vet

Veterinary Emerging Topics (VET)™ Report

Implementing safety and quality improvements in veterinary medicine

NAVC
YOUR VETERINARY COMMUNITY

Banfield®
PET HOSPITAL

All images were captured safely with participant health protected.

We are pleased to share with you the sixth annual Veterinary Emerging Topics (VET)™ Report. In this year's report, we at Banfield Pet Hospital® and the North American Veterinary Community (NAVC) focus on the development and implementation of quality and safety improvements in veterinary medicine.

Our vision at NAVC is a world in which all veterinary healthcare teams thrive. We believe that education and information is a key driver to advancing and improving veterinary care worldwide, making this vision a reality. As a member of the Mars Veterinary Health family of brands, Banfield is guided by the organization's **Five Principles** – the first of which is quality. It is quality that sets the uncompromising standard for all that we do in fulfilling the purpose of the passionate professionals within our organization: A BETTER WORLD FOR PETS.

Here you'll find several of the foundational quality concepts and tools that Banfield has successfully implemented throughout our continuing quest to build a culture of quality and safety in our hospitals. In a case study on anesthesia, we also show how data can inform and support hospital teams and deliver care improvements for our patients.

The objective of this year's VET Report is to provide quality concepts and resources to support you and your veterinary teams in creating – and in many cases growing and improving – your own culture of quality and safety. As we continue to face and overcome the challenges presented by the COVID-19 pandemic, it has become even more apparent that quality must be at the heart of what we do as veterinary professionals. By working together to improve quality and safety principles in veterinary medicine, we will achieve our shared overarching goals to enhance the lives of our teams, clients, and patients, as well as advance the veterinary profession.

Respectfully,

Molly McAllister, DVM, MPH
Chief Medical Officer
Banfield Pet Hospital

Dana Varble, DVM, CAE
Chief Veterinary Officer
North American Veterinary Community

Building a quality foundation

Quality is the relentless pursuit of excellence. For veterinary professionals, quality principles may be used to drive decision-making in every aspect of practicing veterinary medicine to help provide the best possible outcomes for the pets and the people who love them.

In previous Veterinary Emerging Topics (VET)™ reports, we introduced some principles of quality improvement using tools and concepts adapted from other industries while addressing medical topics that challenge the veterinary profession. In this 2022 VET report, we focus on how to build a quality and safety foundation in veterinary medicine, sharing what we've learned at Banfield through our quality journey. This report also presents a case study that demonstrates how a data-driven approach can improve anesthesia safety, as well as concepts and tools that any veterinary practice can use to enhance its own quality journey.

The COVID-19 pandemic has presented the veterinary industry with many new challenges that impact both quality and safety. Banfield surveyed veterinarians to get an indication of the pandemic's impact, as well as identify factors veterinarians consider important for building a culture of quality and safety in their medical practices today – the results of which are included in this report.

What is a culture of quality?
A culture of quality starts with the mindset that "we are all in this together."

In this culture, there is a systems approach to medical errors. This means that when an error occurs, the blame is not placed on a person. Instead, the processes that led up to the error are investigated. The team then works together to fix the processes, so errors do not happen in the future.

In other words, there is no us versus them – no hospital team versus leadership or hospital team versus clients. It features open and honest communication where everyone listens to each other and communicates to move forward. In addition, information is accessible, including business performance and strategic goals, to help employees understand what is expected of them.

What is a culture of safety?
A culture of safety is a combination of attitudes, beliefs, and behaviors that work together to ensure both the psychological and physical safety of the veterinary practice employees, so they are empowered to provide outstanding care to their patients. The requirements for a culture of safety include:
- Employees understand that all systems and processes can fail.
- Employees help find and fix unsafe conditions before anyone is harmed.
- Employees focus on how and why errors occur, rather than on who is to blame.

Who is responsible for creating a culture of quality and safety?

Building a culture of quality and safety in veterinary medicine requires going beyond the veterinary professionals who are physically delivering care to patients. Instead, quality improvement is everyone's responsibility and is determined by how each team member shows up every day – for every pet, client, and each other.

