

# One Health

## Ongoing initiatives and opportunities



**Prof. Wanda Markotter**

**Director: Centre for Viral Zoonoses**

**DSI-NRF South African Research Chair (Zoonoses)**

**Future Africa Research Chair in People, Health and Places**

**Department of Medical Virology, Faculty of Health Sciences,  
University of Pretoria**

wanda.markotter@up.ac.za



UNIVERSITEIT VAN PRETORIA  
UNIVERSITY OF PRETORIA  
YUNIBESITHI YA PRETORIA

**Faculty of  
Health Sciences**

Fakulteit Gesondheidswetenskappe  
Lefapha la Disaense tša Maphelo



**National  
Research  
Foundation**

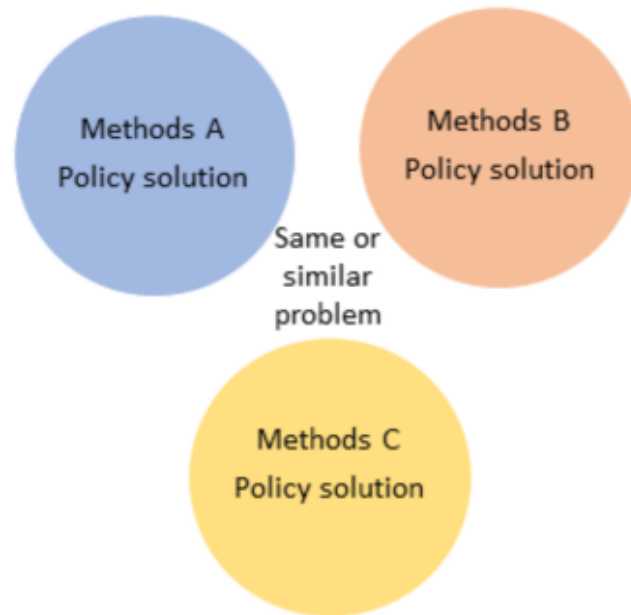


**science & innovation**

Department:  
Science and Innovation  
REPUBLIC OF SOUTH AFRICA

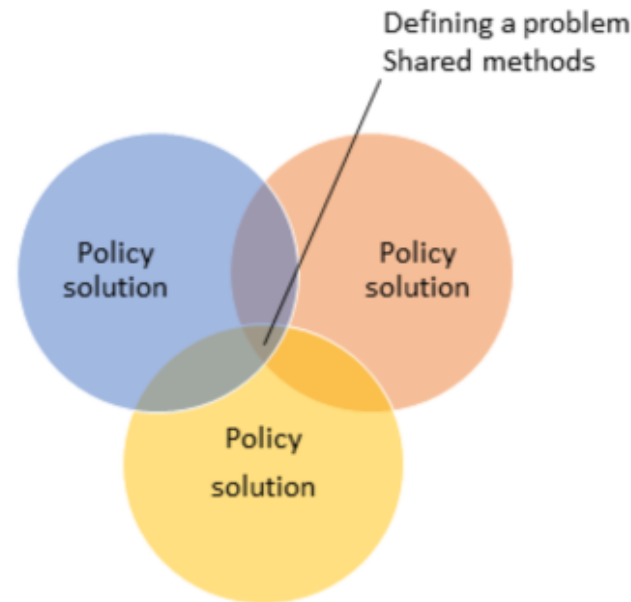
## 2. Different ways of collaborating

### Multidisciplinary



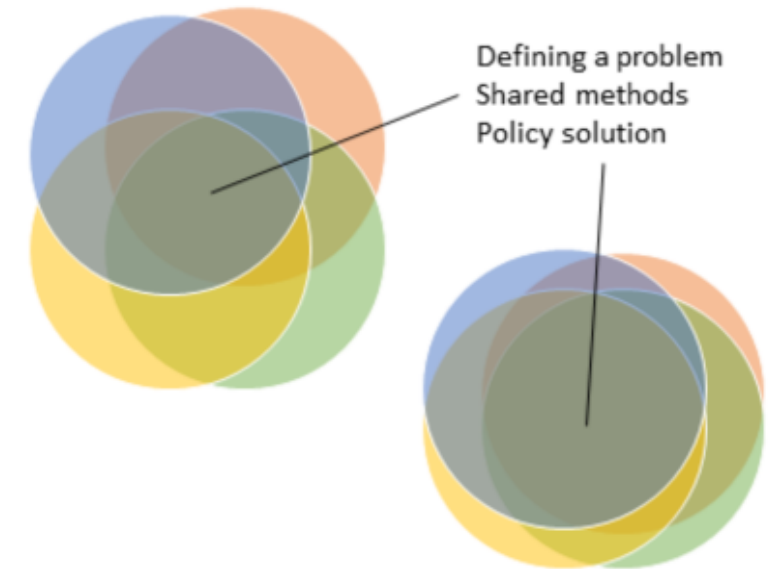
“Researchers from different fields work independently or sequentially, each from their own disciplinary perspectives” (Allen-Scott, 2015)

