

# CHIOMAH HEPHZIBAH (QUEENETTE) EZEOMAH

www.linkedin.com/in/chiomahezeomah (+447503994299); chiomah.ezeomah@gmail.com;  
<https://chi-sunshine.github.io>

## EDUCATION

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**University of Oxford, Nuffield Department of Surgical Sciences, Oxfordshire, Great Britain**

**Master of Science** – Integrated Immunology

**Dissertation:** Characterizing humoral and cellular immune responses to ChAdOx1 and mRNA New World  
mammarenavirus vaccine candidates in male and female BALB/c mice

**Harvard University, T. H. Chan School of Public Health, Boston, Massachusetts**

Certificate – Global Infectious Diseases Program (in view)

**Cornell University, Weill Cornell Graduate School of Medical Sciences, New York, New York**

**Master of Science** – Biostatistics and Data Science (August 2020)

**Portfolio Project:** Nocturnal non-dipping is associated with HIV infection and kidney disease in Tanzania

**University at Buffalo, The State University of New York, Buffalo, New York**

**Bachelor of Arts**, Mathematics-Economics with Honors and Distinction (Magna Cum Laude);

**Bachelor of Science**, Biological Sciences with Honors (Magna Cum Laude);

University Honors Scholar with Thesis

**Undergraduate Research Thesis:** Phylogenetic analysis of 68 strains of Lassa virus (LASV) samples  
collected from 1969-2012 from Nigeria using the JTT model

## CERTIFICATIONS

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**University of Texas Medical Branch, International Biosafety Training Program, Galveston, TX**

Biosafety Level (BSL) 2, BSL 3, Animal Biosafety Level (ABSL) 2 and ABSL3 trained, BSL4 training  
commenced (not completed – started masters at Cornell University)

**SAS**

SAS Certified Specialist: Base Programming Using SAS 9.4

## MEMBERSHIP OF PROFESSIONAL BODIES

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- British Society for Immunology
- American Biological Safety Association (ABSA International)
- American Society for Virology (ASV), Associate Member
- American Society of Tropical Medicine & Hygiene (ASTMH)
- ASTMH Committee on Global Health
- American Committee on Arthropod-Borne Viruses
- American Committee of Molecular, Cellular and Immunoparasitology
- American Committee of Medical Entomology

## RELEVANT EXPERIENCE

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**Biosafety Management Company| Nigeria, March 2020 –**

**Founder, Managing Director:**

- Awarded the United States Army Medical Research Directorate – African/Nigeria (USAMRD-A/N)  
contract to provide BSL2 training for USAMRD-A/N personnel and senior Nigerian armed forces  
personnel
- Wrote a Biosafety Level 2 (BSL2) training manual
- Provided consultancy services to the Taraba State Government and Benue State Government for  
COVID-19 and Infectious Diseases.
- Setup infectious diseases laboratories in the Taraba State Specialist Hospital, and General Hospital,  
Takum, Taraba State in Taraba State and for the Benue State Ministry of Health in Benue State
- Provided biological safety training to laboratory personnel

## RESEARCH EXPERIENCE

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**Cornell University, Weill Cornell Medicine – Department of General Internal Medicine | New York, NY, May 2020 – July 2020**

Research Assistant (COVID-19):

- Analyzed and summarized COVID-19 data for patients admitted to the New York Presbyterian hospital network and managed by Cornell University using R programming language
- Conducted summary analysis of COVID-19 data for operations research to improve New York Presbyterian patient management using R programming language

**Cornell University, Weill Cornell Medicine – Center for Global Health | New York, NY, Dec 2019 – May 2020**

Research Assistant (assistant to Dr. Myung Lee):

- Performed statistical analysis and exploratory data analysis for a study investigating the association of HIV and cardiovascular disease in a population of HIV patients in Tanzania (study led by Dr. Rob Peck).
- Contributed statistical analysis to manuscript preparation

**University of Texas Medical Branch, Department of Pathology, Galveston National Laboratory | Galveston, TX, July 2017 – September 2019**

