**Newcastle Critical Appraisal Worksheet**

For each of the 11 items, you can write in your findings below each question

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| **Item** | **Can you find this information in the paper?** | **Is the way this was done a problem?** | **Does this problem threaten the validity of**  **the study?** |
| 1. What is the research question? |  | Is it concerned with the impact of an  intervention, causality or determining the  magnitude of a health problem? | Is it a well stated research question/hypothesis? |
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| 2. What is the study type? |  | Is the study type appropriate to the research  question? | If not, how useful are the results produced by  this type of study? |
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| 3. What are the outcome factors and how are they measured? |  | a) are all relevant outcomes assessed  b) is there measurement error? | a) how important are omitted outcomes  b) is measurement error an important source of  bias? |
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| 4. What are the study factors (exposure or intervention) and how are they  measured? |  | Is there measurement error? | Is measurement error an important source of  bias? |
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| 5. What important confounders are considered? |  | Are potential confounders examined and  controlled for? | Is confounding an important source of bias? |
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| 6. What are the sampling frame and sampling method? |  | Is there selection bias? | Does this threaten the **external validity** of the study? |
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| 7. Questions of internal validity |  | In an experimental study, how were the subjects  assigned to groups?  In a longitudinal study, how many reached follow-up?  In a case control study, are the controls appropriate? Note: You can add your own questions, and also design  your own questions for other study types such as cross  sectional studies and systematic reviews | Does this threaten the **internal validity** of the study? |
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| 8. Are statistical tests considered? |  | Were the tests appropriate for the data?  – Are confidence intervals given?  – Is the power given if a null result?  – In a trial, are results presented as absolute risk  reduction as well as relative risk reduction? | If not, how useful are the results? |
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| 9. Are the results clinically/socially significant? |  | Was the sample size adequate to detect a  clinically/socially significant result?  – Are the results presented in a way to help in  health policy decisions? | Is the study useful? |
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| 10. Are ethical issues considered? |  | Does the paper indicate ethics approval?  Can you identify potential ethical issues? | Are the results or their application  compromised? |
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| 11. What conclusions did the authors reach about the study question? |  | Do the results apply to the population in which  you are interested? | Will you use the results of the study? |
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