### Interdisciplinary



“Researchers share more information and coordinate more closely with researchers from various fields, but their research is still guided by their own discipline-specific theories and frameworks” (Allen-Scott, 2015)

### Transdisciplinary (TD)



“Researchers work jointly using **shared conceptual framework** drawing together disciplinary-specific theories, concepts, and approaches to address common problem” (Rosenstein, 1992) ± involvement of community and government **stakeholders**

# Centre for Viral Zoonoses (UP-CVZ)



Centre of Excellence in research of zoonotic viral diseases impacting on public health in South Africa but also on the African continent.

Faculty of Natural and  
Agricultural Sciences

Fakulteit Natuur- en Landbouwetenskappe  
Lefapha la Disaense tša Tlhago le Temo

Faculty of  
Health Sciences

Fakulteit Gesondheidswetenskappe  
Lefapha la Disaense tša Maphelo

Faculty of  
Veterinary Science

Fakulteit Veeartsenykunde  
Lefapha la Diseanse tša Bongakadiruiwa

Prof Wanda Markotter holds the SOUTH AFRICAN RESEARCH CHAIR (SARChI) in  
Infectious Disease of Animals (Zoonoses)

*Biosurveillance and Ecology of Emerging Zoonoses(BEEZ) research group at  
the CVZ*



