# MPhil in Population Health Sciences

Date: July 2023

**Dissertation Guidelines, MPhil PHS**

*Please note the links in this document are for the previous academic year and will be updated for the coming academic year.*

***The Dissertation***

The dissertation is an essential component of the MPhil. The scheme of examination for the course of study in Population Health Sciences for the degree of Master of Philosophy includes a dissertation, not exceeding 15,000 words in length, including footnotes, but excluding tables, figures, legends, appendices, abstract, and bibliography, on a subject approved by the Theme Lead. The MPhil places a premium on succinctness and clarity of expression and we anticipate that candidates should be able to write their dissertation within 10,000 to 15,000 words.

You should complete the MPhil Dissertation in July. The final date and time of submission is **12.00 Noon on the 19th July 2024** Submit your dissertation via Moodle. Please name your file with your theme and the last four digits of your student number (USN, e.g. Epidemiology1234.docx .

If you do encounter any problems with your dissertation, you must inform your Dissertation Supervisor and the Course Administrator at the earliest possible opportunity.

(Note: Where students are not pursuing a specific theme, use NoTheme in your file name.

For NoTheme students, references to ‘theme lead’ in this document should be read as referring to the ‘course director’.)

**Purpose**

The purposes of the dissertation project are to:

* Develop your skills in planning, conducting, and reporting a discrete research project over a prolonged period;
* Allow you to apply and consolidate your understanding of the research methods you have learnt throughout the course;
* Allow you to demonstrate your understanding of population health principles and concepts in an applied context.

**Scope**

The dissertation is a single piece of work. In most cases this will take the form of either: a) a secondary analysis of a qualitative and/or quantitative dataset answering one focused question or a very small number of linked questions; b) an assessment of existing or new biostatistical or epidemiological methods using real or simulated data c) a literature review, either a systematic review of a focused question or a review addressing a defined methodological problem in e.g. analytical epidemiology. In some situations it may be possible to collect primary data but this would be unusual. Previous experience indicates that students who concentrate on effectively completing a tightly focused piece of work tend to be more satisfied with their final submission and perform better than those who attempt to deliver a complicated or overly expansive piece of work that is difficult to complete within the time and resources available.

***Timelines***

You should aim to make steady progress on your project, identifying your topic in the latter half of term 1, and then working steadily on your project from the beginning of term 2 until the deadline in July, regularly discussing your progress with your Dissertation Supervisor and your course supervision group. Developing a clear timeline that summarises the key tasks to be completed and when is a key early step that forms part of your research protocol. Your timeline should be a ‘live’ document that you update regularly as you progress through the year. You may want to include other key dates (e.g. meetings with supervisors and course supervision group, module assessments, personal appointments) in your timeline so you can plan your dissertation work around other commitments.

*Term 1*

During term 1 you should begin to research an appropriate topic for your MPhil dissertation. You should read the Dissertation Proposal Collection published at the beginning of November, and attend the Dissertation Fair in November, where you will have the opportunity to discuss project ideas with potential [Dissertation Supervisors](#_Dissertation_supervision). You may also review and consider major research programmes of the departments (PHPC, MRC-Epi, MRC-BSU) and approach key investigators to pursue a research topic in any of these programmes. Students are also welcome to discuss ideas with the Specialisation Theme Leads or the Course Director. You should discuss your emerging ideas with your course supervision group and potential dissertation supervisors to assess the suitability of the topic and the availability of relevant data. When choosing your topic, it is important to remember that while there are lots of options, we cannot guarantee supervisor availability for all possible research interests, so students’ topic choice should be guided by the research interests of the people available.

By the end of Michaelmas term (22nd December), your dissertation supervisor needs to be confirmed. You will need to complete and submit the [Dissertation Sup](https://www.vle.cam.ac.uk/course/view.php?id=242911#section-13)ervision Agreement, which needs to be signed by student and supervisor(s), and submitted via Moodle. At this stage, the dissertation topic also needs to be finalised, and timing of access to necessary data confirmed. Theme Leads will review dissertation details. If two or more students suggest similar dissertation titles, the Theme Lead will work with them, and their Dissertation Supervisor(s), to ensure that the dissertations are distinct.

