RCVS KNOWLEDGE

Introduction and compliance of surgical safety checklists: A Clinical Audit

RCVS Knowledge Quality Improvement Award Highly Commended 2024

Megan Orr RVN CertVNECC

Introduction

The Roundhouse Hospital is part of Pets'n'Vets and Linnaeus Veterinary Ltd. We see a wide variety of clinical cases including small animal first opinion and referral patients. On average we see 104 patients per month requiring general anaesthetic (GA) for surgery and/or diagnostic imaging.

Our team are passionate about patient welfare and continuous clinical improvement. In August 2022 we first considered launching the use of surgical safety checklists. We discussed their introduction within the clinical teams and at our weekly Hospital Services Meeting (HSM), which includes the clinical leads of each team. There was consensus that surgical checklists would be a good initiative to develop and launch.

Aims of the clinical audit

We wanted to develop a checklist that would be optimal for our practice and ways of working and be adaptable to any issues or 'pinch points' we identified.

We reviewed other surgical checklists including previous RCVS Knowledge QI Award winners, World Health Organization (WHO) checklists[1] and resources such as the RCVS Knowledge Surgical Checklist Manual[2]. We also reviewed Atul Gawande's book 'Checklist Manifesto: How to Get Things Right'[3], where he outlines how we are all human and is in our nature to make mistakes. He also describes a class of mistakes where we do not do what we can do, when we should, and error could be due to ignorance or ineptitude.

We wanted to use our surgical checklist to minimise these errors and 'get it right the first time'. The other points that the research and reading made us consider were:

- Finding the correct moments for the entire clinical team to stop and collectively go through the 60 seconds or so of checklist points. This must be quick enough to not distract from the task at hand but detailed enough to minimise mistakes.

- “Killer items” are what Atul Gawande refers to as specific areas where we could fail that are critical and warrant second checks, for example, medications or limbs to be operated on[3].

- The importance of knowing each other in the operating room. In his book, Atul Gawande discusses how this can help to establish an effective team[3].

- How the use of checklists provides an opportunity for the team to bring any concerns forward that perhaps others had not considered.

After considering all the above we developed, through consultation within our teams, our own surgical checklist: one that suited our needs, equipment, and patients, as well as team. We believed that by adopting this approach we would minimise any unexpected complications as well as encourage our teams to more effectively engage with and use the resource and communicate any concerns raised.

At an early stage, we also decided that the surgical checklist should be a nurse-led initiative, empowering and encouraging nurses to speak up and engage in the perioperative plan for their patients, alongside veterinary surgeons, and patient care assistants.

With all of this in mind, we set a 90% completion rate target by the end of 2023.

Actions

We used an acknowledged QI approach based on the RCVS Knowledge Veterinary Clinical Audit Cycle to assess the uptake and successful use of our surgical checklist:

1. **Identify the need for a surgical checklist as a practice**
   This was identified during team meetings as outlined above.

2. **Create the checklist**
   The needs of the checklist were discussed at our HSM and meetings with other members of the team.

3. **Introduce the checklist**
   The checklist was introduced by releasing it onto our work platform with a plan and guidance on how we were going to complete the forms as well as appropriate ‘pause’ points to discuss the questions.

4. **Audit checklists**

   We audited the checklist monthly to measure the compliance of completing the checklist.

5. **Review and reflect**

   After auditing each month, we reflected on the percentage completed and on what needed to change to increase compliance.

6. **Implement change**

   Where needed each month, we implemented agreed changes to the checklist.

Each patient had a surgical checklist printed off and attached to their surgical consent form ready for completion. This was the intensive care unit (ICU) nurse's responsibility and performed the night before any pre-scheduled procedures.

The nurse monitoring the general anaesthetic then ensured the 'pause' happened before anaesthetic induction to ensure the team stopped, listened, and discussed concerns and completed the appropriate sections of the checklist.