science & innovation

Department:  
Science and Innovation  
REPUBLIC OF SOUTH AFRICA



National  
Research  
Foundation



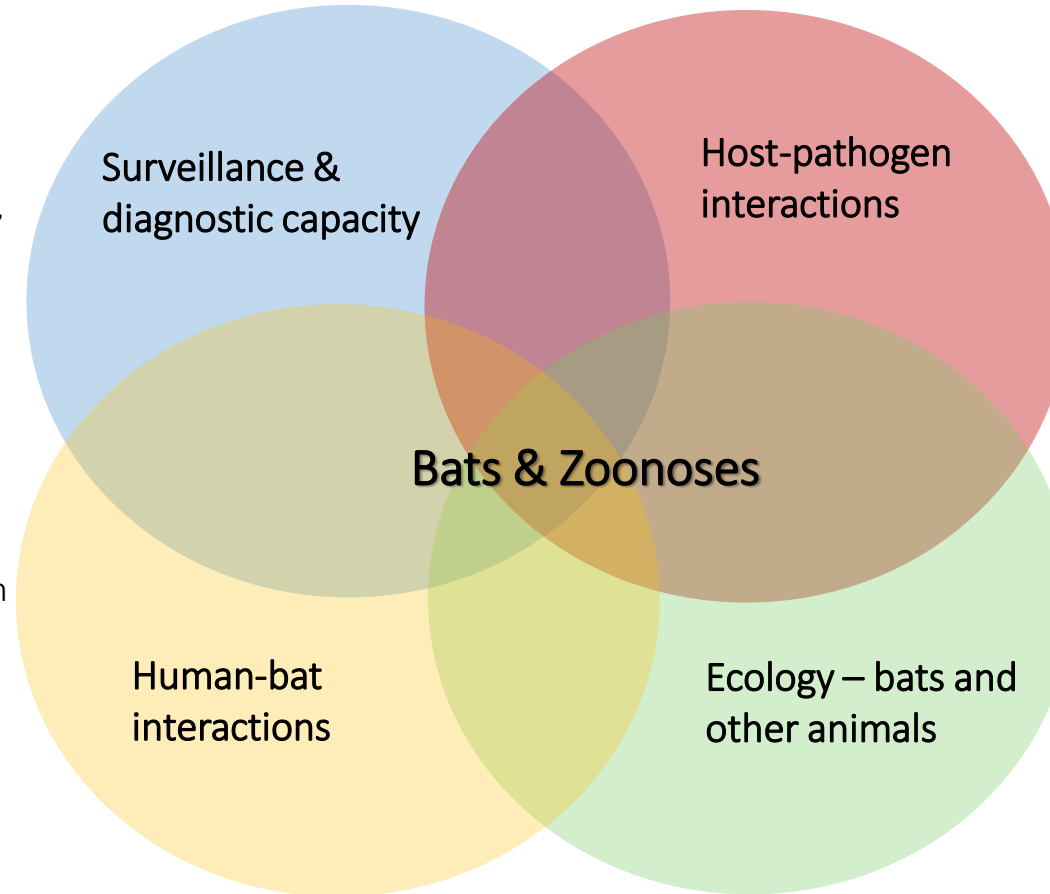
UNIVERSITEIT VAN PRETORIA  
UNIVERSITY OF PRETORIA  
YUNIBESITHI YA PRETORIA

# Centre for Viral Zoonoses: BEEZ-CVZ



- Serological and nucleic acid detection
- Developing capacity and standardized methodologies for surveillance
  - Passive/ longitudinal surveillance
- Specific viruses: rhabdo, lyssa, paramyxo, coronas, influenza, hanta, arena, filoviruses, selected bacterial pathogens and pathogen discovery approaches

- Human behavioural risk determination
  - Hunting and commodity chain
    - Ecotourism
  - Interactions in human dwellings
  - Develop interventions for human bat interfaces



- Bat physiology and immunology
  - Bat pathogen community biology
  - Modelling approaches and knowledge gaps
  - Reverse genetics
  - Experimental infections in cell lines, and animal models such as mice and bats
- 
- Population structure and dynamics
  - Food availability and taxonomy
  - Behaviour, distribution & movement
  - Interaction with domestic & wildlife
  - Effect of anthropogenic disturbances on spillover risk







UNIVERSITEIT VAN PRETORIA  
UNIVERSITY OF PRETORIA  
YUNIBESITHI YA PRETORIA



**One Health for Change  
(UP-OHC)**

# Youth Empowerment and Health/Economic Responses to COVID-19 (YEaH)

One health for change (UP-OHC)

Cluster coordination: Profs. Markotter, Burton and  
De Jager  
2020-2021

<https://www.up.ac.za/up-one-health-for-change>

# Background

- Part of a larger UNICEF funded project coordinated by Future Africa
- Advance training and skills for the youth
- Focused on the immediate challenge of COVID-19 but with a long-term vision

## **Focused on Society/Communities through Youth Empowerment**

- Develop capacity
- Empowering young academics (Not excluding senior academics)
- Inter/Trans disciplinary approach(One Health)
- Develop skills needed to build evidence that matters to society
- Evidence that matters to decision makers

# YEaH Clusters

- Startup Management skills
- Food, nutrition job opportunities
- Agriculture enterprises skills training
- Transdisciplinary workshops
- **Online seminars and training on One Health**
- **Young Academics on One Health practices**
- Student research support
- Augmentative communication on health crisis
- Analytical skills on social dimensions of health crisis for Community outreach

