



Herd level antimicrobial consumption in animals

Collect | Analyze | Benchmark | Communicate

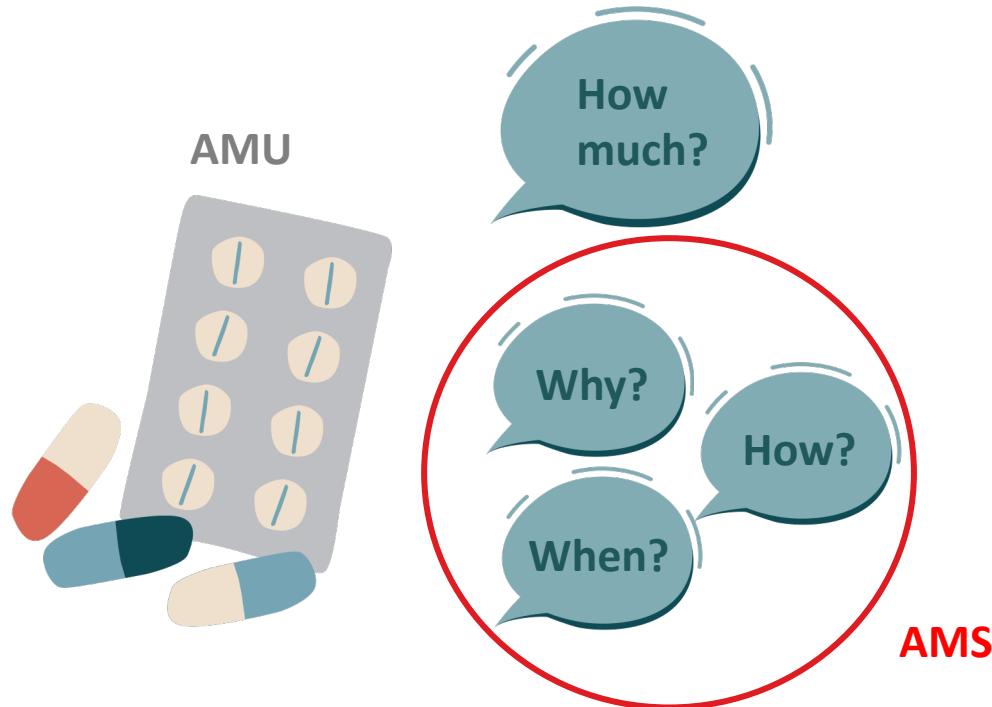
Antimicrobial stewardship: towards a more inclusive intersectoral definition and framework

Rebecca Hibbard, Marc Mendelson, Stephen W. Page, Jorge Pinto
Ferreira, Céline Pulcini, Mathilde C. Paul, Céline Faverjon

AACTING Conference, Vienna, 1-2 February 2024



Why antimicrobial stewardship (AMS)?



What is stewardship?

In general: Responsibility for valuable and limited resource, guardianship



For antimicrobials:

First mention of AMS –
response to rapidly
increasing AMR in hospitals



Later extended to
veterinary and
community settings

Antimicrobial Stewardship in Animals

J. Scott Weese, Stephen W. Page, and John F. Prescott

NEW HORIZONS
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Does Antibiotic Restriction Prevent Resistance?

John E. McGowan, Jr., MD; Dale N. Gerding, MD

Outpatient antibiotic use in Europe and association with resistance: a cross-national database study

Herman Goossens, Matus Ferech, Robert Vander Stichele, Monique Elseviers, for the ESAC Project Group*

1990s

2000s

Still no clear definition

Challenges with using the term “AMS”

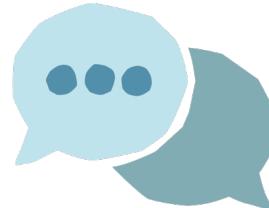
AMS is used
interchangeably to mean
different things

- A mindset
- An approach or strategy
- An intervention coordinated by a dedicated team at a hospital institution
- Decisions made by an individual doctor, vet, patient, or farmer

