

## 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

<b>TITLE (PROVISIONAL)</b>	Urban Green Spaces and Cancer: a protocol for a scoping review
<b>AUTHORS</b>	Porcherie, Marion; Lejeune, Mathilde; Gaudel, Marion; Pommier, Jeanine; Faure, Emmanuelle; Heritage, Zoé; Rican, Stéphane; Simos, Jean; Cantoreggi, Nicola; Roué-Le Gall, Anne; Cambon, Linda; Regnaud, Jean-Philippe

## VERSION 1 – REVIEW

<b>REVIEWER</b>	Ruth Hunter Queen's University Belfast, Northern Ireland
<b>REVIEW RETURNED</b>	19-Aug-2017

<b>GENERAL COMMENTS</b>	<p>Thank you for the opportunity to review this manuscript. The paper describes a protocol for a scoping review on urban green spaces and cancer. There is little research in this area and such a review would be a welcome addition to the literature.</p> <p>However, there are several areas throughout the protocol where I feel further detail and clarification is required – these are noted below:</p> <ol style="list-style-type: none"><li>1. Introduction (page 4/lines 30-): The introduction section provides an overview of the literature base on the general links between health and green space. However, there is little detail hypothesising the proposed links between green space and cancer, or acknowledging some of the key papers in the area. The paper would benefit from an extension of the introduction to specifically outline the green space and cancer literature, and therefore providing a strong and clear rationale for the paper.</li><li>2. Why does the paper focus on the urban setting and green space rather than green space in general?</li><li>3. Page 5: the primary aim of the paper is unclear – is it specifically to investigate the association between green space and cancer? The secondary objectives mention 'factors', 'types', 'interventions' 'characteristics' – examples of what each of these broad terms mean and how they inter-relate would be helpful. Why are intervention studies included and how will they be synthesised?</li><li>4. Page 5: What is the rationale for conducting a scoping review as opposed to using other review methodologies?</li><li>5. Page 6/lines 11-12: Please add further details of the specific search terms used.</li></ol>
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	<p>6. Page 6/line 17: Will forward and/or backward citation searching be conducted? How exactly will the grey literature be searched?</p> <p>7. Page 6/line 25: Please detail how you will identify and contact experts for identifying further articles.</p> <p>8. Page 6/line 34: Why is the searched limited to 2000 onwards?</p> <p>9. Page 7/line 34: The section on evidence synthesis lacks detail – will the evidence be synthesised by cancer type? Population? Type of green space? Type of association? Why is GRADE being used to synthesise the evidence base?</p> <p>10. Please review the English throughout for grammatical errors.</p> <p>11. Suggest rewording this sentence which is unclear “Clues to promote health urban setting intervention at the issue of the analysis will be provided”.</p>
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<b>REVIEWER</b>	Lan Wang Department of Urban Planning, College of Architecture and Urban Planning, Tongji University, China
<b>REVIEW RETURNED</b>	28-Aug-2017

<b>GENERAL COMMENTS</b>	<p>It is a very clear study protocol. Look forward to reading the outcome.</p> <p>In examining green space characteristics, it would be nice to check scale and location of green space, as well as its surrounding land use if possible. These factors would be important for urban planners and landscape architects. The linkage between these characteristics of green space and cancer would provide principles for them to avoid negative effects of planning and designing them.</p>
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### VERSION 1 – AUTHOR RESPONSE

1. Reviewer question : « Suggest rewording this sentence which is unclear “Clues to promote health urban setting intervention at the issue of the analysis will be provided”.

Reply: We rephrase this point, as suggested.

‘An enlightenment of causal pathways between cancer and green spaces in urban settings in order to provide recommendations on intervention and policies’ (line 29-30)

2. Reviewer question: « The introduction section provides an overview of the literature base on the general links between health and green space. However, there is little detail hypothesizing the proposed links between green space and cancer, or acknowledging some of the key papers in the area. The paper would benefit from an extension of the introduction to specifically outline the green space and cancer literature, and therefore providing a strong and clear rationale for the paper.”

Reply The paragraph has been written with an addition of references and sub-title. (from line 49 to 66 )

Green spaces and health

Today urban green spaces are of growing interest to public health experts and citizens alike. While research first focused on risk factors relating to green spaces, scientists are now looking at salutogenic factors (12)(13) (14)(15).

Studies have shown that access to green spaces is associated with better mental and physical health (16)(2)(17). A recent WHO review has shown that green spaces promote relaxation and this may impact on the immune system. They also have a positive influence on managing chronic diseases such as hypertension, type 2 diabetes and cardiovascular disease (18)(19). Urban green spaces encourage healthier behaviors such as physical and leisure activities (20)(21). They can also provide recreational settings and promote social cohesion (22). Their physical features, nature and size all contribute to regulating urban ecosystems by depolluting the air and improving the quality of the soundscape and the heat island effect (23)(24). Other improvements to urban living include amenity green spaces, green path, flowerbeds in urban areas, and flower and plant walls. Exposure to sunlight can boost vitamin D supply, regulate the circadian rhythm, quality of sleep, More recent findings suggest that these features contribute to the health benefits generated by green spaces and improve perceived quality of life in inhabitants (25)(26). These features are also important in that they allow people to encounter different animal and plant life, which may or may not be positive (17)(27)(28).

3. Reviewer question: "Why does the paper focus on the urban setting and green space rather than green space in general?"

Reply: You can read now (page2, 93-96): This study takes place within the GREENH-City project which focuses on this question and aim to identify links between green space and cancer genesis. We focus on urban setting where green spaces are supposed to have a positive effect on health.

4. Reviewer question: "the primary aim of the paper is unclear – is it specifically to investigate the association between green space and cancer?"

