

Chemical Immobilization of Animals In-person and Online Course Outline

Course Description

The purpose of this course is to build an awareness of the technical requirements for remote anesthetic delivery, as well as the pharmacologic considerations, the unique aspects of medical monitoring, potential medical complications, and the human safety and ethical considerations associated with chemical immobilization. The goal is to enable the operator to create in the field, the level of care given to an animal under controlled conditions. Because at the end of the day, whether an anesthetic procedure is performed under ideal clinical conditions to a tame animal or under field conditions to a free ranging animal, it is imperative to perform in both situations with equal medical proficiency.

The broad objectives of chemical immobilization are to handle an animal not acclimated to human contact in a manner that inflicts the least amount of stress, the least amount of pain, and the least risk of injury to the animal and those working with it. There is no room for machismo in animal capture and handling. Patience, humaneness, animal care, humane safety and the safety of other people should be the primary concerns. The person that administers anesthetic or immobilizing medications to an animal is responsible for that animal's life until complete recovery from the effects of the medications is attained. Chemical immobilization should be performed only by personnel that are knowledgeable in the proper anesthetic drugs and delivery techniques suitable for the species; the equipment and expertise to diagnose and treat potential medical complications that can arise during the procedure; and the equipment and understanding to treat accidental human exposure to immobilizing medications. Every animal should be treated with the same level of care and respect that would be given to an endangered species. Prior to any procedure the question must be asked, "Does the need to capture or handle this animal justify risking this animal's life?"

The course is designed to provide guidance regarding the chemical immobilization of animals. The drug and dosage information provided herein is a compilation of scientific articles, course books, and other published and unpublished records and reports, and the experiences of the Zoological Society of San Diego d/b/a San Diego Zoo Wildlife Alliance ("SDZWA") and others. These recommendations are intended to be accurate, however typographical or other errors may occur, and SDZWA does not guarantee the recommendations listed herein. Additionally, because each immobilization is unique, it is important to carefully evaluate the suggested dosages and techniques prior to dispensing any medication. Participants are advised that under federal law, all immobilizing

medications must be dispensed by a licensed veterinarian. These medications also must be dispensed within a valid veterinarian/client/patient relationship as defined by the Animal Medicinal Drug Use Clarification Act of 1994. Any extra label drug use requires the direct supervision of a licensed veterinarian.

To the extent that this course discusses human safety protocols, participants are advised that the authors of this course are not medical doctors, and each user's human safety protocols should be formulated with the user's personal physicians and other health care providers. The authors of the course also advise participants to carefully review any instructions regarding use of delivery equipment such as dart projectors and darts. In certain circumstances, these guidelines may suggest deviations from the equipment manufacturer's recommendations. If a participant chooses to deviate from the manufacturer's recommendations, the user does so at the user's own risk. Participants are advised that accidental exposure to the drugs can occur, as well as other injuries, if the delivery equipment is used improperly.

THERE ARE NO SAFE DRUG COMBINATIONS; NO SAFE ANESTHETIC PROCEDURES; ONLY SAFER ANESTHETISTS MAKING BETTER CHOICES

Goals of The Course

The Goals of this course are for the learner to gain an understanding of the following topics:

1. **PRODUCING ANESTHESIA UNDER CONTROLLED VS. UNCONTROLLED CONDITIONS, SAFE AND ETHICAL ANIMAL HANDLING.**
2. **WHAT ARE THE OBJECTIVES OF CHEMICAL IMMOBILIZATION?**
3. **WHEN TO CHOOSE CHEMICAL CAPTURE OVER OTHER ALTERNATIVES.**
4. **WHAT ARE THE PROPER INJECTION SITES FOR REMOTELY PROJECTED CHEMICAL IMMOBILIZING MEDICATIONS?**
5. **WHY IS VETERINARY INVOLVEMENT ESSENTIAL WHEN USING THIS TECHNIQUE?**
6. **WHAT FACTORS TO CONSIDER PRIOR TO USING CHEMICAL IMMOBILIZATION?**
7. **WHAT ARE THE DETRIMENTAL EFFECTS OF STRESS IN ANIMALS?**
8. **WHAT STEPS TO TAKE TO MINIMIZE STRESS DURING A HANDLING PROCEDURE?**
9. **MEDICATION ADMINISTRATION BY HAND AND POLE SYRINGE INJECTION.**
10. **MEDICATION ADMINISTRATION BY REMOTE INJECTION DELIVERY EQUIPMENT AND THE STRUCTURE AND MECHANICS OF DARTS.**
11. **ADVANTAGES/DISADVANTAGES OF VARIOUS DART MEDICATION INJECTION MECHANISMS AND DART RETENTION DEVICES: BARBS AND COLLARS.**

