Spotlight on Zoonotic Diseases in South Africa
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If we don’t change the way we interact with animals and nature, it is a matter of time when the next pandemic will happen. But how can we change things if we don’t understand why it will happen?

After the COVID-19 pandemic, scientists have reiterated their warnings of the ongoing risk of outbreaks with pandemic potential and are calling on governments to take serious steps to stop the next one from happening. A key concern is that most diseases, like COVID-19, originate in animals (zoonoses).³ With up to 75% of emerging infectious diseases classed as zoonotic², they pose a major threat to the health of humans, domestic animals, and wildlife, as seen during the COVID-19 pandemic¹.

A zoonotic disease or zoonosis is an infectious disease that can jump from a non-human animal to humans and vice versa and be spread from human to human. This can be viral, bacterial, or parasitic and may involve another uncharacterised agent such as through food. Inter-species transmission is facilitated by many anthropogenic factors such as encroachment into wildlife habitats, land-use change driven by intensive farming systems, deforestation, wildlife trafficking and even climate change, all of which set ideal scenarios that can trigger the next pandemic.

These conditions along with the suffering caused by COVID-19, make it more important than ever for governments to establish an international pandemic instrument⁴ and national One Health strategies that advance prevention measures which address the root causes of zoonotic pathogen re-emergence, spread, and mutation – at source.

South Africa and zoonoses – a situation analysis

In the study: Research Priorities for Control of Zoonoses in South Africa,³ experts found that South Africa is one of the most biologically diverse countries in the world. The country’s sustainable-use wildlife economy and conservation model has led to an intimate human-livestock-wildlife interface and opportunities for zoonotic transmission⁵.

South Africa is not known internationally for high standards of animal welfare and performed poorly in World Animal Protection’s Animal Protection Index.⁴ With the exception of recent case law⁶ relating to legal framework, does not statutorily recognise animal sentience nor intrinsic value. Enforcement of current legislation is furthermore problematic, and the legal framework aimed at protecting animals is not sufficiently robust. A real-world example is the well-established captive lion breeding industry that has received international criticism and which the Department for Forestry, Fisheries and the Environment is now inviting captive breeding opportunities for zoonotic transmission⁸.

South Africa has also seen an increase in animals being farmed for food and for other purposes (such as for use in textiles) resulting from increased demand for these products. This growing demand is the largest contributor to a shift away from our unsustainable relationship with animals and nature as an essential step in not only protecting animals and the environment, but also human health.

There are several endemic zoonotic viral infections that occur in South Africa that have far reaching effects on the country and its economy.⁷ Endemic and cross boundary diseases which have a significant potential to adversely affect human, animal, and environmental health both locally and globally. Among the diseases which prevail in South Africa are Foot & Mouth Disease (FMD), Rabies, Bird Flu and Bovine Tuberculosis (bTB). The majority of emerging and re-emerging diseases are zoonotic in nature.

The risk of pandemics decreases if we improve animal welfare as a central aspect of pandemic prevention plans. A paradigm shift is needed in which we transition away from our unsustainable relationship with animals and nature as an essential step in not only protecting animals and the environment, but also human health.

To prevent the next pandemic, we need to acknowledge the link between animal welfare and increasing pandemic risk and follow a One Health approach on national, regional and international level.

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1. Preventing the spillover of pathogens by improving animal welfare and the environment, saves lives, avoids suffering & negative social impacts and costs a fraction of preparedness and response!

A holistic, collaborative One Health approach to tackling pandemics requires measures that strengthen prevention at source as well as preparedness and response.

Zoonoses Facts

- 75% of emerging infectious diseases are classed as zoonotic.

Preventing the next pandemic, we need to acknowledge the link between animal welfare and increasing pandemic risk and follow a One Health approach on national, regional and international level.
Animal Welfare to prevent future pandemics

South Africa and the rest of the world must commit to ending animal suffering to stop future pandemics. COVID-19 shows the dangers of ignoring the impact of animal cruelty. The way we treat animals and encroach on wildlife habitats brings pathogens closer to humans. High-risk practices which drive the risk of zoonotic outbreaks are the commercial wildlife trade, live animal markets, factory farming and fur farming. FOUR PAWS calls for animal welfare to be prioritized in pandemic prevention strategies and legislations.

