

Saving lives – checklist use in small animal practice

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“the attitudes, beliefs, perceptions and values that employees share in relation to safety in the workplace”



Why should we care?

- Knowledge in veterinary emergency medicine is constantly increasing
- We have good systems to train people in knowledge and skills
-yet errors still happen

Our environments are complex



Our brains can only do so much....



Types of Errors

Diagnostic

- Error or delay in diagnosis
- Failure to employ indicated tests
- Use of outmoded tests or therapy
- Failure to act on results of monitoring or testing

Treatment

- Error in the performance of an operation, procedure, or test
- Error in administering the treatment
- Error in the dose or method of using a drug
- Avoidable delay in treatment or in responding to an abnormal test
- Inappropriate (not indicated) care

Preventive

- Failure to provide prophylactic treatment
- Inadequate monitoring or follow-up of treatment

Other

- Failure of communication
- Equipment failure
- Other system failure

SOURCE: Leape, Lucian; Lawthers, Ann G.; Brennan, Troyen A., et al. Preventing Medical Injury. Qual Rev Bull. 19(5):144–149, 1993.



Published by
Institute of
Medicine (IOM) in
1999

“Errors can be prevented by designing systems that make it hard for people to do the wrong thing and easy for people to do the right thing. Cars are designed so that drivers cannot start them while in reverse because that prevents accidents.”

Medical data

- Harvard Medical Practice Study
 - 4% of hospitalised patients suffered significant adverse events and almost 30% of these due to “human” error
- UK NHS study
 - Around 10% of patients admitted to NHS hospitals experience a patient safety incident and up to half of these could be prevented
 - 72,000 of these may contribute to the death of the patient

“The best way of reducing error rates is to target the underlying systems failures rather than take action against individual members of staff”



We need to bust....

-the **perfection myth**

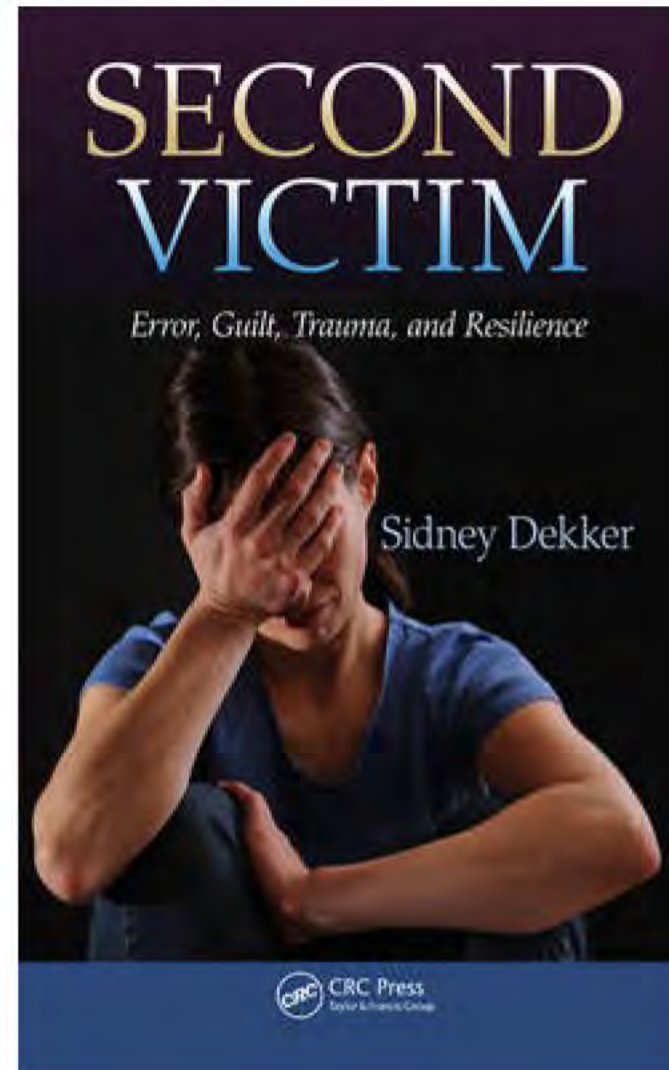
if people try hard enough, they will not make any errors

