

NAVRONGO

HEALTH RESEARCH CENTRE

PURSUING EXCELLENCE IN HEALTH RESEARCH AND INNOVATION



Studies and Stories Defining Health Research Locally and Internationally

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EDITORIAL



improve health outcomes for all. We also investigate the often-overlooked but pressing issues of respectful maternal care, the rise of dengue fever, and mental health support for young people—areas that are of profound concern to most communities across Ghana.

At the heart of our work is the dedication of our staff, whose stories and experiences enrich our understanding of the communities we serve. We are especially proud to highlight the efforts of our field workers and the vital role they play in bringing life-saving health interventions to some of the most remote regions of the country.

It is with great pride that we present this edition of the Navrongo Health Research Centre (NHRC) Magazine. This magazine celebrates our collective efforts and breakthroughs in health research, while highlighting the integral role of collaboration in achieving our shared goals.

As part of a national strategy to enhance quality health services, partnerships, and innovation at the primary level, NHRC has embraced the "Network of Practice" approach which showcases the remarkable strides made by the NHRC and its partners in contributing to Ghana's journey towards Universal Health Coverage (UHC).

Our commitment to addressing critical health problems is evident through the wide range of research featured in this edition. From tracking respiratory infections to improving the lives of people with sickle cell disease, NHRC continues to lead the way in providing evidence-based results that

While acknowledging the importance of data in our research and the advancements in technology that support data collection, we highlight the essential role that electronic data capture plays in our data collection procedures.

As we strive toward achieving UHC by 2030, this magazine serves to remind us that through collaboration, innovation, and determination we can achieve a lot. In fact, through shared knowledge and commitment, we can ensure that quality healthcare is accessible to all, leaving no one behind.

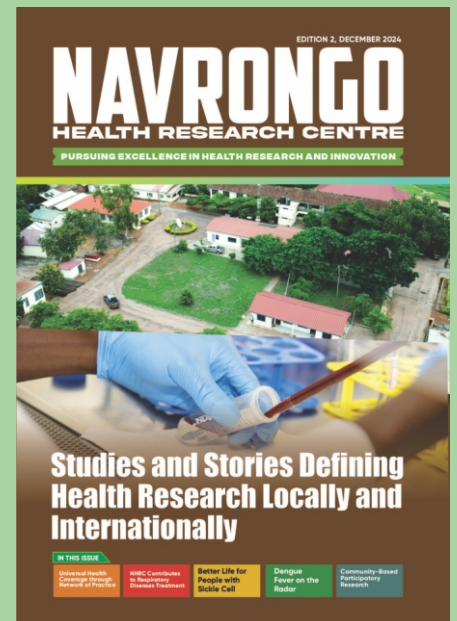
We hope this issue will inspire and inform our readers, encouraging continued support for health research and development in Ghana and beyond.

Sincerely,
Dr. Patrick Odum Ansah,
Director - Navrongo Health Research Centre



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Universal Health Coverage through Network of Practice

The Network of Practice (NoP) is one of Ghana's strategies to achieve Universal Health Coverage (UHC) at the primary level with a focus on improving quality health services, partnership and innovation.

The Navrongo Health Research Centre (NHRC) and its counterparts in Kintampo and Dodowa have taken up the challenge and are implementing the NoP as their contribution towards the realization of the UHC by 2030.

The NoP is a strategy within the Ghana Health Service (GHS) to help decongest the district hospitals to enable them deal with serious cases. It will also ensure resource sharing, effective communication between facilities and improvement in skill set to ensure the overall quality of care.

Service delivery bottlenecks at the sub-national level, such as poor referral systems, inefficient provider-payment mechanisms, and inadequate capacity to deliver the basic package of primary health care (PHC), also need to be sorted out.

Ghana's PHC has three levels at the district, sub-district and the community level through the community-based health planning and services (CHPS) compounds.

According to the Director-General of the GHS, Dr. Patrick Kuma-



**Dr. Patrick Kuma-Aboagye,
Director-General of GHS**

Aboagye, the network of practice initiative will reinforce the commitment of the health sector to increase access to quality essential healthcare for all.

Speaking at the launch of the Implementation Guideline-2024, Dr. Kuma-Aboagye urged the research institutions to help find innovative approaches to problem solving.

The Implementation Guide is for all health sector stakeholders and spells out a step-by-step process for the operationalization of the NoP.

“The initiative can increase access to quality essential healthcare in Ghana through comprehensive patient-centred care for common

health conditions. These guidelines will serve as a reference and management guide for all health sector stakeholders,” Dr Kuma-Aboagye said, adding that primary health care is the most plausible, feasible, and equitable route to universal health coverage.

“In order to be on an even keel towards the attainment of UHC, GHS adopted innovative strategies in 2020 under the country's UHC Roadmap where its guiding principles recognize PHC as the level of emphasis and the NoP as the special purpose vehicle. I urge senior managers to promote collaboration and accelerate methods and strategies for the country to attain UHC,” he said.

A senior epidemiologist at the NHRC, Dr. Engelbert Nonterah, touched on how the three health research centres at Navrongo, Kintampo and Dodowa fit into the building systems, enforcing mandate and the network of practice of the GHS.

He explained that these research centres are strategically located and have a mandate to research into relevant health challenges of their immediate coverage as well as across the country as may be the case.

“Universal health coverage goes hand-in-hand with expanding the reach of primary healthcare facilities, improving skills set and

workforce, and identifying and improving funding mechanism through the national health insurance scheme.”

He said it also involves “expanding the scope of services to respond to chronic diseases (hypertension, diabetes and mental health) as well as ensuring effective referral systems, transportation, etc.”

He added that historically, the research centres have engaged in health systems strengthening research and lessons from these have informed and shaped policy at

of a population is guaranteed. The different components of healthcare delivery are organized into systems often referred to as building blocks of healthcare system.”

“The World Health Organisation (WHO) has identified a set of six, namely: leadership and governance, service delivery, health systems financing, health workforce, medical products, medicines and vaccines as well as health information systems. With a well-structured healthcare system, each component has a specific mandate and once empowered they

aspects of service delivery.

“In the NoP, the health centres serve as a hub and are well equipped, well-staffed, financing structure improved as well as ensuing essential provision of logistics and supplies for effective delivery. These hubs are then supposed to receive referrals from what is known as spokes and these include CHPS compounds, clinics, maternity homes as well as community or market clinics” Dr. Nonterah said.

“For the current concept, each hub



Senior Members of the NOP team during a data analysis workshop at NHRC

various levels.

“Similarly, the centres have been engaged in the evaluation of GHS programmes to ensure contextual best practices are adopted to improve the systems. In terms of the NoP, the three research centres have a lot to offer,” Dr. Nonterah said.

“As relates to healthcare, systems are the essential drivers behind successful care delivery. A properly organized health system ensures that the entire health and wellbeing

can deliver the stipulations within their mandate,” the epidemiologist explained.

He said the network of practice is the flagship programme of the GHS and is mainly aimed at strengthening the health system by focusing on the primary healthcare level of service delivery.

Similar to the health systems building blocks, the NoP has several components that seek to present holistic support to the different

is fed by five (5) spokes. These networks essentially are to improve communication between facilities to ensure sharing of resources and improving referral pathways of the clients seeking care.”

He acknowledged the internal challenges of building systems at the NHRC, adding that the Centre has systematically developed systems to address peculiar research needs, community expectation as well as funders' expectations.

The epidemiologist said the strategy at the NHRC has been to build effective systems that would guide the successful conduct of impactful research while responding to emerging health threats.

“Given that our research is heavily dependent on the community members, we have developed a robust community engagement system. This system enables us to have effective engagement with community leadership and stakeholders before the commencement of a study as well as lay the pipeline for continuous engagement during the course of a study and to offer effective dissemination to the community upon study completion,” he said.

Dr Nonterah said the NHRC has enforced its mandate of existence by adapting to the context within which it works, which has led to a sustained research population that is willing to participate in research. “The Centre has also risen to emerging health threats by positioning itself strategically and responding to grant calls in that regard. Over the years successive directors have promoted infrastructural development. There has been a strategic upgrading of relevant infrastructure at the Centre, which is even more profound in the current management under Dr. Patrick Ansah, promoting basic sciences and support skills development and acquisition.”

“The constant engagement with community leadership and leadership of the health services within the region has led to participatory involvement in our activities, and mutual co-existence.”

The epidemiologist gave instances of the Centre's cross-cutting research that translates into national policy and to some extent influences international practices and policies.

The foundation researchers of the NHRC such as Prof. Fred Binka set a high standard which the current researchers have not relented in building upon.

“Talking about research that translated into national policy, there is the Vitamin A supplementation trial, bed nets and community-based health planning and services (CHPS). We are currently looking at our involvement in national assignments such as the NoP implementation and verification, CHPS+ verification and national facility assessments to mention a few,” said Dr Nonterah.

“The human capital we have generated over the years has been

University of Technology and Applied Sciences in Navrongo.”

