



# Antimicrobial Resistance in the Maasai Community

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## Introduction



- The Maasai tribe is in northern Tanzania, Kenya, which is the most visible cultural group in Africa today. It is estimated the “total Maasai population is about 883,000 which is approximately half of the living in Kenya and other held of Tanzania,” (2).
- The Maasai’s cultural norm is to practice little to no livestock hygiene. With this cultural acceptance, livestock often become ridden with harmful microbes. This has caused many families in this community to be exposed to microbes resulting in potentially fatal illnesses (4).
- In the Republic of Kenya antimicrobials are unregulated allowing for easy accessibility to this medication. Many tribes, like the Maasai tribe, will unknowingly administer improper amounts of antimicrobial medications to sicken livestock (4).
- This has presented itself to be problematic, causing Maasai tribe to have high prevalent rates of microbial infections and antimicrobial resistance.
- Community education is needed on transmission prevention of microbial infections, which includes proper personal hygiene, proper livestock preparation and medication and knowledge on proper antimicrobial usage.

## Community Assessment and Analysis

- The Maasai tribe has not changed too much over the past 30 years. They try to stay with traditions, and again, try to stay away from the outside government of Kenya.
- Their main source of living is livestock. “Cattle, goats and sheep are the primary source of income for the Maasai (5)
- This community has been using their livestock to test antimicrobial medication, Oxytetracycline. This drug is also cheap and easily available for them to test the resistance of this antibiotic (4).
- Statistics show that almost 71% of Maasai children have contracted pneumonia (6).
- 33% of new babies in this country are born infected with HIV/AIDS and 50% of those children dying before the age of two because they and their mothers cannot receive proper treatment (6).
- Almost 52% of the contaminated food is filled with worms which are ingested causing GI issues (4).
- The Kenyan government has instituted programs towards behavior changes from the traditional semi-nomadic life for the Maasai. “community health intervention” which will educate the Maasai community about microbial resistance (6).

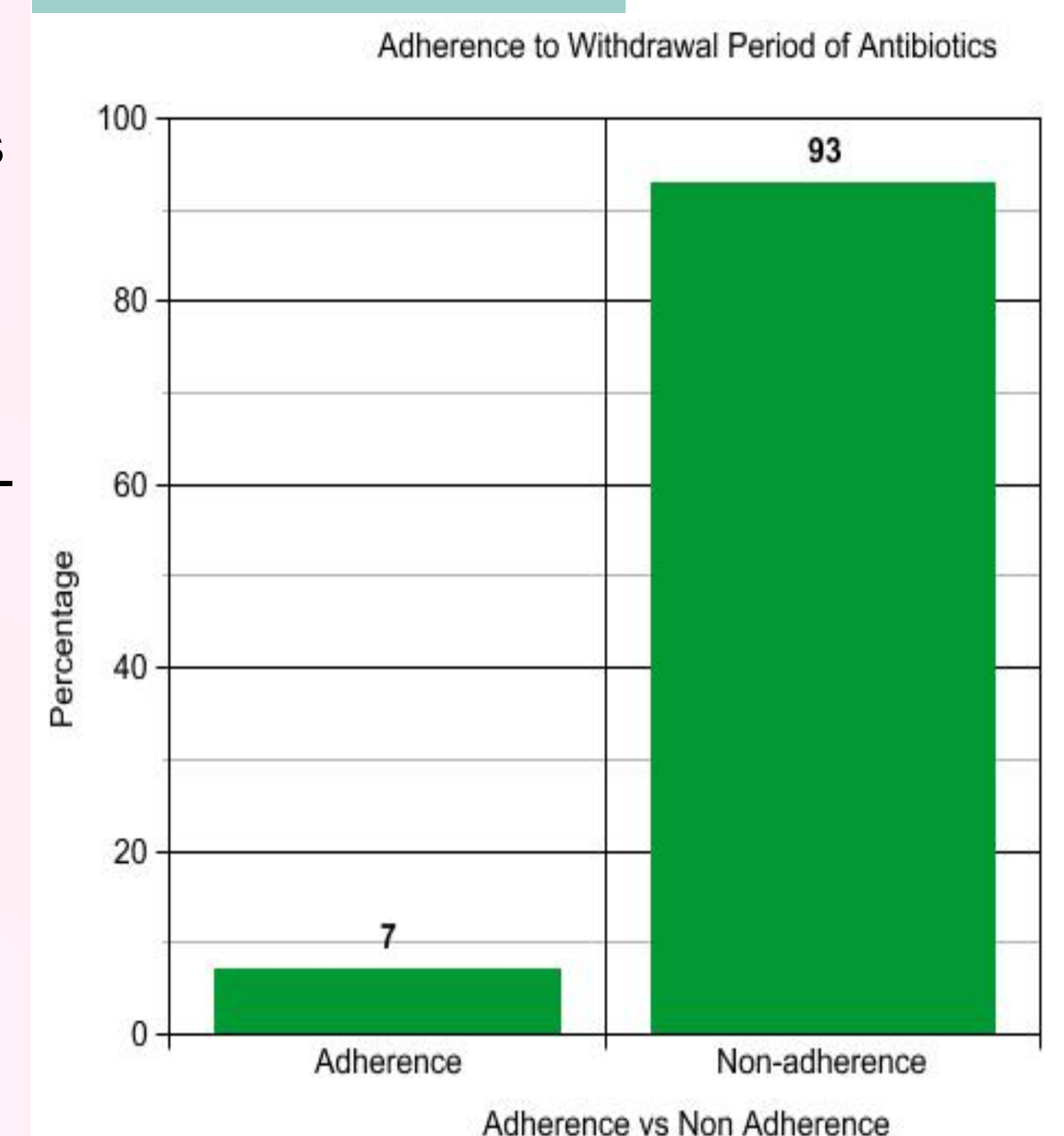
## Problem in the Community: Antimicrobial Resistance