-the **punishment myth**

if we punish people when they make errors, they will make fewer of them

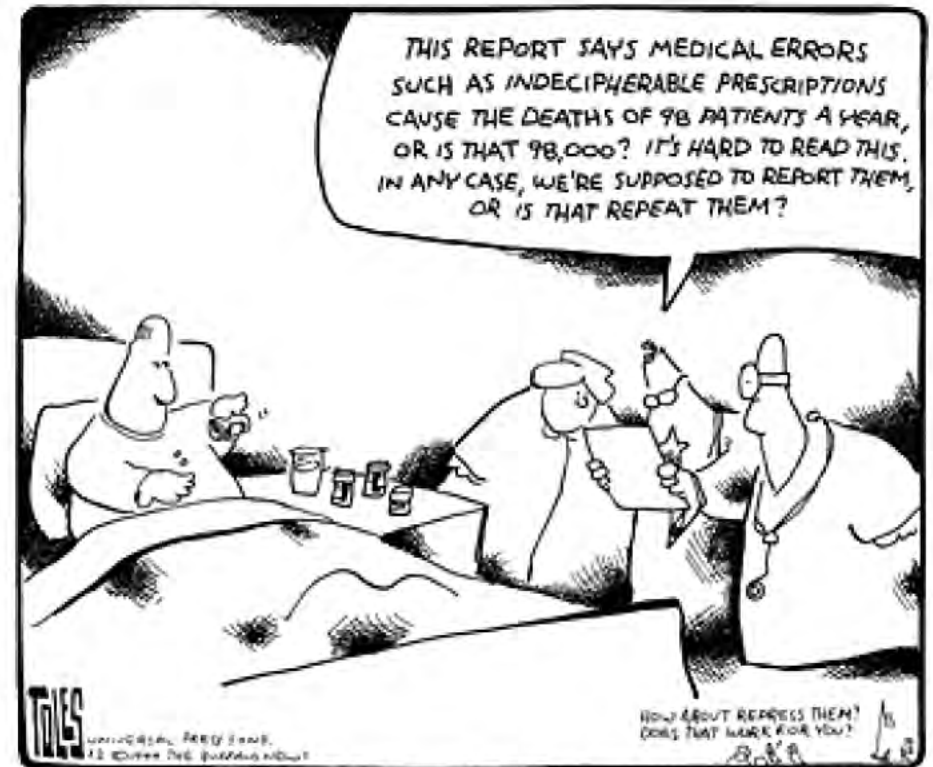
When mistakes happen.....

It impacts not only
on patient safety
but also each
individual's
wellbeing



Errors and emergency work

- We work in an environment where the risk factors for error are high related to
 - Physical environment
 - Caseload
 - Individual



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Caseload related factors

- “Surge phenomena”
 -caseload does not arrive steadily (!)
- “Low signal to noise ratio”
 -refers to the fact that most vomiting dogs will be fine but the odd one is in the early stages of a life threatening illness
- Novel or infrequently occurring conditions
- Narrow window of opportunity to intervene
- Information gaps
 - Lack of access to medical history

Individual related factors

- Shiftwork
 - Fatigue, circadian dys-synchronisation
- High levels of decision density and uncertainty leading to high levels of cognitive load
- Multiple interruptions/distractions
 - Emergency physicians are interrupted on average every 6 minutes and 2/3 of these lead to a change in task
- The way the human brain works

The way the brain works

- We are all people and are subject to
 - Cognitive bias
 - Visceral bias



Authority gradients

- Hierarchical system prevents free flow of information between team members
- Low authority members may be inhibited by differences in seniority, expertise, profession or social status
- Numerous examples of this leading to a poor outcome.....



