

# ANNUAL REPORT 2022



THE FOREMOST  
**RESEARCH INSTITUTE**  
IN NIGERIA



**NIGERIAN INSTITUTE  
OF MEDICAL RESEARCH**

**2022**

**ANNUAL REPORT**









Prof. Babatunde Lawal Salako, FAS  
Director-General/CEO

Edited by:  
Kadiri, B.N.A. (Mrs.)



Compiled by:  
Annual Report Committee, Planning Department.  
Iwegbu R.N. (Mr.)  
Ako-Okoli N.A. (Mrs.)  
Charles G.A. (Mrs.)  
Edosomwan E. (Ms.)



Design & Layout:  
Library & Information Communication Technology Department



Appreciations to Prof. Olaoluwa P. Akinwale & Dr. Agatha N. David for proofreading the NIMR 2022 Annual Report.



 All Rights Reserved 2022  
© Nigerian Institute of Medical Research  
 6, Edmund Crescent, off Murtala Mohammed Way,  
 P.M.B. 2013, Yaba, Lagos.  
 + 234 909 213 3886  
annualreportnimr@nimr.gov.ng  
www.nimr.gov.ng

#### BRANCH OFFICES

 Abuja  
 Nigerian Institute of Medical Research, Terrace Duplex  
Block 7, Flat 1, Bida Street, Area 2, Garki, Abuja, FCT  
+234 912 976 2872

 Maiduguri  
Km 5, Gamboru/Ngala Road,  
 Gate II, Lake Chad Research Institute Compound,  
P.M.B 1293, Maiduguri, Borno State  
+234 812 637 5982  
+234 803 367 2057

 Kainji  
Nigerian Institute of Medical Research,  
Kainji Outstation,  
 c/o Nigerian Freshwater Fisheries Research Institute  
P.M.B. 6006, New Bussa, Niger State  
+234 703 086 0873  
+234 805 795 8957

Asaba  
 Nigerian Institute of Medical Research,  
Asaba Outstation,  
 Plot 13, Block III, Phase IV, Core Area, Asaba, Delta State,  
+234 803 430 1188  
+234 803 507 2603



# TABLE OF CONTENTS

	Pages
Director-General's Foreword	8-11
Who We Are	12
Vision, Mission & Core Values	13
Our Organogram	14
Research Advisory Board Members	15
Principal Officers of the Institute	16
Senior Management & Finance Committee	17
2022-2026 Strategic Objectives	18
<b>Research Departments</b>	
Biochemistry & Nutrition	19-26
Clinical Sciences	27-37
Microbiology	38-44
Molecular Biology & Biotechnology	45-50
Public Health & Epidemiology	51-59
<b>Research Support Departments &amp; Units</b>	
Administration Department	60-63
Central Research Laboratory Unit	64-73
Clinical Diagnostics Department	74-77
Corporate Marketing & Communication Unit	78-79
Finance & Accounts Department	80-81
Grants, Monitoring & Evaluation Unit	82-89
Internal Audit Unit	90-92
Institutional Review Board (IRB) Unit	93-94
Library & Information Communication Technology Department	95-96
Planning Department	97-99
Procurement Unit	100-104
Research, Innovation & Product Development (RIND) Unit	105-113
Works & Maintenance Department	114-119
Publications	120-135
Photospeak	136-140
Collaborations	141





His Excellency  
**Muhammadu Buhari, GCFR**  
President, Commander-In-Chief of the Armed Forces  
Federal Republic of Nigeria







**Dr. E. Osagie Ehanire, MD, FWACS**  
Honourable Minister  
Federal Ministry of Health







**Hon. Ekumankama Joseph**  
Honourable Minister of State  
Federal Ministry of Health







**Prof. Babatunde Lawal Salako, FAS**  
Director-General/Chief Executive Officer  
Nigerian Institute of Medical Research





# DIRECTOR-GENERAL'S FOREWORD

The Nigerian Institute of Medical Research began the year 2022 with full research, laboratory, and other health sciences related activities on a good footing and ended on a very high and impressive note. The year was particularly engaging as the Institute's 5-year Strategic Plan (2022–2026) was the roadmap for the Institute's operations. The 2022–2026 Strategic Plan enabled the Institute to remain focused on its key mandate to improve the health status of Nigerians through quality research and development. It is also meant to guide the Institute appropriately in responding to the health research priorities of Nigeria as a contribution to the transformation agenda as it relates to research and health of the Federal Government for national development.

The Institute continued to improve on implementing its mandate to conduct research into diseases of public health importance in Nigeria. Among the funded projects are the Study on Safety and Antimicrobial Resistance of Mass Administration of Azithromycin in Children 1-11 months (SARMAAN), Integration of Hypertension Management into HIV care in Nigeria: A Task Strengthening Strategy (TASSH), the HPLC Analysis of the Quality of Artemisinin Combination Therapy (ACT) medicines in Nigeria: Malaria Omic correlates of Artemisinin-based therapy resistance in Nigeria, International epidemiology Databases to Evaluate AIDS (IeDEA), Safety & Immunogenicity of Fractional Doses of Moderna, Astrazeneca, & Janssen Covid-19 Vaccines Among Nigerian Adults (SIFCOVAN), etc.





As part of the Institute's mandate as it relates to capacity building, the Institute played host to scores of students from many Nigerian Universities across the country. These included those who applied to undertake their Industrial Work Experience (SIWES). and undergraduate students for Internship and Bench Space for laboratory studies and National Youth Service Corps (NYSC) members. The students were educated on the mandate of the Institute and the contribution of research to nation building.

The Institute's contributions to the Federal Government's efforts at addressing some of the greatest disease burdens in the country are evident. Such diseases are HIV/AIDS, Tuberculosis (TB), Malaria, Hepatitis, and other communicable and non-communicable diseases. The Institute continues to conduct operational research in addition to the comprehensive health care given to its patients enrolled in the HIV, TB, and Hepatitis Treatment Programmes.

Some of the research activities of the Institute were disseminated at the November 2022 NIMR Annual International Conference on Health Advances, Innovation and Research (ICHAIR) which was well attended by both local and international participants. The Institute's HIV treatment programme is one of the best in the country and is run by a multidisciplinary team. It has provided care for people living with HIV from 2004 till date. The programme has cumulatively enrolled 26,794 patients from inception till the end of 2022. A cumulative total of 7,222 HIV-exposed infants have also been effectively managed by the programme. In 2022, 170 persons living with HIV were enrolled into the programme comprising 167 adults and 3 children. Ninety-seven pregnant women also received Prevention of Mother-to-Child Transmission of HIV (PMTCT) services in the course of the year.

The Institute's Tuberculosis (TB) programme has managed cumulatively more than 7,000 patients since the commencement of the DOTs services with a treatment cure rate above 90%. A total of 114 patients were diagnosed and treated for tuberculosis in 2022, which is a decrease from the 133 patients treated in 2021. Of the total TB infections recorded in the year, 26 (22.8%) were co-infected with HIV which shows an increase in TB infection amongst HIV-positive individuals when compared to the year 2021.

Hepatitis B and C infections are major causes of morbidity and mortality in the country. Diagnosis of these diseases in Nigeria has been through serological techniques. These techniques only confirm that a patient is infected, but do not give the severity of infection.





However, the Institute's Centre for Human Virology and Genomics (CHVG), being the first Laboratory in the country to establish capacity for HBV and HCV viral load assay and genotyping not only diagnoses cases of Hepatitis B and C infections, also provides viral load to facilitate proper monitoring of response to treatment. Currently, an in-house Hepatitis B diagnostic kit has been developed and this has relieved Nigerian clinicians from the agony of searching for diagnostic kits for Hepatitis B case detection purposes. Our researchers have also developed diagnostic kits for Lassa Fever, Yellow Fever and Monkey Pox for easy detection of these diseases.

Collaboration and partnership between the Institute and national and international bodies and organisations have continued to grow progressively as many more of our research staff have been offered adjunct academic positions in tertiary institutions in the country. This is in addition to the existing several Memoranda of Understanding (MoUs) and is geared towards the furtherance of academic and research collaboration with universities, both locally and internationally.

The Institute also collaborated with the Medical Research Council – Unit, The Gambia (MRCG), the West African Node of Excellence for TB, AIDS and Malaria (WANETAM), the Institute of Tropical Medicine, Antwerp, Belgium, Tuberculosis Supra Reference Laboratory, Milan, Italy, Institute de Pasteur (IPD), Dakar, Senegal, Advanced Medical and Dental Institute, Universiti Sains Malaysia, Penang, Malaysia, the Centre for Discovery and Innovation in Parasitic Diseases, Department of Pathology, University of California, San Francisco, USA, the University of Ghana, Legon, Ghana, the University of Tokyo, Japan, the Federal Medical Centre (FMC), Ebute-Metta, Lagos, the Nigeria Centre for Disease Control (NCDC), the University of Lagos, the University of Ibadan, Lead City University, Ibadan, the Federal Ministry of Health, the African Centre of Excellence for Genomics of Infectious Diseases (ACEGID), the Redeemers University, Ede, Osun State, and the MTN Foundation.

The Institute hosted her 11th Scientific Conference, the International Conference on Health Advances, Innovation and Research (ICHAIR), with the theme: "An International Gathering of Biomedical Professionals". The ICHAIR was re-positioned in 2021 to become a go-to-meeting for Biomedical Professionals and stakeholders within this domain in Nigeria and beyond to reflect on innovations in research and health, and how these will impact health, especially in Nigeria. The theme also reflects our thoughts and perspective on the gains made in Biomedical Sciences within the health domain. The gathering enabled discussions on innovative advances, strategies and optimization for public health benefits and policies.





The Conference was well attended by researchers in Nigeria and the diaspora. The Chairman of the Conference was Prof. Isaac Adewole, former Honourable Minister of Health, Federal Republic of Nigeria, while the keynote Speaker was Prof. Alani Sulaimon Akanmu, Professor of Haematology, University of Lagos, and Chair, National Task Team on ART (NTTA) in Nigeria.

As part of our community service and Corporate Social Responsibility (CSR), the Institute has continued to create awareness to the Nigerian public on health promotion and diseases prevention. In this regard, the Institute commemorated World TB Day, World Malaria Day and World AIDS Day in addition to regularly engaging the media (both print and electronic) to disseminate some of our research findings and their implications on public health.

The welfare of our staff was not left out, as staff received prompt attention and deserving staff were promoted. We maintained our policy on reward for excellence as an incentive for improved productivity and self-actualization. Furthermore, it is important to state that without peace, there will be little or no meaningful development; the Institute acknowledges the continued peaceful working environment which perhaps is as a result of good staff motivation and effective communication. It is our wish and desire that the existing friendly and peaceful work environment in the Institute will be further improved for maximum productivity.

The Institute's main challenge is specific funding for health research which remains inadequate for any robust research that may result in ground breaking outcomes that can contribute to advancement in science and national development. Meaningful research is capital intensive and as such, requires huge human/financial and infrastructural investment.

Lastly, the Institute's performance for the year 2022 was impressive in terms of research, laboratory activities & accreditations, and infrastructural and human capital development. The commitment, dedication and support of the Management and staff of the Institute are highly appreciated as this cordial relationship has helped to increase productivity even as we will continue to consolidate on our activities and achievements in the coming year.



**Prof. Babatunde Lawal Salako,**  
MBBS (Ib), FWACP, FRCP (Lond), FRCP (Edin), MNIM, FNAMed, FAS.  
**Director-General/Chief Executive Officer**





# WHO WE ARE

- The Nation's foremost Institute of Medical Research.
- Antecedent dates back to 1920s with the arrival of the Rockefeller Foundation Yellow Fever Commission to the West African Coast.
- Established by Act No. 5 of 1977 which was later repealed and replaced by the National Agency for Science and Engineering Infrastructure Act, 1992.
- Headquarters located in Yaba, Lagos State, Nigeria.
- We carry out Health Research in Nigeria for National Development.
- We collaborate with other similar institutions both locally and internationally.
- We attract some of the brightest and best brains nationally and internationally in research collaborations.





## Vision

To be an institution of excellence in basic, applied and operational research for the promotion of National Health and Development in Nigeria.

## Mission

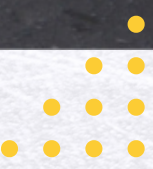
To conduct research into diseases of public health importance in Nigeria and develop structures for the dissemination of research findings while providing the enabling environment and facilities for health research and training in cooperation with the federal and state ministries of health and in collaboration with universities, allied institutions and organized private sector nationally and internationally.

## Core Values

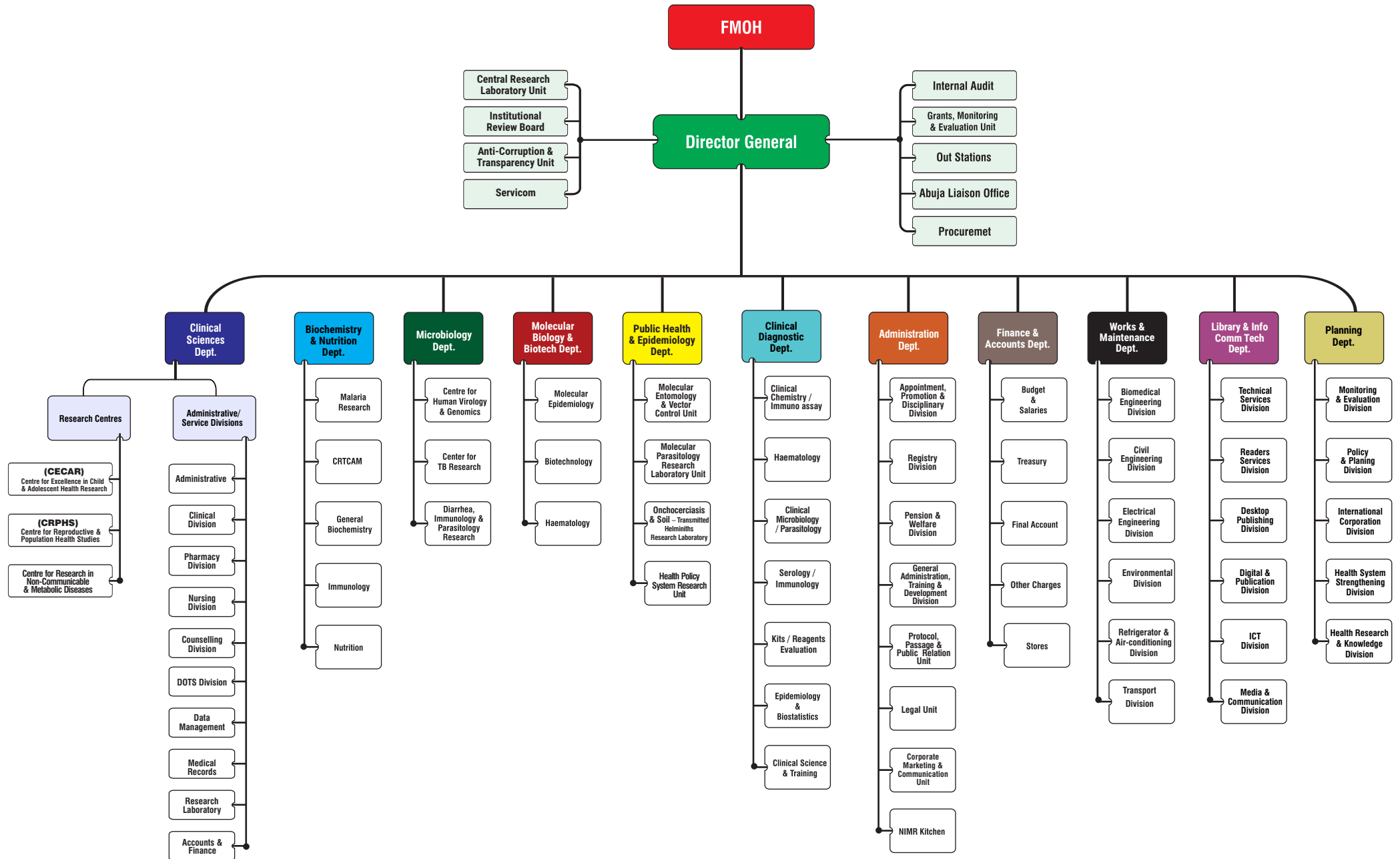
Honesty, Integrity, Leadership  
 Excellence, Respect, Fairness,  
 Dignity, Teamwork, Innovation,  
 Relevance, Hard work,  
 Fair Reward and Recognition  
 Accountability and Transparency,  
 Communication: Internal & External  
 Equity



VISION









## RESEARCH ADVISORY BOARD MEMBERS

Prof. Oyewusi Gureje (University of Ibadan)	Chair
Prof. Babatunde Lawal Salako (DG-NIMR)	Member
Dr. Olajide Idris (Former Commissioner of Health, Lagos State)	Member
Prof. Folasade Ogunsola (University of Lagos)	Member
Prof. Sani Aliyu (Former DG-NACA)	Member
Prof. Alash'le Abimiku (IHV, University of Maryland, USA)	Member
Prof. Ayo M.J. Oduola (VIRF, University of Ibadan)	Member
Prof. Ighovwerha Ofotokun (Emory University, Atlanta, USA)	Member
Prof. M.B. Shittu (Bayero University, Kano)	Member
Prof. Oladosu A. Ojengbede (University of Ibadan)	Member
Prof. Oni Emmanuel Idigbe (Former DG-NIMR & CEO HUDPHI)	Member
Prof. Martin Madu Meremikwu (University of Calabar)	Member
Prof. Stanley N.C. Anyanwu (Nnamdi Azikiwe University Teaching Hosp.)	Member





# PRINCIPAL OFFICERS



**Prof. B. L. Salako**, FAS  
Director-General/CEO



**Alh. A. S. Yunusazazzau**, *mni*  
Director & HOD  
(Administration)



**Prof. O. P. Akinwale**  
Director of Research (NTDs)  
PH & E Department



**Engr. E. O. Adedeji** FNSE  
Director & HOD  
(Works & Maintenance)



**Mr. Y. Y. Ogaji** FCA  
Director & HOD  
(Finance & Accounts)



**Dr. O. A. Nwogbe**  
Director & HOD  
(Library & ICT)



**Mrs. T. A. Malomo** FCA  
Deputy Director & HOU  
(Internal Audit)





## SENIOR MANAGEMENT & FINANCE COMMITTEE

Prof. Babatunde L. Salako, <i>FAS</i>	Director-General/CEO
Alh. Abdullahi S. Yunusazazzau, <i>mni</i>	Director & HOD (Administration)
Prof. Nkiruka N. Odunukwe	Director of Research (CSD)
Prof. Stella I. Smith, <i>FAS</i>	Director of Research (MB & BT Depart.)
Prof. Olaoluwa P. Akinwale	Director of Research (NTDs) PH & E Depart.
Prof. Oliver C. Ezechi	Director of Research (CSD)
Prof. Rosemary. A. Audu	Director of Research & HOD (Microbiology)
Engr. Ezekiel O. Adedeji, <i>FNSE</i>	Director & HOD (Works & Maintenance)
Mr. Yunusa Y. Ogaji, <i>FCA</i>	Director & HOD (Finance & Accounts)
Mr. Pius O. Ejiga	Director & HOD (Planning)
Dr. Olayemi A. Nwogbe	Director & HOD (Library & ICT)
Mrs. Chinyere T. Oparaugo	Director of Laboratory Services (B & N Dept.)
Mrs. Taibat Malomo <i>FCA</i>	Deputy Director & HOU (Internal Audit)
Dr. Adeola Y. Olukosi	Deputy Director & Ag. HOD (Biochemistry & Nutrition)
Mr. Samuel K. Akindele	Deputy Director & Ag. HOD (CD)
Dr. Medinat. A. Sulyman	Chief Research Fellow & Ag. HOD (PH & E)
Dr. David A. Oladele	Chief Research Fellow & Ag. HOD (CS)
Dr. Adesola Z. Musa	Chief Research Fellow & HOU (G, M & E)
Dr. Tajudeen A. Bamidele	Chief Research Fellow & Coordinator (MB & BT Dept.)





## NIMR 2022–2026 STRATEGIC OBJECTIVES

S/NO	THEMATIC AREAS	STRATEGIC OBJECTIVES
1.	<b>Governance</b>	<ol style="list-style-type: none"> <li>1. Review 2017–2021 strategic plan, identify gaps, challenges and way forward.</li> <li>2. Develop, print and disseminate strategic plan for 2022–2026.</li> <li>3. Conduct annual evaluation of the strategic plan implementation.</li> <li>4. Advocate for policy and political support for uptake and commercialization of research products.</li> <li>5. Engage policy and law makers to review the Act that established the Institute.</li> <li>6. Strengthen and foster new strategic partnerships, networks and collaborations.</li> <li>7. Develop research, operational and administrative policy frameworks.</li> <li>8. Advocate for increased budgetary allocation and appropriation for research.</li> </ol>
2.	<b>Health Research for National Development</b>	<ol style="list-style-type: none"> <li>1. Determine research focus in line with national health research priority.</li> <li>2. Strengthen translational research and clinical trials.</li> <li>3. Establish and maintain quality improvement system for all laboratories in the Institute.</li> <li>4. Ensure ethical research compliance and highest standard of health research.</li> <li>5. Establish functional digital library to support research.</li> <li>6. Disseminate information on research outputs.</li> </ol>
3.	<b>Resource support for Health Research and Development</b>	<ol style="list-style-type: none"> <li>1. Strengthen the annual national grant writing workshop.</li> <li>2. Improve number of Direct Grant Awards.</li> <li>3. Increase adjunct positions for NIMR research staff in Nigerian universities and internationally.</li> <li>4. Finalize specific schemes of service for the Institute and ensure approval by Head of Service.</li> <li>5. Conduct annual promotion exercise.</li> <li>6. Conduct annual needs assessment and strengthen human capacity for research.</li> <li>7. Equip and maintain the Central Research Laboratory to international standard.</li> <li>8. Renovate, maintain and build new structures in tandem with the physical needs of the Institute.</li> <li>9. Increase annual intramural and extramural research fundings.</li> <li>10. Strengthen the Grant Management Unit to deliver on its mandate.</li> <li>11. Maintain networks for public – private partnerships and explore possibilities for research endowments.</li> </ol>
4.	<b>Research Innovation and Entrepreneurship</b>	<ol style="list-style-type: none"> <li>1. Strengthen Research, Innovation and Product Development (RIND) Unit to be more responsive to research.</li> <li>2. Strengthen Corporate Marketing and Communication Unit (CM&amp;CU) to increase Internally Generated Revenue (IGR).</li> </ol>





## BIOCHEMISTRY AND NUTRITION DEPARTMENT

### INTRODUCTION

The Biochemistry and Nutrition Department seeks to conduct research in order to provide Biochemistry and Nutrition based information on the pathogenesis, treatment, prevention and control of communicable and non-communicable diseases of public health importance in Nigeria.

We collaborate with other Departments and Units in NIMR, and the Central Research Laboratory for analyses open to the public including analytical toxicology and synthesis of oligonucleotides.

The Department also collaborates on behalf of NIMR, with several organizations to design vaccines for diseases of public health importance in Nigeria. The Department has two research centers and several units. The Centers are:

1. **The Center for Research in Traditional, Complementary and Alternative Medicine (CRTCAM)** works according to guidelines of the WHO Traditional Medicine Strategy 2014–2023. The Center works in collaboration with the Nigerian Council of Physician of Natural Medicine (NCPNM), Pax Herbals and other organizations to optimize the role of Traditional Medicine (TM) in national health. The Centre also works with the Federal, State and Local Governments in Nigeria to develop evidence basis research for making policies and implementing plans as it concerns alternative medicine. The Centre's activities majorly involve safety and toxicity evaluations of herbal medicines, efficacy assessment of herbal medicines in Nigeria, and *in vivo* and *in vitro* assessment of herbal products using animal model and cell lines respectively.
2. **The Malaria Genomics Research and Training Center (MGRTC)** supports research in NIMR and the country at large, bridging gaps in research findings and implementation through best practices of translational research, in solving problems of malaria and related diseases in the region. Malaria research activities of the Center include epidemiology and parasite population genetics, malaria immunogenomics, vaccine design, and malaria drug resistance and



efficacy studies. The Center also boasts of a functional parasite culture laboratory.

### Other Research Units

- **Nutrition Unit:** conducts studies to elucidate the relationship between nutrients and health and ill health or infections in man and animals. The social science of dietary supplements in COVID-19, street foods and water analyses are currently being investigated. Micro- and macro-nutritional status of adolescents in health and disease and the effects of food insecurity on the population, are some other areas of research being conducted. In the years ahead, we seek collaboration to explore nutrigenomics and epigenetic modifications of nutrition.
- **Vaccine Design, Molecular Oncology & Diagnostics:** focuses on the cellular immune responses in some tropical diseases in humans and animals such as the performance of malaria antigen detection versus parasite enumeration by microscopy in the diagnosis of malaria. Basic and translational molecular oncology research is employed to provide avant-garde biochemistry, pathology, computational and molecular biology tools.
- **NIMR Animal House** is managed by the Biochemistry and Nutrition Department. We have a veterinary doctor and technicians trained to maintain the animals and apply research protocols according to designs. We conduct research on animal models of diseases and safety profiles of food and food products in this Unit.

## RESEARCH ACTIVITIES

### (COMPLETED)

- A Novel non-*kelch-13* Artemisinin resistance marker: Investigating Association with Artemisinin Resistance in comparison with Kelch-13 propeller gene among *Plasmodium falciparum* malaria subjects in Lagos, Nigeria.
- Molecular characterization of an important falciparum malaria vaccine candidate antigen in Nigeria.
- Perception, knowledge, and consumption pattern of dietary supplements during the COVID-19 pandemic among black Africans: perspective of Nigerians. (dialogues in health, doi: [10.1016/j.dialog.2023.100106](https://doi.org/10.1016/j.dialog.2023.100106)) accepted 28/01/23



- Pattern of consumption of dietary and herbal supplements by individuals with non-communicable diseases during the COVID-19 pandemic in Nigeria.
- Health seeking behavior for paja-paja (paresthesia) among residents in some parts of Lagos, Nigeria.
- Role of HLA Class I A allele in occurrence of T2DM among HIV positive patients with TB co-infection in Lagos, Southwest, Nigeria (PhD Project).

#### **(ONGOING)**

- A Pilot Multisectoral Intervention for Controlling Malaria Vectors, mitigating Insecticide Resistance and Assessing WaSH Facilities at Health Care Units in selected Coastal and Sahelian West African Countries.
- Assessment of baseline and endline molecular markers of SP resistance in Osun and Ebonyi States in formative research of IPTi effects: Nigerian Operational Feasibility and Effectiveness of IPTi Study (Malaria Consortium).
- Census of enumeration areas and characterization of Ijede Local Council Development Area, Lagos State, Nigeria.
- Evaluating pipeline Point-of-Care Tests (POCT) for malaria case management in Lagos, Nigeria.
- Ex-vivo and in-vitro sensitivity of Nigeria *Plasmodium falciparum* isolates from NC and SW Nigeria to various antimalarial drugs.
- Determination of the Omic Correlates of Artemisinin-based Combination therapies in Nigeria.
- In vitro characterization of invasion pathways of Nigerian isolates of *P. falciparum*. Characterization of important population-specific *P. falciparum* vaccine candidate antigens.
- A randomised controlled trial: anti-malaria prophylactics for pregnancy (AMPROP) clinical trial.
- Molecular and temporal survey of emergence of resistance phenotypes following mass administration of Azithromycin in six states of Nigeria.
- Local design and development of malaria vaccine in Nigeria.
- Assessment of perception, knowledge and use of dietary supplements in COVID-19
- Street foods and Water analyses in Lagos State.
- Macronutrients, and dyslipidaemia, and nutritional status of adolescents (10-19 years) in public and private secondary schools in Lagos State, Nigeria.