Antimicrobial resistance occurs when microorganisms such as bacteria, fungi, viruses, and parasites change when they are exposed to antimicrobial drugs such as antibiotics, antifungals, antivirals, and antimalarials (1).

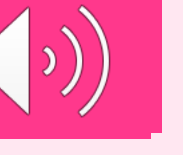
### Factors that contribute to antimicrobial resistance:

- Overuse and misuse of antibiotics in people and animals
  - Not finishing the full course of antibiotics
  - Poor infection control
  - Inadequate sanitary conditions
  - Inappropriate food-handling
- This community has easy access to unregulated over the counter antibiotics that lead to a high incidence of purchasing these drugs for treating animals as well as humans when they fall ill. This community does not have adequate medical clinics, therefore, they do not have access to appropriate care needed to treat different infections.
  - Research found that greater than 95% of Maasai households self-administer antibiotics to their livestock while 75% of those households administer these antibiotics without consulting professional veterinarians or livestock officers (6).
  - This community does not adhere to the withdrawal period of antibiotics when caring for their cattle. The Maasai tribe members are constantly interacting and consuming the livestock which leads to a higher transmission rate for diseases.
  - In relation to other tribes within northern Tanzania, Maasai families attend their health clinic 11% more than the Arusha families, and 27% more than the Chagga families (6).



- The most commonly used antibiotic in the Maasai community is oxytetracycline.
- If an animal doesn’t respond to the treatment the owner will raise the dosage or switch to a different treatment.
- Maasai men reported administering the same antibiotic dosage regardless of how much the animal weighed (6). Incorrect dosing is one of the biggest risk factors contributing to antimicrobial resistance because the dose is either too high and remains within the system for longer periods of time, therefore making the withdrawal period much longer. On the other hand, if the dose is too low it will not be enough to terminate the infection within the animal’s body.
- In the United States it is estimated that at least 2.8 million people contract an antibiotic-resistant infection, and more than 35,000 people die per year (3).

## Proposed Solution



Leininger's Theory of Culture Care and universality guides our proposed solution because it demonstrates care and collaboration with the client while keeping the culture of the Maasai community in mind. The Sunrise Model consists of 3 levels, each representing a part of the Sunrise. The rays of the sun represent the basic elements of a culture assessment. The core of the sun represents culture care preservation – emphasizes the support of indigenous care practices, culture care accommodations – involves the synthesis of indigenous and professional care practices, and culture care repatterning – the implementation of professional care with respect for indigenous beliefs and values (Nelson). Where the sun and its rays converge represents the interacting elements that allow nurses to incorporate our evidence-based practice in a culturally sensitive approach to care.

## Saving the Maasai: An educational approach to antimicrobial resistance

Our innovative health program Saving the Maasai hopes to provide culturally competent educational resources that allow the community to learn both in a classroom setting and by doing. The basis of our innovative health program addresses this need for prevention of infection by educating on proper hand hygiene as well safe food consumption. Some activities that the program hopes to provide is educating our patients on important hygiene practices, such as hand washing whenever possible, to minimize the spread of germs and bacteria that can become harmful to our health. Allowing the client to work alongside you and to use educational techniques such as teach back can help us to determine if we are providing effective education. Diet is an important part of health, which is why we feel it is important to teach about how to properly wash and cook foods prior to consumption. Finally, it is important to discuss effective use of antibiotic therapy. If after taking the proper precautions, infection from an organism occurs, it is important for the community to understand how antimicrobial therapy should be used.

## Learning Objectives for our Proposed Solution

- The Maasai community will demonstrate proper hand hygiene
- The Maasai community will demonstrate effective preparation and consumption of foods consistent with a healthy lifestyle
- The Maasai community will verbalize understanding of effective antimicrobial use

## References

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