The Future of Equine Practice

Practical examples of how we are improving outcomes for patients
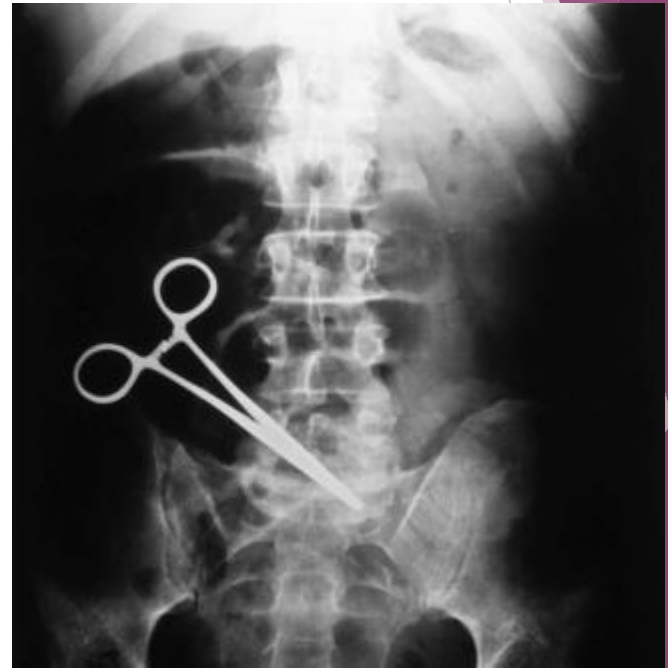
Checklists in Veterinary Practice

Pam Mosedale BVetMed MRCVS

- Why do we need checklists ?

- Checklists in other settings

- Implementing surgical safety checklists

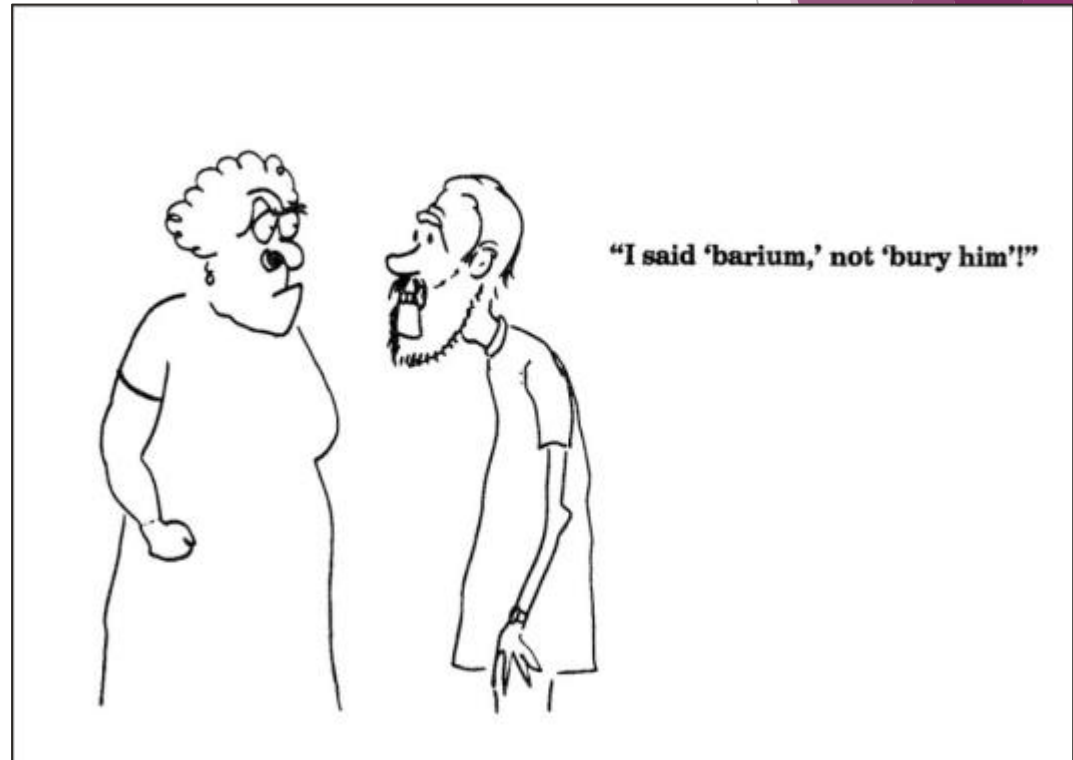- Barriers to implementation of checklists

- Where else are checklists useful?

Errors in veterinary practice

▶ Human errors – mistakes, slips, lapses

▶ System failures

▶ Lack of communication

Communication failures

▶ Changing teams

▶ Temporary team members

▶ Practice culture - fear

"I said 'barium,' not 'bury him'!"

