



WSAVA
Continuing Education
Committee

WORLD SMALL ANIMAL VETERINARY ASSOCIATION

WSAVA Continuing Education 2019

PROF MORITZ VAN VUUREN



Welcome to the WSAVA Continuing Education 2019!

Thank you for attending this WSAVA CE meeting. I hope you find it interesting and relevant.

We are always trying to improve our CE. Let us know what you think on the feedback form, and get in touch with any ideas for what we can do better next year.

The WSAVA CE Committee



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One Health, *with special reference to the roles of the veterinary team*

Prof Moritz van Vuuren

WSAVA CE Meeting, 10 June 2019, Lilongwe, Malawi

The foundation of the One Health concept

In the 1960s, Dr. Calvin Schwabe coined the term “One Medicine”

It focused on opportunities that exist to protect public health through policies aimed at preventing and controlling pathogens at the level of animal populations

The control of infectious diseases is central to One Health

Today One Health involves all health issues at interfaces between animals, humans and the environment





One World, One Health: one world • one health

Building Interdisciplinary Bridges – 29 September 2004 – New York City

Symposium Home

Schedule

with presentation links

Symposium topics,
with presentation links:

Introduction

Avian Influenza

**Chronic Wasting
Disease**

Ebola

Round Table/Closing

Evening Presentation

**One World One Health
Homepage**



**29th September 2004,
The Rockefeller University, Caspary Auditorium**

Conference Summary

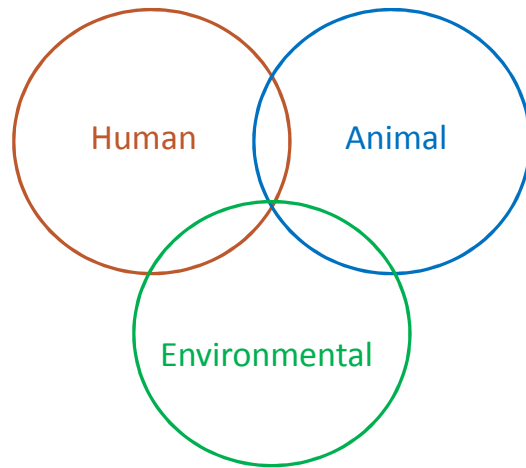
**One World, One Health: Building Interdisciplinary Bridges to
Health in a Globalized World**

Health experts from around the world met on September 29, 2004 for a symposium focused on the current and potential movements of diseases among human, domestic animal, and wildlife populations organized by the Wildlife Conservation Society and hosted by The Rockefeller University. Using case studies on Ebola, Avian Influenza, and Chronic Wasting Disease as examples, the assembled expert panelists

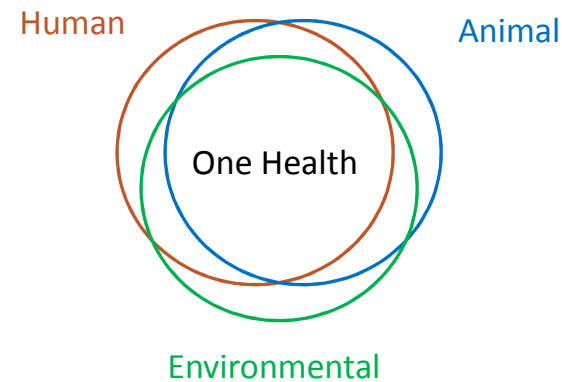


What is One Health?

A one health approach recognizes the relationships between the human, animal, and environmental health, and applies interdisciplinary tools to solve complex public health problems



TRADITIONAL PUBLIC HEALTH
MODEL



ONE HEALTH APPROACH

Source: Gael Lamielle

Definition of One Health

One Health is the collaborative effort of multiple health science professions, together with their related disciplines and institutions – working locally, nationally, and globally – to attain optimal health for people, domestic animals, wildlife, plants, and our environment




The current reality of human infectious diseases

Of the 1,461 diseases recognized in humans today, approximately 60% are due to multi-host pathogens characterized by their movement across species lines

Over the last three decades, approximately 75% of emerging or re-emerging human infectious diseases have been zoonotic or vector-borne

Our increasing interdependence with animals and their products may well be the single most critical risk factor to human health and well-being with regard to infectious diseases



More global concerns justifying a One Health approach

Nearly 800 million people globally are chronically undernourished, while more than 600 million are obese