- Macronutrients intake of black African Nigerian adolescents in secondary schools in Lagos State.
- Micronutrients of indigenous Nigerian adolescents residing in four LGAs of Lagos State
- Creating awareness on prostate cancer among young adult males between ages 15 - 40 years in Nigeria via knowledge, attitude and perception
- Metabolite Biomarkers and Genetic Markers for diagnosis of T2DM among HIV patients with TB Co-infection in Lagos, Southwest, Nigeria

## ACHIEVEMENTS

- a. Establishment of a standard *in vitro* plasmodium parasite culture laboratory,
- b. Successful establishment of new collaboration in regional research Networks (PAMGENe and PDNA),
- c. Successful completion of technology (ONT NGS and Experimental biology) transfer from MRCG and LSHTM to NIMR.
- d. Conducted two 7–day Malaria microscopy training/ workshop from 24<sup>th</sup> April - 1<sup>st</sup> May 2022 and from 3<sup>rd</sup> - 9<sup>th</sup> October 2022

## CAPACITY DEVELOPMENT (GRADUATE AND POSTGRADUATE SUPERVISION, NYSC, SIWES, INTERNSHIPS)

Ph.D.	M.Sc.	B.Sc.	SIWES	NYSC	INTERNS
6	7	12	66	8	11

## COLLABORATIONS AND PARTNERSHIPS (INTERNATIONAL AND LOCAL)

MRC Unit, The Gambia at LSHTM, UK, University of Ghana, Legon, University of Tokyo, Japan, Nigerian Council of Physicians of Natural Medicine, Pax Herbal Clinic and Research Laboratory, Centre Pasteur du Cameroon, Yaounde, Saro Lifecare Nig. Ltd., Health, Environment and Development Foundation, Nigeria, Godrej Nigeria Limited, PAMGENe, AREF, PDNA, APGUI



## GRANTS AND FELLOWSHIP AWARDS

- West African Network for TB, AIDs and Malaria (WANETAM 3): Malaria work package 2022-2025, (EDCTP) **Co PI: Dr. Adeola Olukosi**
- EDCTP Senior Career Fellowship Plus Sub-Award, 2022-2025. Malaria Omic correlates of artemisinin-based therapy resistance in Nigeria. (EDCTP) **Dr. Olusola Ajibaye**
- TDR-WHO. A Pilot Multisectoral Intervention for Controlling Malaria Vectors, mitigating Insecticides Resistance and Assessing WaSH Facilities at Health Care Units in selected Coastal and Sahelian West African Countries, 2021-2023 **Dr. Adeola Olukosi.**
- Malaria Consortium. Assessment of baseline and endline molecular markers of SP resistance in Osun and Ebonyi State in Formative Research of IPTi Effects: Nigerian Operational Feasibility and Effectiveness of IPTi Study. 2022-2026, **Dr. Adeola Olukosi.**
- RAPIGEN INC, South Korea. Evaluating Pipeline Point-of-Care Tests (POCT) for Malaria Case Management in Lagos, Nigeria. 2022-2023. **Dr. Oluwagbemiga Aina**
- Census of enumeration areas and characterization of Ijede Local Government Development Area, Lagos State, Nigeria 2022, **Dr. Adeola Olukosi.**
- African Research Excellence funds (AREF). Developing capacity in Malaria Genomics, Bioinformatics and *In vitro* assays to Undertake and Lead Research in Antimalarial Resistance Supported by Globally Relevant Research Networks., Research Development Fund; September 2021 to April 2023. **Dr. Olusola Ajibaye**
- NIMR. Metabolite Biomarkers and Genetic Markers for diagnosis of T2DM among HIV patients with TB co-infection. 2022, (NIMR-NPIRGP:5NM-SRGT-22-0078). **Mrs. Veronica Enya**

## CONFERENCES/TRAININGS AND WORKSHOPS

1. NIMR International Conference on Health Advances, Innovation and Research (ICHAIR). NIMR Yaba, Lagos, Nigeria, 7<sup>th</sup> – 9<sup>th</sup> November, 2022.
2. Third (3<sup>rd</sup>) Regional Conference of West Africa Postgraduate College of Medical Laboratory Science (WAPCMLS). Postgraduate Medical Laboratory Science



- Specialist Training and Practice in the era of the SDGS. La Palm Royal Beach Hotel Accra, Ghana. 1<sup>st</sup> - 5<sup>th</sup> November, 2022
3. Association of Medical Laboratory Scientists of Nigeria Symposium/Colloquium on Preparedness for Combating Pandemics: The Role of Medical Laboratory Scientist. NIMR Yaba, Lagos, Nigeria, 16<sup>th</sup> August, 2022
  4. Capacity Development in Malaria Diagnosis: Microscopy, Rapid Diagnostic Test and Molecular Techniques. NIMR Yaba, Lagos, Nigeria, 3<sup>rd</sup> – 9<sup>th</sup> October, 2022 (Facilitator).
  5. Preparedness for Combating Pandemics: The Role of Medical Laboratory Scientists, COVID 19 experience. Association of Medical Laboratory Scientists of Nigeria (NIMR Chapter) CPD Workshop, NIMR Yaba, Lagos, Nigeria, 16<sup>th</sup> August, 2022.
  6. Training on “Evaluation of Rapigen Biocredit Malaria Point-of-Care Tests in Lagos, Nigeria”. NIMR Yaba, Lagos, Nigeria, 12<sup>th</sup> August, 2022.
  7. Medical Laboratory Practice and the Law. Webinar by The Guild of Medical Laboratory Directors (GMLD) Lagos State Branch, 28<sup>th</sup> June, 2022.
  8. Gut Microbiome Analysis. African Helicobacter and Microbiota Study Initiative Ltd/Gte Launching. NIMR Yaba, Lagos, Nigeria, 27<sup>th</sup> June, 2022
  9. Global Vaccine and Immunization Research Forum: Vaccines as Tools to Prevent Antimicrobial Resistance: Advances, Challenges and Future Development. Webinar by World Health Organization, 23<sup>rd</sup> June, 2022.
  10. Capacity Development in Malaria Diagnosis: Microscopy, RDT and Molecular Techniques. NIMR Yaba, Lagos, Nigeria, 24<sup>th</sup> April – 1<sup>st</sup> May, 2022 (Facilitators).
  11. Workshop on Medical Laboratory Science Council of Nigeria Examinations. Catholic secretariat, Durunmi Phase 2, Abuja, 15<sup>th</sup> – 19<sup>th</sup> February, 2022.
  12. The Scientific Approach of Traditional Medicine and Alternative Medicine to COVID-19 Pandemic: Issues and Prospects in Management of Diseases in the 21<sup>st</sup> Century at Samuel Adegboyega University Ogwa, Edo State. 1<sup>st</sup> - 3<sup>rd</sup> June, 2022
  13. Working with Protozoan Parasite Database Resources, Wellcome Trust, 22-28 October, 2022(Virtual)
  14. Molecular Diagnostics Hands-On-Training, EDCTP/WANETAM-Malaria, IRESSEF, Senegal, 20<sup>th</sup>- 25<sup>th</sup> June, 2022.



15. PAMGENe Research Consortium Meeting, Abuja, Nigeria; 15<sup>th</sup> - 21<sup>st</sup> September, 2022.
16. Freedom of Information ACT 22<sup>nd</sup> September 2022. NIMR
17. International Conference and Exhibition 2022 on African Medicinal Plants Research: Issues and Prospects in Management of Diseases in the 21<sup>st</sup> Century at Samuel Adegboyega University Ogwa, Edo State. 1<sup>st</sup> - 3<sup>rd</sup> June, 2022.
18. ACURET 4<sup>th</sup> International Workshop/Conference: Prepare for Better Science, Abeokuta, Nigeria Nov. 30<sup>th</sup> - December 3<sup>rd</sup> 2022
19. 58<sup>th</sup> Annual National Conference of Nigerian Veterinary Medical Association, Ibadan, Nigeria, 24<sup>th</sup> - 28<sup>th</sup> October, 2022
20. John Hopkins University School of Medicine: The 9<sup>th</sup> Annual 3Rs Symposium, Webinar, 22<sup>nd</sup> - 24<sup>th</sup> June, 2022.
21. Anti-Corruption Workshop for Nigerian Institute of Medical Research: ART and Practice of System Integrity in Public Institutions as a Catalyst for Good Leadership, Ethical Conduct and Revenue Generation. 22<sup>nd</sup> & 23<sup>rd</sup> November, 2022. NIMR
22. Veterinary Council of Nigeria Professional Continuing Education: Beyond Boundaries: Fishing in the Ocean of Multilateral Organisation. Webinar, 20<sup>th</sup>-21<sup>st</sup> July, 2022.

## CHALLENGES

- Inadequate fund to improve on genetic profiling and cryo-archiving to ensure that cell lines are mycoplasma free, so that NIMR can be a national reference center for tissue culture studies.
- We currently do not have paid services in the department to boost revenue.
- The flow cytometer is not functional.
- Inability to complete our CO<sub>2</sub> set-up for incubators
- Need for acquisition of one more incubator for Plasmodium culture.



## WAY FORWARD

- We will source for funds to improve on genetic profiling and cryo-archiving to ensure that cell lines are mycoplasma free, so that NIMR can be a national reference center for tissue culture studies.
- We will source for paid services in the department as a means for generating funds.
- We will provide research support services in basic medical research involving mammalian cell line studies and flow cytometry.

## 2023 WORK PLAN

We will continue with our trainings, routine works, ongoing projects and new projects as listed below:

### Trainings:

- Annual Training in Malaria Microscopy and Alternative Malaria Diagnostic Techniques.
- Training of Traditional Medical Practitioners on Processes of Establishing the Safety and Efficacy of Alternative Medicine
- Nutrition Education: Staff of NIMR
- Training: Nutrient Analysis Protocol,
- Workshop: Nutrition Advocacy to Schools, Teachers and Heads, Screening of Adolescents for Kidney Disorders.

### Routine activities:

- Routine Conduct of Phytochemical Analysis, Safety and Efficacy Claims of Actives Ingredients and Natural Products.
- Routine Proximate Analysis of Food and Food Products.
- Routine Characterization of Volatile Phytochemicals using GC-MS

## CLINICAL SCIENCES DEPARTMENT

### INTRODUCTION

**T**he Clinical Sciences Department was established in 2002 as the Clinical Sciences Division. It has undergone various changes over the years to its present status as the Clinical Sciences Department (CSD). This report reflects the year 2022 activities of the CSD, which are focused on research, service delivery and capacity development.

The Department continues to conduct operational research in addition to the comprehensive care given to patients enrolled in the HIV, TB and Hepatitis Programmes of the Institute. Some of the research activities of the CSD were disseminated at the November, 2022 NIMR International Conference on Health Advances, Innovation and Research (ICHAIR).

The Implementing Partner for our HIV/AIDS services, Heartland Alliance Ltd/GTE supported and contributed to the activities of the Department in 2022. Our HIV/AIDS Programme continues to be among the largest and the best in the country with a cumulative enrolment above 25,000 including adults, children, and pregnant women. The Dept recorded an HIV mother-to-child transmission (MTCT) rate of 0.0% in 2022.

This report summarizes the structure and activities of the Clinical Sciences Department in 2022, which contributed to the realization of the NIMR overall mandate of Research for National Health.

### Administration

The Department functions in three broad areas of Research, Programme Support and Projects, and Clinical and Laboratory Services. There are three Research Centres and nine administrative subunits (Clinical, Administrative, Medical Records, Data Management, Counselling, Pharmacy, DOTS, Nursing and Accounts), each with a Unit Head that reports directly to the Head of Department. The Department also works



very closely with the Centre for Human Virology and Genomics (CHVG) and the Centre for Tuberculosis Research (CTBR), both of the Microbiology Department as well as the Clinical Diagnostic Department. The Clinical Diagnostics Department and the Centres (CHVG and CTBR) of Microbiology Department provide laboratory support for the HIV, TB, and Hepatitis Programmes of the CSD.

**Table 1: Research Centres and Administrative Units in CSD**

<p><b>A. <u>Research Units and Members</u></b></p> <p><b>Centre of Excellence in Child and Adolescent Health Research (CECAR)</b></p> <ol style="list-style-type: none"> <li>1. Dr. Agatha N. David</li> <li>2. Dr. Abideen O. Salako</li> <li>3. Dr. Titilola A. Gbajabiamila</li> <li>4. Dr. Agatha E. Wapmuk</li> </ol> <p><b>Centre for Reproductive and Population Health Studies (CRePHS)</b></p> <ol style="list-style-type: none"> <li>1. Prof. Oliver C. Ezechi</li> <li>2. Dr. Aigbe Greg. Ohihoin</li> <li>3. Dr. Paschal M. Ezeobi</li> <li>4. Dr. Sabdat O. Ekama</li> <li>5. Ms. Ifeoma E. Idigbe</li> <li>6. Dr. Adesola Zaidat Musa</li> </ol> <p><b>Centre for Research in NonCommunicable and Metabolic Diseases (CReNMD)</b></p> <ol style="list-style-type: none"> <li>1. Prof. Nkiruka N. Odunukwe</li> <li>2. Dr. David A. Oladele</li> <li>3. Dr. Esther N. Ohihoin</li> <li>4. Dr. Jane O. Okwuzu</li> </ol>	<p><b>B. <u>Administrative/Service Units</u></b></p> <p><b>HOD:</b> Dr. David A. Oladele</p> <ol style="list-style-type: none"> <li>1. <b>Pharmacy Unit:</b> Pharm Ebiere C. Herbertson (Director)</li> <li>2. <b>Nursing Unit:</b> Mrs. Deborah D. Oladipo</li> <li>3. <b>Counselling Unit:</b> Ms. Ifeoma E. Idigbe</li> <li>4. <b>Medical Records:</b> Mrs. Mary Enejoh</li> <li>5. <b>DOTS Clinic:</b> Mrs. Rita O. Nwosu</li> <li>6. <b>Data Management:</b> Dr. Adesola Z. Musa</li> <li>7. <b>Research Laboratory:</b> Dr. Jane O. Okwuzu</li> <li>8. <b>Dept. Secretary:</b> Ms. Unwana A. Asuquo</li> <li>9. <b>Finance &amp; Accounts Unit:</b> Mrs. N.B.A. Kadiri</li> </ol> <p><b>C. <u>Research/Training/Service Support</u></b></p> <ol style="list-style-type: none"> <li>1. <b>Research/Training Coordinator:</b> Dr. Aigbe Greg. Ohihoin</li> <li>2. <b>Site Coordinator:</b> Dr. Paschal M. Ezeobi</li> <li>3. <b>Admin. Officer:</b> Mrs. Nmachukwu C. Nwofor</li> </ol>
--	---

There were 14 Research Fellows and 85 Support Staff in the CSD as listed in Table 2 below.

**Table 2:** Staff Cadre Strengths in CSD

S/N	Staff Category	No of Staff	S/N	Staff Category	No of Staff
1.	Research Fellows	14	8.	Records	6
2.	Medical Officers	4	9.	Research Laboratory	3
3.	Pharmacists	5	10.	DOTS	1
4.	Nurses	8	11.	Admin.	7
5.	Counsellors	6	12.	NYSC Members	15
6.	Data Officers	6	13.	Volunteers	18
7.	Accounts	2	14	Project Staff	9
<b>TOTAL</b>					<b>104</b>

## RESEARCH ACTIVITIES

Research activities of the CSD are coordinated by employing a multidisciplinary approach. The Research Projects are presented in the table below.

**Table 3:** Research Projects in the CSD and Collaborators

No	Title	Status	Funder	PI
1.	EN-RTP: Emory Nigeria Research Training Programme	Ongoing	NIH	Prof. O.C. Ezechi
2.	Innovative Tools to Expand Youth-Friendly HIV Self Testing	Ongoing	NIH	Prof. O.C. Ezechi
3.	Immune Reconstitution Bone Loss Study	Ongoing	NIH	Prof. O.C. Ezechi
4.	Intensive Combination Approach to Roll back the Epidemic in Adolescents in Nigeria (ICARE Nigeria)	Ongoing	NIH	Dr. A.N. David
5.	Health outcomes and immunologic responses in HIV exposed and unexposed infants in Lagos, Nigeria (HEIR Study)	Ongoing	NIMR	Dr. A.N. David
6.	Expanded mapping, characterization and establishment of DHS system in Ijeda, Ikorodu, Lagos	Ongoing	NIMR	Dr. A.N. David
7.	Management of Malaria in African Countries: A prospective non-interventional cohort study	Ongoing	Novartis	Dr. A.N. David

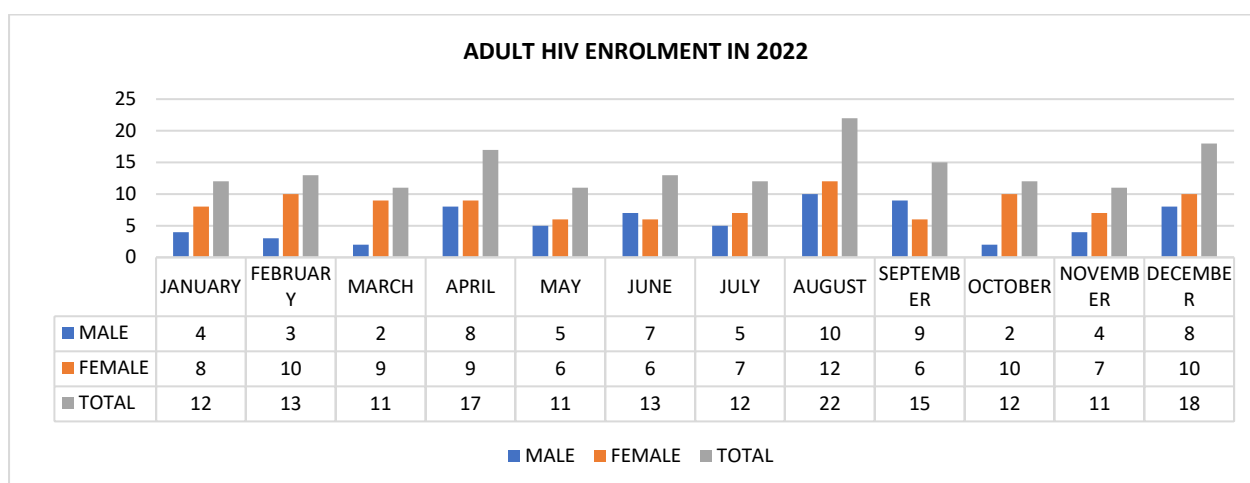


8.	Integrase Inhibitor resistance during failure of antiretroviral therapy	Ongoing	Cambridge University	Dr. D. Oladele
9.	<b>Safety and Antimicrobial Resistance of Mass Administration Of Azithromycin In Children 1- 11 Months In Nigeria [SARMAAN Project]</b>	Ongoing	Bill Gates Foundation	Prof. O.C. Ezechi
10	Safety, efficacy and tolerability of Virucidine Herbal extract in the management of COVID-19 in adults in South-Western Nigeria	Ongoing	ABUAD University	Dr. A.N. David
11.	Integration of Hypertension Management Into HIV Care in Nigeria: A Task Strengthening Strategy (TASSH Project)	Ongoing	NIH	Prof. O.C. Ezechi
12.	leDEA International epidemiology Databases to Evaluate AIDS	Ongoing	NIH	Prof. O.C. Ezechi
13.	The Lagos COVID-19 Long Haulers Cohort Study (COLHACS Study)	Ongoing	NIMR	Dr. D.Oladele / CSD
14.	Safety & Immunogenicity of Fractional Doses of Moderna, Astrazeneca, & Janssen Covid-19 Vaccine Among Nigerian Adults (SiFCoVAN) : A Randomized Non-Inferiority Double Blind Clinical Trial	Ongoing	Open Philanthropy	Prof. B.L. Salako

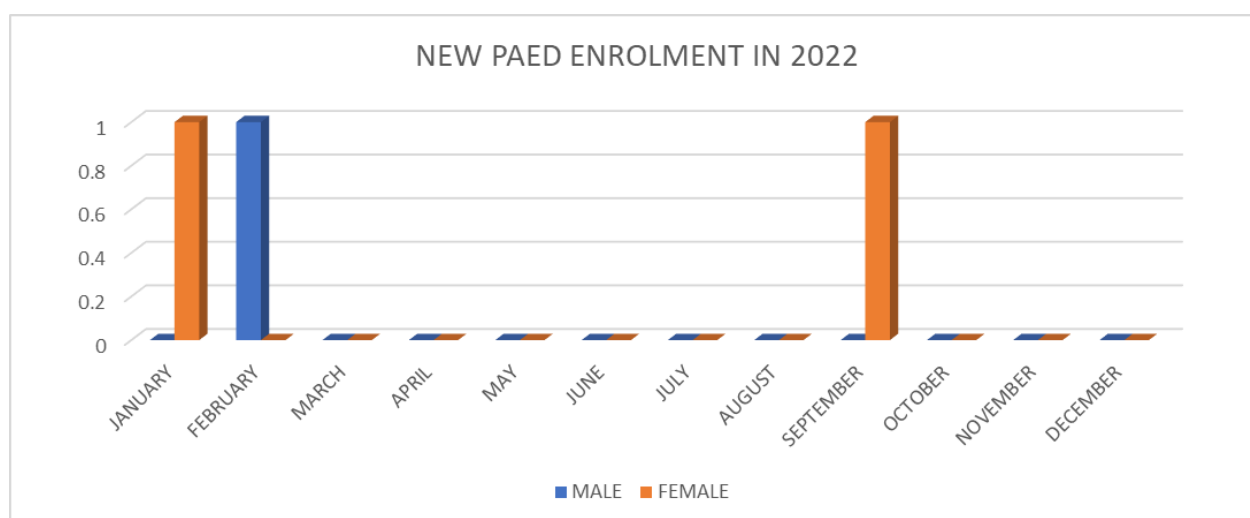
### HIV Treatment Programme

The HIV treatment programme of the Department, which is one of the best in the country, involves a multidisciplinary team which has provided care for HIV infected patients from 2004 till date. The cumulative enrolment of HIV positive persons since inception of the Clinic till 2022 is 26,794, while a total of 7,222 HIV-exposed infants were managed till 18 months of age. A total number of 170 HIV positive patients were enrolled into care from Jan-Dec., 2022 comprising of 167 adults and 3 paediatric patients. The HIV Clinic also renders PMTCT (prevention of mother to child transmission of HIV) services and a total of 97 HIV positive pregnant women were enrolled for PMTCT in the year 2022.

The enrolment pattern of adult and paediatric patients by gender and on monthly basis are depicted in the figure 1 and table 4 below.



**Figure 1: New Adult Enrolment**

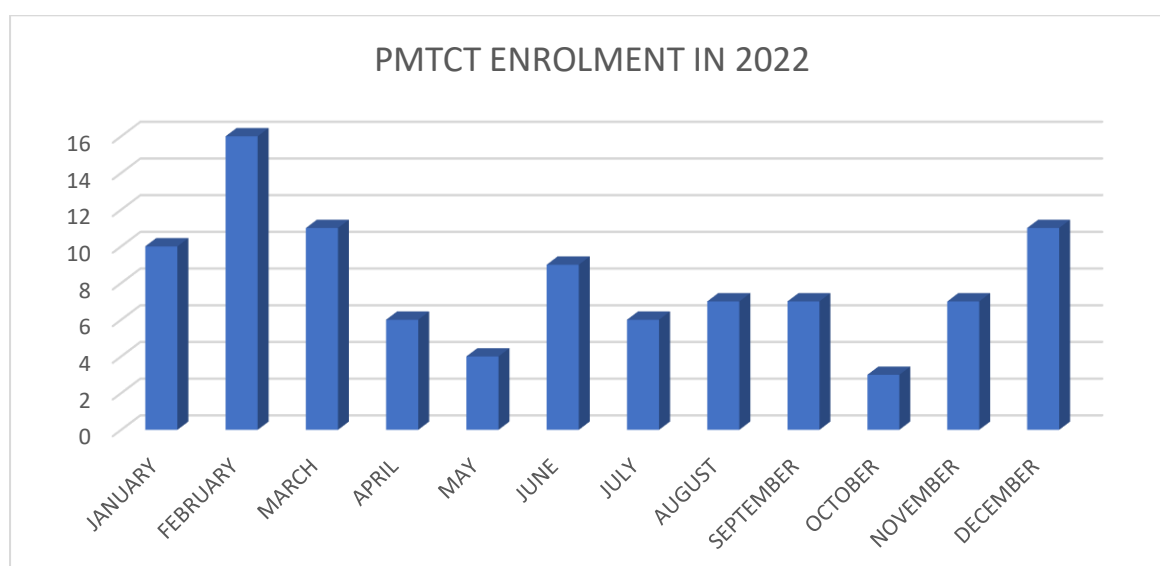


**Table 4: New Paediatric Enrolment**

	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
MALE	0	1	0	0	0	0	0	0	0	0	0	0
FEMALE	1	0	0	0	0	0	0	0	1	0	0	0
TOTAL	1	1	0	0	0	0	0	0	1	0	0	0



Figure 2 and table 5 below depict the enrolment by month for PMTCT in 2022.



**Figure 2:** New PMTCT Enrolment

**Table 5:** New PMTCT Enrolment

	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
FEMALE	10	16	11	6	4	9	6	7	7	3	7	11

## Tuberculosis Treatment Programme

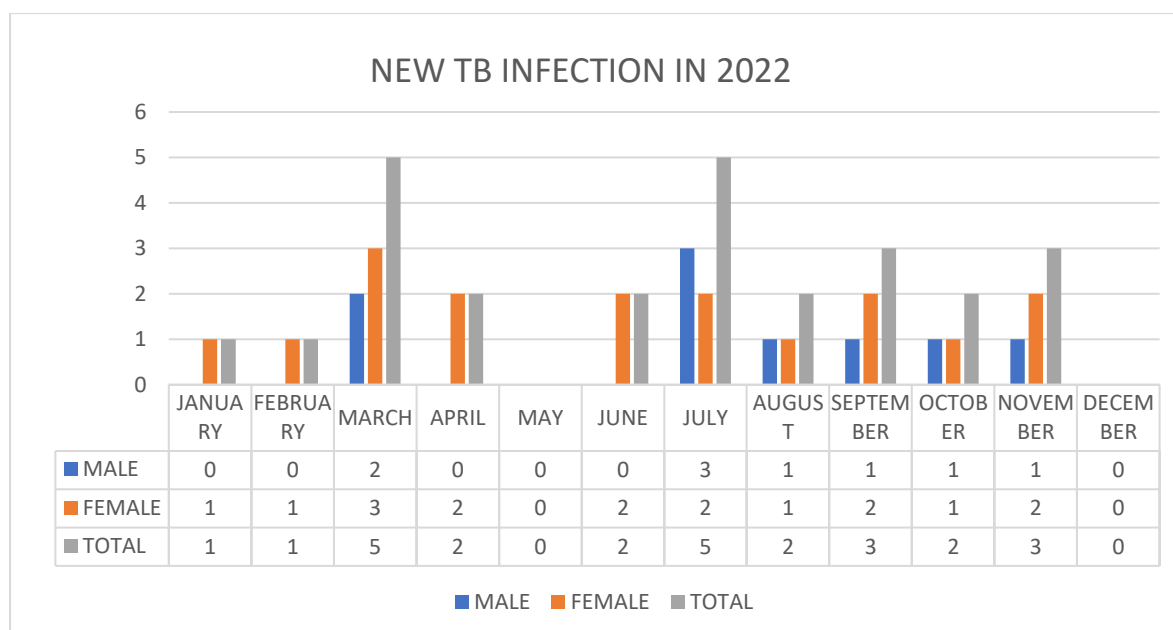
In 2022, 114 patients were diagnosed and treated for tuberculosis, a decrease from the 133 patients treated in 2021. Of the total TB infections recorded in the year under review, 26 (22.8%) were co-infected with HIV which shows an increase in TB infection amongst HIV positive individuals when compared to the year 2021. The tables and bar chart below show the monthly distribution of TB cases managed in 2022.

**Table 6:** New TB/HIV Co-Infections

	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
MALE	0	0	2	0	0	2	3	1	1	1	1	0
FEMALE	1	1	3	2	0	0	2	1	2	1	2	0
TOTAL	1	1	5	2	0	2	5	2	3	2	3	0

**Table 7:** New TB Infections (without HIV co-infection)

	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
MALE	3	5	7	5	0	10	1	3	6	3	5	4
FEMALE	1	4	7	0	0	1	5	5	2	7	2	2
TOTAL	4	9	14	5	0	11	6	8	8	10	7	6



**Figure 3: New TB Infections**

### Specialized Clinic Services

The Department offers specialized clinic services to members of staff and their families as well as the general public. These specialized services include family planning, cervical and breast cancer screening, fertility treatment, hepatitis vaccination/management and other gastroenterology diseases. Other specialized clinics include haematology as well as paediatrics and child health.

The adolescent clinic is also delivered by the CSD.

**Table 8: Specialty Clinic Schedule**

Specialty Clinic	Day of the week	Consultant
Haematology	Monday	Prof. N.N. Odunukwe
Paediatrics and Child Health	Tuesday	Dr. A.N. David
Hepatitis & Gastroenterology Clinic	Wednesday	Dr. P. M. Ezeobi
Hypertension/Nephrology / Cardiology Clinic	Tuesday	Prof. B.L. Salako Dr. E.N. Ohioin
Gynaecology and Women's Health	Thursday	Prof. O.C. Ezechi Dr. A.G. Ohioin
Adolescent Clinic	2nd Saturday of the month	Dr. A.N. David

### Research Support Laboratory

The Research Support Laboratory of the Department offers laboratory support for the research activities in the Department. It also offers laboratory services to patients



attending the specialist clinics. The laboratory has capacity for heamatologic, parasitological and clinical chemistry analyses and is manned by a Consultant Haematologist, one Parasitologist, one Medical Laboratory Scientist, and one Science Laboratory Technologist.

### **Data Management**

The Data Management Unit has been responsible for electronic data collection, collation, and analysis of patient information since the inception of the Clinic. The records of over 26,000 patients are stored in the database and are accessible to authorized personnel. The Unit has capacity to develop research tools and make data available for research using statistical tools and programmes. The Unit works closely with the Monitoring & Evaluation Unit of the Institute and the ICT Unit of the CSD. The Data Management Unit accommodates all data personnel in the same office to ensure speedy and efficient services.

