PEER REVIEW HISTORY

BMJ Open publishes all reviews undertaken for accepted manuscripts. Reviewers are asked to complete a checklist review form (**http://bmjopen.bmj.com/site/about/resources/checklist.pdf**) and are provided with free text boxes to elaborate on their assessment. These free text comments are reproduced below.

ARTICLE DETAILS

TITLE (PROVISIONAL)	Prevalence and socio-demographic risk factors of chlamydia, gonorrhea and syphilis: a national multicentre STI survey in New-Caledonia, 2012
AUTHORS	Corsenac, Philippe; Noël, Martine; Rouchon, Bernard; Hoy, Damian; Roth, Adam

VERSION 1 - REVIEW

REVIEWER	Stephan P. Verweij Laboratory of Immunogenetics, Department of Medical Microbiology and Infection Control, VU University Medical Center, Amsterdam, the Netherlands
REVIEW RETURNED	11-Apr-2015

GENERAL COMMENTS	The present study by Corsenac and collegues describes a national prevalence estimate for Chlamydia trachomatis, Neisseria gonorrhoeae, and Treponema pallidum for New Caledonia in 2012. To estimate the prevalence they opportunistically sampled the first 2 visitors in the morning and afternoon sessions of GP's in each district. High prevalence for CT and NG are observed. Furthermore, the authors identify young age, low educational level, single status, and province of residence as socio-demographic risk factors. The manuscript is comprehensive, however I do have some items, see below. -A CT prevalence of 9% is not comparable to the CT prevalence in European countries (around 4-5%). The same goes for the prevalence of NG and TP. Please change and discuss on this topic. -In the discussion (p9, r.48-51) you refer to a previous study; although the study populations are not similar you mention that the CT prevalence of 26% in that study population is comparable to the CT prevalence of 9% in the current study. I feel the comparison you make between the two studies is not justified, since data of pregnant women is also lacking in the current study. Please clarify or rephrase. -How are different risk groups (such as MSM, commercial sex workers) represented in your study population? Comparable to the general population? -For NG detection, COBAS Amplicor NG is used. However, this test is not specific for NG (only Neisseria spp.). Did you confirm the results with an opA PCR or similar test? -Urine is used as specimen to test for CT and NG. How does this influence the sens/spec/PPV/NPV in women since usually an

	(endo)cervical swab is used? Please discuss on this subject.

REVIEWER	Al Katz Department of Public Health Sciences John A Burns School of Medicine University of Hawaii Honolulu, HI, USA
REVIEW RETURNED	28-May-2015

GENERAL COMMENTS	General comment: The authors present what they call a general "population-based" survey of STIs in New Caledonia. While the authors do present a probability sample of patients (or in some instances—unclear as to how many—parents of patients) seen in Dispensaries or GP surgeries, this is NOT a general population based survey, nor should it be misconstrued as such. General population based surveys have the general population as their sampling frame [e.g., the National Health and Nutrition Examination Survey (NHANES) in the US]. This sample targeted persons seen at "general practice surgeries or public dispensaries." Major comments Comment 1: Page 1, lines 31-33: The authors' stated objective according to the abstract is to: "estimate prevalence and identify socio-demographic risk factors for Neisseria gonorrhea (sic), Chlamydia trachomatis, and Treponema pallidum infections in the general population of New Caledonia." However, the sampling frame is patients seen in either community clinics or GP surgeries. In fact, in the limitations, the authors explicitly note: "the design of the study is undertaken in healthcare settings." (page 2, line 22). The authors seem confused between population based studies and healthcare based sampling. They seem to recognize there is a difference in some places, but ignore it overall: "Given the sensitive nature of sexual health issues in New Caledonian society, the committee decided to undertake this study within family physician practices." (page 4, lines 5-7). There is a vast difference between population based and healthcare based studies. The authors seem to recognize this as they state: "prevalence estimates in healthcare settings are in general higher than in population based studies." (page 8, lines 25-26), However, they seem to think that by weighting their sample to reflect the distribution of the general population, their sample will de facto be representative of the general population. This is patently incorrect. The fact that they may have included patients or family members of patients does not negate the fact that the sampling frame for the study is healthcare settings. It is not a general population based study and should not be expressed as such. The sampling technique does reflect probability sampling (multistage complex sampling) of patients attending healthcare settings: GP surgeries or public dispensaries. It is not a probability sample of the general population of New Caledonia. This can be seen most directly from Table 1. The gender, province, and ethnicity of their sample were much different from their respective sociodemographic