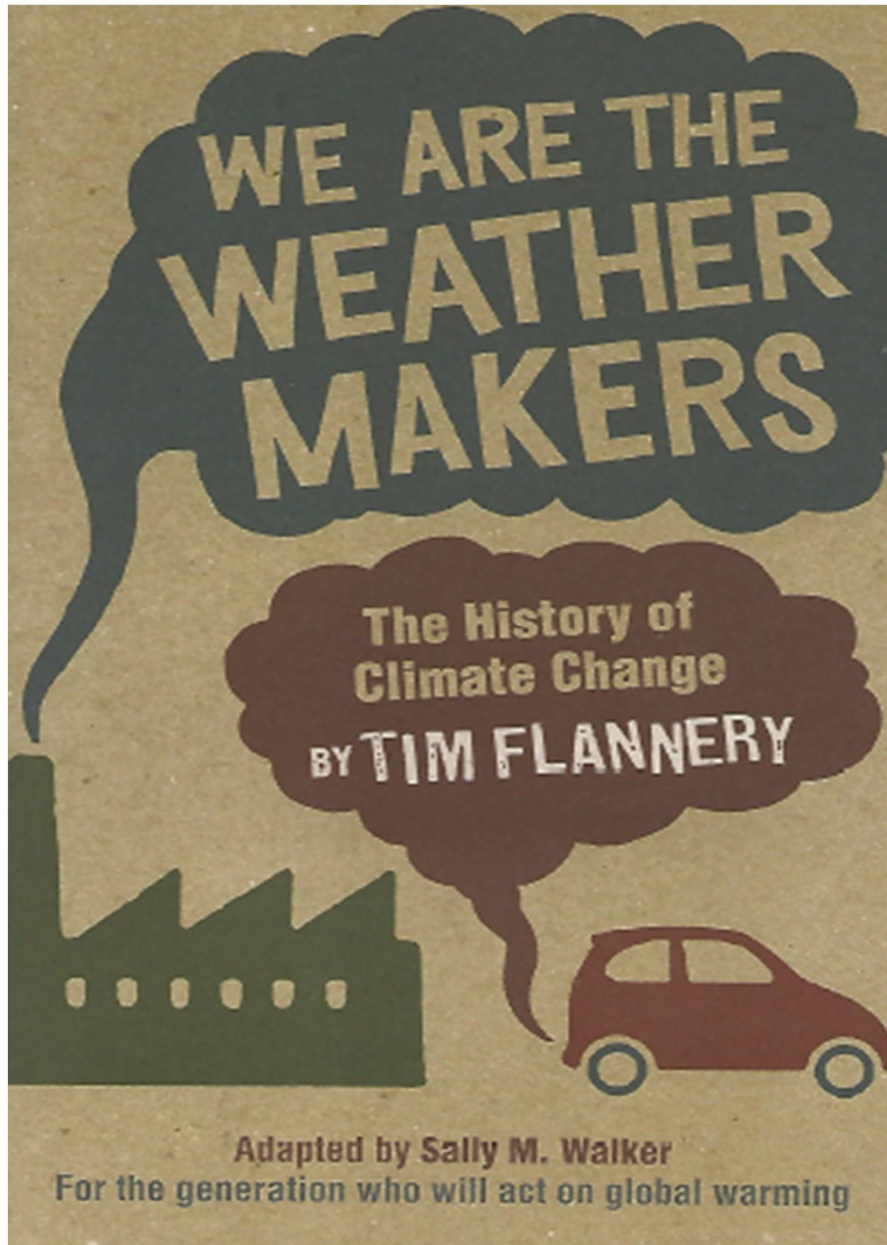
By 2050, we will need 60% more meat, milk and eggs to meet global demand

An estimated 1.3 trillion kg of food are wasted annually, and 20% of livestock are lost to disease before they enter our food system

Keeping pets disease and pest-free is increasingly important as they become more integrated in our lives

Antimicrobial resistance threaten the efficacy of one of the most important tools for human and animal health





Earth's natural resources are overused by 60%, while facing an increasingly volatile climate


The most important global risks for humans, animals and the environment

Antimicrobial resistance (AMR) among commensal and pathogenic bacteria is the prototypical One Health issue of our time

Climate change and global warming as a result of increasing greenhouse gases in the earth's atmosphere

Over-population with major consequences for the welfare of humans and animals

Transboundary infectious diseases such as avian influenza and rabies



The view of international organisations

The OIE took a leadership role to put the OH vision into practice

Veterinary and para-veterinary professionals have a key role to play in preventing and controlling pathogens in animal populations

The OIE continues to develop **health standards** for:

Safety of international trade in animals and animal products

Animal disease control and prevention – with priority on zoonotic diseases

Controlling pathogens that impact negatively on production of animal-derived protein with its concomitant public health consequences





WVA Declaration of Incheon *on the Role of the Veterinary Profession in One Health and EcoHealth Initiatives*

The veterinary profession plays a critical role in activities that address health risks at the animal-human-environmental interfaces within ecosystems that range in scale from local to global levels. Examples of such activities include:

- reducing global hunger;
 - ensuring food quality and safety (especially of animal source foods);
 - active disease surveillance;
 - early detection and control of zoonotic outbreaks;
 - assessing and managing biosecurity risks;
 - understanding the significant and varied impacts of the human-animal bond on human lives.
-



April 17, 2019

One Health Happenings!



One Health Happenings News Notes are prepared and shared
by the [One Health Commission](#)

View archived issues: <http://bit.ly/2llhnc6>

Washington, DC: One Health Happenings News Notes in January 2019

Based in Washington, D.C., the OHC is dedicated to informing all audiences about the importance of transcending institutional and disciplinary boundaries, and transforming the way that human, animal, plant, and ecosystem health professionals, and their related disciplines, work together to improve the health of all living things and the environment



December 21, 2018



**INTERNATIONAL STUDENT
ONE HEALTH ALLIANCE**

JOIN THE GLOBAL CONVERSATION!