Lab Manager- BSL 2 Laboratory (Cisneros Lab): April 2019 – September 2019

- Managed day-to-day running of the laboratory including ordering and maintaining laboratory inventory of supplies and equipment
- Coordinated small-model animal and genomic experiments and performed tasks including dissections with tissue collections from small animal models, RNA extractions, cDNA preparation, protein extraction and quantification, gene expression assays using quantitative real-time polymerase chain reaction technology, western blot assays, bio-plex assays, enzyme-linked immunosorbent assays
- Collaborated on manuscript preparation

Research Project Coordinator: April 2018 – September 2019

**Translational Research Studies:**

- **Case-Control Study of the Association of Lassa virus exposure and hearing loss:** coordinated a case-controlled study to investigate the association between Lassa virus infection and hearing loss in patients with partial or complete hearing impairment at the Jos University Teaching Hospital (JUTH). Collaborated with physicians, scientists and laboratory personnel across multiple institutions in Nigeria and the United States to enroll patients, process samples, and coordinated patient sample testing in Nigeria and at the GNL. Designed study under supervision of Prof. David Walker and Prof. Slobodan Paessler and wrote institutional review board protocol.  
Faculty Sponsor: Prof. David Walker; Principal Investigator: Prof. Slobodan Paessler; Nigerian supervising authors: Prof. Oyewale Tomori, Prof. Adeyi Adoga (Head of the Otorhinolaryngology Department at JUTH), Prof. Alashle Abimiku (Institute of Human Virology Nigeria)
- **Characterizing immune responses in the central nervous system of male HIV-1 transgenic rats (Manuscript published):** Managed gene expression assays (from extraction to PCR) using quantitative polymerase chain reaction (qPCR) technology and western blot assays including RNA extraction, cDNA preparation, protein extraction and quantification, in addition to data analysis.
- **Validation of Novel Assays for Detecting Lassa Virus Antigen:** Designed novel primers for detecting Lassa virus in human whole blood/plasma/serum samples using Reverse Transcription Polymerase Chain Reaction. Responsible for designing the assay, getting ethical clearance for the study from the relevant Institutional Review Boards and also traveling to Nigeria to acquire deidentified samples from patients and preparing for the validation studies. Supervised by Prof. Slobodan Paessler.

**Other responsibilities:**

- Worked as the study coordinator for the human studies of the NIH funded study: *Sequelae of Lassa fever*. This \$3.4 million grant with federal grant number: RO1AI129198 was awarded to Prof. Slobodan Paessler to conduct human studies (Nigeria) and animal studies at the Galveston National Laboratory. Responsible for writing IRB protocols (Nigerian study center section), preparing SOPs & other supporting study materials, training laboratory personnel in Nigeria on detection of Lassa virus

in biological samples, setting up laboratory operations in Nigeria for the detection of Lassa fever cases and supporting the Principal Investigators.

- **Liaison:** Served as a liaison between the Galveston National Laboratory and research institutions and hospitals in Nigeria like the Jos University Teaching Hospital, Bingham University Teaching Hospital, the Nigerian Center for Disease Control, the Irrua Specialist Teaching Hospital and the Institute of Human Virology, Nigeria. Facilitated the sharing of biological samples and controls for testing of Zika, Dengue, Yellow fever and Lassa viruses in biological samples.

#### Research Associate I: July 2017 – April 2018

1. **Field Collection of Mosquitoes from Nigeria and Lake Flies from Uganda:** Collected mosquitoes from Nigeria to study what potential viruses are present in the mosquitoes samples. Collected Lake flies (*Chaoborus edulis*) from Uganda to study the potential viruses that are present in Lake flies. The samples were deposited at the World Reference Center for Emerging Viruses and Arboviruses headed by Prof. Scott Weaver (project sponsor).
2. **Vaccine-Candidate Development (Lassa fever):** Collaborated on a study to attenuate the Lassa virus, increase its immunogenicity, and develop a vaccine candidate. Created mutants and clones of Lassa virus GPC genes for this study. Worked collaboratively with Dr. Tyler Manning to design and develop a vaccine candidate against Lassa fever. Principal Investigator: Prof. Slobodan Paessler.
3. **Flu Study:** Collaborated on a study testing adenovirus-based flu vaccines in both mice and ferret models of flu infection.