Dr Nonterah said since the creation of the Research and Development Division in 2009, there has been coordination, knowledge sharing and combined execution of projects of a national character. The Centres support other bodies including the Ghana Health Service-Ethics Review Committee (GHS-ERC). The integration is also seen among individual scientists with similar interests collaborating on pilot studies, grants and knowledge and skills development.

On the attainment of universal health coverage through the network of practice, the epidemiol-



A CHPS compound in Gaani, Kassena-Nankana

ogist echoed the philosophy that “where one lives should not determine whether one lives or not,” he said.

useful not only for the other research centres but have significantly contributed to academic development in Ghana.

Several of our products have ended up in the premier university and most recently in the University of Health and Allied Sciences (UHAS) as well as in the current establishment of the School of Public Health in the C.K. Tedam

ogist echoed the philosophy that “where one lives should not determine whether one lives or not,” he said.

Dr. Nonterah said effective networks cannot be built without the collective effort and commitment of the different cadre of health staff and partners.



NHRC

Contributes to Respiratory Diseases Treatment

Disorders and diseases of the respiratory system cover a range of conditions such as common cold, coughs, pneumonia, bronchial asthma and acute bronchitis. Some of these conditions are accompanied by feverish conditions.

Acute Respiratory Febrile Illnesses (ARFI), which are part of these respiratory diseases, are a common occurrence and are a primary cause of medical consultations and hospital admissions in sub-Saharan Africa and other regions.

What is worrying is that a significant proportion of ARFI are often treated presumptively due to lack of diagnostic capacity. Additionally, ARFI present symptoms that are vague and generally overlap with other diseases and mimic other illnesses.

Wrong diagnosis of these condi-



Mr. Jonah Kulariba, a Biomedical Scientist at NHRC

tions increases the chances of ineffective or poor treatment outcomes, including antimicrobial resistance and misapplication of limited resources.

Finding the pathogens or disease-causing agents responsible for these respiratory infections through proper diagnosis is key in finding the proper medications for treatment.

Pneumonia for example is a lung

infection and an example of ARFI, caused by various bacteria, viruses or fungi and identifying the causative organism responsible for this condition depends on proper diagnosis for effective treatment.

Mr. Jonah Kulariba, a Biomedical Scientist at the Biomedical Department of the Navrongo Health Research Centre (NHRC) said epidemic-prone infectious

diseases that are new or re-emerging typically exhibit vague symptoms and are treated as acute respiratory infections without laboratory diagnosis.

“Infectious illnesses and epidemics could therefore go unnoticed and escalate. A prime example is the COVID-19 outbreak,” he noted.

Mr. Kulariba was responding to questions on a study carried out by the NHRC on using molecular tools for tracking respiratory diseases in the Kassena-Nankana districts of the Upper East region.

wide array of pathogens, including those that colonize the human respiratory tract.

The panels use the syndromic approach to accurately detect and identify the pathogens most associated with respiratory infections.

Mr. Kulariba said that though there is little knowledge on bacterial causatives of acute respiratory infections, the situation for that of viral etiologies is more profound, prompting the NHRC to carry out the study.

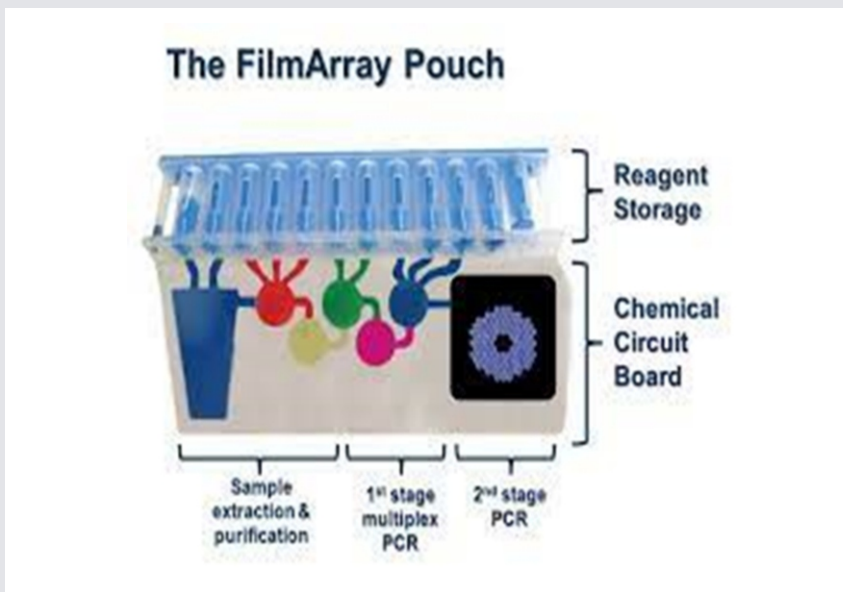
In response to whether both

surveillance on respiratory viruses and clinical diagnosis was done at the hospital because the participants were health-seeking individuals that presented with fever at the hospital.

The test results from the FilmArray were analyzed at the time when the participants were treated and discharged in most instances. Data on clinical diagnosis was obtained from the hospital and then compared with test result from the FilmArray.

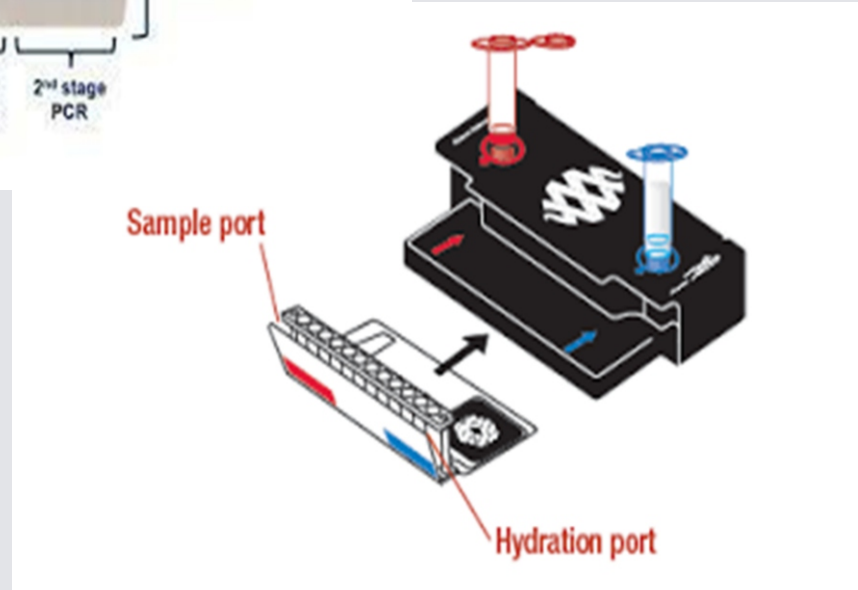
The Navrongo War Memorial Hospital was the only study site used but this would be escalated to cover the rest of the catchment area.

Mr. Kulariba explained that using FilmArray diagnosis was a better option to using clinical diagnosis in tracking respiratory diseases “because clinical symptoms for different respiratory illnesses are usually very similar, in vitro diagnostic



The research focused on identifying the causatives of ARFI in patients presenting with fever by assessing the potential of Biofire FilmArray Panel for diagnosis and tracking of respiratory diseases.

The Biofire FilmArray Respiratory Panel operates by the principle of Polymerase Chain Reaction (nested Multiplex) and detects viral and atypical bacterial pathogens in clinical specimens. It is run by pouches that detect a



FilmArray diagnosis and clinical diagnosis were used during this study, he explained that FilmArray panel was used as a diagnostic tool by the study for

molecular methods are often necessary to determine the causative agents.”

“Early (45 minutes), rapid and

specific detection using nested multiplex PCR is essential to provide patient-tailored therapy for better outcomes. An accurate diagnosis may also help to control outbreaks and reduces potential antimicrobial resistance (AMR)," he added.

The potential of the panel has been established to detect multiple targets in single test.

and Coronavirus NL63.

The use of the technology therefore helps in the syndromic approach to accurately detect and identify the pathogens or disease-causing organism such as bacteria, viruses or fungi most associated with respiratory infections.

ment's interest in controlling infectious diseases and protecting public health. Integrating BioFire FilmArray into the healthcare system could improve diagnostic capabilities for respiratory infections," Mr. Kulariba noted.

Some of the conclusions of the study is that various respiratory



BioFire® FilmArray®
BioSurveillance System
and Test Kits

This means the Biofire FilmArray panel technology has proven effective in clinical settings for diagnosing respiratory illnesses. It means that the technology is reliable and accurate in detecting various respiratory pathogens.

Mr. Kulariba mentioned specific types of viruses or bacteria detected during the research. These were SARSCoV-2 Virus, Respiratory Syncytial Virus, Para Influenza 3, Influenza B, Influenza A H3, Influenza A H1-2009, Human Rhinovirus, Human metapneumovirus Influenza B

Mr. Kulariba said using FilmArray diagnosis would be a better option to using clinical diagnosis in tracking respiratory diseases. He touched on how the research findings from this study would fit into policy and practice within the Kassena-Nankana districts and the country as a whole.

