

# CPC Pika handling and anesthesia protocols July 1, 2010

Katryna Fleer; Toni Lyn Morelli;  
Deana Clifford; Janet Foley;  
Peter Pascoe



# Justification

- Restricted range of known safe drugs for lagomorphs compared with carnivores and rodents.
- Pikas susceptible to heat stress, idiosyncratic drug reactions?
- Federal and state listing status
- Urgent need for data requiring hands-on work with pikas, e.g. some genetics studies, disease, et al. May require collar placement, blood sampling, skin snips, etc.



# Considerations

- Safety
- Efficacy: analgesia (relief from pain), sedation, immobilization, anesthesia for handling and minimizing stress, pain, and suffering
- “Easy” to deliver
- Non-controlled substances (DEA)
- Expense



# Isoflurane

- Rapid acting inhalant “ether”-class anesthetic with some analgesia, already used in pikas
- Generally *requires* administration via calibrated vaporizer (but in a jar with a cotton wick in the field)
- Typically used with premed sedative
- No swallow reflexes, profound respiratory depressant, EASILY overdosed, rare malignant hyperthermia
- Very rapid induction & recovery, inexpensive/not controlled

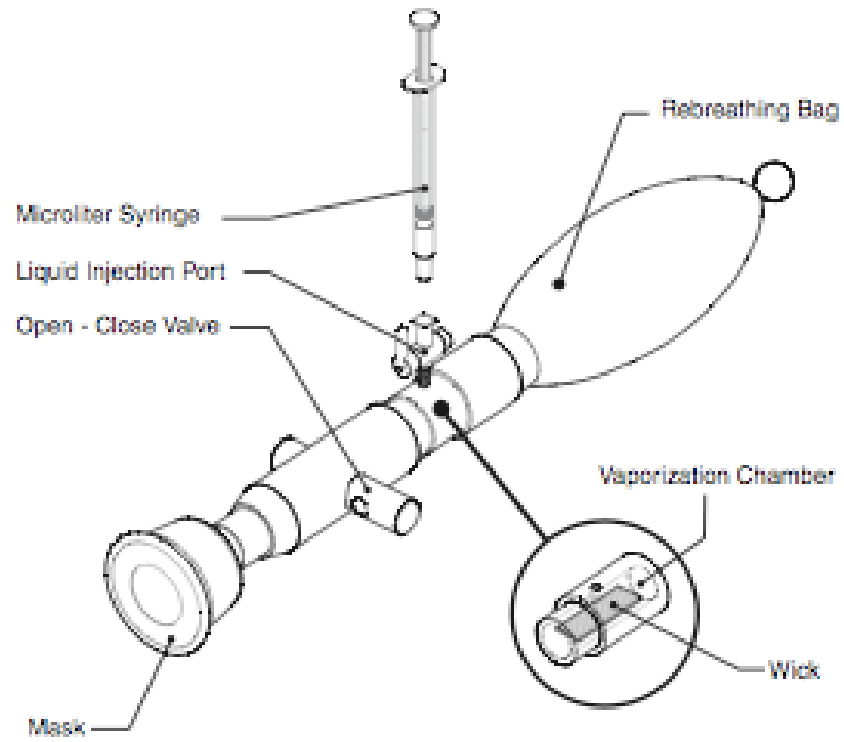


Figure 1 Components of the anesthetic inhaler. The liquid injection port is also used to fill the rebreathing bag with oxygen prior to anesthesia.

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# Dexmedetomidine

- Alpha-2 agonist sedative (not anesthetic) unless additional drugs are used, analgesic
- Can be reversed with atipamezole
- No respiratory depression, peripheral vasoconstriction reduces risk of hyperthermia
- Given as injection, not-controlled, relatively expensive



# Ketamine

- Dissociative anesthetic, binds to opioid receptors (hallucinogenic in people)
- Optimally used with sedative (xylazine or valium), quite safe, delivered by injection
- Relatively prolonged (rocky) recovery, controlled substance (drug of abuse in humans), inexpensive



# Xylazine

- alpha 2 agonist sedative or anesthetic, analgesic
- Can cause vomiting and heart rate depression (reduced blood pressure)
- Delivered by injection, inexpensive, not controlled





# Plans

- **Goal: Develop optimal anesthesia protocols for members of CPC & Western pika working group.**
- Randomly assign pikas as available over the summer in collaborative studies to 3 different anesthetic regimens (isoflurane, dexmedetomidine, dexmedo with low-dose ketamine)
- Anesthetize, evaluate anesthesia, perform mildly noxious stimuli (exam, bleeding, ear tag, collar), recover & monitor



# Feedback

- Value and need for hands-on pika work, costs vs. benefits
- Importance of: safety, cost, non-controlled, route, need for other equipment
- Input into experimental design?
- What are goals for handling – what sampling do we want to achieve?

