

FACULTY OF VETERINARY SCIENCE

UNIVERSITY OF ZARAGOZA

BIOSECURITY MANUAL

Dissection Room

Revision 1 | 30/07/2026

Safety in the Dissection Room

Mandatory protocols for teaching staff, technical staff, students, cleaning staff and authorised visitors.

Failure to comply with these procedures may result in immediate removal from the room and notification of the incident to the responsible teaching or technical staff member.

Contents

- 01. Access and general biosecurity rules
- 02. Use and removal of Personal Protective Equipment (PPE)
- 03. Activation, checking and failure of the extraction system
- 04. Handling embalmed cadavers
- 05. Management of formalin-impregnated cloths
- 06. Preparation and embalming of cadavers
- 07. Storage of formalin, methanol, hydrogen peroxide and preservatives
- 08. Cleaning tables, floors and equipment
- 09. Management of chemical, healthcare and sharps waste and anatomical remains
- 10. Response to spills, splashes, inhalation or ventilation failure
- 11. Maintenance of eyewash stations, showers, first-aid kit, extraction and detectors
- 12. Training, exposure records and incident reporting
- 13. Signage

Standard Operating Procedure (SOP)-01

Access and general biosecurity rules

Objective: To regulate access and minimum biosecurity requirements in order to reduce exposure to formaldehyde, biological agents, sharps and dissection waste.

Legal basis: Royal Decree (RD) 665/1997, Articles 5 and 6, on exposure to carcinogenic agents; RD 374/2001, Article 9, on information and training regarding chemical agents; RD 773/1997, Article 4, on PPE; RD 485/1997, Article 4, on safety signage.

1. Access conditions

1. Only authorised personnel and students specifically scheduled for the activity may enter. Unauthorised persons, companions and visitors without the express permission of the responsible teaching or technical staff member are not permitted.
2. Before entry, students and authorised personnel must have received basic information on room hazards, operating rules, PPE use, the location of the eyewash station, and the response to splashes, cuts, spills or symptoms of irritation. Visitors must comply with all instructions and signage displayed in the room.
3. Entry is not permitted unless the extraction/ventilation system is operating whenever cadavers, anatomical specimens or formalin-impregnated cloths are present.

2. Mandatory PPE

4. A correctly fastened long-sleeved laboratory coat.
5. Nitrile gloves.
6. Safety goggles or equivalent eye protection.
7. Closed, non-slip, washable footwear, or overshoes where indicated.
8. Respiratory protection where required by the risk assessment, the Occupational Risk Prevention Unit (UPRL), or the person responsible for the practical session.
9. Laboratory-coat sleeves must overlap the gloves so that no skin is exposed at the wrists or forearms.

3. Prohibitions

10. Eating, drinking, smoking or chewing gum.
11. Handling a mobile phone while wearing contaminated gloves.
12. Touching the face, eyes, nose or mouth during the practical session.
13. Opening windows or doors during dissection, except in an emergency or when expressly instructed.
14. Removing instruments, gloves, cloths, anatomical remains or contaminated material from the room.
15. Handling formalin drums or chemical products without authorisation.

4. Conduct during the practical session

16. Cloths removed from cadavers must immediately be placed in a lidded container or tray.
17. Blades, needles and other sharps must be discarded only in the approved containers provided in the room.
18. Any spill, strong odour, eye or respiratory irritation, cut or splash must be reported immediately to the person responsible.

5. Leaving the room

19. Before leaving, gloves must be removed safely and hand hygiene performed.
20. Contaminated laboratory coats, overshoes or other PPE must not leave the authorised area.
21. The workstation must be left clean and free of blades, remains, cloths and free liquids.

Standard Operating Procedure (SOP)-02

Use and removal of Personal Protective Equipment (PPE)

Objective: To establish the minimum PPE requirements and safe removal procedures to prevent exposure to formalin, preservative fluids, biological material and sharp objects.

Legal basis: RD 773/1997 on PPE; RD 665/1997, Article 6, on hygiene and individual protection against carcinogenic agents; RD 374/2001 on chemical agents. PPE must be used where risks cannot be sufficiently avoided or limited by collective or organisational measures.

1. Mandatory PPE before entering the room

- 22. Closed long-sleeved laboratory coat.
- 23. Nitrile gloves.
- 24. Safety goggles or panoramic goggles.
- 25. Closed, non-slip, washable footwear, or overshoes where appropriate.
- 26. Respiratory protection when indicated by the risk assessment, UPRL or the person responsible for the practical session.
- 27. The coat sleeve must overlap the glove, leaving no exposed skin at the wrist or forearm.

