A practical approach to implementation of antimicrobial stewardship programs in companion animal veterinary settings

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UNIVERSITY OF MINNESOTA

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Objectives

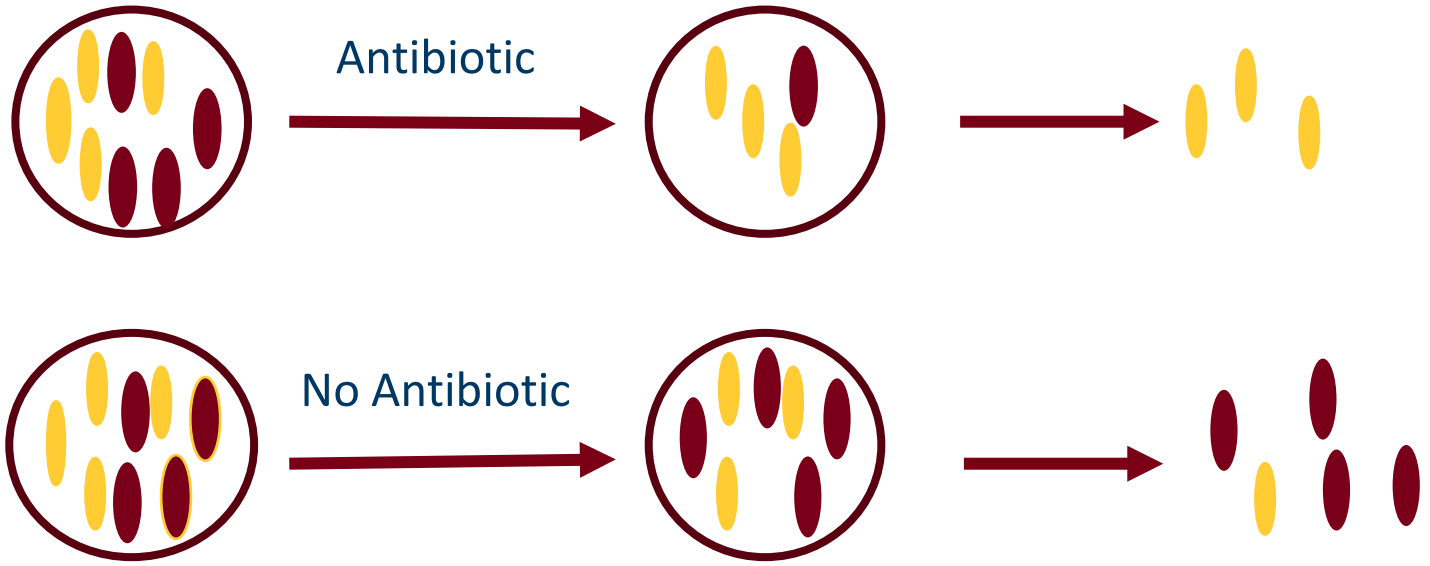
- Recognize the five AVMA core principles of antimicrobial stewardship
- Create a plan to implement core principles with minimal effort
- Identify ways to improve preventive care for a common condition encountered in your clinic
- Learn strategies to improve client communication, whether an antimicrobial is indicated or not
- Identify opportunities to improve how common conditions (e.g., UTI) are diagnosed and managed in the context of antimicrobial stewardship

Antimicrobial use and antimicrobial resistance

Antibiotic resistance

- Antibiotics are critical for human and animal health
- Antibiotic use leads to development of antibiotic-resistant organisms
- Judicious use is required to slow emergence of antibiotic resistance and maintain efficacy of antibiotics
- Though barriers are present, companion animal clinics can take steps to optimize antibiotic use

Antibiotic use promotes resistance.



Bacteria shed from people and animals enter built and natural environments every day.

Resistant bacteria

Susceptible bacteria (not resistant)

6 year old FS
Manx cat
Recurrent UTIs

Staph. pseudintermedius

PENICILLIN G	R >=0.5
AMOXICILLIN	R
AMOX/CLAV ACID	R
OXACILLIN	R 2
CEPHALEXIN	R
CEFOVECIN	R
CEFPODOXIME	R
IMIPENEM	R
AMIKACIN	S
GENTAMICIN	R >=16
CIPROFLOXACIN	R
ENROFLOXACIN	R >=4
MARBOFLOXACIN	R >=4
MOXIFLOXACIN	R
AZITHROMYCIN	R
ERYTHROMYCIN	R >=8
CLINDAMYCIN	S 0.5
VANCOMYCIN	DNR
TETRACYCLINE	R >=16
NITROFURANTOIN	S <=16
CHLORAMPHENICOL	R >=64

11 year old FS
Cocker Spaniel
Pyelonephritis

	E coli	
Drug	Result	Interp.
Amikacin	<=4	Susceptible
Amoxicillin/Clavulanate	>8	Resistant
Ampicillin	>8	Resistant
Cefazolin	>32	Resistant
Cefovecin	>8	Resistant
Cefpodoxime	>8	Resistant
Cephalexin	>16	Resistant
Doxycycline	>8	Resistant
Enrofloxacin	>4	Resistant
Gentamicin	2	Susceptible
Marbofloxacin	>4	Resistant
Orbifloxacin	>8	Resistant
Piperacillin/Tazobactam	<=8	Susceptible
Pradofloxacin	>2	Resistant
Tetracycline	>16	Resistant
Trimethoprim/sulfamethoxazole	>4	Resistant
Imipenem	<=1	Susceptible
Nitrofurantoin	-	Resistant
Meropenem	-	Susceptible

Antimicrobial stewardship improves patient outcomes

Antimicrobial stewardship

"The primary purpose of stewardship is to optimize clinical outcomes while minimizing unintended consequences of antimicrobial use, including toxicity, the selection of pathogenic organisms, and the emergence of resistance."

File TM et. al. 2014 Clinic Infect Diseases

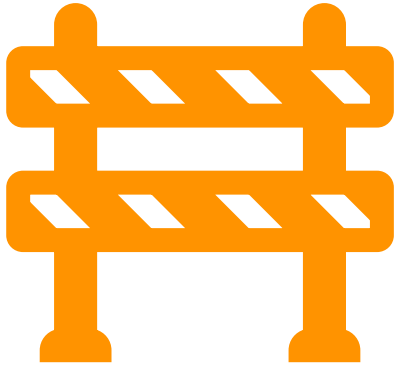
AVMA Core Principles of Antimicrobial Stewardship

1. Commit to stewardship
2. Advocate for a system of care to prevent common diseases
3. Select and use antimicrobial drugs judiciously
4. Evaluate antimicrobial drug use practices
5. Educate and build expertise

AVMA
American Veterinary Medical Association

Challenges exist for in antimicrobial stewardship in companion animal medicine.

- Evidence-based protocols in veterinary medicine are limited
- Resources are lacking (financial, staffing)
- Just-in-case use is common
  - Perception that antibiotics are safe and pose little risk to patients
  - Prescribing can be an emotional decision
  - Patient work-up is often limited by pet owner finances
- Behavior change is critical (and difficult)



Decision-making is complex. Change is hard.

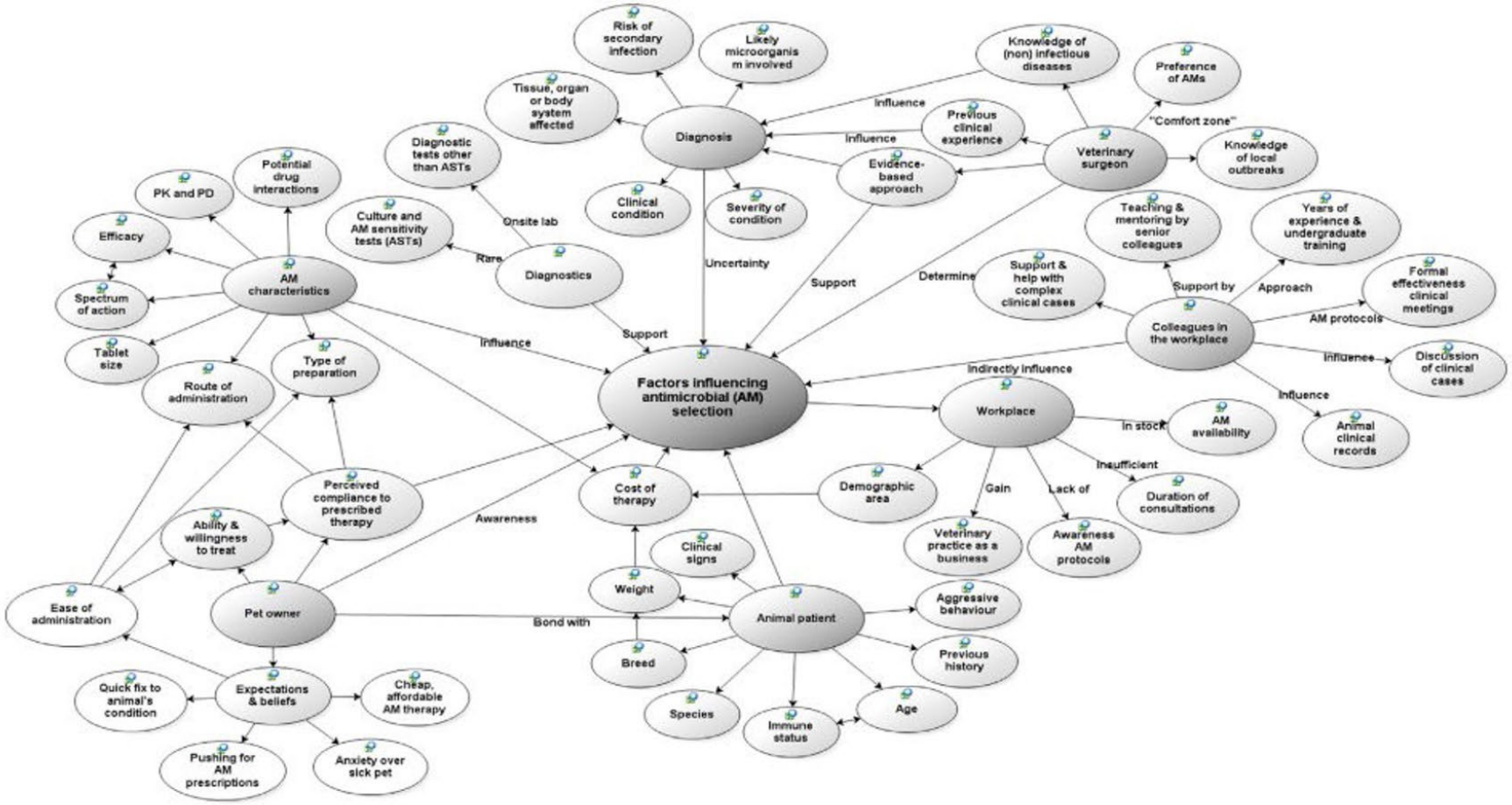
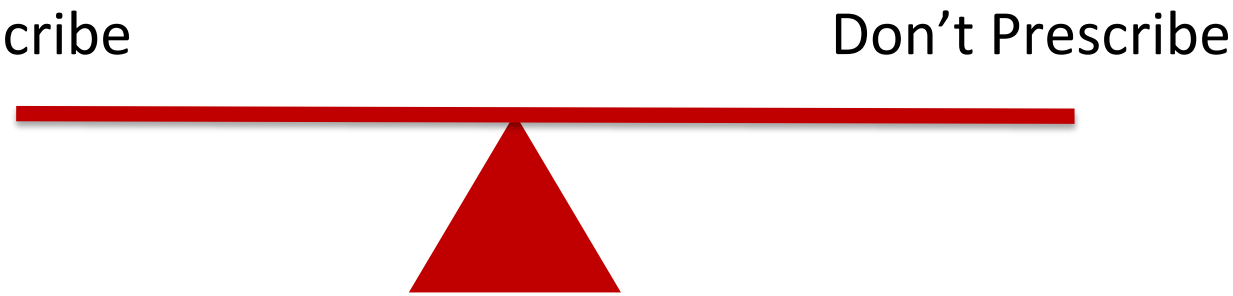