12. BLOW-PIPES LONG- AND SHORT-RANGE DART PROJECTORS.
13. 22 CALIBER POWER LOAD, CARBON DIOXIDE AND AIR DART PROJECTORS.
14. HOW TO MINIMIZE DART IMPACT TRAUMA: DEVELOPING A TECHNIQUE CHART.
15. SOURCES FOR OBTAINING EQUIPMENT AND SUPPLIES.
16. USING DARTS WITH RADIOTRACKING CAPABILITIES.
17. WHAT ARE THE QUALITIES AND PROPERTIES OF THE "IDEAL" IMMOBILIZING DRUG?
18. HOW MEDICATIONS USED FOR CHEMICAL IMMOBILIZATION ARE REGULATED AND CONTROLLED? RECORD KEEPING AND STORAGE, LICENSES, VCP
19. WHAT DRUG CLASSES ARE USED FOR CHEMICAL IMMOBILIZATION? NEUROLEPTIC TRANQUILLIZERS, OPIOIDS, CYCLOHEXAMINES, ANTAGONISTS
20. WHAT ARE THE ADVANTAGES, DISADVANTAGES, AND UTILITY OF THESE DRUG CLASSES IN ANIMAL HANDLING?
21. HOW TO CALCULATE THE VOLUME OF MEDICATION TO ADMINISTER TO AN ANIMAL (DOSE CALCULATION).
22. WHERE TO ACQUIRE RELIABLE INFORMATION ON SPECIES SPECIFIC DRUG DOSAGES.
23. DETERMINE SOLUTION CONCENTRATION AND HOW TO ALTER SOLUTION CONCENTRATION AS A METHOD OF MINIMIZING INDUCTION TIMES AND DART VOLUME REQUIREMENTS.
24. HOW TO CRITICALLY EVALUATE DRUG DOSAGE INFORMATION TO ENSURE IT WILL WORK IN OUR HANDS, FOR OUR NEEDS, UNDER OUR FIELD CONDITIONS.
25. TECHNIQUES TO USE WHEN APPROACHING AN IMMOBILIZED ANIMAL TO BETTER ENSURE HUMAN SAFETY, AND TO MINIMIZE STRESS IN THE ANIMAL.
26. HOW TO ASSESS THE ANIMAL TO ENSURE IT IS AT A SUFFICIENT ANESTHETIC PLANE TO PERMIT SAFE AND STRESS-FREE HANDLING.
27. WHAT STEPS SHOULD BE TAKEN TO HANDLE AN ANIMAL THAT IS NOT COMPLETELY IMMOBILIZED OR NOT AT A PROPER LEVEL OF ANESTHESIA ON APPROACH?
28. DEFINE AND DEVELOPE A CHECKLIST OF POST-CAPTURE CARE PROCEDURES AND MONITORING OBSERVATIONS ESSENTIAL FOR EVERY ANESTHETIC PROCEDURE.
29. WHAT MEDICAL EMERGENCIES CAN BE ASSOCIATED WITH CHEMICAL IMMOBILIZATION?
30. HOW TO RECOGNIZE, AND TREAT THESE MEDICAL COMPLICATIONS. SUPPORTIVE PROCEDURES AND MEDICATIONS
31. HOW TO PREVENT THESE PROBLEMS FROM OCCURRING.
32. HOW TO MAXIMIZE AND ADDRESS HUMAN SAFETY.

33. HOW TO RESPOND TO ACCIDENTAL DRUG EXPOSURE – FIRST AID/CPR, PPE.

SDZWA is not responsible for any injury, loss, or damage incurred either directly or indirectly because of the application of any of the techniques or guidelines presented in this course. The sole responsibility for proper use of medication, delivery equipment, and human safety protocols is that of the participant, not SDZWA.

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