System failures

▶ Teams not working together
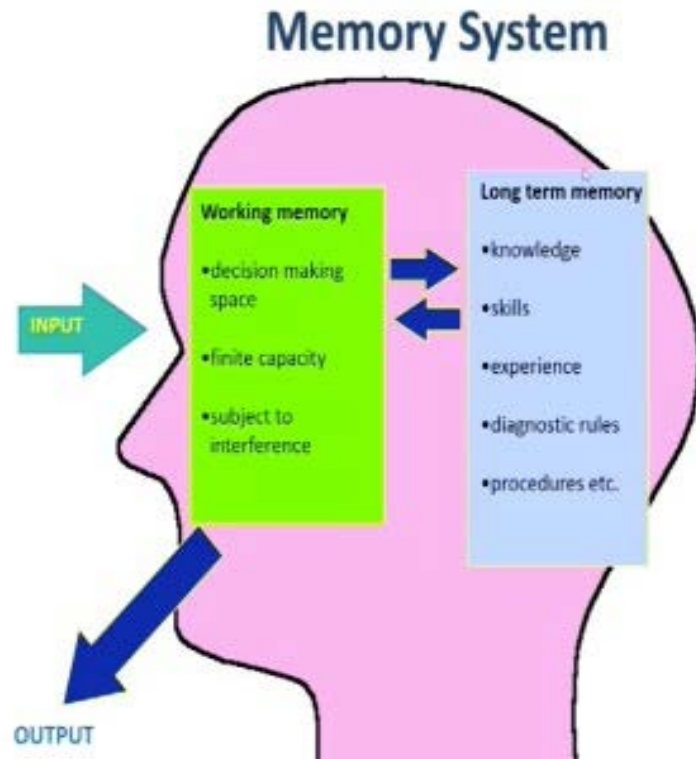
▶ Staffing levels

▶ No guidelines or checklists

▶ Time pressures

Human errors

- Missing out steps
- Complex problems
- Being distracted

- Hungry
- Angry/stressed
- Late/time pressures
- Tiredness

- Lack of knowledge
- Pressure from owners

Why we need checklists

Reference: Paterson-Brown, S. (2019). *Understanding External Factors to Performance*

What can we do to reduce errors ?

▶ Teamwork & training

▶ Communication training

▶ Open "no blame" culture

▶ Learn from other industries

▶ Involve team in looking at evidence base & drawing up practice protocols, guidelines & checklists

▶ Use protocols, guidelines & checklists

▶ Report incidents & near misses

We can't prevent human error — but we can improve communication & systems of work

We can learn from safety culture in other industries & report errors & near misses

We can analyse errors & make changes

- ▶ Learning from safety culture in other settings

- ▶ Aviation checklists

- ▶ Modified after accidents

- ▶ Read out by pilot not flying

- ▶ Read do

We can learn from human medicine medical checklists

2001: 5-step checklist to prevent central line associated infections

Peter Provonost, John Hopkins Hospital

1. Wash hands
2. Clean skin with chlorhexidine
2. Sterile drapes on patient
3. Wear mask, hat, gown & gloves
4. Put a sterile dressing over site when done

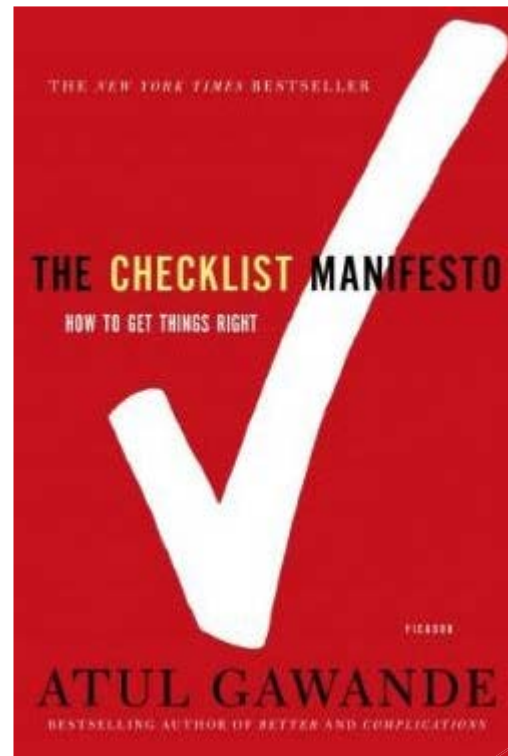Audit before introducing checklist: 30% of time one step is not followed

- Authorised nurses to use checklist & stop doctors if the checklist was not followed
- Reduced infections from 11% to 0%

