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Adapting to a Changing World: The Future of Animal Health in the Face of Emerging Threats

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1. **How does the re-emergence of endemic transboundary diseases impact the global community, and what trends are you observing in this context?**

The link between animal and human health is undeniable, and so are the impacts. Some 60% of known infectious diseases in humans originate from animals â?? including pets â?? and 36% of transboundary diseases are associated with livestock, many for human consumption.

The social and economic consequences of endemic transboundary disease are vast. They spread rapidly, threaten animal and livestock health, compromise quality and reduce availability of animal products, and inevitably impact human health.

Take Avian Influenza (HPAI) or Foot-and-mouth disease (FMD), for example. Together, they affect many of the most consumed animal protein groups globally, and just one infected animal can infect an entire flock or a herd of cattle, pigs, sheep, or goats in hours.

Fuelling this risk is the cycle of demand, production and supply, alongside climate change. As urbanisation spreads, agricultural production and global trade intensify; human contact with animals increases, habitats change, and environmental conditions favour transmission.

The consequences are harsh and widely felt: disease spreads, animal wellbeing suffers and production is impacted. Meanwhile, as health emergencies emerge, governments impose trade barriers, and livelihoods and food security are affected too.

2. **Given the rapid spread of diseases, how should the animal health industry evolve to meet these challenges? How can different stakeholdersâ??including industry, governments, and researchersâ??collaborate more effectively to reduce the impact of transboundary diseases?**

With global forces at the core of this issue, no single organization or sector can solve the challenges at the human-animal-environment interface alone. But as a first step, animal, human and environmental health industries â?? public and private â?? can acknowledge the need for a collective response.

A One Health approach is vital if we are to improve the environment in which we raise, transport and treat animals and livestock, protect and support their health, and ours.

Looking at the highly connected ASEAN region â?? where demand for animal products is high, the risk is amplified, and transboundary risks are a constant consideration â?? the opportunities for improvement include:

- Enhancing surveillance for early detection, insight and tracing of emerging threats. This includes more investment in data sharing and research into zoonotic diseases.
- Strengthening veterinary governance structures and promoting responsible antimicrobial use to curb antimicrobial resistance in animals.
- Investing in fit-for-purpose prevention and preparation assets that support targeted vaccination production, advanced diagnostics and rapid outbreak response.
- Ensuring access to quality animal health products via streamlined product registration and approval processes, and improved governance requirements for manufacturers.
- Encouraging broad public-private partnerships for animal health promotion.

3. **The emergence of new avian influenza variants poses significant challenges. What are the implications for scientists, public health authorities, clinicians, and the community at large?**

The emergence of new HPAI variants poses a significant and persistent challenge across Asia, with cases consistently reported annually in China, Vietnam, Cambodia, and Indonesia. The severity of this challenge is twofold: the constant genetic evolution of the virus, and the immense speed and scale at which these outbreaks can devastate poultry populations. This complexity makes a unified response incredibly difficult and leads to devastating real-world impacts. For example, in the Philippines in 2022, the disease led to the culling of 10 million chickens, causing significant economic losses. The situation remains critical even today, with active cases in Tarlac, Pampanga, and Nueva Ecija, and 99 other municipalities.

For directly and indirectly impacted communities â?? farmers, producers, retailers, hospitality industries, and beyond â?? this can mean hardship. The Philippines outbreak has driven up poultry costs and consumer prices, hurt producer livelihoods, and exacerbated food security and cost-of-living concerns.

The science community, meanwhile, must chase down an ever-evolving threat. Recent outbreaks, like in the Philippines, demonstrate how quickly they evolve. We need greater funding and focus into viral evolution, genetic mutations, and the development of effective vaccines that can keep pace with these changes.

Finally, for public health officials, the Philippines case is another reminder to strengthen surveillance and biosecurity standards, policies and practices, and engage proactively with stakeholders â?? across borders â?? to coordinate control and tracing efforts.

4. **Vaccination is a critical tool in combating threats like avian influenza, African Swine Fever, and Foot-and-Mouth Disease. How would you recommend strengthening vaccination globally, particularly in regions most vulnerable to these diseases?**

Strict biosecurity measures, disease monitoring and vaccination contribute to preventing or controlling against HPAI, African Swine Fever (ASF) and FMD.

In ASF, diagnostics for early detection and strict biosecurity controls remain the two crucial lines of defence. In HPAI, diagnostics, biosecurity controls and vaccination for clinical protection play a role in early detection, transmission reduction and disease elimination.

But preparation is another crucial element.

In FMD, for example, the primary aim of vaccination during an epidemic is not to induce clinical protection, but to reduce transmission and stop the spread.

Effective preparation therefore requires rapid-response capabilities for vaccination en masse. Introducing vaccine antigen banks as a reserve of frozen vaccine antigen concentrate to be quickly formulated and deployed during emergency and outbreak scenarios is one such solution.

But no company can build preparedness capabilities for future transboundary and emerging diseases without collaboration or a reasonable approach to risk sharing.

Modelling and planning for these programs to achieve optimal impact necessitates a cohesive, joint approach among health industry, authorities, governments, veterinarians and farmers.

5. **How is Boehringer Ingelheim strategically combating continuously evolving viral strains and designing innovative vaccine solutions to fight avian influenza?**

We are leveraging advanced R&D to develop vaccines, providing broad-spectrum protection against evolving viral strains.

Our poultry vaccines are designed to protect flocks while minimizing production losses, thereby ensuring sustainable farming in Southeast Asia. Through our commitment to R&D, we remain at the forefront of avian influenza prevention.