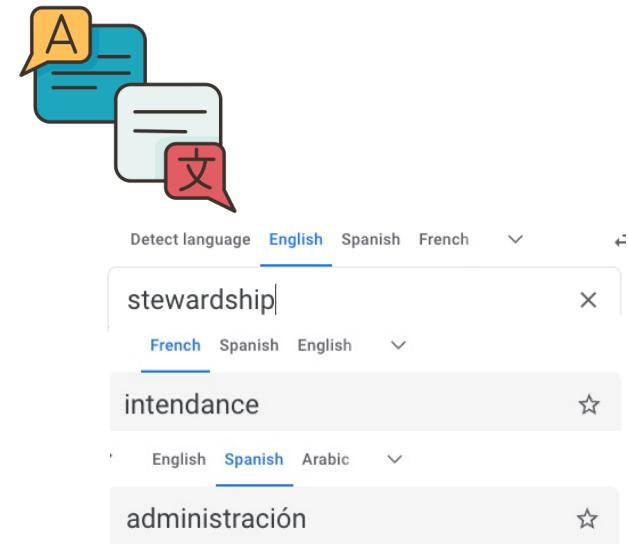
Challenges with using the term “AMS”

AMS is used interchangeably to refer to different concepts

- Difficult to translate into languages other than English
- Infrequent use in everyday language



Issues of language



Challenges with using the term “AMS”

AMS is used interchangeably to refer to different concepts

Issues of language

Why does it matter?



Communication



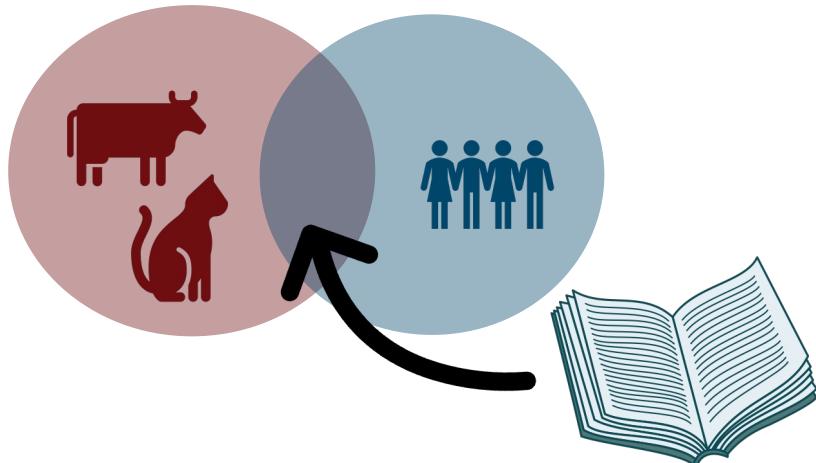
Implementation



Evaluation

Objectives

1. Identify how antimicrobial stewardship is defined in different contexts and **highlight commonalities**
2. Develop an **inclusive, intersectoral working definition** of antimicrobial stewardship



Methodology – boundary object theory

An approach first applied in science and technology studies to explain how actors from **different scientific communities** (and different social worlds) **collaborate and cooperate without coming to consensus**

Institutional Ecology, 'Translations' and Boundary Objects: Amateurs and Professionals in Berkeley's Museum of Vertebrate Zoology, 1907-39

Susan Leigh Star and James R. Griesemer

Boundary objects: *"scientific objects which both **inhabit several intersecting social worlds** and **satisfy the informational requirements of each of them**"* (Star and Griesemer, 1989)

Methodology – what is a boundary object?

Can be **concrete** (data repositories, maps, forms)...



... or **abstract** (ideas, classification systems, concepts)



<https://promedmail.org>

Synthesis

Focusing the Meaning(s) of Resilience: Resilience as a Descriptive Concept and a Boundary Object

