Author's response to reviews

Title: Time trends and age-period-cohort analyses on incidence rates of thyroid cancer in Shanghai and Hong Kong

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Author's response to reviews: see over
Dear editor:

We are pleased to have received your email dated November 26, 2014, in which we were encouraged to submit a revision of the manuscript entitled “Time trends and age-period-cohort analyses on incidence rates of thyroid cancer in Shanghai and Hong Kong” we submitted to BMC Cancer (1044327652148531).

We have addressed all the concerns of reviewers. On the following pages, please find our point-by-point responses to reviewers.

We wish to thank you and two reviewers for the constructive comments and suggestions that have greatly enhanced the quality of the manuscript. We hope the concerns have been addressed adequately in this revision.

Sincerely,

Jin-Quan Cheng
Shenzhen Center for Disease Control and Prevention, Shenzhen, China

Lap-Ah Tse
The Chinese University of Hong Kong, Hong Kong SAR, China
Reviewer: Stefano Petti

Comment #1:
This is an interesting study on time trends in thyroid cancer in Hong-Kong and Shanghai over a long period of time. The Authors adopted a novel approach developed by the US National Cancer Institute, namely, the age-period-cohort analysis, an analysis of temporal trends which sorts out the period effect (changes in disease definition, new diagnostic tools, etc. that may artificially change incidence) and the cohort effect (exposure to the same risk factors within the same age groups that change over time). The Authors assessed the Average Annual Percent Change (AAPC), that is, the mean increase in incidence rate and found AAPC 3.1% (95CI, 1.0-5.1%) and 3.8% (95CI, 1.9%-5.7%) in Shanghai and 2.2% (95CI, 1.5-2.8%) and 2.7% (95CI, 1.6-3.8%) in Hong-Kong, for males and females respectively. They also found significant cohort and period effects and concluded that the changed thyroid cancer trends may be due to a combination of improved diagnostic techniques and increased environmental exposures to risk factors.
This study is different from the usual time trends that are poor of any significance because of the aforementioned problems and suggest a serious public health problem in that country.

It is acceptable without further peer review.

Response:
Thanks very much for considering our work as “interesting”, “suggesting a serious public health problem”, and “acceptable”.

Comment #2:
However, it is necessary to rearrange the Abstract so that it results more clear for those readers who are not familiar with stat/epidemiological terms such as period effect, cohort effect, AAPC, etc. and deleting the last sentence which is not important in relation of the good quality of the paper.

Response:
Thanks very much for the comment and suggestion. We have re-written the abstract to
make the results more clear for readers who are not familiar with the terms and also deleted the last sentence in the abstract according the reviewer’s suggestion.

Comment #3:
In the Discussion section Authors must account for ecological fallacy typical of ecologic study (ie, no inference at individual level can be drawn from these studies but only at population level).

Response:
Thanks very much for the comment. We have added statements “Furthermore, all time trends analyses on disease rates in this study were ecological descriptive analyses at population levels without inference at individual levels. This study was inevitably subject to ecological fallacy, since interpretations from results at population levels do not necessarily hold for individuals. Therefore, all hypotheses raised in this study still need further confirmation in analytic epidemiological studies” in the Discussion section (lines 10-15, page 15).
Reviewer: Giuseppe Alessio Messano

Comment:
This study investigated the time trends in thyroid cancer in Hong-Kong and Shanghai using sophisticated statistical techniques that accounted for both period and cohort effects, that are pervasive in time trend analyses. The results were that, instead of the mere Age-Adjusted Incidence/Mortality Rates, Average Annual Percent Changes have been reported which provided a continuous increase in rates among males and females in both towns. However, thanks to this analysis, the Authors also reported that the improved diagnostic tools may have artificially changed these rates, as well as the cohort effect, with a changed exposure to carcinogens at age-cohort level.

Response:
Thanks very much for the reviewer’s time in examining our manuscript and the valuable comments. We argued that the observed trends were possibly artificially changes attributable to improved diagnostic tools, as well as changes in environmental exposures. Thus, interpretation of the observed trends in the incidence rates of thyroid cancer in these two cities needs to be with caution, which has been discussed in the first paragraph of the Discussion section. We also concluded as “The increased incidence rates of thyroid cancer in these two Chinese populations during recent decades may be contributable to a combination of the introduction of more sensitive diagnostic techniques and the increasing prevalence of environmental exposures in the populations”.