Patient outcomes are directly influenced not only by clinical decisions at a practice, but also by the processes developed by staff members who do not directly handle pets. For example, elements such as patient load, shift hours worked in a day or a week, facility and equipment factors, and the skill levels of professionals in the environment all have an impact on clinical decision-making. In this way, everyone in the organization – not just the hospital clinical teams – is involved in creating and sustaining a culture of quality and safety in veterinary practices to improve the wellbeing and outcomes for all patients.

Although everyone in veterinary practice has a part in creating a culture of quality and safety, leaders play the most important role through the actions they take to create the desired culture, as well as by providing the necessary resources to drive continual improvements in quality and safety. Most importantly, leaders set the tone for the culture in their practices through their example. If a leader welcomes and makes changes based on feedback, the hospital team members will have the confidence to step forward with concerns and ideas for quality improvement. Leadership's commitment to quality improvement is profoundly connected to the outcomes of their veterinary hospital's patients and the satisfaction of their clients.

Domains of quality

Domains of Quality provides a holistic framework for the care delivered to every pet, every day. Adapted from the Agency for Healthcare Research and Quality[1] and first created by the Institute of Medicine[2], this tool is used by Banfield to frame quality care. When these elements of quality all work together, veterinary professionals can give the best of themselves to each other and to their patients and clients.

1. **Equitable**
   Providing recommendation and care to pets that does not vary in quality based on the characteristics of either the pet or the clients.

2. **Safe**
   Avoiding harm to pets, clients, and veterinary practice employees while providing care to pets.

3. **Effective**
   Providing care based on scientific knowledge and professional standards to those pets that would benefit and avoiding the underuse, overuse, or misuse of treatments.

4. **Timely**
   Reducing wait times and delays of treatment for pets, clients, and veterinary practice employees.

5. **Pet- and client-centered**
   Providing care that is respectful and responsive to pets' and clients' needs, as well as clients' preferences and values.

6. **Efficient**
   Avoiding waste whenever possible to maximize the value of care provided.

Case study
Using data to drive quality and safety improvements in anesthesia

Data is frequently used to support hospital teams in the delivery of quality care to their patients. This case study provides insight into how to take a data-driven approach to improve anesthesia safety.

Challenge

Anesthesia is among the highest risk services provided by veterinary practitioners. Each year, over one million anesthetic procedures are performed by Banfield. A 2017 Banfield study[3] demonstrated that Banfield's mortality rate associated with anesthesia (0.05% for dogs and 0.11% for cats) was comparable or lower than mortality rates previously reported in the industry.[4-7] While mortality rates associated with anesthesia were already low, Banfield felt the responsibility to its patients and clients to dig deeper and uncover information that could potentially further reduce the mortality rate.

Solution

Banfield developed a data-driven approach to improve anesthesia safety for its patients and identify mitigations for pets undergoing anesthesia. Literature reviews and veterinary patient records were used to identify risk factors associated with anesthesia mortality. For example, common risk factors impacting anesthesia-related mortality in dogs and cats include age at the time of the anesthetic procedure, hypotension, hypothermia, and health status.[4-7] This information was then used to develop evidence-based medical quality care standards that were implemented via a robust communication plan that presented clear expectations for hospital teams.

To help embed and sustain change, "Clinical Essentials" and best practices for anesthesia were established. Clinical Essentials are standards of practice that constitute the minimum acceptable level of care, whereas best practices are those procedures that meet or exceed an expected level of care, encompassing a scale of care from "desirable" to "aspirational." Banfield's Clinical Essentials are broad enough to allow veterinarians to make clinical decisions based on the needs of each individual pet. The Clinical Essentials provide the framework, or the guardrails, in which anesthesia is provided. The clinical decisions for the best interests of the pets always remain the responsibility of the veterinarian.

This program was launched in the fall of 2017 and hospital teams were expected to adopt and be held accountable to practice these standards for every anesthetic procedure within six months. In early spring 2018, Banfield implemented an annual technical audit program that involved evaluating hospital teams on their compliance with the standards.

In the fall of 2018, a change management approach was introduced to further bolster safe anesthetic practices in hospitals, which included anesthesia-related "Periodic Focus Areas" and hospital checklists. The Periodic Focus Areas are informational job aids used to review and discuss standards, in this case, anesthesia-related standards, and help to ensure that hospital teams stay up-to-date on recommended practices. The role of checklists has proven to be impactful in enhancing safety and quality in other professions (e.g., aviation safety), especially those professions with technical or highly complicated work.