"The BioFire FilmArray panel detects multiple respiratory pathogens simultaneously, aiding in surveillance efforts to monitor disease trends and outbreaks."

"This aligns with the govern-

ment's interest in controlling infectious diseases and protecting public health. Integrating BioFire FilmArray into the healthcare system could improve diagnostic capabilities for respiratory infections," Mr. Kulariba noted.

Some of the conclusions of the study is that various respiratory viruses were detected among 15% of the study participants. The technology has a potential for contact tracing, outbreak investigation and surveillance, in addition to providing accuracy and speed, which is essential to public health efforts and pandemic preparedness.

The study population was made up of people aged 18 years and above, presenting with respiratory symptoms. The size of the study participants in this research was 100 and the study began in 2022.

BETTER LIFE FOR PEOPLE WITH SICKLE CELL

Until the world is rid of the debilitating sickle cell disease (SCD), scientists will keep exploring ways of improving the lives of those who have inherited the blood disorder, affecting how red blood cells carry oxygen throughout the body.

Sickle cell disease mortality rates are highest in children under-five and WHO estimates that SCD contributes to 9 -16% of under-five mortality in certain regions of

Gazelle, and evaluate the percentage of these children enrolled in comprehensive clinical care.

This research used the Gazelle for SCD screening in 10 health facilities, comprising four community-based health planning and services (CHPS) compounds, five health centres and one hospital, all located in the Kassena-Nankana Municipality and Kassena-Nankana West District, in the Upper East Region of Ghana.

button. Results are displayed on the screen in eight minutes.

The study population included all newborns delivered at the delivery wards of the study area and all children under-five years attending immunisation clinics in the study area. Nurses and midwives at the various healthcare facilities were trained to conduct the screening.

A total of 6024 newborns and children under-five were screened between August 2022 and September 2023. Children who tested positive for SCD (SF, SCF, SFA) were referred to the sickle cell clinic at the War Memorial Hospital in Navrongo for confirmation with another device called the sickle scan and subsequently enrolled into the clinic, if confirmed. Out of the 273 individuals suspected to have SCD, 81 (1.3%) were confirmed to have the condition. Among the confirmed cases, 79 individuals (97.5%) were successfully enrolled in comprehensive care, while two individuals had relocated out of the study area and were thus not included in the care programme.



First participant ready for screening at the Navrongo Health Centre

West Africa. Early detection and management of sickle cell disease is essential to prevent childhood mortality and is pertinent to accomplishing sustainable development goals 3.2 and 3.4. In 2021, Ghana was recorded as one of the countries with SCD incidence at birth between 1000 to 2000 per 10,000 live births.

The Navrongo Health Research Centre (NHRC) embarked on a study with a promising goal to revolutionise the diagnosis and treatment of sickle cell disease in children. The study is centred on integrating point-of-care testing (POCT) technology into primary healthcare settings, a move that could significantly enhance early diagnosis and improve care delivery for affected children.

The study aimed to determine the percentage of children who tested positive for sickle cell disease using a POCT device,

The Gazelle hemoglobin variant test is a miniaturised cellulose acetate gel electrophoresis for diagnosing SCD. To conduct the test, a drop of blood is collected by pricking a finger or heel. The sample is processed, dispensed onto the cartridge, and inserted into the portable reading device. Once the cartridge is inserted, patient details are entered, and the automated test is run with the push of a

Caring for affected children

Patient care involved several components such as counselling, laboratory testing, treatment and follow-ups.

All patients confirmed to have SCD (SS or SC) were enrolled into the SCD clinic and started on folic acid, vitamin C and zinc-containing multivitamins.

Oral penicillin was started at two-months old. The use of hydroxyurea was dependent on the age and genotype of the patients.



The Gazelle Hb variant test for sickle cell disease



Patient receiving care at the War Memorial Hospital sickle cell clinic

Patients who were SS genotype and at least nine-months of age were offered hydroxyurea therapy.

Hydroxyurea stimulates the production of hemoglobin that is not sickle-prone, reducing the sickling of red blood cells and improving their flexibility. It helps to improve blood flow and prevent blockages. According to Dr. Lucy Osei Ababio, Study Clinician and Senior Medical Officer at the NHRC, individuals with SCD can achieve active and productive lives through proper management, support, and education. This can be accomplished through collaborative efforts among patients, families, healthcare providers, and policymakers to enhance care and elevate the quality of life. She said integrating POCT technology into primary healthcare settings holds immense potential to advance early diagnosis and care of children with sickle cell disease, particularly in resource-limited regions, to improve patient outcomes and reduce the burden of SCD on affected individuals and their families.

The study recommended the scaling up of similar initiatives in vulnerable regions to enhance early SCD diagnosis and intervention. It also added that education and SCD awareness programmes should be targeted towards enhancing community acceptance and participation in the care of children with SCD.

The Pneumosis Study

The commitment of the NHRC to improve the lives of children with sickle cell disease, is also seen in the research into the invasive pneumococcal disease (IPD) and carriage among children with sickle cell disease in Ghana.

This post-vaccination study was necessitated by the fact that children with sickle cell disease are particularly susceptible to IPD due to the inability of their defective immune system to effectively handle encapsulated bacteria.

According to Deborah Narwortey, Senior Research Officer, streptococcus pneumoniae, also referred to as pneumococcus, forms part of the normal bacterial flora of the upper respiratory tract. She said due to the relatively higher risk of SCD individuals to IPD, the use of pneumococcal prophylaxis is inevitable. However, the success of these clinical interventions is impeded by the surge in antimicrobial resistance developments and

**.. Meanwhile,
pneumococcal
carriage strains
in people with
SCD differ from
those without
SCD,**

replacement serotypes.

“Comparatively, individuals with SCD are reported to have an increased susceptibility to IPD, 30 - 600 times more likely. Nonetheless, pneumococcal studies carried out in sub-Saharan Africa have focused on the general population, with little data on these at-risk populations. Meanwhile, pneumococcal carriage strains in people with SCD differ from those without SCD,” she added.

The research officer explained that data on pneumococcal serotypes in children with SCD is crucial, as current pneumococcal vaccines are based on serotype information.

“This study will provide crucial information on pneumococcal conjugate vaccine (PCV13) use and data on pneumococcal carriage and IPD in individuals with SCD in Ghana, which will also be informative to other sub-Saharan countries. The aim of this study is to understand the epidemiology of pneumococcal carriage and invasive disease among SCD patients in the PCV13 era in Ghana,” she said.

The study will also help determine the frequency of pneumococci acquisition among SCD patients vaccinated with PCV13, and evaluate the common serotypes carried and their persistence, as well as the incidence of IPD and the causative serotypes among SCD individuals.

“It is also to help evaluate the antibiogram of pneumococci isolated from children with SCD and describe the penicillin-resistant or multidrug-resistant clones.”

The study, being conducted at the NHRC in Navrongo and the Korle Bu Teaching Hospital in Accra, will entail the year-long monthly monitoring of 125 children with sickle cell disease aged one to 18 years, and 125 non-sickle cell disease children. Explaining the outcome of the study, Ms. Narwortey said, it will help define phenotypic profile of Streptococcus pneumoniae within the carriage reservoir, and also characterise pneumococcal serotype distribution.

“Data generated on antimicrobial resistance trends will feed into effective treatment management. The impact of PCV-13 vaccine on carriage rate and serotype distribution is to inform vaccination policies.”



COLLECTING DATA FROM THE FIELD

The mission of the Navrongo Health Research Centre (NHRC) is to conduct research into major national and international health problems to inform policy for the improvement of healthcare delivery. It carries out this mission by assessing the impact of interventions through field and clinical trials, social and demographic research.

The quality of the human resource base of the Centre is an important determinant of the outcome of its mission to churn out quality research. Therefore, the critical roles and responsibilities played by its team of researchers, scientists, data entry clerks, fieldworkers and other staff members are important to the quality of work carried out by the NHRC.

It is for this reason that fieldwork and data collection are a huge part of the research activities of the Centre. This is because it has to rely on information gathered from the field, study participants and the local communities to churn out accurate measurements and findings into various areas of research studies.

Mr. Thomas Adariya is a research officer who works with the Clinical Science Department of the NHRC. He does a lot of field work. In an interview with the African Media and Malaria Research Network (AMMREN), he paints some real-life situations, responsibilities and challenges. He also touches on the skills he needs to deliver results in the line of duty to ensure that the NHRC fulfils its mission.

Q: What is your typical day like as a fieldworker?

A: I start my day very early in the morning (5am), prepare my field bag by ensuring that my data collection tools are set, and my motor bike is in good condition and ready for the road. Overall, the work is tiring because as a field person, I have to locate every participant in their homes or farms or wherever and collect the necessary information from their parents or caregivers. Sometimes, I could be in the field from 5am to 6pm and not complete my day's schedule. Nonetheless, with experience from the past, I am able to meet timelines.

Q: What type of fieldwork do you do?

A: I monitor data collection activities in the field, collect data, and I also resolve queries resulting from field data. I supervise fieldworkers to ensure data accuracy and completeness.

