A system migration, a social cognition, a naturalistic decision

Understanding the use of rules in anaesthetic practice

Denham Phipps; Dianne Parker
NIHR Greater Manchester Patient Safety Translational Research Centre

Paul Beatty
School of Medicine

Anaesthesia: "Extreme dynamism, intense time pressure, high complexity, frequent uncertainty, and palpable risk" (Gaba, 1994, p.199)

Challenge for resilience – how to remain safe and effective in such a dynamic environment

How are rules applied in anaesthetic work?

Study methods

Task analysis

- Preoperative and perioperative care

Ethnography

- 22 anaesthetists working on adult and paediatric operating lists

Survey

- Attitudes influencing an anaesthetist's intention to follow a practice guideline – 629 respondents

Preparation for anaesthesia

- Carry out preoperative assessment of the patient
- Check the anaesthetic equipment

Administering an anaesthetic

- Take heed of contra-indications for drugs/methods
- Follow drug administration protocols

Managing the patient during surgery

- Do not reconnect partially-used intravenous fluid bags

Preoperative assessment

- Communication and coordination with others (surgeon; ward staff; patient)
- Timely access to patient
- Perceived importance of the assessment

Equipment checks

- Trust in the equipment
- Trust in the ability of others to check equipment
- Time pressure

Quite often [when I'm asked to take on another anaesthetist's case] it's an emergency that they're trying to slot in and they say "the registrar's seen it, it's fine". But I think patients deserve to be seen by the person that's going to look after them. […] even if they've had all the boxes ticked already. [3]

"You know, people […] check their anaesthetic machine [at] the start of the list because they quite clearly recognise that there's a benefit – […] if you find malfunctioning equipment during the procedure and you hadn't checked it, you would regret [it]." [21]

In behavioural terms, an intensive activity

- High workload
- Need to multitask

After anaesthetising the patient, the anaesthetist [assisted] the paramedic [to] intubate. She then turned her attention to the medical student, who was cannulating the patient. However, while this was happening, the SpO2 reading dropped and the alarm went off […]. The anaesthetist noticed that the CO2 was abnormally low. […] She then listened [to the patient] on the stethoscope […] suspected a failed intubation and removed and reinserted the tube. This caused the breathing to return and the SpO2 to increase. [15 – observational notes]

Task analysis - collect drug for administration

- Risk of a skill-based error – collecting the wrong drug
- Potential solutions – cross-check the drug before admin; use a bar-code checker; use a drug detector

"There was a move at one point to suggest that all IV drugs should be checked by two people. Does that sound reasonable? I give eight IV drugs to each patient. If I said "I'm going to do half as many patients per list", that would not be considered reasonable. […] There's always a tension between risk and efficiency" [22]

Decision-making about a rule in the face of an extreme situation:

"I performed a spinal anaesthetic on someone who had been given a large dose of an anticoagulant within the last twenty-four hours, and also who had evidence of sepsis. Both of those are contraindications to performing a spinal anaesthetic. However, weighing up the risks and the benefits of a general anaesthetic for this poor patient, the risks of giving this poor patient a general anaesthetic were far greater." [15]

Near to the end of the operation, the anaesthetist administered IV paracetamol. In order to do this, she had to discontinue IV fluids. After the paracetamol had been administered, she reconnected the partially-used bag of fluid. [20 – observational notes]

He […] administered IV paracetamol for post-operative pain relief. However, unlike other anaesthetists I'd seen, he waited until he'd used as much fluid as he wanted to use, disconnected and threw away the partially-used bag, then administered the paracetamol using a 50ml syringe. [21 – observational notes]

Management

"I hate wasting [intravenous bags]. […] Maybe you should throw away the eight hundred millilitres that you haven't used and start again on a [new] bag, but that's going to increase the number of bags […] that we use. And I think the majority of us are aware of the risk of air embolism and expel the air from the bag that we use." [15]

It is common sense that one shouldn't disconnect a bag and then reconnect it afterwards, it's a bit of a daft thing to do because of the danger of infusing air into the patient […]. I do it though depending on the circumstances. [21]