There are two checklists that were developed for use in our hospitals: the "Anesthesia Machine Checklist" and the "Pre-Induction Timeout Checklist." Both these checklists may be used to help mitigate some of the highest risk areas in anesthesia, equipment, and communication. These checklists, below, can be modified to fit different hospital settings.

ANESTHESIA MACHINE CHECKLIST

Follow and complete prior to every general anesthesia procedure

	Mark	Record
Check **Anesthesia Cart Preventive Maintenance Sticker** to ensure all maintenance has been performed (record date)	☐	
Verify **Primary Oxygen** source (record volume)	☐	
Verify available **Back-Up Oxygen**	☐	
Verify **O₂ Flowmeters** working	☐	
Verify **Vaporizer** full and port tightly closed (record volume)	☐	
Perform Anesthetic Machine **Leak Test** (If leak is present, DO NOT proceed. See troubleshooting guide.)	☐	
Verify **Scavenging** on and functional	☐	
Verify **CO₂ absorbent** fresh or newly replaced (record date replaced)	☐	
Verify **Monitoring** equipment functional	☐	
Verify **Emergency Medication** available and expiration dates checked	☐	

Content is derived from Anesthesia and Analgesia for the Veterinary Practitioner: Canine and Feline

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PRE-INDUCTION TIMEOUT CHECKLIST

Each task to be completed and checked off by the attending veterinarian or dedicated monitoring associate prior to induction for each general anesthetic procedure

	Mark
Complete **physical examination** performed	☐
Verify *Anesthetic Machine Checklist* completed	☐
Dedicated monitoring associate assigned	☐
Patient name confirmed	☐
Owner **permission** confirmed	☐
Complete **patient history** obtained and reviewed	☐
Clinical pathology data reviewed and addressed	☐
Patient ASA status determined	☐
Procedure, site, positioning and **location** confirmed	☐
Endotracheal tube cuffs checked and laryngoscope available	☐
Breathing system connected, leak free and pop-off valve open and in bag position	☐
Complete **physical examination** performed after premedications have taken effect	☐
Patient risks identified and discussed among anesthetic team	☐
Emergency doses precalculated, within reach	☐
Antibiotics available (if indicated)	☐

Content is derived from Anesthesia and Analgesia for the Veterinary Practitioner: Canine and Feline

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Printable full-size versions are available for printing in the appendix.

Results

Banfield has observed a downward trend in the anesthesia-associated mortality rate since implementing the quality and safety initiatives, improving upon the original starting point that was comparable or lower than mortality rates previously reported in the industry.[4–7] Prior to implementation, the anesthesia-related mortality rate for dogs and cats combined was relatively stable at an estimated 7.36 deaths per 10,000 procedures. In the months after implementation, the mortality rate decreased to slightly over 6 deaths per 10,000 procedures. This is a significant decrease (see figure below) and, as mortality rates have continued to fall even in the face of increasing numbers of anesthesia procedures performed, this equates to hundreds of pet lives saved. Pets, pet owners, and our hospital teams can all reap the benefits of this work.

The rolling average chart below can be used to assess how Banfield's efforts are improving safety and quality for anesthetic procedures. This information is useful for observing long-term trending.

**Anesthesia-associated deaths per 10,000 anesthetic procedures
2017 - July 2021**
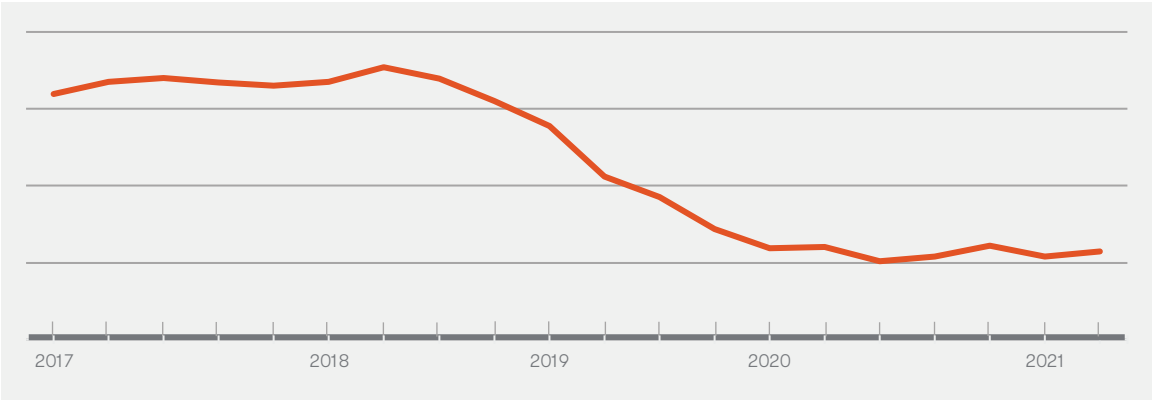
Survey of veterinarians indicate quality in their practices is a major concern