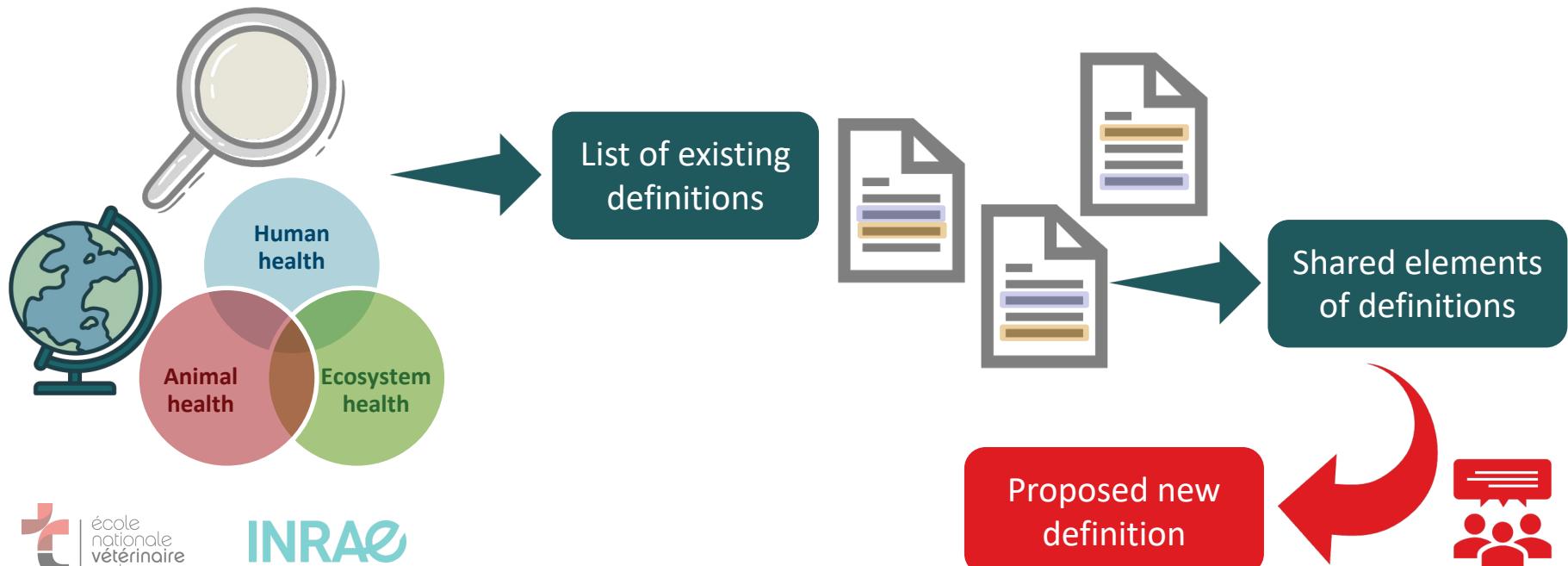
Fridolin Simon Brand¹ and Kurt Jax²

Ecosystem Services as Boundary Objects for Transdisciplinary Collaboration

Cara Steger ^{a,*}, Shana Hirsch ^b, Cody Evers ^c, Benjamin Branoff ^d, Maria Petrova ^e, Max Nielsen-Pincus ^f, Chloe Wardropper ^g, Carena J. van Riper ^h

Methodology – boundary object theory

How we used boundary object theory in practical terms:



What did we find?

DEFINITION

Antimicrobial stewardship refers to coordinated interventions designed to improve and measure the appropriate use of antimicrobial agents by promoting the selection of the optimal antimicrobial drug regimen including dosing, duration of therapy, and route of administration.

Policy Statement on Antimicrobial Stewardship by the SHEA, IDSA, PIDS (SHEA, 2012)

Antimicrobial stewardship for veterinarians defined

describes measures that can help mitigate the public health crisis and preserve the effectiveness of available antimicrobial agents.

(Lloyd and Page, 2018)

Antimicrobial stewardship refers to the actions veterinarians take individually and as a profession to preserve the effectiveness and availability of antimicrobial drugs through conscientious oversight and responsible medical decision-making while safeguarding animal, public, and environmental health.

AVMA definition <https://www.avma.org/resources-tools/avma-policies/antimicrobial-stewardship-definition-and-core-principles>

Antimicrobial stewardship encompasses all the individual and collective actions that medical professionals take to preserve the efficacy of antimicrobials. It is a one-health problem, affecting animals and humans. (Cazer et al., 2023)

The term “antimicrobial stewardship” is used to describe the multifaceted and dynamic approaches required to sustain the clinical efficacy of antimicrobials by optimizing drug use, choice, dosing, duration, and route of administration, while minimizing the emergence of resistance and other adverse effects. The word stewardship implies the obligation to preserve something of enormous value for future generations, and resonates in a way that “prudent use” or “judicious use” does not.