Checklists in a medical setting

▶ Harm from surgery

▶ 7 million disabled, 1 million dead as result of surgical complications

▶ Checklist including team communication

▶ Do confirm

www.who.int/patientsafety/safesurgery

Surgical Safety Checklist

World Health Organization | **Patient Safety**
A World Alliance for Safer Health Care

Before induction of anaesthesia	Before skin incision	Before patient leaves operating room
(with at least nurse and anaesthetist)	(with nurse, anaesthetist and surgeon)	(with nurse, anaesthetist and surgeon)

Before induction of anaesthesia

(with at least nurse and anaesthetist)

Has the patient confirmed his/her identity, site, procedure, and consent?
☐ Yes

Is the site marked?
☐ Yes
☐ Not applicable

Is the anaesthesia machine and medication check complete?
☐ Yes

Is the pulse oximeter on the patient and functioning?
☐ Yes

Does the patient have a:

Known allergy?
☐ No
☐ Yes

Difficult airway or aspiration risk?
☐ No
☐ Yes, and equipment/assistance available

Risk of >500ml blood loss (7ml/kg in children)?
☐ No
☐ Yes, and two IVs/central access and fluids planned

Before skin incision

(with nurse, anaesthetist and surgeon)

☐ **Confirm all team members have introduced themselves by name and role.**

☐ **Confirm the patient's name, procedure, and where the incision will be made.**

Has antibiotic prophylaxis been given within the last 60 minutes?
☐ Yes
☐ Not applicable

Anticipated Critical Events

To Surgeon:
☐ What are the critical or non-routine steps?
☐ How long will the case take?
☐ What is the anticipated blood loss?

To Anaesthetist:
☐ Are there any patient-specific concerns?

To Nursing Team:
☐ Has sterility (including indicator results) been confirmed?
☐ Are there equipment issues or any concerns?

Is essential imaging displayed?
☐ Yes
☐ Not applicable

Before patient leaves operating room

(with nurse, anaesthetist and surgeon)

Nurse Verbally Confirms:
☐ The name of the procedure
☐ Completion of instrument, sponge and needle counts
☐ Specimen labelling (read specimen labels aloud, including patient name)
☐ Whether there are any equipment problems to be addressed

To Surgeon, Anaesthetist and Nurse:
☐ What are the key concerns for recovery and management of this patient?

This checklist is not intended to be comprehensive. Additions and modifications to fit local practice are encouraged.

Revised 1 / 2009   © WHO, 2009

RCVS KNOWLEDGE

Results of using WHO checklist
Pilot study 2009
8 hospitals around the world

- ▶ Deaths fell 47%

- ▶ Complications fell 36%

- ▶ Infections fell 48%

- ▶ 78% of team members said it had prevented an error

- ▶ 93% of team members said they would want it to be used if they were the patient undergoing a procedure

30 day all cause post op death rate

Surgical checklist timings (based on WHO principles)

▶ This checklist is to accompany patient from start of anaesthesia to recovery.

▶ **BEFORE SURGERY – Sign In**

▶ **DURING SURGERY – Time Out**

▶ **AFTER PROCEDURE – Sign Out**

▶ It's not just about ticking boxes

▶ Does not need to be filled in — is a **communication tool**

▶ Need to embrace culture of teamwork & discipline

▶ WHO Surgical Safety Checklist Implementation tool
www.who.int/patientsafety/safesurgery/checklist_implementation

Checklists

- ▶ List of actions
- ▶ Identify crucial steps that may be overlooked
- ▶ Improve consistency of care
- ▶ Compensate for limits of memory & attention
- ▶ Reduce patient harm
- ▶ Improve communication

- ▶ **They are a Quality Improvement tool**

Introducing surgical checklists

- ▶ Audit complications first
- ▶ Involve team
- ▶ Education
- ▶ Leader adopt first
- ▶ Team training
- ▶ "Checklist Champion"
- ▶ Empower team members to use it
- ▶ Modify it after feedback

Ideal checklist

Should be

- Short (less than 10 items ideal)
- Simple
- Evidence based
- Clear large type

Does not work if ...

- Too complex
- Too long
- Not introduced properly
- Use not monitored
- Too many — checklist overload

Audit use of surgery checklists

Process audit use of checklist

Checklist used yes/no

Why not ??

Team discussion & changes made

Vets Now results: use of surgical checklist

30% April 2017

83% March 2019

How not to do it !!

Amit, this is a straightforward case, just tick everything.

Safe surgery checklist 10 years on

▶ Mandate-only approach: 0% change in mortality

▶ Mandate plus team training: 18% reduction in mortality

▶ Plus feedback & support: 26% reduction in mortality

Atul Gawande

Needs change in culture:

Clinical leadership

Teamwork

Assertiveness in raising issues

Checklists for emergency situations ??