Q: What types of research activities do your fieldwork feed into?

A: Clinical trials (health research): the current study is investigating the efficacy and safety of malaria vaccine for children.

Q: What types of data and information do you collect?

A: Socio-demographic data of study participants, such as postnatal (vaccination data from infants 6 weeks and above). I also collect data on exposure to environmental hazards, health seeking behavior, signs and symptoms of some diseases and condition such as tuberculosis, malaria, malnutrition etc., including

adverse event of special interest (AESI) and developmental delays in children under-five years.

Q: How large is the area you cover?

A: The study area is zoned into five: South, East, North, West and Central. The communities are identified with these zones. I speak all the two major languages and so, I work in all the zones as and when the need arises.

Q: Can you recount some of the experiences (good and bad ones) that you have had as a field worker?

A: Some good experiences include the willingness of the community to participate in our studies and give out information.

Whenever I am confronted with challenges that have the potentials to distort the work I do, the thinking and approach I employ to avert the



Capturing data in the field

situation adds on to my experiences and gladdens my heart.

It is exciting when the indigenes recount the extent to which the NHRC has impacted them positively since its establishment especially in the area of health. Also, watching them going beyond all odds to express their happiness to the institution by giving us (fieldworkers) what we call field incentives, such as groundnut, beans, tomatoes, onion, eggs etc.

The patience which the community leaders take to inculcate in us their protocols and cultural values so that we do not infringe upon them is really heartwarming.

The bad experiences are the ethical dilemmas. Encountering situations that present ethical dilemmas or clash with personal values has posed challenges for the field team and can be emotionally draining for field workers. Particularly when they feel pressured to compromise their principles to fulfill our objectives.

For instance, during one of my routine interview visits, I arrived at a participant's home only to be informed by the head of the household that I couldn't speak with the respondent that day. They explained that she was undergoing a local treatment and interrupting it for an interview would require restarting the treatment for another three days. However, ultimately, they relented and allowed me to conduct the interview since that day was the scheduled deadline for the visit.

Another is hostile encounters. I sometimes face hostility and danger, especially in conflict zones. Recently, two of our study communities were in conflict which led to the displacement of women and children. This hindered data collection.

Moreover, some hostile family members sometimes obstruct interviews, expressing discontent with the perceived lack of financial benefit from the research, posing recurrent challenges for me and other field workers.

Data loss is also another area. Losing important data during fieldwork due to unforeseen circumstances can significantly hinder the progress of field workers. For instance, during one data collection session, I failed to measure and document the participants' temperature readings, and the community was located a considerable distance away. This oversight left me feeling frustrated and concerned, as I would need to return to gather the missing information.

Since then, I have made it a habit to meticulously document every detail from the field in my diary to prevent such situations from occurring again.

Q: How challenging is your work as a fieldworker?

A: Having to work in environments, such as conflict zones or areas was a serious challenge to me and the entire team.

Another is data. Maintaining the precision and dependability of gathered data is vital, yet it proves to be difficult to uphold data integrity while operating in the field, particularly due to the presence of human error or incomplete information.

Participants cooperation is also a challenge. Encouraging participation and cooperation from study participants can be challenging, as some may be hesitant or reluctant to provide information due to privacy concerns, cultural norms, or other factors. Ethics is a challenge. Maintaining

our usual engagement with the community most especially when issues between us and the community members come up during the course of our regular field activities. These engagements would help to mitigate some of the problems that emanates from our interactions which would enhance our work.

Q: Can you share some of your aspirations?

A: I aspire to make a meaningful difference in the communities I work with by contributing to the health and well-being of the people. I aim to continuously learn and grow professionally by engaging with a variety of individuals within the communities. Additionally, I seek to build strong relationships and mutual respect with community members and colleagues, fostering collaboration with stakeholders. I also aim to influence policy and practice changes that result in long-term benefits for the populations we serve.

Upholding ethical standards in



NHRC motorbikes for fieldwork

ethical standards during data collection, which includes acquiring informed consent and ensuring participant confidentiality, can pose challenges.

Some participants anticipate receiving monetary compensation, food, or other incentives as seen in previous studies. If your study does not offer such benefits, it can be difficult to establish understanding and acceptance among participants.

Q: What do you think would enhance your work?

A: So far so good, but I think if we are able to migrate fully from the paper work to paperless or electronic data collection that would enhance field work. Additionally, we must continue

research and ensuring the reliability of collected data, as well as protecting participants' welfare, are top priorities. I'm eager to deepen my understanding of different cultures and perspectives and contributing to my personal growth.

Q: What more information do you want to put across?

A: Engaging with community members regularly to find solutions that impact their livelihood, and helping them recognize their value in society is rewarding. As a health research institution, we aim to contribute our insights to uncovering and addressing health challenges in our local regions and across the country.



DENGUE FEVER ON THE RADAR

The global incidence of dengue fever has markedly increased over the past two decades, posing a substantial public health challenge, the World Health Organization (WHO) has said.

WHO data showed a ten-fold surge in reported cases worldwide between 2000 -2019 with an increase from 500,000 to 5.2 million. The year 2019 marked an unprecedented peak, with reported instances spreading across 129 countries.

Specifically, in the region of Africa, the WHO said the most affected country in 2023 was Burkina Faso, which experienced a significant increase in dengue fever cases compared with the same periods in 2021 and 2022.

“The burden of dengue in Africa is not well understood due to similarity of common, non-specific clinical symptoms of the disease with malaria and other tropical febrile illnesses,” the WHO added.

The Navrongo Health Research Centre

(NHRC) has been very proactive in carrying out a study on the entomological assessment of the risk of dengue fever transmission in the Kassena-Nankana districts of northern Ghana.

This study is very important because Burkina-Faso is endemic for dengue fever and with the recent outbreak reported in 2023, it puts the Kassena-Nankana districts at an increasing risk of dengue transmission due to its closeness to Burkina Faso. The situation of Burkina-Faso also highlights the need for improved surveillance and monitoring of the disease.

It is therefore gratifying that the NHRC has taken steps to put dengue fever on its radar through a study in some communities in the Kassena-Nankana districts of the Upper East region, which is part of the research centre's study sites. The specific towns which took part in the research were Nogsenia, Paga, Naaga, Gaani, Chiana and Bonia.

Bernice Baako, a Research Officer at the NHRC, said the aim of the study was to

use entomological approaches to assess the risk of dengue fever and also to assess the knowledge, awareness and preventive practices of indigenes towards dengue fever in the districts.

The study started in December 2021 and ended in August 2022. The respondents who took part in the study were over 300, made up of 144 males and 238 females. These respondents came from different backgrounds such as people who have never been to school, others who have benefitted from basic education up to the tertiary level, farmers, traders, government and private sector workers, craftsmen and the unemployed.

Various methods adopted for the study included data collection through the use of questionnaire, larval inspection and molecular identification of dengue virus in sampled *Aedes* mosquitoes.

The study was a cross-sectional entomological survey which used a WHO criterion to assess the risk of dengue transmission. Structured



Administering questionnaires in one of the communities



Larval inspection in abandoned car tyres in Paga

questionnaires were administered to assess the knowledge, awareness and preventive practices of the respondents. The data analyses involved larval indices and logistic regression was used to assess the knowledge and awareness of the respondents. The analysis looked at the distribution of Aedes mosquitoes, the larval indices estimation and assessment of the knowledge and awareness of dengue fever among the respondents.

Two different assessments were used for the study. The assessments looked at the risk of dengue transmission for the rainy season and another for the dry season.

According to Madam Baako, assessing the risk of dengue in both seasons allows policy makers to “better prepare for an outbreak such as enhanced vector control, public awareness and campaigns. It also helps in allocating resources effectively, to ensure that preventive measures are put in place during high peak seasons. Conducting surveillance in both

seasons ensures that early warning systems are developed to allow swift response to potential outbreaks.”

Madam Baako mentioned some of the results and findings from the research and said “most respondents (96.9 %) had a misconception that Aedes bite at night. Aedes mosquitoes bite during the day, before sunset and sunrise. Majority 74.1% did not know what dengue fever was and 73.7% did not know the symptoms associated with dengue.



Inspection of water holding containers

Dengue fever is a mosquito-borne disease transmitted by Aedes mosquitoes. There are different Aedes species but the ones responsible for transmitting dengue fever is Aedes aegypti and Aedes albopictus.

The emergence and resurgence of the disease over the years have been attributed to globalization, urbanization, and population growth. Dengue epidemics tend to have seasonal patterns, with transmission often peaking during and after rainy seasons.



Dignified care for pregnant women and newborns



Alarmed by the stagnation of progress in reducing maternal and child mortality, countries across the world recently passed a critical Resolution at the World Health Assembly and committed to specific actions to prevent deaths of pregnant women, babies and children.

Respectful maternal and newborn care is at the centre of quality health for pregnant women and newborn babies. There is therefore the need to drive this agenda for the survival of these vulnerable groups. Countless stories have been told of pregnant women being mistreated by health workers before, during and after child birth, leaving some of these women with poor health outcomes.

