

Antimicrobial Resistance and Prudent Use of Antimicrobials in Dogs: Developing Novel Education Tools for Behavioral Change

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ABSTRACT

Antimicrobials are designed to treat infections caused by microorganisms such as bacteria, protozoa, and fungi. These drugs target parts of the infective microorganism such as the cell itself, or its mechanisms of survival like metabolism and synthesis. Unfortunately, bacteria are capable of developing resistance to antimicrobials, whereby specific drugs are no longer effective at treating infections. Overuse and misuse led to the immense problem today of antimicrobial resistance (AMR) in both human and veterinary medicine. The rapid increase of antimicrobial resistance around the globe means more difficult and expensive treatments for dogs as well as a contribution to a major public health hazard.

The mission of this project was to educate multi-stakeholders in canine antibiotic use and lead to behavioral change for a prudent use of antibiotics. The educational resources developed on www.DogWellNet.com, which serves as a hub of information for dog health and wellness. This website is run by the International Partnership for Dogs, which is a non-profit organization that collaborates and shares resources to enhance dog health.

OBJECTIVES



- To explore the complex, multi-disciplinary, multi-stakeholder aspects of antimicrobial use in dogs and identify the knowledge gaps.
- To use research literature review, interviews from multi-stakeholders, and lectures from seminars to fill these gaps.
- Transfer this material to various audiences through multiple modalities such as written articles, videos, modules, and blogs.

LEARNING MODULES

Innovative learning modules educating in the prudent use of antimicrobials.

The modules include:

- An interactive quiz
- Links to important resources

Goal: To learn how to change behaviors in your clinic to a more prudent usage of antimicrobials

Module 1: For Veterinary Professionals

Module 2 Audience: For Dog Owners



THE B.A.R.K. BLOG

Bacterial Antimicrobial Resistance Knowledge

The B.A.R.K. Blog serves as a fun and educational resource for multi-stakeholders in dog health and antibiotic resistance. The blog includes written segments, video blogs also known as 'vlogs,' and shared podcasts.