Fig. 2. Intrinsic and extrinsic factors associated with decision-making processes involved in the selection of AM therapy by participants veterinarians ($n = 21$) in everyday small animal practice (PK – pharmacokynetics; PD – pharmacodynamics) (NVivo 8, *QSR International Pty Ltd., UK*).

The Stewardship Balancing Act



Unintended consequences

- Toxicity, adverse drug effects
- Risk of developing resistant infection
- Cost

Unintended consequences

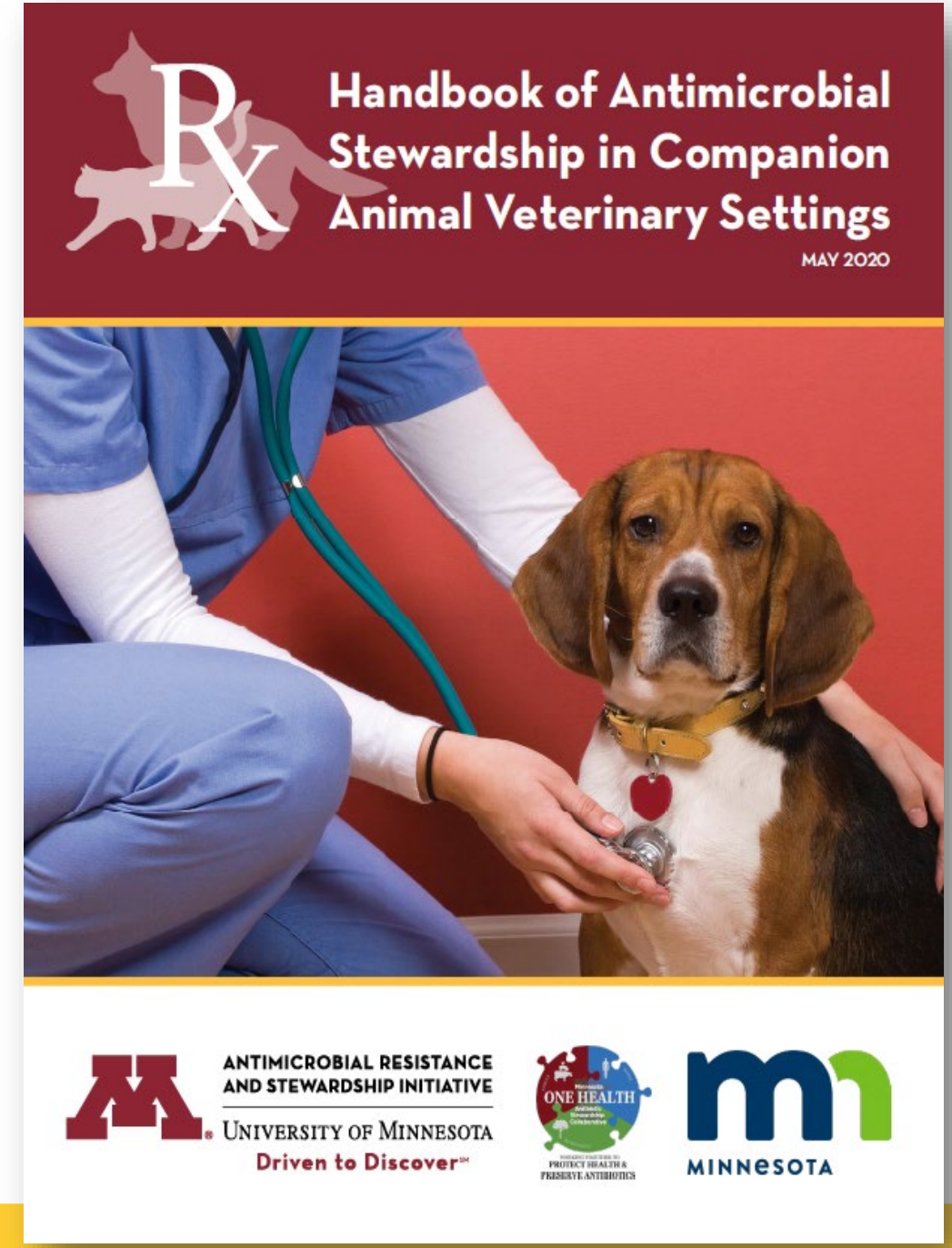
- Untreated, more severe infection
- Disease spread in population
- Diagnostic uncertainty
- Negative client relationships

University of Minnesota Antimicrobial Resistance and Stewardship Initiative (ARSI)

- Develops resources for companion animal medicine
- Conducts research to advance knowledge of companion animal diseases and treatment

https://arsi.umn.edu

Creating an antimicrobial stewardship plan for your practice



The key to AS implementation is to identify ONE step and take one step at a time!

arsi.umn.edu/handbook

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Find a stewardship champion and committee.

Identify a stewardship champion.

- Single veterinarian
- Point of contact for antimicrobial use issues

Form a stewardship committee.

- At least one veterinary technician, clinic manager
- Staff with strong interest, specific training
- Meet regularly to assess priorities, evaluate progress
- Facilitate staff education

Work together to define priorities.

Commit to AS

Sample Email to Introduce Antimicrobial Stewardship Champion

INTRODUCE STEWARDSHIP CHAMPION TO VETERINARY CLINIC STAFF

Dear [VETERINARY TEAM MEMBER NAME],

At [VETERINARY CLINIC NAME], we are committed to antimicrobial stewardship, or the improvement of antimicrobial use while effectively treating infections. As you know, antimicrobial resistance is becoming more and more of a problem in our clinical work and is a major public health concern. Widespread use of antibiotics in human and animal health is a major driver of the problem of antimicrobial resistance. Identification of an Antimicrobial Stewardship Champion is essential to success of clinic-based stewardship programs. We are pleased to announce that [CHAMPION NAME] has agreed to take on this role for our clinic.

Sample Commitment Letter to Clients

AN ANTIBIOTIC USE COMMITMENT FROM VETERINARY CLINICS

[Date]

Dear Valued Client,

Antibiotic resistance, or the ability of bacteria to withstand the effects of antibiotic treatment, is a growing problem for our pets, and it is also a major public health concern. Widespread use of antibiotics in human and animal health is a major driver of the problem of antibiotic resistance. Veterinarians play an important role in the fight to preserve the effectiveness of antibiotics. Just as antibiotics are not appropriate for all infections in people, including the common cold, influenza, and most cases of bronchitis and sinusitis, antibiotics are not always the answer when our pets get sick. In addition, it is important to keep in mind that antibiotics are not themselves without harm, so they should only be used when needed. Antibiotics can lead to drug reactions, diarrhea, or development of new infections that are difficult to treat.