A study, which was conducted in the Ashanti and Western regions reported that two in every three women (65.3%) experience mistreatment.

The Navrongo Health Research Centre (NHRC), in collaboration with MOMENTUM Country and Global Leadership (MCGL-Ghana) and Johns Hopkins Program for International Education in Gynecology and Obstetrics (JHPIEGO) recently conducted a survey to look at some of the root causes of disrespectful maternal and newborn care.

The research was aimed at coming out with some recommendations to improve maternal and child care and enhance Respectful Maternal and Newborn Care (RMNC).

Dr. Raymond Aborigo, Head of Social Science and Public Health Department at the NHRC, said the research was to elucidate the challenges in implementing RMNC in health facilities in Ghana during antenatal, childbirth and the post-natal period from the perspectives of health care professionals and clients.

He said the study took place at the Nadowli-Kaleo and Sissala East districts in the Upper West region and in the Mamprugu-Moagduri and the East Mamprusi districts of the North East region.

Data collection was from April to June, 2023 and various tools such as structured questionnaires, in-depth interview and focus group discussion guides, were used to collect the data.

Data was collected from health care providers, pregnant women attending

antenatal care (ANC), health facility managers, women with small and sick babies, district health management teams, policy makers and civil society organizations.

The study identified some drivers of mistreatment relating to clients to include a lack of courtesy, clients being uncooperative and resisting procedures, not following the clinic's schedule, verbal abuse from women's relatives, women arriving late in labor to the facility and inability to purchase birthing items.

Other drivers related to the service providers and how they handle their clients included shouting or scolding

or charging for oxytocin, even when it is covered by health insurance.

There were other facility-related factors affecting maternal and newborn care which included small delivery rooms and lack of space, no medications and logistics, lack of diagnostics such as scanners and BP apparatus, and staff shortages. Not having a designated location for mothers and relatives to sleep or be near the babies and inadequate staff to provide intensive oversight of newborns were other factors.

The study also brought to light some issues raised by mothers of small and sick newborn babies, which is tied to

Some recommendations from the study included the need for increased availability of medical supplies, drugs and logistics. Involving health workers and communities in the design of interventions and policy including increased staffing at each level of the health system also came up.

According to the WHO, "progress in reducing maternal deaths has stalled since 2016, while survival gains for newborns and young children have lost pace."

Coverage of maternal, newborn and child health services delivered by skilled health workers is high in Ghana and reduction in maternal deaths in Ghana



Workshop held for data collectors of the study

women, slapping or pinching them and neglect. Mistreatment of newborns was framed around the infrastructure issues.

Providers also reported issues relating to workload, fatigue, stress, poor knowledge of how to monitor women in labor and lack of appreciation from supervisors.

Data was also gathered on neglect of duty, ignoring women, playing on phones and not attending to pregnant women when they call for help.

The issue of needless referral or use of referral of pregnant women as punishment also came up. Other issues were service providers asking pregnant women for payment for supplies and services or re-selling of unused IV drips

their ability to be with their babies, sit and rest with these babies in the intensive care unit and be reassured their babies had enough nurses to care for them.

Though majority of women reported being treated with respect during childbirth, a large number also experienced at least one form of abuse, suggesting that mistreatment is still an issue.

However, the study also shows that health care providers felt respected at their job by colleagues due to their passion for the job and competencies and that when the provider ensures that quality care is provided it results in respect from the clients.

has been attributed to the continuous rise in facility-based deliveries. However, there are still some concerns that this success is likely to stagnate or even decline if mistreatment during labor and delivery is not checked.

The Ministry of Health and health facilities have established accountability mechanisms for women to provide feedback on providers. But monitoring of respectful maternal and newborn care remains a challenge and more has to be done to address this comprehensively.

Ultimately, the vision is to have a health system where all women, newborns and their families have access to high quality, respectful and dignified care delivered by motivated staff in well-resourced facilities in Ghana by 2030.

Building Sustained Partnerships for Health Research

Navrongo Health Research Centre (NHRC), CKT-UTAS and the Arnhold Institute for Global Health at the Icahn School of Medicine at Mount Sinai in collaborative meetings aimed at advancing research, healthcare delivery and education in the sub-region and Ghana at large



Bridging Science and Tradition

The NHRC held community engagement with chiefs, sub-chiefs, and community elders to share and discuss recent research findings, fostering mutual understanding and support for health initiatives within the community



Inspiring future scientists

Students from Bolgatanga Technical School toured the NHRC laboratory, gaining hands-on insights into health research and laboratory science at the Centre



Disseminating research results through songs

During a community engagement event, the NHRC collaborated with local women who composed and performed songs to raise awareness about genomics. This is to make complex scientific concepts accessible and relatable for the community



Supporting Innovations for Health Research

Integrating Innovative data collection tools (VULA APP) into research activities to enable data collectors securely refer participants to healthcare specialists



Building research capacity

The NHRC trained regional research teams to conduct policy-informing research, equipping them with the skills needed to generate evidence that drives impactful health policy changes



Global health collaboration

The Director of NHRC, with two Senior Research Fellows, participating in a collaborative conference at the Arnold Institute of Global Health, Icahn School of Medicine at Mount Sinai, New York, USA, fostering partnerships and knowledge exchange in global health research



Sharing knowledge for impact

Highlights from the NHRC 2024 Annual Health Review Meeting, where researchers presented key findings to advance public health and inform community-driven solutions





COMMUNITY-BASED PARTICIPATORY RESEARCH

The Kalveo community, which has a landscape made up of mud structures, thatched huts and sparsely roofed houses, is a rural area located in the Kassena-Nankana West district of the Upper East Region. Against this rural setting, is a contrasting and striking newly-constructed Kalveo Community-Based Health Planning and Services (CHPS) compound, with its bold letters proudly announcing this vital resource for the community.

As one of many underserved areas in the region lacking essential amenities, the Kalveo community primarily relies on this CHPS compound for their primary healthcare needs. The nearest higher-level health facility is located in Chiana, a journey of more than forty-five minutes by car - a distance that underscores the importance of accessible healthcare in such remote areas.

The CHPS concept uses community-based nurses, volunteers and community mobilization to assist people to access basic health intervention, health promotion and prevention. This is done by the establishment of a basic structure



A community Engagement with the Chief and Elders of the Paga Paramourty

known as a CHPS compound with accommodation for community health workers and a service delivery point, where health care can be dispensed, locally.

The CHPS initiative originated from the Navrongo Health Research Centre (NHRC). Since then, this initiative has been institutionalized and CHPS compounds are currently serving as the backbone of the

primary healthcare system in Ghana delivering essential health services directly to local communities in all the 16 regions and in areas such as Kalveo, ensuring that even those in far-to-reach places have access to basic healthcare.

The NHRC has long been a pivotal institution in advancing health research and improving public health outcomes locally and globally. Some

of its notable contributions are the Vitamin A Supplementation (VASS) Trial and the bed net interventions that have over the years served as effective tools for public health interventions in the country and beyond.

Community Matters

The NHRC could not have succeeded in its research work without its close ties with the local community. Central to the NHRC research work is the engagement of the leaders and residents of the Kassena-Nankana traditional area, where the Centre

operates from. Indeed, the engagement of leaders and residents of this traditional area is the cornerstone of the NHRC's research endeavors. outcomes for local residents. Community engagement is important in ensuring that any research that the NHRC conducts is relevant, culturally sensitive, and beneficial to the community and this begins with building trust and mutual respect.

The NHRC has established a framework that prioritizes open dialogue and transparency in its research endeavours and this involves regular meetings with community leaders to create platforms for discussing upcoming research projects, addressing

“These people do not cause harm. They only bring development. If you give consent for your child, it brings good health. For that reason, parents like me are always ready to give them the go ahead for children to participate,” she explained.

The NHRC approach has been to involve leaders from the onset of any research to ensure that the research questions address relevant health issues and that the methods are respectful of local customs and practices. This collaborative process has been crucial in overcoming



Disseminating results of the Bongo Malaria Reservoir study to the people of Bongo

operates from. Indeed, the engagement of leaders and residents of this traditional area is the cornerstone of the NHRC's research endeavors.

Through building trust, fostering participation, and ensuring cultural sensitivity, the NHRC has created a model of community-based research that is participatory and both impactful and sustainable.

This collaborative approach not only advances scientific knowledge but also improves health outcomes and empowers communities like Kalveo, thus paving the way for a healthier future among local communities. For instance, by actively participating in the research activities of the NHRC, Kalveo is at the forefront of efforts to improve basic healthcare delivery in this part of Ghana, embodying a commitment to transforming health

concerns, and incorporating local knowledge and perspectives.

This inclusive approach ensures that research initiatives are not only scientifically sound but also culturally appropriate and ethically conducted. This is because community leaders play a vital role as mediators and advocates. Their endorsement of research projects enhances community buy-in and participation.

Through these community engagements, people such as Vida Awonsina, a resident of Nabango, have developed a positive perception about the NHRC. She is one of the many residents who are more than willing to give parental consent to enable their children serve as study participants in the research work of the Centre.

potential barriers and skepticism towards research activities.