Updated: 2018

Veterinary Public Health, One Health, and Global Health Opportunities

If you have any opportunities you would like to add to this list, please contact us at isohaexco@gmail.com

Internships:


EcoHealthNet Research Exchange

<https://www.ecohealthalliance.org/program/ecohealthnet>

United Nations Foundation Internship

<http://www.unfoundation.org/who-we-are/careers/>

American Public Health Association fellowships and internships



Why the veterinary profession should concern itself with the One Health concept/approach

- Traditional approaches and past requisite *skills and levels of knowledge* may not be commensurate with the rapid changes and new demands of food-animal industries and the shifting requirements needed for public health, biomedical research and the global food system (KPMG study, 1999)
- Many animal diseases with an impact on **food security** and **food safety** requires a OH approach to control them
- The OIE/FAO/WHO Tripartite Alliance emphasizes that Member States must enhance/support the integration of animal, human and environmental health for the mutual benefit of all

How can the veterinary profession involve itself with the One Health philosophy and advance its objectives?

The ***veterinary statutory bodies*** (VSBs) as the policy-setting organisations should embrace OH and promote it among the constituencies it represents

VSBs should play an oversight role to ensure that the OH agenda is incorporated into the veterinary and para-veterinary curricula

Publish regular OH messages in veterinary newsletters

Liaise with medical associations and environmentalists to ensure contact and collaboration with One Health interest groups in its ranks

Arrange joint meetings with the medical profession and environmental experts

Evaluating the success of One Health activities

Challenging because a specific globally shared goal has not been identified

The OIE (PVS) and WHO (IHR) programmes include assessment tools to evaluate the compliance of countries with One Health



**Network
for Evaluation
of One Health**

Evaluating One Health and other integrated approaches to health

An evaluation framework developed by the Network for Evaluation of One Health

This publication is based upon work from COST Action 'Network for Evaluation of One Health' (TD1404), supported by COST (European Cooperation in Science and Technology).

www.cost.eu

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IN SCIENCE & TECHNOLOGY

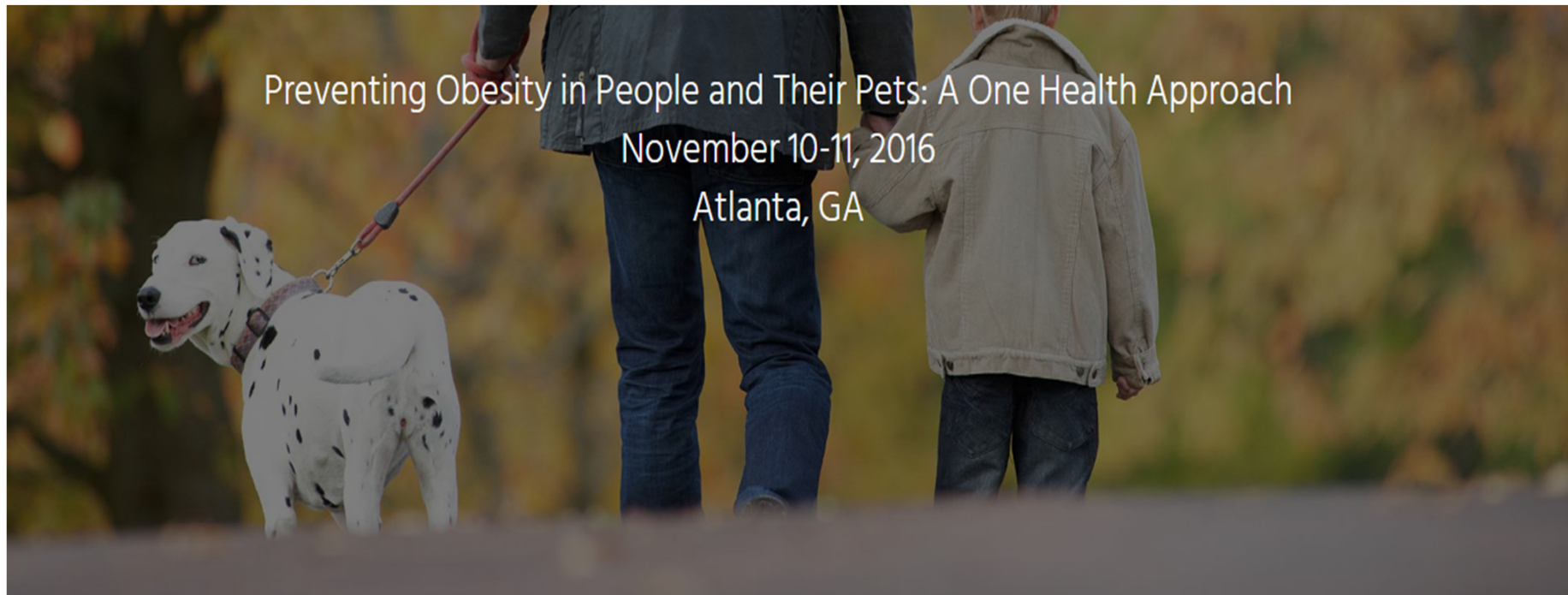


Funded by the Horizon 2020 Framework Programme
of the European Union

CASE STUDIES



Dealing with health risks through a One Health approach contributes to the welfare of companion animals, production animals and wildlife alike



Vision: A world where regular activity, a balanced diet and healthy weight are part of every family's life.





