



SDI FINAL EVALUATION FORM 1.1

PART 1:

Journal Name:	International Journal of TROPICAL DISEASE & Health
Manuscript Number:	2014_IJTDH_14182
Title of the Manuscript:	Risk Factors of Human African Trypanosomiasis in Mbuji Mayi, Eastern Kasai Province, Democratic Republic of the Congo
Type of Article	Report on research conducted

PART 2:

FINAL EVALUATOR'S comments on revised paper (if any)	Authors' response to final evaluator's comments
It is not necessary in a scientific journal to explain what a case control study is but it is necessary to explain how controls were selected, which procedures were used. We know the matching criteria and exclusion criteria, but which procedure was used to ensure that every non HAT infected subject meeting these criteria had an equal opportunity of being included? The matching criteria have been adjusted from the previous version, however there is still a problem. If controls were matched by residence, how is it possible that factors related to 'Proximity of housing' differed between cases and controls?	<u>We have described the procedure used to ensure "Equal Opportunity for controls to be included"</u> : see section 322-362 or revised manuscript and below: Since a case-control design ideally requires assembling a control group comprised of a random sample from the general population that gave rise to the cases [64] [65] (Hennekens & Buring, 1987; Grimes & Schulz, 2005), we used a unique, but logical sampling procedure to ensure that every non HAT infected subject meeting the inclusion criteria had an equal opportunity of being included in the group of controls. This procedure was based on our understanding of the districting of the city of Mbuji Mayi, on our knowledge about the distribution of the HAT cases in the various sub-municipalities of the city and on the availability and accessibility of the basic demographic records at the lowest level of the local communities where people live. Indeed, from an administrative perspective, Mbuji Mayi is subdivided into five sub-municipalities or "communes" (Commune of Bipemba, Commune of Dibindi, Commune of Diulu, Commune of Kanshi and Commune of Muya) that are in turn subdivided into local communities or "quartiers." The total number of local communities in Mbuji Mayi is 157.¹ Knowing that these 60 cases resided only in some of the 157 local communities which are integrating parts of the five sub-municipalities (or "communes") that make up the city of Mbuji Mayi, we went only to these specific local communities known to have HAT cases and here we enlisted the support of the local authorities who all were kind enough to provide our team with the register of all their local residents. For each of the cases, we implemented the following procedure to select two controls that were to be residents in the same local community and to be of the same gender and age group like the case. For instance, for one female HAT case of 18 years in a given local community or "quartier" in the Commune of Bipemba, we pulled from the local register all the names of 18-20 years female residents and then we randomly selected two individuals and two additional reservists from this list. We then visited and asked these 2 main individuals to participate in the study. Following their consent, these individuals were tested with the CATT-test to ascertain their negative status. If any of them were positive, they were excluded; and in this case, a reservist was approached, recruited, tested, and eventually surveyed/questioned. In each target local community a neutral child was asked to blindly pull the two names of the controls and of the reservists from a box in which the names of all the potential controls of the same local community were included. This process had the disadvantage of excluding the potential controls from some of the local communities that did not have positive HAT cases known at the Referral and Treatment Center of Dipumba, but it gave an equal chance to all the potential controls within the target local communities that had positive HAT cases. We did neither purposely seek to select controls that were neighbors of the HAT cases nor to achieve complete matching on all the features of residence. Hence, the controls were not expected to have in their places of residence all the features found where the cases resided. Being only co-residents in the same local communities with the HAT cases, the controls could possibly have in the proximity of their residences some features that are dissimilar to those in the specific places where the corresponding cases live such as hog farming, albeit in the same local communities. In other words, there seems to be just commonality of living in the same local communities, but not necessarily proximity of neither housing nor sharing of all the other features in the living space. This situation may explain why some factors somewhat related to housing could differ between cases and controls.