**One Health for Change  
(UP-OHC)**



# SHORT TERM OBJECTIVES

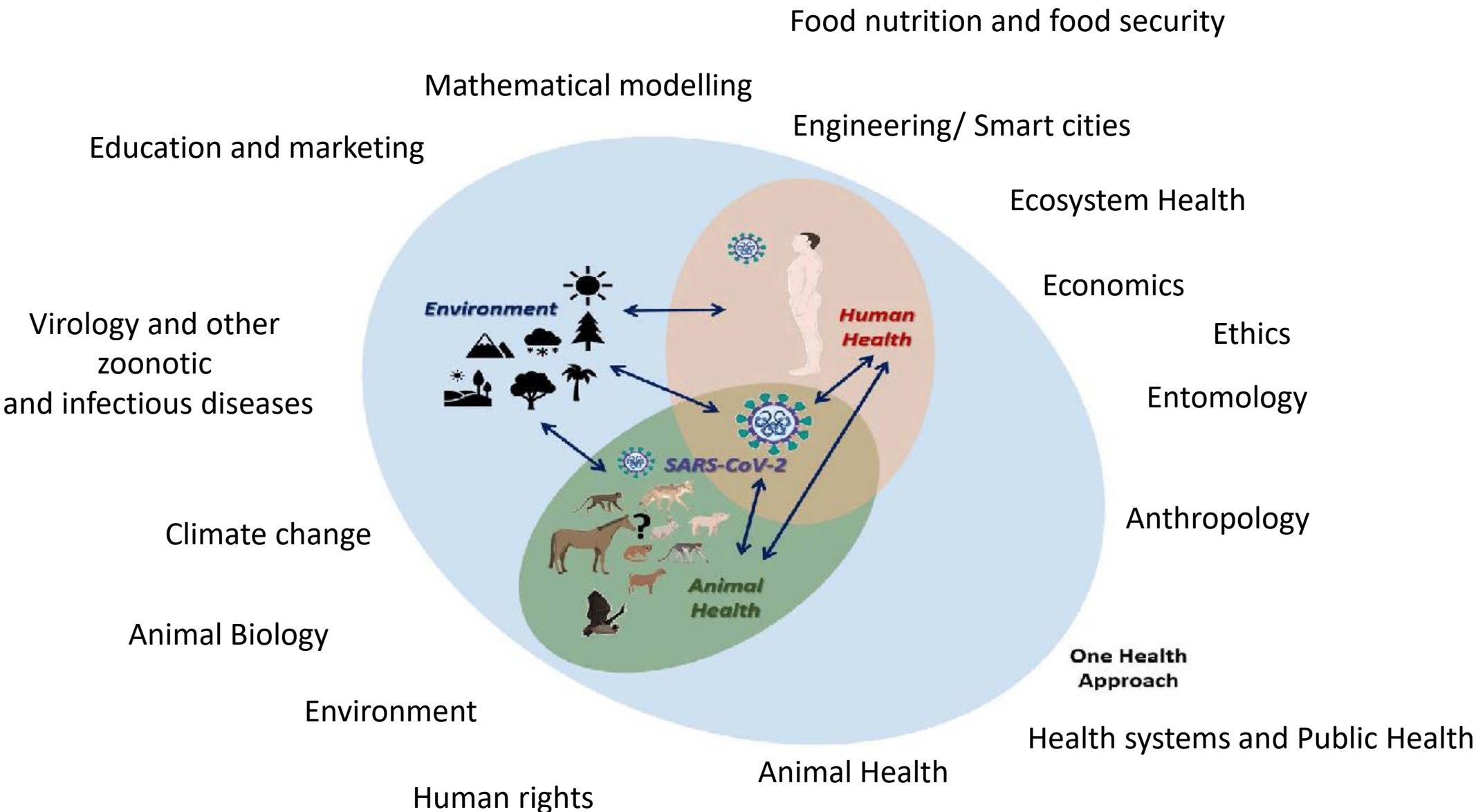
Marketing and communication

- Establishing a UP One Health Workforce; “One Health for Change (UP-OHC)”
- Link UP-OHC with other established networks nationally, regionally and internationally
- Create a UP OneHealth online platform (website based) for marketing, information, training and education dissemination

Mentorship

- Facilitate and present One Health webinars and training in collaboration with established networks
- Short term mentorship programmes: Develop human resource capacity in transdisciplinary “One Health” research, focused on young scientists.
- Transdisciplinary short term research projects linked to mentorship of young scientists and community outreach

# One Health for Change (UP-OHC)



**16 potential areas/disciplines identified**

# Networking and Communication

- Contact list with expertise (n=250)
- 90% from UP
- Representation from government, Institutes and Higher education
- USA, Europe and other African countries
  
- Need to improve our networking (UP and beyond)
- Second phase of UNICEF (Previously disadvantage Universities, broader Africa focus).
- Future Africa Dialogue series

# MENTORSHIP THROUGH SHORT TERM PROJECTS

- Projects include **young scientists** (Students and post-doctoral)
- Be **transdisciplinary**
- Include **community outreach**

It involve various faculties and departments to promote trans-disciplinary and collaborative research firstly within the University of Pretoria but also including national, regional and international collaborations.

