Principles of Vaccination

- Introduction and regulations
- Protective immunity, types of vaccines
- Vaccine failures & duration of immunity
- Mechanistic basis of adverse events

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Risks of Vaccination

- Vaccine-related side effects
  - Vaccine-associated feline fibrosarcomas
  - Hypersensitivities
    - Anaphylaxis
  - Nonspecific systemic side effects
    - Fever, lethargy, loss of appetite
  - Localized reactions
- Alterations in immune homeostasis
  - Allergy?
  - Autoimmune disease?
  - Post-vaccinal polyneuropathy

Veterinary Vaccines are Essential for

- Safe and efficient food production
- Control of diseases of companion animals and horses
- Control of emerging and exotic diseases of animals and people
- Control of zoonotic diseases
- Reduction of transmission of food borne disease
- Reduction of animal suffering
- Reduction of the need for antibiotics to treat animals
Benefits of Vaccination

**Prevention of deadly diseases**

<table>
<thead>
<tr>
<th>Canine core vaccines</th>
<th>Feline core vaccines</th>
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</thead>
<tbody>
<tr>
<td>Distemper virus</td>
<td>Feline panleukopenia</td>
</tr>
<tr>
<td>Parvovirus</td>
<td>Rhinotracheitis</td>
</tr>
<tr>
<td>Canine adenovirus 2</td>
<td>Calicivirus</td>
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<tr>
<td>Rabies</td>
<td>Rabies</td>
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<tr>
<td></td>
<td>Feline leukemia (kittens)</td>
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</tbody>
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AVMA Approved Principles of Vaccination

- Approved by AVMA Executive Board April 2001; revised April 2007
- Introduction
  - "Selecting vaccine products and recommending vaccine programs are among the most complicated of medical decisions facing the veterinarian."
- Conclusion
  - "Revaccination recommendations should be designed to maintain clinically relevant immunity while minimizing adverse event potential."

AVMA Approved Principles of Vaccination

- "Vaccine products vary in efficacy and safety and are not necessarily indicated for all patients."

- Vaccination protects a population of animals... Vaccination does not protect every individual patient even when they are properly vaccinated
AVMA Approved Principles of Vaccination

• Knowledge of immunology and vaccinology, including associated benefits and risks, and the pathobiology of infectious diseases, are necessary to implement an effective vaccination program.

AVMA Approved Principles of Vaccination

• Vaccines, including polyvalent products, should be selected to include only those antigens appropriate for the specific risk needs of the patient, thereby eliminating unnecessary immune system stimulation and lowering potential risks of adverse events. Veterinarians need to be aware of the risk of “endotoxin stacking” with the use of multiple Gram-negative vaccines.

AVMA Approved Principles of Vaccination

• Veterinarians should create a core vaccine program, intended for use in the majority of animals in their practice area

• Veterinarians should create a non-core vaccine program, intended for a minority of animals in their practice area
Recommendations on Vaccination


Vaccine Regulations, Labeling, and Licensing

Federal Agencies Regulating Veterinary Products

- Food and Drug Administration (FDA) – pharmaceuticals (drugs, medicated feeds), animal devices
- Environmental Protection Agency (EPA) – topical insecticides
- United States Department of Agriculture (USDA) Center for Veterinary Biologics (CVB) – vaccines and diagnostics