WSAVA
CONGRESS
2019 | 16-19 July
Toronto, Canada



CANADIAN VETERINARY
MEDICAL ASSOCIATION
ASSOCIATION CANADIENNE
DES MÉDECINS VÉTÉRAIRES

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Community Veterinary Outreach

— WSAVA/CVMA ONE HEALTH WORKSHOP



Community
Veterinary
Outreach

[Register Now](#)

[Register Now - Outreach Program ONLY](#)

July 13, 2019 9am to 5pm

Program Summary:

Community Veterinary Outreach (CVO) is a registered charity that improves the health of homeless and vulnerably-housed individuals, families and their pets through a One Health model of care. By offering human health services and health education alongside preventative veterinary care, Community Veterinary Outreach provides innovative access to both veterinary and human health care for at-risk populations across Canada.



Transforming Lives™

Project

Plat4m-2Bt-psittacosis

The Plat4m-2Bt-psittacosis project has developed a platform to serve as a repository of expertise in the Netherlands on parrot fever (psittacosis). Its objective is to improve our understanding of how to prevent psittacosis in the Netherlands and to reduce the incidence of the disease in the human population here.



Symptoms and transmission

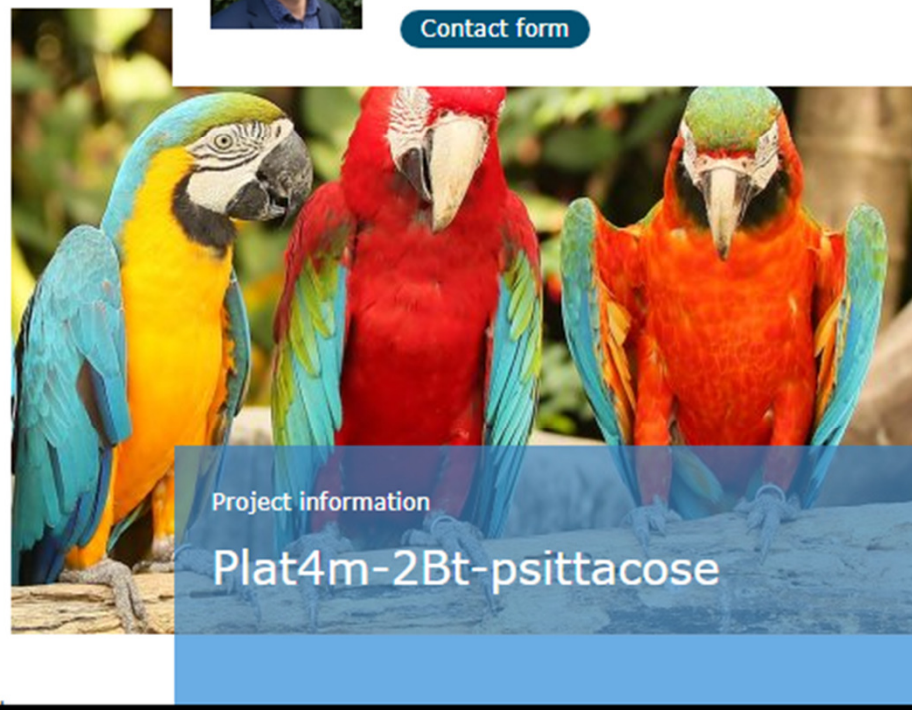
Parrot fever, or psittacosis, is caused by the bacterium *Chlamydia psittaci*. The bacterium is predominantly carried by birds and can be transmitted to humans through the inhalation of small



Do you have a question about parrot fever? Ask our expert:

dr. HIJ (Hendrik-Jan) Roest

Contact form



Contents lists available at [ScienceDirect](https://www.sciencedirect.com)

Clinical Microbiology and Infection

journal homepage: www.clinicalmicrobiologyandinfection.com



Hot topic

New evidence for domesticated animals as reservoirs of *Chlamydia*-associated community-acquired pneumonia

Antimicrobial resistance – the biggest One Health issue on the globe

Death from bacterial infections in pre-AB era was between 40-50% and in the antibiotic era <10% with an increased life expectancy of 20 years

By 2050, AMR is estimated to lead to 10 million deaths per year, and lost outputs worth US \$100 trillion across the world

No new class of antibiotics has been discovered since 1987



What has changed that today the bigger picture is seen and AMR is accepted as a global crisis?

The sheer magnitude of the problem

The world is not divided on this issue

There is political weight behind initiatives to control AMR, e.g.

Tripartite Collaboration

UN General Assembly resolution 71/3 of 2016



WHO, FAO, and OIE unite in the fight against Antimicrobial Resistance

THE FACTS

Antimicrobial agents:

- are essential to treat human and animal diseases;
- should thus be considered as a public good.

Some microbes have demonstrated full or partial resistance to different antimicrobial agents. It is an inevitable consequence of antimicrobial use both in humans and animals.

This phenomenon called antimicrobial resistance, AMR, is an increasing global concern for human and animal health.

The need for a 'One Health' approach

Addressing the rising threat of AMR requires a holistic and multisectoral ('One Health') approach because antimicrobials used to treat various infectious diseases in animals may be the same or be similar to those used in humans. Resistant bacteria arising either in humans, animals or the environment may spread from one to the other, and from one country to another. **AMR does not recognize geographic or human/animal borders.**

A public good to protect

The discovery of antibiotics and their development to treat bacterial

infections in humans and animals was one of the most important achievements of the 20th Century. Since antimicrobials were first commercially produced, initially for use in human medicine and subsequently in veterinary medicine, their use has been associated with the risk of emergence of AMR.

