

Enhancing mouse welfare: using vet bed to improve welfare during mouse handling

AMY DAVIES

University of Oxford

Correspondence: amy.davies@bms.ox.ac.uk

The rationale for exploring vet beds

The problem

High procedural volumes inevitably lead to increased handling stress

- 4,000 cages managed on average
- 10,783 procedures (2025)
- 51,923 ear notches (2025)

Repeated restraint may increase

- stress and anxiety
- welfare impact
- risk of aversion to handling
- variability in experimental outcomes

How can we improve welfare without compromising efficiency, biosecurity or consistency?

What is vet bed?

A vet bed is a soft, durable and washable fleece bedding material designed to provide thermal support, moisture control and cushioning.

Key features:

- soft fleece surfaces providing cushioning and comfort
- provide thermal support
- moisture-wicking and absorbent
- non-slip backing for stability
- durable and reusable
- can be cut to size for specific applications



V.S



What can you use them for?

During handling and restraint

Supporting more stable and comfortable scruffing for:

- ear notching
- intraperitoneal injections
- subcutaneous injections
- oral gavage

Thermal support

- lining heat boxes
- providing warmth during recovery

During anaesthesia

- soft, supportive surface while under anaesthesia
- added cushioning during procedures

Potential challenges

Biosecurity and cross-contamination

As reusable materials, vet beds can potentially transfer pathogens if not properly disinfected.

Chewing or ingestion risks

Mice may chew the fleece material. Ingestion could pose welfare concerns.

Odour transfer (male vs female)

Scent cues are significant in mice. Using the same vet bed between males and females may transfer odours which potentially influences behaviour or stress responses.

Experimental integrity

Changes to handling surface may alter stress levels or behaviour, which could unintentionally influence research outcomes.

Cost and practicality

Initial purchase, laundering, autoclaving and staff time all require consideration. The refinement must remain practical and sustainable in a high-throughput unit.

Biosecurity measures for vet bed use

Assign dedicated vet beds to individual racks

To minimise cross-contamination risk, vet beds should not move between racks, holding areas or barrier zones.

Do not share vet beds between animals without validating cleaning and disinfection regimes

Vet beds must undergo the full approved cleaning protocol before reuse with another animal or group.

Maintain strict separation of clean and dirty materials

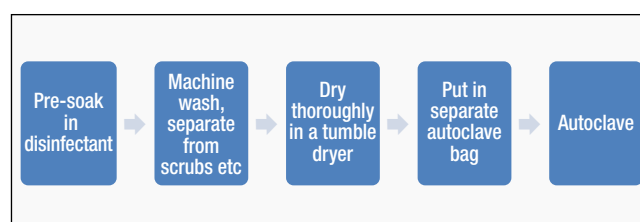
Store clean vet beds in sealed clearly labelled containers. Collect and transfer used vet beds in designated dirty containers to prevent environmental contamination.

Document and monitor compliance

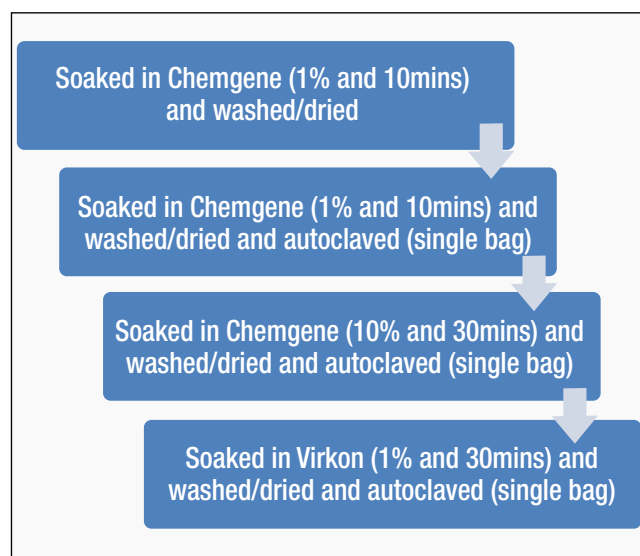
Ensure staff are trained and cleaning procedures are consistently followed.

Cleaning and biosecurity

Cleaning regime



Cleaning trial to develop best method



To confirm that the cleaning protocol was effective microbiological testing was carried out.

An agar plate was used

An agar plate is a shallow plastic dish (Petri-dish) containing a gel-like substance called agar.