	groups in the general population. The authors are incorrect in stating that one can sample from one sampling frame (in the current study: healthcare based patients) and then adjust their sample by reweighing it so that the sociodemographic variables of the study sample equal those of the general population to transform it to a "general population based study." Using this same logic, one could transform any sample into a general population based sample just by reweighing it. This is just a reweighted healthcare based sample NOT a general population based study. The only way to obtain a population based sample is by have a general population sampling frame. This is done with NHANES. It was not done with the present study. A strength of the study is that it is a representative sample of patients/patients' parents seen in healthcare settings in New Caledonia. However, it is NOT a general population-based study. Comment 2: The authors note in the introduction (page 3, lines 16-17) that: "Randomized population-based surveys are rare but more reliable in estimating prevalence rates for the general population." In the US, NHANES is a complex multistage population based study which has been used for decades to estimate prevalence (not prevalence rates—prevalence is not a rate; it is a proportion) in the general US population, in fact the authors' reference 5 (Datta et al., 2007) is an NHANES prevalence study of NG and CT in the general US population. The most valid or accurate (preferable to the term "reliable" which just means repeatable) surveys use probability or random (not "randomized") sampling. Comment 3: The abstract notes that the prevalence of STIs in this study were: "similar to comparable studies from Europe and the United States of America." This is not correct. The prevalence of STIs in this study were much higher than those found in population based studies from the US, but they were comparable to an earlier healthcare based survey of antenatal clinic patients done in the Pacific (Cliffe, et al, 2008). The Datta reference (authors' citation #5) shows NG and CT prevalence in a representative sample of the general US population from NHANES. Even in this outdated 2007 reference, the prevalence of NG and CT in the US are not comparable to that found in the current study. Datta et al showed a CT prevalence of 2.2% (compared with the New Caledonia CT prevalence of 9%) and a NG prevalence of 0.24% (compared with the New Caledonia NG prevalence of 3.5%). The Datta citation is out of date. The most recent published prevalence estimates for NG in the general US population (0.27%) can be found in Torrone EA, Johnson RE, Tian LH, Papp JR, Datta SD, Weinstock HS. Prevalence of Neisseria gonorrhoeae among persons 14 to 39 years of age, United States, 1999 to 2008. Sex Transm Dis 2013;40(3):202-5. The most recent CT prevalence estimates in the general US population (1.6%) can be found in Datta SD, Torrone E, Kruszon-Moran D, et al. Chlamydia trachomatis trends in the United States among persons 14 to 39 years of age, 1999-2008. Sex Transm Dis 2012;39(2):92-6. Similar to Adams, et al, 2004 systematic review of Chlamydia prevalence studies in the UK (authors' reference #14): STI prevalence from dispensary and clinic patients (the study population in the current study) was higher than STI prevalence from population

	based samples. It is true (as stated in the discussion, page 9, lines 38-39) that the sociodemographic risk factors found in the current study are comparable to those found in other countries; however the statement in the abstract (that the STI prevalence proportions are comparable) needs to be corrected. Comment 4: The introduction claims that NG, CT, and TP have dramatically increased in the US and other world countries in the past decade. This statement is not supported by CDC STD surveillance data. In the United States, NG infections decreased from 1975-1997, plateaued from 1997-2007 then decreased to the lowest level recorded in 2009. There was a slight increase in rates 2009-2012 with rates decreasing again in 2013. Reported CT infections in the United States have been increasing, but this is recognized as reflecting increased screening. CT rates actually decreased in the US from 2012-2013. TP infection rates decreased during the 1990s. Rates increased from 2001-2009, decreased in 2010, remained unchanged in 2011, and then increased by 22% 2011-2013 (Centers for Disease Control and Prevention. Sexually transmitted disease surveillance, 2013. Atlanta: US Department of Health and Human Services; 2014. Accessible at URL: http://www.cdc.gov/std/stats13/surv2013-print.pdf). Minor comments: Comment 5: The agent Neisseria gonorrhoeae is misspelled (the species spelling is give as “gonorrhea” in the abstract and “gonorrhoea” in the introduction and Table 3 title) Comment 6: Sampling technique should be termed: “random” not “randomized.” See abstract: p. 1, line 35, introduction: p. 3, line 16, setting and sampling: p. 4, line 13, discussion: p. 8, line 3. Comment 7: The authors appear to have gotten the name of the nontreponemal test wrong. I believe the RPR 500 uses rapid plasma reagin (RPR) methodology. This is a different serological test than the VDRL. (page 5, lines 6-7). Comment 8: In the discussion section the authors present information in terms of NG/Laboratory/year which is uninterpretable as they themselves state. Would recommend deleting this (page 9, lines 16-18). Comment 9: The authors mention CT prevalence from blood specimens (page 9, lines 12-15). Is this correct (I am unable to access or read the French references)? This is an atypical method for measuring sexually transmitted CT prevalence.

