

Avian Euthanasia: Incorporating Compassion and the New AVMA Guidelines

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Recently, the *AVMA Guidelines for the Euthanasia of Animals: 2013 Edition* was released. This new, expanded version is 102 pages long and includes sections on species that were not addressed in earlier versions, section on how to handle animals before and during euthanasia, and disposal of carcasses. It also includes an avian section pertaining to pet birds, aviary birds, and birds used in falconry, racing, zoos, and educational facilities. The new Guidelines emphasize evidence based medicine and research, but unfortunately in the area of euthanasia of birds, there is little, if any, research or evidence based medicine published compared to mammals. What scientific literature is available pertains to chickens in a commercial environment, otherwise it is anecdotal information. There are separate sections in the Guidelines for wild birds under “Captive and Free-ranging Nondomestic Animal” section of the Guidelines”, and for birds raised for food under “Animal Farmed for Food and Fiber” section” of the Guidelines.

Some peer-reviewed reports are available in the literature regarding euthanasia of individual or small groups of birds, but most of the information consists of anecdotal reports in book chapters, guidelines from various associations, journal roundtable discussions and editorials. The method of euthanasia depends on species, size, anatomic and physiologic characteristics, environment, degree of domestication, clinical state, and anticipated and actual response to restraint. People performing the euthanasia should be knowledgeable about what is normal behavior for a bird compared to what is considered a stressed or fearful bird and handle the bird appropriately to reduce stress before and during euthanasia.

According to the 2013 AVMA Guidelines for Euthanasia acceptable methods of euthanasia of birds include injection of a sodium pentobarbital euthanasia solution IV with or without the bird being unconscious or under anesthesia, or intracoelomic, intracardiac or intraosseous injection of a sodium pentobarbital euthanasia solution while unconscious or under anesthesia. Anesthesia is defined as either halothane, isoflurane, or sevoflurane with or without nitrous oxide. Acceptable methods of euthanasia of birds with conditions include inhalant anesthetics alone at high concentrations (isoflurane, sevoflurane, halothane with or without nitrous oxide), carbon dioxide (>40%), carbon monoxide, nitrogen, argon, and the physical methods including cervical dislocation (<200 grams), decapitation (<200 grams), gunshot (field conditions), and the following only as a secondary methods if unconscious or under anesthesia: potassium chloride, exsanguination and thoracic compression. Realize that barbiturate salts are alkaline and irritating and that intracoelomic injections are irritating, especially if they inadvertently get into an air sac. Also realize that intraosseous injections should not be given in pneumatic bones such as the femur or humerus because these are lined with respiratory epithelium and connect to the respiratory tract.

Overview of methods

Acceptable

Intravenous (IV) injection with an injectable euthanasia agent (such as sodium pentobarbital) is the quickest and most reliable means of euthanizing birds when it can be performed without causing undue stress. Most birds get stressed with handling so I personally prefer to gently restrain them in a towel while mask inducing with isoflurane or sevoflurane with or without prior sedation with midazolam given intramuscularly (IM) or intranasally (IN) 15 prior to induction. Other sedatives can be used.

Acceptable with conditions

The Guidelines are clear to state that “Methods acceptable with conditions are equivalent to acceptable methods when all criteria for application of a method are met”.

Inhaled anesthetics – Birds given high concentrations of inhaled gas anesthetics lose consciousness rapidly and then death occurs after they are rendered unconscious. The condition is that a high concentration of gas be used and the restraint cause little to no stress. This method usually induces minimal tissue damage in case a necropsy is needed.

Carbon Dioxide – Birds require comparatively high (>40%) concentrations of carbon dioxide to induce anesthesia followed by loss of consciousness. There is much scientific literature available on the use of carbon dioxide for the use of euthanasia of chickens, ducks and turkeys. It is important that the application rate of carbon dioxide is just right so that the increase in carbon dioxide is rapid enough to have a short time to loss of posture and unconsciousness, but slow enough that there is less aversion or reaction to the gas. Even though birds are unconscious, they tend to flap with carbon dioxide and this can damage tissue if needed for necropsy.

Carbon monoxide – Not generally used in clinical settings due to risk to personnel.

Argon and Nitrogen – Not generally used in clinical settings due to availability.

Cervical dislocation – Sometimes needed in a field situation, say an emergency at an aviary. Cervical dislocation is typically done in birds that are <200 grams, but has been described in birds as large as 2.3 kg. Acceptable with the condition that the person performing the cervical dislocation is experienced in performing the procedure.

Decapitation – Again, sometimes in a field situation, may need to use this method. Again, decapitation is typically done in birds that are <200 grams, but has been described in birds as large as 3.5 kg. Acceptable with the condition that the person performing the decapitation is experienced in performing the procedure and the device used is very sharp and kept in good working order. One study showed that visual evoked responses were present up to 30 seconds after decapitation.

Gunshot – Not used in a clinical setting due to obvious dangers to personnel and other, better methods are available.

Adjunctive methods are those methods that can be used only if the bird is unconscious and anesthetized prior to their use, and include IV or intracardiac potassium chloride, exsanguination, or thoracic compression. These methods are unacceptable if performed in a conscious bird. Exsanguination is useful if the blood is needed for further testing in the bird.

Unacceptable

In the conscious bird it is unacceptable to perform thoracic compression, exsanguinate, or administer potassium chloride.

Eggs

Bird embryos that are >50% through incubation should be euthanized by above acceptable methods or acceptable with conditions methods including anesthetic overdose, decapitation, or prolonged (>20 minutes) exposure to carbon dioxide. Eggs that are less than 50% through incubation can be destroyed by prolonged (>20 minutes) exposure to carbon dioxide, cooling (< 4 degrees C for 4 hours), freezing, or egg addling.

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