Banfield commissioned a survey of 100 (non-Banfield) veterinarians in the industry to gauge their attitudes and concerns about quality in their practices. Survey questions focused on the impact the COVID-19 pandemic was having on veterinary practices, as well as the factors veterinarians considered important for building a culture of quality and safety.

The following are highlights from that survey:

The impact of COVID-19

FATIGUE

80%

of surveyed veterinarians are very concerned about impact COVID-19 is having on the mental health of their teams

LABOR SHORTAGES

99%

of surveyed veterinarians expressed concern over labor shortages
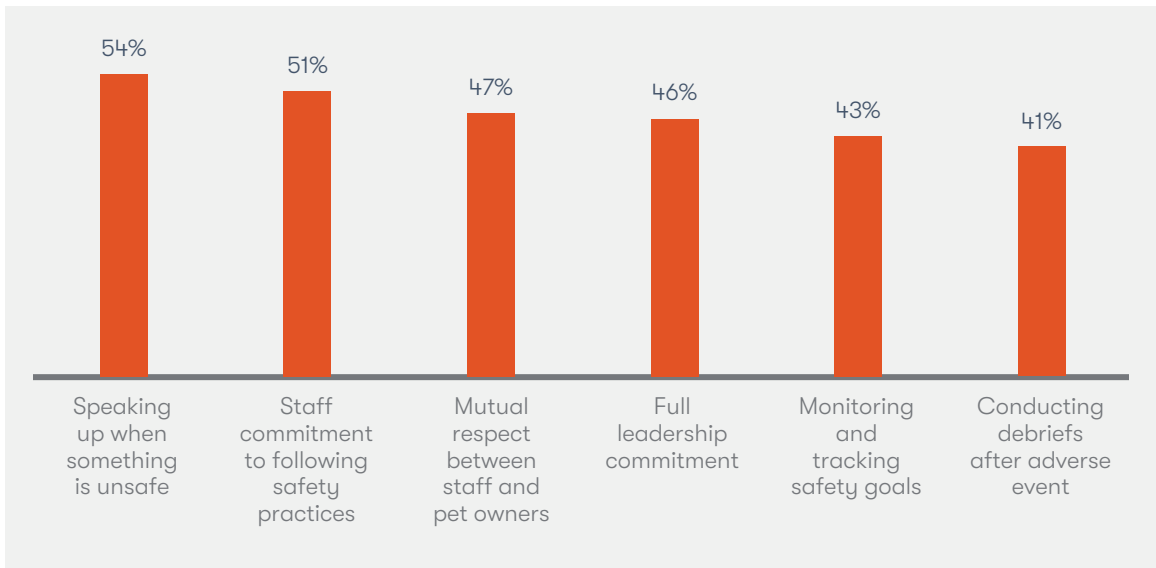

