Lecture summaries

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ARDS in Veterinary Medicine: Updated ARDSVet Definitions and Practical Clinical Application

Acute Respiratory Distress Syndrome (ARDS) is a life-threatening cause of hypoxemic respiratory failure in veterinary patients that has historically been difficult to recognize consistently across species and practice settings.

Updated ARDSVet definitions were developed through an international, evidence-based consensus process to modernize ARDS diagnosis in small and large animals while remaining applicable in resource-variable environments. Key updates include revised oxygenation criteria incorporating SpO_2/FiO_2 ratios, acceptance of point-of-care ultrasound as a diagnostic imaging modality, stratification of ARDS into non-intubated ARDS, IMV-ARDS, and patients at risk for ARDS, and removal of histopathology and mandatory mechanical ventilation as diagnostic requirements.

This session reviews the ARDSVet framework and illustrates its real-world application through case-based examples, emphasizing early recognition, dynamic severity assessment, and practical bedside implementation to improve clinical decision-making and standardization in veterinary emergency and critical care practice.

Learning goals

By the end of this session, learners will be able to:

1. List the five required diagnostic criteria for ARDSVet and describe how they differ from prior veterinary ARDS definitions.
2. Identify common probable and possible risk factors for ARDS in small and large animal patients.
3. Explain how SpO_2/FiO_2 ratios and PaO_2/FiO_2 ratios are used to define and stratify hypoxemia in ARDSVet.
4. Describe the role of thoracic POCUS in diagnosing ARDS and excluding cardiogenic pulmonary edema.
5. Differentiate non-intubated ARDS, IMV-ARDS, and patients at risk for ARDS, and recognize that severity may evolve over time.

Panel- ARDS Treatment

Acute Respiratory Distress Syndrome (ARDS) is associated with high morbidity and mortality in veterinary patients, yet treatment remains largely supportive and extrapolated from human critical care literature. While updated ARDSVet definitions provide a standardized framework for diagnosis and severity classification, they intentionally stop short of prescribing specific therapies.

This panel discussion explores contemporary treatment strategies for ARDS in small and large animal patients, including oxygen supplementation, high-flow nasal oxygen, mechanical ventilation approaches, and adjunctive medical therapies.

Emphasis is placed on physiologic rationale, evidence limitations, resource variability, and real-world decision-making across disease stages. Through expert discussion and case-based perspectives, this session aims to clarify what is known, what remains uncertain, and how clinicians can thoughtfully tailor ARDS management to individual patients under variable clinical circumstances and resource availability.

Learning goals

By the end of this session, participants will be able to:

1. Describe the primary goals of ARDS treatment, emphasizing supportive care rather than disease-specific cure and management of underlying predisposing diseases.
2. Compare oxygen delivery strategies (conventional oxygen, HFNO, mechanical ventilation) and identify appropriate escalation points in small animals vs large animals
3. Recognize the risks and limitations of mechanical ventilation in veterinary ARDS patients.
4. Identify commonly used adjunctive therapies extrapolated from human medicine and articulate their proposed rationale and evidence limitations.

Septic Shock

Sepsis and septic shock are common causes of morbidity and mortality in small animal emergency and critical care, yet veterinary-specific definitions (while forthcoming) and treatment evidence remain limited.

Current understanding, informed by the human Sepsis-3 framework, defines sepsis as life-threatening organ dysfunction caused by a dysregulated host response to infection, with septic shock representing a subset characterized by persistent hypotension and profound circulatory and metabolic abnormalities.

This session reviews current approaches to defining and diagnosing sepsis and septic shock in dogs and cats, emphasizing limitations of systemic inflammatory response syndrome (SIRS) criteria and the importance of organ dysfunction and perfusion assessment. Treatment strategies—including early antimicrobials, fluid resuscitation, vasopressor therapy, source control, and adjunctive therapies such as corticosteroids—are discussed through the lens of available veterinary evidence and human extrapolation. Particular focus is placed on areas of controversy, evidence gaps, and practical decision-making in real-world veterinary settings.

Learning goals

By the end of this session, participants will be able to:

1. Define sepsis and septic shock in small animals using contemporary concepts adapted from Sepsis-3.
2. Recognize the limitations of SIRS criteria and explain why organ dysfunction and perfusion assessment are central to diagnosis.
3. Identify key diagnostic indicators of septic shock, including vasopressor dependent hypotension and evidence of organ dysfunction.

4. Describe core treatment strategies for septic shock, including antimicrobials, fluids, vasopressors, and source control.
5. Discuss areas of controversy and limited evidence, including corticosteroid use and optimal resuscitation targets in veterinary patients.

Euglycemic DKA- Case based management strategies

Euglycemic diabetic ketoacidosis (eDKA) is an emerging and potentially life-threatening endocrine emergency increasingly recognized in cats treated with sodium–glucose cotransporter 2 (SGLT2) inhibitors. Unlike traditional diabetic ketoacidosis, eDKA is characterized by significant ketosis and metabolic acidosis despite normal or near-normal blood glucose concentrations, creating diagnostic and therapeutic challenges in the emergency setting.

This session uses real-world case examples to review the pathophysiology, diagnosis, and management of eDKA, with emphasis on early ketone recognition, avoidance of diagnostic anchoring on normoglycemia, and safe treatment strategies. Management principles are discussed with a focus on fixed-dose regular insulin continuous rate infusion paired with proactive dextrose supplementation. Current treatment recommendations are largely extrapolated from a few expert recommendations and anecdotal success, highlighting substantial evidence gaps and the need for cautious decision-making in these cats.

Learning goals

By the end of this session, participants will be able to:

1. Define euglycemic diabetic ketoacidosis and explain how it differs from traditional DKA.
2. Recognize key diagnostic features of eDKA, including the limitations of blood glucose testing.
3. Explain the pathophysiologic role of SGLT2 inhibitors in promoting ketosis despite euglycemia.
4. Describe the rationale for fixed-dose regular insulin CRI paired with early dextrose supplementation in eDKA.
5. Apply a safe, practical ER management strategy for eDKA while acknowledging current evidence limitations.