

Reference

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Population estimation in camp of displaced persons, though counting of dwelling by satellite earth observation. Ngala, Borno State, Republic of Nigeria

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Introduction Knowledge of the size of the population during humanitarian emergency and/or development interventions is essential because it allows for better planning of assistance (food and non-food distribution, vaccination campaigns, etc.). Classical methods are based on the estimation of the target population from existing documents and data (census reports, list of households, etc.). But some contexts do not allow to have these documents to do this work. As a result, emergency response standards are used or individual counts are necessary and difficult to implement. For this reason, during a recent humanitarian emergency assistance to the internally displaced persons camp in Ngala (Borno State, Nigeria), we decided to combine the counting of dwelling done from satellite picture (Earth Observation) with a field survey, using different statistical methods to estimate the population size.

Methods Since September 19th 2016, the Swiss section of Médecins Sans Frontières (MSF-OCC) supports the population of the camp of Internally Displaced Persons in Ngala (Borno state, Nigeria). A rapid survey organized in October 2016 show a very high mortality rates twice above emergency threshold, the mortality rate was below emergency threshold during a survey organized in February 2017 showing an improved situation. However, considering the population size of the camp estimated by MSF team at this date, the number of medical consultations and the number of person hospitalized was below what was expected. MSF teams questioned the actual size of the camp, then, we proposed and used this method to estimate the population size. Based on a satellite picture taken on December 31st, 2016, dwellings inside the camp were counted and classified in 3 categories (4724 White tents, 4592 Brown dwellings, 2582 Tukuls). We organized a survey on February 17th, 2017 to estimate the average number of people who slept under a shelter the night preceding the survey for each category. We sampled 600 shelters divided in 30 clusters. Each starting point of each cluster was chosen by spatial randomness, the shelters were then selected by proximity. We collected for each cluster the number of people who slept inside the night before the survey, the colour and the material of the roof. Because we did not find any obvious correspondence between classification by field observation and by earth observation, we tried different hypothesis. We applied 3 distinct statistical methods to calculate our estimates and its confidences intervals.

Results We collected information on 600 shelters. Fifty-six percent of the shelters had a white roof. Inside shelter with white roof the average number of occupants was 3.04 (95% CI: 2.81–3.28 design effect: 1.6) while it was 2.51 (95% CI: 2.26–2.76 design effect: 0.9) for non- white roof shelter. From the 4 different hypothesis and 3 statistical methods used our estimates of the total population size of the camp range from 32,413 to 33,433, and the minimum lower bound of the confidence interval is 29,043 while the maximum is 36,058.

Conclusions We have estimated a population of 32,513 people who have slept in the camp the night preceding the survey (95% CI: 30,106–34,920). This estimate fall below previous estimates. Although it does not include the population living in large buildings (less than 2000 according to MSF teams). We were able to do this estimate by the combination of earth observation and field surveys; this was done in a short timeframe with limited resources. The

methods can still be simplified. We suggest reducing to two types of shelter and a smaller sample could reach the expected accuracy.

Disclosure of interest The authors declare that they have no competing interest.

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Congestive heart failure: Epidemiology and burden for the health system looking at real life data. Follow-up of a population cohort between 2011 and 2016

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Introduction The current Health Information Systems offer an opportunity to implement advanced methodology to generate evidence within the context of the healthcare activity. This evidence could complement that of the clinical trials, often challenged due to poor external validity. This use of real world data (RWD) has also its limitations, mainly due to selection bias, confusion, and the comprehensiveness and quality of the data itself. Congestive Heart Failure (CHF) is one of the most prevalent and lethal diseases in Europe. It is currently increasing in frequency and complexity and, therefore, the burden over the Health System is also growing. These elements make CHF a good touchstone to learn to manage these data and to explore its epidemiological and predictive possibilities. Our objectives are to describe:

- the clinical and demographic characteristics of the population diagnosed of CHF over a 5-year period (2011–2015);
- the epidemiology of the disease;
- the burden on the health system in terms of use of services.

Methods Subjects: people of 40 years or older, alive after a first hospitalization by CHF in the public hospitals of the Basque Country (population 2,100,000). Sources of data: business Intelligence Platform, which includes all the information collected in hospitals, primary care, emergency rooms, day-hospitals of the Basque Health Service. Also, mortality data and socioeconomic data provided by the Basque Health Department. The variables we looked for were: demographics; use of health services during the 12 months previous to the index event; comorbidity at baseline (Charlson Index); socioeconomic status; mortality, no programmed hospitalizations - including potentially preventable hospitalizations - during one year after the index event. Analysis: descriptive, variation estimators (systematic coefficient of variation - SCV), rates of events, temporal trends. Analyses were conducted using the R version 3.3.2.

Results Baseline characteristics: 15,489 patients were included in the cohort, 7679 (49.6%) men and 7810 (50.4%) women. Women were older than men (82 ± 9 vs. 77 ± 11), but the Charlson index was greater in men (3.5 ± 2.1 vs. 2.8 ± 1.7 in women). Among the patients, 5640 (36%) had been hospitalized during the previous year. Among the patients, 4354 (28%) were in hospital and received a cardiovascular disease (CVD) diagnosis, other than CHF. Among the subjects, 12,755 (82%) had had a consultation in an outpatient clinic and in 6381 cases (41% overall) the consultation was with a cardiologist. Finally, the persons in the cohort visited their general practitioner an average of 14 (sd = 11) times and the nurse an average of 16 (sd = 13) times. Epidemiology: as of 31 of December 2015, the number of cases with the disease registered was 15,152 (prevalence in > 40 years = 1.2%). During the five years under study, the age-standardized incidence of first hospitalizations by CHD varied between 2.2 and 2.4 per thousand persons/year (women) and between 3.6 and 3.8 per thousand persons/year (men), without an identifiable temporal pattern. Regarding the geographical areas of the Basque Country, the variation was small (SCV < 0.10 in all the years). Burden of the disease to the health system: 365 days after the discharge, 3864 (25%) patients had died - 820 (5%) within the 30 first days. Another 7899 had been hospitalized 14,744 times: 4714 (32%) due to CHF; 1976 (13%) due to other CVD; 8054 (55%) due to other diagnosis unrelated to CVD. Of these hospitalizations, 5143 were labelled as potentially preventable: 43% (CHD); 25% (CVD-no CHF); 33% (no CVD hospitalizations).