(Guardabassi and Prescott, 2015)

Antimicrobial stewardship is the term increasingly used in medicine to describe the multifaceted approaches required to sustain the efficacy of antibiotics and minimize the emergence of resistance. (Weese et al., 2013)

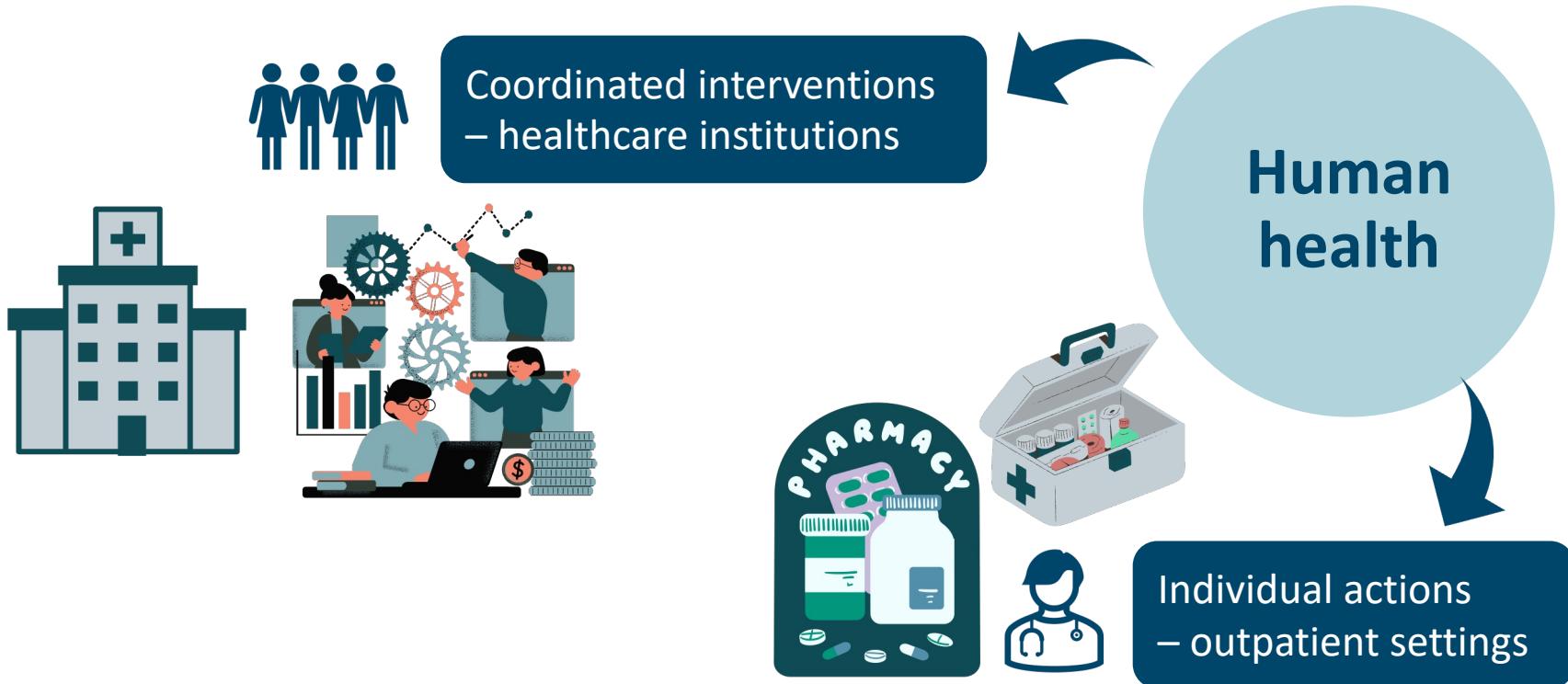
Many definitions!

used when needed; to minimize misdiagnoses or delayed diagnoses leading to underuse of antibiotics; and to ensure that the right drug, dose, and duration are selected when an antibiotic is needed.^{1,6} CCDC guidance - Core Elements of Outpatient Antibiotic Stewardship (Sanchez, 2016)