HEAVY CASELOADS

83%

of surveyed veterinarians indicated that COVID-19 has impacted their communication with clients
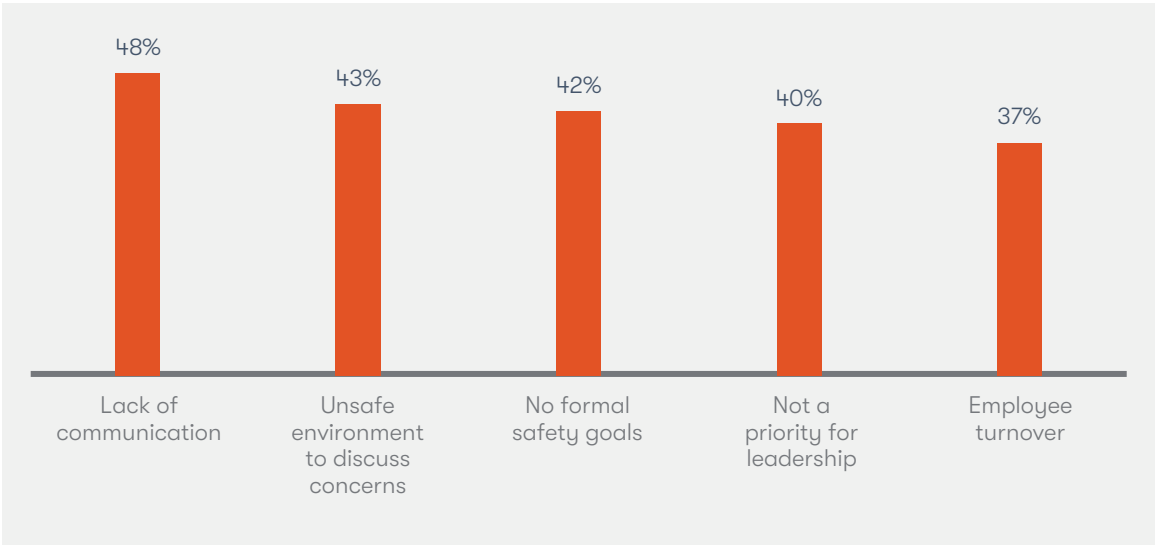
What veterinarians say about the impact of COVID-19 on quality and safety in their practices

- 99% of respondents reported that they were at least a little concerned that the COVID-19 pandemic was having an impact on their veterinary teams (with 51% extremely concerned).
- 81% of respondents reported that their veterinary practices have grown their client bases since the COVID-19 pandemic began.
- 65% of respondents said that they have more limited follow-up with pet owners after appointments due to the COVID-19 pandemic, while 64% reported longer wait times before appointments and 44% indicated scheduling delays.
- 99% of respondents reported that they are facing staffing challenges, with 73% observing that veterinarians are in short supply.
- 93% of respondents reported that patient safety policies are not being fully followed because of staffing shortages, with 59% noting that it happens multiple times a week.
- 100% of respondents agreed with the statement: "I wish there were more resources to help veterinary staff navigate issues with patient safety in the workplace."

What veterinarians say are must-haves for building a culture of quality and safety in their practices

Speaking up when something is unsafe	Staff commitment to following safety practices	Mutual respect between staff and pet owners	Full leadership commitment	Monitoring and tracking safety goals	Conducting debriefs after adverse event
54%	51%	47%	46%	43%	41%

What veterinarians say are the biggest challenges for growing and sustaining a culture of safety in their practices

Lack of communication	Unsafe environment to discuss concerns	No formal safety goals	Not a priority for leadership	Employee turnover
48%	43%	42%	40%	37%

How to build and sustain a culture of quality and safety – tools for veterinary practices to drive quality improvements

The quality improvement field contains many concepts and tools – proven in human healthcare settings – that can be applied to veterinary medicine to help continuously enhance the positive impact veterinary medical practices have on their teams, clients, and patients. However, getting started with developing a quality improvement and safety program can be overwhelming.

Here we provide some of the foundational concepts and tools to help you build and sustain a culture of quality improvement and safety in your veterinary practice.

Using root cause analysis to understand why systems and processes fail

When using a traditional approach to dealing with errors, the focus typically centers on the inadequate knowledge and skills of individuals and uses punishment or remediation with the purpose of creating flawless providers. A systems approach differs by recognizing that errors reflect predictable human failings that are due to poorly designed systems and processes. When employing a systems approach, the situations or factors that give rise to human errors are identified and changed to reduce errors, minimize the risk, and improve outcomes for patients.

Root cause analysis is not a single technique, but rather a range of approaches and tools that are used to understand how and why an incident occurred.

Understanding the root cause of adverse events with the Swiss Cheese Model

The Swiss Cheese Model[8] can be used to describe how errors can stack up and lead to an adverse event, helping teams understand potential root causes. In this model, the slices of cheese represent safety barriers or precautions against adverse events or outcomes. No system is perfect, and no barrier is foolproof; therefore, there are holes in the slices of Swiss cheese. When enough holes in each slice of the cheese line up, an adverse event can occur, including patient death.