Sample Letter to Veterinary Staff: Clinic Antimicrobial Stewardship Priorities

USE THIS TEMPLATE TO DEVELOP A LETTER FOR YOUR CLINIC

TO: [All Staff, Relief Veterinarians]
FROM: [Veterinary Medical Director and Antimicrobial Stewardship Committee, as appropriate]
RE: [Antimicrobial Stewardship Program Policy and Procedures]
DATE: [Date]

Dear [Veterinary Team Member Name],

This letter is written to inform you of our clinic's commitment to antimicrobial stewardship. Antimicrobials are important tools and are among the most commonly prescribed pharmaceuticals in veterinary medicine. However, research has shown that a high proportion of antibiotic prescriptions are unnecessary or inappropriately prescribed.[1,2] To improve patient outcomes and reduce pressures leading to antimicrobial resistance, [NAME OF CLINIC] commits to prescribing improvement and staff education on antimicrobial use. Please review [NAME OF CLINIC'S] stewardship commitment statement and protocols developed by the Antimicrobial Stewardship Committee (attached). **We ask you to commit to improved antimicrobial use by supporting these current activities:**

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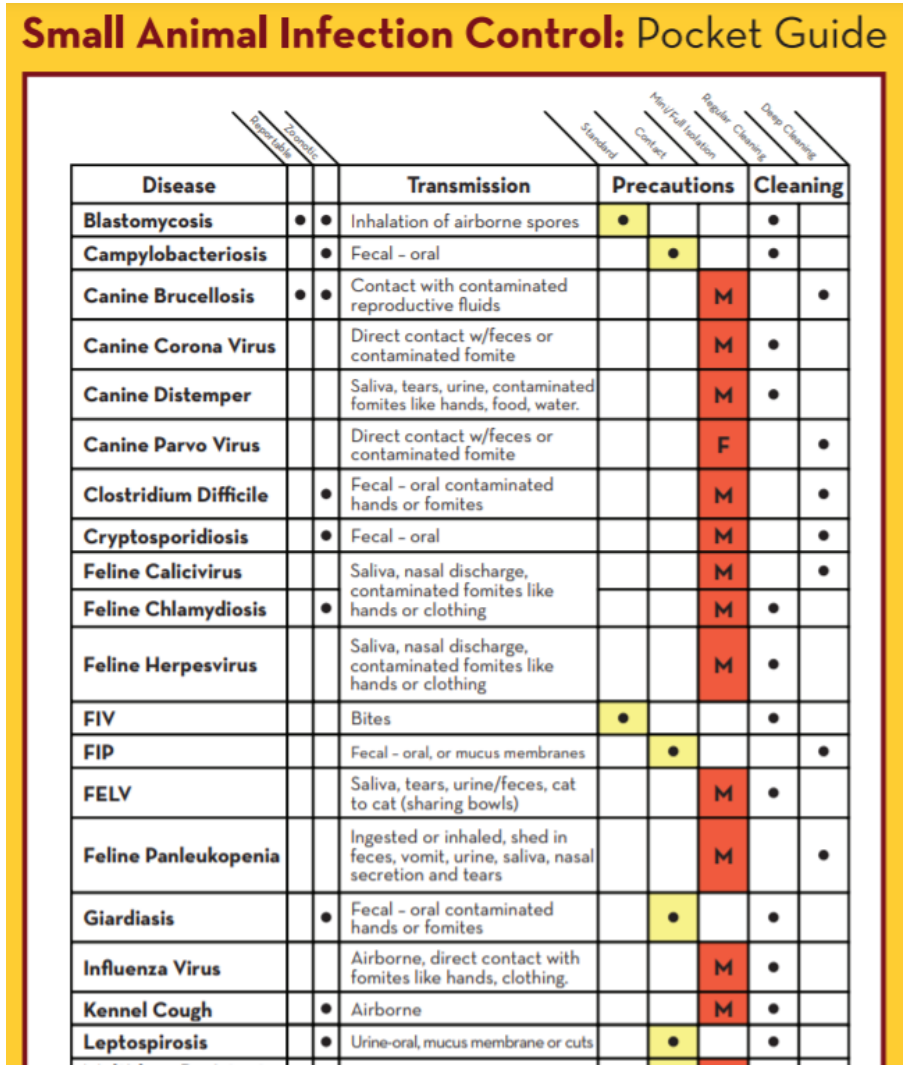
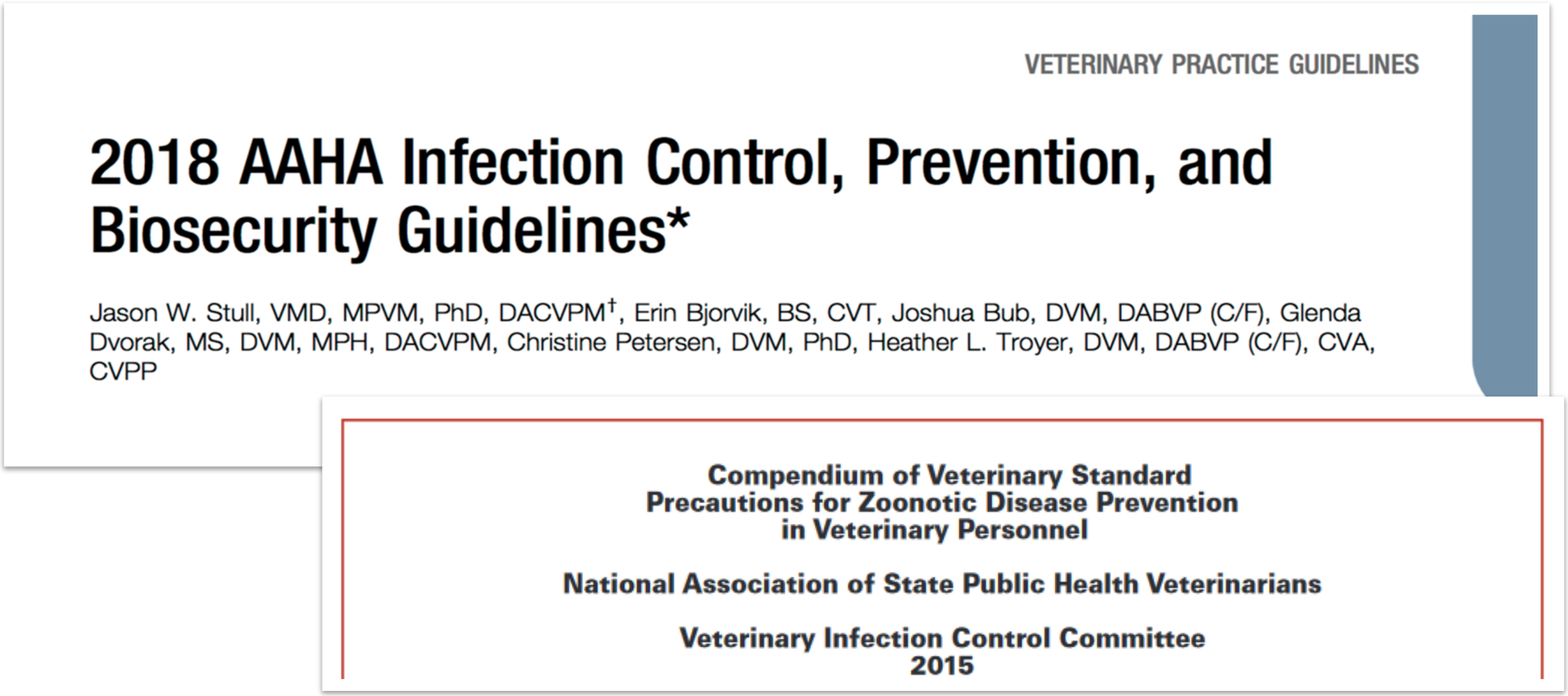
- in-clinic infection prevention and control
- patient-specific disease prevention

Take one step towards prevention



arsi.umn.edu/ipc-resources

Get familiar with key resources.



VETERINARY PRACTICE GUIDELINES

2018 AAHA Infection Control, Prevention, and Biosecurity Guidelines*

Jason W. Stull, VMD, MPVM, PhD, DACVPM†, Erin Bjorvik, BS, CVT, Joshua Bub, DVM, DABVP (C/F), Glenda Dvorak, MS, DVM, MPH, DACVPM, Christine Petersen, DVM, PhD, Heather L. Troyer, DVM, DABVP (C/F), CVA, CVPP

Compendium of Veterinary Standard Precautions for Zoonotic Disease Prevention in Veterinary Personnel

National Association of State Public Health Veterinarians

Veterinary Infection Control Committee
2015

Conduct an infection control audit.

AAHA guidelines and tools

2018 AAHA Infection Control, Prevention, and Biosecurity Guidelines

Resource center

Veterinary Practice Biosecurity Tracker

Veterinary Practice Biosecurity Tracker

*As the saying goes, "we treasure what we measure." By using this simple tracker, your team will be able to measure your progress towards optimal infection disease control in your hospital by tracking which tactics you have **fully, partially or not yet implemented**.*

Published May 16, 2019

PRACTICE BIOSECURITY TRACKER RESULTS

The tactics are divided into three categories:

Essential: These are foundations for ICPB and indicate that your team is starting out on the right foot.
Important: By implementing these tactics, your team is taking huge strides towards optimal care.
Ideal: Teams that adhere to these tactics are approaching ideal ICPB practices.

Instructions:

1. Click on the stars that correspond with how you have implemented ICPB tactics in your hospital, if applicable.
2. After you have answered ALL the questions, you will be able to view and print your report.
3. Assign tactics that need implementation or completion to your team.
4. Retake the tracker every 2-4 weeks and celebrate when you reach optimal ICPB care!

NOTE: These results are neither saved, nor submitted to AAHA or other agencies.

Fully Implemented

Partly Implemented

Not Implemented

Not Applicable

Establish a non-core vaccine campaign.