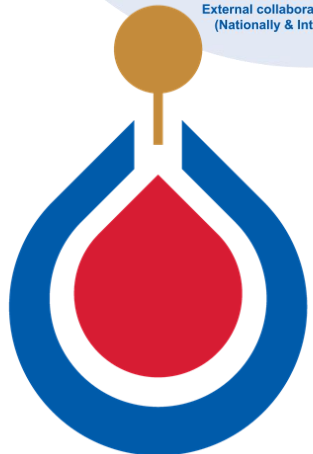
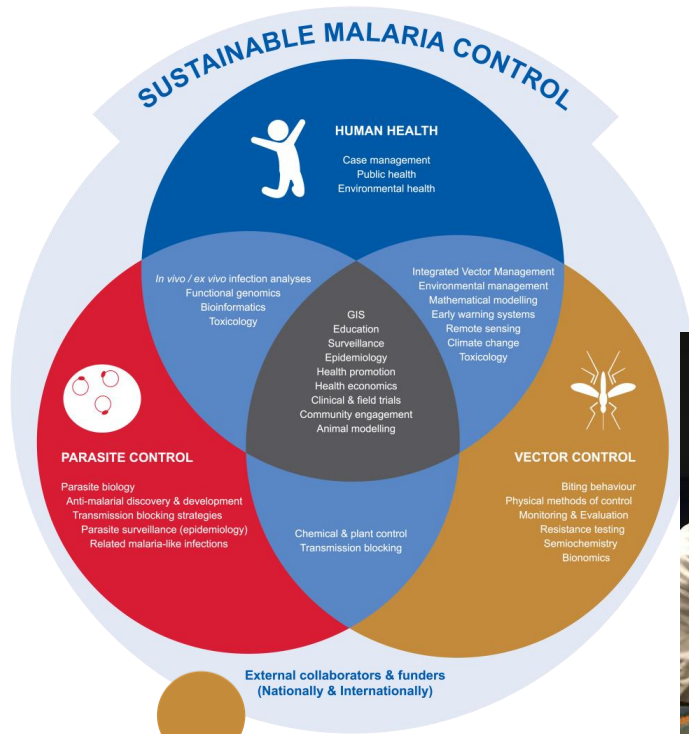
Main aim:

- To **mentor young scientists** and build capacity in the **transdisciplinary** research domain at the University of Pretoria.
- **Include senior academics** (mentor) and **young students/academics** (mentee).

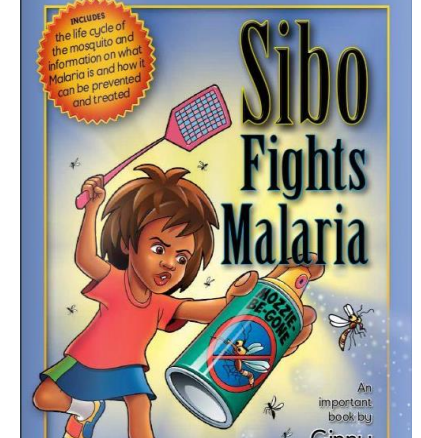
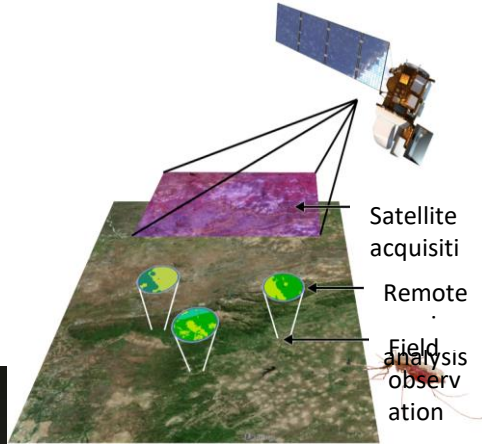


# Institute for Sustainable Malaria Control (UP-ISMC)

<https://www.up.ac.za/up-institute-for-sustainable-malaria-control>



**Centre for  
Human Rights**  
UNIVERSITY OF PRETORIA



**Albert Luthuli**  
CENTRE FOR RESPONSIBLE LEADERSHIP





Prof. de Jager Health Sciences; School of Health Systems  
and Public Health

Mosquito-borne vector epidemiology and One Health in  
Vhembe District, Limpopo Province

Vhembe Research Platform









UNIVERSITEIT VAN PRETORIA  
UNIVERSITY OF PRETORIA  
YUNIBESITHI YA PRETORIA  
Denkleiers • Leading Minds • Dikgopolo tša Dihlalefi