Teamwork

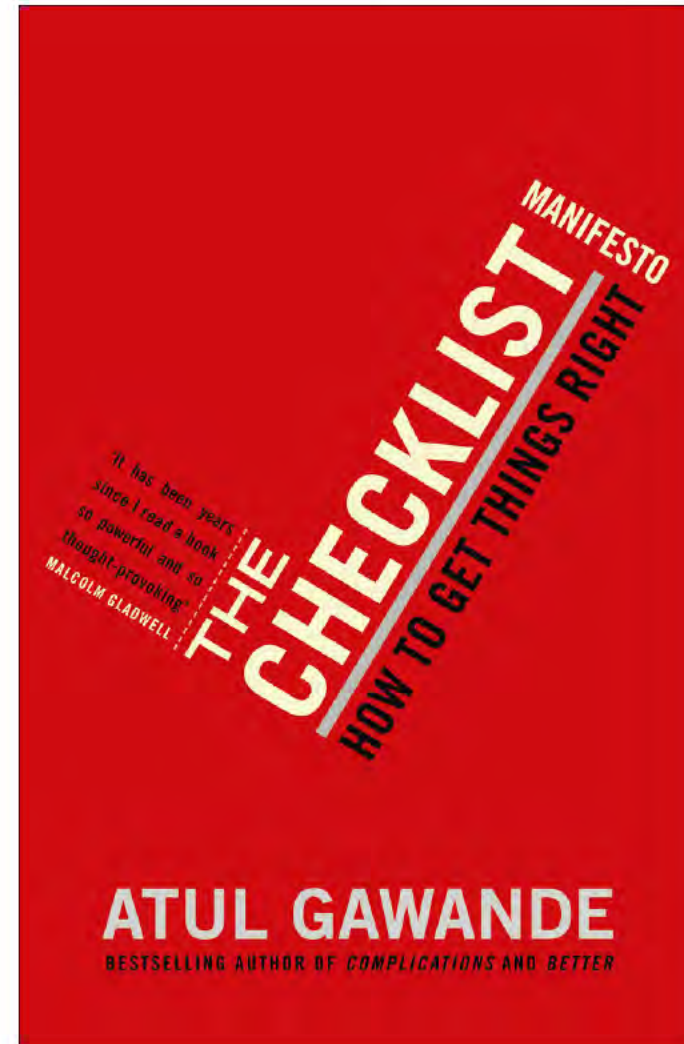
- Poor teamwork is a factor in 40% of human emergency medicine malpractice cases
- Very little specific training in teamwork available in veterinary field
- Rarely assessed as a team
- Resistance to teamwork training high in human medicine

“Violation producing Factors”

- Small variances in adherence to SOPs over time lead to an accumulated tolerance that ultimately compromises safety
 - “normalisation of deviance”
- On site leaders have a key role to play
 - Both active and permissive violations by leaders have a disproportionate effect
- Individuals self-perception that the rules don't apply to them
 - Males more likely to do this than females

