Author’s response to reviews

Title: Knowledge and attitudes of primary health care physicians and nurses with regard to population screening for colorectal cancer in Balearic Islands and Barcelona.

Authors:

Maria Ramos (mramos@dgsanita.caib.es)
Magdalena Esteva (mesteva@ibsalut.caib.es)
Jesus Almeda (jalmeda@ambitcp.catsalut.net)
Elena Cabeza (ecabeza@dgsanita.caib.es)
Diana Puente (dpuente@idiapigol.org)
Rosa Saladich (rsaladich@gmail.com)
Albert Boada (aboadav.bcn.ics@gencat.cat)
Maria Llagostera (mllagostera.cp.ics@gencat.cat)

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Author’s response to reviews: see over
Srs. Editors BMC Cancer:

I submit you the manuscript “Knowledge and attitudes of primary health care physicians and nurses with regard to population screening for colorectal cancer” reviewed according Referees’ and Editor’s suggestions.

Maria Ramos
Referee 1

- Unclear why sample size calculations were performed for one half of the sample, but not the other and also it is not specified which outcome the sample size calculations were performed for. The design of the study was multicentric, and each region (Balearic Islands and Barcelona) decided by their own how to do it. In Balearic Islands, we thought that the questionnaire could be offered to all professionals. In Barcelona, as the number of professionals and the number of health centres were both higher, they decided to interview a sample of professionals in a sample of health centres. The outcome measure for sample calculations in Barcelona is explained in the next point.

- On page 3, paragraph 4 it just states: precision of 5% but not for what?? For a \( P=0.5 \), that is: the hypothesis that 50% of professionals would support a population screening program for colorectal cancer based on FOBT and colonoscopy in positive FOBT cases. We have added this explanation in the Study population section in the manuscript.

- There is no statement of ethical approval or informed consent. The reviewer is correct. A statement on ethical approval and informed consent has been included.

- Analysis. I could not quite understand the steps that were taken especially the modelling side of things and would recommend a statistician to review this section. We have reviewed this section, trying to explain more clearly the steps taken.

- Results. I was surprised that the modelling was given much less emphasis in the presentation of results, and that the model (or models? Not quite sure whether this is one model or several) in Table 5 does not seem to have been adjusted for gender, age or health professionals' background? The modelling was given much less emphasis in the presentation of results because it was a secondary objective. The main objective of the study was descriptive: To assess the knowledge and attitudes held by PHC physicians and nurses with regard to colorectal cancer screening. We did only one model, to explore which factors were associated to be reluctant to support a population screening program for colorectal cancer. The model was not adjusted for gender, age or health professionals' background because these variables were not associated with been reluctant to support the program (see Table 4) and considering to obtain a parsimonian model.

- Results. Personally, I did not find the first 4 tables ll that helpful or exciting (and also not very nicely formatted), and could see most of these findings be
shortened or presented in the text. Tables 1 and 2 have been shortened, adding some results to the text:

Moreover, colorectal cancer screening with FOBT was considered less effective than with colonoscopy (83.9% vs 96.3% respectively) with higher percentage of doctors than nurses declaring these two strategies as ineffective (P<0.0001). Additionally, professionals considered screening to be effective for breast cancer with mammography (98%); prostate cancer with PSA (78%) and lung cancer with CT scan (78%). Significant differences between doctors and nurses were found; doctors considered prostate and lung cancer screening less effective than nurses (P<0.0001 respectively). Nurses were more doubtful in the case of breast cancer (P<0.028).

Firstly, 68% of all professionals would recommend this program to their clients and 31% are reluctant or do not know, with no differences noted between physicians and nurses. When professionals were asked about the role they could play in a population colorectal cancer screening program, more than 90% declared that it could be either rising general awareness among their patients or individual counseling for those reluctant. Around three quarters of professionals considered that referring patients to the program and nearly fifty per cent were prone to sign invitation letters to the program. Significant differences between doctors and nurses were found concerning individual counseling and signing invitation letters.

Table 4 has been suppressed.

- **Discussion:** the discussion presents new results which were not shown. The discussion presents only one result not shown in the Results section. It’s about an open question connected to the questions: Have you asked any screening test for colorectal cancer to your patients? Which tests? To which patients? In this last question, some possibilities were offered plus the option of: Others. This was the open question, answered only by 20% of professionals, so irrelevant for the Results section but interesting because the answers reflected a certain degree of ignorance regarding the concept of screening.

- **The discussion does not place the results well with other literature and does not provide the reader with clear understanding of the relevance of the findings for the program in Spain.** We have reviewed the Discussion section, adding the following paragraph at the beginning:

In Spain, National Cancer Strategy is promoting the development of population screening programs for colorectal cancer, and several regions are currently implementing them. All but one are centralized programs, in which PHC
professionals play an insignificant role. The Basque country program, the only one pivoted around PHC professionals, is the one that until now has obtained the highest rates of participation, around 59% (data non published). In Cataluña, the pilot program for population colorectal cancer screening, has used the guaiac FOBT test, obtaining low rates of participation in the first rounds, 17.5% in the first round and 22.3% in the second one\textsuperscript{26}. Currently, the Cataluña Health Department has decided to move to the immunological FOBT test, used also in the other programs in Spain. In Balearic Island, such decision has not yet taken. Instead, the importance of pivoting the program around PHC professionals is clear for the Balearic Health Department, following the basque and the french models\textsuperscript{27}.