- "Vaccinometer" for non-core vaccines
- Clinic SOPs based on AAFP/AAHA vaccine guidelines
- Client education materials

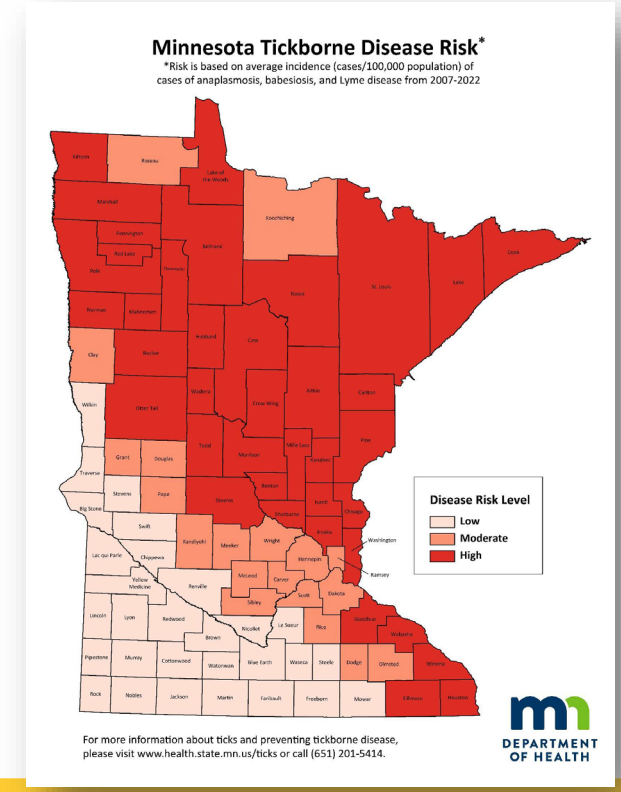
Vaccinometer for Determining Vaccine Necessity

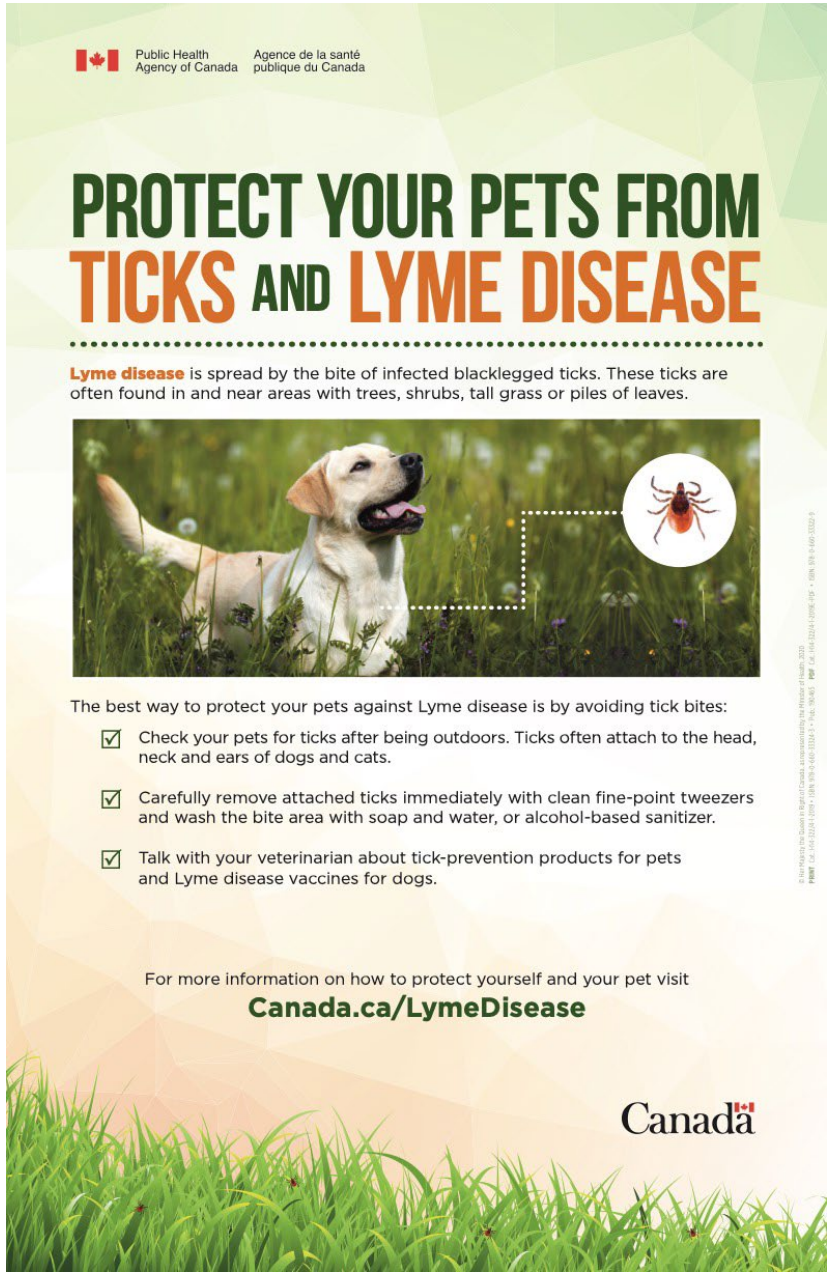
Individualized Evaluation Criteria	Low (1)	Moderate (2)	High (3)
What are the prevalence and risk of exposure/infection in your area?			
How great is the risk of severe disease once the dog is infected?			
How effective is the vaccine?			
How safe is the vaccine?			
What is the potential for zoonotic spread to human contacts?			
What is the potential for spread to other dogs?			
Total score 6–9 = Vaccination unnecessary.			
10 – 13 = Vaccination optional.			
14 + = Vaccinate.			

KUSTRITZ M. (2006). Immunology. The Dog Breeder's Guide to Successful Breeding and Health Management, 76–90. https://doi.org/10.1016/B978-1-4160-3139-0.50009-2

Center vector-borne disease prevention.

- Raise awareness
- Make March Lyme disease prevention month
- Share patient stories on posters, by email
- Incorporate surveillance data from local or state public health
- Real life example:
  - display tally of Lyme + cases
  - display info re: vaccination and tick preventatives





Take a proactive approach to seasonal allergies.

Provide a fact sheet for owners with treatment options tips for monitoring

Discuss and implement management strategies before pyoderma occurs

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Refer to consensus treatment guidelines.

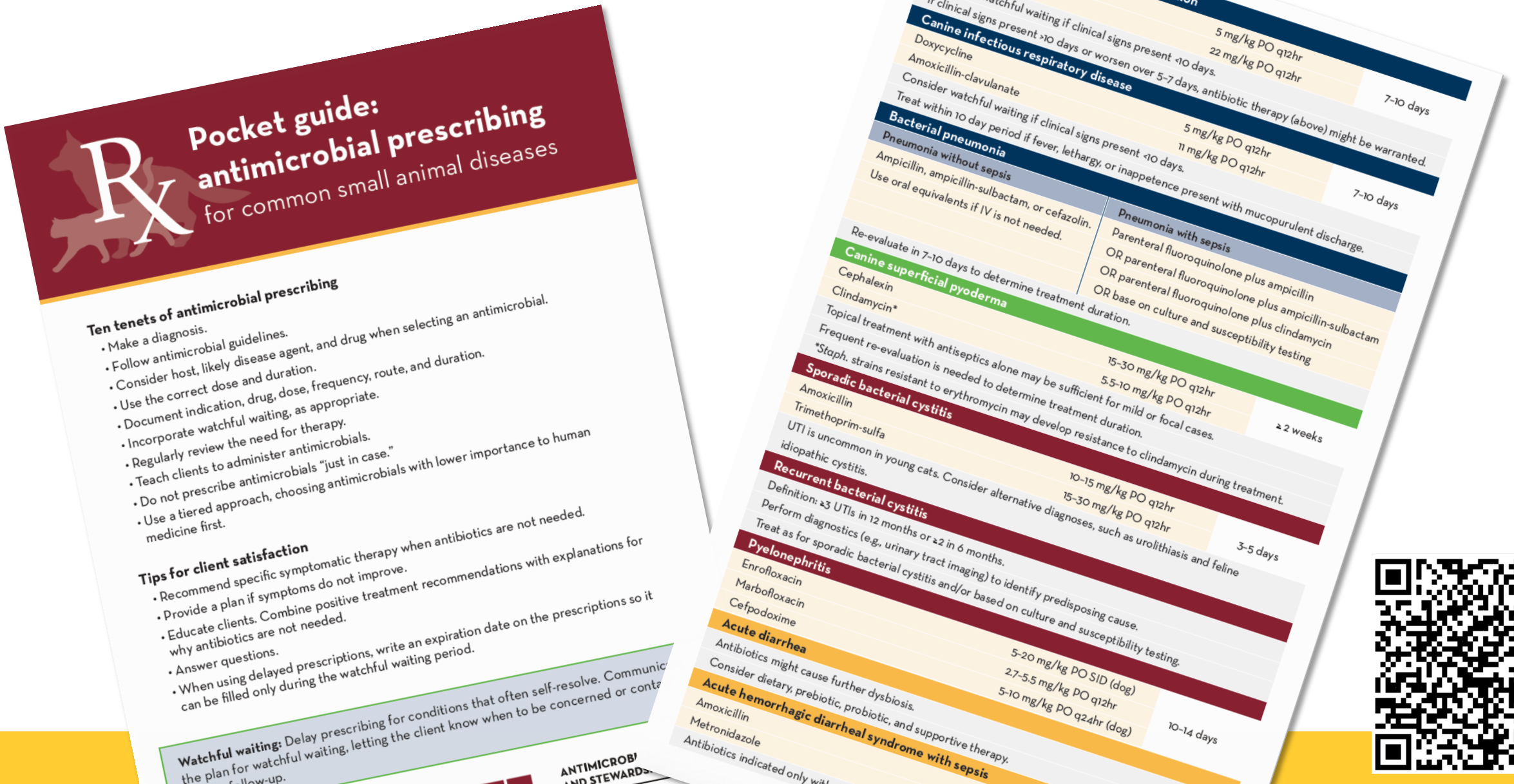
International Society of Companion Animal Infectious Diseases (ISCAID)
European Network for Optimization of Veterinary Antimicrobial Therapy (ENOVAT)

Peer-reviewed consensus guidelines available for:

- Urinary tract infections
- Canine superficial bacterial folliculitis
- Respiratory infections
- Acute canine diarrhea
- Coming soon: perisurgical prophylaxis

ISCAID
International Society for Companion Animal Infectious Diseases

Use tools to support prescribing.



Pocket guide: antimicrobial prescribing
for common small animal diseases

Ten tenets of antimicrobial prescribing

- Make a diagnosis.
- Follow antimicrobial guidelines.
- Consider host, likely disease agent, and drug when selecting an antimicrobial.
- Use the correct dose and duration.
- Document indication, drug, dose, frequency, route, and duration.
- Incorporate watchful waiting, as appropriate.
- Regularly review the need for therapy.
- Teach clients to administer antimicrobials.
- Do not prescribe antimicrobials "just in case."
- Use a tiered approach, choosing antimicrobials with lower importance to human medicine first.

Tips for client satisfaction

- Recommend specific symptomatic therapy when antibiotics are not needed.
- Provide a plan if symptoms do not improve.
- Educate clients. Combine positive treatment recommendations with explanations for why antibiotics are not needed.
- Answer questions.
- When using delayed prescriptions, write an expiration date on the prescriptions so it can be filled only during the watchful waiting period.