2. Use during the practical session

- 28. Gloves must be changed if torn, visibly contaminated, wetted with preservative fluid, or at the end of the session.
- 29. Do not touch the face, eyes, mobile phone/tablet, personal pens, door handles, backpacks, street clothing or other non-practical-session items with contaminated gloves.
- 30. Eye protection must remain in place while preparing a cadaver with cloths and whenever there is a risk of splashing.
- 31. Respiratory protection must fit correctly and must not be removed inside the room while active exposure to formalin is present.

3. Safe removal of PPE

- 32. Remove PPE before leaving the work area, avoiding contact between clean hands and contaminated surfaces.
- 33. Remove gloves without touching the skin.
- 34. Perform hand hygiene.
- 35. Remove the laboratory coat without shaking it.
- 36. Remove goggles by holding the arms or rear strap.
- 37. Remove respiratory protection last, using the straps.
- 38. Perform hand hygiene again.
- 39. Contaminated disposable PPE must be placed in the designated container. Reusable PPE must be cleaned in accordance with the applicable procedure.

4. Incidents

- 40. Any splash, glove breakage, contact with formalin, cut, or eye/respiratory irritation must be reported immediately to the person responsible for the practical session or the room technician, and the emergency protocol must be applied.

Standard Operating Procedure (SOP)-03

Activation, checking and failure of the extraction system

Objective: To ensure that extraction/ventilation is operational during any activity involving cadavers, specimens, impregnated cloths or formaldehyde-containing products.

Legal basis: RD 665/1997, Article 5, requiring carcinogenic agents to be removed at source by local extraction or, where technically impossible, by general ventilation; RD 486/1997 on workplace environmental conditions and ventilation; RD 374/2001 on hazardous chemical agents.

1. Mandatory activation

41. Activate extraction before students enter.
42. Keep extraction operating throughout the practical session.
43. Keep extraction operating while formalin-impregnated cloths are positioned, removed or handled.
44. Keep extraction operating during table washing and final cleaning.
45. Maintain extraction for the post-activity air-renewal period established by the technical manager or UPRL.
46. No practical session may begin unless extraction is operating.

2. Pre-session check

47. The responsible teaching or technical staff member must verify that the system is switched on.
48. Confirm that airflow/extraction is perceptible.
49. Confirm that there are no alarms, faults or abnormal noises.
50. Keep doors and windows closed.

3. Failure during the practical session

51. If the system fails, a persistent strong odour is detected, eye/respiratory irritation occurs or a formaldehyde alarm is triggered, suspend the dissection.
52. Return cadavers and specimens to their storage locations.
53. Students must leave the room in an orderly manner.
54. Notify the technical service/UPRL. Activity must not resume until correct operation of the system has been confirmed.

4. Incident reporting

55. Every failure, alarm, strong odour or symptom compatible with exposure must be recorded and reported to the room manager.

Standard Operating Procedure (SOP)-04

Handling embalmed cadavers

Objective: To handle embalmed cadavers while reducing exposure to formaldehyde and preservative fluids.

Legal basis: RD 665/1997, Article 5, on reducing exposure to carcinogenic agents; RD 374/2001, Article 4, on prevention of chemical-agent risks; RD 664/1997, Article 7, on hygiene measures for biological agents.

1. Preparation

- 56. Activate extraction.
- 57. Put on the required PPE.
- 58. Ensure that the table, absorbent material (paper), lidded cloth container, waste bin and sharps container are ready.
- 59. Bring only the cadavers required for the practical session into the room.

2. Handling during the practical session

- 60. Remove impregnated cloths only from the area required for dissection.
- 61. Place removed cloths in a lidded container or tray.
- 62. As far as possible, avoid dripping, draining and accumulation of preservative fluid on the table.
- 63. Do not touch the face, mobile phone/tablet, personal clothing or clean surfaces with contaminated gloves.
- 64. Discard blades only in approved sharps containers.

3. Completion

- 65. Prepare the cadaver with the cloths for storage.
- 66. Place absorbent paper and waste in the designated containers.
- 67. Do not pour formalin or drainage fluids into floor grilles or drains.
- 68. Clean the table with the hose.
- 69. Remove PPE in accordance with SOP-02 and perform hand hygiene.

4. Incidents

- 70. Report any spill, splash, cut, strong odour or eye/respiratory irritation immediately.