### **Events and Programmes**

The Department held a one-day retreat at the beginning of the year to deliberate on the plans and activities of the Department for the year in line with the Strategic Plan and towards actualization of the NIMR mandate of Research for National Development. The Adolescents living with HIV (ALHIV) Clinic and Support Group activities take place on the 2nd Saturday of each month. On such days, issues pertaining to adolescence, education, career and living successfully with HIV are discussed. Resource persons are also invited to train them in various skills that could result in possible financial empowerment.

### **Staff Resignation and Retirement**

A senior member of the research staff of the CSD, Dr. Esther Ohihoin resigned from the service of the Institute. Mr. Sunday Adekoya (from the Finance and Accounts Department) who worked in the Accounts Unit of CSD also retired after meritorious years of service in the Institute.

## ACHIEVEMENTS

1. Commissioning of the Clinical Observation Center for Randomized Clinical Trials
2. 14 Sponsored research projects (including 6 NIH funded research)
3. Increased number of proposals developed and capacity building in grants writing
4. Increased number of publications
5. The ART Clinic of the CSD continues to be one of the most user-friendly HIV treatment and care facilities in the country.
6. The TB DOTS Clinic of the CSD recorded high cure rates for tuberculosis in Lagos State.
7. Increased in Departmental staff commitment and dedication.

## Trainings

In order to attain the goal of maintaining highly trained and competent staff in various disciplines, the Department supports staff to acquire relevant additional training necessary for career progression. It also accommodates internship training; youth service program, clinical residency training as well as training of researchers in the Department's areas of competence.

### Postgraduate Training

**Table 10:** Staff on Postgraduate Training

S/N	Name of Staff	Type of Programme	Specialty	Status
1.	Dr. A.N. David	PhD	Public Health	Ongoing
2.	Dr. A.G. Ohihoin	PhD	Translational Science	Ongoing
3.	Dr. D.A. Oladele	PhD	Public Health	Ongoing
4.	Dr. P.M. Ezeobi	MPhil/PhD	Public Health	Ongoing
5.	Dr. T.A. Gbaja-Biamila	PhD	Public Health	Ongoing
6.	Dr. A.O. Salako	MSc	Public Health and Global Child Health	Ongoing
7.	Dr. A.E. Wapmuk	FMCPH	Public Health	Ongoing
8.	Dr. S.O. Ekama	PhD	Pharmaceutics	Completed



9.	Dr. H.O. Ohwodo	PhD	Public Health	Ongoing
10.	Dr. O.O. Odubela	PhD	Public Health	Ongoing
11.	Dr. P.N. Ezemelue	PhD	Environmental Toxicology	Completed
12.	Ms. I.E. Idigbe	PhD	Medical Sociology	Ongoing
13.	Mrs. E.C. Herbertson	PhD	Clinical Pharmacy	Ongoing
14.	Mr. M.O. Chidi	MSc	Pharmaceutical Chemistry	Completed
15.	Mrs. S.T. Adaba	MSc	Cell Biology and Genetics	Ongoing

## National Youth Service Programme

**Table 11: NYSC Members in 2022**

S/N	Name	Designation	Programme
1.	Dr. Faidat Gbadamosi	Medical Doctor	NYSC
2.	Dr. Oreoluwa Alabi	Medical Doctor	NYSC
3.	Dr. Adijat Aina	Medical Doctor	NYSC
4.	Dr. Oluwatomisin Ogunlade	Medical Doctor	NYSC
5.	Dr. Tobenna Akagbusum	Medical Doctor	NYSC
6.	Dr. Summayyah Abdulkabir	Medical Doctor	NYSC
7.	Mr. Ahly Fasasi	Pharmacist	NYSC
8.	Ms. Chidinma Offor	Pharmacist	NYSC
9.	Ms. Vivian Christopher	Pharmacist	NYSC
10.	Ms. Oluwayemisi Ageniyi	Pharmacist	NYSC
11.	Ms. Chinazor Arinze	Pharmacist	NYSC
12.	Ms. Sururat Odulele	Pharmacist	NYSC
13.	Ms. Eburn Kayode	Pharmacist	NYSC
14.	Ms. Marvellous Antanwu	Pharmacist	NYSC
15.	Ms. Dorcas Odejobi	Nurse	NYSC

## CHALLENGES

- Manpower shortages in vital areas:
  - Non-replacement of staff that have left the Institute
  - Need for nurse researcher, clinical psychologist, nutritionist.
  - Reliance on volunteers.
- Infrastructural Challenges:
  - ART Clinic needs urgent attention for rehabilitation
  - Space for offices/service areas (being addressed).

- Acute shortage of computers for EMR at the Out Patient Clinic.
- Needed equipment: computers, air conditioners, laboratory supplies.

### **WAY FORWARD**

The year 2022 was successful in spite of the challenges. We look forward to improve in our activities in the year 2023.

### **2023 WORK PLANS**

The Department plans to intensify research activities in 2023. This will be achieved through:

- Strengthening of the Departmental seminars and research sessions and ensuring the continuous integration of its Adjunct Researchers/Professors in all CSD activities to enhance human capacity development and research output.
- Younger researchers and scientists will continue to be paired with the more experienced researchers for mentorship.
- Continue to advocate for infrastructural development and employment of needed staff.
- Continue to aggressively pursue more scientific publications and continue the modification and improvement of our mode of service delivery to satisfy the needs of our patients and clients.



## MICROBIOLOGY DEPARTMENT

### INTRODUCTION

The year 2022 started on a good note in Microbiology Department as we held our first strategic review meeting with our Adjuncts to appraise our performance in the last five (5) years and refine our targets for the next 5-years (2022-2026) for improved performance. This provided a template for the Department to develop its strategic targets for the year.

The Department is made up of 3 centres [**Center for Human Virology & Genomics (CHVG)**, **Center for Tuberculosis Research (CTBR)**, and **Center for Infectious Disease Research (CIDR)**] and a **Production Unit**. After the first cycle of accreditation, both **CHVG** and **CTBR** which are **National Reference Laboratories**, had a successful **ISO 15189 accreditation re-assessment** by SANAS.

As has been our culture in recent years, we developed another **RT-PCR diagnostic assay (Mpox Virus qPCR test kit)**. The Department is made up of 14 Research Fellows, 33 Support and 34 Project Staff, as well as 6 Adjunct Professors and 1 Consultant. In the spirit of inclusion and diversity, the young members of our staff set up a “**Microbiology Twitter Handle**” that is effectively functioning and an “**Online Classroom**” hosted on Google for document reviews.

### RESEARCH ACTIVITIES

#### (ONGOING)

S/N	TITLE OF PROJECT	SPONSOR	PRINCIPAL INVESTIGATOR (LEAD)
1.	Survey of HPV genotypes in Nigeria	CHAI	Dr. A. P. Okwuraiwe
2.	Surveillance of Viral Hemorrhagic Fevers and their Reservoirs in Nigeria	NIMR	Prof. R. A. Audu
3.	Safety & Immunogenicity of Fractional Doses of Moderna, Astrazeneca, and Janssen COVID-19 Vaccines Among Nigerian Adults- A Randomised Non-Inferiority Double-Blind Trial	Open Philanthropy	Dr. A. P. Okwuraiwe & Mrs. F. A. Ige (Co-Investigators)

4.	HIVPrep awareness among young women	Self-sponsored	Mrs. F. A. Ige
5.	Assessing readiness and willingness of Telemedicine among nurses	CCHub	Dr. O. S. Amoo
6.	Characterization of emerging and re-emerging TTP	Self-sponsored	Dr. O. S. Amoo
7.	Assessment of mitochondrial DNA damage and aneuploidy among HIV-positive teenagers in southwest Nigeria	NIMR	Dr. C. K. Onwuamah
8.	An evaluation of human genomics loci associated with COVID-19 among people living in Nigeria	NIMR	Dr. C. K. Onwuamah
9.	Mitigating HIVDR among pregnant women and their new-borns across West Africa (HiPWaN2 Study)	Thermofisher Scientific, WANETAM, and NIMR	Dr. C. K. Onwuamah
10.	Innovative Rapid Enabling, Affordable, point-of-Care HPV Self-Testing Strategy (I-REACH)	NIH	Dr. C. K. Onwuamah (Co-Investigator)
11.	Genetic Diversity of Mycobacterium tuberculosis	WANETAM 3	Dr. N. N. Onyejebu
12.	Whole genome sequencing of MDRTB	WANETAM 2	Dr. N. N. Onyejebu; Mrs. C.N. Kunle-Ope
13.	In-Country Design and Development of Antigens and Antibodies for Enzyme Immunoassay Based Platforms of SARS-CoV-2	NIMR	Mrs. F. A. Ige
14.	Investigation of waste-water canals as a means of tracking the epidemiology of SARS-COV-2 and other pathogens of public health importance in Lagos State.	NIMR	Dr. E. E. Chukwu
15.	Safety and Antimicrobial Resistance of Mass Administration of Azithromycin among Children 1-11months in Nigeria (SARMAAN Project).	Bill and Melinda Gates	Dr. E. E. Chukwu (Co-Investigator)
16.	Designing and Piloting a Mobile app for tracking Antibiotic use in Lagos, Nigeria.	NIMR	Dr. E. E. Chukwu
17.	Genomic Information Surveillance on Drug-resistant <i>Mycobacterium tuberculosis</i> Isolates from Nigeria/TB-Portal	TETFUND	Prof. S. I. B. Cadmus (Adjunct Professor); Mrs. C. N. Kunle-Ope
18.	Drug resistant TB and antimicrobials in actinomycetes	Mahidol University, Bangkok, Thailand.	Dr. O. F. Davies-Bolorunduro



**(COMPLETED)**

S/N	TITLE OF PROJECT	SPONSOR	PRINCIPAL INVESTIGATOR
1.	GESIT AIDS Healthcare Foundation Grant – COVID-19 Sequencing among travelers	AHF	Dr. C. K. Onwuamah (Co-PI)
2.	Improving the Detection and Response to Drug-Resistant Tuberculosis in Nigeria: Regional Sequencing Hub for Drug-Resistant Tuberculosis (REST Hub)	US CDC	Dr. C. K. Onwuamah (Co-PI and NIMR Site Lead)
3.	Genotyping Human papillomavirus strains among women in Nigeria	China CDC and NIMR	Dr. C. K. Onwuamah
4.	Microbial Analysis of Sachet Water sold in Lagos State	NIMR	Ms. O. B. Awoderu
5.	Environmental assessments of antimicrobial resistance genes (ARGs) and Antimicrobial-resistant bacteria (ARB) from waste effluents and soil of livestock farms in Lagos State, Nigeria. Role: Co-Investigator	NIMR	Dr. E. E. Chukwu
6.	Triage Test for All Oral Drug Resistant Tuberculosis Regimen (TRIAD) in Collaboration with IHVN	IHVN	Mrs C. N. Kunle-Ope
7.	Susceptibility Testing of Delamanid and Bedaquinine using BACTEC MGIT 960 – CTBR	IHVN	Mrs C. N. Kunle-Ope
8.	Exploration of Marine Bacterial Community Genomics in Nigeria Coastal Waters for Prospective Novel Drugs and Bio-pharmaceuticals (In Collaboration with Microbiology Department, University of Lagos)	NIMR	Dr. O. F. Davies-Bolorunduro

**ACHIEVEMENTS**

- Developed Mpox Virus RT-q PCR Kit
- Responded to outbreaks of Dengue and Lassa fevers in Delta and Edo States respectively.
- Evaluated national treatment options for DRTB.

- Disseminated research findings on emerging and re-emerging infectious diseases to stakeholders.
- Dr. Emelda Chukwu qualified as a certified AMR surveillance professional for ASLM Fleming fund QWARS program
- Tracked epidemiology of pathogens of public health importance in water sources in Lagos State.
- Tracked VHFs in bats, rodents, mosquitoes & humans
- Three of our staff (Drs. Uche Igbasi, Christian Enwuru & Emelda Chukwu) were appointed as adjunct senior lecturers, Department of Medical Laboratory Sciences, Trinity University, Lagos State.
- Two new adjuncts (Profs. Ehimario Igumbor & Kolawole Oyedeji) were engaged in CIDR
- Held 1<sup>st</sup> review meeting with our adjuncts to peruse a 5-year strategic plan
- Dr. Emelda Chukwu was a guest speaker at the LUMS/CMUL/LUTH/UK FPH CwPAMS workshop where she talked on “The research priorities for Antimicrobial Stewardship in Nigeria” Theme: Antimicrobial Stewardship: Who are the stakeholders in Nigeria.
- CHVG & CTBR were successfully re-assessed by SANAS for ISO 15189 accreditation.
- Received equipment support from IHVN, SNEPCO & ThermoFisher Scientific.
- Some of our staff distinguished themselves in different areas of endeavours namely:
  - Dr. Olufemi Samuel Amoo – Young scientist award (2<sup>nd</sup> time)
  - Dr. Azuka Okwuraiwe - emerged best session presenter at NIMR Conference (2<sup>nd</sup> time)
  - Dr. Emelda Chukwu - emerged best session presenter at NIMR Conference (2<sup>nd</sup> time), obtained African Academy of Science Affiliate status & entered into partnership with Ducit Blue Foundation for AMR Internship for health professionals
- Some staff obtained Post-Doctoral Positions:
  - Dr. Davies-Bolorunduro - Postdoc in Mahidol University, Thailand
  - Rahaman Ahmed - Postdoc in Harvard University, USA
  - Dr. Emelda Chukwu - Nobert Elias Postdoc, Germany



## **CAPACITY DEVELOPMENT**

- Number of Conferences/Workshops/Trainings Attended - 17
- Number of B.Sc., M.Sc., Ph.D. students supervised - 15
- Number of NYSC/Industrial Training Students - 90

## **COLLABORATIONS AND PARTNERSHIPS**

### **INTERNATIONAL COLLABORATORS**

- Institute de Pasteur (IPD), Dakar, Senegal
- Heartland Alliance
- Clinton Health Access Initiative (CHAI)
- Emory University
- Medical Research Council-Unit, The Gambia (MRCG)
- Thermofisher
- US-CDC
- Novartis Group
- West African Node of Excellence for TB, AIDS and Malaria (WANETAM)
- Institute of Tropical Medicine, Antwerp, Belgium
- Tuberculosis Supra Reference Laboratory, Milan, Italy
- Tuberculosis Supra Reference Laboratory, Cotonou, Benin

### **NATIONAL COLLABORATORS**

- Federal Medical Centre, Ebute-Metta, Lagos
- Nigeria Centre for Disease Control (NCDC)
- African Centre of Excellence for Genomics of Infectious Diseases (ACEGID), Redeemers University, Ede, Osun State
- Life Bank Nigeria
- University of Lagos, Lagos State
- University of Ibadan, Oyo State
- University of Ilorin, Kwara State
- Lead City University, Oyo State
- Federal Ministry of Health
- National Tuberculosis and Leprosy Control Programme (NTBLCP)
- Institute of Human Virology, Nigeria (IHVN)
- Lagos State Tuberculosis Control Programme

- Lagos Mainland Hospital, Yaba, Lagos
- Ducit Blue Foundation (DBF)

### **GRANTS/FELLOWSHIP AWARDS (EXTERNAL FUNDING)**

- Emory Nigeria Research Training Grant (EN-RTP), a D43 NIH Grant (**Dr. Azuka Okwuraiwe & Fatimah Anwonju**).
- CTHAN Grant on development of a low-cost and reliable isothermal HIV multidrug nucleoside reverse transcriptase inhibitor (NRTI) testing platform (**Prof. A.A. Osuntoki** (adjunct) & **Dr. Azuka Okwuraiwe**).
- WANETAM III workshop travel grant (**Dr. Emelda Chukwu**).
- Canada-Africa Monkey pox Project (CAMP) involving Canada and Nigeria (**Prof. Rosemary Audu**).
- WHO/TDR Grant on One Health and Climate change (NIMR and Institute Pasteur, Dakar consortium) (**Prof. Rosemary Audu**).

### **NIMR GRANT AWARD**

- Travel Grant: Laboratory visit to International Foundation Against Infectious disease in Nigeria (IFAIN) Laboratory, Abuja. (**Dr. Emelda Chukwu**).
- Junior Category: Designing and piloting a mobile app for tracking antibiotic use in Lagos, Nigeria. (**Dr. Emelda Chukwu**).
- Senior Category: Human Genomics loci associated with COVID-19 (**Dr. Chika Onwuamah**).
- Innovative Grant: Development of Clinical Trial Unit (**Dr. Nneka Onyejebu**).
- Innovative Grant: Development of Hepatitis B Viral Load Kit - (**Joseph Shaibu**).
- Innovative Grant: Viral Haemorrhagic Fever and their Reservoirs in Nigeria (**Prof. Rosemary Audu**).

### **CHALLENGES**

- Inability to commercialize and patent innovations.
- inadequate Biosafety cabinets and calibration of same.
- Poor inventory management at CHVG.
- Delayed CBN International Transactions (payments and receipt of funds).
- Inadequate office and store space for CTBR.
- Sub-optimal functioning of Biosafety Level 3 (BSL 3) Laboratory.



## **WAY FORWARD**

- Explore faster pipelines for the commercialization and patenting of innovations.
- Purchase more Biosafety cabinets and develop institutional calibration plan for them.
- Train and strengthen CHVG Store Officers for effective and efficient Inventory Management.
- Devise an acceptable means for improved CBN transactions.
- Write more proposals for research grants to complement Government funding.
- Service of HVAC system of BSL 3 Laboratory for optimal functioning.

## **2023 WORK PLAN**

- Ensure successful WHO PQ re-assessment for CHVG and CTBR.
- Renovate reading room walls to avert adverse events in CHVG.
- Attract more research grants and collaborators.
- Expand the scope of ISO 15189 accreditation.
- Procure more relevant laboratory and office equipment.
- Train and strengthen CHVG Store Officers for effective and efficient Inventory Management.
- Devise an appropriate means to increase IGR from services.

## MOLECULAR BIOLOGY AND BIOTECHNOLOGY DEPARTMENT

### INTRODUCTION

The Molecular Biology and Biotechnology Department has six (6) Research Units/Laboratories, which are:

- Molecular Epidemiology & Food Safety Research Unit- Headed by **Prof. S.I Smith, FAS**
- Nano Technology and Apoptosis Research Unit- Headed by **Dr. B.A. Iwalokun**
- Probiotics Science & Gut Microbiome Research Unit- Headed by **Dr. T.A. Bamidele**
- Respiratory Diseases Research Unit- Headed by **Dr. T.Y. Raheem**
- Molecular Diagnostics Research Unit- Headed by **Dr. M.A. Fowora**
- Klebsiella Research Unit- Headed by **Mrs. A. Adagbada /Mr. J.I. Yisau.**

Human Resource in the Department: There are seven (7) Research Fellows and one (1) active Adjunct Research Professor in the Department.

Other categories of staff in the Department are:

- Medical Laboratory Scientists =3
- Science Laboratory Technologist =1
- Admin Officer =1
- Secretariat Assistant =1
- Project Staff =3

### RESEARCH ACTIVITIES

#### (COMPLETED AND ONGOING)

- Co-infection of *Helicobacter pylori* and parasites in children of selected low-income communities in Lagos State, Nigeria.
- Detection of bacterial pathogens in septicaemia in children under five in the tertiary hospitals in Lagos State.
- Comparative analysis of VIDAS and cultural methods for isolation and identification of *Listeria*, *Campylobacter* and *Salmonella* species in raw chicken and some ready to eat foods in Lagos State.
- Seasonal dynamics of *Vibrio* species in Lagos lagoons.



- Commencement of work on the established Food Safety Lab for detection of food pathogens (Prof. S.I. Smith and others).
- Training and screening of food Handlers/collection of clinical samples from Food Handlers for investigation of food-borne pathogens (Dr. T.Y. Raheem and others).
- Metagenomic profile of the blood and stool samples of septicemic children (Prof. S. I. Smith and others).
- Exploration of Marine Bacterial Community genomics in Nigerian Coastal Waters for Prospective Novel Drugs and Biopharmaceuticals (Prof. S.I. Smith and others).
- Comparative molecular analysis of an outer membrane protein (*ompC*) of non-typhoidal *Salmonella* serovars isolated from different sources in Lagos State.
- Plasmid replicon typing and integron classes of *Pseudomonas aeruginosa* strains isolated from clinical samples of patients.
- The Role of Water Hyacinth (*Eichornia crassipes*) as a Reservoir of *Vibrio* species in Lagos Lagoons.
- Plasmid replicon typing and integrons classes of *Salmonella* serovars isolated from food animals and humans in Lagos State.
- Assessment of Human host-SARS-CoV-2 interactions for improved control and case management of COVID-19 in Lagos, Nigeria (departmental project).
- Establish & Improve the functionality of the Microbial genetics, Immunogenetic and Theranostic Lab (Dr. Iwalokun, B.A. and others).
- Prevalence and distribution of mycotoxin genes in selected staple foods across the 7 agroecological zones in Nigeria (Dr. B.A. Iwalokun and others).
- *In vivo* activities of food grade probiotic LAB against mycotoxigenic fungi in Nigeria (Dr. T.A. Bamidele and others).
- Screening of the environmental *Bacillus* spp. for antimicrobial and technological activities (Dr. T.A. Bamidele and others).

- *Microbial profile of rinsates and bowl water in selected hand washing stations during COVID-19 pandemic in Lagos, Nigeria* (Dr. T.A. Bamidele and others).
- *Nasal carriage of virulent Staphylococcus aureus: A possible co-morbidity of COVID-19.*
- Occurrence and possible association of Streptococcus pneumoniae antibodies to vulnerability and severity of COVID-19 (Dr. T.Y. Raheem and others).
- Genetic Polymorphism of Gene Coding for ACE-2 host Protein in SARS COV-2 (Dr. T.Y. Raheem and others).
- Molecular characterization and risk factors of bacterial agents of diarrhea in major Nigerian slums (Dr. T.A. Bamidele and others).
- Occurrence of Klebsiella pneumoniae infection in people presenting for Covid-19 testing in testing centers in Lagos State, Nigeria: Implication for Diagnosis and Treatment (Adagabada, Jacob and others).
- Training of students'/health professionals (IT/SIWES/ Undergraduate and post graduate Research Students).
- Staff participation in Conferences/Workshops.
- Representation at national and international committees and meetings
- Writing and publication of papers.

## ACHIEVEMENTS

A total of 25 scientific papers were published in peer-reviewed journals by the staff.

- Members of the Department had international recognitions e.g.
- ✓ Prof S.I. Smith was Elected Fellow of the Nigerian Academy of Science & appointed Consultant to European project titled 'Real World Gastritis Initiative (RE.GA.IN)'
- ✓ Prof. S.I. Smith Convened the launch of the African Helicobacter and Microbiota Study Group in June 2022 with members from eight African

countries in attendance as the founding President. Established the AHMSG office.

- Participation in National Pathogen Control and inventory System at the BRM meeting held twice in March, 2022 in Abuja (Prof. S.I. Smith & Dr. T.Y. Raheem).
- Participation in the REVIEW OF BRM-RELATED LAWS at the NIGERIA STAKEHOLDERS' CONSULTATIVE FORUM sponsored by Sandia National Laboratories/US DTRA-BTRP (Dr. T.Y. Raheem).
- ✓ Dr. T.Y. Raheem was appointed an Ambassador of Celebrate Lab W/A during their conference in Accra, Ghana in April, 2022.
- ✓ Dr. Muinat Fowora developed Diagnostic kits for DNA/RNA extraction
- ✓ Dr. Bamidele Iwalokun gave the Distinguished Lecture during the just concluded I-CHAIR Conference, 2022.
- ✓ Members of the Department attended International Conferences and gave Oral Paper Presentations respectively.

## COLLABORATIONS AND PARTNERSHIPS

S/NO	ACTIVITIES	NAME OF RESEARCHERS/INSTITUTION	DEPARTMENTAL STAFF INVOLVED
1	Collaborators & Partnership	African Centre for Excellence on Neglected Tropical Diseases and Forensic Biotechnology, ABU-Zaria, Kaduna State	Prof. S.I. Smith, FAS
		University of Venda South Africa	
		Walter Sisulu University of Health Sciences, South Africa	
		Emerging Pathogen Institute University Florida, USA	
		University of Lagos	
		University of Benin	
		Lagos State University (LASU)	
		Obafemi Awolowo University, Ile-Ife	
		Ibrahim Babangida University, Lapai	
		LMU, Munich, Germany	
		1. African Centre for Excellence on Neglected Tropical Diseases and Forensic Biotechnology, ABU-Zaria, Kaduna State	Dr. B.A. Iwalokun
		Caleb University, Imota, Lagos State	
		African Centre of Excellence on Mycotoxins and Food Pathogens-Federal University of Technology,	



		Minna, Niger State: Theses supervision, Molecular Biology hands on training.	
		Dr. Bamidele Odumosu Dept of Microbiology, Unilag	Dr. T.A. Bamidele
		Prof. Oliver Ezechi (NIMR)	
		Dr. Ameh James: School of Vert Science, Australia	Dr. T.Y. Raheem
		Lead City University, Ibadan	
		Trinity University, Yaba-Lagos	Dr. T.Y. Raheem Dr. M.A. Fowora Mrs. A. Adagbada Dr. B.A. Iwalokun
		EkoUniMed	Dr. T.A. Bamidele Dr. M.A. Fowora
2	Research Publications	25	All Research Fellows
3.	Number of Conferences/ Workshops	15	All Research Staff
4	Grants/Fellowship Awards	<p>(i) Funding for 38<sup>th</sup> European Helicobacter and Microbiota Study Group, September 2023.</p> <p>(ii) Collaborator in the TETFUND grant titled 'Exploration of Marine Bacterial Community genomics in Nigerian Coastal Waters for Prospective Novel Drugs and Biopharmaceutics. Unilag' with Dr. M. Salu of University of Lagos as PI</p> <p>(iii) Co-Researcher in the TETFUND grant titled 'Molecular Epidemiology of Salmonella enterica Typhi and their Antibiotic Resistance Patterns in North Central, Nigeria with Prof. Dickson as PI</p> <p>(iv) COVID-19 Intervention Grant-Departmental Project</p> <p>(v) Travel Grant</p> <p>(vi) The department is part of SARMAAN Grant</p> <p>(vii) Vitamin D Levels, Liver Enzymes and Markers of Kidney Function in SAR CoV-2 Infected and non-infected individuals in Lagos, Nigeria. (Local/COVID-19 Intervention) (10/08/2021-09/07/2022).</p>	<p>Prof. S.I. Smith, FAS</p> <p>Departmental Project</p> <p>Dr. T.A. Bamidele</p> <p>Dr. T.Y. Raheem</p>
5	Special Award (Anticorruption Award)	A member of MB&BT won the Maiden NIMR Anticorruption and Transparency Unit (ACTU) Award for 2022	Mrs. A. Adagbada
6	Students Supervisions	<p>BSc 10</p> <p>SIWES 97</p> <p>MSc 20</p> <p>PhD 5</p> <p>NYSC 4</p>	All Research Staff in the Department

## CHALLENGES

- Inadequate office spaces (HOD, Members of staff).
- Lack of secretarial assistance.
- Inadequate staff in key areas of research in the Department. The followings are the staff needs in the department:
  - 5 Molecular Biologists (Research Fellow 1).
  - 3 Computational Biologists (Research Fellow 1).
  - 2 Bioinformaticians (Research Fellow)

## WAY FORWARD

- Recruitment of staff in Molecular/computational biology, Bioinformatics.
- Urgent need of BSL2 Biosafety cabinet.
- Need for the renovation of workbenches in MBBT laboratories.
- Need for provision of furniture in the Departmental Conference room and the HOD's Office recently approved for the Department by the DG.

## 2023 WORK PLAN

In addition to the continuation of the above projects, the following projects indicated below will be implemented in the department:

- Assessment of Human Host-SARS-CoV-2 Interplays for Improved Vaccination, Control and case Management of COVID-19 in Nigeria (COVID-19 Intervention Grant).
- ACE-2 Genetic Polymorphism in SARS COV-2 individual infected and uninfected individuals in Lagos, Nigeria (COVID-19 Intervention Grant).
- Vitamin D Levels, Liver Enzymes and Markers of Kidney Function in SARS CoV-2 infected and non-infected individuals in Lagos Nigeria (COVID-19 Intervention Grant).
- Comprehensive Health Screening for Food Handlers /Consumers in Selected Local Government Areas in Lagos State Nigeria.
- BRM Institutional Training on Advocacy and Implementation of Biorisk Management (BRM) in NIMR.

Activities of the Department will be under the following Thematic areas as presented during the 2022 NIMR Retreat viz:

Thematic area 1 (Governance Structure in the Department)

Thematic area 2: (Health Research for National Development)

Thematic area 3: (Human Resource Support for Health) i.e. continuous training of students for SIWES, Internship, MSc, PhD etc.