All students must work with an internal supervisor – someone who is a member of one of the three population health sciences departments (PHPC, MRC-Epi, MRC-BSU) or who teaches on the MPhil PHS. Students may in addition, in exceptional cases, identify a co-supervisor (either internal or external). In such cases, the student must seek permission from their primary internal supervisor. Students must also ensure that both supervisors have discussed the project with each other prior to submission of the dissertation supervisor agreement.

*Term 2*:

Your research protocol constitutes the assessment for the Research Skills module (see [Research Skills module handbook](https://www.vle.cam.ac.uk/course/view.php?id=242911) for details). In most cases it is expected that the protocol will be a protocol for your dissertation, which will be included as an appendix to the dissertation. As part of the Research Skills module, you will give a presentation on your planned project, as part of the development of your research protocol.

During the remainder of term 2, you should begin work on your dissertation, including background reading, reviewing the literature, accessing and preparing or collecting your data. You must share and discuss the feedback your receive from the markers of your protocol with your dissertation supervisor(s). You should also discuss this feedback in your course supervision group.

*Term 3*:

Your main dissertation work—analyses, interpretation and writing-up of results—should be completed during this term. You should maintain regular contact (approximately fortnightly email updates and monthly meetings) with your Dissertation Supervisor, discuss timelines and dates with them, and keep them fully informed of your progress. Dissertation Supervisors may be away on vacation or have other commitments during this period, so plan all meetings well in advance, and note when your Dissertation Supervisor is not going to be available. It is important that you work with your Dissertation Supervisor to regularly update your timeline to ensure completion of your dissertation. As you write up your dissertation, you should share draft chapters with members of your course supervision group, and give each other feedback on the work. It is your responsibility to make sure that your Dissertation Supervisor has had time to comment on a final draft of your dissertation before submission: you should both agree on a date to submit this to your Dissertation Supervisor, ensuring sufficient time before the submission deadline for reading and acting on any feedback.

Please remember that it is your responsibility to make sure that you complete the dissertation in a timely manner and to the required standard. If you encounter any problems with your dissertation, and keeping to this outline timetable, you must inform your Dissertation Supervisor and the Theme Lead at the earliest possible opportunity.

**Dissertation Protocol Presentation**

There will be one presentation related to your dissertation, which comes at the end of the *Research Skills* core module, and is an opportunity to get feedback on your research protocol before writing up and submitting it. Further details of what to include in this presentation can be found within the *Research Skills* module guide.

Thereafter, you should continue to present your developing ideas within your course supervision group, where you are expected to give and receive feedback on each other’s dissertation work.

**Topics**

There are a wide range of possible dissertation topics, which can draw upon any of the methods taught in the course (and beyond), from reviews and meta-analyses to qualitative, quantitative / analytical, mixed methods research or analytical methodology. You should consider topics presented at the dissertation fair and in the proposal collection, topics that build on the content of the course modules, and topics that are relevant to your chosen specialisation theme.

The list of example dissertation titles below (Table 1 below) provides some possibilities as a guide to thinking about potential topics. This list is not intended to be either exhaustive or prescriptive.

You will need to take account of the following practical constraints on your choice of topic:

* Availability of a Dissertation Supervisor with appropriate expertise;
* Access to appropriate data sources or a clear data collection plan prior to submission of your research protocol;
* Collection of new data takes time and effort, which would be acknowledged by your assessors. However, before attempting this, you would need to be sure of completing data collection by the start of term 3;
* Projects requiring ethical approval (for new data collection) are particularly challenging. If you intend to conduct a project that requires ethical approval that has not already been granted, you must discuss this with your Dissertation Supervisor and the Theme Lead as early as possible, preferably by the end of November in term 1, in order to leave sufficient time for any necessary research ethics application.

Copies of some previous MPhil dissertations that were awarded distinctions are available on Moodle.

**Writing your dissertation**

***General Style Guide***

Here is a [generic style guide](http://www.icmje.org/recommendations/browse/manuscript-preparation/preparing-for-submission.html) (that you may have to adapt a little for your purposes). You should format your references using the [Vancouver style](https://www.imperial.ac.uk/admin-services/library/learning-support/reference-management/vancouver-style/).