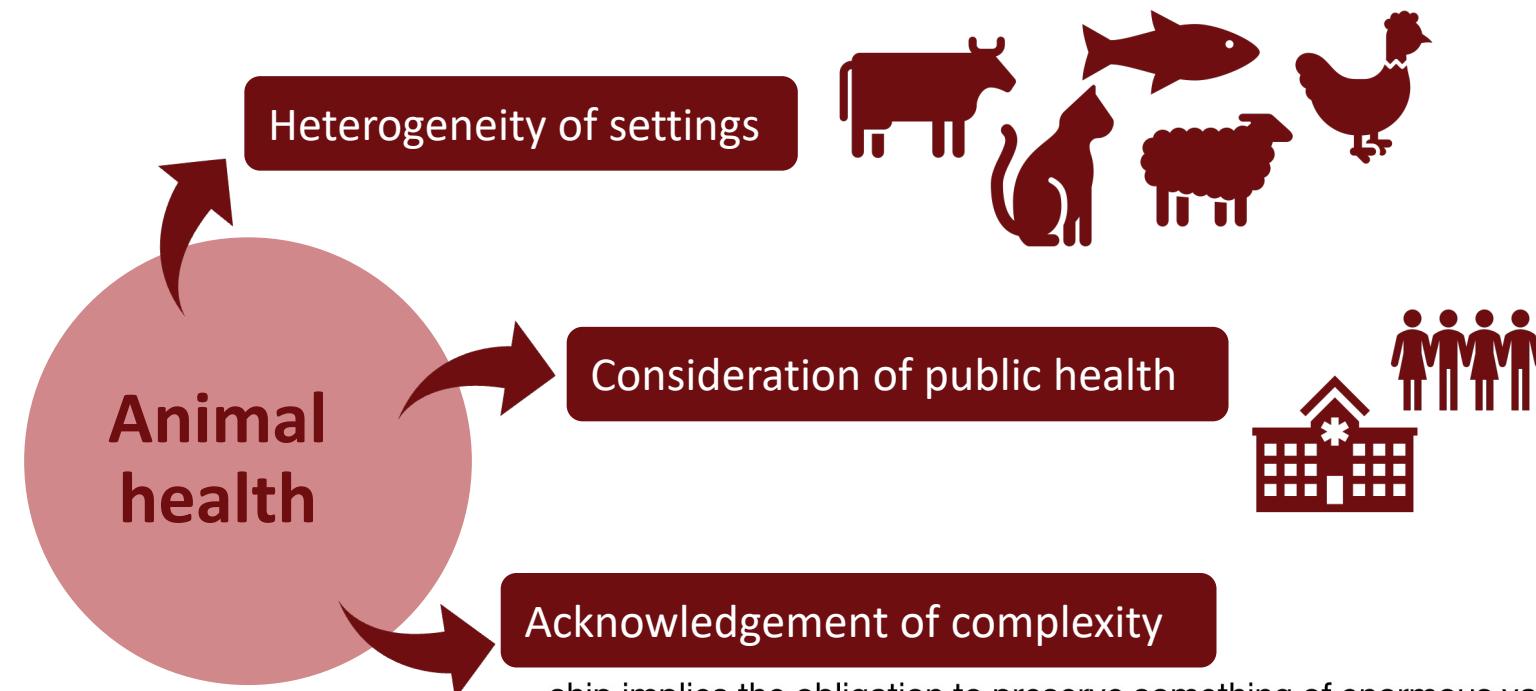
tic prescribing; to improve antibiotic antibiotics are only prescribed and

for

Existing definitions of AMS



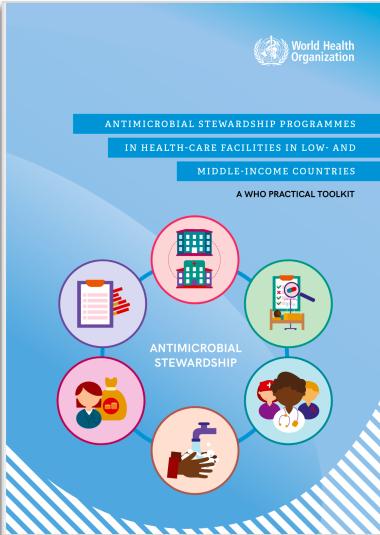
Existing definitions of AMS



The word stewardship implies the obligation to preserve something of enormous value for future generations, and resonates in a way that “prudent use” or “judicious use” does not.