Standard Operating Procedure (SOP)-05

Management of formalin-impregnated cloths

Objective: To reduce formaldehyde exposure and prevent spills, vapours and cross-contamination during the use of formalin-impregnated cloths.

Legal basis: RD 665/1997, Articles 5.5.j and 5.5.l, on containers/installations with carcinogenic agents and hermetically sealed, labelled hazardous waste containers; Law 7/2022, Article 21.a, on hazardous-waste storage with spill-retention systems.

General consideration

- 71. Formalin-impregnated cloths emit formaldehyde vapour and may cause intense exposure when removed from cadavers or re-moistened.

1. Use during the practical session

- 72. Moisten cloths using the minimum effective quantity, without excess free liquid.
- 73. Keep impregnated cloths in a closed container after removal from the cadaver.
- 74. A dedicated container must be available next to each table.
- 75. Do not leave cloths on the floor, auxiliary tables, table edges or circulation areas.

2. Temporary storage

- 76. Immediately place every removed cloth in a lidded container or tray labelled: "Formaldehyde-impregnated cloths. Carcinogenic agent. Keep closed."

3. Re-moistening

- 77. Only authorised personnel may re-moisten cloths with formalin, with extraction operating, full PPE in place and no excess free liquid.

4. Disposal or reuse

- 78. Store reusable cloths in a closed container.
- 79. Manage discarded cloths as hazardous waste contaminated with formaldehyde in a labelled container.

5. Incidents

- 80. Report any dripping, spill, splash, strong odour or irritation symptom immediately.

Standard Operating Procedure (SOP)-06

Preparation and embalming of cadavers

Objective: To prepare and embalm cadavers while minimising exposure to formaldehyde, methanol and other preservatives. This procedure may only be performed by authorised, trained personnel.

Legal basis: RD 665/1997, Article 5, on reducing exposure to carcinogenic agents; RD 374/2001, Articles 4 and 5, on eliminating or reducing chemical-agent risks; RD 773/1997, Article 4, on PPE.

1. Before starting

81. Activate extraction/ventilation.
82. Check the availability of the eyewash station, absorbents, waste container and spill kit.
83. Put on full PPE: laboratory coat or waterproof apron, nitrile gloves, panoramic goggles or face shield, indicated respiratory protection and closed non-slip footwear.
84. Prepare only the amount of preservative mixture required.
85. Keep unused containers closed.

2. During embalming

86. Always work with extraction operating.
87. Avoid splashes, dripping and aerosol formation.
88. Keep the cadaver on an impermeable surface with liquid collection.
89. Do not eat, drink, smoke or handle personal items.
90. Do not pour formalin, preservative mixture or drainage fluids into the drain.

3. Completion

91. Collect surplus liquids and absorbents as hazardous chemical waste.
92. Clean surfaces.
93. Remove PPE in accordance with SOP-02.
94. Record the date, cadaver, approximate time since death, mixture used, responsible person and any incidents.

4. Incidents

95. In the event of a spill, splash, cut, accidental inhalation, strong odour or eye/respiratory irritation, stop the task, notify the responsible person and apply the emergency protocol.

Standard Operating Procedure (SOP)-07

Storage of formalin, methanol, hydrogen peroxide and preservatives

Objective: To store preservative products (formalin/formaldehyde, methanol, hydrogen peroxide, glycerine and preservative mixtures) safely, preventing exposure, spills, incompatible mixtures, fires and environmental contamination.

Legal basis: RD 374/2001 on chemical agents; RD 656/2017, Chemical Products Storage Regulation and ITC MIE APQ-10 for mobile containers; Law 7/2022, Article 21, on safe hazardous-waste storage with spill-retention systems.

1. General conditions

- 96. Store products in closed, labelled, undamaged containers with their Safety Data Sheet (SDS) available.
- 97. Restrict access to authorised personnel.
- 98. Keep containers in a bunded tray or equivalent secondary containment system.
- 99. Do not store chemicals with food, clothing, clean material or in circulation areas.

2. Segregation

- 100. Formaldehyde: ventilated area, closed container and carcinogen signage.
- 101. Methanol: store as a flammable substance, away from heat, sparks or ignition sources.
- 102. Hydrogen peroxide: segregate from flammables, organic matter and combustible products.
- 103. Glycerine and preservative mixtures: label with composition, date and responsible person.