#### **PUBLICATIONS AND ABSTRACTS**

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1. **Chiomah Ezeomah**, Adeyi Adoga, Chikwe Ihekweazu, Slobodan Paessler, Irma Cisneros, Oyewale Tomori, David Walker. **Sequelae of Lassa fever - post viral cerebellar ataxia**. OFID. (2019)
2. John Manning, Nadya Yun, Alexey Seregin, Takaaki Koma, Rachel Sattler, **Chiomah Ezeomah**, Cheng Huang, Juan de la Torre, and Slobodan Paessler. **The glycoprotein of the live-attenuated Junin virus vaccine strain induces ER stress and forms aggregates prior to degradation in the lysosome**. Journal of Virology (2020)
3. **Chiomah Ezeomah**, Kathryn Cunningham, Sonja Stutz, Robert Fox, Natalya Bukreyeva, Kelly Dineley, Slobodan Paessler, Irma Cisneros. **Fentanyl self-administration impacts brain immune responses in male Sprague-Dawley rats**. Brain, Behavior and Immunity (2020)
4. Cody Nolan, Karl Reis, Salama Fadhil, Anthony Etyang, **Chiomah Ezeomah**, Justin R. Kingery, Bernard Desderius, Myung-Hee Lee, Saidi Kapiga, and Robert N. Peck. **Nocturnal dipping of heart rate and blood pressure in people with HIV in Tanzania**. Journal of Clinical Hypertension (2021)
5. **Chiomah Ezeomah**, Chanida Fongsaran, Amanda Persons, Celeste Napier, Irma Cisneros. **Cocaine self-administration influences central nervous system immune responses in male HIV-1 transgenic rats**. Cells (2022).
6. Jamuna Krishnan, Mangala Rajan, Ben Baer, **Chiomah Ezeomah**, Shana Hill, Mark Alshak, Katherine Hoffman, Fernando Martinez, Edward Schenck, Monika Safford. **Morbidity impact of hospital level COVID-19 intubation strategy**. (Abstract submitted to American Thoracic Society International Conference 2021)
7. Jamuna Krishnan, Mangala Rajan, Benjamin Baer, Kathrine Hoffman, Mark Alshak, Kerri Aronson, Parag Goyal, **Chiomah Ezeomah**, Shana Hill, Fernando Martinez, Meredith Turetz, Martin Wells, Edward Schenck, Monika Safford. **Assessing Mortality Differences Across Acute Respiratory Failure Management Strategies in Covid-19**. Journal of Critical Care (2022)
8. Monika M. Safford, Evgeniya Reshetnyak, Arnab Ghosh, John K. Chae, Eloise Chapman-Davis, Kashmira Chawla, Ruijun Chen, Justin Choi, Ivan Diaz, **Chiomah Ezeomah**, Christopher J. Gonzalez, Leora Haber, Katherine Hoffman, Joy Howell, Rainu Kaushal, Jamuna K. Krishnan, Johnathon LeBaron, Assem Jabri, Ruth Moges, Erica Phillips, Nishant Prasad, Pooja Sha, Martin

Shapiro, Madeline Sterling, Priyank Trivedi, Laura C. Pinheiro, Elizabeth Baquero. **Mediating role of social determinants of health in racial disparities in COVID-19 mortality in New York City.** (Manuscript submitted 2021)

9. Khalid Fahoum, Joanna Bryan Ringel, Jana Hirsch, Andrew Rundle, Evgeniya Reshetnyak, Madeline Sterling, **Chiomah Ezeomah**, Parag Goyal, Monika Safford. **Development and validation of mortality prediction models based on the social determinants of health.** (Abstract submitted to the Society of General Internal Medicine Annual Meeting 2022).