VERSION 1 – AUTHOR RESPONSE

Reviewer: 1

Reviewer Name Stephan P. Verweij
Institution and Country, VU University Medical Center, Amsterdam,

Comment 1) A CT prevalence of 9% is not comparable to the CT prevalence in European countries (around 4-5%). The same goes for the prevalence of NG and TP. Please change and discuss on this topic.
AUTHOR RESPONSE: To address this valid point from Reviewer 1, we've now changed the wording in conclusions paragraph of the abstract, and in the fifth paragraph of the discussion, as well as adding a sentence in the same paragraph comparing the prevalence of STI in the current study to previous European estimates: “In European countries, such as the United Kingdom, Slovenia and Netherlands, STI prevalence were lower than in the present study around 3-4% for CT and NG.”

Comment 2) In the discussion (p9, r.48-51) you refer to a previous study; although the study populations are not similar you mention that the CT prevalence of 26% in that study population is comparable to the CT prevalence of 9% in the current study. I feel the comparison you make between the two studies is not justified, since data of pregnant women is also lacking in the current study. Please clarify or rephrase.
AUTHOR RESPONSE: The present study includes both pregrant and non-pregnant women, whilst the previous New Caledonian study only includes pregnant women. This is now rephrased as suggested by Reviewer 1, and clearly stated in paragraph 4 of the discussion.
To explore the difference between pregnant and non-pregnant women, we have also added a comparison of pregnant women to non-pregnant women in the present study: which is presented in the same paragraph of the discussion: “In the present, pregnant women had a higher prevalence of CT and NG infections than non-pregnant women, OR 1.2 (95% CI: 1.1 - 1.4) and OR 1.7 (95% CI: 1.5 – 2.0), respectively. However This should be interpreted with caution, considering that there were only four pregnant women in the study population.”

Comment 3) How are different risk groups (such as MSM, commercial sex workers) represented in your study population? Comparable to the general population?
AUTHOR RESPONSE: There is no specific representation for different risk groups in our study. The selection is based on attendance at health care clinics. We do not however assume that the risk groups are comparable to the general population. In order to clarify this important point from Reviewer 1, we have added a sentence in the method, setting and sampling, paragraph 4: “The different potential risk groups (such as men who have sex with men or commercial sex workers) were not recorded in the study forms.” We have also stressed this limitation in the discussion paragraph 5: “A limitation of the present study was that there was no data on whether study participants belonged to specific risk groups.”

Comment 4) For NG detection, COBAS Amplicor NG is used. However, this test is not specific for NG (only Neisseria spp.). Did you confirm the results with an opA PCR or similar test?
AUTHOR RESPONSE: The CT acute infection was only detected in urine by Polymerase Chain Reaction (PCR) tests: the Cobas Amplicor Neisseria gonorrhoeae Test (Roche Diagnostics). The results were not confirmed by other secondary tests. This, and other specimen/testing issues raised by the reviewers, is now further discussed in a new paragraph (paragraph 3) of the discussion.