Did you know?

- **Live Animal Markets**: Different species of animals captured and transported from a multitude of different and unknown sources to unhygienic markets are a dangerous breeding ground for viruses and their spread to humans.
- **Factory Farming**: Big farms with high stocking density of animals bred for high productivity traits and uniform genetic identity, form systems and breeding conditions that cause stress and a suppressed immune response. These systems often lead to conditions to spread and mutate into dangerous variants for animals and potentially humans.
- **Fur farming**: The keeping and killing of animals for fur cultivation is a cruel practice. As we have seen with COVID and Highly Pathogenic Avian Influenza, spillover into mink, wild animals kept in aged systems and farmed for their fur, are highly susceptible to infection and transmission. Intensive husbandry conditions of caged animals – are a source for pathogen mutations and transmission.
- **Climate Change**: The destruction of ecosystems, deforestation, loss of biodiversity by intensive animal agriculture, and the use of wild and farmed animals for food.

Scientific studies indicate that COVID-19 had its origins in the live wildlife trade along with a live animal market as the epicentre of the pandemic. 19 Later, the virus was introduced in mink farms by humans leading to direct and indirect transmission among mink via droplets or contaminated dust and infecting humans20, 21. The report “Preventing the Next Pandemic: Zoonotic Disease Spillover and How to Break the Chain of Transmission” by UNEP and the International Livestock Research Institute (ILRI) identified and how to prevent zoonotic outbreaks and spill over events which pose a day-to-day threat to the South African population via direct contact with livestock or wildlife in a poor welfare state.

The paper One Health in South Africa? published in the South African Journal of Infectious Diseases highlights investing in interdisciplinary approaches, including One Health, as one of ten recommendations to prevent as well as respond to zoonotic outbreaks and pandemics22.

It is estimated that annual global investments of around 20 billion US dollars would already suffice for prevention, which tackles the root causes of animal-to-human pathogen transmission from the outset. To contrast, the expected economic losses from the COVID-19 pandemic are estimated at nearly $14 trillion by 2024. Prevention would cost around 5% of the yearly value of lives lost from emerging infectious diseases23.

The most effective measure South Africa can take is to invest in preventing zoonotic outbreaks before they occur. The government of South Africa, through the National One Health Steering Committee and National One Health Forum, has taken critical first steps and established a One Health program in 2014 to coordinate disease surveillance, prevention and control and epidemiic preparedness to tackle antimicrobial resistance and zoonoses. The University of Pretoria, part of this forum, supports national efforts. This is specifically demonstrated through their strength in zoonotic disease research and prevention of spillover as well as the establishment of a One Health Research Chair at the Future Africa Platform. This platform promotes transdisciplinary research and dialogue.

Professor Markottke, the chairholder and also OHUPEL co-chair, has stated, “We report the importance of preventing zoonotic spillover and not just responding when there is an outbreak or a pandemic. A One Health approach is essential to address this,”

Detection and Containment

Diagnostic and research services in South Africa for Rabies, FMD, Bird Flu and BTV need to be strengthened as these tests are critical to ensure effective surveillance and timely detection of infectious diseases in animals before spillover to humans with a view to certify the disease-free status of South Africa.

Key health partners in South Africa must contribute to the development of the country’s diagnostic capacity for detection and surveillance of key zoonotic diseases to identify the drivers of outbreaks in animals and take steps to limit and phase out activities that trigger such outbreaks, as well as to take measures to contain disease emergence in a timely manner.

The detection of diseases that can spillover and their drivers is just the first step towards developing effective national and local prevention strategies24. A multidisciplinary One Health approach ensures that considerations of such outbreak scenarios at the human-animal-environment interface, investigating the hotspots and activities as well as interactions and transmission over space and time25.

