

4th International Conference and Exhibition on **Biometrics & Biostatistics**

November 16-18, 2015 San Antonio, USA

An algorithm to evaluate follow-up strategies after primary treatment in oncology by computer simulation

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Organizing the surveillance of patients treated for cancer, for early diagnosis of recurrences, is still a subject of debate. Evidence needs to be highlighted to determine when a particular follow-up strategy is efficient enough to have a significant impact on survival. However, the clinical evaluation of follow-up programs after primary treatment is difficult to undertake. This work proposes an algorithm to evaluate a novel follow-up surveillance strategy after treatment in oncology. A computer based randomized two parallel arms non-inferiority clinical trial is simulated to compare two strategies. Overall survival and cancer specific mortality were the two endpoints evaluated. The methodology of Discrete Events Simulation, based on Patient Oriented Simulation Technique, was used. The natural history of the patient's disease after primary treatment was generated for each individual. Then, for each scheduled visit date, this history could be modified if a relapse was detected early enough and efficient treatment options are available. An application of the algorithm based on breast cancer data shows its advantages in decision making.

Biography

Serge M A Somda is graduated in statistics and in public health. He is completing his PhD in Biostatistics at the University of Toulouse. He is also employed as Methodologist in a Health Research Center in Burkina Faso, Centre Muraz, where he is in-charge of providing a methodological support to the research projects of the center. He has contributed to several research projects and is author or co-author of some peer reviewed articles.

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