The role of rules

A system migration…

Source: Amalberti et al. (2006)
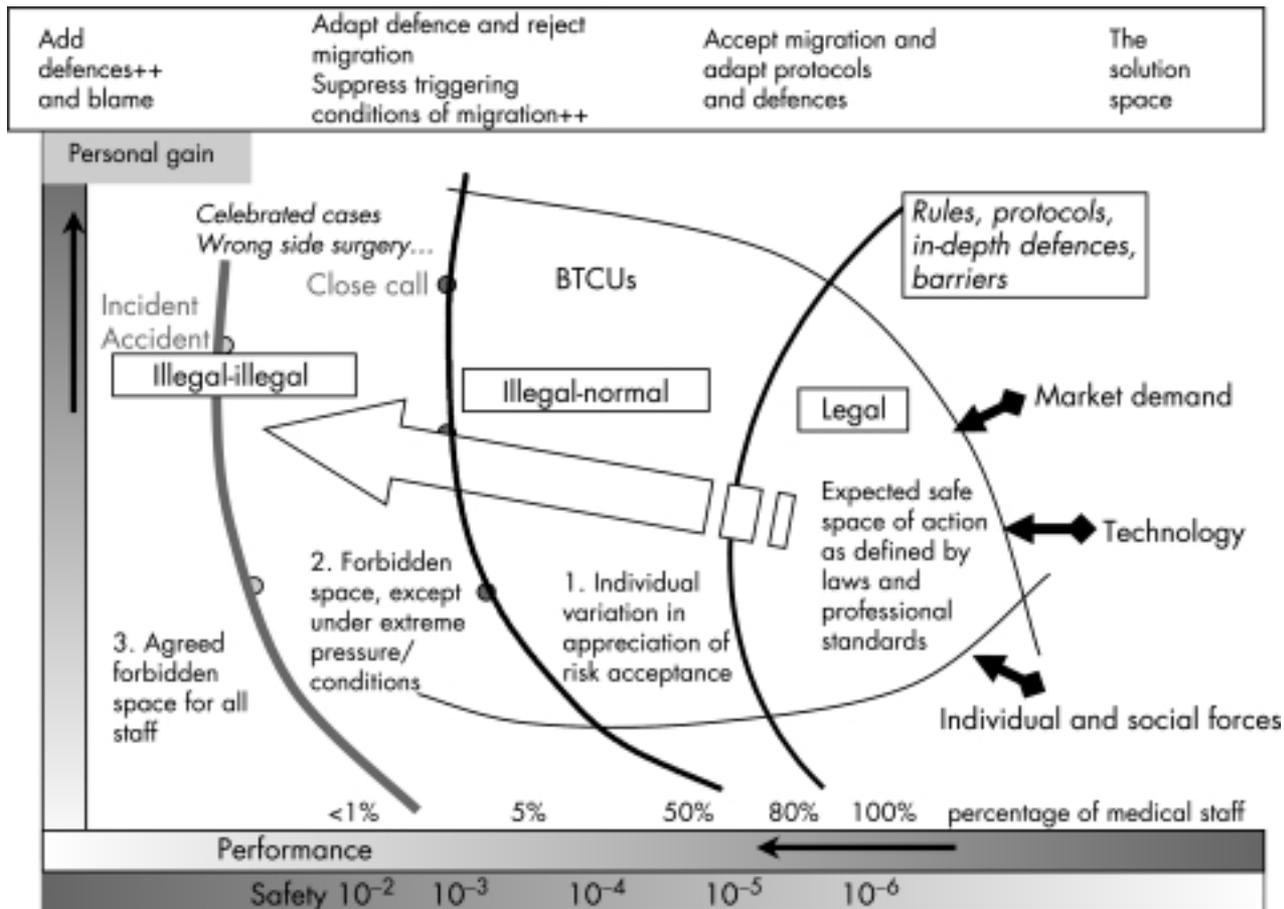
A social cognition – based on attitudes about:

- The rule (for example, its credibility)
- The anaesthetist (for example, his/her experience)
- The situation (for example, time pressure)

A naturalistic decision – "Following a rule" versus…

- "…doing the right thing"
- "…doing what works in the circumstances"
- "…using one's skills and expertise"

- Different perspectives on anaesthetists' rule-related behaviour
  - Individual decision making, driven by attitudes and perceptions
  - Shaped by the system in which they are working
- What to do about "violations"?
  - Attitude change interventions
  - (Re)design the work system
  - Alternatives to management-by-rules?

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Thanks for your attention.
Questions/comments?

Denham.Phipps@manchester.ac.uk