The goal of an analysis of quality is to reduce the opportunity for adverse events to occur by making systems improvements. This can be done by either adding more slices of cheese (protective systems) or reducing the number or size of holes in the cheese (system flaws). This helps ensure that all the holes do not line up, thus avoiding a safety event. Finding the root cause of adverse events helps emphasize failures occurring in systems and processes. In this way, a culture of blame and a tendency to punish individuals for adverse events should be eliminated.

Printable full-size version is available for printing in the appendix.

Finding the root cause with the Five Whys tool

Five Whys[9] is an effective tool to help determine the root cause of an adverse event. Frequently used in conjunction with other tools, such as the Swiss Cheese Model, Five Whys involves asking "why" five or more times to find the contributing factors and root cause of an event. The process begins by stating the adverse event and asking why it happened. Then, continue to ask "why" at least five times, until you are unable to ask why anymore. The answer to the final "why" is likely the root cause of the error and where mitigation efforts should take place to prevent the error from occurring again in the future.

Example:

Statement of adverse event:
A patient died unexpectedly after an elective surgical procedure.

1. *Why?* The patient experienced periods of hypotension that were not recognized or addressed during the recovery phase.
2. *Why?* The typical routine for post-anesthetic monitoring was not followed and was therefore inadequate.
3. *Why?* Because the veterinary nurse had not been informed or educated about the routine.
4. *Why?* Because there is no dedicated process to introduce new staff to tasks in the practice.
5. *Why?* Because the practice has grown rapidly, and staff member training has not been scheduled.
   Root cause: Dedicated time for staff training is not routinely scheduled.
   Mitigation steps: Identify and prioritize dedicated time for training.

Printable full-size version is available for printing in the appendix.

Empowering employees with a Quality Champions program

Employee empowerment is an essential component to building and sustaining a culture of quality and safety in veterinary medical practices. Remember, quality starts with you. Everyone in a practice is a "Quality Champion."

Quality Champions program[10, 11]

Although every team member should be empowered to champion quality and safety, it may be helpful to find specific team members to lead the way. To start a Quality Champions program, seek volunteers who are motivated to be leaders in implementing quality improvements. In addition, be sure to provide training opportunities in the culture of safety concepts, so quality champions are confident in leading their teams and finding solutions for problems. It is also helpful to create a cohort of quality champions, so they can support and learn from each other.

Leaders play a central role in establishing a culture of quality improvement and safety. Modeling the behavior expected from others, sharing authority with team members, asking for and being open to feedback, and practicing transparency are all essential behaviors of leaders who effectively champion quality.

Fostering communication to create and sustain a culture of quality and safety

Not only is team communication an important part of employee empowerment, but it is also key to sustaining a culture of quality and safety. These are examples of communication tools to empower employees to identify and mitigate situations that they feel are unsafe.

CUS[12]

CUS is a communication tool developed by the Agency for Healthcare Research and Quality that encourages staff to speak up immediately and say one the following phrases if they see risk to patient safety:

- I am **c**oncerned!
- I am **u**ncomfortable!
- This is a **s**afety issue!

The hospital team then stops what they are doing, discusses and assesses the concern, and determines whether they should stop or how to move forward.

Daily huddles[13]

A daily huddle is a short meeting – about 10 to 15 minutes long – that involves all team members. The goal of these meetings is to review the previous day's work and proactively identify and discuss patient safety concerns. It provides a time and a place to share information and solve any problems.

Support for adverse outcomes

Should an adverse event occur, the following steps can be taken:

Adverse outcomes

Take care of the patient

- Provide stabilization and emergency care for the patient as needed.
- Do what is best for the patient, including referral if needed.

Take care of yourself

- Take a minute. Compose yourself in the manner that is best for you.
- Ask for help from your colleagues, if needed.

Take care of the client

- Notify the client as soon as possible.
- Answer any questions the client may have.

Take care of your team

- Gather your hospital team at the earliest opportunity. Discuss what went well, and what you wish went better. Respectfully share all points of view and provide assurances that you are all there for one another.
- Share resources for mental health and other needs.
- Conduct a Root Cause Analysis, as outlined above.