Reply: You can read now (page2, line 97\_101): Today, green spaces policies are an issue in urban setting. However, despite the interest in urban green spaces, little research has so far been conducted into the links between green spaces and cancer. Plus, green spaces management in urban settings depends on urban interventions from the local authority. These interventions may directly influence quality of products, types of plants, regeneration of urban green spaces.

5. Reviewer question : "The secondary objectives mention 'factors', 'types', 'interventions' 'characteristics' – examples of what each of these broad terms mean and how they inter-relate would be helpful. Why are intervention studies included and how will they be synthesised?"

Reply: as suggested, we have clarified the objectives.

You can read now (page2, line 102-105) "Our goal is to explore the relationships between green spaces and cancer and help identify factors that may influence the relationship between green space and cancer. To do so, we will systematically review all the evidence to describe the characteristics of green spaces that have an effect on cancer. "

6. Reviewer question: "What is the rationale for conducting a scoping review as opposed to using other review methodologies?"

Reply: Following the purpose of our objectives, we found that a scoping review was the most appropriate design to maps the evidence and describe the relations between urban green spaces and cancer. Several previous researches have used it.

As suggested, we have modified the sentence. You can read now (page2, line 117-121)

Scoping review was found to be the most appropriate for mapping the existing literature and describe their results, especially when a topic “has not yet been extensively reviewed” or is complex(34) . A scoping review of scoping reviews: advancing the approach and enhancing the consistency (35). We will conduct the scoping review following the 5 stages described by Arksey and O’Malley(36).

7. Reviewer question: “Please add further details of the specific search terms used.”

Reply: Following your suggestion, we deleted the sentence: “The search strategy will be done in title and abstract: (green space synonyms combined add with OR) AND (urban synonyms combined with OR) AND (cancer synonyms combined with OR)”.

The strategy developed for Medline has been added to the manuscript. You can read now (page3, line 135-139):

To conduct this scoping review, we will use a structured search strategy based on controlled vocabulary and relevant key term. The key terms for the inclusion criteria are related to Green space, urban space and Cancer. The search terms and equations for Medline can be found in Appendix 1 and will be adapted for other databases

8. Reviewer question : “Will forward and/or backward citation searching be conducted? How exactly will the grey literature be searched?”

Reply: as suggested, the following sentence has been added to the manuscript (page3, line 147-148) We will screen all the reference lists of included studies (backward search) for new article and search articles (forward search) that have cited the included studies (Web of Science).

9. Reviewer question: “Please detail how you will identify and contact experts for identifying further articles.”

Reply: This sentence has been erased to the manuscript:

You can read now (p. 3, lines 141-148)

Google and Google scholar will be also examined. We will also hand-search websites of key organizations involved in addressing and reporting research on green spaces (World Health Organization, Agency for Healthcare Research and Quality, National Institute for Health and Care Excellence, Medical research National Institute (INSERM), French National Cancer Institute (INCA), The institute of Cancer research, Commission for Architecture and the Built Environment, National urbanism agencies, ...) and grey literature databases (e.g. OpenGrey). We will screen all the reference lists of included studies (backward search) for new article and search articles (forward search) that have cited the included studies (Web of Science).

10. Reviewer question : “Why is the searched limited to 2000 onwards? “

Reply: The sentence “and those published between 2000 and 2017” has been deleted and replaced by (page 3, line 154)

“No date restriction will be applied”.

11. Review question : “The section on evidence synthesis lacks detail – will the evidence be synthesised by cancer type? Population? Type of green space? Type of association? “

Reply: We will consider the characteristics of urban green spaces, cancer population and relationships between green space and cancer. Details have been added to the manuscript. You can read now (page 4, line 201-212):

“We do not plan to perform meta-analyses and statistical methods of synthesis in this review due to the heterogeneity of the identified evidence, The purpose of a scoping review is to aggregate the findings and provide a narrative synthesis.

Quantitative data will be report using descriptive numerical summary analysis.

A qualitative synthesis will be used to describe the key characteristics of urban green spaces and cancer populations, the relationships between urban green spaces and cancer. If additional data emerge, they will be reported with the findings. We will summarize publications and their characteristics in tables to support the narrative synthesis. We will create a table that will constitute our map of the literature to present interventions and outcomes that aim to address relationships between urban green spaces and cancer. We will use the method described by the International Initiative for Impact Evaluation (<http://www.3ieimpact.org/en/evidence/gap-maps/>) to build the table.”

12. Review question: Why is GRADE being used to synthesize the evidence base?

Reply: we will not use the GRADE cotation. We want to assess how reliable are the evidence we collect and take the level of confidence in account to drive the conclusions of the review. To do this, we will use the graduation system proposed by the NICE and use it for making the conclusions.

We have modified the paragraph. You can read now (page5, line 213-218):

“We will use the approach of level of scientific evidence to drive the conclusions on the relationship between urban green space and cancer.

We will assess the quality of the body of evidence from all the included studies and reports. We will adapt the “Evidence for corroboration” grading system developed by NICE (34) for each characteristic identified (see Table 1). Each level will take in account the number and methodological quality of the included studies”.

We have no conflicts of interest to disclose. We would like to inform the publishing team that that the rank of the authorship has been modified. Please address all correspondence concerning this manuscript to me at [marion.porcherie@ehesp.fr](mailto:marion.porcherie@ehesp.fr).

Thank you for your consideration of this manuscript.

Sincerely,

Marion PORCHERIE

EHESP – School of Public Health

## VERSION 2 – REVIEW

<b>REVIEWER</b>	Ruth Hunter Queen's University Belfast, Northern Ireland, UK
<b>REVIEW RETURNED</b>	23-Nov-2017
<b>GENERAL COMMENTS</b>	Thank you for the opportunity to review this revised manuscript. The authors have adequately addressed my previous comments.