At the launch of our checklists, we planned to regularly review the completion rate of the checklists and encourage their correct use. To do this we audited the checklist use monthly, reviewing the completion rate and recording the numbers that were fully complete. The data we collected included:

- The total number of checklists completed each month for both surgical and non-surgical anaesthetic procedures
- The percentage of procedures where checklists were used
- The percentage of fully completed checklists
- The number of breed, patient and procedure specific risks the checklist identified
- Any barriers to completion identified and the actions taken to overcome them
- Key learning points and adaptions to the checklist made
- Any additional comments on the progress made that month

I acted as champion as well as some of the Veterinary Surgeons, regularly providing updates at our HSMs to discuss any issues, and how we could improve outcomes and feed the results back to individual teams. We believed that regularly discussing the changes in completion rate and results within the team would improve compliance.

The results and progress updates were also regularly fed back directly to clinical colleagues, both at morning rounds and via our various internal communications platforms. We undertook various initiatives throughout the process to increase team motivation and compliance by providing encouragement and positivity around our monthly results.

Results

Since we launched our checklists there has been a significant increase in completion rate for all patients undergoing general anaesthetic. In January 2023 our compliance percentage sat at 36% compared to December 2023 where we saw a rise to a total of 94% checklist completion.

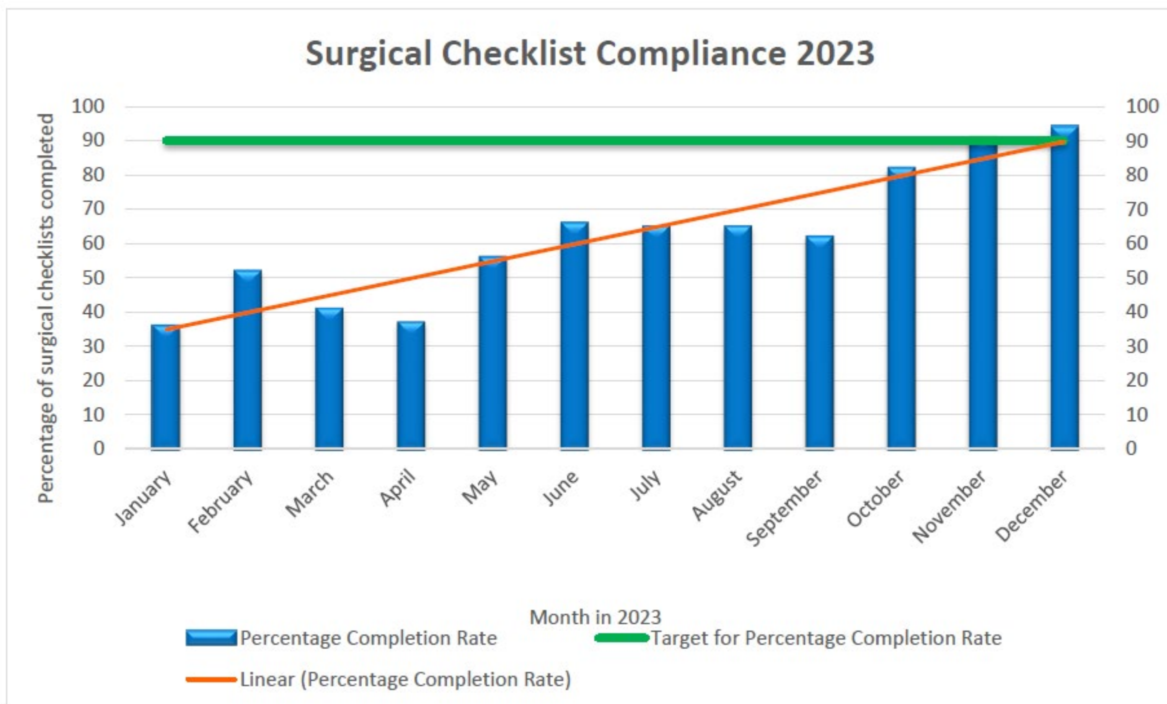


Figure 1: Graph of surgical checklist completion rate within each month of 2023.