## PUBLIC HEALTH AND EPIDEMIOLOGY DEPARTMENT

### INTRODUCTION

The Public Health and Epidemiology Department continues to wax stronger in its research activities. The Department's areas of focus are mainly tropical diseases, health systems and bioethics. The Department approaches its primary assignment to conduct research and strengthen public health and national development through the research Units in the Department, namely:

- Molecular Entomology and Vector Research Laboratory
- Molecular Parasitology Research Laboratory
- Onchocerciasis and Soil Transmitted Helminths Research Laboratory
- Epidemiology/Health Policy and Systems Research

In the last one year, the number of grants it attracted to the Institute has grown tremendously and this has enhanced its research activities as evident below.

### RESEARCH ACTIVITIES

#### (ONGOING)

- Female genital schistosomiasis: Association with cervical cancer in Nigeria.
- Exploration of the Diversity of Multi-drug Resistant *Mycobacterium tuberculosis* Complex in Nigeria using WGS: Distribution of Lineages, Drug Resistance Patterns and Genetic Mutations.
- Enhancing the fundamentals for effective control of Buruli Ulcer through sequencing and mutation analyses of drug resistance in the era of global spread of antimicrobial resistance.
- Molecular epidemiology of urinary schistosomiasis and characterization of human and animal infective schistosome species in three endemic areas of Ogun State, Southwestern Nigeria.
- Epidemiological study and molecular characterization of cryptosporidium infections in cattle and nomadic pastoralists in Abeokuta North and Odeda LGAs, Ogun State, Nigeria.

- Contextualized strategies to optimize coverage of school-based mass drug administration for soil transmitted helminthes and schistosomiasis control programs in Nigeria.
- Molecular epidemiology and characterization of human and animal schistosomiasis in a putative hybrid zone in Ogun State, Nigeria.
- Understanding the Burden of Neurocysticercosis and Neurotoxocariasis among persons with Epilepsy in Nigeria: An Epidemiological Study.
- Factors Influencing Enrolment in Lagos State Health Insurance Scheme
- Scaling Safe Water Practices to Reduce Child Mortality
- Knowledge and perception of influence of climate change on home management of malaria among mothers and other caregivers of children under five years in Lagos State, Nigeria.
- Multi-country monkeypox outbreak: livelihoods, vulnerability and preparedness Project, University of Ibadan in collaboration with Institute of Development Studies (UK).
- Operations Research on the Ilera Eko Scheme, The Health Policy Research Group (HPRG), University of Nigeria, Enugu.
- Co-morbidity of SAR-Cov-2 infection with intestinal parasites among individuals in selected markets in Lagos State, Nigeria.
- Longitudinal survey on the distribution and abundance of yellow fever vector: *Aedes aegypti* in Lagos and Ogun states
- Genotyping and assessment of *Plasmodium falciparum* K13 mutation conferring artemisinin resistance in malaria vectors from Nigeria
- Mechanism of multiple insecticide resistance in *Anopheles gambiae* s.l. from Lagos, Nigeria

## ACHIEVEMENTS

- First identification, characterization and ITS2 gene sequencing of an urban malaria vector, *Anopheles stephensi* in West Africa
- First detection of N1575Y mutation in pyrethroid resistant phenotype of *Anopheles gambiae* in Nigeria
- A new Director of Research (Dr. B. Adewale)

## CAPACITY DEVELOPMENT

### Staff undergoing Ph.D. and M.Sc. Programmes

S/N	Name	University	Ph.D/M.Sc. Project Title	Status
1.	Mr. A.K. Adeneye (Ph.D. Programme)	University of Ibadan Department of Sociology, Faculty of Social Sciences	Effect of climate change on home management of malaria in Lagos State, Nigeria	Ongoing
2.	Mr. Adewale Kayode Ojogbede (Ph.D Programme)	University of Ibadan Department of Environmental Health Science	Prenatal environmental exposures, birth weight and neurodevelopment in infants at six months	Ongoing
3.	Nwafor Timothy (M.Sc. Programme)	University of Lagos Department of Cell Biology and Genetics	Molecular diagnosis by real time PCR and Computer-assisted drug repurposing of ivermectin and moxidectin for Buruli Ulcer treatment	Ongoing

### Adjunct Researchers in the Department

- Dr. Tomiwa Folahanmi Akinsolu - Adjunct Researcher
- Prof. Yomi Sowemimo - Adjunct Research Prof.
- Prof. Chia-Kwung Fan - Adjunct Research Prof.
- Prof. Tang Thean Hock - Adjunct Research Prof.
- Prof. Richard Wamai - Adjunct Research Prof.
- Prof. Conor Caffrey - Adjunct Research Prof.
- Dr. Rotimi Samuel Owolabi - Adjunct Researcher
- Prof. Monsuru Adeleke - Adjunct Research Prof.

### Ph. D /M.Sc./Industrial Training students supervised

Ph.D.	M.Sc.	I.T.
4	3	60

### Conferences/Workshops/ Trainings attended

- A Two-day Workshop on Art and Practice of System Integrity in Public Institution as a Catalyst for Good Leadership, Ethical Conduct and Revenue Generation. Nigerian Institute of Medical Research, Yaba, Lagos. 22<sup>nd</sup> - 23<sup>rd</sup> November 2022.
- The Nigerian Institute of Medical Research International Conference on Health Advances, Innovation and Research (ICHAIR), Lagos, Nigeria. 8<sup>th</sup>-10<sup>th</sup> November, 2022.



- Second Meeting of the Network of Buruli Ulcer Laboratories (BU-LABNET) on PCR Diagnosis in West Africa, Yaoundé, Cameroon, 24<sup>th</sup>-26<sup>th</sup> October 2022.
- Parasitology and Public Health Society 46th Annual National Conference, Delta State University, Abraka, Delta State, Nigeria. 4<sup>th</sup>-7<sup>th</sup> October 2022.
- WHO Strategic and Technical Advisory Group Meeting (Virtual) for Neglected Tropical Diseases (STAG-NTDs), WHO Headquarters, Geneva, Switzerland. 27<sup>th</sup>-28<sup>th</sup> September 2022.
- Visit of Nigerian Institute of Medical Research Management Staff to the Medical Research Council, London School of Hygiene and Tropical Medicine, Banjul, The Gambia. 19<sup>th</sup>-22<sup>nd</sup> September 2022.
- Armauer Hansen Research Institute and TDR Global Institutional Research Mentorship Development Conference, Addis Ababa, Ethiopia, 22<sup>nd</sup>-24<sup>th</sup> June 2022.
- Understanding the link between climate change and global health security. Global Emerging Pathogen Treatment Consortium (GET) Webinar, 23<sup>rd</sup> February, 2022.
- Maximizing the global mRNA technology transfer hub to enhance vaccine production in Africa. Global Emerging Pathogen Treatment Consortium (GET) Webinar, 23<sup>rd</sup> March 2022.
- Building climate resilient health systems in Africa: outcomes of COP 27. Global Emerging Pathogen Treatment Consortium (GET) Webinar, 14<sup>th</sup> December 2022.
- Royal Society of Tropical Medicine and Hygiene (RSTMH) Annual Meeting 2022: Topical Issues in Malaria and Resistance. Museum of Liverpool, Liverpool, UK. 11<sup>th</sup>-12<sup>th</sup> October 2022.
- H3BioNET Introduction to Bioinformatics Online Course: IBT (2022)

## **COLLABORATIONS**

### **INTERNATIONAL COLLABORATION**

- Freie Universität Berlin, Germany
- Universidad Eduardo Mondlane, Maputo, Mozambique
- Mozambique Institute for Health Education and Research

- Department of Molecular Parasitology and Tropical Diseases, School of Medicine & Research Center of International Tropical Medicine, College of Medicine, Taipei Medical University, Taiwan.
- Center for Discovery and Innovation in Parasitic Diseases, Skaggs School of Pharmacy and Pharmaceutical Sciences, University of California, San Diego, USA
- Advanced Medical and Dental Institute, Universiti Sains Malaysia Penang Malaysia.
- Department of Preventive Medicine, Faculty of Public Health, University of Debrecen, Hungary
- University of Pennsylvania, Philadelphia, USA
- Institute of Tropical Medicine and School of Tropical Diseases and Global Health, Nagasaki University, Nagasaki Japan
- Research Triangle Initiative, USA

#### **NATIONAL COLLABORATION**

- Federal Medical Centre Abeokuta, Ogun State, Nigeria.
- Department of Zoology, Obafemi Awolowo University, Ile-Ife, Osun State, Nigeria
- Social Science Academy of Nigeria and Towntalk Consortia, Abuja, Nigeria.
- Department of Pure and Applied Zoology, Federal University of Agriculture, Abeokuta, Ogun State, Nigeria.
- Saro Lifecare, Lagos, Nigeria.
- ABT/PMI/USAID/Vectorlink Associates, Abuja, Nigeria.
- Nigerian Natural Medicine and Development Agency, Lagos, Nigeria.
- Lead City University, Ibadan, Oyo State, Nigeria.
- National Tuberculosis, Buruli Ulcer and Leprosy Control Programme (NTBLCP), Abuja, Nigeria.
- Department of Zoology, Faculty of Science, Obafemi Awolowo University, Ile-Ife, Osun State, Nigeria.
- Department of Zoology, Faculty of Science, University of Lagos, Akoka, Lagos, Nigeria.
- Department of Geography, Faculty of Social Science, University of Lagos, Akoka, Lagos, Nigeria.

- Department of Psychology, Faculty of Social Science, University of Lagos, Akoka, Lagos, Nigeria.
- Biochemistry Department, Faculty of Science, Ahmadu Bello University, Zaria, Kaduna State, Nigeria.
- German Leprosy and Tuberculosis Relief Association (GLRA), Enugu, Enugu State, Nigeria.
- Department of Sociology, Faculty of Social Science, University of Lagos, Akoka, Lagos, Nigeria.

### **GRANTS AND FELLOWSHIP AWARDS**

- The Deutsche Forschungsgemeinschaft (DFG, German Research Foundation) Grant for Initiation of International Collaborations (2022-2023). Project No. 508752744.
- Nigerian Institute of Medical Research Grant Award 2022-2024 (Grant No. 5NM-ADJGT-22-0081).
- Nigerian Institute of Medical Research Grant Award 2021-2023 (Grant No. 3NMG-SRGT-20-0055).
- National Institute for Health Research (NIHR), Department of Health and Social Care (DHSC)/RSTMH Small Grants Programme 2021-2022.
- Nigerian Institute of Medical Research Grant Award 2021-2022 (Grant No. 3NM-JRGT-20-0051).
- United Kingdom's Foreign, Commonwealth and Development Office (FCDO) African Researchers' Small Grants Program 2021-2022.
- Epidemiological Survey of H. Pylori and Co-Infection of Helminths Among Asymptomatic and Symptomatic Individuals in Lagos, Nigeria.
- Scaling Safe Water Practices to Reduce Child Mortality
- United States of America Naval Medical Research Unit (NAMRU-3) Grant 2021-2023
- Royal Society of Tropical Medicine and Hygiene (RSTMH) Small Grants Programme 2021-2022.
- Tropical Health Grant 2021-2023



## CHALLENGES

- Acute shortage of research staff.
- Inadequate office and laboratory spaces.
- Inadequate funding.

## WAY FORWARD

- Focused attention in securing fund for research
- Increased training opportunities and sponsorships for staff
- Need more office and laboratory spaces

## 2023 WORK PLAN:

Continue work on all ongoing projects

- Exploration of the Diversity of Multi-drug Resistant *Mycobacterium tuberculosis* Complex in Nigeria using WGS: Distribution of Lineages, Drug Resistance Patterns and Genetic Mutations.
- Enhancing the fundamentals for effective control of Buruli ulcer through sequencing and mutation analyses of drug resistance in the era of global spread of antimicrobial resistance.
- Epidemiological study and molecular characterization of cryptosporidium infections in cattle and nomadic pastoralists in Abeokuta North and Odeda LGAs, Ogun State, Nigeria.
- Contextualized strategies to optimize coverage of school-based mass drug administration for soil transmitted helminthes and schistosomiasis control programs in Nigeria.
- Understanding the Burden of Neurocysticercosis and Neurotoxocariasis among persons with Epilepsy in Nigeria: An Epidemiological Study.
- Female Genital Schistosomiasis: Association with Cervical Cancer in Nigeria.
- Molecular epidemiology of urinary schistosomiasis and characterization of human and animal infective schistosome species in three endemic areas of Ogun State, Southwestern, Nigeria.
- Contextualized strategies to optimize coverage of school-based mass drug administration for soil transmitted helminthes and schistosomiasis control programs in Nigeria.

- Molecular epidemiology and characterization of human and animal schistosomiasis in a putative hybrid zone in Ogun state, Nigeria.
- Understanding the Burden of Neurocysticercosis and Neurotoxocariasis among persons with Epilepsy in Nigeria: An Epidemiological Study.
- Factors Influencing Enrolment in Lagos State Health Insurance Scheme
- Scaling Safe Water Practices to Reduce Child Mortality
- Knowledge and perception of influence of climate change on home management of malaria among mothers and other caregivers of children under five years in Lagos State, Nigeria.
- Multi-country monkeypox outbreak: livelihoods, vulnerability and preparedness Project, University of Ibadan in collaboration with Institute of Development Studies (UK).
- Operations Research on the Ilera Eko Scheme, The Health Policy Research Group (HPRG), University of Nigeria, Enugu.
- Co-morbidity of SAR-Cov-2 infection with intestinal parasites among individuals in selected markets in Lagos State, Nigeria.
- Longitudinal survey on the distribution and abundance of yellow fever vector: *Aedes aegypti* in Lagos and Ogun States
- Genotyping and assessment of *Plasmodium falciparum* K13 mutation conferring artemisinin resistance in malaria vectors from Nigeria
- Mechanism of multiple insecticide resistance in *Anopheles gambiae* S.I. from Lagos State, Nigeria

## 2023 WORK PLAN

Thematic Area	Targets
<b>1. Governance</b>	
Strategic Objective 1.2.4 Print and Disseminate Strategic Plan for 2022-2026	22
Strategic Objective 1.6.2 Establish New Public-Private Partnership	20
<b>2. Health Research for National Development</b>	
Strategic Objective 2.1	20
Number of Research Proposal to be submitted	1
2.3.1 Conduct quality assessment of labs	10
2.3.2 Training of laboratory personal	1
2.3.3 Number of quality improvement systems for laboratories	20
2.4 Number of proposals with ethical compliance to be submitted	30
2.6.4 Dissemination of NIMR research	20
Number of Manuscripts	
Number- seminars/webinars/Conferences	
<b>3. Resource Support for Health and Development</b>	
3.6.1 Review and conduct annual training needs assessment Assessment to be done	2

## ADMINISTRATION DEPARTMENT

### INTRODUCTION

The Administration Department ensures the efficient performance of all Departments and Units in the Institute. It is charged with the responsibility of providing administrative and support services to the Institute. The Department is required to create an enabling environment for the conduct of research through the discharge of its Personnel Management and Administrative functions.

The Department has a total number of twenty-five (25) staff

Divisions and Units in the Department include:

- Registry
- Appointment, Promotion and Discipline
- Pension and Welfare
- General Duties, Training and Development
- Legal Matters
- NIMR Kitchen

### ACTIVITIES OF THE DEPARTMENT IN 2022

The activities of the Administration Department in 2022 include:

- i. Provision of Secretarial Services to the Standing Committees of the Institute and in that capacity prepared agenda and the necessary working documents for Standing Committee meetings as directed by the Director-General/CEO.
- ii. Advised Management on administrative and personnel issues.
- iii. Responsible for effective understanding of the Institute's personnel management functions such as recruitment of staff, training and development, salary administration including allowances, leave matters, staff posting, discipline and withdrawal of service in the form of retirement, resignation of appointment, termination, dismissal from service as the case may be as well as processing of staff Annual Performance Evaluation Reports.



- iv. Responsible for staff welfare matters, implementation of approved policy on Medicare, Pension, Housing etc.
- v. Handling of the Institute's legal and insurance matters.
- vi. Receiving, storing and updating of staff records.
- vii. Liaising with the Finance and Accounts Department and various Research Departments in the preparation of the Institute's Development Rolling Plan and Annual Budgets.
- viii. Supervision of the Security Unit.
- ix. Handling of official Administrative correspondence of the Institute with its public.
- x. Undertook any other duties as were assigned.

## ACHIEVEMENTS OF THE ADMINISTRATION DEPARTMENT IN 2022

### 1. 2022 Promotion Exercise

The Department obtained approval for establishment positions from the Office of the Head of Civil Service of the Federation (OHCSF) for the conduct of 2022 promotion exercise for qualified staff. Letters were issued to successful candidates. The numbers of staff promoted and converted in 2022 are as indicated below:

Senior Staff	Junior Staff	Conversion
44	12	1

### 2. Institute's Schemes of Service

The Department facilitated the production of a draft copy of the Institute's Schemes of Service which has been sent to the Office of the Head of the Civil Service of the Federation (OHCSF) through the Federal Ministry of Health for consideration and approval.

### 3. Retirees

The Administration Department facilitated the smooth retirement of five (5) members of staff in 2022 with details as shown below:

S/N	NAME	DESIGNATION	EFFECTIVE DATE OF RETIREMENT
1.	Mr. P. O. Ejiga	Director (Planning)	31/12/2022
2.	Dr. (Mrs.) C. E. Uzohue	Deputy Director, Lib Info. & Tech.	24/09/2022
3.	Mrs. A. E. N. Okoye	Deputy Director, Administration	22/12/2022
4	Mr. C. D. Uzuh	Principal Stores Officer II	03/01/2022
5	Mr. D. N. Ugochukwu	Senior Foreman (Electrical)	11/04/2022

#### 4. **Departmental Meetings**

Monthly meetings had been conducted in the Department regularly and staff of the Administration Department wish to commend the Director-General for introducing this practice.

#### 5. **Death in Service**

Through the Pension and Welfare Unit of the Department, the Institute was able to arrange for the burial of four (4) staff of the Institute that passed on while in service and ensured the payments of their burial benefits to their respective families during the period. The staff were Late Mr. A. O. Ishola, Mrs. F. N. Nwodo, Mr. M. K. Idris and Mrs. B. A. Awosika.

#### 6. **Project Staff**

The Department also facilitated the appointment of fifty-eight (58) project staff in the Institute.

#### 7. **Adjunct Researchers**

Five (5) Adjunct Researchers were appointed in 2022.

#### 8. **External Relations**

The Administration Department has continued to ensure that the MoUs and relations between the Institute and other organizations remain cordial.

### **CAPACITY DEVELOPMENT**

The Department facilitated the workshop on Freedom of Information Act for some staff of the Institute held on the 22<sup>nd</sup> September 2022 at the Institute Auditorium.

Also, facilitated, was the Anti-Corruption workshop on Art and Practice of System Integrity in Public Institution as a Catalyst for Good Leadership, Ethical Conduct and Revenue Generation for selected staff of the Institute held on 22<sup>nd</sup> – 23<sup>rd</sup> November 2022 at the Institute Auditorium.

### **NYSC/INDUSTRIAL TRAINING PROGRAMMES**

The Department had absorbed some National Youth Service Corps (NYSC) members, enrolled Students for the Industrial Work Experience Scheme (SIWES), Bench Space and Internship as shown below:

<b>BENCH SPACE</b>	<b>INTERNSHIP</b>	<b>NYSC</b>	<b>SIWES</b>
36	93	75	193

## **CHALLENGES**

The Department was able to identify some major challenges that militated against the smooth running of Administrative duties during the year. These are:

- Shortage of Secretarial and Clerical Officers.
- Shortage of computer systems.

## **WAY FORWARD**

- The Administration Department will continue to perform its functions as enumerated above and ensure that the Institute operates within the extant rules and regulations guiding the Public Service. In addition, it will continually render support services to all arms of the Institute and attend to staff matters, such as appointments, promotion, discipline, staff posting and dispatch of correspondence.
- The Department would like to appreciate the Director-General for his unflinching support and understanding since his assumption of duty in the Institute and for providing the enabling environment that has helped the Department to achieve all that it could during the year. We extend our olive branch to other Departments/Units in the years ahead.

## **2023 WORK PLAN**

The Department will continue to handle all the Institute's programmes on administrative matters and any other duty that may be assigned to the Department during the year 2023.



## CENTRAL RESEARCH LABORATORY UNIT

### INTRODUCTION

The Mission of the Central Research Laboratory is to give Researchers the edge to compete with international counterparts. Our aim is to provide access to state-of-the-art equipment, facilities, and technical expertise essential for the thriving of medical research in Nigeria. The Laboratory promotes scientific thinking and experimental exposure for Biochemical and Clinical Researchers. It also provides students with hands-on experience with advanced research and trainings.

The Central Research Laboratory is equipped with modern equipment to service the research needs of the relevant research Departments of the Institute and the public. It intends to advance research in most health research disciplines including Biological and Clinical Sciences and compliment other specialized Departments in the Institute.

### CRL Staff

- Dr. Ngozi Otuonye - Laboratory Manager
- Mrs. Joy Akinbami - Scientific Officer
- Mr. Nyam Yusuf - Laboratory Technician

### CRL Technical Team

- Dr. Bamidele Iwalokun - Director
- Dr. Ngozi Otuonye - Laboratory Manager
- Dr. Chika K. Owuamah - Deputy Director
- Dr. Azuka P. Okwuraiwe
- Dr. James Ayorinde
- Dr. Sola Ajibaye
- Dr. Adenike M. Fowora
- Mrs. Joy Akinbami - Scientific Officer (Secretary)

### **Laboratory Structure**

- Tissue - Culture Laboratory
- Oligonucleotide Synthesis Laboratory
- Drug Development & toxicological Laboratory
- Food Pathogen Diagnostic Laboratory
- Central Sequencing Laboratory.

### **Thematic Areas of Activities and Sub-activities of Central Research Laboratory**

1. Thematic Area 1: To improve funding available to CRL
2. Thematic Area 2: To upgrade and maintain CRL for the institute's strategic needs
3. Thematic Area 3: To establish new networks and collaborations, maintain old ones at all levels and make NIMR nationally and globally relevant for research.

### **RESEARCH ACTIVITIES**

#### **(COMPLETED AND ONGOING)**

1. Molecular characterization Eta SARS-CoV-2 variants from Southern Nigeria
2. Whole genome Sequencing and Molecular characterization of SARS-CoV-2 variants responsible for the fourth/fifth epidemic wave of COVID-19 pandemic in Nigeria
3. Molecular characterization and Genotyping of Multi-drug resistant gram-negative bacterial pathogens from Nigerian children with neonatal sepsis
4. Molecular identification and diversity of bacteremic species of *Candida* from immunocompromised patients in Lagos.
5. Development of M13 ligated primers for robust sequencing of genes for downstream gene expression studies and Subunit vaccine development
6. Bioinformatic analysis rifampicin as a drug candidate against human *Brucella* species
7. Developing a novel in-silico multi-epitope vaccine against cephalosporinase CMY gene in *Escherichia coli*
8. Sequencing and identification of novel HLC-variants among Nigerian HIV patients with TB and Type-2 diabetes.

9. Whole genome sequencing of *Acinetobacter baumannii*, a novel uropathogen in Nigerian women with bacterial vaginosis.

## ACHIEVEMENTS

1. Provided Technical Support for the Molecular Entomology Laboratory, Public Health and Epidemiology Department, NIMR on the discovery of *Anopheles stephensi* and submission of the 5.8s rRNA sequence of the novel vector to NCBI with GenBank Accession number ON856140.1 (<https://www.ncbi.nlm.nih.gov/nucleotide/ON856140.1>).
2. Provided technical support to the Malaria Genomic Centre, Biochemistry & Nutrition Department on the discovery of coronin-1 gene mutations associated with artemisinin resistance by *P. falciparum*
3. Provided technical support to the discovery of novel HLA-C variants associated with susceptibility to Type 2 diabetes among HIV and TB Co-infection patients in Nigeria.
4. Sequencing and characterization of Pilin protein gene as a novel vaccine candidate for meningitis in Nigeria (OP535357.1) (<https://www.ncbi.nlm.nih.gov/nucleotide/OP535357.1>).
5. CRL made a total of eight hundred and forty-nine thousand naira (N849,000) in cash in the 2022 operation year.
6. The NIMR staff supported by CRL, Mrs. Enya and Mrs. Chioma Kunle-Ope completed their bench work and presented their post-field Ph. D work at the University of Benin (HLA-c typing) and the University of Lagos (MIRU-VNTR and MDR Genotyping of *M. tuberculosis* & *m. africanum*)
7. CRL has over four hundred-thousand-naira outstanding revenue to collect from our clients. The receipts of these outstanding revenue have been collated for further actions.
8. A total of 22 scientific papers were published in peer-reviewed journals by members of CRL in 2022.
9. Two members of CRL are now adjunct lecturers at Trinity University.



10. The Director of CRL successfully gave the 10<sup>th</sup> Distinguished Lecture for the Institute during the 2022 International Conference on Health Advances, Innovation and Research. The title of his presentation was **“Exploring Biochemistry as the anatomy of Life Sciences for Solving Health Challenges and Building Human Capacity”**

Other achievements of CRL based on its three thematic areas are tabulated below

Thematic area	Strategic objectives	Activity	Targets	Indicator/ MOV	Achievements in 2022	Key responsible persons	Remarks/Comments
1 (To improve funding available to CRL)	To conduct collaborative research for grant to CRL	Collaborative research on gene sequencing	2	No of collaborative engagements with evidence for funding support	1 (50% Success rate)	ALL CRL Staff	Awaiting funding approval from TGS-CDC  (50,000 USD)
	Conduct training for capacity building to attract funds to CRL	Training health workers on SARS-CoV-2 genome sequencing on DNBSEQ-G50  Revise and develop new SOPs for new assays at CRL and affiliated Lab networks in Nigeria  Training on the use of VIDAS automated food	2	Training Report  Number and details of new SOP developed  Number of IT and Intern trains with receipt evidence	5 Training programmes were implemented in 2022 (250%)	Dr. Iwalokun BA  Dr. Ngozi Otuonye  Dr. Chika Onwuamah  Dr. Ayorinde James	An improvement in the number of primers synthesized in the oligo Lab  Short primers (250)  Long primers for M13-based sequencing (10)  Primers for Protein subunit vaccine development against COVID-19 (4)

		safety system for rapid detection of food-borne pathogens  Training on Oligonucleotide synthesis for gene sequencing and vaccine subunit protein vaccine development  Training of IT students and Interns					A total number of 10 IT students and interns were trained in 2022
	Provide research services for funds to CRL	Provide research services for intramural and extramural projects	10	Lab documentation of project and evidence of payment	15 (150%) research services were provided in 2022.	Dr. Iwalokun BA	The input cost reduced research services in sequencing at CRL. But the lab supported the detection of <i>Anopheles stephensi</i> a vector for urban malaria in Nigeria.  Supported the detection and validation of <i>Pfcoronin</i> gene implicated in artemisinin resistance.

	Compete and win competitive grants						and delayed parasite clearance. A PhD project and Intramural grant project support at CRL also led to the detection of new variants of HLA type A gene of MHC-1 in Type 2 diabetes patients with HIV and TB comorbidities in Nigeria.  A total of 2.0M made in 2022
	Compete for NIMR Intramural grants.	4		Grant Award Letter with Grant Number	3 (75%) intramural grants still ongoing at CRL	All CRL staff	There is a remarkable improvement in external grants won by CRL Staff in 2022
	Compete for External grants	2			2 (100%) external grants won by members of staff at CRL		
2 .To upgrade and maintain CRL to improve institute's	Acquire new equipment with consumables and reagents to function.	Validation, installation and training on new equipment acquired in CRL	2	New equipment procurement document  Additions in CRED	4 (200%) new equipment were acquired in CRL in 2022  Eppendorf Plate Centrifuge	Dr. Ayorinde James	Achievement on new equipment acquisition was 200% success rate

strategic needs.					Electroporator system mION mk1c		
	Perform preventive maintenance and repair of non-functional equipment.	<i>A repair was done on HPLC-DAD system</i>  2 preventive maintenances done on the SeqStudio and DNBSEQ-G50 at no cost by Thermo Fisher and MGI  Replacement of 2-color Attune Flow cytometer with 4-color Flow Cytometer.	All due /affected equipment	<i>A repair was done on HPLC-DAD system</i>  2 preventive maintenances done on the SeqStudio and DNBSEQ-G50 at no cost by Thermo Fisher and MGI Replacement of 2-color Attune Flow cytometer with 4-color-flow cytometer	Maintenance report	Dr. Iwalokun BA	KIV for fund availability, departmental project
3 establish new networks and research collaboration, while sustaining the older ones.	Establish new research networks for collaborative health research and capacity building	Collaborative health research with AFE Babalola on Virucidin research  Collaboration with the newly constituted national consortium for	5	MOU	3 (60%) new collaborations were achieved in 2022	All CRL staff	2 research staff at CRL are now adjunct lecturers at Trinity University

		Vaccine design and development in Nigeria  Collaboration with Trinity University for research and project supervision					
--	--	---	--	--	--	--	--

## CAPACITY DEVELOPMENT

A total of seven (7) scientific conferences were attended by members of CRL in 2022.

