Reviewer's report

Title: Estimation of the costs of cervical cancer screening, diagnosis and treatment in rural Shanxi Province, China: a micro-costing study

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Reviewer: Paolo Giorgi Rossi

Reviewer's report:

The paper presents an interesting micro-costing study of an hypothetical screening programme for cervical cancer in China.

Major compulsory

Even if interesting the study has some major flows in the actual version:

1. The screening activities are considered as single procedures and not as a complete pathway, in fact the study does not include follow up, but only screening, diagnostic and treatment; in the real life there are many women with a positive screening test a borderline assessment that cannot referred to treatment and needs intensified screening in the subsequent years. A flow chart of the screening procedures, including follow up should be given. Follow up costs must be included.

2. Many parts of the discussion are not justified by the results, in particular the authors suggest strategies (colposcopies as primary test!) that have no scientific bases and cannot be discussed according to micro-costing data without taking into account benefits and saving (i.e. a cost effectiveness analysis)

3. Some assumptions on scale economies in colposcopies are quite hard to understand, and can only be justified if the second level screening activity is not considered as part of the gynecological activity of the hospital.

4. Data on treatment costs at county or prefecture level are difficult to interpret and the authors do not explain how the differences emerged. Furthermore the analysis does not take into account the quality issue: in all the rest of the World invasive cancer treatment tends to be regionalised because the cases are few and the surgery and oncology need experienced physicians. The introduction of screening will drastically decrease the number of invasive cases.

5. The presentation of the results should be more structured: for each paragraph the authors should give the same information about baseline and sensitivity analysis.

Minor essential

Specific comments

Abstract: the results and conclusions have internal consistency

Introduction: it is quite complete and the effectiveness of screening procedures is
well presented. The rationale for the choice of analysed strategies should be explicited.

Methods:

please make clear wich variables are included in sensitivity analysis. In particular only the volume of screened women is alear, but detectionrate, % of base case cost for program and % of base case of HPV detection rate (do you mean positivity rate?) are not clearly reported and justified. Furthermore other parameters, affected by substantial uncertainty, could be included in sensivity analysis: Cancer detection rate, follow up, biopsy rate, mode of invitation (active by mail, passive, using other community based interventio, etc.).

Travel times are calculated on the basis of direct line distances, this is not a reasonably assumption.

Organisational costs are not described, as well as the screening programme organisation: the information system, the invitation policy, how to avoid to test the same women at short intervals, how to reach undercovered or not screened women. If there are no policies for the invitation this should be stated. Diseconomies due to overscreening of already screened women should be considered.

Results

Pag 11 2nd par. A strict relation between number of women screened and colposcopy costs is unusual. May be the labour costs are not inclused in the other routine gynecological activities.

Pag 12 “direct medical cost of treatment…”: the outcomes of LEEP and CKC are different in terms of complications. LEEP should be preferred in any case is possible. The costing analysis cannot consider them as identical. Furthermore CKC is dominated in most situations: worst outcomes and higher costs.

Discussion:

pag 13 row 5: the sentence is not clear: it seems that the county level is a small volume of screening program.

Pag 14 3rd par: the idea of colposcopy as screening test is not justified by any data. Colposcopy has low sensitivity, but at the same time in a low prevalence population may induce relevant overtreatment.

Pag 15 beginning: the mention to coverage is really too simplicistic: while it is easy to reach 30 or 40% coverage with spontaneous screening, it is quite difficult to reach high coverage without organised programs. In fact in the absence of individual invitation policies, women that are prompt to prevention tend to do any tests (more than needed) and hard to reach women remain not screened. To reach high coverage without wasting resources testing always the same women you need an organised program.

Pag 15 2nd par: see general comment n. 4. All this part of the discussion is not substained by results.

Pag 16 2nd par: the difference between your data and previous costs for treatment is substantial (not relatively). The authors should give more
explanations for this difference.

Pagar 16 limits: the follow costs must be considered.

Figure 3: the sensitivity analysis is not described in the methods. In the results it not treated as well in the discussion there few words about it (but volume of screened women).

The conclusions are correct.

Minor discretionary/editorial

The term programmatic cost is not familiar to me. Do you mean organizational?

Depreciation costs, may be “discount rate” is better.

The word “Dominate” is often used in the wrong way.

Pagar 6 row 5, collected

Pagar 12 last row: “due to” is repeated.

Pagar 14 row 3: please change “less developing”

Pagar 14 row 11: collected

Pagar 14 row 16: dominated is not correct

Pagar 14 row 17: it should be

**Level of interest:** An article whose findings are important to those with closely related research interests

**Quality of written English:** Not suitable for publication unless extensively edited

**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