Comment 5) Urine is used as specimen to test for CT and NG. How does this influence the sens/spec/PPV/NPV in women since usually an (endo)cervical swab is used? Please discuss on this subject.
AUTHOR RESPONSE: To address this important valid point, we've now added a paragraph to the

discussion (paragraph 3). We have also added four new references on the topic:
34. Corbeto EL, Gonzalez V, Lugo R, et al. Discordant prevalence of Chlamydia trachomatis in asymptomatic couples screened by two screening approaches. International journal of STD & AIDS 2015;26(1):27-32.
35. Low N, McCarthy A, Macleod J, et al. Epidemiological, social, diagnostic and economic evaluation of population screening for genital chlamydial infection. Health Technol Assess 2007;11(8):iii-iv, ix-xii, 1-165.
36. Tabrizi SN, Unemo M, Limnios AE, et al. Evaluation of six commercial nucleic acid amplification tests for detection of Neisseria gonorrhoeae and other Neisseria species. J Clin Microbiol 2011;49(10):3610-5.
37. Diemert DJ, Libman MD, Lebel P. Confirmation by 16S rRNA PCR of the COBAS AMPLICOR CT/NG test for diagnosis of Neisseria gonorrhoeae infection in a low-prevalence population. J Clin Microbiol 2002;40(11):4056-9.

Reviewer: 2

Reviewer Name Al Katz
Institution and Country John A Burns School of Medicine, University of Hawaii

Please leave your comments for the authors below General comment: The authors present what they call a general “population-based” survey of STIs in New Caledonia. While the authors do present a probability sample of patients (or in some instances—unclear as to how many—parents of patients) seen in Dispensaries or GP surgeries, this is NOT a general population based survey, nor should it be misconstrued as such. General population based surveys have the general population as their sampling frame [e.g., the National Health and Nutrition Examination Survey (NHANES) in the US]. This sample targeted persons seen at “general practice surgeries or public dispensaries.”

Major comments

Comment 1) Page 1, lines 31-33: The authors’ stated objective according to the abstract is to: “estimate prevalence and identify socio-demographic risk factors for Neisseria gonorrhea (sic), Chlamydia trachomatis, and Treponema pallidum infections in the general population of New Caledonia.” However, the sampling frame is patients seen in either community clinics or GP surgeries. In fact, in the limitations, the authors explicitly note: “the design of the study is undertaken in healthcare settings.” (page 2, line 22).

The authors seem confused between population based studies and healthcare based sampling. They seem to recognize there is a difference in some places, but ignore it overall: “Given the sensitive nature of sexual health issues in New Caledonian society, the committee decided to undertake this study within family physician practices.” (page 4, lines 5-7).

There is a vast difference between population based and healthcare based studies. The authors seem to recognize this as they state: “prevalence estimates in healthcare settings are in general higher than in population based studies.” (page 8, lines 25-26), However, they seem to think that by weighting their sample to reflect the distribution of the general population, their sample will de facto be representative of the general population. This is patently incorrect. The fact that they may have included patients or family members of patients does not negate the fact that the sampling frame for the study is healthcare settings. It is not a general population based study and should not be expressed as such.

The sampling technique does reflect probability sampling (multistage complex sampling) of patients attending healthcare settings: GP surgeries or public dispensaries. It is not a probability sample of the

general population of New Caledonia. This can be seen most directly from Table 1. The gender, province, and ethnicity of their sample were much different from their respective sociodemographic groups in the general population.

The authors are incorrect in stating that one can sample from one sampling frame (in the current study: healthcare based patients) and then adjust their sample by reweighing it so that the sociodemographic variables of the study sample equal those of the general population to transform it to a "general population based study." Using this same logic, one could transform any sample into a general population based sample just by reweighing it. This is just a reweighted healthcare based sample NOT a general population based study. The only way to obtain a population based sample is by have a general population sampling frame. This is done with NHANES. It was not done with the present study.

A strength of the study is that it is a representative sample of patients/patients' parents seen in healthcare settings in New Caledonia. However, it is NOT a general population-based study.