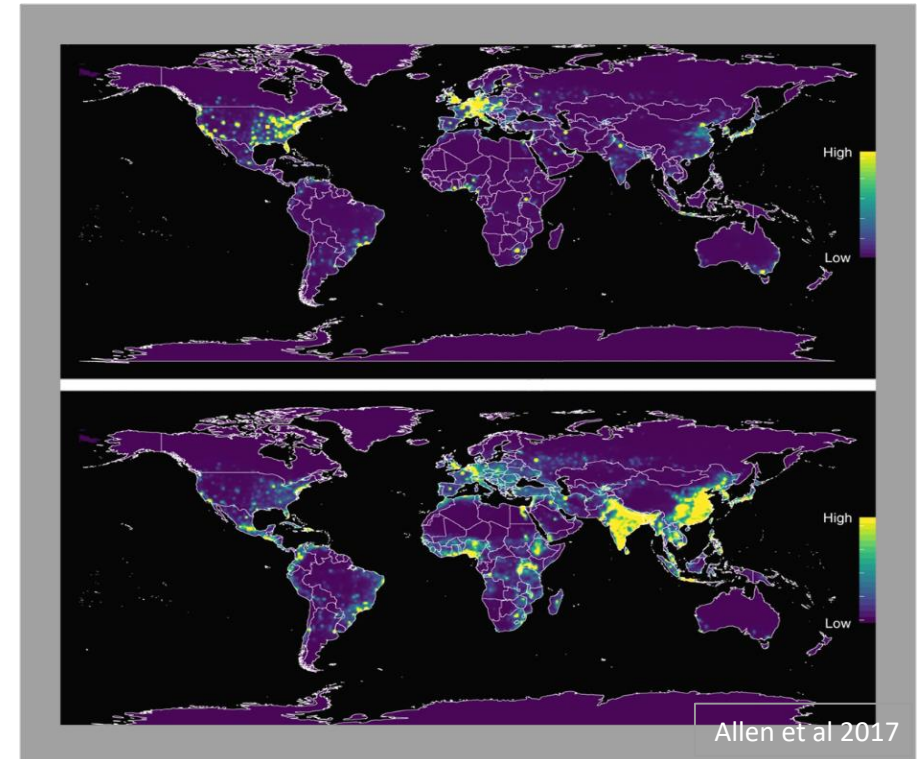
**One Health for Change  
(UP-OHC)**

wanda.markotter@up.ac.za  
[www.up.ac.za/centre-for-viral-zoonoses](http://www.up.ac.za/centre-for-viral-zoonoses)

# Identification of zoonotic disease hotspots in South Africa – A risk map assessment

**Prof Wanda Markotter (PI)**

DSI-NRF South African Research Chair in Infectious Diseases of Animals (Zoonoses)  
Centre for Viral Zoonoses (UP-CVZ), Faculty of Health Sciences, University of Pretoria







**Dr. Karama, Veterinary Sciences, Paraclinical Sciences**

Prevalence and virulence characterization and antimicrobial resistance profiling of Shiga toxin• producing Escherichia coli isolates carried by goats on communal farms in Gauteng.

**Dr. Marufu, Veterinary Science; Department of Veterinary Tropical Diseases**

Molecular prevalence of bovine fasciolosis in slaughter cattle, risk factors for human fascioliasis and awareness training in the Eastern Cape Province of South Africa

**Prof. van Heerden Veterinary Science, Department of Veterinary Tropical Diseases**

Detection of infectious diseases in livestock at abattoirs and knowledge transfer to stakeholders in the Eastern Cape province of South Africa.





# Aunty Covidia play



# **Adapting to a new normal: understanding knowledge, attitudes and practices in response to the COVID pandemic**



**Dr Sean Patrick**  
sean.patrick@up.ac.za



**Dr Joyce Shirinde**  
joyce.shirinde@up.ac.za



**Mr Jan Hugo**  
jan.hugo@up.ac.za

Dr. Patrick, Health Sciences, School of Health Systems and Public Health

Adapting to a new normal: understanding knowledge, attitudes and practices in response to the COVID pandemic

**PROOF OF CONCEPT STUDY  
APPLICATION OF WASTEWATER-BASED SURVEILLANCE TO  
MONITOR SARS-COV-2 PREVALENCE IN SOUTH AFRICAN  
COMMUNITIES**

*Gina Pocock, Leanne Coetzee, Janet Manus, Maureen Taylor and Bettina Genthe*

Dr. Mans, Health Sciences, Medical Virology  
SARS-CoV-2 water-based epidemiology in Gauteng,  
September – December 2020





# Community Orientated Primary Care Research Unit (UP-COPC)

<https://www.up.ac.za/family-medicine/article/2714698/up-copc-research-unit>



**Prof. Schonfeldt , NAS, Department of Animal Science**

Fruits and vegetables (or foods) adopted to climate change towards improving food security for children with the first 1000 days - a scoping study in marginal communities





**Dr. Meyer, Faculty of Health Sciences, Family  
Medicine and COPC**

Engaging communities in creating a supportive  
environment for mothers to promote exclusive  
breastfeeding for 6 months and continued  
breastfeeding for 2 years and beyond







**Dr. Michelle Janse van Rensburg/Helga Lister,  
Health Sciences, COPC and Occupational therapy**

A pilot project sharing the narratives of community members involved in various UP-student-led projects on their daily experiences and realities navigating their lives in vulnerable communities in the city of Tshwane.