Conclusion

The ultimate goal of implementing quality programs in veterinary medical practices is to increase staff engagement and client satisfaction, while driving continual improvement in patient outcomes. Keep in mind that while quality starts with each individual on a hospital team, quality leadership begins with modeling the behavior you want to see all employees practicing. Most importantly, employee empowerment, team communication, and transparency are all critical to the success of growing and sustaining a culture of quality improvement and safety in veterinary medicine.

Quality is not a destination; it is a journey. There is no "finish line" when it comes to quality because with each step forward in the journey, new opportunities to improve are discovered.

The Banfield quality journey

2013	2014	2015	2016	2017	2018	2019	2020	2021
• Established goals • Formed centralized team	• Quality established as practice-wide priority • Developed measures of success	• Began building a culture of quality and safety	• Launched system to enable reporting of safety events • First continuous quality improvement project • Banfield Quality Manual	• Deployed anesthesia Clinical Essentials	• First annual Quality Week	• Clinical Learning and Support Process	• Expanded virtual care modalities to meet growing demand for care during COVID-19 • Started offering CVT appointments for limited services • Equitable domain of quality introduced	• Deployed oral health Clinical Essentials • Opened dental express hospitals focused on providing dental care to pets • 1,000+ VTs became pet nutrition advisors

While Banfield has been on a quality journey since the doors to our first hospital opened in 1955, we began focusing heavily on building a robust quality program in 2013 when the practice formed a centralized team and established quality and safety goals. The next year, quality became a practice-wide priority, measures of success were developed, and Banfield began building a culture of quality and safety. This quality journey was on a scale that had not been done before in veterinary medicine and year-over-year has resulted in the saving of numerous pets' lives through the efforts of our committed teams and leaders.

References and resources

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11. Institute for Healthcare Improvement: http://www.ihi.org/communities/blogs/africa-building-a-community-of-qi-and-patient-safety-champions

12. Agency for Healthcare Research and Quality: https://www.ahrq.gov/teamstepps/instructor/fundamentals/module6/igmutualsupp.html#cus

13. Patient Safety Network: https://psnet.ahrq.gov/primer/improving-patient-safety-and-team-communication-through-daily-huddles

Notes

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Appendix

ANESTHESIA MACHINE CHECKLIST

Follow and complete prior to every general anesthesia procedure

	Mark	Record
Check **Anesthesia Cart Preventive Maintenance Sticker** to ensure all maintenance has been performed (record date)	☐	
Verify **Primary Oxygen** source (record volume)	☐	
Verify available **Back-Up Oxygen**	☐	
Verify **O$_2$ Flowmeters** working	☐	
Verify **Vaporizer** full and port tightly closed (record volume)	☐	
Perform Anesthetic Machine **Leak Test** (If leak is present, DO NOT proceed. See troubleshooting guide.)	☐	
Verify **Scavenging** on and functional	☐	
Verify **CO$_2$ absorbent** fresh or newly replaced (record date replaced)	☐	
Verify **Monitoring** equipment functional	☐	
Verify **Emergency Medication** available and expiration dates checked	☐	

Content is derived from *Anesthesia and Analgesia for the Veterinary Practitioner: Canine and Feline*

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Each task to be completed and checked off by the attending veterinarian or dedicated monitoring associate prior to induction for each general anesthetic procedure

	Mark
Complete **physical examination** performed	☐
Verify *Anesthetic Machine Checklist* completed	☐
Dedicated monitoring associate assigned	☐
Patient name confirmed	☐
Owner **permission** confirmed	☐
Complete **patient history** obtained and reviewed	☐
Clinical pathology data reviewed and addressed	☐
Patient ASA status determined	☐
Procedure, site, positioning and **location** confirmed	☐
Endotracheal tube cuffs checked and laryngoscope available	☐
Breathing system connected, leak free and pop-off valve open and in bag position	☐
Complete **physical examination** performed after premedications have taken effect	☐
Patient risks identified and discussed among anesthetic team	☐
Emergency doses precalculated, within reach	☐
Antibiotics available (if indicated)	☐

Content is derived from *Anesthesia and Analgesia for the Veterinary Practitioner: Canine and Feline*

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Appendix: Swiss cheese model worksheet

Instructions: Use this worksheet to assess an adverse event in your hospital. Consider the common root causes of errors (e.g., rules/policies/procedures, environment, equipment, training, fatigue, scheduling, communication) and determine what are the root causes and contributing factors for this event. Label the different parts of the Swiss cheese diagram with the protective systems that are in place, along with some of the system flaws and/or human errors that may have led to the event. Capture findings in the Datix CLASP form for this event.