AUTHOR RESPONSE: We agree with this comment from Reviewer 2, and have now made several changes to the manuscript in order to avoid any doubt as to the healthcare setting design of the study:

- Abstract: "population based survey" was removed from the objectives and we have rephrased the methods paragraph to:" A national cross-sectional survey was undertaken using a three-stage random sampling of general practice surgeries and public dispensaries. Participants were included through opportunistic screening and using a systematic step for selection. The study sample was weighted to the general population aged 18 to 49 years"

- Article summary: "population based survey" was removed. We have also added two sentences to the limitations of the study : "Due to the difference in design of the present study and previous in New Caledonia, a difference od trend in STI prevalence cannot clearly be determined." and "As an observational, cross-sectional study, we are not able to infer causality or for some outcomes, temporality"

- Introduction: We have rephrased the last paragraph to: "The present cross-sectional survey was based on random sampling of general practice (GP) surgeries and public dispensaries, and on opportunistic STI screening through a systematic step for selection. This study presents the first national probability prevalence estimates and identifies socio-demographic risk factors for NG, CT and TP infections in a reweighted healthcare based sample related to the general New Caledonian population aged 18 to 49 years"

- Methods: We have rephrased the last sentence of the first paragraph, adding in "healthcare based".

- Setting and sampling: We have rephrased in the first paragraph to clarify the nature of the inclusion of healthcare attending persons, not only including patients, but also relatives to patients.

- Statistical methods: We have reworded the beginning of the paragraph and taken out "… producing a representative sample of the general population…"

- Results: First paragraph of the main results, the part of the sentence "in the New Caledonian population" was removed.

- Discussion: We have removed reference to "the general population" throughout this section . We have also clarified the difference in the present study design and other studies, and discussed strengths and limitations of this approach, mainly in paragraph 5.

Comment 2) The authors note in the introduction (page 3, lines 16-17) that: “Randomized population-based surveys are rare but more reliable in estimating prevalence rates for the general population.” In the US, NHANES is a complex multistage population based study which has been used for decades to estimate prevalence (not prevalence rates—prevalence is not a rate; it is a proportion) in the general US population, in fact the authors’ reference 5 (Datta et al., 2007) is an NHANES prevalence study of NG and CT in the general US population. The most valid or accurate (preferable to the term “reliable” which just means repeatable) surveys use probability or random (not “randomized”) sampling.
AUTHOR RESPONSE: These are valid points and we have reworded the manuscript in this way. The word “Randomized” was replaced by “random”. We have also clarified the sampling by explaining the three stage random sampling of general practice surgeries and public dispensaries in the present study where GPs included patients or their relatives (consenting) according to a systematic step procedure. We have also replaced the words “reliable” by “accurate” or “valid” through the all manuscript.

Comment 3) The abstract notes that the prevalence of STIs in this study were: “similar to comparable studies from Europe and the United States of America.” This is not correct. The prevalence of STIs in this study were much higher than those found in population based studies from the US, but they were comparable to an earlier healthcare based survey of antenatal clinic patients done in the Pacific (Cliffe, et al, 2008). The Datta reference (authors’ citation #5) shows NG and CT prevalence in a representative sample of the general US population from NHANES. Even in this outdated 2007 reference, the prevalence of NG and CT in the US are not comparable to that found in the current study. Datta et al showed a CT prevalence of 2.2% (compared with the New Caledonia CT prevalence of 9%) and a NG prevalence of 0.24% (compared with the New Caledonia NG prevalence of 3.5%). The Datta citation is out of date. The most recent published prevalence estimates for NG in the general US population (0.27%) can be found in Torrone EA, Johnson RE, Tian LH, Papp JR, Datta SD, Weinstock HS. Prevalence of Neisseria gonorrhoeae among persons 14 to 39 years of age, United States, 1999 to 2008. Sex Transm Dis 2013;40(3):202-5. The most recent CT prevalence estimates in the general US population (1.6%) can be found in Datta SD, Torrone E, Kruszon-Moran D, et al. Chlamydia trachomatis trends in the United States among persons 14 to 39 years of age, 1999-2008. Sex Transm Dis 2012;39(2):92-6.

Similar to Adams, et al, 2004 systematic review of Chlamydia prevalence studies in the UK (authors’ reference #14): STI prevalence from dispensary and clinic patients (the study population in the current study) was higher than STI prevalence from population based samples.

AUTHOR RESPONSE: These are valuable points raised by Reviewer 3 and we have made the following changes to the paper to address these issues:

- Abstract: the conclusion paragraph has been rephrased in this way: “The prevalence of Chlamydia trachomatis in New Caledonia were similar to estimates from other healthcare based surveys from the Pacific, but higher for NG infection and lower for active syphilis infection. All STI estimates were much higher than those found in population based surveys from Europe and United states of America. The socio-demographic risk factors identified in this study will help guide targeted prevention and control strategies in New Caledonia.”