Watchful waiting: Delay prescribing for conditions that often self-resolve. Communic
the plan for watchful waiting, letting the client know when to be concerned or conta

ANTIMICROB
AND STEWARDS

Feline bacterial upper respiratory infection		
Doxycycline	5 mg/kg PO q12hr	7–10 days
Amoxicillin	22 mg/kg PO q12hr	
Consider watchful waiting if clinical signs present <10 days. If clinical signs present >10 days or worsen over 5–7 days, antibiotic therapy (above) might be warranted.		
Canine infectious respiratory disease		
Doxycycline	5 mg/kg PO q12hr	7–10 days
Amoxicillin-clavulanate	11 mg/kg PO q12hr	
Consider watchful waiting if clinical signs present <10 days. Treat within 10 day period if fever, lethargy, or inappetence present with mucopurulent discharge.		
Bacterial pneumonia		
Pneumonia without sepsis	**Pneumonia with sepsis**	
Ampicillin, ampicillin-sulbactam, or cefazolin. Use oral equivalents if IV is not needed.	Parenteral fluoroquinolone plus ampicillin OR parenteral fluoroquinolone plus ampicillin-sulbactam OR parenteral fluoroquinolone plus clindamycin OR base on culture and susceptibility testing	7–10 days
Re-evaluate in 7–10 days to determine treatment duration.		
Canine superficial pyoderma		
Cephalexin	15–30 mg/kg PO q12hr	≥ 2 weeks
Clindamycin*	5.5–10 mg/kg PO q12hr	
Topical treatment with antiseptics alone may be sufficient for mild or focal cases. Frequent re-evaluation is needed to determine treatment duration. *Staph. strains resistant to erythromycin may develop resistance to clindamycin during treatment.		
Sporadic bacterial cystitis		
Amoxicillin	10–15 mg/kg PO q12hr	3–5 days
Trimethoprim-sulfa	15–30 mg/kg PO q12hr	
UTI is uncommon in young cats. Consider alternative diagnoses, such as urolithiasis and feline idiopathic cystitis.		
Recurrent bacterial cystitis		
Definition: ≥3 UTIs in 12 months or ≥2 in 6 months. Perform diagnostics (e.g., urinary tract imaging) to identify predisposing cause. Treat as for sporadic bacterial cystitis and/or based on culture and susceptibility testing.		
Pyelonephritis		
Enrofloxacin	5–20 mg/kg PO SID (dog)	10–14 days
Marbofloxacin	2.7–5.5 mg/kg PO q12hr	
Cefpodoxime	5–10 mg/kg PO q24hr (dog)	
Acute diarrhea		
Antibiotics might cause further dysbiosis. Consider dietary, prebiotic, probiotic, and supportive therapy.		
Acute hemorrhagic diarrheal syndrome with sepsis		
Amoxicillin		
Metronidazole		
Antibiotics indicated only wit		

Understand the use of first and second-line agents.

First-line antibiotics:

- Amoxicillin +/- beta lactamase inhibitor
- 1st generation cephalosporins (e.g., cephalexin, cefazolin)
- TMS

Second-line antibiotics:

- 3rd generation cephalosporins (e.g., cefovecin, cefpodoxime)
- Fluoroquinolones (e.g., enrofloxacin, ciprofloxacin)

First-line…

- Use for empiric prescribing
- Consensus guidelines available for some conditions

Second-line…

- Supported by C&S

Third-line…

- Input from ID clinician
- Last resort
- Reasonable chance of cure
- Supported by C&S

Improve the use of diagnostic testing.

Cytology:

- Guide empiric therapy
- Differentiate infection (intracellular bacteria) from colonization
- Identify mixed infections, presence of anaerobes and fastidious organisms
- Support culture and susceptibility testing interpretation

Use AST to guide selection of systemic antibiotics

- Recurrent infections
- Poor or no response to empiric antibiotic treatment
- Life-threatening infections
- Detection and surveillance of multidrug-resistant (MDR) infections
- Risk of MDR increases with
  - Recent history of antibiotic use
  - Hospitalization
  - Cohabitation with animal or human with MDR infection

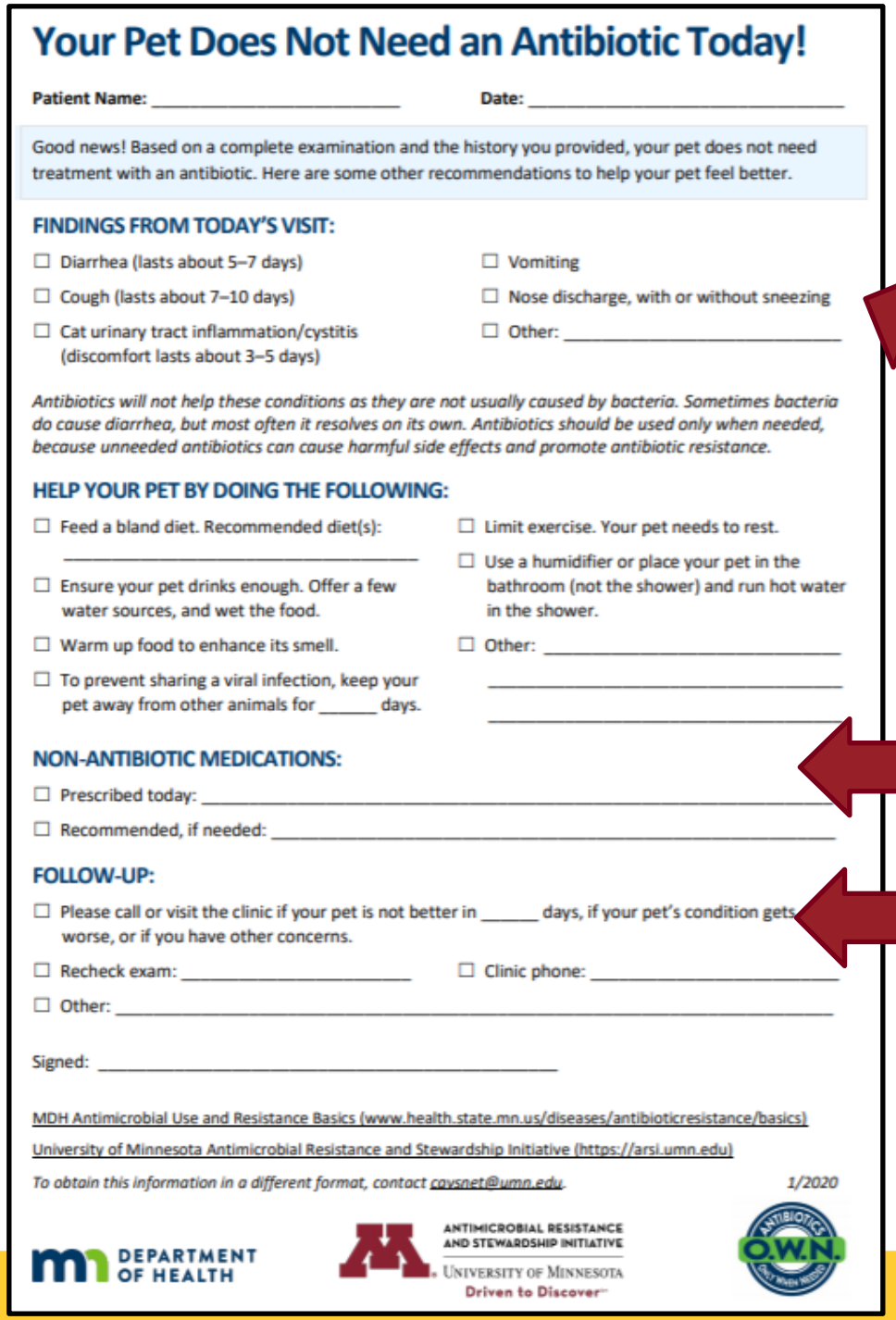
- General and species-specific antimicrobial susceptibility testing resources are available from AVMA.

Consider the use of watchful waiting.

- Do not immediately prescribe antibiotics for conditions that often resolve on their own.
- Re-evaluate after appropriate period
- Conditions to consider:
  - Canine infectious respiratory disease with non-productive cough
  - Feline upper respiratory infection of duration <10 days
  - Acute diarrhea in healthy patient

Watchful waiting…

- Lets a client know they have been heard
- Acknowledges pet is ill
- Avoids use of antibiotics “just in case”
- Establishes a plan for follow up



Your Pet Does Not Need an Antibiotic Today!

Patient Name: _____ **Date:** _____

Good news! Based on a complete examination and the history you provided, your pet does not need treatment with an antibiotic. Here are some other recommendations to help your pet feel better.

FINDINGS FROM TODAY'S VISIT:

- ☐ Diarrhea (lasts about 5–7 days)
- ☐ Cough (lasts about 7–10 days)
- ☐ Cat urinary tract inflammation/cystitis (discomfort lasts about 3–5 days)
- ☐ Vomiting
- ☐ Nose discharge, with or without sneezing
- ☐ Other: _____

Antibiotics will not help these conditions as they are not usually caused by bacteria. Sometimes bacteria do cause diarrhea, but most often it resolves on its own. Antibiotics should be used only when needed, because unneeded antibiotics can cause harmful side effects and promote antibiotic resistance.