One approach in engaging the community has been through organising what is known as a “durbar of chiefs” where the Centre engages all the paramount chiefs and sub - chiefs on the Centre's research activities.

“My community owes a lot due to the assistance they have been receiving from the NHRC. The Centre involves us before the inception of any research project they intend to undertake, by telling us about the project before it starts,” a sub-chief said during one such durbar of chiefs.

Another approach in community engagement that has worked well for the NHRC over the years, is the



By fostering strong community relationships and building local capacity, the NHRC ensures that the benefits of research extend beyond the duration of individual projects

involvement of residents as fieldworkers and community key informants in their research activities. This empowers the community and fosters a sense of ownership of the NHRC's research processes and activities. It also builds local capacity and creates in community members a sense of engagement and involvement in what concerns their health.

This is why the paramount chief of the Navrongo traditional area, Pe Aneakwoa Asagepaare II, commended the Centre saying "I think that when it comes to research, the NHRC has done well. Tests that are conducted in reputable research Centres, such as Noguchi can also be done at the NHRC. I am only praying that there will be a vaccine from this Centre that will serve the whole of Ghana and the world at large."

Impact and Sustainability

The impact of engaging the Kassena-Nankana community in research endeavors is evident in the numerous public health successes attributed to the NHRC. This is manifested in its policy informing studies on malaria prevention and control to maternal and child health interventions.

No doubt, the local collaborative efforts between the NHRC and the traditional and local community have yielded tangible health benefits for the communities.

Sustainability is a key focus of the NHRC's engagement strategy. By fostering strong community relationships and building local capacity, the NHRC ensures that the benefits of research extend beyond the duration of individual projects.

Similarly, community-led initiatives, supported by the NHRC, continue to address health challenges and promote well-being long after the research has concluded.

Building on these successes and looking into the future, the NHRC aims to deepen its engagement with the Kassena-Nankana community by expanding the scope of its research to address emerging health issues and leveraging on technological advancements to enhance data collection and analysis.

The Centre is fast rolling out the Health and Demographic Surveillance System (HDSS) Explorer application to enable electronic capturing of real time health and demographic data which will facilitate decision making and equitable health policy formulation to improve public health outcomes for the communities.

The NHRC is also committed to further strengthening the capacity of local health systems and supporting community-driven health initiatives.



“No doubt, the local collaborative efforts between the NHRC and the traditional and local community have yielded tangible health benefits for the communities.”

Leveraging on Religion to Advance Quality Health Care

An innovative study recently conducted by the Navrongo Health Research Centre (NHRC) bringing science, medicine and religion together, appears to hold a huge potential for containing chronic diseases and promoting healthy lifestyles among local communities.

It also has an added promise of strengthening Ghana's primary health care system and accelerating the march towards universal health coverage, if the outcome of the study is adopted, scaled up and institutionalized.

The study is known as "the scalability of a faith-based centre model to improve uptake of screening services for hypertension and diabetes in rural Kassena-Nankana districts of Northern Ghana."

The research looked at exploring the feasibility of using faith-based centres to screen for and refer persons with suspected hypertension and type II diabetes (T2D) to the health care system.

The study participants were adult females and males who were 18 years and above and were members of faith-based centres. The project, conducted in 2023, was sponsored by the European Commission through partners from the Leicester University.

Dr. Engelbert Nonterah, Senior Epidemiologist at the NHRC, in an interview, stated that "the study is against the backdrop that religion plays a central role in the Ghanaian community. We have instances where people listen more to their pastors or religious leaders than they would their healthcare professionals."

"A second motivation is the fact that Ghana is implementing the Network of Practice (NoP) which seeks to strengthen the primary health care system to improve health care delivery.

Under the NoP, the health centre serves as a spoke which receives referral from spokes, made up of the community-based health planning and services (CHPS) compounds, community pharmacists, maternity homes, market clinics etc. This interconnection provided by the NoP is one of the strategies of the Ghana Health Service (GHS) to achieve universal health coverage in the country by 2030.

The NoP model is in the form of a hub serving as spokes connecting the district hospital administratively and clinically to a group of public, private and faith-based health facilities to offer holistic essential



Dr. Engelbert Nonterah, Epidemiologist at the NHRC

healthcare services.

Dr. Nonterah provided some more reason for the study and said "it is also believed that we could leverage church grouping as a strong social support network to help persons with chronic disease."

The study is to demonstrate that faith-based centres could use medical screening as a means to expand on screening services and improve linkage to the healthcare system.

"Hence the cases that will be picked by these screening services can be linked to the hubs under the NoP flagship programme of the GHS. It also generates the much-needed evidence on exploring the contribution of faith centres in promoting healthcare instead of the negative impacts currently witnessed," Dr. Nonterah explained.

He said, as part of the study, there was a community asset mapping to identify potential assets that could facilitate the screening and

management of hypertension, adding that "based on the asset mapping, we identified the various faith centres and categorized them into Christian, Muslim, tradition or healing centres."

"We further engaged faith leaders and members of the faith centres to identify their willingness to engage in

screening and referral of patients to health facilities. As part of this, we identified the existence of church groups, health workers and other opportunities that could aid us to execute this project."

He said a critical component of the study was health promotion and added that "we assessed the views of

faith leaders on their willingness to deliver health promotion messages as well as sought theory views on the content and time to be spent on the messages they'd want to deliver."

Dr. Nonterah explained that following the formative work, "we embarked on medical screening exercise for members of the selected faith centres and those with suspected hypertension and T2D were referred to either CHPS compounds, health centres or the district hospital and were mainly based on proximity or their preference or usual place of care." He said that a further exit counseling session was given to those who were not suspected of having the conditions of interest.

"Overall, we managed to conduct formative work including community asset mapping, conduct medical screening and linked patients to care as well as a nested prospective longitudinal follow-up of patients with hypertension and T2D for a period of 3 months."

"This was to assess proportion linked to care, proportion put on treatment, proportion who achieved control and proportion of patients retained in care, up to the third month."

Dr. Nonterah said since the study was a population-based screening, "we did not exclude anyone based on any pre-existing conditions, hence we at the end, were able to compute

“ we embarked on medical screening exercise for members of the selected faith centres and those with suspected hypertension ... ”

prevalence and incidence of the diseases of interest, which are hypertension and diabetes."

The study has been completed and a few publications have resulted from it. According to Dr. Nonterah, "the result of the study not only confirm the hypothesis that faith-based and faith-placed interventions have the



Larabanga Mosque

potential of expanding screening services and linkage to care, but it also highlights the need to explore non-health system approaches to dealing with chronic diseases.”

He shared some proposals and recommendations from the research, saying interventions should aim at empowering faith-based leaders with health promotion messages that could be shared among congregation members during services.

“I would also recommend that the GHS explores the possibility of engaging with faith-based centres to use medical screening exercises as a means to pick up new cases especially in the face of increasing unawareness levels of chronic diseases among the population.”

He said faith leaders should be trained on behavior activation as a powerful counseling tool that would help in reducing cardiovascular disease risk factor such as smoking, physical inactivity, poor diet, and

chronic diseases are on the rise with a lot of premature deaths due to cardiovascular diseases in people aged between 35-75 years.

harmful alcohol use, among others, which are a burden among persons with hypertension and T2D.

Asked if the study could inform policy, Dr. Nonterah said “indeed, demonstrating that this works is the first step in translating the findings to policy. The major obstacle in translating results into policy has always been funding.”

“However, the findings from the community asset mapping indicates that there are already existing

resources that could be leveraged on to implement this work. I therefore recommend that the health system should embrace this, engage in further discussions with the faith-based leaders and definitely the implementation bottlenecks will be identified and the relevant solutions applied.”

“Another low hanging fruit in translating this to policy is to craft a policy document that recognizes ongoing medical screening activities usually conducted by faith-based centres.”

He said there should also be pathways for linkages to care and data collection into the district health information management system, (DHIMS2). This would create a clear pathway for the continuous surveillance and immediate and long-term monitoring for impact.

Dr. Nonterah noted that chronic diseases are on the rise with a lot of premature deaths due to cardiovascular diseases in people aged between 35-75years.

He said coupled with these scary and alarming data is the fact that there is a high level of lack of awareness among people at risk.

“For instance, hypertension is the single commonest risk factor for strokes and peripheral vascular diseases. However, many people are walking around with hypertension without knowing it. I will therefore urge everyone to try and check their blood pressure at least once in a month.”

He suggested that the National Health Insurance Scheme should plan on having free medical checkup for every subscriber at least once a year, on their birthdays.

“This will definitely raise the culture of medical checkup and increase our likelihood of picking up cases in the population for prompt management, ultimately reducing long-term disability and premature deaths.”





NOT BUSINESS AS USUAL

The health workforce is the cornerstone of every health system and is critical to the provision of quality healthcare services.

The global strategy on human resources for health (HRH) underscores that health systems can function very well if they have sufficient, well-trained, motivated and fairly distributed health professionals.

However, shortage of health workers remains a global challenge and a critical public health problem in many countries especially in less developed countries including Ghana.

