Reviewer's report

Title: Prostate-specific antigen (PSA) screening and follow-up investigations in Maori and non-Maori men in New Zealand: a cohort study

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Reviewer: Lauro Bucchi

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I read with interest the manuscript of Obertova et al. (Prostate-specific antigen (PSA) screening and follow-up investigations in Maori men and non-Maori men in New Zealand: a cohort study) that was submitted for publication in BMC Family Practice. The paper would with an extensive revision provide an important insight into prostate cancer inequalities between Maori men and non-Maori men in New Zealand. I hope my English is sufficiently clear as to make my suggestions understandable.

Discretionary Revisions

105-109. The two interpretations suggested by the Authors for the comparatively low incidence and high mortality among Maori men are not alternative. They both point to a difference in screening rate. I would rephrase the sentence approximately as follows: It is unclear whether the low prostate cancer incidence and high mortality for Maori men are due to disparities in screening and biopsy rates, with later tumour stage at diagnosis for Maori men and over-detection of early-stage indolent cancers for non-Maori men.

175-176. For sake of clarity, please replace <60 with 40-59 and <70 with 40-69.

196. “... Northern Y Ethics ...”. I guess Y is a typing error. Please check.

222-229. The characteristics of practices with Maori and non-Maori providers are sufficiently described in the text. Table 4 seems rather unnecessary.

Minor Essential Revisions

122. Please give the total number of practices in the study area.

122-123. Midland Cancer Network (MCN). I think that the DHBs of Waikatu, Bay of Plenty, and Lakes – not the MCN – should be indicated as the geographical basis of the study. In other words, I would write “... enrolled in 31 general practices in the District Health Boards (DHBs) of ...”.

124. “... purposefully selected to ensure sufficient numbers ...”. Please, specify what approach was used to ensure sufficient numbers.

127. “... population of 680,000 ...”. Does this number include males and females
of all ages? If so, I suggest the Authors to give only the number of males aged 40+ years living in the study area, and to modify the statement “... of whom 24% are of Mōri ethnicity”. Probably, this figure applies to the whole population of both sexes, since “The estimated proportion of Mōri men aged 40+ years residing in the MCN region in 2010 was 14.4%” (Results section, 204-205).

128-129. What is the Authors’ comment on Figure 1? They probably concluded that the two populations were closely comparable. This should be stated.

130-131. “... 24.5% of the estimated overall population ...”. Perhaps the Authors meant “... of total males aged 40+ years in the study area”. Please clarify.

135-138. Baseline data. I suggest to indicate here all of the data provided by the general practices, including symptoms and biopsies, and not the only data the demographic information.

136. “... identification code ...”. Please clarify whether the code provided by the general practices was the NHI code (line 141). If so, please use the same terminology.

139-140. In lines 135-136, it reads that all practices used the Healthtech Medtech software for recording patient data, clinical notes, and laboratory results. So, I don’t understand why PSA test results were obtained with record linkage with three (external) laboratories. I suppose that PSA test results, in fact, were not recorded (or not completely) in the practices’ files. Please clarify.

143. “...three community laboratories ...”. It is not clear whether these three laboratories were the only ones in the study area or – at least – the only ones that were used by the 31 general practices for their patients.

151. Please provide at this point of the ‘Data sources’ section the statistical references no. 21 and 23 (what data were taken and with which objective). They currently appear the Results section. Most journals do not accept that references are cited in the Results section.

163. Please clarify the meaning of the term ‘relevant time period’. Does it means the three years prior to 2010 or the year 2010?

165. “... men with an elevated PSA result (both screened and not screened) ...”. I don’t understand what the term ‘not screened’ means. Does it mean ‘PSA-tested for non-screening purposes’? If so see below: lines 200-204.

166-168. “Biopsy data from practice records were cross-referenced with laboratory records to ascertain data completeness”. Did the Authors mean that biopsy information was cross-checked with ‘pathology’ records? And what items of information were checked for completeness? Please clarify.

172-173. NZ European or other European. Does NZ European indicate a New Zealand citizen of European origin? The term ‘other European’ is totally obscure to me. I apologize my ignorance. Please clarify for me and for those potential readers who are not familiar with New Zealand demographics.
173-174. Please move the entire sentence “Patient who ... personal information” to line 171, after the term ‘records’.

