Stewardship of Antimicrobial Use in Animals: Defining Goals and Objectives

National Institute for Animal Agriculture
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Topics

• Stewardship: some factors to consider
• Clarifying goals and objectives
• Progress to date
• Monitoring progress moving forward
Factors to Consider

Some factors impacting efforts to implement stewardship strategies in veterinary settings include:

• A wide variety of animal species
• A wide variety of husbandry practices
• A wide variety of stakeholders
Factors to consider

Wide variety of animal species

• Food-producing animals
  – Major - cattle (dairy/beef), swine, chickens (broilers, layers), turkeys
  – Minor - including (but not limited to) sheep, fish, goats, quail, honey bees
• Companion animals such as cats, dogs, horses
• Exotic/zoo species
Factors to Consider

Wide variety of animal husbandry practices

• Rearing of populations of animals in a wide variety of settings
• Managing disease in large groups - pens, buildings, pasture, etc.
  – Treating sick animals; preventing or controlling disease outbreaks
• The size of operations vary greatly
  – Small operations may have lower density, but disease control/biosecurity measures may be less rigorous
  – Large operations may have higher density, but disease control/biosecurity measures may be more rigorous
Factors to Consider

Wide variety of stakeholders:

• Stewardship requires collaboration across a broad set of stakeholders including:
  – Veterinarians
  – Animal producers
  – Animal feed industry
  – Animal pharmaceutical industry
  – Distributors and retailers
  – Academia
  – Local, State, and Federal agencies
Goals and Objectives

• Is there sufficient clarity regarding the goals and objectives of stewardship efforts?
• What does “judicious use” or “stewardship” mean to you?
• What outcomes are we seeking?
• Is there a clear message?
Goals and Objectives

• We have focused on “what to do” and “how to measure”, but perhaps have not focused enough on the “why”

• Greater clarity (and agreement) regarding the goals and objectives – critical for progress

• Build consensus around core principles of “stewardship” in veterinary settings

• Recognizing strategies for implementing stewardship may need to vary by sector
Antibiotic Stewardship

Antibiotic Use:
- Minimize use/need
- Optimize how use

Slow Resistance Emergence

What is the goal?

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# Antibiotic Stewardship

<table>
<thead>
<tr>
<th>Possible Actions</th>
<th>Minimize When Antibiotics are Needed/Used</th>
<th>Optimize How Antibiotics are Used</th>
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<tbody>
<tr>
<td>Veterinary oversight</td>
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<tr>
<td>Eliminate production uses</td>
<td></td>
<td>Update use conditions on product labels, as needed</td>
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<td>Adjust husbandry practices</td>
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<td>Training/education</td>
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<tr>
<td>Enhance disease prevention strategies (e.g., vaccination)</td>
<td></td>
<td>Implement stewardship plans in animal production settings</td>
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<td>Utilize non-antibiotic alternative therapies</td>
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**Desired Outcomes**

- Reduced disease incidence
- Increased vet oversight; more selective use of antibiotics
- Therapeutic use only
- Increased use of non-antibiotic alternatives
- Reduced antibiotic use

- Appropriately labeled antibiotic products
- Use in consultation with veterinarians
- Stewardship plans implemented
- More targeted/judicious use

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**Slow Emergence of Resistance**
Progress to Date

Important areas of focus have included:

- **Align products** - Align approved use conditions of medically important antimicrobial products with judicious use principles
- **Use practices** – Implement/reinforce antimicrobial stewardship in all veterinary settings
- **Monitor progress** - Enhance monitoring of antimicrobial resistance and antimicrobial drug use in animals
Aligning antimicrobial products

A focus for FDA - making sure the labeled use conditions of medically important antimicrobials are consistent with stewardship principles

**Steps underway now:**

- Guidance 209, Guidance 213, Veterinary Feed Directive rule
- **Significance** – Effective Jan. 1, 2017, medically important antimicrobials used in animal feed and drinking water will no longer be approved for production (e.g. growth promotion) purposes in food-producing animals and all therapeutic uses of these antimicrobials will require authorization of a licensed veterinarian
Aligning antimicrobial products

Changes being implemented through Guidance #213 process are critically important steps forward, but we believe additional measures are needed.

**Additional measures include:**

- Examine those uses of medically important antibiotics for feed/water that do not currently have an explicitly defined duration of dosing
- Develop strategy and timeline for bringing all dosage forms of medically important antimicrobials under veterinary oversight
- Identify and implement a strategy for promoting antimicrobial stewardship in companion animals
Implementing antimicrobial stewardship

Many organizations and affected stakeholders have role to play in supporting progress in this area

- Involvement of multiple Federal agencies including FDA, USDA, and CDC
- Veterinary and animal producer organizations play key role
- State agencies that oversee licensing/practice standards

Challenges

- Diversity of settings
- Coordinating activities across affected stakeholders
Implementing antimicrobial stewardship

Progress includes:

• A broad array of organizations have actively supported outreach efforts to prepare for Guidance #213 changes
  – Webinars, public meetings, brochures, guidance documents, other web-based materials

• Academic organizations are incorporating judicious use principles into curricula at veterinary and land grant colleges

• Veterinary organizations, including State veterinary boards, are re-examining and updating policies

• Industry “quality assurance programs” include elements regarding the judicious use of antimicrobials
Monitoring impact of stewardship activities

• As we implement stewardship strategies, it is important that we collect sufficient data to assess the impact of such strategies
  – “Success” should not focus solely on reductions in overall sales or use
  – It is important that we identify other appropriate indicators that help assess stewardship

• Our ultimate goal is that improved use practices will curb resistance development
Monitoring Impact

- Antibiotic Stewardship
  - Minimize Use/Need
  - Optimize how use
  - Slow Emergence of Resistance
  - Intermediate indicators
  - Ultimate indicator of success
Monitoring impact of stewardship activities

**Challenges include:**

• Wide diversity of settings where antimicrobials are used

• Substantial differences in “health care” infrastructure compared to human health care

• Lack of new funding has delayed progress on enhanced data collection

**Progress being made:**

• USDA preparing antimicrobial use surveys; funding pending

• Utilizing existing funds, FDA recently awarded two grants
In closing...

• Significant progress has been made; an important milestone is January 1, 2017

• Antimicrobial stewardship is an ongoing process impacting many stakeholders and sectors; incremental steps to phase in changes – as needed

• Continued engagement of veterinary community, animal producers, and others is critical

• Important that we seek common understanding as to the goals/objectives of “antimicrobial stewardship”