The attrition of health workers has become a front burner issue. The push and pull factors responsible for this are becoming more difficult to handle and this could become worse if nothing is done immediately.

This is because health workers are on

the lookout for enhanced employment opportunities, better salaries and upgrading their skills, among other issues. All these challenges are creating the shortage of a qualified health workforce and weakening the ability of health systems to deliver quality healthcare, especially in rural areas.

Ghana, like many sub-Saharan African countries, has the distribution of health personnel skewed towards the urban areas despite the high level of mortality and morbidity reported in rural areas.

Again, despite the high healthcare needs in rural regions, it is a challenge for health managers to attract and retain healthcare professionals in these regions including the Upper East region of Ghana.

Available data, for instance, showed that a total of 186 health professionals left the Upper East region in 2022 alone and many more were pushing

for transfer to leave. This sad development according to health managers is greatly affecting healthcare in the region.

It is in this direction that a study was conducted by the Navrongo Health Research Centre (NHRC) to explore factors contributing to the issue of health worker attrition in the Upper East region of Northern Ghana.

The study took place in eight districts of the Upper East region, namely: Bolgatanga Municipality, Talensi District, Bongo District, Bolgatanga East District, and the Kassena-Nankana Municipality. The rest were Builsa North, Bongo and Kassena-Nankana West districts.

Dr. Samuel Tamti Chatio, Senior Research Fellow at the NHRC, who led the research, said the study employed qualitative research approach of data collection and analysis.



Dr. Samuel Chatio, Senior Research Fellow at the NHRC

He added that in-depth interviews were conducted with health workers and managers working in the region and those who left the region prior to the implementation of the study.

According to Dr. Chatio, results from the study showed that a good number of participants agreed that health

members were identified as key factors contributing to health worker attrition in the region.

The findings further revealed that lack of respect and appreciation from health managers in the region, poor working conditions and lack of motivation also contributed greatly to health worker attrition.

“ The findings further revealed that lack of respect and appreciation from health managers in the region, poor working conditions and lack of motivation also contributed greatly to health worker attrition. ”

worker attrition in the Upper East region was a serious issue, contributing negatively to health service delivery in the area.

The difficulty of health workers obtaining study leave for further studies, administrative lapses such as delays in processing promotion documents and unfavourable policies, inadequate medical equipment and logistics, as well as the desire of some health workers to be closer to a spouse or family

To deal with the situation, which demands urgency, the study recommended various strategies such as improvement of health worker motivation through rural allowances and annual awards to hard working staff, approval of study leave for qualified health staff, provision of basic and necessary medical equipment and logistics as well as health managers showing respect and appreciation to junior colleagues.

The study concluded that health worker attrition in the region was a serious problem affecting health service delivery.

Dr. Chatio and his research team reiterated the need for health managers to take urgent but appropriate strategies including those recommended in this study towards addressing the issue of health worker attrition in the Upper East region.



SDG 3: GOOD HEALTH AND WELL-BEING:

This goal focuses on ensuring healthy lives and promoting well-being for all, at all ages.

For children, this includes reducing mortality rates, improving maternal and child health, and addressing malnutrition.



Mental Health Support for Young People

Mental health issues have increased significantly among young adults over the last decade, prompting more research into appropriate interventions to treat those suffering from depression and anxiety.

One of such studies is a collaboration between the Navrongo Health Research Centre (NHRC), University of Ghana, the University of Zimbabwe and King's College, London, in what is known as the Youth in Mind (Y-Mind) Project.

The Y-Mind Project focuses on working with the youth and caregivers to adapt and test a stepped care intervention for youth with depression and anxiety, tailored to the needs of communities in Ghana, Zimbabwe and Malawi.

A stepped care approach is a system of delivering and monitoring mental health treatment so that the most effective, yet least resource intensive treatment is delivered. It also involves providing person-centred care that moves from a provider driven approach to a system designed with and for individuals with mental care needs.

Based on country priorities and context, the researchers will shape the intervention in Ghana for those aged

15-18 enrolled in Ghana's free senior high school system, and in Zimbabwe for youth aged 15-24 in schools, colleges, community health settings, including places for sexual health services.

In Ghana, the researchers will evaluate the feasibility, acceptability, and fidelity as well as potential clinical impact of the intervention. Capacity building is also a key component of the project.

The Principal Investigators for the study are Prof. Melanie Abass of King's College, London and Prof. Dixon Chibanda of the University of Zimbabwe.

Prof. Benedict Weobong of the University of Ghana and Dr. Moses Kumwenda of Kamuzu University of Health Sciences are the project lead investigators in Ghana and Zimbabwe, respectively. Dr. Raymond Aborigo, Head of Social and Public Health Department, is the project lead at the Navrongo Health Research Centre (NHRC), the implementing site.

According to Miss Edith Dambayi, a Research Officer with the Social Science Department at the NHRC, there are cost-effective treatments for depression and anxiety, but they are rarely available in low and middle-income countries (LMICs). She also mentioned that psychotherapy has been proven effective in helping people suffering from depression.

The project focuses on adolescents in Senior High Schools with depression, in order to gather information for the intervention. The study conducted formative research to understand adolescents' perceptions of depression, the symptoms, and causes.

Results from the formative work revealed that, at the individual level, issues such as drug and alcohol use, fear, body image concerns, stress, and trauma are triggers of depression.

“
The Y-Mind Project focuses on working with the youth and caregivers to adapt and test a stepped care intervention ...
”

Other individual problems include loneliness, low self-esteem, and worrying about others.

Academic pressure and challenges at home, such as broken families, lack of parental support, physical and emotional abuse, including denial of food, were also identified. Others were financial difficulties, along with interpersonal issues like teenage pregnancy, peer influence, bereavement, bullying, romantic relationships, and discrimination.

Some of the symptoms mentioned were behavioral problems, such as isolation, insomnia, sleeping too much, mood swings, talking to oneself, and crying. Other symptoms included over

traditional healers play a role in providing mental health care.

Formal care includes health education, medication, and talk therapy, while informal care involves advice, singing, storytelling, food, spiritual support, and assistance with health appointments.

According to the researcher, after engaging with the students, they expressed a preference for school guidance and counseling coordinators, as well as school nurses as interventionists.

They also suggested that their peers, especially prefects and student leaders could also play a role in the implementation of the intervention.

structure to support the intervention.

While the youth preferred school health professionals and guidance and counseling coordinators to counsel them, the study recommended that parents should collaborate with their children as part of the treatment by attending meetings at the school.

The youth also preferred having the counselling sessions in the afternoons, on weekends, and after classes on school premises, particularly in the counselors' offices, provided privacy is maintained.

Speaking about the study's findings, Miss Dambayi said that for the intervention to be relevant, it should motivate young people through



Y-Mind project activity

thinking, hallucinations, an inability to concentrate, and suicidal thoughts.

Physical symptoms like weight loss or gain, fainting, lack of energy, headaches, high blood pressure, and body pains were also reported.

Miss Dambayi mentioned that mental health care in the two Kassena-Nankana districts is provided by psychiatric nurses and severe cases referred to the Presbyterian Hospital in Bolgatanga.

In the school setting, school nurses and guidance and counseling coordinators provide counseling for students suffering from depression. She also noted that faith-based healers and

In terms of gender, girls preferred female interventionists, as they felt more comfortable discussing female-centred problems, such as pregnancy and menstruation, with them. They also preferred in-person, one-on-one interactions rather than group settings, mainly due to concerns about privacy.

The qualitative interviews in Ghana and Zimbabwe revealed the complex interplay of societal, familial, and individual factors contributing to depression among young people.

The study recommended that interventions focus on effective guidance and counseling, as well as visual and audio materials to raise awareness of the intervention. It also called for infra-

incentives, and rewards when they come for talk therapy with the interventionist. Additionally, she mentioned that the interventionist should be friendly and maintain privacy and confidentiality.

The project should raise awareness of mental health and involve enjoyable activities like sports and music. Positive activities, such as interaction with family and friends, and cooking, were also suggested.

“Psychoeducation is beneficial because it encourages help-seeking, helps identify young people with mental health issues, and provides education and awareness,” said the researcher.



PROVIDING VALUABLE DATA TO REDUCE MENINGITIS

Efforts have been made to curb outbreaks of pneumococcal and meningococcal meningitis through the introduction of vaccines. However, bacterial meningitis continues to remain a huge burden with high mortalities ranging up to 54%.

Recently, the Ghana Health Service (GHS) reported cases of meningitis in the Upper West region of Ghana which resulted in mortality. This same region has also been a chronic site for meningitis outbreaks and, to a large extent, there is lack of surveillance data on circulating meningial pathogens within the carriage reservoir.

Despite the introduction of the Pneumococcal Conjugate Vaccine (PCV-13) and MenAfriVac into the Expanded Programme on Immunization (EPI), which has resulted significantly in the reduction of meningitis, these pathogens persist and continue to cause outbreaks.

In view of these, there is need for comprehensive studies into the carriage dynamics to describe the carriage patterns in such meningitis-prone or endemic regions. This is important because characterizing carriage state after reported cases of meningitis can identify reservoirs of transmission and potential infections.