They include the following:

1. NIMR 5<sup>th</sup> International Conference on Health Advances, Innovation and Research (ICHAIR) 7 -9, Nov, 2022, NIMR, Yaba-Lagos, Nigeria
2. 6<sup>th</sup> International Conference on Nanotechnology. 22 -25, Nov, 2022 NASRDA, Abuja, Nigeria
3. 5<sup>th</sup> International Conference on Biosafety & Biosecurity. 6 -9, Dec, 2022. NiBSA, Abuja, Nigeria

Four (4) Project staff gained postgraduate admission into Nigerian Universities

- Oluwaseunfunmi Adeeko – MSc Biochemistry (UNILAG)
- Grace Oni – MSc. Biochemistry (LASU)
- Ochuko Christopher – MSc Biochemistry (UNILAG)
- Rukayat Jimoh – Ph.D Biochemistry (LASU)

Four (4) training workshops were conducted by CRL in 2022

- Standard Operating Procedure (SOP) Development.
  - A total of twelve (12) new SOPs were developed at CRL in 2022
- Laboratory Safety Training Workshop
- Detection of food pathogens using the VIDAS Detection system
- Whole Genome Sequencing Training using DNBSEC G-50 Platform

Project supervision by members of CRL

**BSc**- 6 students from Caleb University, Imota, Ikorodu, Lagos.

**MSc** – 4 students from University of Lagos.

**PhD** -7 students from UNILAG, UNIBEN & OOU.

Number of SIWES/Internship at CRL:

10 students were trained in CRL in 2022.

## COLLABORATIONS

CRL had eight (8) new collaborations in 2022.

- Caleb University
- Trinity University
- Nigeria Biological Safety Association
- Emory- Nigeria HIV Research Training Program



- Nigeria Center for Disease Control (NCDC)
- Lagos State Biobank (LSB)
- Lagos State Infectious Diseases Hospital
- Central Research Laboratory, LUTH

## **GRANTMANSHIP / FELLOWSHIP AWARDS**

### **2 NIMR Intramural Grants**

- Dr. Chika Onwuamah
- Dr. Bamidele Iwalokun

### **5 External Grants**

- Dr. Olusola Ajibaye
- Dr. Azuka Okwuraiwe
- Dr. Chika Onwuamah
- Dr. Bamidele Iwalokun
- Dr. Ngozi Otuonye
- Dr. Muinah Fowora
- Dr. Ayorinde James

### **1 NIMR Post-doc Training Fellowship at OAUTH PCR Lab Ile Ife**

- Dr. Ngozi Otuonye

### **1 International Fellowship on HLA typing in India**

- Dr. Ngozi Otuonye

### **Other Achievements in CRL in 2022**

- Two (2) scientific presentation on the justification and budget implication for the establishment of an HLA Typing and Training Laboratory were made by Dr. N. Otuonye on behalf of CRL
- CRL acquired five (5) new equipment in 2022
  - Power Edge R730 server for genomic data storage and sharing with collaborating institutions.
  - 3 MinION Mk1c for whole genome sequencing
  - Electroporating Machine, Neon Electroporation system (ThermoFisher, USA)

## CHALLENGES AND WAY FORWARD

- We need to incorporate HLA typing for Tissue, Solid Organ and Paternity Dispute to keep the Lab busy and generate more funding for NIMR
- Need for more project staff
- High cost of sequencing reagents for DNBSEQ G-50. Plan is ongoing to establish a PPP (Public Private Partnership) with the MGS Representative in Nigeria
- High cost of cycle sequencing reagent for gene sequencing with SeqStudio.
- Researchers/Scientists are encouraged to get grants buy their reagents for sequencing.

## 2023 WORK PLAN

- Sequencing of SARS CoV2 will continue focusing on environmental samples
- We are proposing to build capacity by training sequencing technique to 2 departments as much as fund is made available
- This will enable the researchers and scientists to have competence in the use the machine
- They can also sequence other samples other than SARS CoV2
- We target to win more grants and increase our publication output
- We have had the first Laboratory Audit on Quality Management System Process from Members of quality Management Team from Microbiology Department
- We intend to continue the QMS Process towards ISO17025 accreditation in 2023
- We shall attract more local and international networks



THE 10<sup>TH</sup> DISTINGUISHED LECTURE WAS GIVEN BY THE DIRECTOR OF CENTRAL RESEARCH LABORATORY - DR. BAMIDELE IWALOKUN



NEGLECTED TROPICAL DISEASE GERMAN RESEARCH GROUP AND NIMR TEAM AT CRL FOR RESEARCH COLLABORATION



SERVICING OF SEQSTUDIO BY PREVENTIVE MAINTENANCE AND SERVICING BIOMEDICAL ENGINEER FROM THERMOFISHER, SOUTH-AFRICA

## CLINICAL DIAGNOSTICS DEPARTMENT

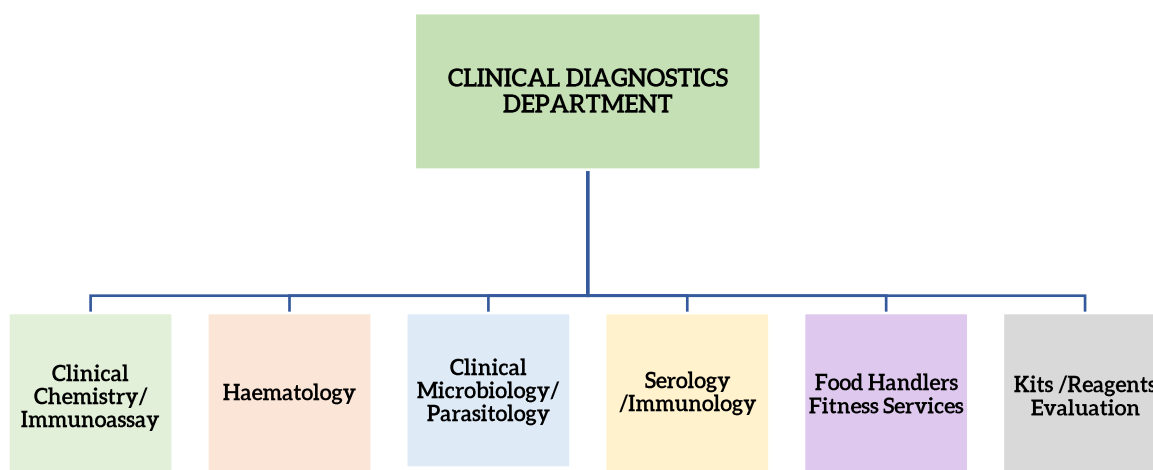
### INTRODUCTION

The Clinical Diagnostics Department (CDD) formerly Clinical Diagnostics Laboratory (CDL) was upgraded to a Department on 16<sup>th</sup> September 2021 by the Director-General/CEO and members of the NIMR Senior Management & Finance Committee (SM&FC).

The Department has the responsibility of providing laboratory services to the public, training and research activities in line with the NIMR mandate.

There are six (6) Divisions in the Department namely, Clinical Chemistry/Immunology, Haematology, Clinical Microbiology/Parasitology, Serology/Immunology, Food Handlers Fitness Services and Kits/Reagent Evaluation.

The Department also provides quality internship training for eligible graduates of Medical Laboratory Science and others through collaborations with universities and training institutions.





## RESEARCH ACTIVITIES

### ONGOING

- **Implementation of Quality Management System (QMS) and Internal Laboratory Audit:**
  - ✓ This is aimed at strengthening the quality of services delivered and eventual accreditation of the laboratory.
- **Maintaining and providing uninterrupted essential services:**
  - ✓ CDD provided uninterrupted routine services during the long strike.
- **Involved in Interdepartmental Research Collaborations:**
  - ✓ Health and wellness project for Food Handlers and Consumers in Lagos State, Nigeria.
  - ✓ Carried out Safety, Efficacy and Reliability of Virucidine Herbal Extract in the treatment of adults infected with COVID-19 in Lagos State, Nigeria.
  - ✓ Safety and Immunogenicity of Fractional Doses of Astrazeneca, Pfizer & Janssen Covid -19 Vaccines among Nigerian Adults (SIFCOVAN).
  - ✓ COVID-19 Sero-epidemiology Study in Nigeria using Abott i1000.
  - ✓ Vitamin D, levels, Liver Enzymes and Markers of Kidney Function Assessment in SARS CoV-2 infected and non-infected individuals in Lagos State, Nigeria.
  - ✓ Molecular Epidemiology of Carbapenem-Resistant Enterobacteriaceae (CRE) Infections.
  - ✓ Support to Polio Containment Programme of FMoH: CDD was one of the sites selected for handling/treatment of faecal samples as potential polio virus containing samples.

### ACHIEVEMENTS

- **Upgrading of Clinical Diagnostics Laboratory to Clinical Diagnostics Department:** The benefits and gains of being a Department continued, thanks to the exemplary leadership of our Director-General/CEO and for his continued support. More equipment was purchased and extension of the laboratory was carried out to make the environment more conducive for our clients. Also, upgraded was our Data entry room to a standard level.

- **WHO Certification:** One of our staff (**Mr. S. K. Akindele**) was certified as **LEVEL 1** Expert in Malaria Microscopy for the **second time** on 16<sup>th</sup> November 2022 in Abuja, Nigeria.
- CDD provided uninterrupted laboratory services to our clients.
- Sustained implementation of Quality Management System (QMS) and Internal Laboratory Audit.
- Improvement in turn-around time and quality of laboratory services and prompt dispatch of laboratory test results via e-mails to our clients.
- Improvement on inter-unit and inter-departmental relationships and research collaborations.
- Purchased new equipment that can perform some specialized laboratory tests such as Tumor markers, Alpha Fetoprotein, Vitamin D and E tests, Hormonal profile, Coagulation studies, D Dimer etc.

## CAPACITY DEVELOPMENT

- Involvement of CDD staff in National Programmes of the FMOH/other agencies: malaria elimination programmes of the FMOH and the Kits validation by the MLSCN: (Focal persons: Mr. S. K. Akindele and Mrs. N. M. Aniedobe).
- Involvement in National Therapeutic Efficacy Studies (TES) through our **LEVEL 1 WHO** Malaria Microscopist- Mr. S. K. Akindele.
- CDD was also involved with the collaboration of FMOH and Henry Jackson Foundation for Medical Research International, Walter Reed Program, Nigeria and the Nigerian Ministry of Defense in the training of Medical Laboratory Scientists and other health workers in malaria diagnosis in the country.
- Number of conferences, trainings & workshops attended: (10)

Ph.D.	M.Sc.	IT	NYSC	INTERNS
2	2	7	1	6

## CHALLENGES

- No back-up for our automated Chemistry/Haematology analyzer.
- Lack of service contract agreements for specialized laboratory equipment.
- Inadequate personnel.
- Inadequate office and laboratory spaces.

## WAY FORWARD

- Back up for our automated Chemistry/Haematology analyzer is required.
- Preventive maintenance agreement plans for the laboratory equipment is necessary.
- There is need for more personnel/staff in CDD.
- There is need for the expansion of our laboratory and office space.

## 2023 WORK PLAN

Implementation of NIMR 2022-2026 Strategic plan. The Department has keyed into Thematic Areas 2 and 3 which are:

- Health Research for National Development.
- Resource support for Health Research and Development.
- To continue implementation of the Quality Management System and specialized Laboratory Services.
- To increase research collaborations with NIMR Research Departments and other tertiary institutions.
- Advocacy and wellness programme/training of Food Handlers/Vendors/Consumers.
- To increase internally generated revenue in the Department.



WHO CERTIFICATION EXERCISE IN ABUJA NIGERIA (MR. S. K. AKINDELE 3<sup>RD</sup> FROM THE RIGHT HAND)



## CORPORATE MARKETING AND COMMUNICATION UNIT

### INTRODUCTION

**T**he Corporate Marketing and Communication Unit (CM&CU) is the commercial arm of the Institute which operations commenced with the initial business name “NIMR Consult” in August, 2014.

The creation of the Unit was borne out of the need to build a system that the Institute could explore to generate revenue into the Institute’s coffer, find new areas of possible revenue drive and canvass for the continuous patronage of the various NIMR facilities such as the 300 capacity Auditorium, 22-Room Researchers’ Suites, Parking Lot, 100 capacity Conference Room and 10 capacity Syndicate Room.

### CM&CU Team Composition

1. Administrative Officers
2. Clerical staff
3. Two (2) House keepers
4. Cleaner

### ACTIVITIES

#### ONGOING

The Unit is charged with facilities marketing and management of the Institute Auditorium, Parking Lot, and Conference Rooms which are used for hosting Workshops, Trainings, Seminars, Symposiums, etc.

Also, available is the Lodging facility for the accommodation of Guests which entails making reservations/client communication reception, registration, assigning rooms, cleaning/maintaining the rooms, and lastly, settlement of bills of the resident Guests.

### ACHIEVEMENTS

- Improved patronage of the CM&CU facilities.
- Retainership of clients.
- CM&CU facilities had undergone upgrades during the year.

- Improved income generation.

### **CHALLENGES**

- Difficulties encountered in making payments by our clients (Remita platform).
- Clash of activities with the institute's program, thus hindering the use of the facilities for commercial purposes.
- Inadequate staff/skilled staff.

### **WAY FORWARD**

- Increase staff strength.
- Improve synergy amongst the Units/Departments with CM&CU for an improved flow of effective communication.
- Training of staff.

### **2023 WORK PLAN**

- Improve service delivery by creating a feedback mechanism.
- Increase patronage of NIMR facilities
- Improve facilities marketing and management strategies.

## FINANCE AND ACCOUNTS DEPARTMENT

### INTRODUCTION

The Finance and Accounts Department handles all financial transactions of the Institute, as well as management of its financial resources. It has four (4) main units and three (3) sub-units which include – Other Charges, Treasury, Budget & Salaries, Stores, Centre for Human Virology & Genomics (CHVG), Clinical Sciences Department (CSD), and Clinical Diagnostics Department (CDD).

The administration of the Units and Sub-Units are vested in the hands of Unit Heads who report directly to the Head of Finance and Accounts. The Department performs a wide range of accounting functions to support the Institute in the achievement of its mandate. The major activities are highlighted below.

### ACTIVITIES

The activities carried out during the year under review include but are not limited to the following:

- Maintenance of relevant books of accounts of the Institute.
- Budget compilations for Capital, Overheads and Personnel expenditures.
- Management of Internal and External Grants.
- Supervision and Control of Stores.
- Oversight and monitoring of internal revenue generation.
- Performance of banking related functions.
- Other functions delegated by the Institute Management.

### ACHIEVEMENTS

The achievements of the Department include the following:

- Completion of audit of Accounts of the Institute for years 2019, 2020 and 2021 and submission of copies of the **AUDITED ACCOUNTS** to Relevant Bodies.
- Successful defence of the 2022 budget at the National Assembly leading to release of funds for operational activities and capital projects execution.
- Acquisition of additional office space for operational effectiveness.

- Improved Capital budgetary allocation to the Institute, as well as slight increase in Overhead budgetary allocation.

### **CONFERENCES/WORKSHOPS/TRAINING**

During the year under review, a special training was conducted by the Office of the Accountant-General of the Federation on Government Integrated Financial Management Information System (**GIFMIS**) for staff involved in using the platform for payment processing. A lot of staff also benefited from in-house training for productivity improvement conducted by the Institute Management.

### **CHALLENGES**

- Inability to secure improved **Overhead** from the Federal Government in the annual budgetary allocation to fund operational costs.
- High rate of staff exit from service without replacement affects the Department in the area of manpower required to carry out all its functions.

### **WAY FORWARD**

- Continuous interface with the National Assembly to attract government funds to the Institute should be sustained in the coming years.
- The Management should consider recruitment of experienced accounting staff at the Junior and Intermediate levels to address manpower shortage.

### **2023 WORK PLAN**

- Arrangement for continuation of payment of unspent Capital Funds (if any) brought forward from previous fiscal year.
- Revenue Collection monitoring in all the four (4) quarters of year 2023
- Preparation for audit of 2022 accounts of the Institute
- Defence of Annual Budget at National Assembly
- Sustenance of payment processing throughout the year.



## GRANTS, MONITORING AND EVALUATION UNIT

### INTRODUCTION

The Grants, Monitoring and Evaluation Unit is charged with the responsibility of providing grants, and statistical support as well as coordinating and supporting data management, and monitoring and evaluating (M&E) activities of various Departments and Units in the Institute. The Unit is divided into four (4) Sub-Units which include: Grants, Biostatistics, M&E, and Data Management.

### GRANTS, MONITORING AND EVALUATION UNIT TEAM

1. Dr. Adesola Z. Musa	Chief Research Fellow/Head of Unit
2. Dr. K.A. Osuolale	Research Fellow I
3. Mrs. A.M. Adedeji	Chief Statistical Officer
4. Mrs. Ihotu M. Alaku	Senior Programme Analyst
5. Mr. Abiodun K. Olakiigbe	Higher Data Processing Officer
6. Ms. Khadijat D. Azeez	Scientific Officer II /Grant Officer
7. Mr. Nathaniel A. Akinfenwa	Chief Clerical Officer
8. Mrs. Wakilah Tijani	Project Staff
9. Mr. Adesina Omotayo	Project Grants Officer
10. Ms. Priscilla Osagiede	Project Staff
11. Mr. Kabiru Dele	Project Staff
12. Mrs. Fatima Adepoju- Olajuwon	Project Staff
13. Dr. Latifat Ibisomi	Adjunct Researcher

### FUNCTIONS OF THE UNIT

The **Grants Management** Sub-Unit has full responsibility for overall oversight and project funds which includes:

- Ensuring strict adherence to all terms and conditions of the Grants.
- Disseminate/Notify staff of upcoming calls.
- Collate reviewed NIMR calls.

- Issue Awards.
- Meet the needs of grant beneficiaries.
- Facilitate effective communication among all stakeholders.
- Document and maintain the records of NIMR's grants (both internal and external).

The **Biostatistics** Sub-Unit basically provides statistical support for the Institute, which includes; study designs, participation in protocol development, sample size calculation, validation of data collection tools, statistical analysis, interpretation of results, statistical training for staff members, IT students and interns, and generally solving statistical issues as the need arises.

The **Monitoring and Evaluation** Sub-Unit collaborates with Departments and Units in the Institute, to formulate Specific, Measurable, Assignable, Realistic, and Time-bound (SMART) performance indicators necessary to assess the progress of work by Units and Departments of the Institute, with the aim to achieve the goals and objectives of the NIMR Strategic Plan. Hence, this Sub-Unit tracks ongoing project activities in relation to the work plan, objectives, and goal(s). Bottlenecks in project implementation processes are identified and solutions are proffered to rectify identified gaps. Project activities are then evaluated bi-annually.

The **Data Management** Sub-Unit supports studies, Departments, and Units in the Institute that generate survey data, laboratory, and routine data. The roles of this Sub-Unit include:

- Database design and architecture.
- Remote monitoring of data collection process.
- Database maintenance.
- Data cataloguing.
- Data backup and security.

## RESEARCH ACTIVITIES/SUPPORT

### (ONGOING)

- Database Management for research studies, departments and units that generate large data sets.
- Entomology Surveillance.

- Mass drug administration in the management of trachoma in northern Nigeria: Implications on child survival.
- Innovative Tool to Expand HIV Self Testing (ITEST) among Nigerian Youth.
- Safety & immunogenicity of fractional doses of moderna, AstraZeneca & Janssen Covid-19 vaccine among Nigerian Adults (SIFCoVAN).
- Correlates of Resistance to Artemisinin-based combination therapies in Nigeria.
- Mathematical models of COVID-19 pandemic in Nigeria predictions and impact.
- New Nets Project Entomological Surveillance/Insecticides Resistance Monitoring.
- Emory-Nigeria HIV Research Training Program (EN-RTP).
- Integration of Hypertension Management into HIV Care in Nigeria. (TASSH).
- Carry Out Targeted Support for Research on Sulphadoxine-Pyrimethamine (Sp) Resistance Studies in Ebonyi and Osun State Under the IPTI Effect Study Project.
- The Prevalence, Incidence, Trends, and Predictors of Hypertension, Chronic Kidney Disease, and Dyslipidaemia among people Living with HIV Accessing Antiretroviral Therapy in Lagos, Nigeria.

## **ACHIEVEMENTS**

- Successfully rendered statistical and data management support to 13 ongoing research activities in 2022.
- Attracted more new grants both within and outside the country (BMGF and NIH as prime etc.).
- Awarded grants to Adjuncts in collaboration with NIMR Researchers.
- Successfully conducted the 2022 rounds of calls, issued award letters, and Researchers are already accessing funds.

## **CAPACITY DEVELOPMENT (CONFERENCES/WORKSHOPS/TRAININGS ATTENDED)**

- 6<sup>th</sup> International Conference of Professional Statisticians' Society of Nigeria (PSSN) (27-30 June 2022) – Staff names: Dr. A.Z. Musa, Dr. K.A. Osuolale, MR. A. Olakiigbe, Mrs. W. Tijani and Mrs Fatimah Adepoju-Olajuwon.
- Training on Freedom of Information Act, 2011 for NIMR Staff -name: Mrs. A.M. Adedeji (22<sup>nd</sup> September 2022).

- Anti-Corruption Workshop, Nigerian Institute of Medical Research, Yaba, Lagos (22<sup>nd</sup>-23<sup>rd</sup> November 2022) - Staff names: Dr. K.A. Osulale and Mrs. I. M. Alaku.
- Training workshop on Cross-discipline Platforms: Scopus, Science Direct and Mendeley, MathTech Thinking Foundation, India (11 March 2022): Dr. K.A. Osulale.
- Implementation Science Course, University of Washington (25<sup>th</sup> Sept – 4<sup>th</sup> Dec. 2022): Dr. A.Z. Musa, Dr. K.A. Osulale, Mrs. W. Tijani, and Mrs. Fatimah Adepoju-Olajuwon.
- Causal Inference in Epidemiology using Mendelian Randomization Conference/Workshop (14<sup>th</sup> – 18<sup>th</sup> November 2022), Kilifi, Kenya - Staff name: Dr. K.A. Osulale.
- Vector Atlas Species Distribution Modelling Course at the International Centre of Insect Physiology and Ecology (icipe) Duvvill Campus in Nairobi, Kenya from 30<sup>th</sup> November - 2<sup>nd</sup> December 2022: Mr. Abiodun Olakiigbe.
- Data Analysis Workshop at the AuthorAID National Research Hub. Nigeria, from December 27<sup>th</sup> – 29<sup>th</sup> December 2022: Mr. Abiodun Olakiigbe.
- District Health Information software 2 (DHIS2) Database on National Entomology Database from 13<sup>th</sup> – 17<sup>th</sup> June 2022: Mr. Abiodun Olakiigbe.
- International Society for Environmental Epidemiology (ISEE) Hands-on Data Analysis Workshop on Health and Demographic Surveillance System in Africa. (Online) from March - July 2022: Mr. Abiodun Olakiigbe.

**M.Sc. Students supervised: 4 (Dr. A.Z. Musa)**

**Ph.D Students supervised: 3 (Dr. A.Z. Musa)**

**Number of NYSC, SIWES, Internship: 2**

Mr. Dayo Lawal - SIWES

Ms. Zakiyah - SIWES

## **COLLABORATIONS AND PARTNERSHIPS**

### **(INTERNATIONAL & NATIONAL)**

UCL, SLU, Shell Nigeria, MRC Gambia, Sightsavers and eHealth Africa.

## **GRANTS/FELLOWSHIP AWARDS**



- Developing a novel contact tracing mobile application for coronavirus disease 2019 (COVID-19) for improving testing capacity and controlling the spread of COVID-19 in Nigeria, Nigerian Institute of Medical Research Project Development (PI: Dr. A.Z. Musa)
- Empowerment models for Improving Human Immunodeficiency Virus Patients' Adherence to Antiretroviral Drugs in the Era of COVID-19 Pandemic, Nigerian Institute of Medical Research Project Development (PI: Dr. K.A. Osuolale)

## **CHALLENGES**

- Poor Internet connectivity- Most of our activities are online, once there is no/poor connectivity this limits our productivity.
- Non-submission of progress reports for external grants.
- Delays on notification of inflow of external grants.
- Lack of grant management software to manage grant management cycle.
- Inadequate manpower.
- No comprehensive Institutional Grant Management Policy.
- Tools to support proposal development (Grammarly, Turnitin).

## **WAY FORWARD**

- Utilize effectively the new collaborations.
- Engage more with our adjunct researchers to improve productivity.
- Increase training opportunities for staff.
- Commission the development of an Institutional data sharing, use and transfer policy.
- Periodic submission of progress report of ongoing grants (both internal and external).
- Continuous documentation of all NIMR grants both internal and external.
- Continuous maintenance of all grants access/management platforms.
- Obtain a software for grants management.
- Training of staff on grants management.
- Commission the development of a comprehensive Institutional grants management policy.

## 2023 WORK PLAN

Thematic area	Objectives	Activities	Expected Outcomes	Indicators	Means of Verification	Time Line				Key Responsible
						January- December 2023				
						1 <sup>st</sup> Qtr	2 <sup>nd</sup> Qtr	3 <sup>rd</sup> Qtr	4 <sup>th</sup> Qtr	
Governance	Review and consolidate existing partnerships, networks and collaborations	Track existing partners, networks and collaborators with NIMR from Depts/Units  Document details of association between NIMR and existing partners	List of partners, networks and collaborators with NIMR compiled  Report on details of association between NIMR and existing partners generated	# of existing partners  Report generated on details of existing partnerships with NIMR (Yes/No)	Documents that established the relationships between NIMR & existing partners		X			Mrs. Adedeji /Ms. Osagiede/Dr Hakeem
	Establish new public-private partnership.	Track new public-private partnership with NIMR from Depts/Units  Document details of association between NIMR and new partners	List of new public-private partners with NIMR compiled. List of maintained public private partnership  Report on details of association between NIMR and existing partners generated	# of new public-private partners established. # of maintained public private partnership  Report generated on details of new public-private partnership with NIMR	Documents that established the relationships between NIMR & new public-private partners			X	X	Mrs. Adedeji /Ms. Osagiede/Dr Hakeem
	Review existing policies and identify gaps and needs.	Track review meetings on existing policies  Track gaps and needs identified on existing policies	Review meetings on existing policies monitored  Details of gaps and needs identified on existing policies	Policy review meeting held (Yes/No)  Gaps and needs identified on existing policies (Yes/No)	Minutes of review meetings on existing policies  Report on identified gaps and needs on existing policies		X		X	Mrs. Adedeji /Ms. Osagiede/Dr Hakeem
	Prioritize and develop new policies	Track new policies being developed	New policies developed  Highlights of new policies generated	# of new policies developed  Highlights of new policies generated (Yes/No)	Copies of new policies developed  Copies of new policies developed		X		X	Mrs. Adedeji /Ms. Osagiede/Dr Hakeem
Health Research for National Development	Advertise NIMR calls based on identified priorities of National Health Research.	Publish calls for proposals.  Shortlist candidates that apply for calls for proposals.	Calls Advertised	# Of call for proposal	Awards (pre doctoral, post-doctoral, junior and senior category).		X			Ms Azeez Khadijat/Mr. Adesina Omotayo

	Improve number of Direct Grant Awards.	Identify and maintain key guidelines and platforms required for accessing grants.	<i>Increase in the number of Direct Grant Awards</i>	# of Direct Grants Awarded	Letter of Awards			X		Ms Azeez Khadijat/Mr. Adesina Omotayo
	Conduct and strengthen capacity building for the staff of the unit.	Identify training and workshops that would help build staff capacities	Annual training needs collated Staff trained in relevant courses Staff job performance enhanced	# of trainings needs collated # of staff trained in relevant courses % of Job performance enhanced	Documents on annual training needs from Units List of staff trained and courses attended Survey on job performance for trained staff only	X	X	X	X	Mrs. Adedeji / Mr. Dele/Mr Abiodun/Mrs Fatimah
	To monitor the ongoing intramural/Extramural research fundings	Monitoring visits to track progress of research work: Intramural/Extramural and Innovative research ; Follow-up reports from awardees	Research targets met within stipulated time frame; Up-to-date reports submitted by awardees	% of research targets met	Progress report of research work	X	X	X	X	Mrs. Adedeji/ Ms.Osagede/ Dr Hakeem
To provide biostatistical support to researchers	Design and pre-test data collection tools for research projects	Data collection tools designed and pre-tested	# of data collection tools designed and pre-tested		Paper data collection tools Electronic data collection tools	X	X	X	X	Dr. Musa A. Z. / Ms. Agbo I.M./Dr Hakeem/Mrs Odubela/Mrs Tijani W./Mr Oba/Dr K.A Osuolale/Mr Olakiigbe/Mrs Fatimah
	Training and supervision of data entry	Data entry supervised	# of data entry process supervised		Data imputed	X	X	X	X	Dr. Musa A. Z. / Dr Hakeem/Mrs Odubela/Mrs Tijani W./Mr Oba/Dr K.A Osuolale/Mr Olakiigbe/Mrs Fatimah
	Data analysis	Data analyzed	# of projects analyzed		Data analysis reports	X	X	X	X	Dr. Musa A. Z. /Dr Hakeem/Mrs Odubela/Mrs Tijani W./Mr

																				Oba/Dr K.A Osuolale/Mr Olakiigbe/Mrs Fatimah	
		Identify trends and relationships within routine data generated in the Institute	Routine data analyzed	# of data analyzed	Data analysis reports generated	X	X	X	X											Dr. Musa A. Z. /Dr Hakeem/Mrs Odubela/Mrs Tijani W./Mr Oba/Dr K.A Osuolale/Mr Olakiigbe/Mrs Fatimah	
		Biostatistics Course training				X	X	X	X											Dr K.A Osuolale	
	Database design & maintenance using RedCap and File Maker Pro applications	Database design & maintenance for departments, units and research projects.	Database designed and maintained	# of databases designed/maintained	Database Designed/Maintained	X	X	X	X											Mrs Ihotu Alaku/Mrs Odubela/Mr Oba/Mr Segun Awesu	
		Create and Test-run data entry template in RedCap	RedCap data entry templates utilized	# of templates created	RedCap data entry templates created	X	X	X	X												
<b>Research</b>	Conduct at least 2 research activities in line with the research priority of the institute	Implement 2 core research activities for the unit	2 research activities implemented; 10 publications from the research activities	# of research activities implemented  % of publication achieved	Research progress reports  Published articles/scientific papers	X  X	X  X	X  X	X  X												1. Dr A.Z Musa; 2. Dr K.A Osuolale



## INTERNAL AUDIT UNIT

### INTRODUCTION

The Internal Audit Unit of the Nigerian Institute of Medical Research, Yaba is responsible for the internal checks of the Institute's accounts and those for the Out-stations. The main purpose of Audit is to enable the Internal Auditor satisfy the Director-General/CEO that an efficient and effective system of Internal Control (internal check, security and control of cash and stores, assets, etc.) and adequate system of accounting as laid down by Financial Regulations and other financial extant circulars are maintained and the books reconciled.