The form in which the dissertation is presented, and the care with which it has been prepared, are in themselves evidence of your capabilities, and will receive consideration as such. Take special care in setting out your exhibits, which should be referred to in the text, and numbered and labelled appropriately. You are strongly advised to check your dissertation carefully, prior to submission, for typing errors, spelling mistakes and poor English. The dissertation, apart from quotations and recognised technical formulae, must be written in English. Remember, aim for clarity and accuracy of expression: you want to make it as easy as possible for your readers, and if an intelligent reader finds it hard to follow, that is a problem with the writing. Proofreading the work of peers in your course supervision group is an important tool in achieving this clarity and accuracy.

Be sure to make frequent backup copies as you are working on your dissertation.

***Form of dissertation***

The dissertation must be a coherent account of your work written by you, and must comply with the General and Special Regulations for the course, available at <https://www.admin.cam.ac.uk/univ/so/pdfs/2021/ordinance07.pdf>

A central objective of the course is to make you an ‘expert knowledge user’. This entails an ability to appraise research reports critically and to think clearly, analytically and consistently about the population health problem you are addressing. The overall purpose of the dissertation within the MPhil course is to help you develop, apply and consolidate your understanding of the methods and concepts that you have been taught during the course. You must demonstrate these skills in your dissertation, and bear this in mind as you write.

The dissertation should generally contain the following sections: abstract, introduction, research questions (or aims, or hypotheses), methods, results, discussion, conclusion, references and appendices. Give your chapters informative and clearly set out titles. Although the sequence: abstract, introduction, research questions (or aims; or hypotheses), methods, results, discussion, conclusion, references is a useful default, other structures may be more appropriate depending on the exact topic. Note that this guidance should be considered in conjunction with the dissertation marking rubric.

*Abstract*: In no more than 300 words, you should aim to clearly and succinctly convey your topic choice, aims, methodological approach, main findings and conclusions.

*Introduction*: The role of your introductory section is to establish the starting point for your enquiry by summarising the current state of knowledge relevant to the specific question you are addressing. Your introduction should state your central theme clearly. You should make cogent and critical use of relevant evidence or theory to justify your choice of topic and the importance of the research questions (or aims, or hypotheses) in the context of your chosen specialisation theme. Your review of the existing literature presented in the introduction should clearly demonstrate an ability to find only the most relevant literature, and should not be expanded uncritically to fit in as much background knowledge as you can manage. This section is not a systematic review and you are not expected to perform a full critical appraisal of every paper cited. Rather, it should reflect the type of background section found in published papers that provides enough context to justify the research question being addressed.

*Research questions*: Your research questions (or aims or hypotheses) should be clearly stated, answerable, and should follow naturally from the preceding introduction and literature review.

*Methods*: The methods section of the dissertation should elaborate and expand upon the plans you presented in your research protocol, providing sufficient detail to allow a reader to reproduce your research without having to refer to the protocol. You should clearly explain and justify any deviations from the protocol. Note that you cannot simply copy the text from your protocol methods section, as this would constitute self-plagiarism: your further learning and developing understanding make it highly unlikely that more than the occasional short phrase/sentence can sensibly be taken unchanged from your protocol.

*Results*: The results should be presented in a well-organised and concise manner, in a way that is consistent with your methods and is entirely relevant to your aims. Relevant data should be described coherently and presented clearly. We encourage students to make use of relevant reporting guidance where appropriate (see <https://www.equator-network.org/>). You may choose to include additional results not central to the research questions, but providing relevant context, in an appendix, e.g. sensitivity analyses, etc.

*Discussion*: This should include a clear and concise summary of your findings directly related to your aims, and illustrate how you have answered your research questions. Because your dissertation has to be completed in a short space of time, you may not be able to take your investigation of the topic very far. This time limitation makes it important to think clearly about the way in which the topic could be investigated further, and you should critically articulate strengths and limitations of the work and summarise your ideas for future work on this topic. The discussion should also include a clear and critical discussion of the findings in relation to theory and other published research, and appropriate implications of the findings should be identified and discussed. Some general guidance on writing and structuring discussions which you may find helpful is provided in these two papers:

Docherty M, Smith R. The case for structuring the discussion of scientific papers: Much the same as that for structuring abstracts. *BMJ*. 1999;318:1224. <https://www.bmj.com/content/318/7193/1224>

Lingard L. Does your discussion realize its potential? *Perspectives on Medical Education*. 2017;6(5):344-346. <https://link.springer.com/article/10.1007/s40037-017-0377-6>

(The latter is part of a helpful series called [The Writer’s Craft](https://link-springer-com.ezp.lib.cam.ac.uk/search?query=the+writer%27s+craft&search-within=Journal&facet-journal-id=40037), offering guidance on all aspects of writing up research.)