So lets focus on the process

- How clinical care should evolve in the 21st century



Learning from other industries

Air safety reports

Volume of reports and risk
British Airways data 1994 -1999



SPECIAL ARTICLE

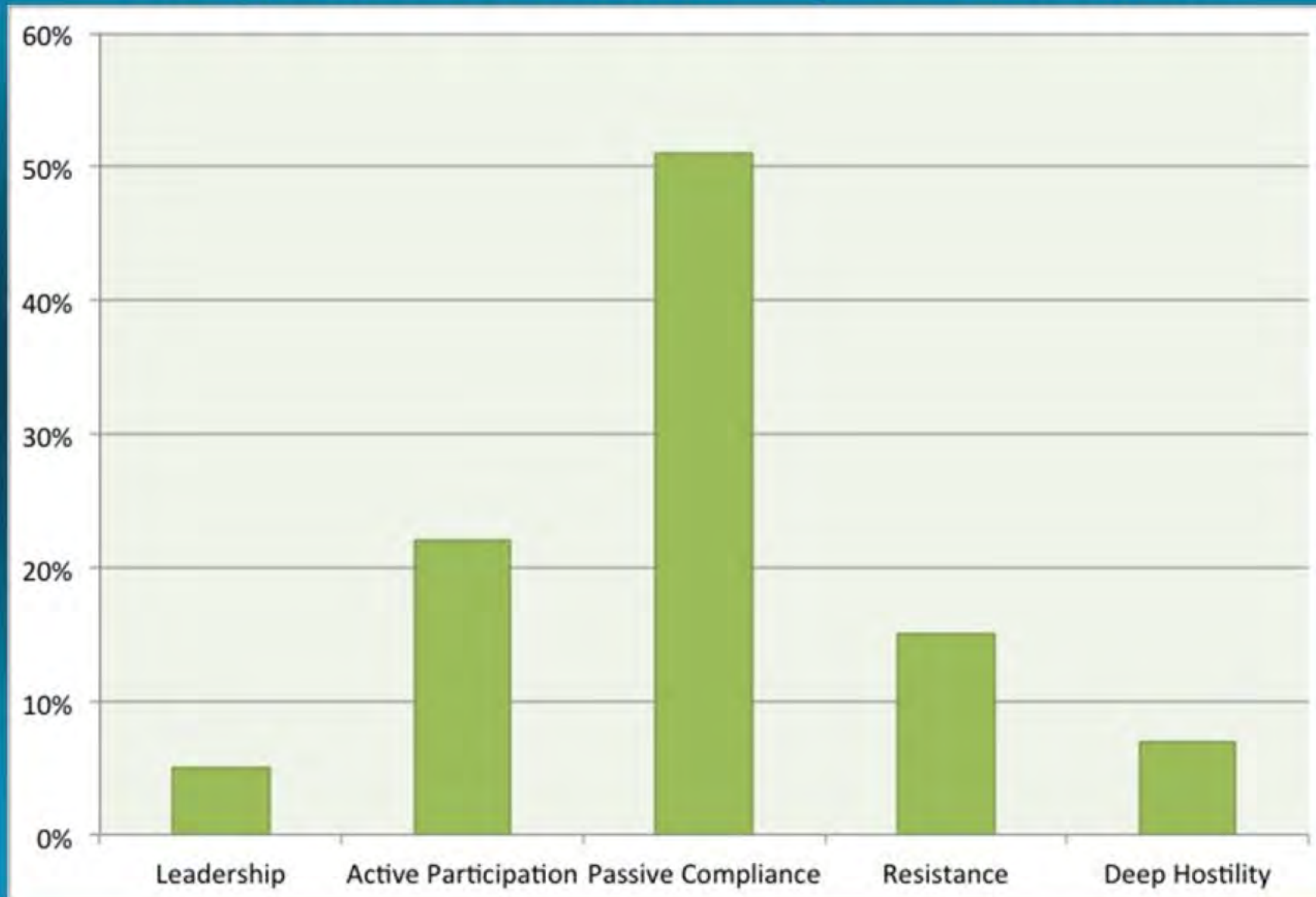
A Surgical Safety Checklist to Reduce Morbidity and Mortality in a Global Population