3. Handling

- 104. Only authorised personnel may open containers, transfer products or prepare mixtures.
- 105. All transfers must be performed with PPE, extraction operating and absorbent material available.
- 106. Do not pour surplus products or preservatives into drains or floor grilles.

4. Waste and contaminated containers

- 107. Manage formalin residues, preservative mixtures, absorbents and contaminated containers as hazardous waste in closed, labelled, spill-contained receptacles.

5. Incidents

- 108. Report any leak, damaged container, spill, strong odour or detected incompatibility immediately.

Standard Operating Procedure (SOP)-08

Cleaning tables, floors and equipment

Objective: To clean tables, floors and instruments while avoiding exposure to formaldehyde, splashes, cuts, slips and discharge into drains. Applies to trained technical and teaching staff, authorised students and cleaning staff.

Legal basis: RD 486/1997, Article 5 and Annex II, on order, cleaning and maintenance; RD 374/2001 on hazardous chemical agents. Cleaning operations must not themselves create a risk, and hazardous residues that may cause accidents or environmental contamination must be removed promptly.

1. Before cleaning

- 109. Keep extraction operating.
- 110. Put on PPE: laboratory coat or waterproof apron, nitrile gloves, goggles/face shield and non-slip footwear.
- 111. Remove cadavers, specimens, cloths, blades and waste.
- 112. Place sharps in the approved container.

2. Cleaning tables and equipment

- 113. First collect free liquids using absorbent material or the designated system.
- 114. Do not wash formalin or preservative liquids towards the floor grille.
- 115. Wash tables and instruments while avoiding high-pressure jets and splashes.
- 116. Dry surfaces and place contaminated material in the appropriate container.

3. Floor cleaning

- 117. Display "Wet floor" signage.
- 118. Clean spills immediately.

4. Prohibitions

- 119. Do not pour formalin, preservatives, drainage fluids or absorbents into floor grilles, sinks or drains.

5. Incidents

- 120. Report any spill, splash, cut, strong odour or extraction failure to the room manager.

Standard Operating Procedure (SOP)-09

Management of chemical, healthcare and sharps waste and anatomical remains

Objective: To ensure the segregation, storage and safe removal of waste generated in the room.

Legal basis: Law 7/2022, Article 21; Decree 29/1995 of Aragon; RD 1528/2012 and Regulation (EC) No 1069/2009.

1. Segregation

121. Separate waste at source into: chemical waste (formalin, preservative mixtures, drainage fluids, absorbents and contaminated containers); healthcare/biocontaminated waste (gloves, gauze and similar contaminated material); sharps (scalpel blades, needles and cutting objects); and anatomical remains (viscera, tissues, cadavers or parts of cadavers).

2. Containers

122. Place each waste stream in its specific closed, approved and labelled container near the point of generation.
123. Discard sharps only in dedicated rigid containers located in designated areas. Keep them close to the point of use, do not overfill, remove them at approximately three-quarters capacity, and never leave scalpel blades on tables.
124. Store liquid chemical waste in closed, labelled containers with spill containment.

3. Prohibitions

125. Do not mix incompatible waste.
126. Do not pour formalin, preservatives or drainage fluids into grilles, sinks or drains.
127. Do not handle waste without PPE.
128. Do not overfill containers.
129. Do not remove waste from the room outside the authorised route.

4. Storage and removal

130. Keep waste in the designated, identified and secure area until collection by the authorised waste manager or corresponding institutional route.
131. Manage anatomical remains under the applicable SANDACH/animal by-products procedure or University route, according to classification.

5. Incidents

132. Immediately report any spill, leak, damaged container, cut or segregation error.

Standard Operating Procedure (SOP)-10

Response to spills, splashes, inhalation or ventilation failure

Objective: To establish the immediate response to incidents involving formaldehyde, preservatives, biological material or extraction failure.

Legal basis: RD 374/2001, Article 7; RD 665/1997, Article 6; RD 486/1997, Articles 5 and 7.

1. Spill

133. Stop the activity and notify the responsible person.
134. Evacuate students if the spill is significant or vapours are intense.
135. Maintain or activate extraction if it is safe to do so.
136. Do not use a hose or discharge the spill to a drain.
137. Only trained personnel wearing PPE may collect the spill using compatible absorbent material.
138. Dispose of contaminated material as hazardous waste.

2. Splash

139. Eyes: use the eyewash station and rinse with plenty of water; notify the responsible person and consider medical assessment.
140. Skin: remove contaminated clothing or gloves and wash with plenty of water. Do not rub aggressively.
141. Contaminated clothing: remove and replace with clean clothing.