*Conclusions*: The conclusion should critically and succinctly synthesise the findings and discussion in direct relation to the aims / research questions.

*Appendix* 1: You may choose to include a ‘response to feedback’ table addressing the markers’ feedback on your research protocol. For some feedback elements, this may simply be an indication of where you have addressed this feedback in the dissertation (section, page number), for others it may be a brief explanation of why you have decided not to include this point. This is similar to a ‘response to reviewers’ written when submitting a revised paper for publication. Although this appendix is optional and not graded in itself, it will serve to make your markers’ job easier (always a good thing if you want a good grade), and provides an opportunity for pedagogically valuable feedback dialogue.

*Appendix 2*: Please include your previously submitted research protocol as an appendix.

When you submit your dissertation, you must state, generally in a preface and specifically in notes and in your list of references, the sources your information came from, the extent to which you have made use of others’ work, and the portions which you claim are your own original work.

When writing your dissertation, in addition to the above guidance you should consult the dissertation marking rubric and consider the following theme-specific guidance where appropriate.

***Theme-specific dissertation guidance***

*Epidemiology*

The dissertation should be quantitative in nature, involving the analysis of individual level study data, or the application or evaluation of epidemiological/biostatistical techniques.

*Global Health*:

Dissertations may comprise primary or secondary data from any locale (village/city, country, continent) including the UK and will need to demonstrate that points 1 to 6 below have been met. This includes, but is not limited to, how the problem area is delineated (e.g. background section), how data is collected/analysed, framing of the findings and how implications are interpreted (e.g. discussion section).

1. Adopt a social justice lens to consider social, economic, environmental and commercial drivers of health inequity and the influence of sectors/actors acting beyond town/country/regional borders
2. Utilise diverse knowledge sources cognisant of global knowledge landscape inequities (e.g. consciously seeking out contextually relevant citations)
3. Demonstrate reflexivity (i.e. reflection on positionality)
4. Critique role/impact of relevant governance and/or multisectoral actors in health/disease from local to global; and implications for policy and practice
5. Engage with the political economy of health and the role of (historical/contemporary) power, structural inequities and systems on population health/disease burden
6. Where relevant, reflect on interlinkages between health and sustainability and planetary health: threats and opportunities, and implications for health, healthcare, or intersectoral action for health.

*HDS*

There is an expectation that the dissertation will be a quantitative or methodological project.

*ID*

No additional requirements, other than being related to infectious diseases.

*PCR*

The dissertation is expected to relate in some way to primary care, either using data collected within primary care or on a topic that has clear implications for primary care. Students may do a literature review or qualitative or quantitative data analysis.

*PH*

There are no clear a priori rules on the types of topics that are acceptable for the dissertation project. One way of classifying potential topics is along a spectrum related to the objectivity and generalisability of the resulting knowledge: at one end are epidemiological topics expected to add to the sum of generalisable knowledge about exposures and disease; at the other end are local ‘problem-solving’ exercises where some existing analytic approach is applied to better understand some local public health problem and where the local ‘answer’ may have very limited generalisability. Most topics suitable for your thesis will fall between these two poles. Projects at either extreme are less likely to be appropriate: purely epidemiological projects are unlikely to be a first choice for Public Health Students, but may be appropriate where the condition of interest is of special public health interest in a given setting; topics that are purely of a local ‘audit’ nature may not be considered ‘research’.

There are no restrictions on the type of data, or analytical method, you can use in your dissertation. You are free to make use of quantitative, qualitative and mixed-methods approaches as appropriate.