At the same time as the world has observed accelerated emergence of resistance, the discovery and development of new antimicrobial drugs has slowed down. The effectiveness of the existing antimicrobials should therefore be preserved as much as possible.

AMR does not recognize geographic or human/animal borders

AMR jeopardizes progress on health outcomes



Food and Agriculture Organization of the United Nations



WORLD ORGANISATION FOR ANIMAL HEALTH
Protecting animals, preserving our future



World Health Organization

NO TIME TO WAIT: SECURING THE FUTURE FROM DRUG-RESISTANT INFECTIONS

REPORT TO THE SECRETARY-GENERAL
OF THE UNITED NATIONS
APRIL 2019

SUMMARY OF RECOMMENDATIONS AND KEY MESSAGES

IACG | Interagency Coordination Group on
Antimicrobial Resistance

EDITORIAL

Wake up, South Africa! The antibiotic 'horse' has bolted

Decades of poor medical and veterinary antibiotic prescribing and a lack of regard for the practice of infection prevention and control (IPC) in our hospitals have left South Africa, like the rest of the international community, on the brink of a return to an era of untreatable bacterial infection. The recent emergence in South Africa of bacteria carrying the highly mobile New Delhi metallo- β -

lactamase (NDM) has spread for the first time in the country (KPC) on the acquisition of cost by intention. Urgent drug

future in terms of IPC. The changes that need to be put in place are simple. They do not require complex systems or costly financial interventions. There are few unknowns in the field, and research and clinical findings from other countries are equally relevant in our setting. Each healthcare institution in this country must have administrative and environmental policies in place to enable them to

actions as well standard simple sign^{9,10} their describing basic leading ns of



Mendelson et al. S Afr Med J 2012;102(7):607-8



health

Department: Health
REPUBLIC OF SOUTH AFRICA

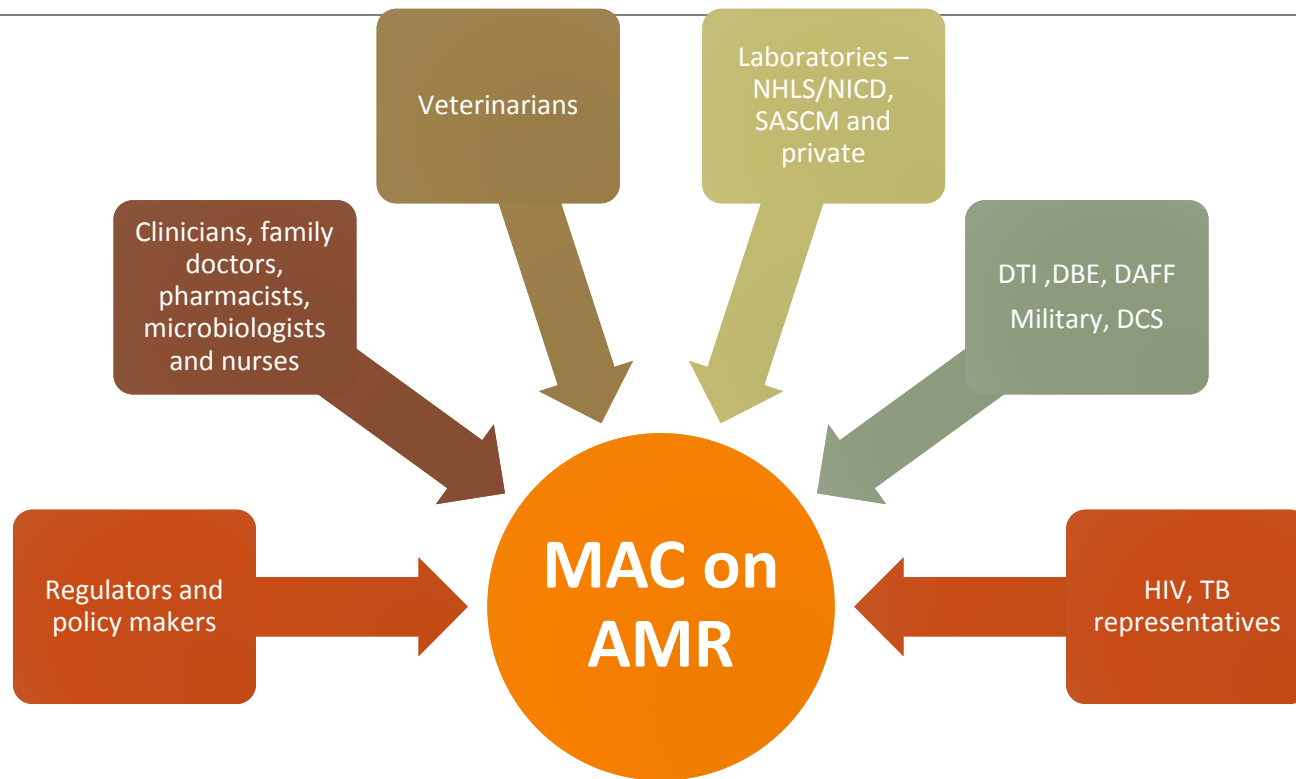
Antimicrobial Resistance National Strategy Framework Commitments

The purpose of the Antimicrobial Resistance National Strategy framework is to provide a framework for managing Antimicrobial Resistance (AMR), to limit further increases in resistant microbial infections, and improve patient outcomes.