## TECHNICAL SKILLS

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- Agents worked with include – SARS-CoV-2, Influenza virus, Lassa virus, Zika virus, Yellow fever virus, vaccine strain of Venezuelan equine encephalitis virus (VEEV) - TC83, HIV and Junin virus.
- In vitro laboratory techniques include – virus titrations, plaque assays, plaque reduction neutralization test (PRNT), cell culture maintenance, neutralization assay, virus stock preparation, molecular cloning, site directed mutagenesis, DNA, RNA and protein extraction, real-time qPCR, conventional PCR, conventional western blotting and western blotting using the Simple Wes, immunohistochemistry, hematoxylin and Eosin staining, conventional microscopy, transmission electron microscopy sample preparation and photography using Philips C100 transmission electron microscope and rat brain sectioning using Leica CM3050S Cryostat, and Enzyme Linked Immunosorbent Assay (ELISA).
- Animal experience with mouse, guinea pigs, ferrets and rats.
- Animal techniques include – subcutaneous, intraperitoneal, intramuscular and intranasal injections; retroorbital, cardiac puncture, and vena cava bleeds; inhalational and injectable anesthesia administration; euthanasia and necropsy with tissue collection.

## UNDERGRADUATE RESEARCH EXPERIENCE

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**Undergraduate Research Assistant (March 2016 – February 2017), College of Arts and Sciences, Department of Biological Sciences – SUNY at Buffalo**

- Performed phylogenetic analysis of the Lassa fever virus (LASV) over a 38 year period to confirm that Nigerian lineages were divided based on geographical regions in Nigeria as part of honors requirement for Biological Sciences Department, Mathematics Department and Honors College of The State University of New York at Buffalo.
- Managed the collection of *Chaoborus edulis* from Uganda to investigate the likelihood of viral genome being present in lake flies from East Africa.
- Modified Biopython code to interact with NCBI to perform blast searches and extract desired results based on preset parameters.

**Undergraduate Research Assistant (Summer 2005), College of Arts and Sciences, Department of Biological Sciences – SUNY at Buffalo**

- Helped generate the G6 mutant which was used by Thomas J. Lampert, Kevin D. Coleman, Todd M. Hennessey in researching G-Protein activity and chemoattraction in *Tetrahymena* which led to the publication: “*A Knockout Mutation of a Constitutive GPCR in Tetrahymena Decreases Both G-Protein Activity and Chemoattraction*” by Thomas J. Lampert, Kevin D. Coleman, and Todd M. Hennessey in 2011. Funding for this research work was provided by the U.S. National Science Foundation (NSF) – grant number: MCB-0445362 – to Todd M. Hennessey.

**Undergraduate Research Assistant (Summer 2003), School of Medicine, SUNY at Buffalo**

- Created mutant genes of voltage-gated potassium channels in rat (heart) cells thought to be identical to the voltage-gated potassium channels in human beings that have been closely linked with Arrhythmia (especially in athletes).
- Worked under the supervision of Prof. Morales to implement protocols for experiments.

- Worked under minimal supervision and with minimal training.

## **VOLUNTEER EXPERIENCE**

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### **Volunteer – University of Texas Medical Branch August 2017 – November 2017**

Volunteered at the Pediatric Urgent Care clinic in Galveston and the Emergency room. At the Emergency Room, I help at the front desk and serve as a guide to lead patients to their loved ones admitted at the ER.

### **Volunteer – Jos University Teaching Hospital (JUTH), Jos, Plateau State, Nigeria February 2017 – April 2017**

Volunteered at the Jos University Teaching Hospital. Worked with scientists and physicians in hospitals in Nigeria and the principal investigator at UTMB to prepare documentation for the grant application for the study: Sequelae of Lassa fever study which eventually got funded by the NIH.