***Dissertation marking guide***

The marking rubric that examiners use to mark dissertations is shown in Table 2 below. The areas which are considered in the marking of the dissertation are the abovementioned sections, the exhibits, the references and the overall impression, which includes the presentation, clarity of expression and logical flow, and use of population health science terminology. We strongly recommend that you make use of the marking rubric to evaluate drafts of your own and your peers’ dissertation writing, as part of your course supervision group work, as this will help you discuss and appreciate nuances in application of the guidelines and rubric. Note that the rubric does not provide weightings for the different sections, as different types of dissertation may require a different balance of work for each component: examiners are expected to interpret the rubric flexibly using their judgment and experience, giving consideration to what is appropriate for each specific dissertation.

Each dissertation is independently marked by two examiners who must agree on a final mark and provide written comments. If the examiners cannot agree, the Theme Lead will appoint a third examiner to adjudicate. With your mark you will receive written feedback on your dissertation produced by both examiners. Note that uncertainty and disagreement is integral to all science, so learning to reconcile and act upon potentially conflicting feedback is itself a valuable learning outcome. Your Course Supervisor and Dissertation Supervisor will never mark your dissertation.

***Submitting your dissertation***

Please refer to examples of previous dissertations (copies are available on Moodle) to help you prepare your dissertation for submission. Please submit an electronic copy of your dissertation via Moodle.

Please include the following in the dissertation:

1. Title page containing: Title, last four digits of your university student number (USN), College, Date (optional) and Declaration stating 'This dissertation is submitted for the degree of Master of Philosophy.'

2. Declaration in Preface stating 'This dissertation is the result of my own work and includes nothing which is the outcome of work done in collaboration except where specifically indicated in the text'.

3. A statement of Length saying that the dissertation does not exceed the word limit for the respective Degree Committee. State the word count, and please don't use tables and figures to 'get around' the word count: if it's all that tight, you should be thinking about whether your writing is succinct enough.

4. Word limits and more specific information about the requirements for your MPhil Degree are available from the General and Special Regulations and listed under your specific MPhil Degree programme: <https://www.admin.cam.ac.uk/univ/so/pdfs/2021/ordinance07.pdf>

When submitting your dissertation you must declare for what purpose, if any, other than for the MPhil Degree, the whole or part of it has already been or is concurrently being submitted. The Board of Graduate Studies cannot accept a dissertation that is substantially the same as one that you have submitted, or are concurrently submitting, for any other degree, diploma, or similar qualification at any university or similar institution, but they may accept a dissertation which you are concurrently submitting for some other purpose.

***Deferring your submission date***

Extension of time beyond your submission date will only be granted in exceptional circumstances, for example, illness or another grave cause. If you need to defer submission of your dissertation beyond the deadline, first contact the Course Administrator or Education Manager, who will guide you on the appropriate course of action. This will likely include contacting your supervisors and your college tutor, and completing an Application for Leave to Defer Submission of MPhil Degree Dissertation Application Form, which is available to download from your student self-service page. The final decision on your deferral application is made by the Degree Committee. Please keep your supervisor and the Education Manager informed of circumstances that may require a deferral and the progress of your application for a deferral.

***Oral examination***

Under the current examination regulations, unless granted a waiver by the examiners, all students must be prepared to attend a pass/fail viva examination in August or early September following submission of their dissertation. See [*Marking and Classing Scheme*](#_Marking_and_Classing) for information on circumstances in which a student will be required to attend a viva. The date for this oral examination will be confirmed to you as soon as possible after the dissertation has been marked.

***Publishing Dissertations***

After your dissertation has been marked, you may wish to seek publication of your work. In such cases, you are advised to consult with your dissertation supervisor about the possibility of co-writing a publishable paper based on the dissertation. We are very supportive of such endeavours, but we cannot provide funding for this.

