

ABSTRACT	TITLE	AUTHOR(S)	INSTITUTION	
#33	Surgery Beyond the Operating Room: Telemetry Implants in Farm Animals—Two Case Studies	Delphine Bouard	Vetsalius	Abstract

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Surgery Beyond the Operating Room: Telemetry Implants in Farm Animals—Two Case Studies

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Background: Implantable telemetry enables high-resolution, longitudinal recording of physiological variables while minimizing handling-related artefacts. In livestock, the promise of telemetry is particularly compelling for studying cardiometabolic and reproductive function under conditions that are closer to real-life production systems. Yet, farm-animal surgery is performed in a context where animal size, temperament, housing, and environmental contamination can markedly increase the complexity of anaesthesia, intra-operative logistics, and post-operative management. In addition, maintaining device function and data continuity depends on robust surgical technique, careful tissue handling, and a closure strategy that withstands movement, lying/standing cycles, and group housing.

Aim: Building on two ongoing/representative projects—(i) continuous monitoring of uterine contractions in ewes and (ii) long-term arterial blood pressure monitoring in dairy cows—this oral presentation aims to (1) describe the livestock-specific surgical and organizational constraints that shape telemetry implantation, and (2) share practical, transferable solutions that improve reproducibility, animal welfare, and data quality from pilot development through routine deployment.

Key points: The presentation will focus on three stages where livestock imposes distinctive constraints:

- **Pre-operative preparation and technique refinement:** selection of the surgical approach and implant site(s); adaptation of instrumentation to large-animal anatomy; peri-operative planning (handling, fasting strategies when relevant, positioning, skin preparation) to reduce contamination and operative time.
- **Asepsis and intra-operative workflow in non-ideal environments:** achieving and documenting an aseptic field when theatre-like conditions are not always feasible;

pragmatic barrier methods; team choreography and material organisation to prevent breaks in sterility; contingency planning for prolonged procedures.

- **Suturing and wound closure for durability and low complication rates:** species- and context-adapted closure patterns and materials; management of dead space; strategies to reduce dehiscence, seroma, and infection; post-operative protection and monitoring compatible with farm housing. Across both case studies, emphasis will be placed on how closure choices and aseptic discipline directly impact not only animal outcomes but also telemetry performance (signal stability, device retention, and continuity of recordings).

Conclusion: By contrasting these two projects, the presentation will provide pragmatic solutions for teams planning telemetry implantation in farm animals, with a focus on reproducible surgical workflows, realistic aseptic protocols, and closure techniques tailored to the livestock context. To keep the discussion grounded in day-to-day realities, these take-home messages will be illustrated with brief (and occasionally humorous) field anecdotes that highlight what can go wrong—and what reliably works.

Keywords: farm animals; telemetry; implant surgery; dairy cow; ewe; asepsis; suturing; uterine contractions; arterial blood pressure.