It is in the light of these that a study on meningitis being undertaken by the Navrongo Health Research Centre (NHRC) is so critical. The study is focused on understanding the persistent carriage of two major bacterial pathogens, *Streptococcus pneumoniae* and *Neisseria meningitidis*, in the Upper West Region of Ghana.

The study is conducting carriage studies among school-going children and individuals who are in close contact with them. This population is being studied because recent outbreaks of meningitis affected individuals aged 12 to 19 years.



Dr. Patrick Ansah,
Director of the NHRC

The aim is to gain understanding into the dynamics of bacterial carriage, which is crucial as carriage is a precursor for disease.

Dr. Patrick Ansah, Director of the NHRC, in an interview said the study would investigate the prevalence of *S. pneumoniae* and *N. meningitidis* in the region, identify the serogroups and serotypes in circulation and their antimicrobial susceptibility profile.

“Through this study, we aim to characterize the carriage state of these bacteria in a meningitis-prone region and explore the risk factors associated with carriage and transmission. This study will provide valuable epidemiological data to inform public health strategies, helping to reduce the incidence of future outbreaks,” he explained.

The study is therefore seeking to investigate the prevalence and risk factors, serogroup distribution and antimicrobial resistance patterns of bacterial meningitis pathogens among the population following reported cases of meningitis in the Upper West region. The study population include students and educational workers from selected

and the remaining activities for the study are expected to conclude soon.

Dr. Ansah threw light on the study site and said “samples were taken in the Upper West region of Ghana. It is bordered on the south by the Northern and Savannah regions, to the north and west by Burkina Faso and to the east by the Upper East Region. The climate is tropical with an average minimum temperature of 22.6°C and a maximum of 40.0°C.”

“There is one rainy season from May - October with an intensity of 100 - 115 cm/annum with humidity ranging between 70% - 90%, falling to 20% in the dry season. During this time from

“No significant difference in carriage was seen among districts, regardless of whether cases had been recorded. Majority of the serotypes seen were non-vaccine types (55.3%) while vaccine-types constituted 44.7%. Out of the observed vaccine-types, serotype 3 (13.7) was the most prevalent. Notably, 12 out of the 13 serotypes targeted by PCV-13 were present in the study participants except for 6B.”

He added that “in addition, four isolates were susceptible to all antibiotics used. The remaining were either resistant to one or more of the antibiotics. The highest form of susceptibility was observed for erythromycin (81.2%) while high resistance was observed against Sulfamethazole (92.6%). Multidrug resistance was extremely high (60.2%) among the population.”

According to him, based on the findings of the study, several recommendations can be made to improve public health.

“First, robust surveillance systems should be implemented to monitor carriage rates and the various strains in circulation especially among unvaccinated population as carriage is a prerequisite to infection. Additionally, public education is crucial to raise awareness on the importance of vaccination and the risk factors that are strongly associated with carriage and potential outbreaks.”

“Lastly, antimicrobial stewardship programmes should be encouraged to mitigate antibiotic resistance, emphasizing prescription before use,” Dr. Ansah added.

He noted how the research findings can inform policy or practice and said “the persistent carriage of vaccine serotypes among the population despite vaccination efforts is of a great concern, and this underscores the need to revise vaccination policies to target high risk populations. Also, surveillance systems are needed to enable early detections to implement preventive measures.”



Molecular Analysis of Collected Samples

districts in the region. The districts are Jirapa, Nadowli, Nandom, Wa West and Wa Municipal which had reported confirmed cases of meningitis caused by the pneumococcus.

Additionally, individuals from Wa East and Sisala West districts where there were no confirmed cases were selected for comparison. This study population was chosen because most reported cases in this outbreak occurred among children of school-going age.

The study began in March 2024. Enrolment activities, and bacteriologic isolations and identifications of *S. pneumoniae* have been completed. Currently, molecular analysis is ongoing

November to March, the cold dry and dusty wind, the harmattan, blows from the Northeast across the region. It is this period from November to March that the region is most prone to outbreaks of cerebrospinal meningitis,” he explained.

The study has not been completed but currently enrolment activities have ended and ongoing activities include molecular analysis and final data analysis. All activities on the study are expected to end soon with a full report.

Dr. Ansah said the study revealed a pneumococcal carriage rate of 21.5% among the population, with the highest carriage seen among the 5-9-year age group and lowest among the 15+ year age group.

Significant Step in Data Collection

Data collection is the fuel that drives the research activities of the Navrongo Health Research Centre (NHRC). It plays a critical role in providing accurate and timely research information which has helped the Centre to contribute to health outcomes locally, nationally and at the global level.

A notable achievement at the NHRC is electronic data capture (EDC), that has significantly improved the data collection process in more ways than one.

The Navrongo Health and Demographic Surveillance System (NHDSS) which relied on paper-based data collection, using labour-intensive processes for data entry, has since July 2024, been upgraded to EDC.

According to Peter Wontuo, Head of Data Science Department, the transition to EDC has significantly improved data collection processes in several ways.

“In terms of validation and feedback, the EDC system provides immediate validation of data as it is entered. Fieldworkers receive on-the-spot feedback, allowing them to correct any errors or missing information instantly. This reduces inaccuracies and ensures that the data adheres to predefined standards, resulting in higher quality data,” he explained.



Peter Wontuo,
Head of Data Science Department

“The system minimizes the chances of errors that were more common in the paper-based method. Fieldworkers can rectify issues while still in the field, ensuring that the dataset is accurate, complete, and of high quality. This reduces the time lost in post-collection corrections and improves overall data integrity.”

The researcher said the EDC application allows for offline data entry, which

is crucial in areas with limited or no internet connectivity. Fieldworkers can continue to gather data in remote locations without interruption and sync it later when a connection is available.

He said the GPS tracking and mapping features capture GPS coordination even when offline, enabling accurate location data to be recorded, which was difficult to achieve with the paper-based system, adding that this capability opens doors to geo-related interventions within research, allowing for location-based analysis and targeted public health initiatives based on spatial data.

“Although the initial cost of purchasing tablets is high, it proves to be a cost-effective solution in the long term. EDC eliminates the need for printing and transporting paper forms, saving money and reducing the environmental impact. Additionally, the time-consuming process of transferring paper data to digital formats is removed, streamlining the overall workflow and reducing the time needed to finalize datasets,” said Mr. Wontuo.

Feedback from the specialists using EDC indicate that the system has enhanced the NHRC's ability to fulfill its mission of improving health outcomes and influencing policy by ensuring more accurate and reliable data through real-time validation.

“ EDC eliminates the need for printing and transporting paper forms, saving money and reducing the environmental impact ”



Training field staff on the electronic data capture system

The NHRC is primed to produce high-quality research that informs both national and international health policies. The system also accelerates data collection and analysis, allowing NHRC to deliver timely insights that can quickly impact health interventions and policy decisions.

“Features such as GPS tracking and offline data collection, support comprehensive demographic and social research in remote areas, which is essential for conducting effective community and clinical trials,” said the researcher.

The decreased reliance on paper and the time savings result in lowering overall cost and increases resource efficiency. This allows the NHRC to allocate its resources more effectively while continuing to pursue large-scale research initiatives.

“EDC strengthens NHRC’s capacity to tackle major health problems and assess the impact of interventions, moving the Centre closer to its vision of becoming a leader in health and demographic research,” according to Mr. Wontuo.

He mentioned the innovative ways adopted for the HDSS work to be more efficient.

“Features such as GPS tracking and offline data collection, support comprehensive demographic and social research in remote areas, which is essential for conducting effective community and clinical trials,”

“Mobile devices and tablets are increasingly used for real-time data entry and syncing to central databases. The geographic information systems (GIS) help track spatial data on health, environmental, and demographic changes, while interactive dashboards allow for real-time monitoring and visualization of trends, improving decision-making.”

Mr. Wontuo explained that machine learning and predictive analytics are being used to forecast health trends and identify areas requiring intervention.

He said the NHRC also oversees another demographic surveillance system (DSS) site in Builsa, which has been utilizing an electronic data capture system since 2018.



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ABOUT AMMREN

The African Media and Malaria Research Network (AMMREN) is a registered non-governmental organisation made up of African journalists and scientists working together towards the control and elimination of malaria. Established in 2006, AMMREN is based in Accra, Ghana. AMMREN is a network of people working together to end malaria and other diseases in Africa.

AMMREN has over the past 17 years been actively involved in media advocacy for the elimination of malaria and other diseases on the African continent. AMMREN started with chapters in 10 African countries, namely, Burkina Faso, Gabon, Ghana, Kenya, Malawi, Mozambique, Nigeria, Senegal, Tanzania and The Gambia, with over 300 members currently on its database across Africa. The network is now open to all active journalists in mainstream media, freelancers and online journalists.

AMMREN is the only media network that worked closely with scientists and researchers who carried out the RTS,S malaria vaccine trial in 11 sites in seven African countries. Several documentaries and magazines were produced on the malaria vaccine.

MAGAZINE PRODUCTION