	Governance Structures	Commitments	Time Frames & Actions
Strategic objectives	<p>Strengthen, coordinate and institutionalise interdisciplinary efforts through national and health establishment level governance structures</p> <p>Surveillance Optimise surveillance and early detection of antimicrobial resistances to enable reporting of local, regional, and national resistance patterns to optimise empiric and targeted antibiotic choice</p> <p>Infection Prevention & Control Enhance infection prevention and control of the spread of resistant microbes to patients in healthcare settings, focusing on improvement in hand hygiene and the identification and isolation of patients with resistant organisms. Community measures include preventing infection through wide-reaching vaccination programmes and improvements in water and sanitation.</p> <p>Antimicrobial Stewardship Promote appropriate use of antimicrobials in human and animal health through antimicrobial stewardship including: <ul style="list-style-type: none"> • Effective policies and protocols • Stewardship at point-of-care • National prescribing guidelines • Appropriate antibiotic choice </p>	<ol style="list-style-type: none"> To collaborate as intersectoral, interdisciplinary organisations and departments to strengthen, co-ordinate and institutionalise efforts to address Antimicrobial Resistance To establish a national surveillance system to track and report resistant organisms and Antimicrobial use in agriculture and human health To enhance the processes, structures, resources and supplies needed for effective Infection Prevention & Control To promote the appropriate use of Antimicrobials in human and animal health through antimicrobial stewardship in facilities and suitable enabling legislation and regulations To build the expertise and strengthen the competency of health and veterinary professionals and improve the staffing levels of the workforce in Antimicrobial Resistance and Infection Prevention & Control To increase the community awareness of Antimicrobial Resistance To promote research into novel diagnostics and clinical trials in Infection Prevention & Control and Antimicrobial Resistance 	<p>Short term – March 2015: Establishment and initial meeting of National Ministerial Advisory Committee</p> <p>Short to medium term 2015 - 2019: Strengthen governance at Health Establishment levels</p> <p>Short term 2015 - Develop an Antimicrobial Resistance map for South Africa through data sharing between the private and public sector laboratory services</p> <p>Short term 2015 - Ensure the equipment and Infection Prevention & Control resources required to practice effective hand hygiene are available at all times in all Health Establishments</p> <p>Medium term 2016 – 2019 – All Health Establishments meeting compliance of the National Core Standards relating to Antimicrobial Stewardship and Infection Prevention & Control</p> <p>Short term 2015 – Ensure availability of Antimicrobials according to Essential Medicines List in all Health Establishments</p> <p>Medium term 2016 – 2019 – Review of antimicrobials use in feed additives</p> <p>Medium term 2016 – 2019 - Development of strategy and operational plan for the integration and implementation of Antimicrobial Resistance and Infection Prevention & Control training into the undergraduate and post graduate medical curriculums of health care professionals in South Africa</p> <p>Short term 2014 – 2015 – Design of an awareness campaign relating to Antimicrobial Resistance based on past successful campaigns</p> <p>Long term 2019 – 2024 – Defined research opportunities</p>
	Strategic enablers	<p>Legislative and policy reform for health systems strengthening to support the quality of antimicrobials in the country and to enable control over prescribing of antimicrobials in the animal health sector.</p> <p>Education of all levels of health providers in human health and agriculture in the critical concepts of antimicrobial stewardship, infection control, infectious diseases, microbiology and pharmacology.</p> <p>Communication to educate the public, create awareness of the dangers of inappropriate antimicrobial use and enhance patient advocacy to combat antimicrobial resistance.</p> <p>Research into novel diagnostics, such as point of care testing, new antimicrobials and implementation of treatment guidelines (treatment duration, antimicrobial consumption).</p>	

**National Department of Health of the Republic of South Africa
and
Participating Stakeholders from Various Sectors, each Company represented herein as follows:**

GOVERNMENT	LABORATORY SERVICES	CLINICIAN SOCIETIES	CIVIL SOCIETY	REGULATORY SOCIETIES
 Department of Agriculture, Forestry and Fisheries National Department of Health Department of Science and Technology	 National Health Laboratory Services AMPATH (on behalf of Private Labs) SALDA IVO DIAGNOSTICS BHE	 SAASP South African Antimicrobial Stewardship Programme fidssa Federation of Infectious Diseases Societies of Southern Africa SAKHUSOC d. Ndlovu PSSA	 Treatment Action Campaign SECTION27 Médecins Sans Frontières MSH	 OHSC Office of Health Standards Compliance mce Medicines Control Council South African Pharmacy Council South African Veterinary Council South African Nursing Council HPCSA Health Professionals Council of South Africa



NHC has approved the MAC and the approval of appointments was completed



Emergence of plasmid-mediated colistin resistance mechanism MCR-1 in animals and human beings in China: a microbiological and molecular biological study



Yi-Yun Liu*, Yang Wang*, Timothy R Walsh, Ling-Xian Yi, Rong Zhang, James Spencer, Yohei Doi, Guobao Tian, Baolei Dong, Xianhui Huang, Lin-Feng Yu, Danxia Gu, Hongwei Ren, Xiaojie Chen, Luchao Lv, Dandan He, Hongwei Zhou, Zisen Liang, Jian-Hua Liu, Jianzhong Shen

Summary

Background Until now, polymyxin resistance has involved chromosomal mutations but has never been reported via horizontal gene transfer. During a routine surveillance project on antimicrobial resistance in commensal *Escherichia coli* from food animals in China, a major increase of colistin resistance was observed. When an *E coli* strain, SHP45, possessing colistin resistance that could be transferred to another strain, was isolated from a pig, we conducted further analysis of possible plasmid-mediated polymyxin resistance. Herein, we report the emergence of the first plasmid-mediated polymyxin resistance mechanism, MCR-1, in Enterobacteriaceae.