The ultimate aim is to ensure that all accounts and vouchers prepared or received are complete themselves. It should also in addition to the normal auditing process, examine the internal control, security measures, spot checks thereby satisfying itself that adequate measures exist and regulating systems are observed.

### INTERNAL AUDIT UNIT TEAM

Mrs. Taibat A. Malomo, FCA	- Deputy Director/Head of Unit
Mrs. Margaret A. Akhigbe	- Assistant Chief Executive Officer
Mr. Kenneth O. Ologwu, ACA	- Principal Accountant
Mrs. Florence M. Okusaga	- Principal Executive Officer II (Accounts)
Mrs. Funmilola A. Adebayo	- Senior Accountant
Mr. Daniel E. Egwu	- Senior Accountant
Miss Oluwayemisi F. Akintomide	- Higher Executive Officer (Accounts)
Mr. Gabriel N. Stephen	- Executive Officer (Accounts)
Mr. Idris Faniran	- NYSC Corp Member
Miss Adedoyin Ajibade	- NYSC Corp Member

### Secretariat

Mrs. Theresa J. Usen	- Chief Secretarial Assistant
Mrs. Joy Obi	- Chief Clerical Officer



Group picture of the Internal Audit Unit staff during the 2022-year retreat

## ACHIEVEMENTS

- Ensured supplies to the Institute were in good condition at the time of delivery
- Ensured all generated revenue was duly posted to NIMR Account
- Verification of Internally Generated Revenue (IGR) of all the revenue revolving Fund Centres
- Numbering and labeling of NIMR assets, when procured
- Ensured all due processes of payments were followed
- Errors/loopholes have been reduced to the barest minimum by ensuring compliance with laid-down financial regulations
- Stock-taking of stores item in the Clinical Sciences Department, Main Stores, and Centre for Human Virology and Genomics (CHVG).
- 



Cross section of staff at the Unit Retreat



The HOU, reiterating on routines on Payment Voucher(s) at the 2022 Year Retreat 2022, held at the Unit Conference Room

## CAPACITY BUILDING

S/N	NAME	DESIGNATION	TRAINING	COURSE TITLE	DATE
1	Mrs. T.A. Malomo, FCA	Deputy Director/HOU (IA)	NIMR in-house training	Specialized Professional Training Workshop	6 <sup>th</sup> – 9 <sup>th</sup> September , 2022
2	Mrs. M.A. Akhigbe	Assistant Chief Executive Officer			
3	Mr. K.O. Ologwu	Principal Accountant			

## NYSC/IT STUDENT/INTERM

The Internal Audit Unit had two (2) corps members in the year 2022; Mr. Idris Faniran completed his NYSC in October 2022 while Miss Adedoyin Ajibade will be completing her NYSC in February 2023.

## CHALLENGES

These are: -

- Staff failing to retire advance(s) as at when due, thereby causing the Unit to waste scarce human hours on chasing staff to clear advances.
- Shortage of skilled manpower.
- Inadequate training opportunities.

## WAY FORWARD

- The Management to minimize the quantum of advance given to staff, and use more of the registered contractors in the Institute.
- Deploy more qualified personnel to the Unit to serve the Institute better.
- Approve more training opportunities for staff of the unit.

## 2023 WORK PLAN

- The Unit plans to liaise with the Scientific Research Committee to use the platform of their research seminars to enlighten staff on some pitfalls in the course of vouching of payment and other activities that include imprest expense, supplies, the raising of requisition, etc.
- The Unit plans the numbering of project assets in the Institute.
- The Unit is currently designing a form for Asset movement to be used for relocation and disposing of Assets.
- Continue our routine prepayment and post-payment audit processes.

## INSTITUTIONAL REVIEW BOARD (IRB) UNIT

### INTRODUCTION

This report provides a summary of the activity of the NIMR Institutional Review Board (NIMR-IRB) in 2022. All recommendations for approval were presented and reviewed at the full Board meeting of the REC and considered for final approval for the studies.

### INSTITUTIONAL REVIEW BOARD (IRB) MEMBERSHIP

The Membership of NIMR-IRB is as stipulated in its Standard Operating Procedures (SOP) and this consists of the Chairman, the Secretary, and their Assistants in the administrative arm. Other members are; twelve (12) Scientists appointed from within the Institute and other Health Institutions, Social Scientists, Lay Members and Community Advocates such as Lawyers, and Religious Leaders.

### MEETINGS

The Board's SOP stipulates a total of 6 face-to-face meetings per year (bi-monthly) to provide members with the chance to meet in person for conference review, discussion, and consideration to ratify all approved protocols. However, the NIMR-IRB held a total of two (2) meetings, on Thursday, 14<sup>th</sup> July 2022, and Thursday, 24<sup>th</sup> November 2022.

### ACTIVITIES

#### (PROTOCOLS RECEIVED AND APPROVED IN 2022)

A total of seventy-nine (79) proposals were received by NIMR-IRB in the year 2022. The research protocols reviewed and approved within the set turn-around time of six (6) weeks were of five (5) categories;

- NIMR Staff Protocols: (29)
- Non-NIMR Staff (Individuals) Protocols: (13)
- NGO/CSO and Multinational Organizations Protocols: (8)



- Students' Protocols from various Universities and Polytechnics nationally and internationally: (29)

### **COLLABORATIONS AND PARTNERSHIPS**

The Board collaborated with the following organizations and bodies:

- New HIV and Microbicides Advocacy Society (NHVMAS)
- Brown University
- West African Bioethics Training Programme (WABTP)
- National Health Research Ethics Committee (NHREC)
- Federal Medical Centre (FMC) Ebute-Metta

### **2023 WORK PLAN**

- Capacity building of members and researchers
- Computerization of administrative/secretarial procedures
- Increase awareness of ethics of good research practice
- Automation of the IRB process
- Organize more trainings on research ethics

## LIBRARY AND INFORMATION COMMUNICATION TECHNOLOGY DEPARTMENT

### INTRODUCTION

The Department is responsible primarily for providing Library and ICT supports to the Institute's research activities. The Library and ICT supports are offered via library and digital services, deployment of internet and network provision, computer software troubleshooting and hardware maintenance, as well as web content management, and media communication.

### ACTIVITIES

- Health information gathering, management, and dissemination.
- Provision of computer, internet, and network support.
- Web content development and management of the Institute's website and the Social Media handles.
- Documentation and production of Institutional publications.
- Desktop publishing and digital services.
- Information and media communication.
- Multimedia support service.

### ACHIEVEMENTS

- Internal generation of revenue for the Institute.
- Provision of a conducive library environment.
- Expansion of Internet coverage to the new Biobank building.
- Improved NIMR Social Media content, and NIMR visibility.
- Production of NIMR publications (Newsletters, RIND policy, Strategic Plan 2022- 2026, NIMR response to COVID-19 pandemic report)

### CHALLENGES

- Inadequate funds to subscribe to several biomedical databases.
- Shortage of funds to acquire necessary working tools.

## **WAY FORWARD**

- Subscription to relevant biomedical databases.
- Acquisition of additional working tools (desktops, laptops, professional digital camera).
- Staff training on strong and good work ethics.

## **2023 Work Plan**

- Acquisition and deployment of an E-Library management system to digitize the library services.
- Expansion of Internet coverage to the clinical trials and emerging viral diseases buildings.
- Improve Internet coverage at the laboratory complex building and some parts of the residential areas.
- Provision of digital service and development of information content.
- Organize hands-on in-house training for staff in the Department.
- Establish an e-health resource Centre.

## PLANNING DEPARTMENT

### INTRODUCTION

**P**lanning Department is essentially responsible for the articulation, analysis, projection, and implementation of the development plans of the organization in terms of annual, medium, and long-term plans.

The Department is to provide accurate and reliable information for effective planning and ensuring that due process is followed in the execution of the programmes and projects in the Institute.

In addition, the Department performs the following functions/ responsibilities.

- Coordination of the Institute's strategic development plans.
- Coordinate the implementation of the Institute's strategic plan. This involves monitoring the implementation of plans in collaboration with Monitoring and Evaluation Unit through joint annual reviews, mid-term reviews and periodic evaluation.
- Produce the Institute's annual report.
- Planning of the Institute's programmes, projects and activities like annual retreats, conferences, etc.
- Liaising with relevant bodies and organizations outside NIMR on policy and planning matters for relevant updated information for the notification of the Management.

### ACTIVITIES

Activities of the Planning Department in 2022 include:

- Compiled the Institute's training needs and forwarded same to the Director-General for inclusion in the 2022 training schedule of the Institute.
- Collaborated with the Finance/Accounts Department in facilitating meetings with other Agencies/Parastatals on the Budget Process Reforms of the Federal Ministry of Health.



- Participated in the capacity building workshop for the Agencies and Parastatals in the Health Sector on Budget Performance Monitoring. This was to ensure easy accessibility to the level of implementation of programmes and projects executed within the stipulated appropriation year.
- Compiled reports of activities from the Departments/Units in the Institute. This was done monthly in order to highlight the achievements of each Department/Unit including their challenges and the way forward.

## ACHIEVEMENTS

- The Department successfully produced and distributed the Institute's 2021 annual report.
- The Department successfully compiled and analyzed the training needs of staff in the Institute for the 2022 training schedule.
- Facilitated the MoU meetings between the Institute and other organizations.
- Handled correspondence from the Federal Ministry of Health and other organizations as assigned by the Director-General/CEO.

## CAPACITY DEVELOPMENT

During the year under review, members of staff of the Department attended various trainings/workshops/conferences/symposia/meetings organized by the Institute as shown below:

S/N	NAME	TRAININGS/WORKSHOPS/CONFERENCES/ SYMPOSIA/MEETINGS ATTENDED	VENUE	DATE	REMARK
1.	Mr. R.N. Iwegbu Principal Executive Officer II (GD)	Workshop on Freedom of Information Act for some staff of the Institute.	NIMR Auditorium	22/9/2022	
2.	Mr. R.N. Iwegbu Principal Executive Officer II (GD)	Anti-Corruption workshop on Art and Practice of System Integrity in Public Institution as a Catalyst for Good Leadership, Ethical Conduct and Revenue Generation for selected staff of the Institute.	NIMR Auditorium	22-23/11/22	
3.	Mrs. N.A. Ako-Okoli Senior Administrative Officer	Workshop on Freedom of Information Act for some staff of the Institute.	NIMR Auditorium	22/9/2022	
4.	Mrs. N.A. Ako-Okoli Senior Administrative Officer	Anti-Corruption workshop on Art and Practice of System Integrity in Public Institution as a Catalyst for Good Leadership, Ethical Conduct and Revenue Generation for selected staff of the Institute.	NIMR Auditorium	22-23/11/22	
5.	Miss. O.E. Edosomwan Chief Clerical Officer	Workshop on Freedom of Information Act for some staff of the Institute.	NIMR Auditorium	22/9/2022	

## 2022 Promotion Exercise

Mrs. G.A. Charles a Principal Confidential Secretary I, was successful in the 2022 promotion exercise conducted in the Institute and was promoted to the post of Asst. Chief Confidential Secretary on CONHESS 12 w.e.f. 1<sup>st</sup> January 2022.

## Retiree(s)

The Director of Planning/Head of Department, a pioneer Head of the Department retired from service in 2022 detail as shown below:

S/N	NAME	DESIGNATION	EFFECTIVE DATE OF RETIREMENT
1.	Mr. P.O. Ejiga	Director (Planning)	31/12/2022

## CHALLENGES

Inadequate complement of essential/skilled staff: The Department lacks the appropriate complement of staff in the middle level cadre to be able to perform its functions effectively.

## WAY FORWARD

- The need to constitute a Central Monitoring and Evaluation Committee for the Institute with members drawn from Departments/Units with related monitoring functions as well as a representative from the project implementing department. This Committee will have the responsibility for monitoring the execution of projects as well as evaluate the outcome of such initiatives and advise the Management accordingly.
- To ensure the availability of appropriate complement of essential/skilled personnel. This will enhance the Department's capacity to grow and function efficiently and effectively.

## 2023 WORK PLAN

- Coordinate the implementation of the strategic plan.
- Regular monitoring and review of the implementation of the strategic plan.
- Training of staff for better understanding and increased capability to develop an implementable plan.
- Liaise with relevant ministries on policy and planning matters for relevant updated information for the use of Management.

## PROCUREMENT UNIT

### INTRODUCTION

**T**he Procurement Unit is responsible for the acquisition of goods, works and services (both consultancy and non-consultancy) for the Institute through a third party (Contractor) on behalf of the Federal Government for the purposes of national development.

In other words, it is a channel through which government buys inputs for vital public-sector investments - both in physical infrastructure and in strengthened institutional and human capacities that lay the foundations for national development, in strict adherence or in accordance with the Public Procurement Act, 2007.

It encompasses a sequence of related activities starting with the assessment of needs through to contract award, management and then final payment. Public procurement is a global system adopted by both developed and developing nations on how to derive value for money and improve efficiency in the use of scarce resources.

### OBJECTIVES OF THE PROCUREMENT UNIT

1. To support the Institute in achieving her goals and objectives as envisaged in her vision and mission statements through an understanding of the Institute's business requirements or mandate by identifying and procuring the critical inputs required to pursue her policies and programs of nation building through effective and efficient management of the procurement process and the supplies market, thereby ensuring prudent use of public funds while rigorously maintaining the Institute's business principles, mandate and the agreements under which it operates;
2. To develop and maintain strong, healthy relationships with other departments and units, as well as other relevant external bodies and stakeholders for better understanding and harmonious work towards achieving the set objectives of the Public Procurement Act 2007, extant laws, regulations, and guidelines;
3. To position the Unit towards effective and efficient service delivery in line with NIMR's Strategic Plan (2022 - 2026).

## ACTIVITIES

### ONGOING IN THE UNIT

The Unit is constantly engaged in the processing of all departmental contract procurement requests for both research and non-research purposes through a set of related procurement activities aimed at expediting the achievement of the Institute's cardinal objectives while obtaining the best possible value for money on behalf of the Federal Government by ensuring that goods, works and services (inputs) needed by the Institute are acquired at the most favourable terms compatible with the desired quality and delivery schedules, taking into account the total life cycle costs and in a manner that safeguards and preserves the reputation of the Institute.

### EXTENT OF IMPLEMENTATION OF THE NIMR STRATEGIC PLAN: 2022 - 2026

S/N	Thematic Area	Activity	Key Performance Indicator	Target (2022 – 2026-	Achievement
1.	Efficient procurement planning driven by needs assessment.	Preparation of the Institute's draft consolidated annual Procurement plans for Capital Budgets implementation for the next 5 years - 2022, 2023, 2024, 2025 & 2026.	Collation & assessment of individual departmental annual procurement needs for both research & non-research; Appropriate market surveys & projects costing;  Integration of needs assessments into annual budgets for prior review and appropriation.	To produce five (5) consecutive Procurement master plans for the next 5 budget years - 2022, 2023, 2024, 2025 & 2026.	Procurement plan for the 2022 Capital Budget implementation has been successfully produced & implemented.
2.	Appropriation.	Budgets funding/financing for the execution of the Institute's procurement plans (Capital & Constituency projects) - 2022 - 2026.	Evidence of draft comprehensive annual budgetary proposals for both research & non-research procurements for prior reviews & appropriations by the NASS.	To secure NASS approval for all Capital Budgets Appropriations for the next five (5) budget years - 2022, 2023, 2024, 2025 & 2026.	Appropriation (Amendment) Act for NIMR for 2022 Budget Year has been successfully approved & passed by the NASS.
3.	Advertisement.	Preparation & submission of tender notices/notifications, and requests for expressions of interests for publications or request for BPP Due Process 'No Objection' for Selective Tendering, whichever is appropriate.	No. of Tendering/Pre-qualification documents and, or Standard Requests for proposals/quotations produced & issued out to prospective bidders.	To adequately assemble & select from a pool of experienced, competent, capable, reputable & eligible prospective bidders to tender for available contracts in the Institute in the next five (5) years - 2022, 2023, 2024, 2025 & 2026.	Approval for BPP Due Process 'No Objection' for the adoption of Selective Tendering for the 2022 Capital Budget implementation (Capital & Constituency) projects was secured; Adequate No. of experienced, competent, capable, reputable & eligible vendors had been identified & invited for participation.



4.	Transparent pre-qualification.	Receipt & collation of technical proposals/bids & pre-qualification documents in response to solicitations for five (5) years: 2022-2026; examinations & proper documentation.	Evidence of technical submissions and, or No. of bids/vendors successfully examined & pre-qualified.	To carefully identify & preselect the right vendors or prospective contractors, suppliers & consultants /service providers for further considerations.	Prospective bidders for 2022 Capital Projects implementation had been concurrently selected through single stage.
5.	Bid opening.	Organization & conduct of public/official opening of financial bids/tenders & proposals; examinations & proper documentation.	Evidence of financial submissions and, or No. of financial bids/proposals successfully opened; duly accredited bid & attendance registers; certified Bid Return Sheet.	To determine & document the total No. of financial bids/tenders & proposals receipt & their details.	BPP Due Process 'No Objection' duly approved, financial tenders opened.
6.	Bid evaluation (technical & financial).	Preliminary examination of bids/proposals for responsiveness to qualification requirements; evaluation for compliance with technical requirements; price/financial evaluation; post qualification/due diligence.	Constituted Tender/Technical & Financial Evaluation Sub-Committee; No. of technical & financial bids & proposals received, examined & successfully evaluated; Technical & Financial Evaluation Report & Recommendation.	To establish project(s) estimated total cost(s) in relation to budget/IE by determining the lowest/ substantially evaluated responsive or most economically advantageous tender(s).	Financial tenders duly assessed; lowest evaluated responsive bids for all projects determined & communicated.
7.	Necessary executive approvals.	Preparation & submission of award recommendation documents & memos for prior reviews & approval.	No. of memos drafted & submitted for Federal Executive Council (FEC), Ministerial Tenders Board - FMOH, Institute's Tenders Board & the Director-General/CEO.	To secure executive approvals for the implementation of all capital & constituency projects.	Have held Tenders Board meetings Nine (9) times for PTB & MTB; all executive approvals for FEC, MTB, PTB & the CEO for contracts award in 2022 for implementation have been secured and implemented.
8.	Contract awards & execution.	Announcement/publication & conveyance of contract awards to successful bidders.	Extracts conveying the approvals of the Federal Executive Council (FEC) & the MTB (FMOH), summaries of the institute's Tenders Board's decisions on contracts award/minutes of meetings & D-G's approvals.	To kick-start the process of execution of all approved projects for 2022 financial year.	A total NQ. of 277 contracts have been awarded since the beginning of the year for both research & non research procurements.
9.	Project implementation, monitoring & evaluation,	Oversight of project(s) activities to ascertain their capabilities to achieve planned result, while	Site visitations/meetings, documents checking & verification, interface with major stakeholders.	To identify and mitigate issues that may impact the project(s) scope, quality, timeline, or budget with a view to	So far almost all contracts awarded for 2022 have been successfully monitored & implemented.

commissioning/handing over.	tracking the project(s) metrics, progress & associated tasks to ensure timely completion within budget & in accordance with project(s) specifications, requirements & standards.		making an informed decision on internal control measures, resource control & future decision-making.	
-----------------------------	--	--	--	--

## ACHIEVEMENTS

1. Since the beginning of the year, the Procurement Unit has processed and awarded a total number of 277 contracts across all funds for both research and non-research projects. These were made up of Civil works, such as buildings, machinery, roads, and basic physical infrastructures. Others are Goods, which typically include equipment and furniture, laboratory/medical supplies, office consumables, stationeries and materials, etc., as well as consulting/non-consulting services, such as training, equipment maintenance, expert advice, capacity building, and clearing and logistics. Some of these contracts were capital and constituency projects whose preparations toward final award began since late last year;
2. The Unit was able to secure all executive approvals for full implementation of the Institute's Capital and Constituency projects under review and was able to successfully execute almost all Capital projects under the 2021 and 2022 Capital Budget Appropriation;
3. The Unit recorded some positive achievements in the area of investing in human capacities development through the attendance of BPP organized professional 'on-the-job' skills acquisition trainings and other management and performance enhancement trainings.

## CHALLENGES

- Delays in the budget implementation process due to delay in obtaining executive approvals/processing memos to Council, MTB, etc.
- Delays in the release of capital for contract execution.
- Improper presentation of requests by the end-users.

## WAY FORWARD

- Relevant stakeholders to draw the attention of those concerned in the approval/drawing down of funds matters that need their urgent attention to take note of project timelines and to treat all matters relating to budget implementation expeditiously.

- Proper enlightenment of end-users on procurement procedures and familiarity/understanding of extant laws, regulations, and guidelines that govern the Public Procurement process.
- Early preparation of budget.

## 2023 WORK PLAN

S/N	ACTION	TIME-LINE
1.	Preparation and submission of 2023 Procurement Plan based on budget by the PPC; Consideration/ratification and approval of the 2023 Procurement Plan by the Tenders Board, and; Preparation of bid documents.	2 <sup>nd</sup> January to 31 <sup>st</sup> March, 2023
2.	Advertisement, Bids collection, submission and opening; Pre-qualification/Bid Evaluation (technical & financial); Submission of evaluation report; Tenders Board's approval/BPP 'No Objection'.	1 <sup>st</sup> April to 31 <sup>st</sup> July, 2023
3.	Award and signing of contracts; Projects implementation & administration, monitoring & evaluation; Certification, handing over & commissioning.	1 <sup>st</sup> August to 31 <sup>st</sup> December, 2023

## RESEARCH, INNOVATION AND PRODUCT DEVELOPMENT UNIT

### MISSION STATEMENT

To deploy research innovations towards addressing public health needs for biomedical products and interventions.

### VISION STATEMENT

To transform research ideas into end products of value for national development.

### TECHNICAL/PRODUCTION TEAM

Prof. N. N. Odunukwe, FNAMed	- Director of Research/ Head of RIND
Dr. A. G. Ohihoin	- Deputy – Director, Research
Dr. C. K. Onwuamah	- Chief Research Fellow
Dr. N. N. Onyejepu	- Senior Research Fellow
Dr. J. O. Okwuzu	- Research Fellow I
Dr. M. A. Fowora	- Research Fellow I
Dr. O. S. Amoo	- Research Fellow I
Mr. A. B. Orok	- Research Fellow II RIND Focal Person
Mr. A. K. Adeneye	- Research Fellow II
Dr. N. M. Otuonye	- Deputy-Director, Lab. Science
Engr. O. Edomnwoyi	- Chief Electrical Engineer
Mr. P. I. Ogbuji	- Senior Biomedical Engineer
Mrs. A. T. Asemota	- Chief Clerical Officer
Mr. J. K. Omowhovo	- Equipment Production Technician

### INTRODUCTION

The Research, Innovation, and Product Development (RIND) Unit of the Nigerian Institute of Medical Research (NIMR) was established in 2017 through a Committee under the Chairmanship of Dr. N. N. Odunukwe, Director of Research, Clinical Sciences Department. Other Committee members were drawn from Heads of the various NIMR Committees and Units.



RIND started its operations as a full Unit in 2019 with the aim of changing the narrative of over-dependence on the importation of medical and diagnostic products into the country. This manifested clearly during the COVID-19 pandemic country border closures. Our topmost priority is to identify the gap in laboratory and diagnostic needs and fill it with innovative research products in-country with a multifaceted approach that ranges from conceptualization, experimentation, and actual product development to validation. Within a short time of existence, NIMR-RIND has created a paradigm shift in the diagnostic needs of Nigerians through the production of “**Proudly NIMR BIOTECHNOLOGICAL Products and Services**”. And some have been patented.

RIND Unit is progressively growing to be a Centre to execute the following objectives:

- To create the enabling environment to nurture innovative ideas.
- To liaise with NIMR Community towards securing viable translational research ideas and findings as patentable/registrable products.
- To articulate processes that will engender the commercialization of NIMR products.
- To implement frameworks for sharing of benefits of research commercialization.
- To provide support for applications by innovators and inventors for the protection of the property rights of innovations/inventions.
- To identify innovations and inventions that are of high potential for commercialization, and develop operational prototypes of such innovations and inventions in the national technology parks.

## RESEARCH ACTIVITIES

### (COMPLETED AND ONGOING)

S/N	RESEARCH ACTIVITIES	COMPLETED	ONGOING
1.	Redesigning and developing a digital oven and incubator as well as packaging of NIMR Biotech Products.		Yet to start
2.	Design and development of NIMR Biotech Solar Electrophoretic Machine		Ongoing
3.	Development of Policy Document	Completed	
4.	Production of more reagents and laboratory consumables		Ongoing
5.	Publication on validation of NIMR Biotech Electrophoretic Machine	Completed	

6.	Validation of more of our Machines		Ongoing
7.	Design and development of a Digital Colorimeter for Blood Chemistry Analysis		Yet to start

## ACHIEVEMENTS

- Developed, printed. and launched a RIND Policy document.
- Publication in a peer-reviewed journal of a validation report of NIMR BIOTECH-Electrophoretic Machines.
- Commercialization of RIND Products.
- Repairs and servicing of Medical Equipment in NIMR.
- Development of new proposals on point-of-care biosensors for early Cancer Detection Proposal.

## CAPACITY DEVELOPMENT (CONFERENCES/ WORKSHOPS/PIECES OF TRAINING ATTENDED

- NOTAB WORKSHOP; Workshop training on **Intellectual Property (IP) Management, Patent Information Search, Patent Drafting Procedures, and other IP issues** for Researchers and Inventors. (22<sup>nd</sup> September 2023)
- International Conference on Health Advances, Innovation and Research (ICHAIR) 7<sup>th</sup> – 9<sup>th</sup> November 2022

## NUMBER OF BSc, MSc, PH.D. STUDENTS SUPERVISED

- Two Ph.D. students

## COLLABORATIONS AND PARTNERSHIPS

### (INTERNATIONAL AND LOCAL)

The RIND Public-Private Partnerships include but are not limited to the under-listed organizations:

### Public Partnership

1. Nigeria Center for Disease Control (NCDC).
2. Center for Human and Zoonotic Virology (CHAZVY), CMUL – Lagos.
3. Biorepository Clinical Virology Laboratory (BCVL), UCH-Ibadan.
4. National Office for Technology Acquisition and Promotion (NOTAP).
5. Obafemi Awolowo University (OAU), Ile-Ife.

6. University of Lagos, Dept. of Cell Biology and Genetics.
7. Usman Danfodio University Teaching Hospital, Sokoto, Dept. of Haematology and Blood Transfusion.
8. University of Nigeria Teaching Hospital Enugu, Dept. of Haematology and Blood Transfusion.
9. Nigerian Institute of Oceanography & Marine Research, Lagos, Dept. of Biotechnology.
10. Microbiology Department of NIMR.