Rural artificial light use as predictor  
of vector borne disease risk  
**Dr. Bernard W.T. Coetzee**  
Department of Zoology and Entomology, University  
of Pretoria  
And Prof. Barend Erasmus  
Dean, Faculty of Natural and Agricultural Sciences  
Many others (UP ISMC)!







**FUTURE  
AFRICA  
& UNICEF  
YOUTH  
FORUM**

**REIMAGINE  
EDUCATION  
TOMORROW**  
Our time.  
Our turn.  
Our future.

Date: **10 June 2021**

Time: **10:00-13:00**

Place: **Future Africa,  
University of Pretoria**



UNIVERSITEIT VAN PRETORIA  
UNIVERSITY OF PRETORIA  
YUNIBESITHI YA PRETORIA



**unicef**   
for every child



# Mentorship activities – Linking with other clusters



Ethics, mentorship and Science communication workshops presented by Prof. Burton



**George Lueddeke**  
(Chair, International One Health for One Planet Education Initiative [1HOPE], United Kingdom)



**Liesel Ebersöhn**  
(Director, Centre for the Study of Resilience, University of Pretoria, South Africa [SA])

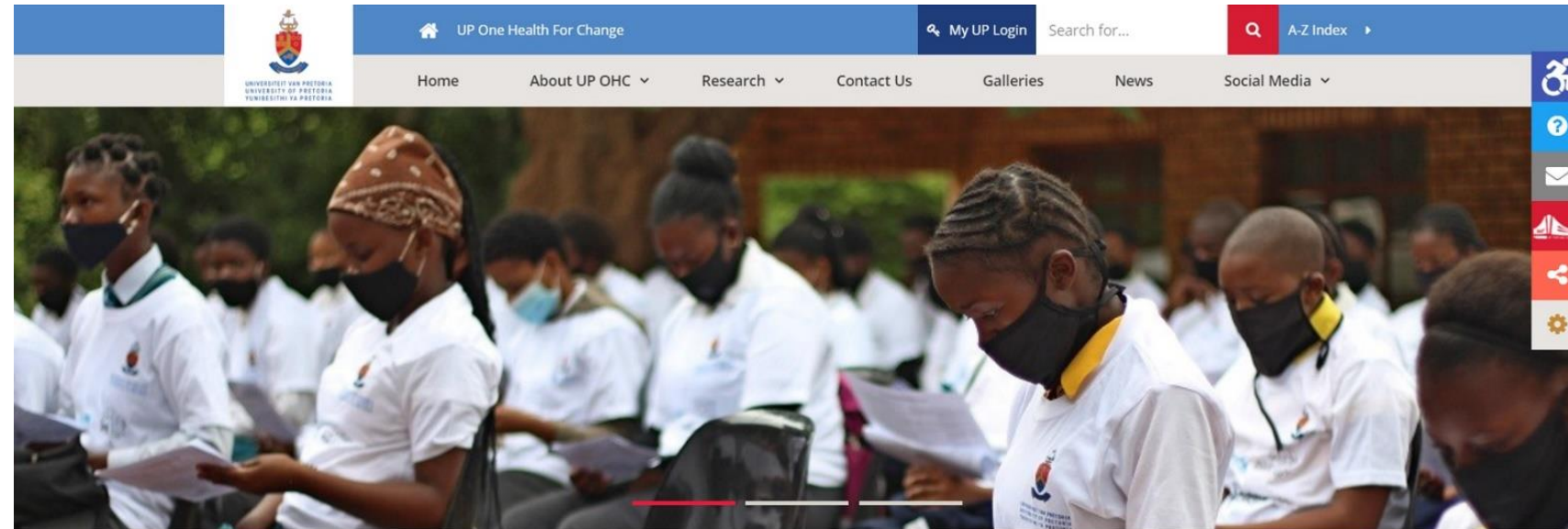




# Communication and Outreach



[www.up.ac.za/up-one-health-for-change](http://www.up.ac.za/up-one-health-for-change)



## UP One Health For Change

Breaking Barriers, Forging Knowledge

The University of Pretoria's One Health for Change (UP OHC) is a network of scientist from different faculties within the university. The theme 'Breaking Barriers, Forging Knowledge' alludes to our goal to break down the barriers caused by 'silos' between different disciplines and forge (build) new knowledge. A holistic 'One Health' approach promotes much-needed understanding of the inter-relationships between human, animal and environmental health.

