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Safety Pop-Off Valve Text for Supera Advertorial

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Questions/Answers were initially prepared in June 2014 in advance of a side-bar article related to the Safety Pop-Off Valve.

The pop-off valve is a life-critical piece of the anesthesia machine. A pop-off valve that remains in the closed position allows pressure to build up in the patient's lungs and this compromises the health and well-being of anesthetized animals.

The Safety Pop-Off Valve (SPOV), or Safety Pressure Relief Valve, is one of the most important improvements in anesthesia machine safety.

How or why are Supera SPOVs different? What do they do that hasn't been done up to now?

The SPOV differs from the standard pop-off valve because it has an internal pressure release mechanism that allows the anesthetist to easily and momentarily close the valve. Standard pop-off valves require the anesthetist to manually twist a screw-type plunger several rotations in order to fully close. This process takes more than a moment's time and then the valve must be manually - and fully- unscrewed. If the valve remains closed or partially closed, excess pressure builds up in the patient's lungs.

In the course of a routine anesthetic event, an anesthetist will typically close the pop-off valve to deliver a breath to the patient and to check the endotracheal tube for leaks. If a patient is not breathing well, the anesthetist may close and open the pop-off valve repeatedly in order to manually breathe for the patient. Each time the valve is screwed closed there is the potential for a distraction to divert the operator's attention from the closed valve - even for a few moments - and life-threatening pressure can build up.

Too many pets die and come in harm's way due to closed pop-off valves during anesthesia.

The SPOV does 3 things that are NOT accomplished by standard pop-off valves with or without spring-type closure adapters attached.

- 1) The SPOV only closes when the anesthetist is physically depressing the valve plunger. When the anesthetist takes their hand away, the valve immediately returns to the open position. There is no way to forget to open the valve. There is no way to leave the valve partially closed.
- 2) The SPOV does not leak anesthetic gases during operation.



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3) Even when the SPOV is in the closed position (as when delivering a breath), a pressure release mechanism exists that prevents build up of excessive pressure. The SPOV will still pop open in the event that excess pressure is delivered to the patient.

Other adapters have been created by several companies that can be added onto existing standard pop-off valves. These adapters incorporate a spring-type closure mechanism and do facilitate momentary build up of pressure in the system to deliver a breath. These adapters do not replace the pop-off valve - they are added onto the circuit. These adapters are not considered Safety Pop-off Valves because if the standard valve is closed the adapter provides no protection to the patient. They do not provide an independent pressure release mechanism.

Some adapters are leaky, many do not connect securely to the anesthesia machine, and the closure mechanism can fail over time resulting in a closed breathing circuit - effectively a closed pop-off valve even when a "safety" adapter is in place.

Have you worked with the valves, or with the company?

I carry one of Supera's SPOVs with me at all times in my mobile anesthesia practice so that I can switch out the standard pop-off valve for my peace of mind and my patient's safety.

I regularly lecture about improving anesthesia safety and the value of the SPOV. I recommend SPOVs for every veterinary practice.

Why should the general practitioner get these?

Unfortunately, most of us in veterinary medicine know of a pet that died as a result of a closed pop-off valve. This risk has understandably created a fear of closed pop-off valves in veterinarians and technicians. From my experience working with hundreds of veterinary practices, I know that using SPOVs reduces stress for staff. SPOVs facilitate safe deliver of breaths to anesthetized pets. And SPOVs facilitate leak checking of endotracheal tubes during anesthesia. For these reasons, I recommend that the rebreathing and non-rebreathing circuits on every anesthesia machine be outfitted with a SPOV.

How did you learn about these valves?

I visited a practice that had one and when I learned more about it, I knew I needed to have one to improve safety for my patients.

Why has no one thought of it before?

Many adapters have been created to meet the need for momentary closure of the anesthesia circuit. These adapters lack the many safety features of a SPOV.



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Anything else we should know about them?

Veterinary practitioners need to know about 2 major improvements in anesthesia machine safety: the Safety Pop-off Valve and the Non-rebreathing Circuit Adapter that incorporates a manometer and a SPOV into the anesthesia breathing circuit for small patients. Safety Pop-off valves are particularly valuable for small patients because these patients are at increased risk of complications and death due to closed pop-off valves.