### **Private Partnership**

1. Biologix.
2. 54Gene
3. Clina-Lancet Laboratories.
4. CCHub.
5. Opolo Global Innovation Ltd.

### **GRANTS/FELLOWSHIP AWARDS**

NIMR-NPIRGP GRANT NUMBER: 5NM-SRGT-22-0078

### **CHALLENGES**

- Absent or inappropriate Showroom.
- Deficiency of dedicated fit-for-purpose permanent RIND Unit staff.
- Lack of funding and dedicated office space for innovative Researchers.
- Misconception of the position of RIND Unit by NIMR Community.
- Lack of conducive office space for RIND Unit personnel.
- Inadequate office equipment for RIND Administrative Office/Secretariat.
- Inadequate budget line for RIND which affects the current performance.
- Non-uniformity/poor finishing of our hand-fabricated products with respect to size, shapes, width, etc.

### **WAY FORWARD**

- RIND should start operating as a Centre with various Units as detailed in the Organogram to fulfill her mandate.
- A dedicated budget line should be established and given to RIND for innovation.

- Establishment of resource mobilization and accountability mechanism.
- Providing a dedicated Accountant who is not overwhelmed with work to handle RIND’s accounts for the purpose of prompt response when accounting issues are raised.
- Create a conducive office space and workshop for RIND staff.

**2023 WORK PLAN**

Research Activity per Quarter	Quarter 1	Quarter 2	Quarter 3	Quarter 4
Patenting of Products				
Setting up of IPTTO Office in NIMR				
Validation and Product Testing				
Re-designing and Packaging of Product				

**SOME OF OUR FINISHED PRODUCTS**



NIMR BIOTECH BIOLOGICAL INCUBATOR



NIMR BIOTECH BIOLOGICAL OVEN





### **NIMR BIOTECH GENOTYPE MACHINES - MODEL 1**

### **NIMR BIOTECH GENOTYPE MACHINE - MODEL II**

### **BLOOD GENOTYPING ELECTROPHORETIC MACHINE. MADE IN NIGERIA.**

#### **MODEL I:**

Haemoglobin Genotypes can be determined using the cellulose acetate electrophoresis technique. A small quantity of blood is placed on a tile and mixed with two drops of saponin to lyse the blood. With the aid of an applicator stick, the haemolysate is placed on the cellulose acetate paper and electrophoreses in Tris buffer solution for 15-20 minutes at 220v. Controls from haemolysate from blood samples of known HbAS and HbAC are used as control.

#### **MODEL II:**

Haemoglobin Genotypes can be determined using the cellulose acetate electrophoresis technique. A small quantity of blood is placed on a tile and mixed with two drops of saponin to lyse the blood. With the aid of an applicator stick, the haemolysate is placed on the cellulose acetate paper and electrophoreses in Tris buffer solution for 15-20 minutes at 220v. Controls from haemolysate from blood samples of known HbAS and HbAC are used as control.



NIMR BIOTECH BUCKET CENTRIFUGE      NIMR BIOTECH HEMATOCRIT CENTRIFUGE

### THE NIMR BIOTECH NUCLEIC ACID PURIFICATION KIT

**BIOTECH DNA/RNA Extraction Kits**

The NIMR Biotech DNA and Total RNA purification kits are formulated for the rapid isolation and purification of DNA or total RNA from different specimens. The kits are based on silica-gel membrane adsorption for DNA or RNA purification, which allows the removal of impurities and inhibitors from nucleic acid. The extracted nucleic acid using these kits is suitable for several downstream applications.

The total RNA extraction can be used to extract RNA from blood, insect and animal tissues, and swabs and has been particularly tested for COVID-19 diagnosis. The DNA extraction kit has been optimized to extract DNA from whole blood, dried blood spots, bacteria (gram positive and gram negative), plants, insects, and animal tissue samples.

**DR. MUINAH FOWORA**  
Inventor

- The NIMR Biotech DNA and Total RNA purification kits are formulated for the rapid isolation and purification of DNA or Total RNA from different specimens.
- The kits are based on silica-gel membrane adsorption for DNA or RNA purification, which allows the removal of impurities and inhibitors from nucleic acid. DNA and Total RNA purification kits are formulated for the rapid isolation and purification of DNA or Total RNA from different specimens.
- The extracted nucleic acid using these kits is suitable for several downstream applications.







**NIMR YELLOW FEVER VIRUS RT-qPCR Kit**



This is a kit developed in NIMR for the detection of Yellow fever virus. It operates on the principle of Real Time Polymerase chain reaction in the detection of Yellow Fever Virus.

It has two targets:

- The primary target which detects the presence of the Yellow Fever Virus on the FAM Channel and
- An Internal Control on a ROX Channel

**Advantages**

- It completes run in 34 minutes on fast run mode and 65 minutes on standard run mode; faster than anyone we have ever used in our lab
- It is far cheaper than the once currently being used in the country
- Highly sensitive and specific
- It is made in-country



**JOSEPH OJONUGWA SHAIBU**  
Inventor



**NIMR LASSA FEVER VIRUS RT-qPCR Kit**



This is a kit developed in NIMR for the detection of Lassa fever virus. This Assay operates on the principle of Real Time Polymerase chain reaction in the detection of Lassa Fever Virus. It detects the S-gene of the Lassa Fever Virus.

It has two targets:

- The primary target which detects the presence of the Lassa Fever Virus on the HEX/VIC Channel
- An Internal Control on a ROX Channel

**Advantages**

- It completes run in 34 minutes on fast run mode and 65 minutes on standard run mode; faster than anyone we have ever used in our lab.
- It is far cheaper than the once currently being used in the country.
- Highly sensitive and specific
- It is made in-country



**JOSEPH OJONUGWA SHAIBU**  
Inventor

## WORKS AND MAINTENANCE DEPARTMENT

### INTRODUCTION

The Works and Maintenance Department provides support services on infrastructures such as buildings, electric power supply, plumbing, air-conditioning, repairs of biomedical equipment, environmental cleaning, transport, and logistics.

### WORKS AND MAINTENANCE DEPARTMENT TEAM

S/N	NAME	DESIGNATION
1	Engr. E.O. Adedeji	Director (W&M)
2	Mr. E.A. Udofia	C.T.O. Civil
3	Mr. Yahaya Abdulmumuni	C.T.O. Bio Med
4	Engr. Edomwonyi Osaro	C.E.E
5	Mr. P. Akabueze	P.T.O. Electrical
6	Engr. Esuola Docas	Senior Engineer (Civil)
7	Mr. Prince .I. Ogbuji	BME 1
8	Mrs. G.T. Okoli	P.T.O. Environment
9	Osunleke Dolapo	Asst Exc Officer II
10	Mr. Abu Jospheh	Senior Foreman Carpentry
11	Mr. Godwin Udomkpa	CMDM
12	Mr. E. K. Akintunde	CMDM
13	Mr. Ogunyelu O.	SFM Mason
14	Mr. Oluwakoya O.	SFM R/A
15	Mr. Hassan. S.	SFM R/A
16	Mr. Ekpobia S.A.	SFM Mason
17	Mr. Adeyanju E.O.	SFM Plumber
18	Mr. Owolabi Lateef	Craftman Electrical
19	Mr. Agunlejika Adedare	Motor Driver Mech
20	Mr. Salawu Ayokunle	Foreman Electrical
21	Mr. Olasupo Dauda	SFM Carpentry
22	Mr. Habeeb Fawole	Motor Driver Mech
23	Mr. Adesanya Stephen	SFM Mason
24	Mr. Okpe Emmanuel	Senior Driver Mech
25	Mr. Sodimu Nafiu	Motor Driver Mech
26	Mr. S.A. Adekoya	Sfm Carpentry



27	Mr. Agboola Tosin	Chief Clerical Officer
28	Mr. Alao J.O.	Senior Foreman Plumbing
29	Mr. Kadiri Ayomide	Craftman Electrical
30	Mr. V.E. Ekocho	SFM Electrical
31	Mr. Ajenu Boniface	Motor Driver Mech
32	Mr. Ezekiel Umana	Chief Motor Driver Mech
33	Mr. Ezeubolo Donatus	Senior Foreman Electrical
34	Mr. D. Oluwagbemi	Chief Clerical Officer
35	Mr. A.W. Salami	Senior Motor Driver Mech
36	Mr. Jonah Yourwill. Bassey	Craftman Electrical
37	Mr. Ayodeji Ayo	SFM Electrical
38	Mr. Akinsanya Oluwaseun	Motor Driver Mech
39	Oyelakin Lanre	Motor Driver Mech
40	Joseph Babatunde	Craftman Civil
41	Ubong Boniface	Motor Driver Mech

### **ANNUAL MAINTENANCE SERVICE CONTRACTS**

The service contracts through signed agreements existing between the Institute and Professional Private Participators (Vendors) are as follows:

- Cleaning services – RANSTOJAN Nig. Limited.
- Biomedical wastes incinerating – EMIS Engineering Limited.
- Priority feeder line/equipment – DAT Investment.
- Fumigation of NIMR premises - Hamtec Abraham Ventures.
- Evacuation of the central waste bin – Lawma/PSP-cleaners Royal venture.

All the above-mentioned services were excellently executed to satisfaction throughout the year under review.

### **ROUTINE MAINTENANCE SERVICES**

The routine maintenance services undertaken cut across the entire Civil, Electrical/Electronics, Biomedical, Transport, Environmental and Refrigeration/Air-Conditioning Divisions making up the Department. The activities of each Division and Unit for the year 2022 are as shown below:

### **ACTIVITIES**

The activities of each Division/Unit in the Department for the year 2022 are as shown below:

**CIVIL ENGINEERING UNIT**

- Rehabilitation of various offices/laboratories including the residential building.
- Completion of the Emerging Viral Diseases Building.
- Completion of the Bio-Bank Building.
- Completion of the Clinical Trials Centre Building.
- Construction of two industrial water bore holes.
- Furnishing of various offices.
- Attended to all work orders relating to civil, carpentry and plumbing.

**ELECTRICAL ENGINEERING UNIT**

- Load Balancing on Transformers for power sustainability.
- Proactive, preventive, corrective and general services of the institute's plants in line with the manufacturer's recommendations.
- Rectification of all electrical faults in the institute laboratories including the equipment.
- Monitoring and supervision of the institute priority feeder contractor in the maintenance of the High Tension (H.T) line, High Tension circuit breakers, Transformers, and the ring main unit.
- Maintenance and Servicing of all the Generators for continuous and optimal performance.
- Ensuring steady power supply to all offices, laboratories and residence.
- Reducing response time to fault rectification.
- Ensuring electrical load balancing in each phase etc.
- Constant monitoring of the low-tension lines to effect repairs.
- Replacement of all non-functional electric bulbs in the lab complex.
- Constant maintenance of the security lights.

**TRANSPORT UNIT**

- All Institute's vehicles were serviced as at when due throughout the year.
- Expired tyres and bad batteries were replaced in affected vehicles.
- Expired vehicle particulars were renewed.

**ENVIRONMENTAL UNIT**

- All waste generated by the institutes, be it solid, domestic, gardener, or medical wastes were evacuated as at when due.
- All the overgrown plants /grasses in the NIMR compound were trimmed.
- The drainage networks in NIMR were taken care of.
- Cleaning of in-house existing facilities and public toilets in the Institute.
- All overgrown trees/plants under the high-tension wire were trimmed.
- We ensured the environment was kept clean and conducive for everyone.

**REFRIGERATION & AIR-CONDITIONING UNIT**

- Routine servicing of all the air conditioners in the institute.
- Repairs of all faulty air conditioners were carried out.
- Installation of newly purchased air conditioners.
- Repair of any faulty refrigerators.
- Repair of any faulty freezers.
- Repair of all faulty ultra-low freezers.
- Attended to all work orders issued to the unit.

**BIOMEDICAL ENGINEERING UNIT**

- Preventive and corrective maintenance in research and diagnostic laboratory equipment.
- Inspection and Installation of newly procured laboratory equipment.
- Calibration of laboratory equipment.
- Participation in ad hoc activities assigned by Management.
- Certification and verification of laboratory equipment.
- Training of IT students, interns, and NYSC members.
- Incineration of laboratory wastes and contaminated devices.
- Servicing research and diagnostic laboratory equipment.

**ACHIEVEMENTS**

- Completion of the emerging viral diseases building.
- Completion of the bio-bank building.
- Completion of the clinical trials centre building.
- Construction of two industrial water boreholes.

- Routine servicing of generators.
- Supply of furniture to various offices.

## **CAPACITY DEVELOPMENTS**

Number of conferences/trainings organized within the year under review.

## **NYSC/INDUSTRIAL TRAINING/INTERN PROGRAMS**

NYSC - 4 Industrial Trainees -1 and intern – 1

## **CHALLENGES**

- Insufficient budget allocation to maintenance.
- Lack of modern tools for maintenance.
- Lack of stock of spares in the store leading to delay in maintenance.

## **WAY FORWARD**

- Recruitment of Technical personnel is paramount.
- Training and re-training of technical staff is needed.
- Bulk purchase of maintenance material should be encouraged as previously done.
- Planned or proactive maintenance is highly recommended.

## **2023 WORK PLAN**

- Installation of Elevator in the Medical E-Library and Administration Building.
- Conversion of Motor garages to driver's lodge and scaling up of the Medical compound fence wall.
- Renovation of the Residential Boys' quarters.
- Routine servicing of all the Institute's generators, Transformers, Transmission Line, Feeder, Air conditioners, freezers, Autoclaves, Incinerator and all Institute vehicles as and when due.
- Design and construction of NIMR foundation building.
- Design and construction of new CHV&G research lab building.
- Design and reconstruction of new HIV research clinic laboratory and office complex.
- New technical staffs and Hands-on training for all craftsmen and leadership training for senior staff of the department.



- Purchase of 800KVA generator as backup to the Institute public supply.
- Restore, improve or replace every infrastructural facility that will enhance enabling environment for basic, applied and operational research studies going on in the Institute.
- Tidy the environment for better outlooks.
- Cart away all the wastes generated by the Institute solid, domestic and medical wastes twice in a week.
- Clearing and trimming all the overgrown flowers, plants/grasses in the NIMR environment.

## PUBLICATIONS

1. Abdullahi, A., Oladele, D., Owusu, M., Kemp, S. A., Ayorinde, J., Salako, A., Fink, D., Ige, F., Ferreira, I. A. T. M., Meng, B., Sylverken, A. A., Onwuamah, C., Boadu, K. O., Osuolale, K., Frimpong, J. O., Abubakar, R., Okuruawe, A., Abdullahi, H. W., Liboro, G., Agyemang, L. D., ... Gupta, R. K. (2022). SARS-COV-2 antibody responses to AZD1222 vaccination in West Africa. *Nature communications*, 13(1), 6131.
2. Adaba, S. T., Musari-Martins, T. E., Salako, A. O., Olojo, I. I., Odubela, O. O., Ekama, S. O., Ezemelue, P. N., Idigbe, I. E., Gbaja-Biamila, T. A., Owolabi, A. Z., Opaneye, B. A., Herbertson, E. C., David, A. N., Ezechi, O. C., & Salako, B. L. (2022). Impact of SARS-CoV-2 pandemic on antiretroviral access at a large treatment centre in Lagos, Nigeria. *West African journal of medicine*, 39(7), 703–707.
3. Adebowale, O. O., Amoo, O. S., Afolabi, K. O., & Oloye, A. A. (2022). Porcine circovirus type 2 and its associated diseases in southwestern Nigeria: Farmers' perception and level of awareness. *Journal of Advanced Veterinary and Animal Research*, 9(2), 203–210.
4. Adeneye et al, (2022). Willingness to pay for long lasting insecticidal nets in the Kainji lake area, Niger State, Nigeria. *Journal of Preventive Medicine and Care* (In Press).
5. Adeneye, A. K., Akinwale, O. P., Ezeugwu, S. M. C., Olukosi, Y. A., Adewale, B., Sulyman, M. A., Okwuzu, J., & Mafe, M. A. Gyang, P. V., Soyinka, F. O., Nwafor, T., Henry, U. E., Musa, B. D., Adelokiki, A. O., Bisiriyu, A. H. & Idowu, F. K. (2022). Knowledge and perception of Buruli ulcer in communities of two endemic local government areas of Ogun State, Nigeria. *Annals of Public Health and Epidemiology*, 2(1).
6. Adeogun et al (2022). Compilation of communique from national entomological review meetings (2019-2021): Lessons learnt so far (Submitted)
7. Adeogun et al (2022). High resistance to Deltamethrin and DDT in Two Major Malaria Vectors (*Anopheles gambiae* and *Anopheles coluzzi*) from South-Western Nigeria: possible involvement of metabolic resistance mechanisms (Submitted).

8. Adeogun et al, (2022). Polymorphic inversion 2La frequencies associate with ecotypes in populations of *Anopheles coluzzii* from Southwest Nigeria. *Scientific African* 12: e00746 (Elsevier Journal).
9. Adesida, S. A., Iyebeye, M. I., Aina, O. O., Peters, R. F., Ezeaku, C. C., & Amosun, E. A. (2022). Chemical composition and healing potential of essential oil of *Dennettia tripetala* on methicillin-resistant *Staphylococcus aureus*: Infected wound model. *Beni-Suef University Journal of Basic and Applied Sciences*, 11(1), 91.
10. Adetunji, I. A., Ajayi, A., Adeleye, A., Pellicano, R., & Smith, S. (2022). Characterization of some virulence genes in non-typhoidal *salmonella* isolated from food animals and handlers in Lagos. *Minerva Biotechnology and Biomolecular Research. Minerva Biotechnologica*, 34(2), 80 – 5
11. Adewale et al, (2022). Co-infection of urogenital schistosomiasis and malaria and its Association with Anaemia and Malnutrition amongst school children in Dutse, Nigeria (In Press).
12. Adewale et al, (2022). Factors influencing enrolment in Lagos State health insurance scheme among the residents of the state (In Press).
13. Adeyekun, A. L., Oniya, M. O., Olusi, T. A., & Adeogun, A. O. (2021). Molecular identification of the members of *anopheles gambiae* sl and *culex* species in Ifedore local government area of Ondo State. *BioMed Research Journal*, 5(1), 354-359.
14. Adu-Gyasi, D., Nkrumah, B., Raheem, T. Y., Umukoro, S., Okara, G. C., & Mirabeau, T. (2022). West african postgraduate college of medical laboratory science advisory position paper on Covid-19 testing and containment in Ecowas region. *Annals of Medical Laboratory Science*, 2(2), 23-30.
15. Afocha, E., Abiodun Iwalokun, B., Deji-Agboola, M. A., Ayorinde James, B., Abayomi Banjo, T., Adu, F., Chukwujekwu Ezechi, O., Adegbola, R., & Lawal Salako, B. (2023). Prevalence and spatiotemporal distribution of rotavirus diarrhea among children younger than five years old in Lagos, Nigeria. *Journal of immunoassay & immunochemistry*, 44(2), 117–132.
16. Ahmed, R. A., Adekoya, K. O., Onwuamah, C. K., Oboh, B. O., Iyer, S. S., Oluwatosin, A. S., Audu, R. A., & Ezechi, O. C. (2022). Mechanism of viral suppression among HIV elite controllers and long-term nonprogressors in Nigeria and South Africa. *Viruses*, 14(6), 1270.

17. Ajibaye, O., Olukosi, Y. A., Oriero, E., Oboh, M., Iwalokun, B. A., Nwankwo, I. C., Nnam, C. F., Adaramoye, V. O., Chukwuemeka, S., Adeleke, C., Okanazu, J., Eniafe, G. O. & Amambua-Ngwa, A. (2022). Rare *Plasmodium falciparum* coronin gene mutations following ACT treatment of malaria in South-Western Nigeria. *Antimicrobial Resistance and Chemotherapy*; AAC01365-22. (Manuscript under review).
18. Akinde, S. B., Adeyemi, F. M., Oyedara, O. O., Ajani, T. F., Sule, W. F., Olaitan, J. O., Iwalokun, B. A., & Ojo, O. O. (2022). 16S rRNA metagenomics data on the
19. Akinsinde, K., Sack, D., Iwalokun, B., Oyedeji, K., Fowora, M., Ngwa, M., Luo, W., Debes, A., Li, S., & Stine, O. (2022). Founder-flush effect found in vibrio cholerae by MLVA of Nigerian samples. *Medical Research Archives*, 10(12). doi:10.18103/mra.v10i12.3411
20. Akinwale et al, (2022). Barriers and facilitators to career advancement of women in infectious diseases of poverty research in Nigeria. *Journal of Gender, Culture and Society*, 2(2), 20–23.
21. Akinyemi, K. O., Al-Khafaji, N. S. K., Al-Alaq, F. T., Fakorede, C. O., Al-Dahmoshi, H. O. M., Iwalokun, B. A., Akpabio, I., Alkafaas, S. S., & Saki, M. (2022). Extended-spectrum beta-lactamases encoding genes among salmonella enterica serovar typhi isolates in patients with typhoid fever from four academic medical centers Lagos, Nigeria. *Revista de investigacion clinica; organo del Hospital de Enfermedades de la Nutricion*, 74(3), 165–171.
22. Amoo, O. S., Onyia, N., Onuigbo, T. I., Vitalis, S. U., Davies-Bolorunduro, O. F., Oraegbu, J. I., Adeniji, E. T., Obi, J. C., Abodunrin, O. N., Ikemefuna, A. S., Adegbola, R. A., Audu, R. A., & Salako, B. L. (2022). Significance of hematologic abnormalities in COVID-19 severity among infected patients in Lagos, Nigeria. *Bulletin of the National Research Centre*, 46(1), 275.
23. Amoo, O. S., Tijani, B., Onuigbo, T. I., Oraegbu, J. I., Kareithi, D. N., Obi, J. C., Adeniji, E. T., Dosunmu, A. A., Karera, S., Filani, T., Akinreni, T., Ezike, E., Owoseni, K., Audu, R. A., & Salako, B. L. (2022). Factors affecting COVID-19 testing behaviours among the population in South Western Nigeria. *International journal of public health*, 67, 1604993.
24. Amoo, S. O., Tijani, B., -Onuigbo, T. F., Isioma, O. J., Kareithi, D., Adeniyi, A. H. Obi, J. C., Adeniji, T. E., Karera, S., Filani, T., Ezike, E., Akinreni, T., Audu, R. A., Adegbola, R. A., & Salako, B. L. (2022). Attitude towards Covid-19 vaccines



- and willingness to be vaccinated among orientation camp dwellers in Ikare-Akoko, Ondo State, Nigeria. *GET Journal of Biosecurity and One Health*.
25. Anejo-Okopi, J., Okeke, E., Davwar, P. M., Onwuamah, C., Onywera, H., Omaiye, P., Duguru, M., Okojokwu, O. J., Ujah, O. I., Jonathan, B., George, C. A., Crown, R. S., Yakubu, F. B., Sokei, J. O., Okoli, L. C., Audu, O., Inzaule, S. C., Abah, I. O., Agaba, P., Agbaji, O. O., ... Hawkins, C. (2022). Molecular detection of hepatitis B virus genotype E with immune escape mutations in chronic hepatitis B patients on long-term antiviral therapy in Jos, Nigeria. *African journal of laboratory medicine*, 11(1), 1677.
  26. Ashaka, O. S., Omoare, A. A., James, A. B., Adeyemi, O. O., Oladiji, F., Adeniji, K. A., Okunade, K. S., & Agbede, O. O. (2022). Prevalence and risk factors of genital human papillomavirus infections among women in Lagos, Nigeria. *Tropical medicine and infectious disease*, 7(11), 386.
  27. Bamidele, T.A., Odumosu, B. T., Shittu, O. B., Adeniyi, B. A., & Ogunshe, A. O. (2022). A review of the implications of lactic acid bacteria and bifidobacteria in human and animal diseases. *Afr J Clin Exp Microbiol*. 23(1), 27-33.
  28. Bayegun, A. A., Omitola, O. O., Umunnakwe, C. U., Akande, F. A., Akinwale, O. P., Mogaji, H. O., ... & Ekpo, U. F. (2022). Morphometric analysis of schistosome eggs recovered from human urines in communities along the shoreline of Oyan River Dam in Ogun State, Nigeria. *Journal of Helminthology*, 96, e89.
  29. Birnie, E., James, A., Peters, F., Olajumoke, M., Traore, T., Bertherat, E., Trinh, T. T., Naidoo, D., Steinmetz, I., Wiersinga, W. J., Oladele, R., & Akanmu, A. S. (2022). Melioidosis in Africa: Time to raise awareness and build capacity for its detection, diagnosis, and treatment. *The American journal of tropical medicine and hygiene*, 106(2), 394–397.
  30. Cadmus, S., Olagunju, T., Makolo, A., Akinseye, V., Falodun, T., Lawal, O., ... & Osman, E. (2022). NTBP: A geo-genomic repository of TB data in Nigeria. *International Journal of Infectious Diseases*, 116, S102.
  31. Chukwu, E. E., Awoderu, O. B., Enwuru, C. A., Afocha, E. E., Lawal, R. G., Ahmed, R. A., Olanrewaju, I., Onwuamah, C. K., Audu, R. A., & Ogunsola, F. T. (2022). High prevalence of resistance to third-generation cephalosporins detected among clinical isolates from sentinel healthcare facilities in Lagos, Nigeria. *Antimicrobial resistance and infection control*, 11(1), 134.