Barriers to implementing checklists

▶ Time

▶ Reluctance to change

▶ Hierarchy: "Just a routine operation"

▶ Leadership

Technical & non-technical skills

- **Technical skills:** clinical/surgical knowledge, dexterity and technique. Gained at university and pursued by recent graduates.

- But alone, not enough to ensure good patient outcomes.

- **Non-technical skills:** cognitive and social behaviours that complement technical expertise and knowledge and contribute to good patient outcomes.

  - Situation awareness

  - Decision making

  - Communication and teamwork

  - Leadership

  - Task management

- These skills are not taught

Checklists are an important part of safety culture

Situation Awareness

Teamwork

CVS Group plc
Passionate about animal care

Before Induction of Anaesthesia
(With Nurse)

PATIENT and PROCEDURE CONFIRMATION
☐ Identity & Consent (estimate signed)
☐ CPR status confirmed _____
☐ Procedure site
☐ Additional procedures confirmed _____

ANAESTHESIA SAFETY CHECK COMPLETED
☐ IV CANNULA placed and patent
☐ Anaesthetic machine and ventilator checked
☐ AIRWAY EQUIPMENT available and functioning
☐ Endotracheal tube CUFFS checked
☐ Adequate OXYGEN for proposed procedure
☐ BREATHING SYSTEM leak checked and APL valve open
☐ Monitoring equipment checked
☐ Heat support prepared
☐ TPR and blood results been checked

ANY KNOWN ALLERGIES?
☐ No ☐ Yes _____

DIFFICULT AIRWAY/ASPIRATION RISK?
☐ No ☐ Yes:- Is equipment and assistance available?

IS THERE A RISK OF SIGNIFICANT BLOOD LOSS?
☐ No ☐ Yes:-   ☐ Type (dog) + cross-match (cat)
                    ☐ Are blood products available?

☐ Other RISKS identified and emergency interventions available

PATIENT POSITIONING CONFIRMED WITH CLINICIAN
☐ No ☐ Yes: Describe _____

PRE-OP IMAGING REQUIRED? ☐ No ☐ Yes: _____

Patient Safety Checklist

Before Skin Incision
(With Nurse and Surgeon)

☐ CONFIRM ALL TEAM MEMBERS HAVE INTRODUCED THEMSELVES BY NAME AND ROLE

SURGEON AND NURSE VERBALLY CONFIRM
☐ Patient Identity
☐ Incision Site
☐ Procedure(s)
☐ Blood work results
☐ Currently being treated with steroids ☐ No ☐ Yes
☐ Currently being treated with an NSAID ☐ No ☐ Yes

HAS ANTIBIOTIC PROPHYLAXIS BEEN ADMINISTERED IN THE LAST 60 MINS if required? ☐ Yes ☐ Not applicable

IS IMAGING DISPLAYED? ☐ Yes ☐ Not applicable

ANTICIPATED CRITICAL EVENTS
To Surgeon:
                    ☐ Critical steps _____
                    ☐ Anticipated surgical time _____
                    ☐ Anticipated blood loss _____
To Nursing Team
                    ☐ Patient specific concerns communicated
                    ☐ Sterility confirmed (including indicator results)?
                    ☐ Equipment issues or concerns communicated
                    ☐ Swab count confirmed
                    ☐ Blade and needle count confirmed

☐ DEPTH of anaesthesia appropriate before skin incision

Date: _____

Nurse: _____

Surgeon: _____

Before Patient Leaves Procedure
(With Nurse and Surgeon)

NURSE VERBALLY CONFIRMS
            ☐ Name of the procedure(s)
            ☐ Completion of instrument, swab, sharps counts
            ☐ Communicated equipment concerns

IS POSTOPERATIVE IMAGING REQUIRED?
            ☐ No ☐ Yes: Describe _____

HAVE SAMPLES BEEN COLLECTED?
            ☐ Nurse verifies they have sample(s)
            ☐ Samples have been appropriately labeled
            ☐ Submission form completed & submitted

REVIEW CONCERNS FOR RECOVERY & POST-OP CARE
To be written on recovery section of GA sheet for wards handover

☐ SAFETY CONCERNS COMMUNICATED
(Airway, Breathing, Circulation, Body Temperature)
☐ Analgesia plan confirmed
☐ Antibiotics
☐ Intravenous fluid rate and catheter care
☐ Sedation
☐ Other medications
☐ Express bladder, remove purse string, remove throat pack etc.
☐ Contraindicated medications communicated
☐ ASSESSMENT & INTERVENTION PLAN confirmed
☐ Person assigned to MONITOR the patient