Referee 3

- The study has a quite poor significance in terms of increasing knowledge about this topic. We have reviewed the Discussion section, trying to convince the readers of the significance of the study, especially in the first paragraph.

- In the questions regarding FOBT, you did not mention which type of FOBT test was the object of the survey. The type of FOBT test is a very specific and technical question regarding the colorectal cancer screening programs. Actually, in Balearic Islands public health system, only guaiac test is used. In Barcelona, a pilot population screening program for colorectal cancer has been conducted since 2000 using also guaiac test, although it’s true that they have decided to change to immunological test. In Balearic Islands, the decision of which kind of test should be used has not been taken yet.

- What role should physicians and nurses play in colorectal cancer screening in Spain? Authors should give more details about the planned organization of CRC screening or indicate papers (in English language) that described the Spanish screening protocol. We have tried to explain it in the Discussion section (first paragraph).

- Citation number 8 and 9 should be updated. Citation number 8 has been updated. Citation number 9 cannot be updated because last update was from 2001, the one appearing in the paper.

- Please eliminate Spanish from the citations number 9 and number 10. Spanish has been eliminated from the citations number 9 an number 10.

- Please, insert this citation about screening implementation in Europe. The recommended citation has been inserted.
Referee 2

- Some of the information needs to answer the research questions cannot be satisfied by the questionnaire items: the attitudes of health professionals can be described as a mix of knowledge, believes, and behaviours. In this case, we don’t agree with the Referee: an attitude can be defined as a state of readiness, a tendency to respond in a certain manner. The attitude statements included in our questionnaire tried to express a point of view, a belief, a preference, a judgement, an emotional feeling, a position for or against something. The attitudes are not a mix of knowledge, believes and behaviours. Instead, they precede the behaviours, and in some cases, they can predict them.

- The questionnaire does not include items of the actual practice of the PHC professionals. As it is shown in page 5, 2nd paragraph, some questions regarding the actual practice of the PHC professionals were included, but not enough to allow comparisons with the international guidelines recommendation.

- Some of the analyses include outcomes as covariates. The variable “What do you think is your role...” was in fact formulated as: “What role do you think you could play in a colorectal cancer screening programme?” in an hypothetical way, trying to measure the attitudes of the PHC professionals. So it’s not an outcome variable, neither a covariate of the dependent variable: Would they support a population screening programme for colorectal cancer.

- The measurement of knowledge is weak. I suggest to build a score. For measuring knowledge, several questions were included in the questionnaire about: colorectal cancer, cancer screening program concept, colorectal cancer screening and other cancer screenings. We didn’t plan to make a score. Instead, we were interested in identifying specific areas of lack of knowledge in order to prepare a training program for primary health workers before to implement a population-based colorectal cancer screening program in Balearic Island and in this area of Barcelona.

- The first two rows of the conclusions are not justified by the results. This comment is already answered above (first comment of Reviewer 2).

- An absolute evaluation is not useful. We are sorry, but we don’t understand this comment.

- Insert in the title the region or at least the country. We have inserted the country.
Report the criteria for inclusion and exclusion of variables in backward model. Variables that yielded a P-value < 0.05 in bivariant analysis were included, as it is explained in Analysis section.

The sample is stratified but the analysis does not take into account the strata. What’s the reference universe? Actually, the sample was not stratified. The study was multicentric, and different strategies were used in each area for sampling. As it’s shown in Tables 1 to 3, the results are presented for the global universe (1,219 professionals) and separately for physicians (623) and nurses (588).

What’s the meaning of p in these analyses? P-value.

The comment of knowledge is naïve. The Reviewer is correct. We have suppressed it.

Page 6, row 2: The phases of the study have not been described before. We have eliminated this sentence and changed the writing at the end of the Background section as follows:
This study is part of a more comprehensive study. The main objective of this first phase is to assess the knowledge and attitudes held by PHC physicians and nurses with regard to colorectal cancer screening. Secondly, we want to identify the factors that determine the support afforded by these professionals to population screening for colorectal cancer.

Page 7, row 5: I think the sentence is not complete. You are right. We have completed it.

In the abstract, the acronym PHC is spelled twice. We have suppressed one spelling.

The introduction may be shortened. We have reviewed the Introduction, eliminating some data in first paragraph, and some sentences as: There is insufficient evidence regarding the use of colonoscopy as a screening test by itself. Or: Furthermore, PHC physicians can also make sure that cases who test positive for FOBT undergo a colonoscopy.

Beliefs about PSA efficacy should be discussed. In fact, they are discussed in terms of lack of knowledge regarding available evidence in 2008. Knowledge about PSA efficacy is not the main objective of the study, so we think it’s not necessary to discuss specifically this issue.

Pag 6, 4th row: “had anticipated” Does it mean “was expected”? Yes. We have corrected it.
• Pag 6 last row: “managerial tasks”. I do not think these are managerial, probably administrative tasks. Yes. We have changed it.

Scientific Editor
• We have reviewed all the Methods section, specially the analysis.
• A statement on ethical approval and informed consent has been included.
• We have reviewed the Abstract in order to provide some further information.