32. Chukwu, E. E., Musa, A. Z., Enwuru, C., Ohinion, A., Bamidele, T., Olukosi, A., ... & Salako, B. L. (2021). Determinants of Antimicrobial Use for Covid-19 related symptoms among Nigerians. *West African Journal of Medicine*, 38(3), 213-221.
33. Davies-Bolorunduro, O. F., Fowora, M. A., Amoo, O. S., Adeniji, E., Osuolale, K. A., Oladele, O., Onuigbo, T. I., Obi, J. C., Oraegbu, J., Ogundepo, O., Ahmed, R. A., Usman, O. A., Iyapo, B. G., Dada, A. A., Onyia, N., Adegbola, R. A., Audu, R. A., & Salako, B. L. (2022). Evaluation of respiratory tract bacterial co-infections in SARS-CoV-2 patients with mild or asymptomatic infection in Lagos, Nigeria. *Bulletin of the National Research Centre*, 46(1), 115.
34. dip, R. N., Ndip, L. M., Smith, S. I., Kfusi, J. A., Kaah Keneh, N., Nkengum, W. P., ... & Nkie Esemu, S. (2022). Prevalence and characterization of methicillin-resistant *Staphylococcus aureus* from meat retail shops and meat handlers in the Buea municipality. *International Journal of Tropical Disease and Health* 42: 13 – 27.
35. Ekama, S. O., Gbajabiamila, T. A., Salako, A. O., Oladele, D. A., Odubela, O. O., David, A. N., ... & Salako, B. L. (2022). Challenges and factors associated with adherence to non-pharmaceutical interventions to prevent the spread of COVID-19 in a slum setting. *Journal of Public Health International*, 4(4),41-50. DOI: 10.14302/issn.2641-4538.jphi-22-4167.
36. Ekama, S. O., Ilomuanya, M. O., Azubuike, C. P., Ayorinde, J. B., Ezechi, O. C., Igwilo, C. I., & Salako, B. L. (2022). Enzyme responsive vaginal microbicide Gels containing maraviroc and tenofovir microspheres designed for acid phosphatase-triggered release for pre-exposure prophylaxis of HIV-1: A comparative analysis of a Bigel and thermosensitive Gel. *Gels*, 8(1), 15.
37. El Tantawi, M., Folayan, M. O., Aly, N. M., Brown, B., Ezechi, O. C., Uzochukwu, B., Khader, Y., Al-Batayneh, O. B., Al-Khanati, N. M., Attia, D. Y., Ellakany, P., Rashwan, M., Shamala, A., Abeldaño Zuñiga, R. A., & Nguyen, A. L. (2022). COVID-19, economic problems, and family relationships in eight Middle East and North African countries. *Family relations*, 71(3), 865–875.
38. Eleje, G. U., Onubogu, C. U., Fiebai, P. O., Mbachu, I. I., Akaba, G. O., Loto, O. M., Usman, H. A., Rabi, A., Chibuzor, M. T., Chukwuanukwu, R. C., Joe-Ikechebelu, N. N., Nwankwo, C. H., Kalu, S. O., Ogbuagu, C. N., Chukwurah, S. N., Uzochukwu, C. E., Oppah, I. C., Ahmed, A., Egeonu, R. O., Jibuaku, C. H., ... Triplex Infection in Pregnancy Collaboration Group1–36 (2022). Mother-to-

- child transmission of human immunodeficiency virus, hepatitis B virus and hepatitis C virus among pregnant women with single, dual or triplex infections of human immunodeficiency virus, hepatitis B virus and hepatitis C virus in Nigeria: A systematic review and meta-analysis. *SAGE open medicine*, 10, 20503121221095411.
39. Emelda, E. C., Fadunsin, F., & Nwaokorie, F. O. (2022). Bacteriology of wound infections and its effect on antibiotics selection during management. Under review at the Infectious Disease Reports. DOI: 10.55085/idr.2022.662
  40. Ezechukwu, H. C., Shi, J., Fowora, M. A., Diya, C. A., Elfaki, F., & Adegbeye, O. A. (2022). Fetoplacental transmission and placental response to SARS-CoV-2: Evidence from the literature. *Frontiers in medicine*, 9, 962937.
  41. Fagbohun et al (2022). Knowledge, attitude and perception of communities on mosquitoes and its control practices in Lagos State, Nigeria. *Pan African Medical Journal*, 38(44).
  42. Fagbohun, I. K., Oyeniya, T. A., Idowu, E. T., Nwanya, O., Okonkwo, F., Adesalu, K. O., Jimoh, R. T., Oladosu, Y., Otubanjo, O. A., & Adeogun, A. O. (2022). Detection and Co-occurrence of kdr (F1534C and S989P) mutations in multiple insecticides resistant aedes aegypti (Diptera: Culicidae) in Nigeria. *Journal of medical entomology*, 59(5), 1741–1748.
  43. Feng, N., Ezechi, O., Uwandu, M., Abimbola, B. S., Vincent, G. D., Idigbe, I., Okoli, L. C., Adesina, M., Okwuzu, J., Ahmed, R. A., Sokei, J., Shaibu, J. O., Momoh, A. E., Sowunmi, O., Labo-Popoola, O. H., POPGEC Team, Ohihoin, G., David, A., Nzeribe, E., Olaleye, O., ... Onwuamah, C. K. (2022). Self-collected versus medic-collected sampling for human papillomavirus testing among women in Lagos, Nigeria: a comparative study. *BMC public health*, 22(1), 1922.
  44. Fink, D. L., Oladele, D. A., Slack, A. J., Odubela, O., Musari-Martins, T., Okechukwu, A., Adetayo, K., Opaneye, S., Abubakar, R., David, A., Cai, J., Quaderi, S., Abubakar, I., Ezechi, O., Hurst, J. R., Lipman, M., & Salako, B. (2022). A multi-centre observational study of HIV, tuberculosis and risk of chronic lung disease in urban West Africa. *AIDS (London, England)*, 36(14), 1987–1995.
  45. Folayan, M. O., Ibigbami, O., Brown, B., El Tantawi, M., Aly, N. M., Ezechi, O. C., Abeldaño, G. F., Ara, E., Ayanore, M. A., Ellakany, P., Gaffar, B., Al-Khanati, N. M., Idigbe, I., Jafer, M., Khan, A. T., Khalid, Z., Lawal, F. B., Lusher, J., Nzimande, N. P., Popoola, B. O., ... Nguyen, A. L. (2022). Factors associated with

- experiences of fear, anxiety, depression, and changes in sleep pattern during the COVID-19 pandemic among adults in Nigeria: A cross-sectional study. *Frontiers in public health*, 10, 779498.
46. Folayan, M. O., Ibigbami, O., Brown, B., El Tantawi, M., Uzochukwu, B., Ezechi, O. C., Aly, N. M., Abeldaño, G. F., Ara, E., Ayanore, M. A., Ayoola, O. O., Osamika, B. E., Ellakany, P., Gaffar, B., Idigbe, I., Ishabiyi, A. O., Jafer, M., Khan, A. T., Khalid, Z., Lawal, F. B., ... Nguyen, A. L. (2022). Differences in COVID-19 preventive behavior and food insecurity by HIV status in Nigeria. *AIDS and behavior*, 26(3), 739–751.
  47. Folayan, M. O., Zuniga, R. A. A., Ezechi, O. C., Brown, B., Nguyen, A. L., Aly, N. M., Ellakany, P., Idigbe, I. E., Khan, A. T., Lawal, F. B., Jafer, M., Gaffar, B., Popoola, B. O., Quadri, M. F. A., Virtanen, J. I., Lusher, J., & El Tantawi, M. (2022). Associations between emotional distress, sleep changes, decreased tooth brushing frequency, self-reported oral ulcers and SARS-Cov-2 infection during the first wave of the COVID-19 pandemic: A global survey. *International journal of environmental research and public health*, 19(18), 11550.
  48. Fowora, M. A., Ogunsanya, J., Osuolale, K. A., Onyeaghasiri, F. U., Aiyedogbon, A., & Iwalokun, B. (2022). Bacteria and urinalysis profile of asymptomatic bacteriuria in women in Lagos, Nigeria. *Annals of Medicine and Medical Research*, 5: 1038.
  49. Idowu, E. T., Adeogun, A. O., Adams, L. A., Yusuf, M. A., Salami, O. W., Kanmi, O. A., ... & Awolola, T. S. (2021). Larvicidal potential of two silver nano-particles (*Moringa oleifera* and *Ficus exasperata*) against laboratory and field strains of *Anopheles gambiae* (Diptera: Culicidae) in Lagos, Nigeria. *The Journal of Basic and Applied Zoology*, 82, 1-9.
  50. Igbasi, U., & Oyibo, W. (2022). Seroprevalence of immunoglobulin G and E among out-patients with malaria in Ikorodu LGA, Lagos, Nigeria. *Microbes Infection and Chemotherapy*, 2: 1-8, e1376.
  51. Igbasi, U., & Oyibo, W., (2022). Prevalence of malaria and tuberculosis co-infection among patients attending tuberculosis treatment clinics in Lagos, South-West, Nigeria. *Journal of Malaria and Phytomedicine*, 5(1), 7-16.
  52. Iwelunmor, J., Ezechi, O., Obiezu-Umeh, C., Gbaja-Biamila, T., Musa, A. Z., Nwaozuru, U., Xian, H., Oladele, D., Airhihenbuwa, C. O., Muessig, K., Rosenberg, N., Conserve, D. F., Ong, J. J., Nkengasong, S., Day, S., Tahlil, K.

- M., BeLue, R., Mason, S., Tang, W., Ogedegbe, G., ... Tucker, J. D. (2022). Enhancing HIV self-testing among Nigerian youth: Feasibility and preliminary efficacy of the 4 youth by youth study using crowdsourced youth-led strategies. *AIDS patient care and STDs*, 36(2), 64–72. <https://doi.org/10.1089/apc.2021.0202>.
53. Iwelunmor, J., Ezechi, O., Obiezu-Umeh, C., Oladele, D., Nwaozuru, U., Aifah, A., Gyamfi, J., Gbajabiamila, T., Musa, A. Z., Onakomaiya, D., Rakhra, A., Jiyuan, H., Odubela, O., Idigbe, I., Engelhart, A., Tayo, B. O., & Ogedegbe, G. (2022). Factors influencing the integration of evidence-based task-strengthening strategies for hypertension control within HIV clinics in Nigeria. *Implementation science communications*, 3(1), 43.
54. Iwelunmor, J., Tucker, J. D., Obiezu-Umeh, C., Gbaja-Biamila, T., Oladele, D., Nwaozuru, U., Musa, A. Z., Airhihenbuwa, C. O., Muessig, K., Rosenberg, N., BeLue, R., Xian, H., Conserve, D. F., Ong, J. J., Zhang, L., Curley, J., Nkengasong, S., Mason, S., Tang, W., Bayus, B., ... Ezechi, O. (2022). The 4 Youth by Youth (4YBY) pragmatic trial to enhance HIV self-testing uptake and sustainability: Study protocol in Nigeria. *Contemporary clinical trials*, 114, 106628.
55. Jolaiya, T. F., Braun, S.D., Ajayi, A., Coker, A. O., Ralf Ehricht, Stefan Monecke, Rinaldo Pellicano, & Smith, S.I. (2022). Prevalence of Non-O157 *Escherichia coli* serotypes isolated from the stool of under five years old children presenting with diarrhea in Lagos, Nigeria. *Minerva Biotechnology and Biomolecular Research* 34(3), 131-6.
56. Kajero, J. A., Seedat, S., Ohaeri, J. U., Akindele, A., & Aina, O. (2022). Effects of cannabidiol on weight and fasting blood sugar with chronic and subchronic haloperidol administration. *Discover Mental Health*, 2(1), 18.
57. Kareem, K. O., Adigun, K. O., Musa, Z. A., & Aina, O. O. (2022). Review of man to animal transmission of coronavirus disease 2019 (covid-19) infection caused by severe acute respiratory syndrome coronavirus 2 (sars-cov-2). *Nigerian veterinary journal (accepted)*.
58. Kpokiri et al, (2022). A global qualitative evidence synthesis of data from a crowdsourcing open call and scoping review. *The Lancet Global Health*. Submitted.



59. Majiyagbe, O. O., Akinsete, A. M., Adeyemo, T. A., Salako, A. O., Ekure, E. N., & Okoromah, C. A. N. (2022). Coagulation abnormalities in children with uncorrected congenital heart defects seen at a teaching hospital in a developing country. *PloS one*, *17*(7), e0263948.
60. Malfertheiner, et al. (2022). Management of *Helicobacter pylori* infection—the Maastricht VI/Florence Consensus Report. *GUT* utjnl-2022-327745. doi: 10.1136/gutjnl-2022-327745
61. Marion et al, (2022). A combined effort of 11 laboratories in the WHO African region to improve quality of Buruli ulcer PCR diagnosis: The "BU-LABNET". *PLoS Negl Trop Dis.*, *16*(11): e0010908. doi: 10.1371/journal.pntd.0010908. Epub ahead of print. PMID: 36331971.
62. Mason, S., Ezechi, O. C., Obiezu-Umeh, C., Nwaozuru, U., BeLue, R., Airhihenbuwa, C., Gbaja-Biamila, T., Oladele, D., Musa, A. Z., Modi, K., Parker, J., Uzoaru, F., Engelhart, A., Tucker, J., & Iwelunmor, J. (2022). Understanding factors that promote uptake of HIV self-testing among young people in Nigeria: Framing youth narratives using the PEN-3 cultural model. *PloS one*, *17*(6), e0268945.
63. Musa, A., Aminah, N. S., Davies-Bolorunduro, O. F., Kristanti, A. N., Islami, A. I., Wai, T. S., & Naing, T. T. S. P. (2022). Antimicrobial activities of the extracts and secondary metabolites from *Clausena* genus—A review. *Open Chemistry*, *20*(1), 627-650.
64. Nkiruka, N. O., Otuonye, N. M., Adebayo, A. O., Ojetunde, M. M., Iwalokun, B., Ayoola, J. B., Gab-Okafor, C., Holdbrooke, S. A., Chukwu, E., & Uwandu M et al. (2022). ABO blood group profile frequencies and relationship in COVID-19 disease susceptibility and severity in Lagos, Nigeria. *Biomed J Sci & Tech Res*, *41*(4).
65. Noorizhab et al, (2022). Exploration of the Diversity of Multi-drug Resistant Mycobacterium tuberculosis complex in Nigeria using WGS: Distribution of lineages, drug resistance patterns and genetic mutations. *Tuberculosis (Elsevier) Journal*. Submitted.
66. Obembe, A., Oduola, A. O., Oyeniyi, T. A., Olakiigbe, A. K., & Awolola, S. T. (2022). Genetic identity, human blood indices, and sporozoite rates of malaria vectors in Gaa-Bolorunduro, Kwara State, Nigeria. *Journal of infection in developing countries*, *16*(8), 1351–1358.

67. Obiezu-Umeh, C., Gbajabiamila, T., Ezechi, O., Nwaozuru, U., Ong, J. J., Idigbe, I., Oladele, D., Musa, A. Z., Uzoaru, F., Airhihenbuwa, C., Tucker, J. D., & Iwelunmor, J. (2021). Young people's preferences for HIV self-testing services in Nigeria: a qualitative analysis. *BMC public health*, 21(1), 67.
68. Odunukwe, N.N., Orok, A. K., Okwuzu, J. O., Adeneye, A., Ohihoin, A. G., Ohihoin, E. S., Otuonye, M., ... & Salako, B. L. (2022). Validation of diagnostic accuracy and performance of NIMR-made electrophoretic machine in determination of haemoglobin phenotype in Nigeria. *EC Microbiology*, 18(12), 02-08.
69. Ogbulie, T. E., Esiobu, N. & Fowora M. A. (2022). Development and composition of the human microbiome from birth. In Esiobu, N., Ogbonna, J.C., Adetunji, C.O., Obembe, O.O., Ezeonu, I.M., Ibrahim, A.B., & Ubi, B.E. (Eds.). *Microbiomes and emerging applications* (1st ed.). CRC Press.
70. Ogun, S. A., Erinoso, O., Aina, O. O., Ojo, O. I., Adejumo, O., Adeniran, A., Bowale, A., Olaniyi, C. A., Adedoyin, B. M., Mutiu, B., Saka, B., Oshinaike, O., Arabambi, W., Adejumo, F., Shuaib, O., Salmon, A. O., Abdur-Razzaq, H., Njokanma, O. F., Ojini, O., Ogboye, O., ... Abayomi, A. (2022). Efficacy of hexetidine, thymol and hydrogen peroxide-containing oral antiseptics in reducing Sars-Cov-2 virus in the oral cavity: A pilot Study. *West African journal of medicine*, 39(1), 83–89.
71. Ohihoin, A. G., Okwuraiwe, P. A., Musa, A. Z., Olorunfemi, G., Onwuamah, C. K., Ige, F., ... & Ujah, I. A. (2022). Prevalence and predictors of high-risk HPV in Nigeria. *Advances in Infectious Diseases*, 12(4), 745-757.
72. Ohihoin, A. G., Osuolale, K. A., Okwuraiwe, P. A., Musa, A. Z., James, A. B., Onwuamah, C. K., ... & Salako, B. L. (2022). Outcome of symptom-based RT-PCR testing for SARS-CoV-2: Experience from a large public testing centre in Nigeria. *Advances in Infectious Diseases*, 12(4), 799-812.
73. Oke et al, (2022). Molecular detection of *Mycobacterium ulcerans* strains in Nigeria. *Pathology in Practice*, 23 (5), 42-45.
74. Okoyenta, O. C., Imaga, N. A., Aina, O. O., & Ajibaye, O. (2022). Tumor Necrosis Factor receptor II gene polymorphism and association with plasmodium falciparum malaria in Badagry, Lagos, Nigeria. *International Journal of Biochemistry Research & Review*, 31(5), 32-42.

75. Okwuraiwe, A. P., Ahmed, R. A., Tajudeen, D., Nwaiwu, S., Irurhe, P., Audu, R. A., & Onwuamah, C. K. (2022). Mitochondrial DNA profiling in a Cohort of antiretroviral treated HIV patients in Lagos, Nigeria: Assessment of long-term effects of ART on life quality of PLWH. *European Journal of Medical and Health Sciences*, 4(3), 131-138.
76. Okwuraiwe, A. P., Faye, O., Ige, F. A., James, A. B., Shaibu, J. O., Faye, M., ... & Audu, R. A. (2022). Surveillance of viral hemorrhagic fever viruses in lassa fever suspects in Ondo State, Nigeria. *European Journal of Medical and Health Sciences*, 4(3), 78-81.
77. Okwuraiwe, A. P., Osuntoki, A. A., Ebuehi, O. A., & Audu, R. A. (2022). Pattern of HCV genotypes in HIV/HCV co-infected patients on antiretroviral therapy in Nigeria. *European Journal of Medical and Health Sciences*, 4(5), 30–34.
78. Oladele, D. A., Idigbe, I. E., Musa, A. Z., Gbaja-Biamila, T., Bamidele, T., Ohihoin, A. G., Salako, A., Odubela, T., Aina, O., Ohihoin, E., David, A., Ezechi, O., Odunukwe, N., & Salako, B. L. (2021). Self-reported use of and access to personal protective equipment among healthcare workers during the COVID-19 outbreak in Nigeria. *Heliyon*, 7(5), e07100.
79. Oladoyinbo, T. O., Adeogun, A. O., Babalola, A. S., Babatunde, M., Ladipo, O. T., Olarinde, T. I., & Oyedemi, I. D. (2021). Factors affecting willingness to use indoor residual spraying among pregnant women attending antenatal care in hyperendemic State of West Africa: A random survey. *Journal of medical entomology*, 58(6), 2368–2375.
80. Olarinde et al, (2022). Toxoplasma gondii infection: Seroprevalence and associated risk factors for women of childbearing age in Osun State, Nigeria. *Pathogens and Global Health*, 116:1, 59-65.
81. Olasore, H., Adebisi, A., Oyedeji, T., James, A., Banjo, T., Ajayi, F., ... & Onogu, O. (2022). COX-2 gene-1195G> A polymorphism (rs689466) is associated with dysmenorrhea among Nigerian women. *Gene Reports*, 27, 101592.
82. Oleribe, O. O., Idigbe, I. E., Osita-Oleribe, P., Olawepo, O., Musa, Z. A., Aikhuomogbe, S., Ezechi, O. C., Fertleman, M., Salako, B., & Taylor-Robinson, S. D. (2021). Perceptions and opinions of Nigerians to the management and response to COVID-19 in Nigeria. *The Pan African medical journal*, 40, 185.
83. Olubodun-Obadun, T. G., Ishola, I. O., Ben-Azu, B., Afolayan, O., Nwose, E., James, A. B., Ajayi, A. M., Umukoro, S., & Adeyemi, O. O. (2022). Probable

- mechanisms involved in the antiepileptic activity of clerodendrum polycephalum Baker (Labiatae) leaf extract in mice exposed to chemical-induced seizures. *Journal of food biochemistry*, 46(10), e14342.
84. Samuel Amoo, O., Awoderu, O., Yisau, J., Oladele, D., David, A. N., Raheem, T., Uwandu, M., Bamidele, M., Fesobi, T. W., AbdusSalam, A., Nduaga, S., Oparaugo, C. T., Ajayi, M., Ogbonna, F., Musa, A. Z., Adedeji, A., Ige, F., Ihemanna, O., Nuhu, B., ... Salako, B. L., & Smith, S. I. (2021). Assessment of potential factors that support the endemicity of cholera in Nigeria from food handlers, health workers and the environment. *Microbiologia Medica*, 36 (3).
85. Olukosi, A. Y., Ajibaye, O., Omoniwa, O., Oresanya, O., Oluwagbemiga, A. O., Ujuju, C., Ekholuenetale, M., Maxwell, K., Sutherland, C. J., Tibenderana, J. K., & Beshir, K. B. (2023). Baseline prevalence of molecular marker of sulfadoxine/pyrimethamine resistance in Ebonyi and Osun states, Nigeria: amplicon deep sequencing of dhps-540. *The Journal of antimicrobial chemotherapy*, 78(3), 788–791.
86. Olukosi, Y.A., Fowora, M. A. A., Adeneye, A. K., Chukwu, E., Aina, O.O., Ajibaye, O., Ayorinde, J., Gab-Okafor, C., Holdbrooke, S. A., Ohihoin, E. N., Musa, A. Z., Showemimo, O., Afolabi, B., Ezechi, O., & Salako, B. L. (2022). A survey of Chloroquine use for prevention and treatment of COVID-19 in Nigeria *African Health Sciences (accepted)*
87. Omosun, A., Abayomi, A., Ogboye, O., Lajide, D., Oladele, D., Popoola, A., Banjo, A. A., Chugani, B., Mabadeje, B., Abdur-Razaak, H., Wellington, O., Andu, L., Adepase, A., Adesina, F., Olonire, O., Fetuga, A., Onasanya, O., Awosika, F., Folarin-Williams, O., & Anya, S. E. (2022). Distribution of cancer and cancer screening and treatment services in Lagos: A 10-Year review of hospital records. *JCO global oncology*, 8, e2200107.
88. Onyejepu, N., Obunge, O., & Odeigah, P., (2022). The mutagenic and antimicrobial potentials of lime juice; A vaginal Douche. *Nigerian Quarterly Journal of Hospital Medicine*, 32(2), 37- 43.
89. Oparaugo, C. T., Iwalokun, B. A., Nwaokorie, F. O., Okunloye, N. A., Adesesan, A. A., Edu-Muyideen, I. O., Adedeji, A. M., Ezechi, O. C., & Deji-Agboola, M. A. (2022). Occurrence and clinical characteristics of vaginitis among women of reproductive age in Lagos, Nigeria. *Advances in Reproductive Sciences*, 10, 91-105.

90. Otuonye, M. N., Ma, L., Chinweokwu, C., Aniedobe, M. N., Okoye, R. N., Enya, V. N., ... & Oduukwe, N. N. (2022). Plasma viral load of HIV-1 in microbial infection and antimicrobial resistance among heterosexual serodiscordant couples in Nigeria. *Fortune Journal of Health Sciences*, 5(2), 254-270.
91. Otuonye, N. M., Oduukwe, N. N., Orok, B., Adebayo, A. O., Ojetunde, M. M., Bamidele, I., ... & Salako, B. L. (2022). Haemoglobin (Hb) genotype profile in COVID-19 disease susceptibility and severity in Lagos State Nigeria. *Infectious Diseases Reviews*, 2022.
92. Oyedele, A. K., Adelusi, T. I., Ogunlana, A. T., Ayoola, M. A., Adeyemi, R. O., Babalola, M. O., Ayorinde, J. B., Isong, J. A., Ajasa, T. O., & Boyenle, I. D. (2022). Promising disruptors of p53-MDM2 dimerization from some medicinal plant phytochemicals: a molecular modeling study. *Journal of biomolecular structure & dynamics*, 1–10.
93. Ozichu, E. S., Ayoola, O. D., Zaidat, M. A., Clara, H. E., Nkiru, D. A., & Chukwujekwu, E. O. (2022). The effect of number of pills and dosing frequency on antiretroviral drug adherence: An assessment using two adherence monitoring measures. *World Journal of Advanced Research and Reviews*, 14(2), 253-260.
94. Raheem, D., Oluwole, O. B., Faven, L., Orji, F. A., Junttila, M., Rainosalu, E., Kosoko, S. B., Olukosi, A., Vainio, S., Olapade, A. A., Okoh, M. P., & Oyeku, O. M. (2022). Partnership for international development: Finland-Nigeria conference on climate, food, health and entrepreneurship. *International journal of environmental research and public health*, 19(6), 3375.
95. Romo, M. L., Brazier, E., Mahambou-Nsondé, D., De Waal, R., Sekaggya-Wiltshire, C., Chimbetete, C., Muyindike, W. R., Murenzi, G., Kunzekwenyika, C., Tiendrebeogo, T., Muhairwe, J. A., Lelo, P., Dzudie, A., Twizere, C., Rafael, I., Ezechi, O. C., Diero, L., Yotebieng, M., Fenner, L., Wools-Kaloustian, K. K., ... International epidemiology Databases to Evaluate AIDS (IeDEA) (2022). Real-world use and outcomes of dolutegravir-containing antiretroviral therapy in HIV and tuberculosis co-infection: A site survey and cohort study in sub-Saharan Africa. *Journal of the International AIDS Society*, 25(7), e25961.
96. Salako, A. O., David, A. N., Opaneye, B. A., Osuolale, K. A., Odubela, O. O., Ezemelue, P. N., & Gbaja-Biamila, T. A. (2022). Health-related quality of life of



- children and adolescents living with HIV in Lagos, Nigeria: A cross-sectional study. *The Pan African medical journal*, 41, 344.
97. Salako, A. O., Odubela, O. O., Ohwodo, H. O., Opaneye, B., Ojuko, S. O., Nwankwo, N. L., Ejiga, Q. E., David, A. N., Ezechi, O. C., & Salako, B. L. (2022). Challenges of Accessing Care in Art Clinic during COVID-19 Lockdown in Lagos. *Nigerian journal of clinical practice*, 25(1), 49–54.
98. Salako, A., Odubela, O., Musari-Martins, T., Ezemelue, P., Gbaja-Biamila, T., Opaneye, B., James, A., Oforomeh, O., Osuolale, K., Musa, A., Chukwu, E., Rahman, N., David, A., Audu, R., Ezechi, O., & Salako, B. (2021). Prevalence and presentation of paediatric coronavirus disease 2019 in Lagos, Nigeria. *International journal of pediatrics*, 2021, 2185161.
99. Sanyaolu, A. O., Abbasi, A., Marinkovic, A., Smith, S., Prakash, S. (2022). COVID-19 and the human gut microbiome: An under-recognized association. *Chonnam Medical Journal* 58(3), 96-101.
100. Sanyaolu, A. O., Marinkovic, A., Prakash, S., Badru, S., Smith, S. I. (2022). Perspective Chapter: SARS-CoV-2 variants-Two Years Post-Onset of the Pandemic. July 2022. In Book: SARS-CoV-2 Variants-Two Years After. Publisher: Intech Open.
101. Sanyaolu, A., Marinkovic, A., Prakash, S., Haider, N., Williams, M., Okorie, C., ... & Smith, S. (2022). SARS-CoV-2 Omicron variant (B.1.1.529): A concern with immune escape. *World Journal of Virology* 11(3),137-143.
102. Smith, S. I., Ajayi, A., Jolaiya, T. F., & Essiet, U. (2022). Incidence, diagnosis and treatment of *helicobacter pylori* infection in Nigeria. *Nigerian Journal for Gastroenterology and Hepatology*. 14(1), 2-10.
103. Solayide, A., Adesida, Oluwatosin Q. Orababa, Rebecca F. Peters, Bamidele T. Odumosu, Ajoke O. Adagbada, Titilayo O. Solanke (2022). Distribution and evaluation of multiple antibiotic resistance (MAR) index of clinical isolates of *enterococcus* species in Lagos, Nigeria. *Acta Microbiologica Bulgarica*, 38(4), 302-308.
104. Smith, S.1., Jacob, K. P. Kwaga, Sati S. Ngulukun, S. S., Adedeji, A., Jolaiya, T., T, Ajayi, A., & Kabir, J. (2022). Antibiotic prescription practices amongst veterinarians in Nigeria. *Research in Veterinary Science*.
105. Tegally, H., San, J. E., Cotten, M., Moir, M., Tegomoh, B., Mboowa, G., Martin, D. P., Baxter, C., Lambisia, A. W., Diallo, A., Amoako, D. G., Diagne, M. M.,

- Sisay, A., Zekri, A. N., Gueye, A. S., Sangare, A. K., Ouedraogo, A. S., Sow, A., Musa, A. O., Sesay, A. K., ... Salako, B.L., & Wilkinson, E. (2022). The evolving SARS-CoV-2 epidemic in Africa: Insights from rapidly expanding genomic surveillance. *Science (New York, N.Y.)*, 378(6615), eabq5358.
106. Tucker, J. D., Hocking, J., Oladele, D., & Estcourt, C. (2022). Digital sexually transmitted infection and HIV services across prevention and care continuums: evidence and practical resources. *Sexual health*, 19(4), 278–285.
107. Ugbomoiko et al, (2022). Characterization of freshwater snail intermediate hosts of schistosomes in four communities from Osun State, Southwest Nigeria. *One Health Implement Research*, 2:88-95.
108. Ughasoro, M. D., Musa, A., Yakubu, A., Adefuye, B. O., Folahanmi, A. T., Isah, A., ... & Salako, B. L. (2022). Barriers and solutions to effective mentorship in health research and training institutions in Nigeria: Mentors, mentees, and organizational perspectives. *Nigerian Journal of Clinical Practice*, 25(3), 215-225.
109. Ukekwe, F. I., Odunukwe, N. N., Olusina, D. B., Okafor, O. C., & Nzegwu, M. A. (2022). Sudden unexpected natural deaths of adults in Southeastern Nigeria: A 12 years' autopsy review. *Journal of Advances in Medicine and Medical Research*, 34(20), 444-455.
110. Uwandu, M. O., Usuah, C. E., Okwuraiwe, A. P., Igbasi, U. T., & Peter, G. (2022). Antimicrobial analysis of selected soft drinks (Kunun, Zobo, and Burukutu) and their antimicrobial susceptibility pattern in Lagos, Southwestern, Nigeria. *Journal of Medical and Dental Science Research*, 9(10), 76-82.

PHOTOSPEAK:  
**2022 ANNUAL RETREAT**

PHOTOSPEAK:  
**2022 ANNUAL RETREAT**



















# COLLABORATION & PARTNERSHIP

- NATIONAL & INTERNATIONAL -



COLLABORATIONS







# NIGERIAN INSTITUTE OF MEDICAL RESEARCH



## Address

6, Edmund Crescent, off Murtala Mohammed Way,  
P.M.B. 2013, Yaba, Lagos, Nigeria



## Telephone

+ 234 909 213 3886



## Email

annualreportnimr@nimr.gov.ng  
info@nimr.gov.ng



## Website

www.nimr.gov.ng

**NIMRNigeria**







# NIGERIAN INSTITUTE OF MEDICAL RESEARCH



## Address

6, Edmund Crescent, off Murtala Mohammed Way,  
P.M.B. 2013, Yaba, Lagos, Nigeria



## Telephone

+ 234 909 213 3886



## Email

annualreportnimr@nimr.gov.ng  
info@nimr.gov.ng



## Website

www.nimr.gov.ng

**NIMRNigeria**