Research including regular fieldwork in South Africa by interdisciplinary teams would be essential to understanding the possible routes of transmission to humans and other animals.

As a first step in preventing (re)emerging infectious disease outbreaks of animal origin in humans, it is important for South Africa to develop a strategy focused on spillover prevention and to assess the level of support systems already in place. Due to multiple factors such as poor funding, a lack of veterinary and clinical cooperation, and disease misdiagnosis, the real burden of zoonoses is often ill measured. This resource gap means there is a lack of reliable evidence for governments and policy makers when implementing legislation at both local and national levels. Control and preventive measures are often undertaken in isolation, which makes them less effective than when key players specialised in the health and wellbeing of humans, animals and the environment work together to take concerted action at strategic points across the human-animal-environment interface.

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South Africa’s zoonotic disease prevention efforts should be enabled by the presence of functional multisectoral, multidisciplinary mechanisms, policies, systems, and practices to minimize the incidence of zoonotic diseases and transmission from animals to human populations. South Africa has been reporting the dual problem of established and emerging zoonoses, and this means that we need a robust response system when it comes to zoonotic disease focused both on prevention and preparedness. For greater cooperation between the animal, human, and the environmental health sectors, stakeholders must embrace a multifactorial, and multisectoral approach to gain the maximum benefit out of these improvements. Zoonotic outbreaks must be recognized as a One Health problem for greater cooperation between departments and disciplines.

“Zoonotic viral infections are of public health concern globally, and learning from the approach we have adopted in South Africa can make a difference.”

Recommendations

1. South Africa statutorily acknowledges the interconnections between human, animal and environmental health and wellbeing and establishes national coordination efforts on surveillance, prevention, control, and preparedness for AMR and zoonoses. Academic institutions are able to support with zoonotic disease research and spillover prevention. The next step would be to identify priority hotspots and activities that must be prioritized and implement national One Health strategies and prevention measures in which they are tackled. The scope of the strategies should be aligned with DHLEP iteration of One Health and guidance on prevention of spillover as well as the One Health Joint Plan of Action.

2. A highly effective strategic focus governments can consider is implementing policies that not only ensure food sovereignty and security but also enable a transition to sustainable, healthy, and diverse food systems that are predominantly plant-based, by leveraging agroecology and high biodiversity practices for food and agriculture.

3. A precautionary approach when trading, farming, or marketing any wild animals, must be prioritized, assessing the risks to animal and human health before such activities occur, in order to avoid high-risk practices that can trigger outbreaks.

4. South Africa has been working with the concept of One Health nationally. Lobbying for the inclusion of the One Health approach and acknowledging the crucial role of animal welfare for human health in the international instrument on pandemic, prevention, preparedness, and response accord, will facilitate international technical, expert, and financial collaboration and support for the implementation of One Health strategies.

Conclusion

With 75% of emerging infectious diseases originating in animals, it is important that we implement measures to protect animals, the environment and the communities that come into daily contact with pathogen, in order to achieve equity and prevent pandemics. Tackling the root causes of zoonotic disease emergence and preventing the next pandemic to safeguard public health is the most sustainable and cost-effective investment we can make while simultaneously supporting global health and development outcomes. Unsustainable human activities are increasing the frequency of pathogenic microorganisms that jump from other animals to people. Pandemics such as COVID-19 are predictable, and its lessons can prevent the next pandemic if we are willing to listen and learn.
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About FOUR PAWS

FOUR PAWS is the global animal welfare organisation for animals under direct human influence, which reveals suffering, rescues animals in need and protects them. Founded by Heli Dungler and friends in Vienna in 1988, the organisation focuses on companion animals including stray dogs and cats, farm animals and wild animals kept in inappropriate conditions as well as in disaster and conflict zones. With sustainable campaigns and projects, such as its own sanctuaries, FOUR PAWS provides rapid help and long-term protection for suffering animals.

South Africa
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