***Table 1: Example dissertation titles***

The following list of example dissertation titles provides some possibilities as a guide to thinking about potential topics. This list is not intended to be either exhaustive or prescriptive.

|  |  |
| --- | --- |
| *Theme* | *Example Dissertation titles* |
| *Epidemiology* | Assessing the causal role of human plasma proteins on cardiovascular disease  Associations between circulating inflammatory markers, cognitive function and depression in a population-based prospective birth cohort  Epidemiology and perioperative risk stratification in individuals with chronic subdural haematoma  Infant and maternal determinants of infant feeding and weight gain  Cardiovascular disease mortality in breast cancer patients: an analysis based on the SEARCH breast cancer study.  Assessing the combined effects of multiple rare pathogenic variants in breast cancer susceptibility genes  Coverage of credible sets in fine mapping genetic associations [note: of methodological nature]  A Genome-Wide Association Study of Haemorrhagic Stroke |
| *Global Health* | What is the role/impact of global trade agreements on the development, implementation and media coverage of the sugar tax in the UK?  Community food production in small island states: A systematic scoping review of health, social, economic and environmental impacts  What is the best model for rural healthcare in Uganda? Cost-effectiveness analysis of 3 primary healthcare delivery models  How did the COVID-19 pandemic influence discourse in popular media on global health security in any one of the G7 countries?  Health impact of air pollution exposure in South Asia  Sexual Harassment and Workplace Misconduct: Evaluating the Use of Active Bystander Training as a Gender-Based Violence Intervention by NHS Trusts  Analysing Trauma care provision in the Khyber Pakhtunkhwa province of Pakistan |
| *Health Data Science* | Improving factor analysis models for causal evaluations using time-series observational data  Predicting platelet activation potential from haematology analysers using machine learning  Tailored Bayes to high-dimensional settings  Using geostatistical methods for lymphatic filariasis prevalence mapping  Machine Learning Analysis of Maternal Serum Metabolites to Predict Spontaneous Preterm Birth  Causal inference in emulated trials with survival outcomes: a comparative simulation study of confidence intervals based on non-parametric bootstrap and the robust sandwich variance estimator |
| *Infectious Diseases* | The geographical representativeness and timeliness of human seasonal influenza virus surveillance  Patient factors associated with delays in commencing treatment for tuberculosis in the East of England: an analysis using the enhanced tuberculosis surveillance system  Virological outcomes in HIV patients accessing a co-pay clinic within a free for service clinic at the Infectious Disease Institute in Kampala, Uganda  Understanding the spread of chikungunya within and between communities in Bangladesh using the results of a seroprevalence study  Estimating Transmission (Rt) in an Emerging Epidemic: An Analysis of the Renewal Model |
| *Primary Care Research* | How does primary care affect health inequalities in chronic disease prevention? A systematic review  What can we learn about those who do not consent to participation in the SAFER (Screening for Atrial Fibrillation with ECG to Reduce Stroke) Programme Feasibility Study?  The effect of different risk communication formats on cancer risk perception using data from a randomised controlled trial  Exploring the role of health literacy on patient pathways to cutaneous melanoma diagnosis: A secondary analysis of qualitative data  The association between polypharmacy and physical capability in a British cohort: the EPIC-Norfolk study  Are sociodemographic inequalities in patient experience and health related quality of life changing over time: A secondary analysis of General Practice Patient Survey data  Depression following Stroke in the United Kingdom – A Retrospective Cohort study using the Clinical Practice Research Datalink |
| *Public Health* | Cognitive impairment in older age: what are the challenges of getting out and about? An analysis of the Cambridge City over-75s Cohort Study  How can researchers generate meaningful public health policy impact? A meta-ethnography of case studies  Association between psychological factors and propensity to change lifestyle behaviour related to cardiovascular disease risk  Practical, scientific and policy decisions around optimising vaccination schedules  Assessing parental attitudes towards mental health difficulties screening in primary school  A cross-sectional study of food and drinks displayed in non-checkout high value areas in grocery stores in the city of Cambridge, UK  Differences in growth trajectories of bottle-fed babies by socioeconomic status of mothers |

