



BENIN



Project sector

Terrestrial and Aquatic Animals



Project partners

Research Unit in Applied Microbiology and Pharmacology of natural substances, Polytechnic School of Abomey-Calavi, University of Abomey-Calavi

Department of Animal Health and Production, Polytechnic School of Abomey-Calavi, University of Abomey-Calavi

The Territorial Agricultural Development Agencies; Association of Private Veterinarians of Benin (AMeVeP)

Directorate of Livestock of Ministry of Agriculture, Livestock and Fisheries

Union of Suppliers of Inputs and Services in Poultry Farming of Benin (UFISAB)

National Union of Poultry Farmers of Benin (UNAPB)



Timescale

15 February 2023 - 15 August 2024



ICARS funding

149,948 USD

Reducing the import of antimicrobial resistance through day-old chicks and eggs

Context

The government of Benin is currently deploying tremendous efforts to reduce antimicrobial resistance (AMR) and antimicrobial use (AMU) in humans. In 2021, the Ministry of Health (MOH) supported by the World Health Organization (WHO), implemented a programme to strengthen hospital laboratories in Benin with the aim of equipping laboratory technicians to perform antimicrobial susceptibility testing for better monitoring of antimicrobial resistance in hospitals. In addition, in 2016, WHO supported the MOH to develop a national action plan (NAP) for the prevention and control of healthcare associated infections, with the overall aim of significantly reducing the use of antimicrobials in humans.

Currently, there is no international support for AMR efforts in the veterinary sector, despite the inclusion of the sector in the national plan to fight AMR. Although improving AMR surveillance is one of the priorities of the NAP, there is no comprehensive operational mechanism to provide data on a national scale both within the health and animal sectors. Isolated initiatives exist, mainly from academic and research actors, but little attention is paid to the veterinary sector, e.g., the poultry sector despite abundant evidence that antimicrobial-resistant bacteria are highly prevalent on poultry farms and in broiler meat, representing a source of resistance bacteria and resistance genes that may pose a human health risk as broiler meat and eggs are widely consumed.

Problem

Table eggs are the most consumed and accessible protein source in Benin, but due to a limited number of hatcheries, illegal import of day-old chicks is widespread. ICARS funded a co-development study in the country that showed a higher prevalence of multidrug-resistant bacteria in informally imported day-old chicks than in formally imported ones. For example, a total of 80% and 93 % of E. coli strains isolated from illegally imported day-old chicks were resistant to ciprofloxacin and gentamicin, respectively. Several studies in Benin have shown the presence of bacteria resistant to tetracyclines, beta-lactams, sulfonamides, and fluoroquinolones, and the presence of resistance genes related to these families of antimicrobials in broiler meat and faeces from poultry.

Despite an increasing import of poultry meat, there is no data available and no formal mechanism in place to limit the introduction of highly resistant bacteria into the country through imported chickens, eggs and poultry meat. Additionally, prophylactic and inappropriate use of antimicrobials, including critically important ones, is common in Benin, and there are no guidelines available for antimicrobial use in the country's poultry sector.



MINISTÈRE DE L'AGRICULTURE,
DE L'ÉLEVAGE ET DE LA PÊCHE
RÉPUBLIQUE DU BÉNIN



INTERNATIONAL
CENTRE FOR
**ANTIMICROBIAL
RESISTANCE**
SOLUTIONS

"The import of day-old chicks and eggs presents a significant risk for the spread of antimicrobial resistance, but there are strategies that can help reduce this danger and safeguard public health. This project will lead to the establishment of a microbiological certification system for imported poultry products in Benin through a multicentric approach. We are really excited to see the powerful results."

Dr Victorien Dougnon,
Associate Professor in Microbiology,
University of Abomey-Calavi

Project overview

The project aims to provide data and a framework to design and support the implementation of a microbiological certification system (MicS) for local and imported eggs and day-old chicks in Benin. The objectives/work packages (WP) of the project are to:

- Conduct in depth mapping of the poultry value chain in Benin, including the formal and informal sectors and routes involved in day old chicks and egg imports in Benin (WP1).
- Determine the types and levels of antimicrobial resistance in priority indicator bacteria (*E. coli*, *Enterococcus faecalis/faecium* and *Salmonella* spp.) in day-old chicks and eggs imported formally and informally (WP2)
- Explore with international, regional, national and local exporters and importers of poultry (formal and informal) to better understand the conditions and set-up criteria under which a MicS would be able to function (WP3)
- Formulate criteria and suggest the design and content of a potential future formal and legal microbiological certification system (MicS) for imported day-old chicks and eggs (WP4)



Eggstorage, Benin, August 2022

Outcomes

Organise a stakeholder and missing data identification workshop to support work to:

- List and describe all the actors involved in the importation and trade of day-old chicks and hatching eggs
- Highlight missing data for a deeper understanding of the poultry sector
- Conduct a field survey with actors involved in the importation and distribution of day-old chicks and hatching eggs
- Describe and quantify in detail the full poultry value chain in Benin
- Identify all external suppliers and survey them on vaccination and antibiotic administration practices before export

Procure day-old chicks and eggs for subsequent sampling, identification of pathogens and AST to:

- Generate data on prevalence of indicator bacteria and *Salmonella* spp. and prevalence of resistance to a selection of antibiotics for those bacteria

Conduct a qualitative survey targeting international, regional, national and local exporters and importers of poultry to:

- Assess and define legal frameworks that impact establishment of a MicS, and assess the acceptability and feasibility of the MicS for participating farms

Evaluate the economic feasibility of MicS to:

- Estimate cost and benefits of implementing a MicS of domestic and imported day-old chicks, eggs and poultry before they are released to market. Results will be disseminated to relevant stakeholders.

Host workshops to define criteria, propose an action plan and prepare needed legislation and procedures.

"This project will explore the required conditions that will need to be in place in order to establish a microbiological certification system for imported poultry products in Benin to avoid the importation of resistant bacteria. It's an ambitious project and we are looking forward to seeing the results."

Dr Annick Lenglet, Science Team Lead,
ICARS