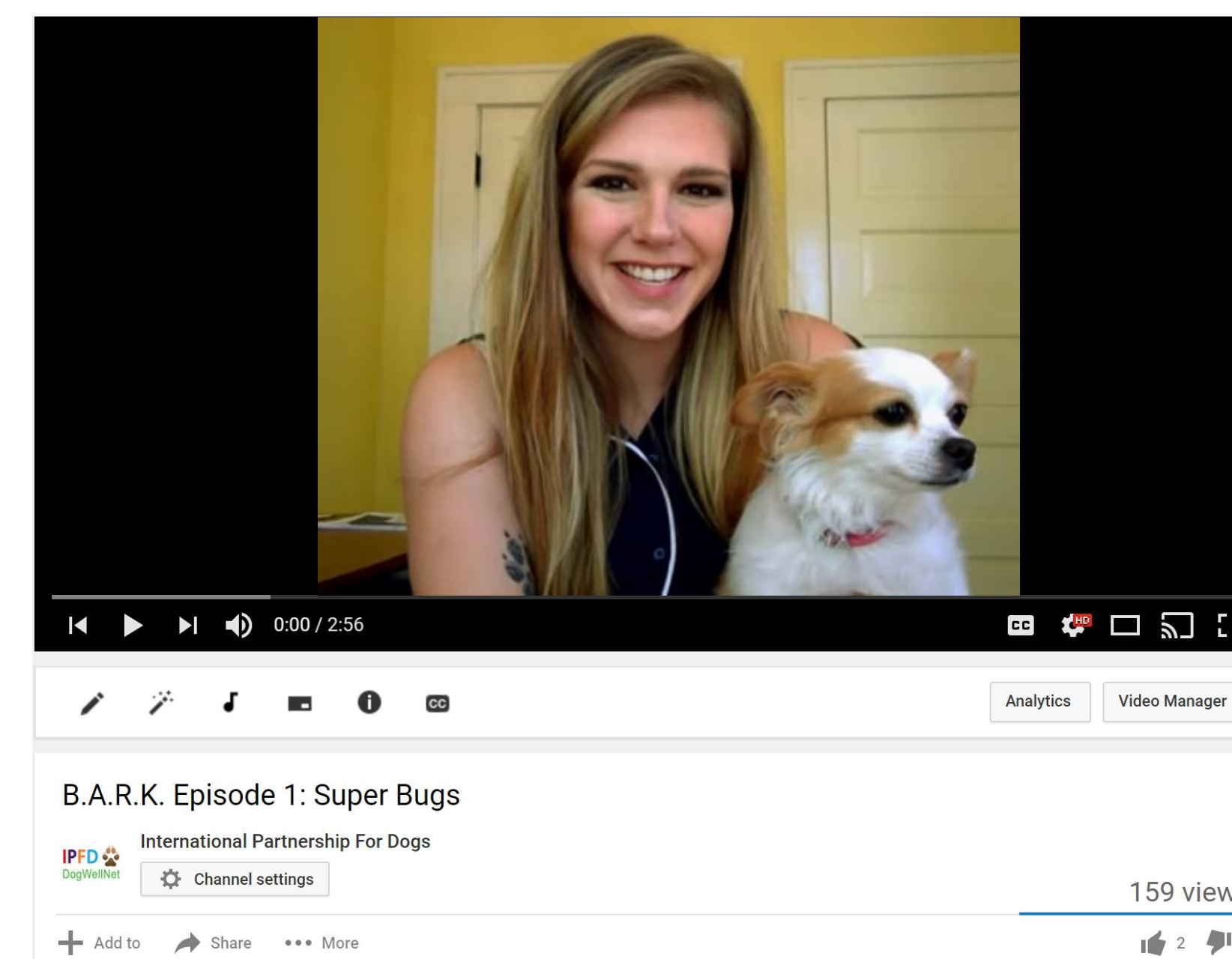
B.A.R.K. Entries

- 1st Entry: Super Bugs... They're Coming For Us!
- 2nd Entry: Interview With Nurse Landers
- 3rd Entry: The Ohio State University "Superbug"
- 4th Entry: Did You Know?
- 5th Entry: TED Talk
- 6th Entry: Breeding Through Breeding
- 7th Entry: Video Share: AVMA Talks About Superbugs in Veterinary Medicine
- 8th Entry: Video Share: Antibiotic Use in Pets Could Give Rise to Superbugs
- 9th Entry: Review on AMR Conference at the National Academy of Science
- 10th Entry: 'One Health' Turning an Idea into Reality
- 11th Entry: AMR and Our Environment



The blog can be found here: <https://dogwellnet.com/blogs/blog/19-the-bark-blog-bacterial-antimicrobial-resistance-knowledge/>

The 'vlogs' are 3-5 Minute YouTube video Entries featuring Nina the chihuahua.



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ONLINE ARTICLES

Antimicrobial Resistance Resources

- Serves as a table of contents and compiles AMR resources on DogWellNet and is organized by subject area

The Basics of Antimicrobial Resistance

- Overview of AMR
- Explanation of the public health threats



'Breeding Through Breeding' and Prudent Use of Antimicrobials at Different Life Stages of the Dog

- Responsible breeding and prudent use of antimicrobials through the different stages of a dogs life
- Communication tips for veterinarians and breeders

Compendium of Companion Animal Antimicrobial Use Guidelines and Surveillance

- Compilation of different antimicrobial use resources from different countries around the world.
- This list is not exhaustive, and the purpose is to include a samples of guidelines from countries of both the first and third world origin.

CONCLUSION

After completing my student project with the International Partnership for Dogs, I reflect on my work. In the duration of this project, I have both established a network and gained knowledge in antimicrobial resistance (AMR) and the importance of prudent use of antibiotics (PUA). I was able to interview experts in the area and attend a conference on AMR at the National Academy of Science in Washington, D.C.

This summer has been an incredible experience, and I have learned much more about AMR/PUA from this project than I have through schooling. This shows the necessity for an AMR educational program at our veterinary college.

Although the project is over, the educational resources I created are still live on www.DogWellNet.com, and anyone with internet access can utilize them. This includes, but is not limited to, veterinarians, veterinary students, dog owners, and breeders.

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