Patient Information or sticker:

Name: «Animal_Name» «Last_Name»

Age: «Age»

Breed: «Breed»

Sex: «Gender» «Spayed_Neutered»

Decision making

Communication

RCVS KNOWLEDGE

Leadership

www.rcvs.org.uk/lifelong-learning/rcvs-leadership-initiative/

RCVS Leadership Initiative

Inspired by the Vet Futures and VN Futures projects, the RCVS Leadership initiative seeks to meet our strategic ambition *'to become a Royal College with leadership... at its heart, and support this creatively and with determination.'*

The initiative is focused around three areas of work:

1. Leadership for everyone

Promoting the importance of self-reflection and the development of leadership skills as key aspects of veterinary professionals' continuing education and providing the resources to help support such development.

2. Leading the profession

Ensuring that, as an organisation, the RCVS is an exemplar of leadership development and is fit to lead the professions.

3. Tomorrow's leaders

Highlighting the diverse range of leadership development opportunities for veterinary surgeons and veterinary nurses, the roles and positions these could lead to, and the impact they could have on the future of the professions.

To learn more about RCVS Leadership and the work we will undertake to meet the initiatives aims, please take a look at the RCVS Leadership Three-Year Plan.

Edward Jenner Veterinary Leadership Programme

On 13 November 2018, as part of our Leadership Initiative, we launched the Edward Jenner Veterinary Leadership Programme - a free-to-access MOOC (Massive Open Online Course) for veterinary surgeons and veterinary nurses.

More information about the programme is available from its dedicated webpage.

RCVS LEADERSHIP INITIATIVE

Edward Jenner Veterinary Leadership Programme

Inspiring Veterinary Leaders

MORE FROM 'LIFELONG LEARNING'

Inspiring Veterinary Leaders

Our campaign takes a look at 12 veterinary professionals and their different leadership journeys.

FIND OUT MORE

RCVS KNOWLEDGE

Checklists should reduce incidence of "Never events"

Preventable safety incidents that should never occur if available preventative measures are implemented.

▶ Wrong site surgery

▶ Foreign objects left after op

Embedding safety in practice

Improving communication as part of safety culture

▶ Checklists: communication tool

▶ Improve situational analysis

▶ Pilots: no non-essential communication below 10,000ft

▶ Anaesthetists: at start & end of surgery, increased brain activity

▶ Closed loop communication

Human factors

- Study of human work – physical characteristics, thinking/remembering

- Interaction with people, environment, work activities

- If design of equipment/technology/systems does not accommodate how we work, then we are more prone to error and stress.

- Concerned with design of work systems to make it easier for people to do the right thing. e.g. selecting the right medication

- Systems approach to errors

- Optimise our well-being

- Enhance patient safety

Systems approach to safety culture

- Not address problems by trying to modify human behaviours – modify the system.

- Not about eliminating human error – about designing systems that are resilient to unanticipated events.

- Not focused solely on the individual – focused on organisational level and beyond.

- Not refer to 'failures' of people as causes of adverse events – refer to system design flaws.

There are no bad people, just bad systems.

System examples: patient safety

- ▶ Protocols
- ▶ Guidelines
- ▶ Checklists
- ▶ Team training/CPD
- ▶ Technology solutions
- ▶ Workflow design
- ▶ Work environment
- ▶ Equipment needs/design
- ▶ Packaging/labelling

The DESIGN of EVERYDAY THINGS — DON NORMAN
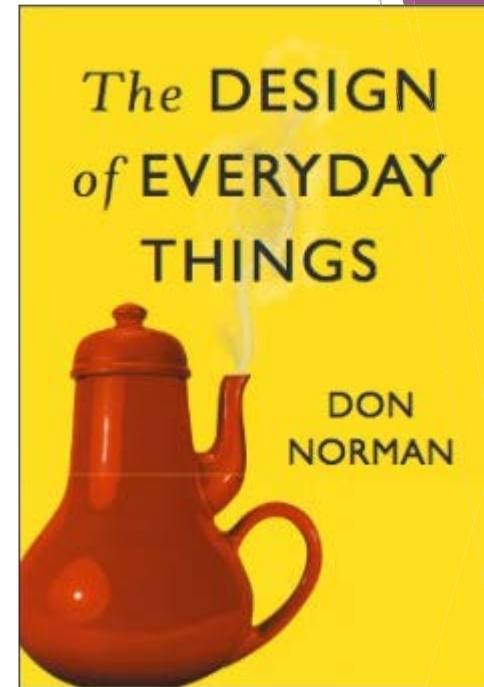
Papers on use of safety checklists

The effects of safety checklists in medicine : a systematic review - Thomassen, Sturesund, Softeland & Brattebo - Acta Anaesthesiol Scand 2014

Safety checklists appear to be effective tools for improving patient safety in various clinical settings by strengthening compliance with guidelines, improving human factors, reducing the incidence of adverse effects and decreasing mortality & morbidity.