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318 4.1.4. Controls and Inclusion/Exclusion Criteria: Each of these 60 HAT cases was then
319 paired with 2 HAT-free subjects (controls). These controls were individuals known to be free
320 of HAT on the basis of a clinical examination and of a negative result following a serological
321 test (Card Agglutination Test for *Typanosomiasis*, or CATT) [61] in the course of the field
322 survey of May 2014. They were matched using the following three criteria: gender, age and
323 residence in the same local community or "quartier". Since a case-control design ideally
324 requires assembling a control group comprised of a random sample from the general
325 population that gave rise to the cases [64] [65] (Hennekens & Buring, 1987; Grimes &
326 Schulz, 2005), we used a unique, but logical sampling procedure to ensure that every non
327 HAT infected subject meeting the inclusion criteria had an equal opportunity of being
328 included in the group of controls. This procedure was based on our understanding of the
329 districting of the city of Mbuji Mayi, on our knowledge about the distribution of the HAT cases
330 in the various sub-municipalities of the city and on the availability and accessibility of the
331 basic demographic records at the lowest level of the local communities where people live.
332 Indeed, from an administrative perspective, Mbuji Mayi is subdivided into five sub-
333 municipalities or "communes" (Commune of Bipemba, Commune of Dibindi, Commune of
334 Diulu, Commune of Kanshi and Commune of Muya) that are in turn subdivided into local
335 communities or "quartiers." The total number of local communities in Mbuji Mayi is 157.ⁱ
336 Knowing that these 60 cases resided only in some of the 157 local communities which are
337 integrating parts of the five sub-municipalities (or "communes") that make up the city of Mbuji
338 Mayi, we went only to these specific local communities known to have HAT cases and here
339 we enlisted the support of the local authorities who all were kind enough to provide our team
340 with the register of all their local residents. For each of the cases, we implemented the
341 following procedure to select two controls that were to be residents in the same local
342 community and to be of the same gender and age group like the case. For instance, for one
343 female HAT case of 18 years in a given local community or "quartier" in the Commune of
344 Bipemba, we pulled from the local register all the names of 18-20 years female residents
345 and then we randomly selected two individuals and two additional reservists from this list.
346 We then visited and asked these 2 main individuals to participate in the study. Following
347 their consent, these individuals were tested with the CATT-test to ascertain their negative
348 status. If any of them were positive, they were excluded; and in this case, a reservist was
349 approached, recruited, tested, and eventually surveyed/questioned. In each target local
350 community a neutral child was asked to blindly pull the two names of the controls and of the
351 reservists from a box in which the names of all the potential controls of the same local
352 community were included. This process had the disadvantage of excluding the potential
353 controls from some of the local communities that did not have positive HAT cases known at
354 the Referral and Treatment Center of Bipemba, but it gave an equal chance to all the
355 potential controls within the target local communities that had positive HAT cases. We did
356 neither purposely seek to select controls that were neighbors of the HAT cases nor to
357 achieve complete matching on all the features of residence. Hence, the controls were not
358 expected to have in their places of residence all the features found where the cases resided.

[Lancet](#). 2005 Apr 16-22;365(9468):1429-33.

Compared to what? Finding controls for case-control studies.

[Grimes DA](#)¹, [Schulz KF](#).

When the number of cases is small, the ratio of controls to cases can be raised to improve the ability to find important differences. Although no ideal control group exists, readers need to think carefully about how representative the controls are. Poor choice of controls can lead to both wrong results and possible medical harm.

[Lancet](#). 2005 Apr 16-22;365(9468):1429-33.

Compared to what? Finding controls for case-control studies.

Grimes DA1, Schulz KF.

Author information

ⁱ Thirty-six (36) of these local communities are parts of the Commune of Bipemba which sub-municipality was known to have eighteen (18) HAT cases; thirty-eight (38) of these local communities are parts of the commune of Dibindi which sub-municipality was known to have 20 (twenty) HAT cases; thirty-two (32) of these local communities are parts of the commune of Diulu which sub-municipality was known to have six (6) HAT cases; eighteen (18) of these local communities are parts of the commune of Kanshi which sub-municipality was known to have five (5) HAT cases; and thirty-three (33) of these local communities are parts of the commune of Muya. which sub-municipality was known to have eleven (11) HAT cases. Knowing that these 60 cases resided only in some of the 157 local communities which are integrating parts of the five sub-municipalities (or "communes") that make up the city of Mbuji Mayi, we went only to these specific local communities known to have HAT cases and here we enlisted the support of the local authorities who all were kind enough to provide our team with the register of all their local residents.