- Introduction: “an important public health problem” reworded to “a substantial burden” . We have also replaced the oldest data reference with : 8. Torrone EA, Johnson RE, Tian LH, et al. Prevalence of Neisseria gonorrhoeae among persons 14 to 39 years of age, United States, 1999 to 2008. Sex Transm Dis 2013;40(3):202-5.
7. Datta SD, Torrone E, Kruszon-Moran D, et al. Chlamydia trachomatis trends in the United States

among persons 14 to 39 years of age, 1999-2008. Sex Transm Dis 2012;39(2):92-6.

- Discussion: Paragraph 5 has been reworded and we have added two new sentences: “In the United States of America, the most recent STI prevalence estimates as assessed by a population based survey, were much lower for CT and NG: 1.6% (95% CI: 1.1%-2.4%) and 0.27% (95% CI: 0.13%-0.47%), respectively 7 8. In European countries, such as United Kingdom, Slovenia and Netherlands, STI prevalence estimates were also lower around 3-4% for CT and NG.”

It is true (as stated in the discussion, page 9, lines 38-39) that the sociodemographic risk factors found in the current study are comparable to those found in other countries; however the statement in the abstract (that the STI prevalence proportions are comparable) needs to be corrected.

Comment 4:
The introduction claims that NG, CT, and TP have dramatically increased in the US and other world countries in the past decade. This statement is not supported by CDC STD surveillance data. In the United States, NG infections decreased from 1975-1997, plateaued from 1997-2007 then decreased to the lowest level recorded in 2009. There was a slight increase in rates 2009-2012 with rates decreasing again in 2013. Reported CT infections in the United States have been increasing, but this is recognized as reflecting increased screening. CT rates actually decreased in the US from 2012-2013. TP infection rates decreased during the 1990s. Rates increased from 2001-2009, decreased in 2010, remained unchanged in 2011, and then increased by 22% 2011-2013 (Centers for Disease Control and Prevention. Sexually transmitted disease surveillance, 2013. Atlanta: US Department of Health and Human Services; 2014. Accessible at URL: http://www.cdc.gov/std/stats13/surv2013-print.pdf).
AUTHOR RESPONSE: These are important distinctions from Reviewer 2 and we have chosen to include the two new references of Torrone and al. and Datta and al. (see comment 3 above), and also taken out the wording “with dramatically increased rates in the last decade” from the first paragraph of the introduction.

Minor comments:

Comment 5) The agent Neisseria gonorrhoeae is misspelled (the species spelling is give as “gonorrhea” in the abstract and “gonorrhoea” in the introduction and Table 3 title)
AUTHOR RESPONSE: This has now been corrected throughout the manuscript.

Comment 6) Sampling technique should be termed: “random” not “randomized.” See abstract: p. 1, line 35, introduction: p. 3, line 16, setting and sampling: p. 4, line 13, discussion: p. 8, line 3.
AUTHOR RESPONSE: We have reworded this throughout the manuscript.

Comment 7) The authors appear to have gotten the name of the nontreponemal test wrong. I believe the RPR 500 uses rapid plasma reagin (RPR) methodology. This is a different serological test than the VDRL. (page 5, lines 6-7).
AUTHOR RESPONSE: We have now replaced in the STI diagnoses paragraph of the methods by “by the non-treponemal test : Rapid Plasma Reagin (RPR 500 of Bio-Rad)”

Comment 8) In the discussion section the authors present information in terms of NG/Laboratory/year which is uninterpretable as they themselves state. Would recommend deleting this (page 9, lines 16-18).
AUTHOR RESPONSE: We have removed the entire sentence as recommended by Reviewer 2.

Comment 9) The authors mention CT prevalence from blood specimens (page 9, lines 12-15). Is this correct (I am unable to access or read the French references)? This is an atypical method for measuring sexually transmitted CT prevalence.
AUTHOR RESPONSE: Thanks for pointing this out, the mistake has been corrected by taking “blood” out.

