

Increasing bacterial resistance against antibiotics in Africa

A global problem of unknown dimensions



Partnership between

University Medical Centre
Hamburg Eppendorf,
Division of Tropical Medicine /
GERMANY

and

Komfo Anokye Teaching
Hospital (KATH), Kumasi /
GHANA





GHANA

Ghana is situated in West Africa and has a population of 25.5 million people living on an area of 128,533 sq km.

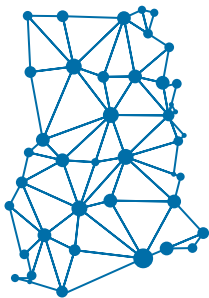
Ghana was the first country in Sub-Saharan Africa that gained independence in 1957.

Ghana was ranked as Africa's most peaceful country by the Global Peace Index.

The country produces the second most cocoa beans in the world and is classified as a lower middle-income country (LMIC). Gold, cocoa and, more recently, oil form the cornerstone of Ghana's economy and have helped fuel an economic boom.

Life expectancy at birth in Ghana is 62 (m) / 64 (f) years.

The probability of dying under the age of five was at 48 for 1,000 live births in 2018.



CREATING CHANGE IN HEALTHCARE

The programme "University and Hospital Partnerships in Africa" supports partnerships between hospitals and universities in Germany and in African countries in Sub-Saharan Africa.

The main effort is focused on capacity strengthening, experience sharing and knowledge exchange through professional dialogue, repeated visits and training.

The difference and advantage compared with other international cooperation initiatives is the collaboration with medical professionals in partner countries which builds a high degree of trust and acceptance. The problem is jointly identified, and the activities collectively developed and always in line with national strategies.

In addition to the medical professionals, IT experts are also involved in the partnerships to discuss and find IT solutions to improve medical care.

ANTIBIOTIC RESISTANCE IN GHANA

Bacteria and other germs change when they are exposed to anti-microbial treatments like antibiotics. This results in resistance against the substances used and medications lose their effect. Antimicrobial resistance (AMR) can render it impossible to treat common infections and leads to substantially increased costs of healthcare, prolonged treatment, disability and death.

AMR is a global problem and thus needs to be tackled globally. It exists in every country.

Main causes of this development are the overuse of antimicrobial medicine – especially in agriculture and animal farming – and unnecessary prescriptions for patients. Inappropriate use, wrong dosage, and lack of knowledge by medical doctors and patients alike aggravate the problem. The extent of AMR in low- and middle-income countries (LMIC) is largely unknown, mainly because respective data is missing.

Like all countries, Ghana is facing the continuous development of antibiotic resistance caused by various reasons, such as inappropriate consumption of antibiotics and non-targeted antibiotic therapy in absence of microbiological results.

However, like in many LMIC, *the extent of the problem is not clear because respective data is not available.*

Because of limited microbiological infrastructure in most places, the causative bacteria are not known. Neither is the medicine that is still effective. Only this information allows medical professionals to choose the right antibiotic and the government to develop national treatment guidelines.

The government of Ghana has recognised the need for improving this situation.

Based on this national as well as existing international commitment, the two partnering universities have decided to tackle this important public health issue and join the global efforts to stop further resistance development.

Joint efforts include the establishment of a data collection system, a so-called surveillance system, the training of laboratory personnel to identify bacteria causing an infection and possible resistance against the available antibiotics, training of medical doctors to handle antibiotic treatment with care and based on the information available, and support of the Government of Ghana to develop standard treatment guidelines based on the data collected.



Our eHealth Contribution

One important problem identified is the communication between medical doctors caring for patients and the respective laboratories performing necessary analyses. Specimen and requests for testing are paper-based and frequently go lost on the way between these two entities or reach the laboratories too late. The same applies to test results: These often reach the doctor too late or never which makes it impossible to base clinical decisions on them.

Therefore, the partnership decided to use an innovative approach and develop together with IT specialists an app-based communication system between the laboratory and medical doctors. This will ensure timely delivery of the request and test result as well as the collection of valid data for subsequent analyses and the development of local evidence-based guidelines.

All tools developed consist of free and open-source software which has been adapted in teamwork with neighbouring African regions: six partnerships collaborate closely because they use the same approach. This collaboration is called the COMBAT AMR network.

The COMBAT AMR network allows comparing/sharing of as well as joint discussions on data, the exchange of experiences, discussions on possible solutions, regional recommendations, and it creates substantial synergies.

University Medical Centre Hamburg, Division of Tropical Medicine / GERMANY

The division of Tropical Medicine of the UKE maintains one of the largest departments for Tropical Medicine in Germany and is nested within the I. Department of Medicine. The Division of Tropical Medicine has been involved in the University and Hospital Partnerships in Africa Together with KATH during the previous funding periods for more than a decade now. For the collaboration, the Division of Tropical Medicine is partnering with several other Departments, such as the Institute for Medical Microbiology and Virology as well as partners from the Bernhard Nocht Institute for Tropical Medicine (BNITM) in Hamburg.

Komfo Anokye Teaching Hospital (KATH), Kumasi / GHANA

The Komfo Anokye Teaching Hospital (KATH) of the Kwame Nkrumah University of Science and Technology (KNUST) is the second largest hospital in Ghana with a total bed capacity of 1,200. For the Ashanti region, KATH is the only tertiary health facility. KATH is involved in the training of medical students, junior doctors and nurses and provides medical and laboratory facilities, which are above average on a country basis.

The geographical location of KATH, the road network of Ghana, and the commercial nature of Kumasi make KATH accessible to all the areas that share boundaries with the Ashanti Region and other Regions further away.



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