HELP YOUR PET BY DOING THE FOLLOWING:

- ☐ Feed a bland diet. Recommended diet(s): _____
- ☐ Ensure your pet drinks enough. Offer a few water sources, and wet the food.
- ☐ Warm up food to enhance its smell.
- ☐ To prevent sharing a viral infection, keep your pet away from other animals for _____ days.
- ☐ Limit exercise. Your pet needs to rest.
- ☐ Use a humidifier or place your pet in the bathroom (not the shower) and run hot water in the shower.
- ☐ Other: _____

NON-ANTIBIOTIC MEDICATIONS:

- ☐ Prescribed today: _____
- ☐ Recommended, if needed: _____

FOLLOW-UP:

- ☐ Please call or visit the clinic if your pet is not better in _____ days, if your pet's condition gets worse, or if you have other concerns.
- ☐ Recheck exam: _____
- ☐ Clinic phone: _____
- ☐ Other: _____

Signed: _____

MDH Antimicrobial Use and Resistance Basics (www.health.state.mn.us/diseases/antibioticresistance/basics)

University of Minnesota Antimicrobial Resistance and Stewardship Initiative (https://arsi.umn.edu)

To obtain this information in a different format, contact caysnet@umn.edu. 1/2020

DEPARTMENT OF HEALTH

ANTIMICROBIAL RESISTANCE AND STEWARDSHIP INITIATIVE
UNIVERSITY OF MINNESOTA
Driven to Discover℠

ANTIBIOTICS O.W.N. ONLY WHEN NEEDED

No-antibiotics needed sheet…

- Lets a client know they have been heard
- Acknowledges pet is ill
- Avoids use of antibiotics "just in case"
- Establishes a plan for follow up

arsi.umn.edu/as-resources

Focus improvement efforts on one disease.

Consider:

- Common disease
- Available prescribing guidance

Examples:

- Urinary tract infections
- Upper respiratory infections
- Acute non-specific diarrhea

Follow guidelines to treat sporadic cystitis.

Common Presentation

- Signalment
  - Female dogs, <3 UTIs in 12 months
  - ⚠ Not common in cats!
- Urinalysis (cysto or clean mid-stream):
  - Bacteriuria, pyuria, hematuria
  - ⚠ Stain precipitant can look like cocci
- Consider other causes of lower urinary tract signs
  - Especially in young male cats
  - Co-morbid or predisposing conditions

Treatment

- Empiric therapy per ISCAID guidelines
  - **Amoxicillin** 11-15 mg/kg q8-12 hr
  - **TMS** 15-30 mg/kg q12hr
- Duration
  - **3-5 days sufficient**
- Cytology can help!
  - Amoxicillin for cocci
  - TMS for rods
  - Amoxicillin-clavulanic acid if TMS contraindicated

Should we be afraid of TMS?

We should avoid TMS in some dogs

- Dobermans, Samoyeds, Miniature Schnauzers
- Dogs with KCS, liver disease, immune-mediated disease

Hypersensitivity not recognized before 5 days of therapy

- Check STT before starting
- Cats – tablet size too big
  - Liquid (large volume, cherry flavor)  
  - Consider compounding (smaller volume, palatable flavor)

Use watchful waiting for feline URI.

- Most commonly viral
- Antibiotics not needed
- Watchful waiting!
  - Clear or serous nasal discharge
  - Mucopurulent nasal discharge <10 days
- Supportive care
  - Warm food
  - Appetite stimulant
  - Humidified air

- Antibiotics indicated only if:
  - >10 days
  - Worsening in 5–7 days
  - Fever
  - Inappetence not responsive to symptomatic care
- Doxycycline or amoxicillin

Your Pet Does Not Need an Antibiotic Today!

Patient Name: Webster **Date:** January 31, 2024

Good news! Based on a complete examination and the history you provided, your pet does not need treatment with an antibiotic. Here are some other recommendations to help your pet feel better.

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- ☐ To prevent sharing a viral infection, keep your pet away from other animals for _____ days.
- ☐ Limit exercise. Your pet needs to rest.
- ☑ Use a humidifier or place your pet in the bathroom (not the shower) and run hot water in the shower.
- ☐ Other: _____

NON-ANTIBIOTIC MEDICATIONS:

Consider topical only treatment for pyoderma.

- Identify and treat predisposing cause
  - Atopy: immune-modulation
  - Food: diet trial
  - Parasites: vector control
- Determine distribution
- Question owner about compliance factors
  - shampoo, mousse, spray, wipe
- Oral antibiotics are often not needed
  - if used, Cephalexin or Amoxicillin-clavulanic acid are considered first line therapy
  - start with 2 weeks duration
  - no need to treat past clinical resolution

- Topical non-antibiotic treatment:
  - Medicated shampoos (chlorhexidine, antifungal, skin barrier protectants)
  - Mousses, sprays to:
    - prevent infection (chlorhexidine, hypochlorous acid)
    - control itch (steroids)
- Topical antibiotics:
  - Gentamicin-based otic preparations can be useful
  - Mupirocin should be resolved for culture-identified MRSP

Put it all together

- Choose one clinical condition for optimized management.
- Create protocols for diagnosis, treatment, recheck, client communication.
  - Posted algorithms, reminders support compliance
- Educate staff and clients.
  - Staff meeting updates
  - Posters in waiting room
  - Social media

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Why Track Antibiotic Use in Dogs and Cats?

Establish Baseline Measures

Guide Goalsetting

Measure Progress

You can’t manage what you don’t measure.

Track antimicrobial prescribing.

What to measure

- All use
- Select antimicrobials
- Select conditions

How to measure

- Point-prevalence survey
- Medical record review
- Prospective data collection
- Pharmacy report

PPS in UMN Veterinary Medical Center

Data for Action

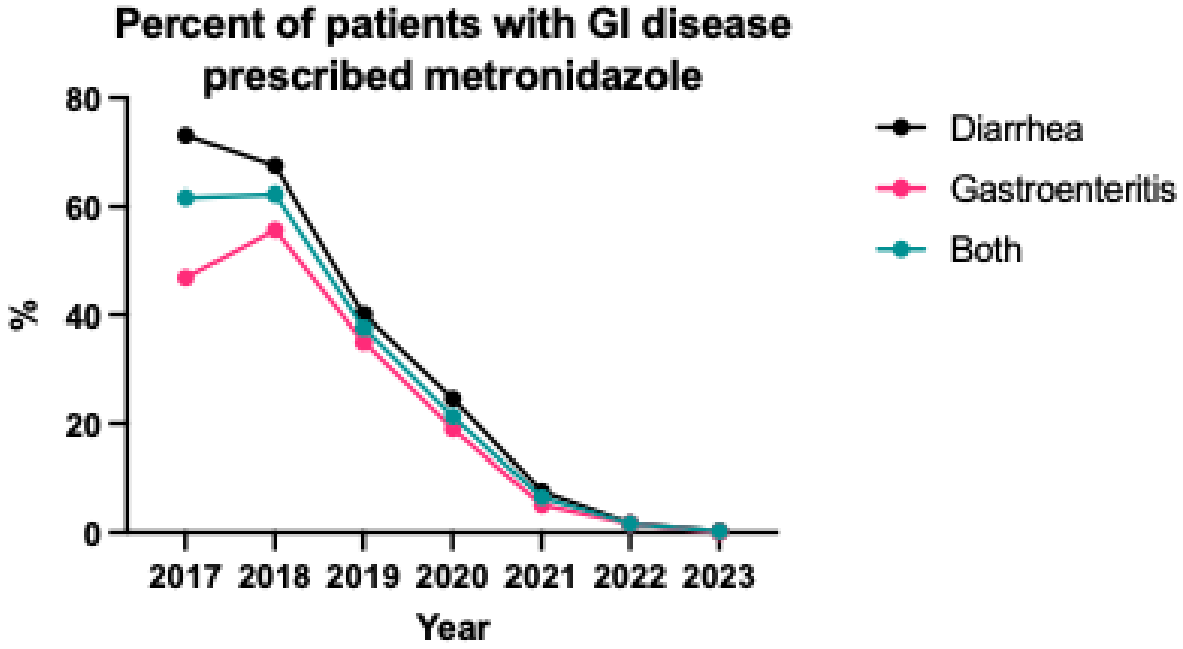
- ~1/4 of all outpatient prescriptions were for acute diarrhea = key area for antimicrobial stewardship intervention

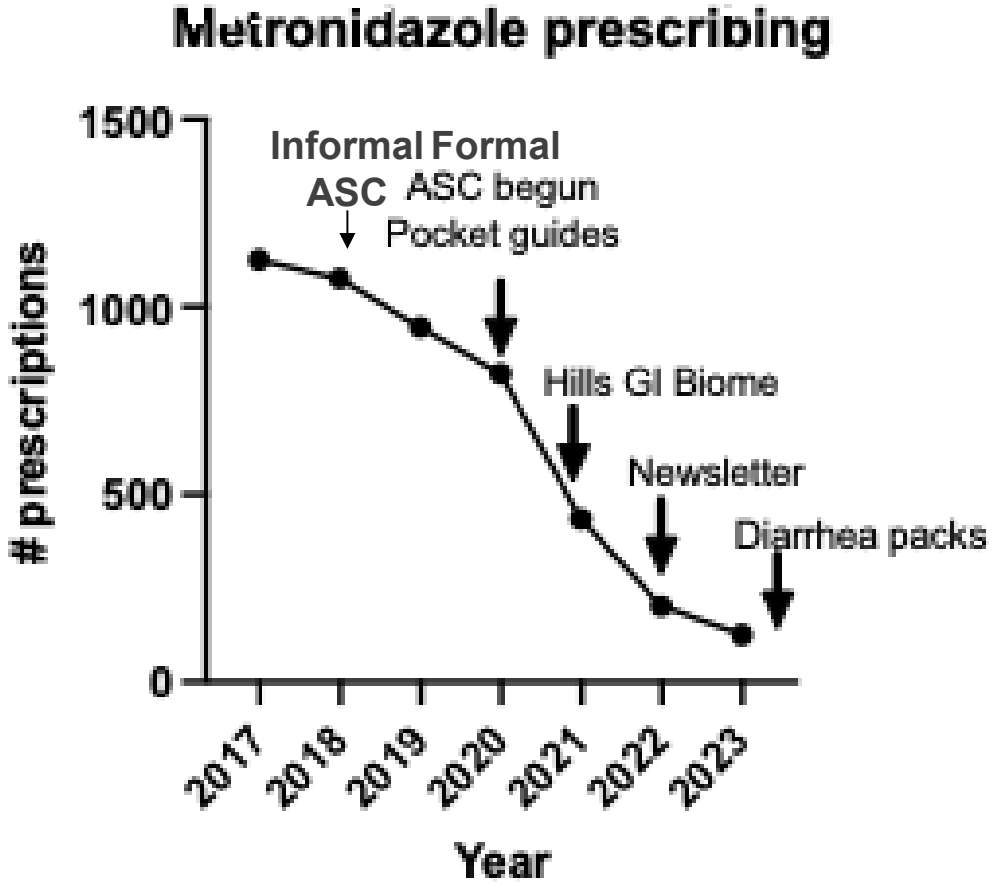
Interventions

- Provide guidance for alternative treatments for acute non-specific diarrhea
  - Prescription prebiotic diet
  - Probiotics
  - Education about risk of dysbiosis with metronidazole

