

# Maaya Leonard Wafula

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## PROFESSIONAL SUMMARY

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A statistician interested in contributing to solutions to health-related problems across the world. History of continuous knowledge seeking to advance the theoretical knowledge and practical application of statistics in medical research and pharmaceutical sectors.

## MOTIVATION FOR APPLYING FOR STATISTICIAN for HTA

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My skills as a Biostatistician (MSc.) and as a discrete choice modeler (PhD) is geared towards working as a statistician in health technology assessment (HTA) which requires combining both – among other - fields. Joining the Novo Nordisk team not only gives me a rare opportunity to work with world leading researchers and statisticians that I admire. It also gives me an opportunity to work with a company which shares my long term objective of playing a part in providing solutions to the many health problems prevalent globally.

## WORK EXPERIENCE

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### Statistician

June 2021 - May 2023

*Janssen Pharmaceutica, Beerse, Belgium*

- Performed simulation studies and sample size calculation
- Performed statistical analyses for process, method & equipment development
- Performed Bayesian analyses for process performance qualification
- Supported the compounding & dilution techniques for vaccines
- Provided statistical and programming expertise in equivalence studies
- Reviewed statistical methods
  - Design of experiments (Extended Youden Design)
  - Bayesian & double-bootstrap approaches for tolerance intervals
  - Probability-based equivalence tests
  - Bayesian & bootstrap approaches for the F2 statistic for analyzing dissolution profile similarity
- Conducted analyses to determine the shelf-life and stability of vaccines
- Performed Bayesian-based analyses for estimation and PoS determination
- Worked with and coordinated the work of CROs
- Wrote (and peer-reviewed) statistical reports (from colleagues)

### Statistician

January 2013 - October 2015

*Kenya Medical Research Institute - Wellcome Trust Program, Kilifi, Kenya*

- Conducted statistical analyses for epidemiological studies in the department
- Contributed to scientific publications through statistical analyses
- Performed clinical, lab & epidemiological data management for five studies

## EDUCATION

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### PhD in Business Economics: Operations Research and Statistics

May 2021

*Katholieke Universiteit Leuven, Belgium*

*Topic: Modeling the Impact of Labels, the Dynamics in Attribute Non-Attendance and the Dropout in Discrete Choice Experiments*

**Master of Science in Statistics** August 2017  
*Universiteit Hasselt, Belgium*  
*Distinction*

**Bachelor of Science in Statistics** August 2012  
*University of Nairobi, Kenya*  
*First Class Honors*

### **SEMINARS, WORKSHOPS AND CONFERENCE PRESENTATIONS**

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**Non Clinical Statistics Conference, Louvain-la-Neuve, Belgium** October 2022  
Simulating the drug substance to drug product conversion process in vaccine manufacturing

**Second Doctoral Seminar** September 2020  
Joint Analysis of Preferences and Dropout Data in Online Choice Experiments

**XIV. International Research Conference, Vancouver, Canada** August 2020  
E-Consumers' Attribute Non-Attendance Switching Behavior: Effect of Providing Information on Attributes

**First Doctoral Seminar** October 2019  
Consumers' Attribute non-attendance switching behavior in Discrete Choice Experiments

**Royal Statistical Society of Belgium** October 2019  
E-consumers' dynamic attribute non-attendance behavior: The effect of providing extra information on attributes

**WOG Workshop on Choice Modeling, Brussels** June 2019  
E-consumers' dynamic attribute non-attendance behavior: The effect of providing extra information on attributes

**12th Belgian Environmental Economics Day 2019, University of Antwerp** February 2019  
Effect of environmental and altruistic attitudes on willingness-to-pay for organic and fair trade coffee in Flanders

### **SHORT COURSES**

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**Pharmalex** June 2021  
Assay validation in JMP

