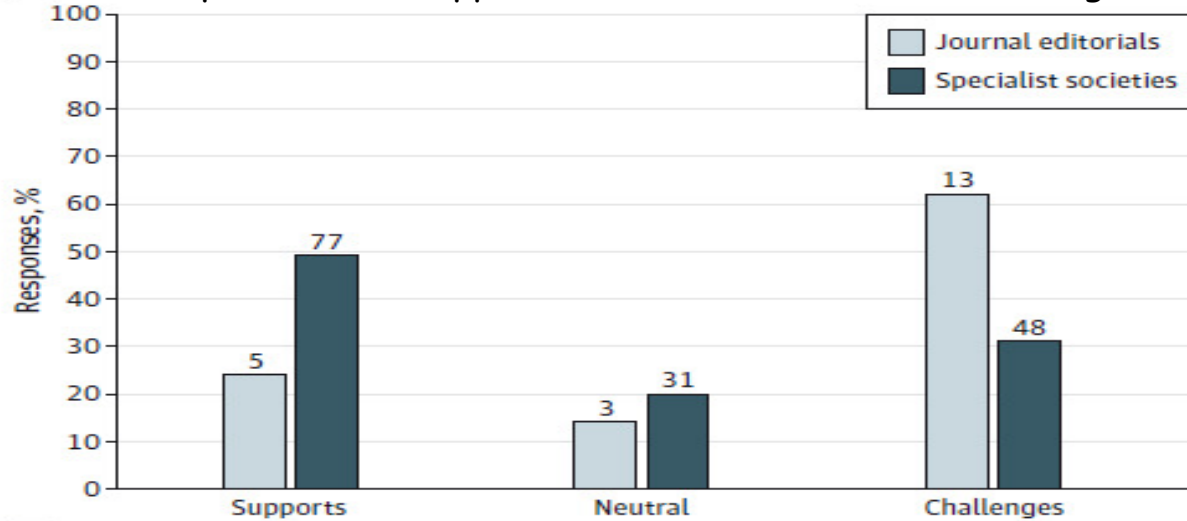


# Clinician reactance

- Having to accept evidence that runs contrary to one's beliefs and refutes what had been regarded as effective interventions can threaten one's sense of competence, professionalism and freedom to choose
  - Worsens with greater degree of superspecialisation
- Psychological reactance: a tendency to resist perceived attempts by others to control behaviour
  - especially those outside one's professional network
- Individuals can react in a way that affirms their ability to choose and often become more entrenched in their original beliefs
- Once aroused, reactance may heighten sensitisation to additional threats to freedom of choice that further constrains the capacity for dispassionate debate

# Clinician reactance

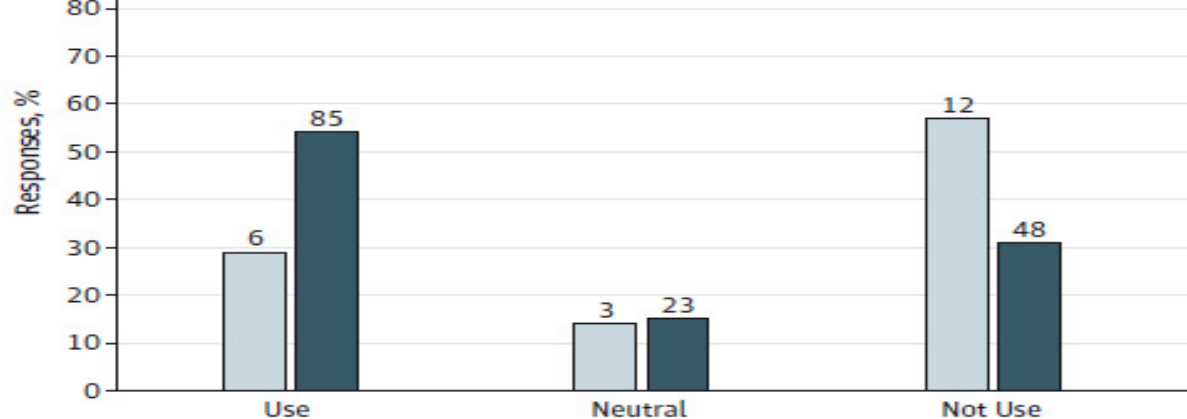
**A** Responses that support, are neutral toward, or challenge the reversal of practice



20 reversed practices

Responses from journal editorialists and specialist societies

**B** Responses that recommend, are neutral toward, or do not recommend that all or some patients should use the reversed intervention



