Editorial

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Biostatistics in Africa 2019: A Special Issue of The International Journal of Biostatistics

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DOI: 10.1515/ijb-2019-0125

Le savoir est plus précieux que l'ambre pur et le corail blanc. Il vaut mieux que l'or sans mélange et le diamant sans altération. Pourquoi? Parce que le savoir est l'unique fortune que l'on peut entièrement donner sans en rien la diminuer.

Knowledge is more precious than pure amber or white coral. It is more valuable than unalloyed gold and flawless diamond. Why? Because knowledge is the sole fortune that can be given in its entirety without diminishing it.

Amadou Hampâté Bâ, Sur les traces d'Amkoullel l'enfant peul, *Actes Sud*, 160–161 (1998)

1 Presentation

Within a few decades Africa will be the continent with the youngest, most dynamic population whose thirst for knowledge and creativity have the potential to reshape the academic landscape. The mathematical community is well aware of this wonderful opportunity. The turn of the millennium saw the establishment of several programs aiming to build ties between the African, American and European mathematical and statistical communities. For instance, the pan-African network of African Institute for Mathematical Sciences (AIMS) centres, African Mathematics Millennium Science Initiative (AMMSI), Centre International de Mathématiques Pures et Appliquées (CIMPA), Statistique pour l'Afrique Francophone et Applications au Vivant (STAFAV, Statistics for Francophone Africa and Applications to Life Science) program and the Jeunes Statisticiens (Young Statisticians) group of the Société Française de Statistique have fostered intercontinental collaborative research and trained students and teachers at the postgraduate level.

The African statistical community has an extensive history. In 1959, the First Conference of African Statisticians met in Ethiopia to assess the statistical needs and priorities in Africa, primarily for the purpose of reporting population and economic statistics. Topics discussed during this meeting included the need for methods that account for the underreporting in birth and death records and the importance of randomization in survey sampling [1]. On a more foundational level, the conference participants emphasized the importance of communication, both between African statisticians via “technical reports of sample surveys and other statistical investigations in Africa” and with policymakers in order to demonstrate “the value of statistics as an instrument for the rationalization of government decisions and activities”. In 1961, participants at the Second Conference of African Statisticians encouraged the further “establishment of research centres for statistical work at the postgraduate level” [2]. Since that time, a large number of African universities have established postgraduate training programs. To create a unifying organization for the vibrant community of young African statisticians, in 2009 the International Statistics Institute (ISI) established the ISIBalo African Young Statisticians Programme [3, 4]. The organization recently successfully held its fifth conference, bringing together over a hundred young researchers from eighteen African countries. After these many decades of progress, Africa's young and dynamic population now has the opportunity to leverage this growing statistical culture to quantitatively identify and solve the social, economic, and health challenges facing the continent.

In this special issue titled “Biostatistics in Africa 2019”, *The International Journal of Biostatistics* wishes to pay tribute to Africa's statistical and epidemiological communities and to inspire young students to join them. The

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special issue consists of a selection of articles in biostatistics and epidemiology addressing topics of relevance to Africa.

2 Content

We invited researchers engaged in biostatistics and epidemiology research addressing topics of relevance to Africa to share a piece of their work with us. The result is an exciting, multifaceted collection of articles.

The special issue consists of 9 contributions. The methodological foundations of these articles are broad in scope. They include: multinomial and non-linear regression models; multivariate linear mixed-effects models; Cox regression in the presence of covariate contamination with measurement error; Bayesian nonparametrics; semiparametric estimators of longitudinal treatment effects; a novel semiparametric model for population-size estimation; model-driven and data-driven methods to infer 3D-structures; and a new multiscale stochastic spatial gene network model. The motivating applications include: the diagnosis of malaria and/or abovirus infection; assessing the effect of malaria infection on children's immune acquisition against malaria; analyzing the genome organization of *P.falciparum* (the most severe strain of the malaria species); evaluating the incidence and prevalence of syphilis and gonorrhea; reconstruction in Positron Emission Tomography (PET) imaging; comparing different antiretroviral therapy regimens in HIV-infected patients; and evaluating the effect of a task shifting program on the retention and mortality of HIV-infected patients.

We find this collection inspiring and we thank warmly the authors for their contributions to this special issue. We also wish to thank the De Gruyter team for its unconditional scientific and technical support, in particular Theresa Haney, Josh Gannon and Wolfgang Boettner.

References

- [1] Economic Commission for Africa. Report of the First Conference of African Statisticians, Addis Ababa, Ethiopia, 28 September – 8 October 1959. Technical report, United Nations, 1959.
- [2] Economic Commission for Africa. Report of the Second Conference of African Statisticians, Tunis, Tunisia, 26 June–7 July 1961. Technical report, United Nations, 1961.
- [3] Anonymous. The 57th Session of the International Statistical Institute, Durban, South Africa, August 16–22, 2009. The African Statistical Journal, pages 479–484, November 2009.
- [4] Anonymous. 5th ISIBalo Conference of African Young Statisticians, Pretoria, South Africa, June 13 –17, 2016, 2016. First information bulletin & call for research proposals.