Month/Year	Total number of SCL done throughout the month	No of Surgical/Non Surgical General Anaesthetics	% with Checklists	% Without Checklists	% of Checklists completed	% of Checklists not filled out to completion
Jan-23	56		**63%**	37%	36%	64%
Feb-23	100		**81.14%**	18.85%	52.42%	47.57%
Mar-23	91		**93.20%**	6.70%	41.66%	58.33%
Apr-23	103	99/10	**94.50%**	5.50%	37.73%	62.26%
May-23	113	117/8	**90.40%**	9.60%	56.41%	41.02%
Jun-23	111	105/4	**100%**	0%	65.74%	34.25%
Jul-23	98	76/11	**100%**	0%	65.30%	34.69%
Aug-23	100	100/9	**91.74%**	8.26%	64.70%	35.20%
Sep-23	107	90/4	**95.32%**	4.67%	62.13%	40.18%
Oct-23	98	89/11	**98%**	2%	82.65%	17.34%
Nov-23	93	86/3	**100%**	0%	91%	9%
Dec-23	69	72/2	**93.00%**	7%	94%	6%

Figure 2: Month by month results of surgical checklist completion rate throughout 2023.

As the results graph shows, there were a few months where the compliance for checklist completion plateaued.

As a team, it is important to consider individuals and the teams' collective 'bandwidth' when introducing new ideas, processes, or initiatives.

We decided that the best way to see why there was difficulty with checklist completion was to not only assess compliance but also use this as an opportunity to have conversations with individuals. We wanted to ensure that the whole nursing team knew and understood the importance of the use of surgical checklists and how it can give us our place as nurses to speak up as well as support our surgeons throughout the surgery. We also wanted to know of any challenges they had with completion, to help overcome these.

After putting these individual discussions in place, we saw a significant increase in completion percentage: we went from 62.13% to 82.65% in one month. Team members who had been skipping areas of the checklist now understood better why we needed all sections completed and were keen to improve. This was an important element in the success of our initiative.

In October 2023, we created a feedback questionnaire to assess our teams' opinions on our surgical checklist. Specifically, we wished to gain insight into the launch and whether they felt there had been any improvements with surgical safety and communication.

Key findings from the questionnaire:

- 88% of the clinical team agreed that the checklists were introduced well and were easy to use.
- 96% of the clinical team agreed that the checklist improved patient safety and communication.
- 100% of the clinical team stated that they would want a surgical safety checklist to be used with their own animals.

This questionnaire was present to 10 Veterinary Surgeons, 10 RVNs and 5 PCAs (25 associates in total). 100% of associates completed the questionnaire.				
Question Number	**Teamwork and Safety Environment**	**Disagree**	**Neither agree nor disagree**	**Agree**
1	In theatre it is difficult to speak up if I have a problem with my patient	2	0	23
2	I am encouraged by my colleagues to report any safety concerns I may have	0	1	24
3	The Vets and Nurses here work together as a well-co-ordinated team	2	1	22
4	People often disregard the rules or protocols in place at the Roundhouse	17	6	2
	Attitudes Towards the Checklist	**Disagree**	**Neither agree nor disagree**	**Agree**
5	The checklist was introduced well	0	3	22
6	The checklist is easy to use	0	3	22
7	The checklist takes a long time to complete	18	3	4
8	The checklist improved patient safety	0	1	24
9	Communication was improved use of the checklist	1	0	24
10	The checklist helped prevent errors during general anaesthesia	1	3	21
11	If my animals were having an operation, I would want a checklist to be used	0	0	25

Figure 3: Results of the staff questionnaire performed to assess the opinion on the impact and use of the use of surgical checklist.

Impact of intervention

Performing or taking part in any general anaesthetic procedure in veterinary practice can be stressful. All who work in clinical practice would agree that you can make mistakes even when you feel completely in control, but the risk of making mistakes increases when you feel stress.

Creating a checklist is one simple way in which we were able to highlight the important conversations we have to have about each patient prior to anaesthetics. This helped to improve our teams' capacity for other clinical initiatives throughout the year.

The launch and success of this initiative have been down to the collective efforts and ongoing review of our clinical team.

Colleagues have been supportive by offering to help where they can, allowing me time to conduct the audit and create feedback reports, helping to report results in associate meetings, and offering constructive feedback.

At some points during the initiative, chats with specific members of the team that lacked consistency in checklist use also occurred; to discuss any issues they had and encourage completion. This helped improve completion and improve the use of our checklists.

Another element we introduced was a reward system for individuals who had completed the highest number of checklists successfully. This boosted morale, encouraged some healthy competition, and played a part in increasing our overall percentage and success of the initiative.