Culture process

Any viable bacteria grow into visible colonies.

What was measured?

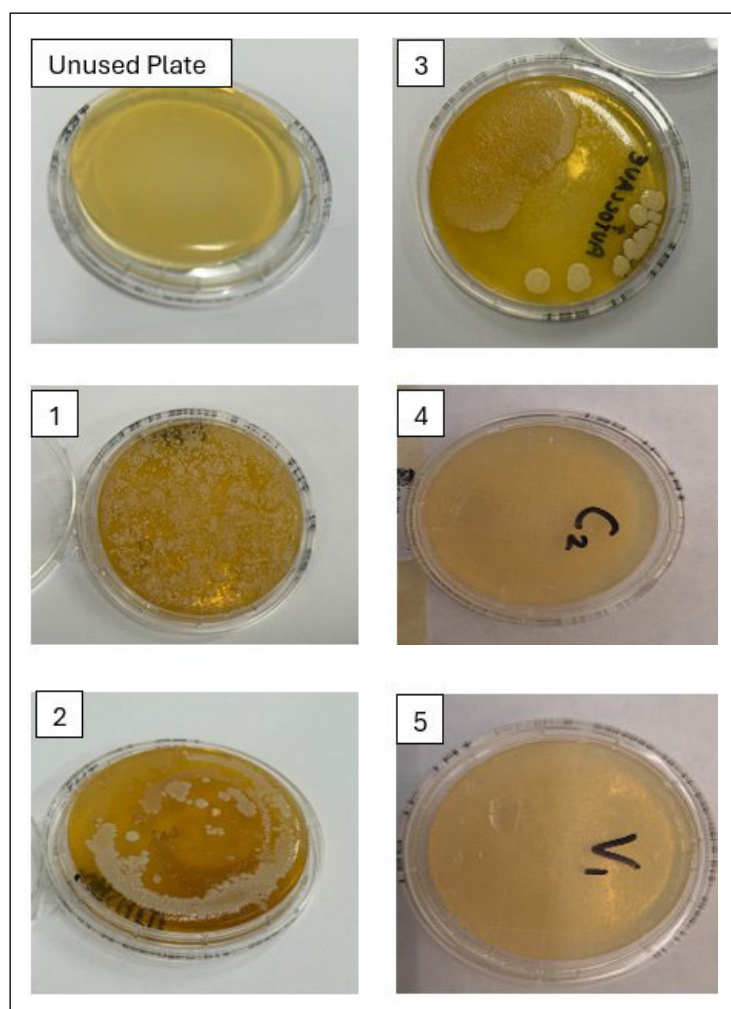
Measures number of living bacteria present, reported as Colony forming units (CFU).

Microbiological testing and results

This section shows the microbiological testing used to evaluate the effectiveness of the cleaning and sterilisation protocol. Samples were taken from the vet bed at different stages and cultured on agar plates to measure bacterial growth in CFUs.

The results demonstrate that initial samples showed bacterial contamination but after the full cleaning process including soaking, washing and autoclaving, no microbial growth was detected. Confirming that the protocol effectively sterilised the bedding.

		Results (CFU)
1	Dirty 1	INN
	Dirty 2	INN
	Dirty 3	INN
2	Soaked and washed 1 (1% 10mins)	116
	Soaked and washed 2 (1% 10mins)	23
	Soaked and washed 3 (1% 10mins)	INN
3	Soaked, washed and autoclaved 1 (1% 10mins)	19
	Soaked, washed and autoclaved 2 (1% 10mins)	0
	Soaked, washed and autoclaved 3 (1% 10mins)	28
4	Soaked, washed and autoclaved 1 (10% 30mins) Chemgene	0
	Soaked, washed and autoclaved 2 (10% 30mins) Chemgene	0
	Soaked, washed and autoclaved 3 (10% 30mins) Chemgene	0
5	Soaked, washed and autoclaved 1 (1% 30mins) Virkon®	0
	Soaked, washed and autoclaved 2 (1% 30mins) Virkon®	0
	Soaked, washed and autoclaved 3 (1% 30mins) Virkon®	0



Implementation and next steps

1. Gradual rollout across facilities and users.
2. Ongoing monitoring for:
 - a) biosecurity compliance
 - b) wear and tear
 - c) behavioural and procedural impacts
3. Develop standard operating procedures (SOPs) and provide staff training.
4. Future evaluation: collect data to assess measureable stress reduction.