Application of AU Tracking: Education, access to alternative treatments

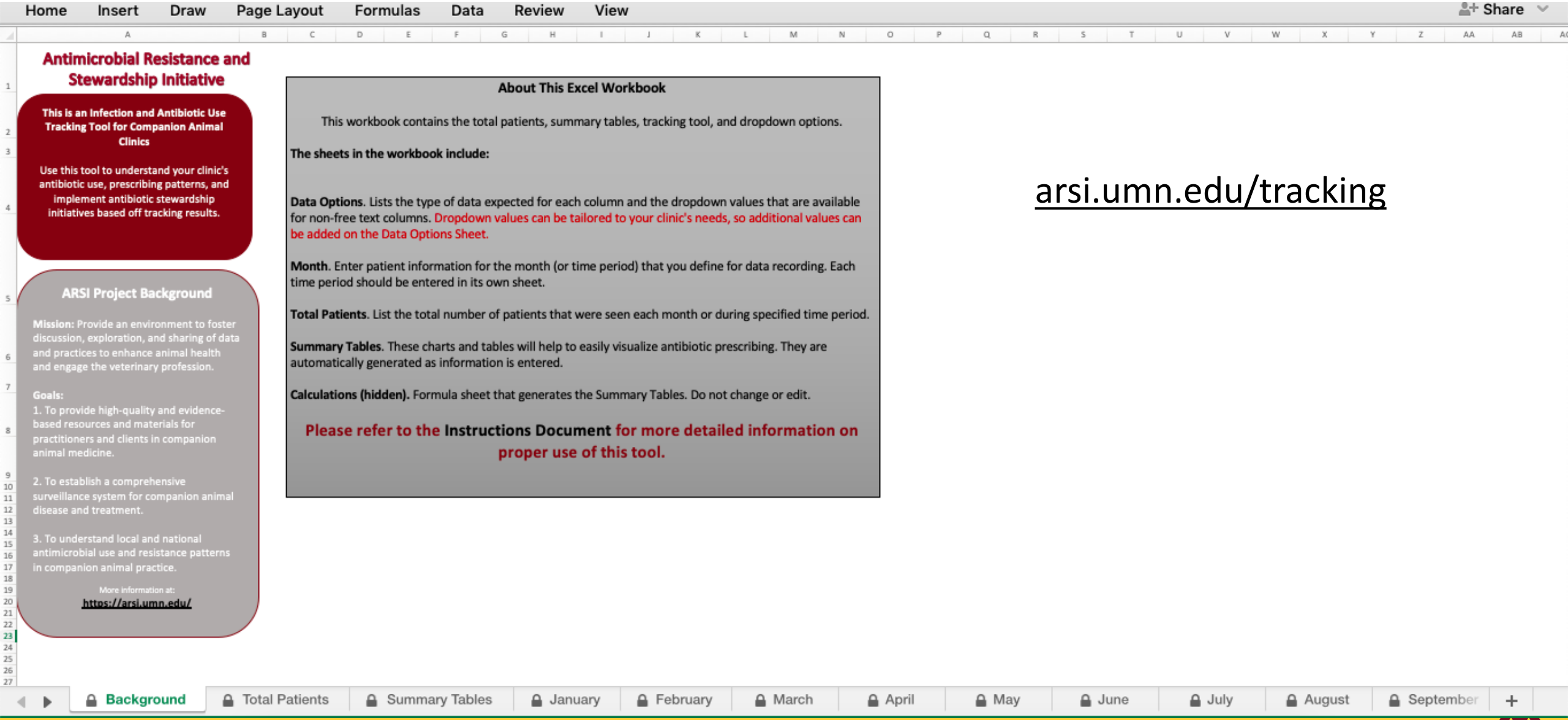
- Audit of metronidazole use





data provided by J Granick, UMN Veterinary Medical Center

Track Antibiotic Use in Your Clinic



arsi.umn.edu/tracking

	Percentage of Patients Prescribed Antibiotics
January	40.00
February	60.00
March	70.00
April	50.00
May	50.00
June	40.00
July	40.00
August	30.00
September	20.00
October	30.00
November	40.00
December	20.00
Total	40.83

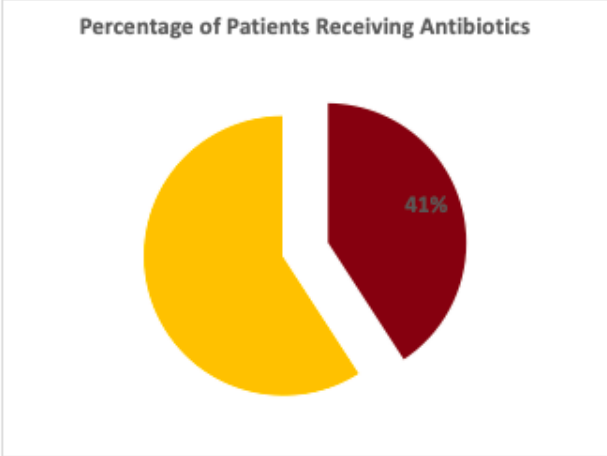


Table 1. This table calculates the percentage of total patients prescribed antibiotics using the manually entered number on the Total Patients sheet and every patient that receives a "Yes" in Patient Prescibed Antibiotic Column for each month.

Figure 1. The **total precentage of antibiotic prescriptions** for all the months is illustrated by the pie graph.

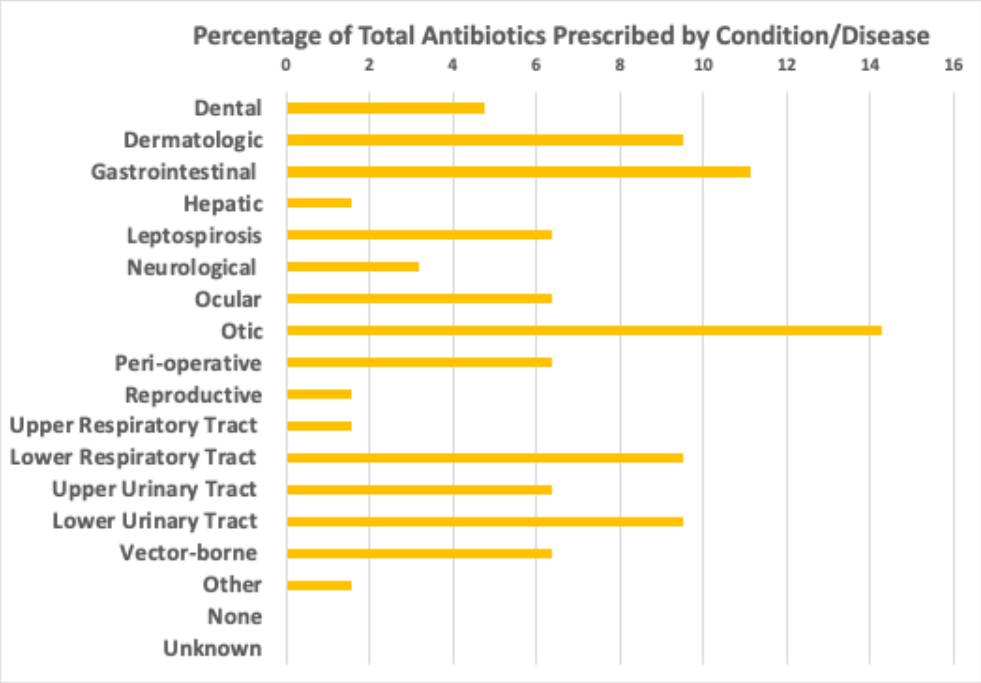
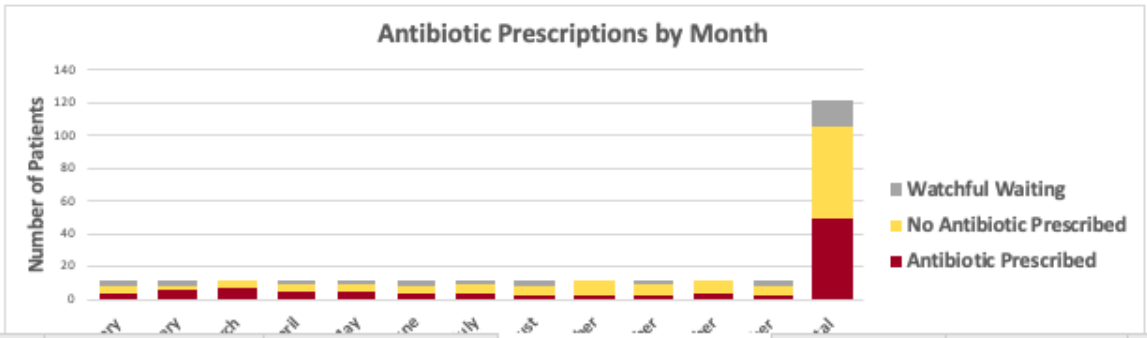
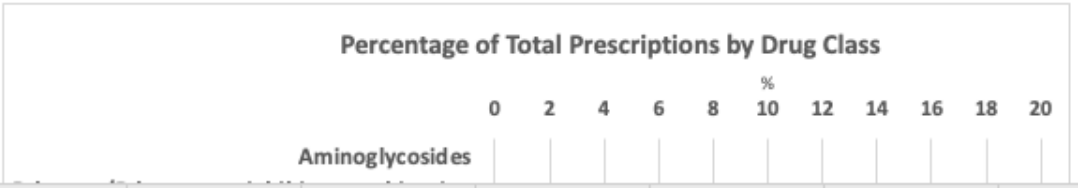


Figure 2. Use this chart to evaluate which conditions are associated with the largest percentage of antibiotic prescriptions.