Lancet Infect Dis 2015

Published Online

November 18, 2015

[http://dx.doi.org/10.1016/S1473-3099\(15\)00424-7](http://dx.doi.org/10.1016/S1473-3099(15)00424-7)

See Online/Articles

<http://dx.doi.org/10.1016/>

It was found in *E. coli* in 20.9% of pigs surveyed at slaughter, 22.3% of raw pork products, 28% of chicken products and in 13/902 (1.4%) of patients being treated for *E. coli* infections and 3/420 (0.7%) with *Klebsiella pneumoniae* infections

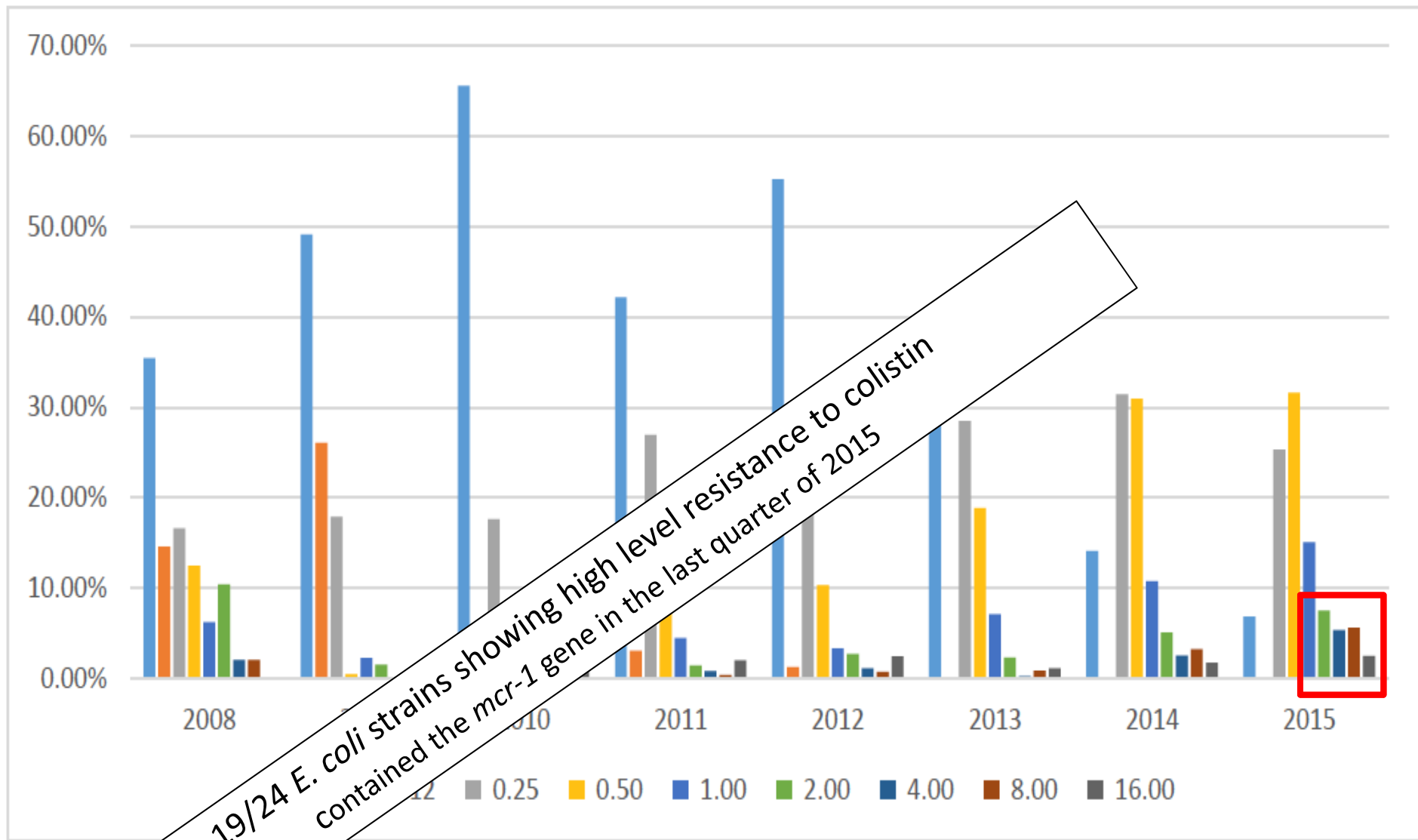


Figure 2. Colistin resistance levels from 2008 to 2015 in pathogenic E. coli strains isolated from poultry operations in South Africa. Total number of strains per year 2008 = 48; 2009 = 391; 2010 = 244; 2011 = 486; 2012 = 688; 2013 = 1027; 2014 = 1250; 2015 = 197.