## **OTHER EXPERIENCE**

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February 2009 – 2016      **The Know Place Nigeria**      Abuja/Lagos/Port Harcourt Nigeria

### ***Founder/ Managing Director/ Head Tutor***

- Developed business strategy, growth, and development plan.
- Tutored mathematics, English, Chemistry
- Grew customer base and won sales opportunities with several leading schools in Nigeria.
- Won a Consultancy position with Abuja Capital International College to drive its 2010/2011 marketing campaign in Lagos, Abuja and Port Harcourt.
- Won Federal Ministry of Finance (FMF) grant for SMEs through the YouWin! Business Plan competition organized by the Nigerian Federal Ministry of Finance in collaboration with the World Bank, and the UK's Department for International Development (DFID).
- Won strategic partnership with The Princeton Review (TPR). The Know Place was the exclusive licensee for in-class and online SAT, GRE, GMAT courses in Nigeria until 2016.
- Grew branch network by 200% by opening 2 new branches in Lagos and Port Harcourt, Nigeria.

August 2015 – May 2016      **University at Buffalo, The State University of New York at Buffalo**  
**Secretary** - Creekside and Flickinger Village Council (Residence Halls Association)

- Took minutes of village council meetings.
- Helped organize programs for Creekside and Flickinger apartment complex residents to help foster a healthy community.

June 2008– September 2009      **PointCare Technologies Inc**      Marlborough, MA, United States

### ***Country (Sales) Director, Nigeria***

- Increased sales in the Niger-Delta area of Nigeria in 5 months by establishing and maintaining working contact and exerting positive influence with government and multinational leaders in the health sector.
- Increased customer base in Nigeria by 50% by developing and implementing territory business plan with detailed business activity plans for distributors and key accounts.
- Maintained a professional and open relationship with customers and product end-users that encouraged information sharing which led to improvements in service and sales deliveries.
- Utilized strong leadership, motivational and customer care skills that helped reverse the previous year's declining revenue trend and led to an increase in active PointCare NOW CD4 testing sites throughout the country which directly translated into more sales.
- Possessed leading marketing and business development skills that led to a rapid increase in sales opportunities. Major client portfolios managed include Shell Petroleum Development Corporation of Nigeria (SPDC)'s Corporate Community Health, Bayelsa State Government of Nigeria, Catholic Relief Services.
- Responsible for communicating and solving problems arising from the marketing and sales of PointCare products within the assigned territory.
- Responsible for all major contract negotiations and renewals with State Ministries of Health and corporate decision makers.

- Led and implemented end user clinical and instrument training in all the new PointCare NOW CD4 testing sites in the Niger-Delta area of Nigeria which led to increased reagent sales in the region.

March 2004 – December 2004    **U.S. Embassy (Educational Advising Center)**    Abuja, Nigeria

***Educational Advising Intern***

- Advised and mentored students interested in studying in the US

Implemented training and development sessions for students regularly which helped improve their test taking and interview skills and prepared them for life in US Universities.

## **AWARDS AND HONORS**

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- Weill Cornell Medical College, Health Policy and Research Division, Merit Scholarship (2019)
- Named 2017 Graduating Department Representative for the University at Buffalo Biological Sciences Department Convocation: Delivered a speech at the department's convocation to the graduating class of 2017.
- Won Harry Merrill Gehman Scholarship (University at Buffalo Mathematics Department Award): The Gehman scholarship is awarded to one or more mathematics majors who have demonstrated an interest in teaching. (2016)
- Won Reichbach Memorial Scholarship. 2015, 2016.
- Dean's list (SUNY Buffalo), Fall 2002 and Spring 2003, Spring 2016
- Member – Golden Key Honor Society (2016)
- Ranked amongst top 3% of Executives in the Education Sector (Nigeria) by The Top Executives Publications & Ranking. 2015
- Won Diamond Bank's Scholarship to attend the 2013 Certificate in Entrepreneurship Management (CEM) Course organized by the Enterprise Development Center of Pan-Atlantic University. 2013.
- Listed on Who's Who among Students in American Universities and Colleges, 2006
- Alpha Epsilon Delta, Pre-Health Honor Society, 2004/2005
- National Deans List (USA), 2003/2004
- Phi Eta Sigma, National Freshman Honor Society, 2002/2003

## **SOFTWARE**

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- Microsoft Office 2016: MS Excel, MS Word, MS PowerPoint, MS Publisher