Event description:

_____
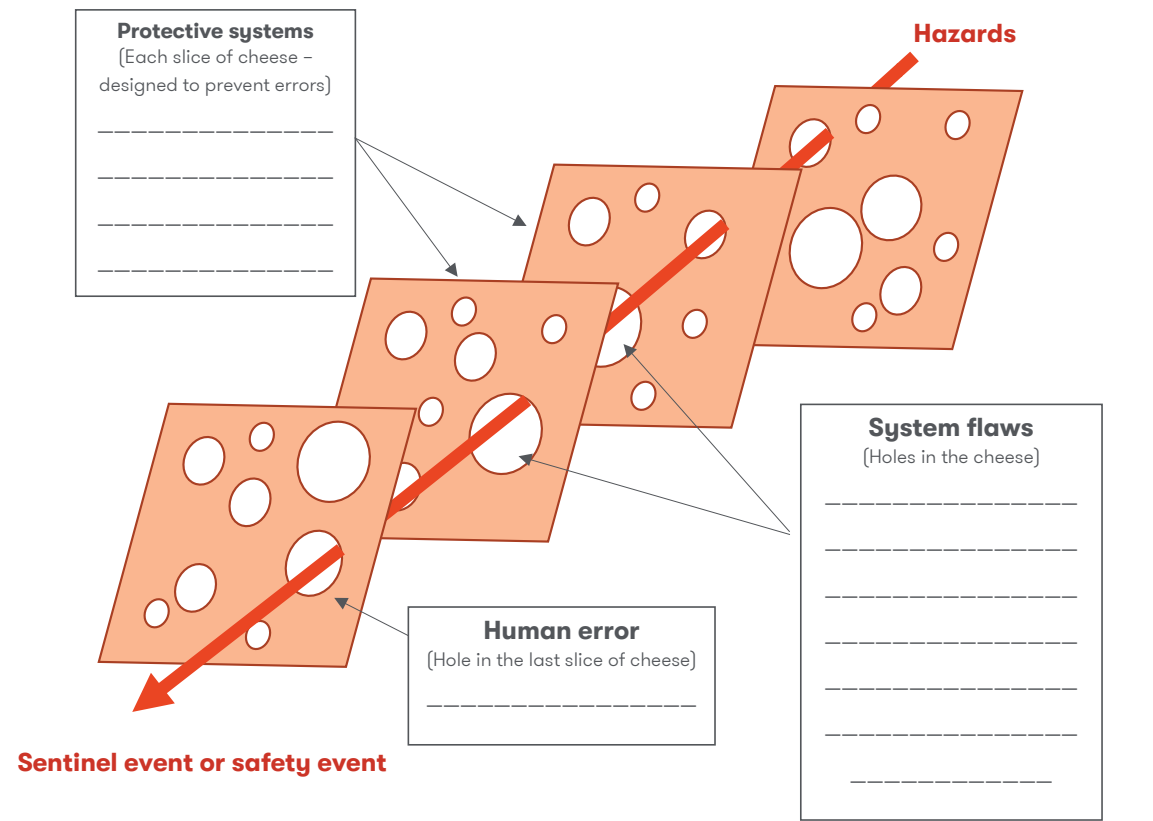_____
_____

Factors Leading to Patient Safety Event:

1. _____   4._____
2. _____   5._____
3. _____   6._____

Swiss Cheese Diagram:

Protective systems
(Each slice of cheese – designed to prevent errors)

_____

_____

_____

_____

Hazards

System flaws
(Holes in the cheese)

_____

_____

_____

_____

_____

_____

_____

Human error
(Hole in the last slice of cheese)
_____

Sentinel event or safety event

Appendix: Five whys worksheet

Instructions for use:

1. Craft a problem statement for each contributing factor that led to an adverse event or error.
2. Ask "why" that contributing factor happened.
3. Continue to ask "why" at least five times until you are unable to ask "why" anymore.
4. The answer to the final "why" is likely the root cause of the error. This should be where mitigation efforts take place to prevent the error from occurring again in the future.

PROBLEM:

WHY?

WHY?

WHY?

WHY?

WHY?

Root cause(s):

Next steps:

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