# Rationalist solutions

- 'Knowledge translation' or 'implementation science'
  - One-way transfer of knowledge from producer (research) to user (clinician)
  - Dissemination and implementation of factual, explicit knowledge
  - Managed processes by which rationally thinking practitioners (as individuals) can be supported to interact with knowledge
- Educational or awareness-raising strategies
- Clinical decision support systems
- Academic detailing
- Clinical audits and feedback
- Best practice guidelines and care pathways
- Patient mediated interventions
  - Decision aids, patient reminders
- Pay for performance
- Reference pricing or delisting
- Bundled payments
- Capitation

# Debiasing strategies

- 'Cognitive autopsy'
  - Understanding, identifying and acknowledging biases
  - Acknowledging uncertainty and talking through the reasoning
    - Benefit, harms, costs
    - Diagnostic and therapeutic errors
      - » Katz, Detsky J Hosp Med 2015
      - » Croskerry Ann Emerg Med 2003
      - » Scott BMJ 2010
- Narratives of harm from low value care
  - » Aronson JAMA 2015
  - » JAMA Internal Medicine Less is More series - Teachable moments
- Role models & opinion leaders that practice restraint (vs action)
  - This is a teaching hospital - so we are not doing an unnecessary test or treatment
- Choosing words wisely
  - Sharing discomfort with uncertainty and fear of making a mistake
  - Assessing whether decisions subsequently associated with bad outcomes had merit or room for improvement
- Challenging the status quo
  - Willingness to challenge the culture of simply doing more of what we already do - in the absence of supportive evidence or presence of contradictory evidence

# Debiasing strategies

- Shared decision-making with patients
  - including requests for non-beneficial interventions
    - » Elwyn et al J Gen Intern Med 2012
    - » Brett, McCullough JAMA 2012
- Reflective practice on differing judgements of value
  - feedback, reflective questions, group discussions aimed at incentivizing physicians to think critically about medical decisions
    - » Stammen et al JAMA 2015
    - » Too much medicine series from BMJ
- Adding Value (V) considerations to clinical assessment and management protocols (SOAP-V)
  - » Moser et al J Hosp Med 2016
- Exposure to low intensity care environments which produce similar if not better outcomes
  - » Sirovich et al JAMA Intern Med 2014
  - » Korenstein, Smith JAMA Intern Med 2014
- Engaging trainees in quality improvement initiatives to address local system issues with oversight from faculty role models and mentors
  - » Gupta, Arora JAMA 2015

# Debiasing strategies

- 'Nudge' interventions which normalise avoidance of low value care

By Dominic King, Felix Greaves, Ivo Vlaev, and Ara Darzi

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## **ANALYSIS & COMMENTARY**

# **Approaches Based On Behavioral Economics Could Help Nudge Patients And Providers Toward Lower Health Spending Growth**

**DOI:** 10.1377/hlthaff.2012.1348  
HEALTH AFFAIRS 32,  
NO. 4 (2013): 661-668  
©2013 Project HOPE—  
The People-to-People Health  
Foundation, Inc.

# Debiasing strategies

'We can only enhance the quality and value of the care delivered by our hospitals and practices if we change the behaviours of our new physicians.'

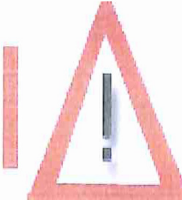
'We need to go beyond financial incentives, cost awareness, and classroom teaching as we attempt to get physicians to do more of what is needed to improve patient outcomes and less of everything else.'

Korenstein, Smith Celebrating Minimalism in Residency Training. JAMA Intern Med 2014

# Debiasing strategies


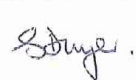
- Wide dissemination of reports that unequivocally show harm from commonly performed interventions
  - and which are publicised in lay press and social media
- HRT in post-menopausal women
- Prophylactic anti-arrhythmic agents following AMI

Patient Safety Alert No. 02/2013



PATIENT SAFETY ALERT

Patient Safety Alert identifies a patient safety matter needing immediate, mandatory attention and action".

FOR INTERNAL USE ONLY	
Persons receiving this Alert should <b>NOT</b> take any further action unless the affected goods are supplied to or are in use in their hospital and health service.	
<b>Subject:</b>	UPDATE – Changes to APTT therapeutic range and heparin dosing nomogram
<b>Issued by:</b>	Medicines Regulation and Quality <span style="float: right;">Issue Date: 3 June 2013</span>
<b>Endorsed by:</b> Director, Medicines Regulation and Quality	Signature: 
<b>Approved by:</b> Senior Director, Health Protection Unit	Signature: 

**Distributed to:**

- Hospital and Health Services Chief Executives

**We recommend you also inform:**

- Executive Directors of Medical Services
- Directors of Pharmacy
- Directors of Nursing
- Patient Safety Officers
- Hospital and Health Service Safety and Quality Staff

**Action required by:**

- Hospital and Health Service Boards
- Hospital and Health Service Chief Executives

**For response by:**

- Acknowledgement of Patient Safety Alert, COB 8 June



# Disinvestment strategy