Death rate 1.5% pre checklist and 0.8% after checklist

With 234 million operations/year = 1,638,000 lives saved

Published 2009

Physician Engagement Observed During a Surgical Checklist Implementation

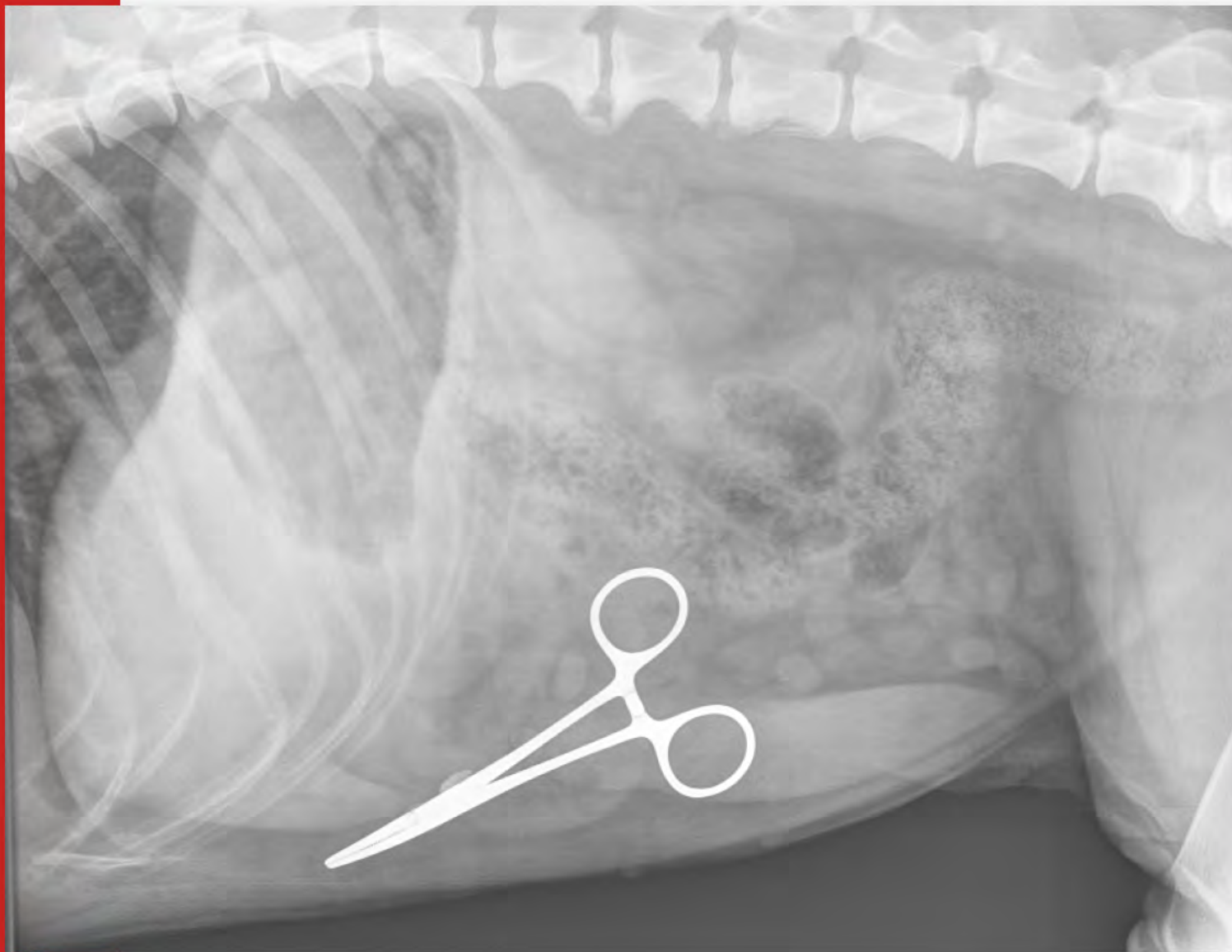


Reduction of Surgical Complications in Dogs and Cats by the Use of a Surgical Safety Checklist

Annika Bergström¹, Maria Dimopoulou², and Mikaela Eldh²

¹Department of Clinical Sciences, and ²University Animal Hospital, University of Agricultural Sciences, Uppsala, Sweden

- 520 animals
- There were significantly more complications in SSC- animals than SSC+ animals (SSC- 52/300 vs. SSC+ 15/220, $P = .0003$). There was a significantly higher frequency of SSI ($P = .045$) and wound healing complications ($P = .0006$) for SSC- animals than SSC+ animals.