VERSION 2 - REVIEW

REVIEWER	Al Katz Department of Public Health Sciences University of Hawaii USA
REVIEW RETURNED	15-Jul-2015

GENERAL COMMENTS	I thank the authors for addressing my major concerns. There are a few minor issues that I believe still need to be addressed: P. 4 of 47; lines 31-32 (under section: “Sample size”): Please edit the first to read: “Theoretical prevalence proportions were maximized as 50% to give the largest sample size of 600 participants.” Delete: “ignoring the previous STI prevalence rates in pregnant women.” This suggestion is made because 1) prevalence is a proportion not a rate; and 2) no need to include the fact that you are ignoring STI prevalence estimates in pregnant women as this is not relevant to the present study Page 4 of 47, line 46: Please delete the word “rate” from sentence. As noted above, prevalence is not a rate. Sentence should read: “NG and CT infections and only active syphilis prevalence were studied by binary logistic regression with explanatory variables as independent factors.” Page 6 of 47, line 20: “adult” needs to be corrected to read “adults.” Page 6 of 47, line 44: Please replace “counteracted” with “addressed by” as potential selection biases were not counteracted but addressed. Page 7 of 47, last line of first paragraph: should read: “more common in the upper respiratory tract.” Currently reads: “more common in upper the respiratory tract.” Page 7 of 47, line 49: please change the word: “randomized” to “random” as this is discussing a random survey rather than a study in which subjects are being randomized. Page 8 of 47, top of page: The authors note that: “In European countries such as United Kingdom, Slovenia and Netherlands, STI prevalence estimates were also lower around 3-4% for CT and NG.” The authors did not include citations to back this statement. References 3-5 provide prevalence estimates in these three countries, but for CT only; not NG. It is true that in these 3 countries, CT estimated prevalence is 3-4%. NG estimates however are considerably lower. Please correct this sentence to read: “In European countries such as United Kingdom, Slovenia and Netherlands, prevalence estimates for CT were also lower around 3-4%.”

VERSION 2 – AUTHOR RESPONSE

Reviewer: 2
Reviewer Name Al Katz
Institution and Country Department of Public Health Sciences, University of Hawaii
Please leave your comments for the authors below I thank the authors for addressing my major concerns. There are a few minor issues that I believe still need to be addressed:

P. 4 of 47; lines 31-32 (under section: “Sample size”): Please edit the first to read: “Theoretical prevalence proportions were maximized as 50% to give the largest sample size of 600 participants.” Delete: “ignoring the previous STI prevalence rates in pregnant women.” This suggestion is made because 1) prevalence is a proportion not a rate; and 2) no need to include the fact that you are ignoring STI prevalence estimates in pregnant women as this is not relevant to the present study
AUTHOR RESPONSE: We have now deleted both the words: “ignoring the previous STI prevalence rates in pregnant women.” and the references (19, 20). We have also replaced “rates” by “proportions”

Page 4 of 47, line 46: Please delete the word “rate” from sentence. As noted above, prevalence is not a rate. Sentence should read: “NG and CT infections and only active syphilis prevalence were studied by binary logistic regression with explanatory variables as independent factors.”
AUTHOR RESPONSE: We have edited as suggested.

Page 6 of 47, line 20: “adult” needs to be corrected to read “adults.”
AUTHOR RESPONSE: We have edited as suggested.

Page 6 of 47, line 44: Please replace “counteracted” with “addressed by” as potential selection biases were not counteracted but addressed.
AUTHOR RESPONSE: We have edited as suggested.

Page 7 of 47, last line of first paragraph: should read: “more common in the upper respiratory tract.” Currently reads: “more common in upper the respiratory tract.”
AUTHOR RESPONSE: We have edited as suggested.

Page 7 of 47, line 49: please change the word: “randomized” to “random” as this is discussing a random survey rather than a study in which subjects are being randomized.
AUTHOR RESPONSE: We have edited as suggested.

Page 8 of 47, top of page: The authors note that: “In European countries such as United Kingdom, Slovenia and Netherlands, STI prevalence estimates were also lower around 3-4% for CT and NG.” The authors did not include citations to back this statement. References 3-5 provide prevalence estimates in these three countries, but for CT only; not NG. It is true that in these 3 countries, CT estimated prevalence is 3-4%. NG estimates however are considerably lower. Please correct this sentence to read: “In European countries such as United Kingdom, Slovenia and Netherlands, prevalence estimates for CT were also lower around 3-4%.”
AUTHOR RESPONSE: We have edited as suggested.