Reduction of surgical complications in dogs & cats by the use of a surgical safety checklist – Bergstrom, Dimopolou & Eldh – Veterinary surgery (2016)

The frequency & severity of postoperative complications was significantly decreased after introduction of a surgical checklist

Improving equine surgical safety through clinical checklists; identifying barriers to adoption Redpath & White Equine Veterinary Journal

Comments ... Positive

"Has really helped with getting the team to consider what might occur during a procedure"

"They make a massive difference when things go wrong"

"We have picked up allergies e.g. to Augmentin which was way back in the notes but not on the consent form"

"They are a prompt to nurses and clinicians and hopefully foster an improved team approach to patient care"

"We use checklists on a daily basis, they save time and leave an audit trail"

"They are very useful for training & induction of new team members"

"They are a great communication tool"

"The discussion 'is haemorrhage likely?' has saved the life of at least one patient to my knowledge"

& negative …

"We have tried to use the WHO safe surgery checklist but it wasn't really applicable"

"We have them but staff do not use them in emergencies, as they think they are too time consuming & this is when they would be really useful"

"Nurses are more amenable to using them than vets"

"Can become complacent & just tick the boxes without looking at them properly"

So where are we now with veterinary checklists ?

▶ Practices using modified WHO Safe Surgery Checklist

▶ AVA resources

▶ PSS requires checklists for Anaesthesia Module of Awards & protocols/guidelines for many other awards

AVA Anaesthetic Safety Checklist

▶ AVA Checklist

▶ AVA Checklist booklet

▶ High ASA status monitoring form

▶ Low ASA status monitoring form

www.ava.eu.com

Anaesthetic Safety Checklist

ASSOCIATION OF
VETERINARY ANAESTHETISTS
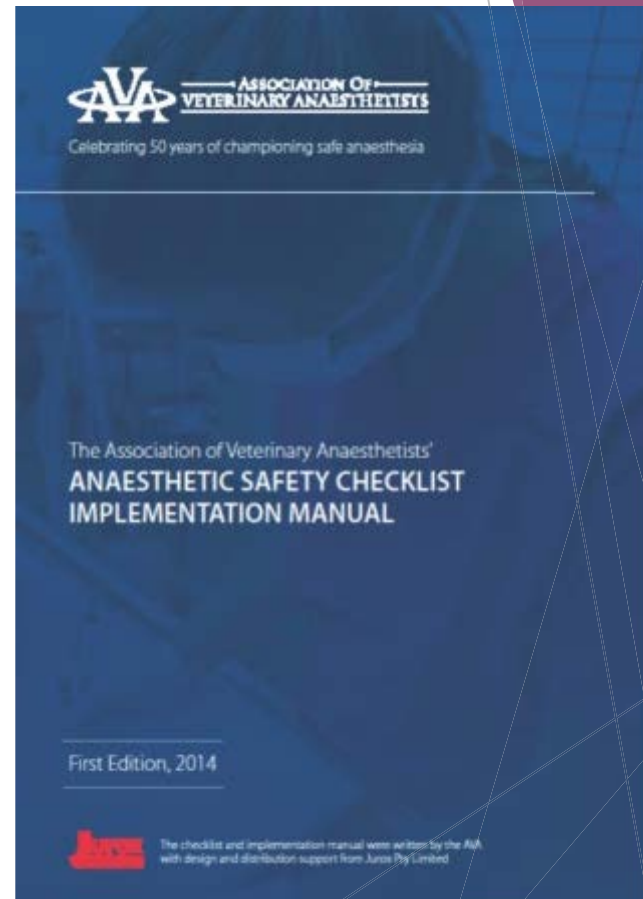
Pre-Induction

- [ ] Patient NAME, owner CONSENT & PROCEDURE confirmed
- [ ] IV CANNULA placed & patent
- [ ] AIRWAY EQUIPMENT available & functioning
- [ ] Endotracheal tube CUFFS checked
- [ ] ANAESTHETIC MACHINE checked today
- [ ] Adequate OXYGEN for proposed procedure
- [ ] BREATHING SYSTEM connected, leak free & APL VALVE OPEN
- [ ] Person assigned to MONITOR patient
- [ ] RISKS identified & COMMUNICATED
- [ ] EMERGENCY INTERVENTIONS available