Oct 2016 Version

Surgical Safety Checklist

Pre-anaesthetic checks

ASA grade (circle) 1 2 3 4 5
Known allergy? Y/N
Pre-oxygenation required? Y/N
Difficult airway or aspiration risk? Y/N
Has analgesia been given? Y/N
Adequate IV access/fluids prepared? Y/N
Suction prepared? Y/N
Is antibiotic prophylaxis planned? Y/N
☐ Confirm crash kit prepared
☐ Confirm emergency drugs calculated

Pre-surgical checks

Anticipated critical events? Y/N
Detail: _____
Have antibiotics been given? Y/N
☐ Confirm multi-parameter monitor attached?
☐ Confirm anaesthetic machine check complete
Confirm anticipated blood loss
☐ Minimal <5%
☐ Moderate 5-10%
☐ Severe >10%
Are blood products/colloids available? Y/N
Is animal blood typed? Y/N
Is essential imaging displayed Y/N

☐ Confirm swab count complete
Number small swabs ____
Number lap pads ____

☐ Confirm instrument count complete
Number artery forceps ____

Post-surgical checks

☐ Confirm swab count complete
Number small swabs ____
Number lap pads ____

☐ Confirm instrument count complete
Number artery forceps ____

Equipment issues Y/N
Detail: _____

End of Checklist

✓ Checklists reduce errors and save lives

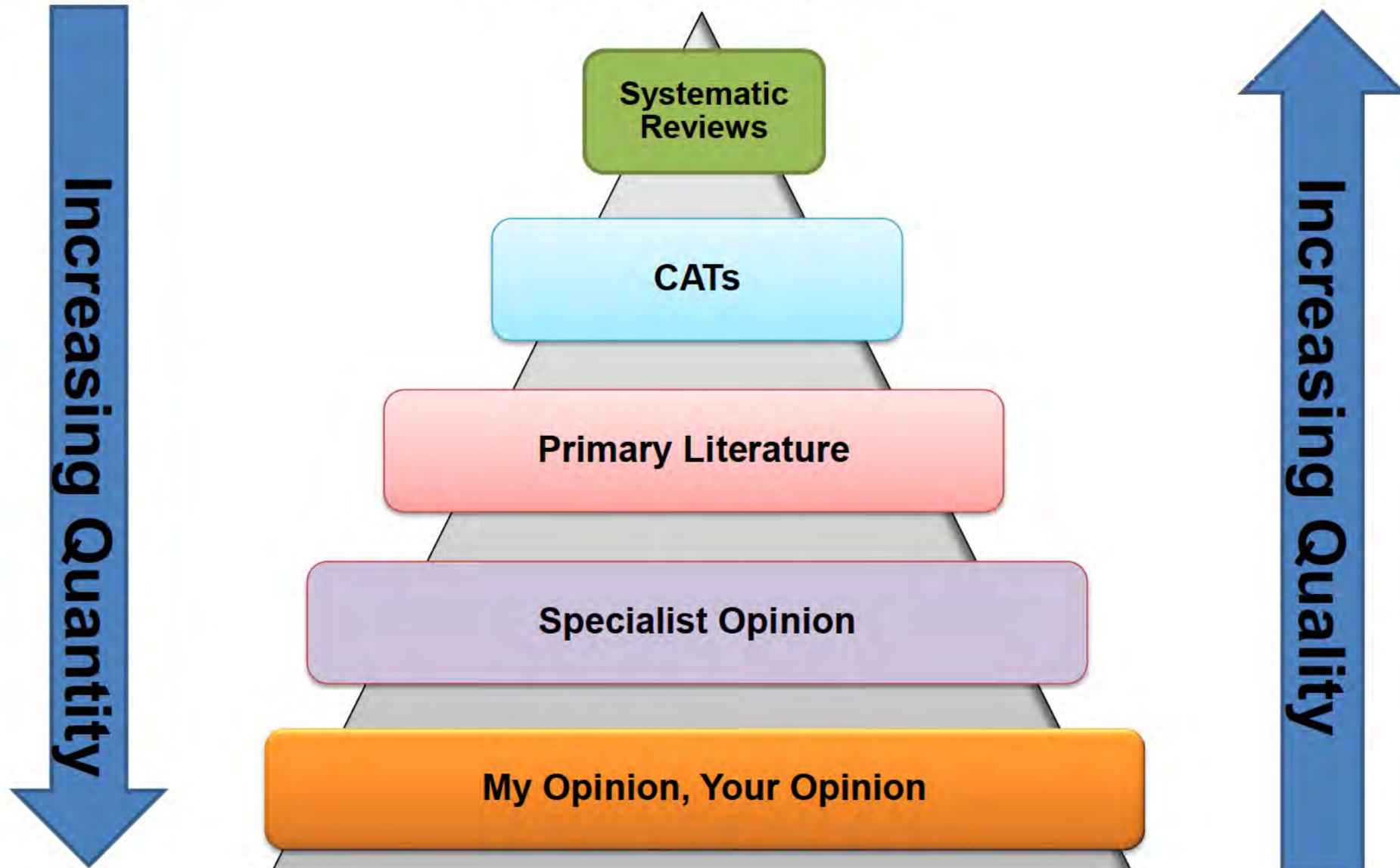
So what defines a “checklist”?