178-179. “... governed by M#ori groups ...”. Sorry, I don’t know anything of the New Zealand health care system. What is a “M#ori group”? Please clarify.

180. “... have a special focus on M#ori patients ...”. Please clarify what this sentence specifically means.

191. “... and cancer ...”. Probably, Authors intended to write ‘prostate cancer detection rate’.

196. “... M#ori consultation ...”: This is interesting. Why the consultation was deemed necessary?

205. Reference no. 21: see above: line 151.

208. Reference no. 23: see above: line 151.

219-220. Can the authors provide some information about the frequency of repeat PSA testing among M#ori and non-M#ori men who were not referred?

Discussion. I suggest that this section be shortened.

252-257. As stated above, it would be interesting to assess the rate of repeat PSA testing among M#ori men compared with non-M#ori men.

263-278. I suggest to shorten this paragraph, which deals with general problems encountered in delivering PSA screening, not with the problem of screening inequalities between M#ori men and non-M#ori men.

279-282. If needed, please modify the sentence taking into consideration the probability of M#ori men being screened in M#ori provider practices versus non-M#ori provider practices (see above, 230-234).

282-284. This sentence is unnecessary. Uncertainties about the benefits and harms of PSA screening applies to non-M#ori men as well as to M#ori men. Moreover, it seems to me that the study is based on the assumption that differences in screening rates have an impact on both incidence and mortality (Introduction).

33-58. The Abstract, which is well-structured, should be modified according to above suggestions.

Major Compulsory Revisions

Lines 1-2. Title. I don’t think this is a cohort study (i.e., an incidence study). The term follow-up is commonly used to indicate assessment for a positive screening test result. However, follow-up for a positive test result is not a longitudinal design, since screen-detected cancers are considered to be already present at the time of testing. This is the reason why patients with positive PSA test results
were “followed-up” in this study (like in many others) for a relatively short time period. The study reports the prevalence of PSA testing and the detected prevalence of cancer, and this is equivalent to saying that it is a cross-sectional study. In any case, the title I suggest is “Prostate-specific antigen (PSA) screening and follow-up investigations in M#ori and non-M#ori men in New Zealand”. By implication, the term ‘cohort’ should be replaced throughout the manuscript.

202-204. The Authors correctly identified the patients who were PSA-tested for non-screening purposes, that is, men with previous positive tests, biopsies, and symptoms (Methods section, 160-164). As consequence, it is not clear why they excluded only the 1006 patients with previous prostate cancer and the 774 with unknown ethnicity. Men with previous symptoms and biopsies cannot be retained in the study, because it can be safely assumed that they were not tested for screening purposes.

211.“The screening rate for M#ori men was 11.2% compared with 22.6% for non-M#ori men ...”. These figures are the same as those reported in Table 2 but they differ from those reported in Table 1, i.e., 13.0% and 26.9%. One hypothesis that can be raised is that the latter figures include men who were not tested for screening purposes. If this is the case, they should be excluded from the study.

Table 3. I recommend to modify this Table. First, the rationale for stratifying the results by age is unclear, and the numbers are too small. So, I suggest removing the <70/70+ years strata and leaving only the totals with the M-H age-adjusted RR. Second, I suggest providing an essential outcome measure such as the detection rate of cancer, which is 4/557 or 7.1 per 1000 M#ori men and 23/6786 or 3.4 per 1000 non-M#ori men. The prevalence of disease was two-greater for M#ori men – despite the fact that they were younger.

230-234. To show whether the probability of M#ori men being screened relative to non-M#ori men differs between M#ori provider practices and non-M#ori provider practices, the Authors should add two ratios to those in Table 2: those for the two pools of practices.

249-250. The rate of follow-up (46% vs 38%, Table 3) and the positive predictive of biopsy (57% vs 62%) were similar between M#ori men and non-M#ori men, but not the detection rate of cancer (see above).

294-296. After separating the subjects who were tested for screening purposes from those who were tested due to symptoms and disease monitoring, the latter should be excluded from the study (see above). I don’t see the rationale for comparing the true screening rates with the rates of clinical testing.

Level of interest: An article of importance in its field

Quality of written English: Acceptable
Statistical review: No, the manuscript does not need to be seen by a statistician.

Declaration of competing interests:

I declare that I have no competing interests.