I have found this to be a rewarding initiative that allowed the team to band together to create a safer working environment for our patients as well as a platform for open communications regarding patient concerns between the entire team.

As a team, we continue to be positive and enthusiastic about reviewing our clinical outcomes and customer experience assessments. Proactively reviewing these and as a team collaborating on elements which we feel could improve is a part of our culture. It is only by auditing and reviewing the impact of any changes that we can truly demonstrate our efficient and effective use of team time, resources and externally our: “Commitment to Excellence”.

Continues on next page.

Summary

Clinical audit is a process for monitoring standards of clinical care to see if it is being carried out in the best way possible, known as best practice.

A clinical audit can be described as a systematic cycle. It involves measuring care against specific criteria, taking action to improve it, if necessary, and monitoring the process to sustain improvement. As the process continues, an even higher level of quality is achieved.

What the clinical audit process is used for

A clinical audit is a measurement process, a starting point for implementing change. It is not a one-off task, but one that is repeated regularly to ensure ongoing engagement and a high standard of care.

It is used:

- ⇒ To check that clinical care meets defined quality standards.
- ⇒ To monitor the changes made to ensure that they are bringing about improvements and to address any shortfalls.

A clinical audit ensures concordance with specific clinical standards and best practices, driving improvements in clinical care. It is the core activity in the implementation of quality improvement.

A clinical audit may be needed because other processes point to areas of concern that require more detailed investigation.

A clinical audit facilitates a detailed collection of data for a robust and repeatable recollection of data at a later stage. This is indicated on the diagram wherein in the 2nd process we can see steps 4, 5 and 6 repeated. The next page will take you through the steps the practice took to put this into practice.

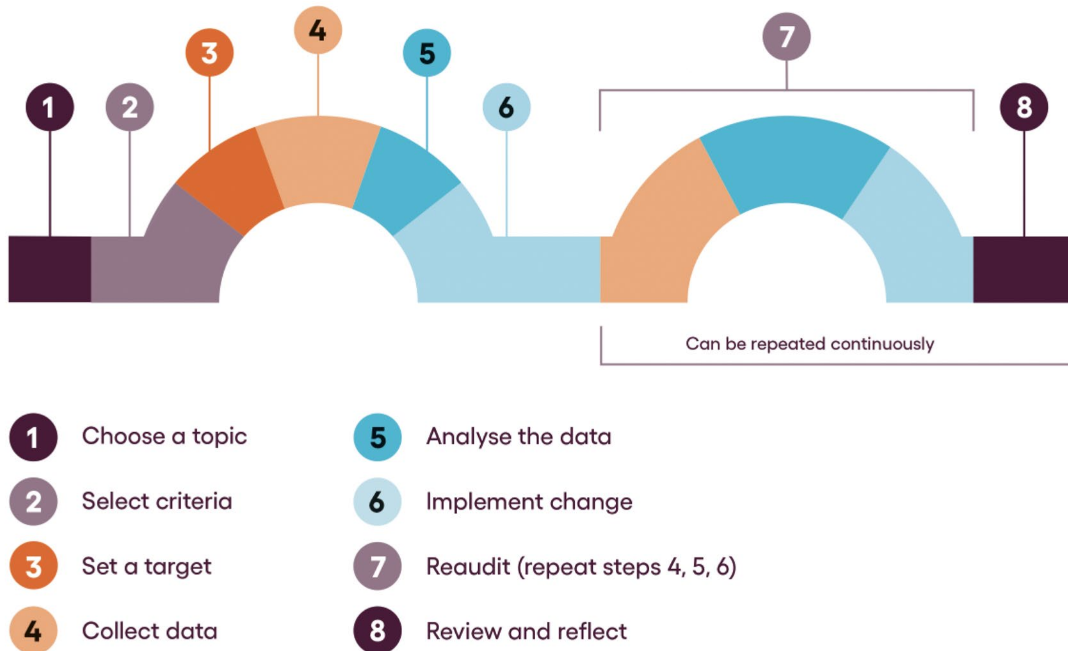


Figure 4: The Veterinary Clinical Audit Cycle by RCVS Knowledge. Available from www.rcvsknowledge.org. Developed by the Royal College of General Practitioners www.rcgp.org.uk/qi-ready

1. Choose a topic relevant to your practice

   The topic should be amenable to measurement, commonly encountered and with room for improvement. The team decided to introduce surgical safety checklists to minimise errors and improve teamwork and communication. The team regularly reviewed the use of the checklists to identify barriers and monitor its correct use.