- Only contains critical steps and common areas of error – not intended to be a step-by-step guide
- Actions are grouped into a defined time period e.g. during consultation, before surgery
- Confirmation that an action has been completed - or considered and rejected - is given verbally and by physically ticking the required box
- The most important steps will be highlighted in bold
- Further information relating to steps of the process may be provided on the reverse of the checklist

Are other checklists possible?

- Safety related
 - Transfusion, CRI??
- Supporting cognitive function
 - Common emergency presentations such as C sections, seizures, trauma?
 - Are these checklists?

APPRAISE



Primary literature

- Descriptive studies
 - Case report, case series
- Observational studies
 - Case-control, cohort, cross-sectional
- Experimental
 - Randomised controlled trials (RCT), non randomised controlled trials

Name	
Ref: Case No.	
Date/Time	
Vet	
Nurse	

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Dystocia Checklist (Version 1)

Tick each action to confirm it has been considered and/or actioned
Actions in bold are critical steps

Before Consultation

- ☐ Dystocia telephone triage checklist
- ☐ Triage within 10 mins of arrival

Consultation

History and Physical exam

- ☐ Confirm pregnancy
- ☐ Confirm breeding history
- ☐ Confirm dystocia history
- ☐ Confirm stage of labour?
- ☐ Ferguson's Reflex?
- ☐ Is a puppy palpable within pelvic canal?
- ☐ Green discharge prior to 1st puppy?
- ☐ Is dystocia present?

Diagnostics

- ☐ Blood Tests
 - ☐ Glucose
 - ☐ Ca
- ☐ Ultrasound scan
 - ☐ Foetal heart rate

After Consultation

Diagnostics

- ☐ X-ray
 - ☐ Number of foetuses
 - ☐ Malpresentation
 - ☐ Malposition

Medical treatment

- ☐ Confirm no obstruction then consider:
 - ☐ Calcium gluconate Give first
 - ☐ Oxytocin Dose 0.2-0.4IU/dog (in 15min post calcium)

Pre-surgery

- ☐ Prepare incubator
- ☐ Surgical Safety Checklist
- ☐ Cuff ET tube
- ☐ Maternal positioning/tilting
- ☐ Check analgesia datasheets
- ☐ Consider multi-modal analgesia
- ☐ Consider local anaesthetic line block
- ☐ Consider prophylactic antibiotics
- ☐ Complete anaesthetic monitoring chart

During Surgery

- ☐ Check entire reproductive tract before closing

Post-surgery


- ☐ Check puppies - umbilicus, palate, anus
- ☐ Confirm puppy resuscitation
- ☐ Confirm bitch not left unattended with puppies

End of Checklist

✓ Checklists reduce errors and save lives

WHO trauma care checklist

“Implementation of the WHO Trauma Care Checklist was associated with substantial improvements in patient care process measures among a cohort of patients in diverse settings”