**Table 2: Dissertation marking rubric** (percentages are for guidance only – marks given will be categorical not numerical)

|  | **Refer** (<60%) | **Pass** (60 – 69%) | **High Pass** (70 – 74%) | **Distinction (≥75%)** |
| --- | --- | --- | --- | --- |
|  |  |  |  |  |
| **Abstract** | Fails to convey most of: topic choice, aims, methodological approach, results and conclusions. | States topic choice, aims, methodological approach, findings and conclusions. | Succinctly conveys topic choice, aims, methodological approach, important findings and conclusions. | Clearly and succinctly conveys topic choice, aims, methodological approach, important findings and conclusions. |
| **Introduction** | Central theme unclear. No rationale for choice of topic. Poor or no use of relevant evidence or theory to justify choice of topic. | Central theme clearly stated. Good rationale for choice of topic. Consistent use of relevant evidence or theory to justify choice of topic. | Central theme clearly stated. Very good rationale for choice of topic. Critical use of relevant evidence or theory to justify choice of topic. | Central theme clearly stated. Excellent rationale for choice of topic. Cogent and critical use of relevant evidence and theory to fully justify choice of topic. |
| **Aims / Research questions** | Aims / research questions inadequately stated or absent. No justification provided in previous section. | Aims / research questions stated. Some justification provided in previous section. | Aims / research questions clearly stated and answerable. Justification provided in previous section. | Aims / research questions clearly stated and answerable. Full and convincing justification provided in previous section. |
| **Methods** | Badly organised or do not provide enough information to allow work to be reproduced. Does not address aims. Key methodological decisions not noted or justified. Neither describes nor justifies deviations from the research protocol, which is not included as an appendix. | Quite well organised, with enough information to allow work to be largely reproduced. Adequately address aims (within resources available). Key methodological decisions noted and somewhat justified. Partially justifies any deviations from the research protocol, which is included as an appendix. | Well organised with enough information to allow work to be largely reproduced. Clearly addresses aims (within resources available). Key methodological decisions discussed and justified. Describes and justifies any deviations from the research protocol, which is included as an appendix. | Very well organised with enough information to allow work to be confidently reproduced. Clearly addresses all aims (within resources available). Key methodological decisions fully discussed & justified. Fully describes and justifies any deviations from the research protocol, which is included as an appendix. |
| **Results** | Results not adequately described. Results presented not relevant to aims. | Results presented in an organised and fairly concise manner. Results presented mostly relevant to aims. | Results presented in an organised and concise manner. Results presented almost entirely relevant to aims | Results presented in a well-organised and concise manner. Results presented entirely relevant to aims. |
| **Discussion** | No summary of findings included, or summary not relevant to aims. Strengths & limitations of methods not identified. No discussion of findings in relation to either theory or other published research. No implications of findings identified. | Clear summary of findings with reference to aims. Some strengths and limitations of methods are mentioned. Some discussion of findings in relation to theory or other published research. Implications of findings are identified and mostly appropriate. | Clear summary of findings mostly related to aims. Strengths and limitations of methods discussed. Critical discussion of findings in relation to theory and other published research. Appropriate implications of findings identified & discussed. | Clear & concise summary of findings directly related to aims. Strengths and limitations of methods critically discussed. Clear & critical discussion of findings in relation to theory and other published research. Appropriate implications of findings identified & critically discussed. |
| **Conclusions** | Conclusion does not sum up findings and discussion, or is not relevant to aims. | Conclusion sums up findings and discussion with clear reference to aims. | Conclusion summarises findings and discussion in direct relation to aims. | Conclusion critically synthesises findings and discussion in direct relation to aims. |
| **Exhibits** | Exhibits unclear, not labelled, not mentioned in text, or present entirely irrelevant material. | Exhibits mostly clear, have adequate labels, are mentioned in text, and illustrate relevant points. | Exhibits clear, have appropriate labels, are mentioned in text, illustrate some important and relevant points, and add value beyond main text. | Exhibits very clear, have appropriate labels, are mentioned in text, illustrate many important points, and add considerable value beyond main text. |
| **References** | Many relevant statements not referenced. Reference list incomplete, inconsistently presented, or does not use standard format. | Most relevant statements referenced. Reference list mostly comprehensive and consistently presented using standard format. | Almost all relevant statements referenced. Reference list comprehensive and consistently presented using standard format. | All relevant statements referenced. Reference list entirely comprehensive and consistently presented using standard format. |
| **Overall impression** | Very poor coherence, logical flow, presentation, and use of population health science terminology. | Good coherence, logical flow, presentation, and use of population health science terminology. | Very good coherence, logical flow, presentation, and use of population health science terminology. | Excellent coherence, logical flow, presentation, and use of population health science terminology. |