2. Selection of criteria

   Criteria should be easily understood and measured. All patients undergoing general anaesthesia for surgical and non-surgical procedures were included in the audit.

3. Set a target

   Targets should be set using available evidence and agreeing best practices. The first audit will often be an information-gathering exercise, however, targets should be discussed and set. As the introduction of the checklist was a new initiative,

there was no baseline data to measure against. The team set a target to reach 90% compliance with completing the checklist by the end of 2023.

4. Collect data

Identify who needs to collect what data, in what form and how. The nursing team collected data on the number of checklists completed each month in 2023 to review their use and completion rates. In October 2023, a questionnaire was designed to assess team members' opinions on how successful the introduction of the checklist had been and if they had seen an improvement in patient safety and team communication as a result.

5. Analyse

Was the standard met? Compare the data with the agreed target and/or benchmarked data if it is available. Note any reasons why targets were not met. These may be varying reasons and can take the discussion from the entire team to identify. As this was a new initiative, in the first month after implementing the checklist in January 2023, the compliance rate was 36%. Ongoing monthly data collection and review informed any actions that needed to be taken to improve compliance, achieving a

6. Implement change

What change or intervention will assist in the target being met? Develop an action plan: what has to be done, how and when? Set a time to re-audit. The monthly data collection allowed the team to reflect on the data to inform further actions needed to improve compliance on an ongoing basis. These changes included adaptions to the checklist and team discussions and rewards to improve compliance. Full details can be found in Annex 1.

7. Re-audit

Repeat steps 4 and 5 to see if changes in step 6 made a difference. If no beneficial change has been observed them implement a new change and repeat the cycle. This cycle can be repeated continuously if needed. Even if the target is not met, the result can be compared with the previous results to see if there is an improvement. The monthly data collected included the percentage of checklists completed in full, the risks to patient safety the checklist had helped identify and any barriers to completing the checklist. The team improved the percentage of completed compliance to 94% in December 2023, surpassing their 90% target.

8. Review and reflect

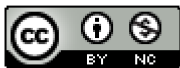
Share your findings and compare your data with other relevant results. This can help to improve compliance. The team regularly provide results and feedback to clinical and non-clinical teams via team meetings and internal communication channels and platforms. This helped to maintain engagement with the initiative and improve compliance with completing checklists. Due to the success of this project, the initiative is being extended to other sites within the group.

References

1. *Safe surgery: Tools and Resources* [World Health Organization (WHO)] [Online]. Available from: https://www.who.int/teams/integrated-health-services/patient-safety/research/safe-surgery/tool-and-resources

2. *Surgical Safety Checklist Manual* [RCVS Knowledge] [Online]. Available from: https://knowledge.rcvs.org.uk/document-library/surgical-safety-checklist-manual/

3. Gawande, A. (2009) *The checklist manifesto: How to get things right*. Metropolitan Books



This work is licensed under a Creative Commons Attribution-NonCommercial 4.0 International License. This information is provided for use for educational purposes. We do not warrant that the information we provide will meet animal health or medical requirements.

It is ok to: share, discuss and learn! You can share this resource and adapt the ideas/templates contained within it with your teams, colleagues, and organisations with credit to RCVS Knowledge and the case study author. You can share downloadable links on your socials and within internal networks.

It is not ok to: edit, change, or add to this resource, or claim it as your own. Although you are welcome to use it, adapt the ideas contained within the resource, and reference it, you should not copy and paste it in its entirety. You should always provide a link back to this online resource. You may not use it for commercial purposes, for example, charging for its use, providing it behind a paywall, or providing it as part of a paid-for subscription service.

You should reference this resource like this: RCVS Knowledge, Orr, M. (2024). *Introduction and compliance of surgical safety checklists: A Clinical Audit* [Online] Available at www.rcvsknowledge.org/KAQI-checklist-compliance/