Pre-Procedure — Time Out

- [ ] Patient NAME & PROCEDURE confirmed
- [ ] DEPTH of anaesthesia appropriate
- [ ] SAFETY CONCERNS COMMUNICATED

Recovery

- [ ] SAFETY CONCERNS COMMUNICATED
  Airway, Breathing, Circulation (fluid balance), Body Temperature, Pain
- [ ] ASSESSMENT & INTERVENTION PLAN confirmed
- [ ] ANALGESIC PLAN confirmed
- [ ] Person assigned to MONITOR patient

This checklist was written by the AVA with design and distribution support from

RCVS KNOWLEDGE

What are equine practices doing ??
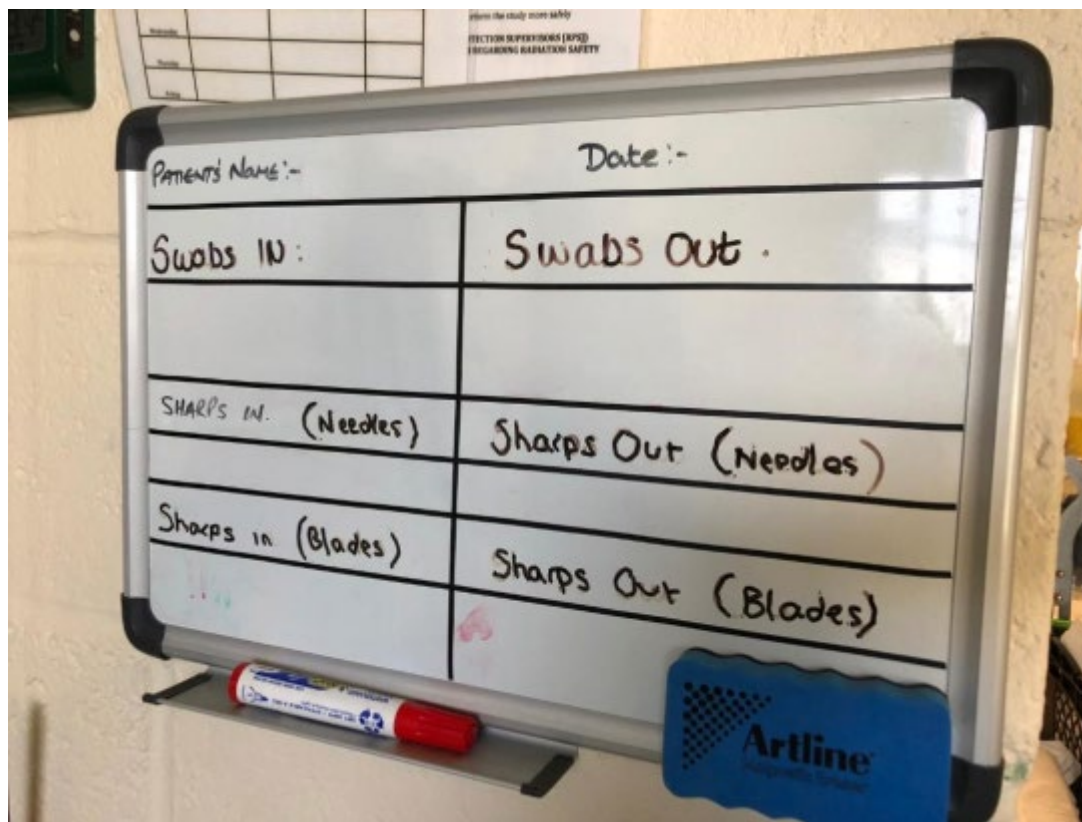
Pre-Op Planning

☐ Check clinical history for previous health conditions

☒ Check vaccination status, is tetanus required?

☐ Fill out anaesthetic drug dose sheet

☐ Check previous blood results

Pre-Op Donkey Assessment and Preparation

☐ Clinical exam

☐ Check donkey preparation- mouth flushed, groomed etc

Pre-Op Theatre Set-Up

☐ 1st anaesthetic this week? Vet or Nurse to check oxygen cylinder levels

☐ Draw up drug doses including top ups and local anaesthesia

☐ Check ET tube cuffs

☐ Plug in monitoring equipment and leads

☐ Check Isoflurane level

☐ Check soda lime colour

☐ Locate emergency drugs box

☐ Turn on scavenging

☐ Fill re-breathing bag with gas, turn off O_2, close valve, check for leaks.