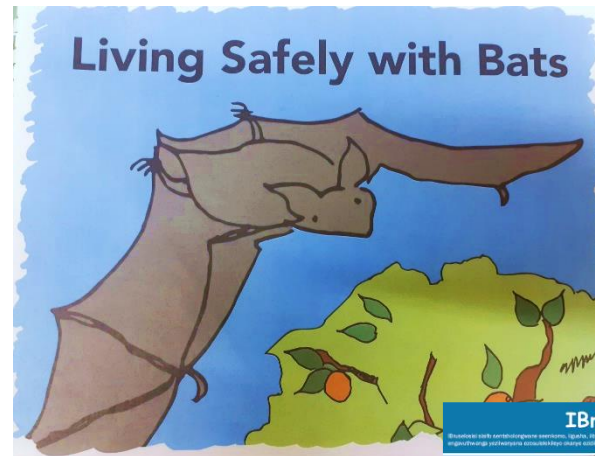
# Education

Translations of educational material into African languages

Distribution of educational material to communities



Living with Bats Book  
English>>Sepedi



Zoonotic posters  
translated to Xhosa



COVID 19 essay  
writing competition

UP-OHC held a competition to challenge youth from around the country on their understanding of the impacts of COVID-19. The learners showcased their writing and presenting skills through a short essay with the competition theme being "Understanding the Impacts of COVID-19 in our daily lives".

Grade 8 learner, Oratile Letshwene from the National Zoological Garden ZooClub won the Pretoria leg of the competition. Her winning essay which can be read by clicking this link: [winning essay](#).



Distribution of educational material  
to a eco club at Pretoria Zoo

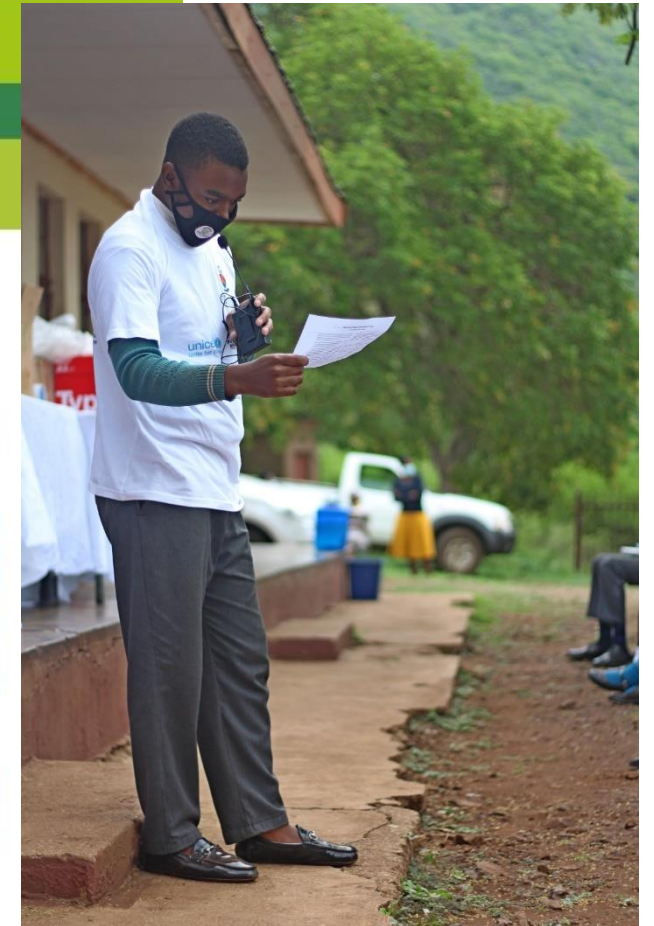






# Education and Outreach

## One Health Day Event



# Reflections

- One Health is transdisciplinary (Broader than animal and human health)
- Several initiatives that can be classified as “One Health”
- Networks and support structures in place that can be utilize
- Benefits to creating a UP One Health platform
- Need to include external partners as well as a pan-African focus
- Community involvement is key
- Development of young academics (One Health/transdisciplinary)

**UP and One Health – What does it mean?**

**How do we take this forward (collectively)?**

**What resources is needed?**

**What support/structures are in place to facilitate this?**