**Cartographic and population of census tracts use to design a hantavirus prevalence study.**

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Hantaviruses is an acute viral infection of the anthropozoonosis, transmitted by aerosol inhalation or
contact with wild rodents feces and urine. The human infection may be asymptomatic or manifest
present as many clinical profiles, including severe outcomes. Fatality has been reported between 20%
to 100%. Best estimation of prevalence therefore should include all infected person irrespective of the
severity of symptoms and include people displaying few if any symptoms. These measures make it
possible to understand the intensity of infection dispersion. As an alternative to testing a population of
2.5 million, a sampling technique was developed. While randomization and representativeness are
important, logistical aspects need to be considered. This is a study with complex sampling design type,
applied to health sector, for human population, specifically to obtain the population-based prevalence
of hantavirus human infection, in a Brazilian Federal District (DF). 81 (1.9%) DF hosted 4,358 census
tracts, delimited as polygons by 2010 Brazilian national census, were selected where probable
transmission place (PTP) of hantavirus was located. The sample was composed of two sub-samples:
the first, most important, random and representative; the second, conditional and non-probabilistic.
The planning included high level of participant refusal, because the study needed human blood
sample.. The prevalence estimated was small meaning the event as rare. For representative and
random sampling the authors combined simple sampling for household per census tract with the
selection of inhabitants of the same houses. The selection interval was calculated. As the sampling was
complex and multi-step, a conservative and high design effect value was anticipated. Applying 95%
confidence interval and other criteria, the sample size of 495 individuals was calculated, with 20%
increase added in the sample size, resulting in 594 households to draw. Two samples were designed for
this study. A feasible, representative and random sample was obtained. For non-probabilistic sampling
the authors chose convenience sampling

*Key words*: probabilistic sampling; population-based; complex sampling; cross-sectional