 World Health Organization	Trauma Care Checklist
Immediately after primary & secondary surveys:	
IS FURTHER AIRWAY INTERVENTION NEEDED? May be needed if: <ul style="list-style-type: none">• GCS 8 or below• Hypoxaemia or hypercarbia• Face, neck, chest or any severe trauma	<input type="checkbox"/> YES, DONE <input type="checkbox"/> NO
IS THERE A <i>TENSION</i> PNEUMO-HAEMOTHORAX?	<input type="checkbox"/> YES, CHEST DRAIN PLACED <input type="checkbox"/> NO
IS THE PULSE OXIMETER PLACED AND FUNCTIONING?	<input type="checkbox"/> YES <input type="checkbox"/> NOT AVAILABLE
LARGE-BORE IV PLACED AND FLUIDS STARTED?	<input type="checkbox"/> YES <input type="checkbox"/> NOT INDICATED <input type="checkbox"/> NOT AVAILABLE
FULL SURVEY FOR (AND CONTROL OF) EXTERNAL BLEEDING, INCLUDING:	<input type="checkbox"/> SCALP <input type="checkbox"/> PERINEUM <input type="checkbox"/> BACK
ASSESSED FOR PELVIC FRACTURE BY:	<input type="checkbox"/> EXAM <input type="checkbox"/> X-RAY <input type="checkbox"/> CT
ASSESSED FOR INTERNAL BLEEDING BY:	<input type="checkbox"/> EXAM <input type="checkbox"/> ULTRASOUND <input type="checkbox"/> CT <input type="checkbox"/> DIAGNOSTIC PERITONEAL LAVAGE
IS SPINAL IMMOBILIZATION NEEDED?	<input type="checkbox"/> YES, DONE <input type="checkbox"/> NOT INDICATED
NEUROVASCULAR STATUS OF ALL 4 LIMBS CHECKED?	<input type="checkbox"/> YES
IS THE PATIENT HYPOTHERMIC?	<input type="checkbox"/> YES, WARMING <input type="checkbox"/> NO
DOES THE PATIENT NEED (IF NO CONTRAINDICATION):	<input type="checkbox"/> URINARY CATHETER <input type="checkbox"/> NASOGASTRIC TUBE <input type="checkbox"/> CHEST DRAIN <input type="checkbox"/> NONE INDICATED



*World Journal of
Critical Care Medicine*

Submit a Manuscript: <http://www.wjgnet.com/esps/>
Help Desk: <http://www.wjgnet.com/esps/helpdesk.aspx>
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MINIREVIEWS

Checklist for early recognition and treatment of acute illness: International collaboration to improve critical care practice

“The tool has been refined and tested in high fidelity simulated clinical environment and has been shown to improve performance of clinical providers faced with simulated emergencies.”



Crisis checklists for in-hospital emergencies: expert consensus, simulation testing and recommendations for a template determined by a multi-institutional and multi-disciplinary learning collaborative

Christian P. Subbe^{1*}, John Kellett², Paul Barach³, Catriona Chaloner⁴, Hayley Cleaver⁵, Tim Cooksley⁶, Erik Korsten⁷, Eilish Croke⁸, Elinor Davis⁵, Ashley JR De Bie⁷, Lesley Durham⁹, Chris Hancock¹⁰, Jilian Hartin¹¹, Tracy Savijn¹, John Welch¹¹ and on behalf of the Crisis Checklist Collaborative

“Emergency checklists custom-designed for general ward patients have the potential to guide the treatment speed and reliability of responses for emergency management of patients with abnormal physiology while minimizing the risk of adverse events. Interventional trials are needed.”

Positive impact of an emergency department protocol on time to antimicrobial administration in dogs with septic peritonitis

Amanda L. Abelson, DVM, DACVECC; Gareth J. Buckley, MA, VetMB, DACVECC and Elizabeth A. Rozanski, DVM, DACVIM, DACVECC

- Median time from diagnosis of septic peritonitis to antimicrobial administration was 6 hours (range 1-10 h) in the preprotocol group (PRE), and 1 hour (range 1-2 h) in the postprotocol group (POST) ($P = 0.001$).

And what about handovers?

- Information error rate estimated at 13% in human medicine
- Little consensus on how best to do a handover but challenges are
 - Interruptions
 - Lack of consistent structure
 - “sterotyping” passed on rather than “fresh pair of eyes”
- Would a handover checklist be valuable?

Thank you and questions