**KU Leuven** June 2018  
Optimal and Orthogonal Design of Experiments

**University of Leeds** June 2018  
Choice Modelling and Stated Preference Design summer course

**University of Leeds** November 2017  
Choice Modelling and Stated Preference Design winter course

**KEMRI-Wellcome Trust Research Program** November 2013  
Good Clinical Practises - GCP2013

## COMPUTER SKILLS

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- **Statistics**
  - R, Python, SAS, JMP, STATA
  - WINBUGS/JAGS/STAN
  - HPC
- **Data Management**
  - SQL
- **Text processing & automation**
  - FileMaker 11
  - MS Word, MS PowerPoint
  - LATEX, R Sweave
  - R Markdown & R Shiny
- **Version control**
  - GIT

## SKILLS FOR THE STATISTICIAN for HTA POSITION

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- Experience as a statistician in a pharmaceutical setting
- Experience with Bayesian statistical methods
- Practical understanding of statistical modelling (including time-to-event models & meta-analysis) and application to real world problems
- Theoretical understanding and experience in discrete choice experiments which can be used in health economics and health technology assessment (HTA)
- Proficiency in statistical software (R, OpenBUGS, JAGS, STAN, Git)
- Generating web-based reports using the R-Shiny application
- Experience in Design of Experiments for process, method & equipment development
- Liaising with programmers and other statisticians on clinical & non-clinical studies
- Experience in effective visualization of data to non-statisticians
- Understanding of Quality by Design thinking and Design Space methodology
- Experience working in ICH (for vaccines) & ASTM (for small molecules) framework
- Experience of working in multidisciplinary team settings
- Experience in designing and managing studies
- Experience on Good Clinical Practices from a top medical research organization
- Experience working with and coordinating the work of CROs
- Excellent communication skills to quantitative & non-quantitative colleagues
- Strong academic performance and scientific publishing
- Knowledge of variance component & multivariate analyses for machine learning
- Willingness and ability to learn and apply newer statistical methodology

## LANGUAGES

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- English: Fluent
- French: Beginner
- Dutch: Beginner
- Swahili: Mother tongue

## RESEARCH INTERESTS

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- Biostatistics
- Health Technology Assessment
- Bayesian statistics
- Discrete choice modelling in Health economics

## **PUBLICATIONS IN INTERNATIONAL JOURNALS**

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1. Maaya, Leonard, Meulders, Michel, and Vandebroek, Martina. Joint analysis of preferences and drop out data in discrete choice experiments. *Journal of Choice Modelling* 41.C (2021): 100308.
2. Maaya, Leonard, Meulders, Michel, and Vandebroek, Martina. Online Consumers' Attribute Non-Attendance Behavior: Effects of Information Provision. *International Journal of Electronic Commerce* 24.3 (2020): 338-65.
3. Kagia, Ngure, Kosgei, Patrick, Ooko, Michael, Wafula, Leonard, Mturi, Neema, Anampiu, Kirimi, Mwarumba, Salim, Njuguna, Patricia, Seale, Anna C, Berkley, James A, Bottomley, Christian, Scott, J Anthony G, and Morpeth, Susan C. Carriage and Acquisition of Extended-spectrum  $\beta$ -Lactamase-producing Enterobacterales Among Neonates Admitted to Hospital in Kilifi, Kenya. *Clinical Infectious Diseases* 69.5 (2019): 751-59.
4. Maaya, Leonard, Meulders, Michel, Surmont, Nick, and Vandebroek, Martina. Effect of Environmental and Altruistic Attitudes on Willingness-to-Pay for Organic and Fair Trade Coffee in Flanders. *Sustainability (Basel, Switzerland)* 10.12 (2018): 4496.

## **SCHOLARSHIPS**

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VLIR-UOS for the MSc. in Statistics studies (2015-2017)

## **PROFESSIONAL MEMBERSHIP**

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- Royal Statistical Society (RSS)
- Belgian Royal Statistics Society
- Epidemiology and Biostatistics Society of Kenya

## **REFEREES**

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Dr. Hans Coppenolle  
Director Manufacturing Statistics  
Janssen Pharmaceutical Companies  
Beerse (Belgium)

Prof. Dr. Martina Vandebroek  
Senior lecturer and PhD supervisor  
Katholieke Universiteit  
Leuven (Belgium)