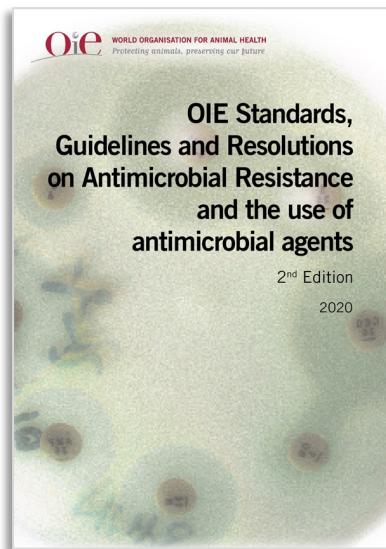
(Guardabassi and Prescott, 2015)

Existing definitions of AMS



No endorsed definition

International organisations



Preference for 'judicious', 'prudent', 'responsible'

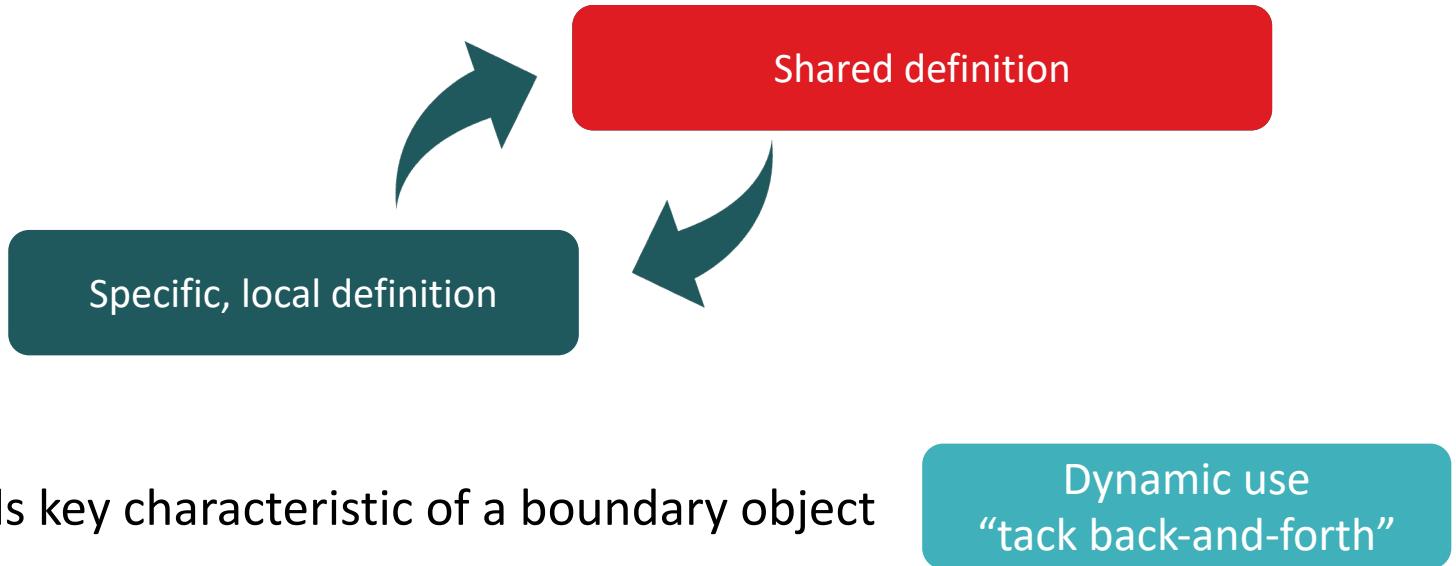


ANTIMICROBIAL RESISTANCE TERMS

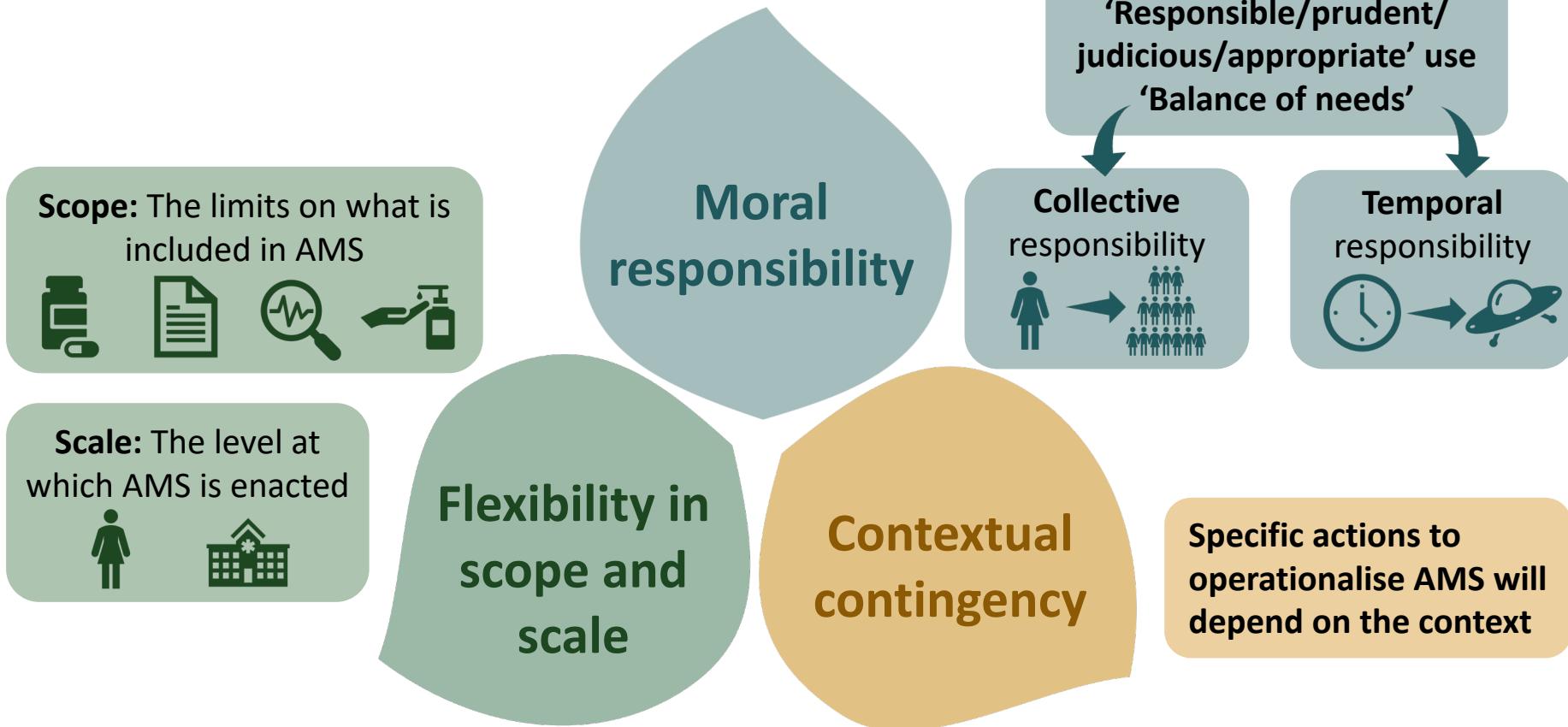
CHAPTER 6.10.

RESPONSIBLE AND PRUDENT USE OF ANTIMICROBIAL AGENTS IN VETERINARY MEDICINE

What did we find?



Shared elements of antimicrobial stewardship



Definition of antimicrobial stewardship

Antimicrobial stewardship:

A concept *relevant to and applicable by all* (individuals, communities, and institutions), aiming at using and prescribing antimicrobials in humans and animals in a way that *ensures the availability of antimicrobials for individuals in the present day, as well as preserving antimicrobial effectiveness for current and future populations.*

Operationalisation of stewardship includes considerations of whether antimicrobials should be used, the ways in which antimicrobials are used, as well as the broader context within which these decisions are made.

Flexibility in scope and scale

Moral responsibility

Contextual contingency

Implications and application

Facilitate communication and cooperation on AMS

- Function as a **communicative tool** for AMS between different sectors
- Prompt discussion for a common definition at international level
- Encourage **better description** of context-based definitions



Shared definition

Specific, local definition



Next steps: Operationalisation of AMS definition

Extension to a framework for antimicrobial stewardship



Implementation: Facilitate design & implementation of AMS interventions



Evaluation: Descriptively assess AMS in case studies



AMS ELEMENTS	Description	Indicators
AMS objectives		
AMS actors (stewards)		
AMS actions		
AMS interventions		
Motivations for AMS		
Capacity for AMS		
Context of AMS		
Outcomes of AMS		



Adapted from Bennett et al., 2018

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