Background | Total Patients | Summary Tables | January | February | March | April | May | June | July | August | September

AVMA Core Principles of Antimicrobial Stewardship

1. Commit to stewardship
2. Advocate for a system of care to prevent common diseases
3. Select and use antimicrobial drugs judiciously
4. Evaluate antimicrobial drug use practices
5. **Educate and build expertise**

Reassure pet owners when recommending watchful waiting.

Frey et al JSAP 2022

- Owners willing to employ watchful waiting if reassured it won't make their pet's condition worse
- Value trust-centered relationships and want to be included in decision-making
- Challenged by drug administration and fear of side effects, including AMR
- Feel antimicrobials used in human medicine should be allowed for their pets

Focus on the positive.

https://arsi.umn.edu

- Focused on positive statements
  - “I am happy to tell you that your cat does not need to take antibiotics!”
- Provide positive actions
  - “You can help your cat feel better by warming his food and letting him breathe humidified air.”
- Have a contingency plan
  - “If he does not seem better in 4 days, we will may need to start an antibiotic, so call to check in.”

Antibiotic Use Talking Points for Vet Clinics

IMPROVE COMMUNICATION AND CLIENT SATISFACTION

Antibiotics are an important part of veterinary care. However, antibiotic use is a major driver of antibiotic resistance, and antibiotic-resistant infections are a growing problem in clinical veterinary medicine. By using clear language, watchful waiting, and positive recommendations for alleviation of clinical signs, veterinarians can effectively communicate with clients when antibiotics are not needed. Because they are not without risk, antibiotics should only be used when needed. Diagnostic testing, like culture and susceptibility, is an important part of veterinary practice. As a team, discuss these and other talking points that might work in your clinic.

Strategies and Examples for Counseling Clients

Communication Strategy	Examples
Explain why antibiotics are not needed	“Your dog’s diarrhea is not caused by a bacterial infection, so antibiotics will not help in this case.” “I’m happy to tell you that you do not need an antibiotic! Your cat has an upper respiratory tract infection caused by a virus, and antibiotics won’t help.” “Cats do not usually get urinary tract infections. Straining to urinate can be caused by stress or by bladder stones, so antibiotics are not a best first choice.” **Tip: Did you know?** Clients are likely more willing to hear that antibiotics are not needed if the message is combined with information on how they can help their pet feel better. This shows that you have heard their concerns and want to help.
Positive treatment recommendations	“Medicated shampoo might resolve your dog’s skin issues and help him feel less itchy.” “You can make your cat feel better until this upper respiratory tract infection resolves by using appetite stimulants, warming food, and providing humidified air.” **Tip: Did you know?** Positive treatment recommendations should always be combined with explanations for why antibiotics are not needed.
Contingency plan	“If your pet does not seem better in three to four days, call me or schedule an appointment so we can reassess and consider other therapy.” “If your pet’s condition worsens or does not improve in 10 days, an antibiotic or other therapy might be needed. Call the clinic so that we can reassess.”
Delayed antibiotic prescriptions	“Your cat has an upper respiratory tract infection that will likely clear up on its own. We do not want to use antibiotics unless we need to. Watch him for changes, and fill this prescription in three days only if he isn’t improving or clinical signs worsen.” “Your cat has an uncomplicated urinary tract infection that can likely be treated with only three days of antibiotics. If after three days clinical signs continue, call me or schedule an appointment so we can see if additional days of therapy are needed.” **Tip: Did you know?** When using delayed prescriptions, write an expiration date on the prescriptions (i.e., five to ten days in the future) so it can be filled only during the watchful waiting period and not a few months later.

This table was adapted from a Centers for Disease Control and Prevention editorial published in the August 1, 2016, issue of American Family Physician. How to Prescribe Fewer Unnecessary Antibiotics: Talking Points That Work with Patients and Their Families (https://www.aafp.org/afp/2016/0801/p200.html). Find additional resources at Antimicrobial Resistance and Stewardship Initiative (https://arsi.umn.edu/as-resources).

1/2020

To obtain this information in a different format, contact cavsnet@umn.edu.

DEPARTMENT OF HEALTH

ANTIMICROBIAL RESISTANCE AND STEWARDSHIP INITIATIVE
UNIVERSITY OF MINNESOTA
Driven to Discover℠

ANTIBIOTICS O.W.N. ONLY WHEN NEEDED

Educate clients with available resources.

ANTIMICROBIAL RESISTANCE AND STEWARDSHIP INITIATIVE

arsi.umn.edu/as-resources

Antibiotics and Your Pets: What You Should Know

TRUTH: Antibiotic-resistant bacteria are a problem in pets.

- Antibiotics are routinely used to treat bacterial diseases.
- Antibiotic effectiveness is declining as bacteria develop resistance.
- A major driver of antibiotic resistance is the use of antibiotics when they are not needed.
- Bacterial culture and identification lab tests will help your veterinarian to treat your pet more quickly and effectively.

TRUTH: Viral infections do not respond to antibiotics.

- Just like in people, most "colds" are not caused by bacteria and will get better without antibiotics within 10 days.
- Talk to your veterinarian about other measures to improve your pet's comfort.
- If your pet does not get better in 10 days or stops eating, a visit to your veterinarian is needed.

TRUTH: Cats do not commonly get urinary tract infections.

- Urinary tract infections are uncommon in cats and very rare in young male cats.
- If your cat is exhibiting inappropriate litter box behavior, ask your veterinarian to perform tests to determine the cause of the problem.

TRUTH: Dogs with diarrhea might not need antibiotics.

- Many times, mild to moderate diarrhea in dogs will resolve in 3–5 days without medications.
- Talk to your veterinarian about diet recommendations and to determine if and when medical intervention is needed.

TRUTH: Preventative care can help reduce the need for antibiotics in cats and dogs.

- Keeping up-to-date with your pet's vaccines can help prevent infections that need to be treated with antibiotics.
- Monthly flea and tick preventatives can help keep your pet from getting bacterial infections that are spread by those vectors. These include the bacteria that cause Lyme disease.

For more information go to www.health.state.mn.us/onehealthabx

Minnesota ONE HEALTH Antibiotic Stewardship Collaborative

WORKING TOGETHER TO PROTECT HEALTH & PRESERVE ANTIBIOTICS

Did you know?

Antibiotics can be life-saving, but all medications have potential side effects. Talk to your veterinarian about the risks and benefits of giving your pet antibiotics.

Pets and people can share more than hugs. Once bacteria become resistant, they can spread in clinics and among pets and people in a home. Always wash your hands after handling pets and instruct young children to do the same.

What can you do about antibiotic resistance?

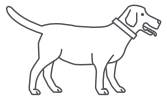
- Partner with your veterinarian to champion wise antibiotic use!
- Ask your veterinarian when antibiotics are needed and when other options might be better.
- Give medications as prescribed.
- Ask about proper disposal of unused antibiotics.

MINNESOTA

Educate clients with available resources.

DOES MY DOG NEED ANTIBIOTICS?

AVMA
American Veterinary Medical Association



Antibiotics are powerful tools in the life-and-death fight against disease, and they must be used appropriately and responsibly to protect their effectiveness in both human and veterinary medicine. That means using antimicrobials, such as antibiotics, only when they are needed to treat an animal's medical condition. Antibiotics are only needed for treating certain infections caused by bacteria—viral illnesses cannot be treated with antibiotics.

The responsibility of preserving antimicrobial effectiveness falls to all of us—animal owners **and** veterinarians. This chart links common illnesses and symptoms with their causes to help you understand why antibiotics may or may not be part of your dog's treatment plan.

Common condition	Is your pet feverish or listless/tired?	Common cause			Are systemic antibiotics needed?
		Bacteria	Virus	Parasites	
Bacteria in the urine, no symptoms	No	●			No
Bladder infection, acute	No	●			Yes
Bladder infection, ongoing	No	●			Yes
Kidney infection	Yes	●			Yes
Prostate infection	Yes	●			Yes
Skin infection	No	●			No
Vaginal infection of puppies	No	●			No
Cough (upper airway disease) for fewer than 10 days	No	●	●		No
Cough (upper airway disease) for more than 10 days	Yes	●	●		Yes
Bronchitis		●	●	●	Maybe*
Pneumonia (lower airway disease)	No	●			Yes
Pneumonia (lower airway disease)	Yes	●			Yes
Diarrhea for fewer than 10 days	No	●	●	●	No
Diarrhea for more than 10 days	No	●	●	●	Maybe*

Your veterinarian will use their clinical judgement to decide whether antibiotics are need in these cases.

References

- *ISCAID, UTI, 2019. https://doi.org/10.1016/j.tvjl.2019.02.008*
- *ISCAID, Resp, 2017. https://onlinelibrary.wiley.com/doi/pdf/10.1111/jvim.14627*
- *ISCAID, Pyoderma, 2014. https://doi.org/10.1111/vde.12118*
- *CLSI. Understanding Susceptibility Test Data as a Component of Antimicrobial Stewardship in Veterinary Settings. 1st ed. CLSI report VET09. Wayne, PA: Clinical and Laboratory Standards Institute; 2019*

Periodontal disease, dental cleaning or dental extraction (without osteomyelitis), and elective spay/neuter surgery are other common conditions or procedures for which systemic antibiotics are not needed.

avma.org/AntibioticUse

https://www.avma.org/resources-tools/one-health/antimicrobial-use-and-antimicrobial-resistance/antimicrobial-use-veterinary-practice

AVMA Convention 2024

Be your clinic's AS champion

- Understand your impact on AMR in your role as a prescriber
- Get leadership buy in
- Choose one activity to begin
- Educate staff and clients
- Utilize already existing resources at arsi.umn.edu

arsi.umn.edu/as-resources

Questions?