3. Inhalation or symptoms

142. In the event of eye irritation, cough, dizziness, breathing difficulty or strong odour: leave the room and notify the responsible person.
143. Suspend the practical session if several people are affected or the odour persists.
144. Seek medical assessment if symptoms continue.

4. Ventilation failure

145. Suspend dissection.
146. Return cadavers to storage and close containers.
147. Evacuate the room.
148. Notify maintenance/UPRL.
149. Do not resume until correct operation has been confirmed.

5. Record

150. Record every incident, including date, product, affected area, exposed persons, actions taken and notifications made.

Standard Operating Procedure (SOP)-11

Maintenance of eyewash stations, showers, first-aid kit, extraction and detectors

Objective: To ensure that emergency, ventilation and detection equipment remains operational and accessible.

Legal basis: RD 486/1997; RD 374/2001, Article 7; INSST Technical Prevention Note NTP 500. First-aid materials must be appropriate to the risks and medical assistance must be readily accessible.

1. Periodic checks

151. The room manager must verify the eyewash station (clear access, visible signage, operation and flow).
152. Verify the first-aid kit (adequate contents, clean, accessible and no expired materials).
153. Verify extraction/ventilation (operation, absence of alarms and recorded maintenance).
154. Verify detectors (powered on, calibration current, alarm operational and readings recorded where applicable).

2. Minimum frequency

155. Before each practical session: visual check of eyewash station, first-aid kit, extraction and detectors.
156. Monthly: functional test of eyewash/shower and review of the first-aid kit.
157. According to manufacturer/technical service: extraction maintenance, detector calibration and replacement of filters or components.

3. Incidents

158. Report any equipment that is faulty, inaccessible, unmarked, without flow, out of calibration or in alarm to the room manager and maintenance/UPRL.
159. Do not begin a practical session if extraction fails, the eyewash station is not operational, or the formaldehyde detector is in alarm.

4. Record

160. Record all checks, inspections, faults, calibrations and repairs in the room maintenance log.

Standard Operating Procedure (SOP)-12

Training, exposure records and incident reporting

Objective: To ensure training of staff and students and to record exposures and incidents related to formaldehyde, chemical and biological agents, and accidents.

Legal basis: RD 374/2001, Article 9; RD 665/1997, Articles 8, 9 and 11. RD 665/1997 requires an up-to-date list of exposed workers to be retained for at least 40 years for carcinogenic or mutagenic agents.

1. Training

- 161. Before entering the room, every person must receive basic information on the risks of formaldehyde and other preservatives; safe use and removal of PPE; access, ventilation, waste and prohibition rules; and response to splashes, cuts, spills, inhalation or extraction failure.
- 162. Training must be repeated whenever products, procedures, ventilation, measurements or risks change.

2. Exposure records

- 163. Record attendance at practical sessions or tasks with potential exposure, including date, activity, approximate duration, product involved, PPE used and incidents.
- 164. Maintain an up-to-date list of tasks and exposure for exposed workers in accordance with RD 665/1997.

3. Incident records

- 165. Record any spill, splash, cut, irritation symptom, strong odour, extraction failure, detector alarm or significant non-compliance.
- 166. The record must include date, affected person where applicable, description, action taken and notification to the responsible person/UPRL.

4. Review

- 167. Review incidents periodically to correct procedures, reinforce training or request a new assessment.

13. Signage

Room signage (in accordance with RD 665/1997 and RD 485/1997).

Location	Required wording
General room signage	Dissection Room. Restricted access. Formaldehyde/formalin present. Carcinogenic agent C1B and sensitiser. Biological hazard. PPE mandatory. No eating, drinking, smoking, food storage or application of cosmetics. Ventilation/extraction mandatory.
Main entrance	Restricted access. Chemical hazard. Formaldehyde: carcinogenic agent C1B. Biological hazard. PPE mandatory: laboratory coat, nitrile gloves, goggles, respiratory protection where applicable, closed footwear. No eating, drinking or smoking. Do not open windows during practical sessions. Extraction mandatory.
Drum/preservative area	Hazardous chemical product. Keep closed. Authorised personnel only. Do not pour into drains. Secondary containment mandatory.
Floor grille/drain	Do not pour formalin, preservatives, drainage fluids or chemical waste into the drain.
Containers	Sharps. Chemical waste containing formaldehyde. Biological/healthcare waste. SANDACH/anatomical remains, where applicable. Contaminated reusable material.

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