South African response to the threat of losing colistin as an antibiotic for human health

Implemented a programme to advance national stewardship of colistin across the One Health platform

Stage 1: The formation of South Africa's Colistin Working Group

Stage 2: Converting analysis to action



Converting analysis to action

Short term interventions

Cancel registration of registered colistin medicines

Prohibit registration of colistin-containing farm feeds

Introduce Section 21 conditions of the Medicines Act for use of colistin in animals

Increase the schedule of colistin API to Schedule 6, and the medicine final product to Schedule 4 for human or veterinary use

License all manufacturers, importers, and distributors of APIs



Colistin use by Veterinarians

REGISTRAR OF MEDICINES



It is recommended that Colistin not be used in food producing animals at all, unless the veterinarian can justify its use at the hand of a sensitivity test and as a very last resort to treat an animal. Any conduct to the contrary would be regarded by Council as unprofessional conduct.

Please read the message from the Registrar of Medicines addressed to all veterinarians.



The One Health stewardship of colistin as an antibiotic of last resort for human health in South Africa



Marc Mendelson, Adrian Brink, Joey Gouws, Nontombi Mbelle, Vinny Naidoo, Troy Pople, Natalie Schellack, Moritz van Vuuren, Helen Rees, on behalf of the South African One Health Stewardship Sub-Committee of the Ministerial Advisory Committee on Antimicrobial Resistance

Increasing reliance on antibiotics of last resort to treat the rising numbers of multidrug-resistant bacterial infections in people has focused attention on how shared-use antibiotics are managed and regulated across human and animal health. Discussions at international and national levels have intensified since the identification of new plasmid-mediated genes for colistin resistance in 2016, first in China and subsequently in many other countries, removing the last line of defense against multidrug-resistant Gram-negative bacterial infections with carbapenem resistance. South Africa has reacted to this threat by doing a situational analysis and review of the existing legislation concerning colistin use in animals and people, to inform which course of action to take. The experiences shared in this Personal View outline the process, institution of governance with widespread stakeholder engagement, surveillance, and interventions that South Africa has taken towards optimising the shared use of colistin. The instigation of stewardship guided by the principles of the One Health concept for shared-use antibiotics at the country level is a crucial component of any action plan to combat antibiotic resistance, and is as relevant to other existing antibiotics and new chemical entities that will be forthcoming from an invigorated antibiotic pipeline as it is to colistin.

Introduction

South Africa's consumption of antibiotics has markedly

Lancet Infect Dis 2018

Published Online

April 16, 2018

[http://dx.doi.org/10.1016/S1473-3099\(18\)30119-1](http://dx.doi.org/10.1016/S1473-3099(18)30119-1)

Division of Infectious Diseases and HIV Medicine, Department of Medicine, Groote Schuur Hospital, University of Cape Town, Cape Town, South Africa

(Prof M Mendelson PhD, A Brink MMed); Ampath National Laboratory Services, Milpark Hospital, Johannesburg, South Africa

(A Brink), South Africa

One Health – the role of the veterinary team

FAO-OIE-WHO Tripartite Agreement/Vision, Mexico October 2011

The Tripartite Agreement/Vision stated that the collaborative effort will strive towards:

A world capable of preventing, detecting, containing, eliminating, and responding to animal and public health risks attributable to zoonoses, and animal diseases with an impact on food security, through multi-sectoral cooperation and strong partnerships

Teamwork in animal health


Modern veterinary practices have moved away from one-man shows

Varying sets of skills are required for efficient functioning of the modern practice, whether government or private practice

The World Organisation for Animal Health has adopted the concept of a ***veterinary team***

It recognizes the role of veterinary and para-veterinary professions in animal health and animal welfare

The South African Veterinary Strategy 2014-2024 emphasizes strengthening of the ***veterinary team***



Who makes up the veterinary team?

HISTORICALLY:

Dip inspectors

Smear examiners

Stock inspectors

Animal health technicians

Veterinary laboratory technologists

Veterinary nurses

Meat inspectors

MORE RECENTLY THEY WERE JOINED BY:

Laboratory animal technicians

Animal welfare assistants

Veterinary physiotherapists

A better understanding of each group's roles

Knowledge of the responsibilities and capabilities of the different members of the veterinary team is necessary to:

Know how to complement one another

Avoid performing tasks that are not within your designated work description

Work towards a common goal for the benefit of the country

Strengthen links and collaboration to ensure optimal quality field work and improved animal health service delivery



OIE Competency Guidelines for Veterinary Paraprofessionals

May 2018



VPP Spheres of Activity and Related Competencies

14. Disease Prevention and Control Programmes

— **Competency 4:** VPPs understand the One Health approach and are able to work effectively within integrated teams

-- Lab, AH, VPH

The objectives of training in the One Health approach are to equip veterinary and para-veterinary professionals to explore, include and grasp ALL the drivers of a health problem beyond their own discipline, and to seek interdisciplinary approaches in its resolution



In conclusion

Health is not only absence of disease

Achieving animal, environmental and human health by separate scientific approaches, policies and actions is not possible in the face of global challenges such as climate change, depletion of resources, overpopulation, antimicrobial resistance