We also know that effective disease control requires strong partnerships to ensure vaccine access. Thatâ??s why we work with regulatory bodies to facilitate farmer access to HPAI vaccines, and supply millions of doses across the globe, every year.

In the Philippines, for example, Boehringer Ingelheim has donated HPAI test kits to trade and partner stakeholders to support surveillance efforts. We are also actively working with the Bureau of Animal Industry (BAI) and the Food and Drug Administration (FDA) to streamline vaccine approvals.

6. **Boehringer Ingelheim's new trivalent poultry vaccine protect against Marek's disease, Infectious Bursal Disease, and H5 avian influenza in just one shot. Can you elaborate on the development and impact of this innovative solution?**

Boehringer Ingelheim has expanded its VAXXITEKÂ® range with the introduction of VAXXITEKÂ® HVT+IBD+H5, the first trivalent poultry vaccine that builds upon the foundation of VAXXITEKÂ® HVT+IBD and now combines protection against Marek's disease, Infectious Bursal Disease, and H5 avian influenza in a single dose. This provides farmers with an efficient method of administering broad protection against these diseases. The advanced COBRA technology ensures cross-clade protection against most prevalent and emerging H5 AI strains, reducing the need for frequent updates. This innovation reduces labour and costs and preserves the immune capabilities of the birds, enhancing animal welfare by minimizing handling stress.

7. **What are the main barriers to innovation in the animal health space, and how can the industry overcome them to ensure future growth and resilience?**

Innovation in animal health faces several challenges, including regulatory complexities, high R&D costs, and limited access to data for emerging diseases. The ASEAN region has its own hurdles, including a lack of skilled professionals and resources, limited technology adoption, and a need for greater harmonization among animal health agencies.

Addressing these challenges requires enhanced collaboration between regulators and industry to improve approval processes and access to necessary medicines. Knowledge sharing, capacity building, and wider adoption of digital solutions will also advance ASEANâ??s animal health ecosystem.

Perhaps most importantly, however, is broader public understanding and prioritisation of animal health. By promoting prevention via vaccination and timely veterinary support, animal holders across ASEAN, and the broader community, can contribute to better disease control.

By changing our individual behaviours, we collectively improve resilience by providing financial stability for those whose livelihoods depend on animals or contribute to food production and security.

8. **Misconceptions about livestock vaccination can hinder progress. How can these misconceptions be addressed through ethical and sustainable international practices, especially when it comes to trade?**

There is no single solution to stamping out disease in animals. Optimal animal health practices comprise responsible vaccination and antimicrobial use, alongside robust biosecurity and hygiene standards, data, insights and communication.

Medications complement, not replace, robust biosecurity and hygiene practices. In swine, for example, vaccination can reduce the need for antibiotics by preventing disease, but is most effective when combined with good farm management

In poultry and HPAI, some suggest vaccines can mask infection or create a false sense of security around disease prevention. But insufficient vaccination practices, biosecurity measures, coverage and monitoring (often seen in developing countries in ASEAN) can be the catalyst for an endemic situation.

Vaccination is one component of a comprehensive strategy and must be considered alongside appropriate antimicrobial use.

Perhaps the greatest health threats facing our world is the misuse of antimicrobials in humans, animals and plants. Previously effective medicines for animals are being rapidly outpaced by genetic mutations and transfer of resistant traits, creating new, drug-resistant pathogens.

Communication is therefore paramount to curb misconceptions. Sharing evidence on vaccine safety and efficacy, acknowledging limitations and concerns about residues or environmental impacts, and raising awareness around antimicrobial use and robust surveillance all help build trust and raise standards.

9. **How do you define Boehringer Ingelheimâ??s efforts to advocate for animal welfare and health internationally?**

Boehringer Ingelheim actively engages with regional and international organizations to promote animal welfare and health, with a strong focus on sustainability.

With both human and animal health businesses under one roof, many of our solutions are aimed at solving welfare and wellbeing challenges at the intersection of these two areas.

Our fight to reduce antimicrobial resistance, our STOP Rabies initiative, and our focus on prevention over treatment in livestock and sustainable food production, are just some examples of that effort.

This passion and commitment to animal, human and environmental health stems from our company's history and underpins everything we do to protect and support life.

10. **How is Boehringer Ingelheim integrating sustainable practices into its animal health operations, and how will this benefit animals and the environment in the long run?**

Across ASEAN, as in all regions, we integrate sustainable practices into all our animal health operations. Our Stop Rabies initiative, for example, is driving towards the global Zero by 30 goal to end human deaths from dog-mediated rabies infections by 2030.

We are committed to working hand in hand with veterinarians, pet owners, government and non-governmental organizations, health authorities, the Global Alliance for Rabies Control, and other stakeholders around the world.

Leveraging our expertise in rabies prevention and management, we actively support elimination efforts in Southeast Asiaâ??particularly in the Philippines, Vietnam, Thailand, Indonesia, and Malaysia, by delivering tailored, partnership-driven, and community-led solutions.

Farmers and producers across ASEAN depend on us to safeguard their animal health. That is why we work with partners in the region to expand sustainability initiatives and practices, improving the health of animals, humans, and our planet.

In Thailand, for example, we partner with Charoen Pokphand Foods to convert waste from our avian vaccines into renewable Refuse Derived Fuel.

By reducing our operational impact, promoting energy efficiency, minimizing waste, and providing sustainable solutions, we are directly supporting ASEAN's farmers in building more resilient and environmentally responsible businesses, contributing to healthier animals, reduced resource consumption, and a more secure food supply for the region.