☐ Warm fluids if using IVFT, prepare giving set

Post-Op

☐ Clean SPO_2 probe with isopropyl alcohol

☐ Record anaesthesia time on soda lime cylinder

☐ Record ketamine use in DD book

☐ Record any adverse event on adverse event log

Catheter equipment checklist
(Bell Equine)

Clippers

Local (2.5ml syringe, blue needle, 2mls local)

Scrub bowl with small amount of swabs, Hibi and some gloves

Spirit

20ml syringe with flush (saline)

Extension set pre flushed

Catheter - short stay orange – placed no longer than 24hrs, MRI, B/scan

        long stay green – longer than 24hrs, sick ponies,

        check with RVN or clinician if unsure

Gloves Latex for S/stay or sterile for L/stay

X3 – 4 tie sutures

Tape for extension set wings if tying in

Bung for extension sets with no cap.

The future: technology & checklists

▶ Checklists on tablet devices

▶ New apps e.g. "Emerge" from John Hopkins: human medicine combines checklists — safety concerns RED

▶ Checklists combined with dose calculations (thanks to West Bar Veterinary Hospital)

ANAESTHETIC RECORD

DATE	06.03.2016	OPERATION		
SURNAME	Messi	COMP REF	1 : AGE	
RABBIT : Little Bunny		WEIGHT : 1.9 kg		
DRUG and DOSE RATE	AMOUNT and ROUTE	INTERVAL	TIME	GIVEN
Sedator (0.17ml/kg)	0.32 ml S/C	0 mins		
Ketamine (0.13ml/kg)	0.24 ml S/C	+5 mins		
Vetergesic (0.17ml/kg)	0.32 ml S/C	+10 mins		
Baytril 2.5% (0.4ml/kg)	0.76 ml S/C	Any		
Loxicom Inj (0.09ml/kg)	0.17 ml S/C	Any		
Metoclopramide (0.15ml/kg)	0.28 ml S/C	Any		
Atipam (0.17ml/kg)	0.32 ml S/C	End of Op		

Other clinical areas where checklists can be useful

- ▶ Anaesthesia

- ▶ Surgery

- ▶ ICU

- ▶ Checklists for specific surgeries

- ▶ Case handover checklists

- ▶ Triage checklists

- ▶ CPCR

- ▶ Equipment checklist

- ▶ Cleaning checklists

Thank you
Any questions ?
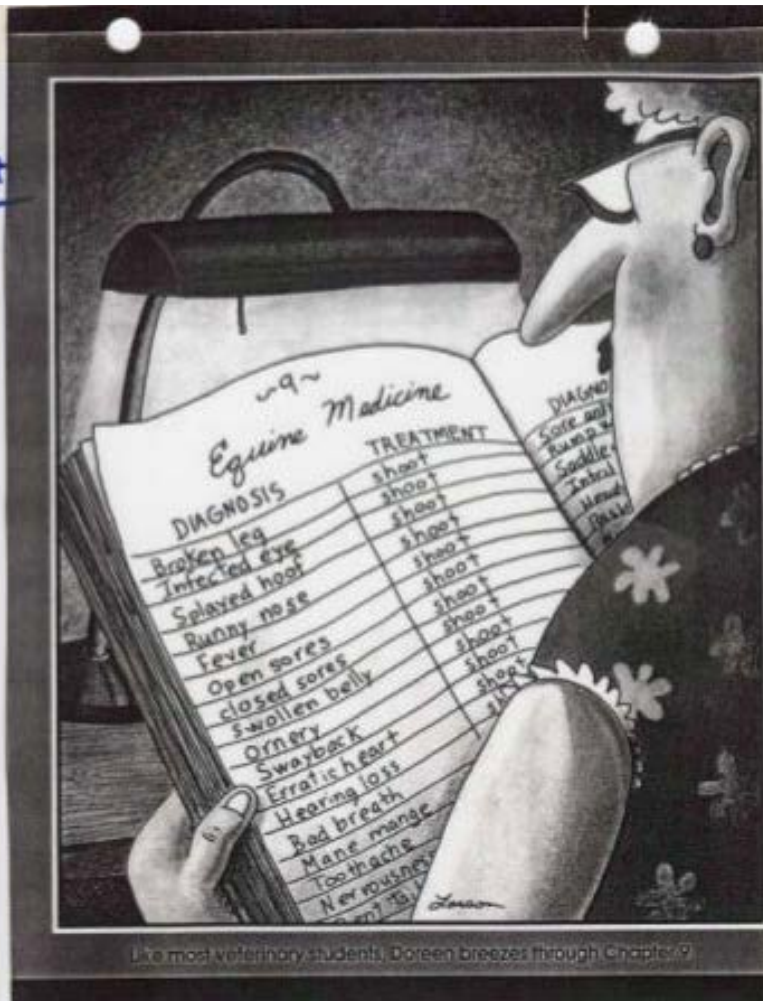
(Larson, The far side)

"Like most veterinary students, Doreen breezes through Chapter 9."