

Supplementary file 3 :NEWCASTLE - OTTAWA QUALITY ASSESSMENT SCALE (adapted for cross sectional studies) Selection: (Maximum 5 stars)

This scale has been adapted from the Newcastle-Ottawa Quality Assessment Scale for cohort studies to provide quality assessment of cross sectional studies

**Selection:**

1. Representativeness of the sample:

- a. Truly representative of the average in the target population. \* (all subjects or random sampling)
- b. Somewhat representative of the average in the target group. \* (non-random sampling)
- c. Selected group of users/convenience sample.
- d. No description of the derivation of the included subjects.

2. Sample size:

- a. Justified and satisfactory (including sample size calculation). \*
- b. Not justified.
- c. No information provided

3. Non-respondents:

- a. Proportion of target sample recruited attains pre-specified target or basic summary of non-respondent characteristics in sampling frame recorded. \*
- b. Unsatisfactory recruitment rate, no summary data on non-respondents.
- c. No information provided

4. Ascertainment of the exposure (risk factor):
  - a. Vaccine records/vaccine registry/clinic registers/hospital records only. \*\*
  - b. Parental or personal recall and vaccine/hospital records. \*
  - c. Parental/personal recall only.

**Comparability:** (Maximum 2 stars)

1. Comparability of subjects in different outcome groups on the basis of design or analysis.  
Confounding factors controlled.
  - a. Data/ results adjusted for relevant predictors/risk factors/confounders e.g. age, sex, time since vaccination, etc. \*\*
  - b. Data/results not adjusted for all relevant confounders/risk factors/information not provided.

**Outcome:**

1. Assessment of outcome:
  - a. Independent blind assessment using objective validated laboratory methods. \*\*
  - b. Unblinded assessment using objective validated laboratory methods. \*\*
  - c. Used non-standard or non-validated laboratory methods with gold standard. \*
  - d. No description/non-standard laboratory methods used.
  
2. Statistical test:

- a. Statistical test used to analyse the data clearly described, appropriate and measures of association presented including confidence intervals and probability level (p value). \*
- b. Statistical test not appropriate, not described or incomplete.

Cross-sectional Studies:

Very Good Studies: 9-10 points

Good Studies: 7-8 points

Satisfactory Studies: 5-6 points

Unsatisfactory Studies: 0 to 4 points

Supplementary file 4 Quality appraisal: CASP Qualitative Checklist and evaluative criteria

trustworthiness:

TITLE:	yes	No	Can't Tell
AUTOR(S) AND DATE:			
Study No			
Critical Appraisal Skills Programme qualitative checklist			
<p>1. Was there a clear statement of the aims of the research?</p> <p>HINT: Consider</p> <ul style="list-style-type: none"> <li>• what was the goal of the research</li> <li>• why it was thought important</li> <li>• its relevance</li> </ul>			
<p>2. Is a qualitative methodology appropriate?</p> <p>HINT: Consider</p> <ul style="list-style-type: none"> <li>• If the research seeks to interpret or illuminate the actions and/or subjective experiences of research participants</li> <li>• Is qualitative research the right methodology for addressing the research goal</li> </ul>			
<p>3. Was the research design appropriate to address the aims of the research?</p> <p>HINT: Consider</p>			

<ul style="list-style-type: none"> <li>• if the researcher has justified their research design (e.g. have they discussed how they decided which method to use)</li> </ul>			
<p>4. Was the recruitment strategy appropriate to the aims of the research?</p> <p>HINT: Consider</p> <ul style="list-style-type: none"> <li>• If the researcher has explained how the participants were selected</li> <li>• If they explained why the participants they selected were the most appropriate to provide access to the type of knowledge sought by the study</li> <li>• If there are any discussions around recruitment (e.g. why some people chose not to take part)</li> </ul>			
<p>5. Was the data collected in a way that addressed the research issue?</p> <p>HINT: Consider</p> <ul style="list-style-type: none"> <li>• If the setting for the data collection was justified</li> <li>• If it is clear how data were collected (e.g. focus group, semi-structured interview etc.)</li> <li>• If the researcher has justified the methods chosen</li> <li>• If the researcher has made the methods explicit (e.g. for interview method, is there an indication of how interviews are conducted, or did they use a topic guide)</li> <li>• If methods were modified during the study. If so, has the researcher explained how and why</li> </ul>			

<ul style="list-style-type: none"> <li>• If the form of data is clear (e.g. tape recordings, video material, notes etc.)</li> <li>• If the researcher has discussed saturation of data.</li> </ul>			
<p>6. Has the relationship between researcher and participants been adequately considered?</p> <p>HINT: Consider</p> <ul style="list-style-type: none"> <li>• If the researcher critically examined their own role, potential bias and influence during (a) formulation of the research questions (b) data collection, including sample recruitment and choice of location</li> <li>• How the researcher responded to events during the study and whether they considered the implications of any changes in the research design</li> </ul>			
<p>7. Have ethical issues been taken into consideration?</p> <p>HINT: Consider</p> <ul style="list-style-type: none"> <li>• If there are sufficient details of how the research was explained to participants for the reader to assess whether ethical standards were maintained</li> <li>• If the researcher has discussed issues raised by the study (e.g. issues around informed consent or confidentiality or how they have handled the effects of the study on the participants during and after the study)</li> </ul>			

<ul style="list-style-type: none"> <li>• If approval has been sought from the ethics committee</li> </ul>			
<p>8. Was the data analysis sufficiently rigorous?</p> <p>HINT: Consider</p> <ul style="list-style-type: none"> <li>• If there is an in-depth description of the analysis process</li> <li>• If thematic analysis is used. If so, is it clear how the categories/themes were derived from the data</li> <li>• Whether the researcher explains how the data presented were selected from the original sample to demonstrate the analysis process</li> <li>• If sufficient data are presented to support the findings</li> <li>• To what extent contradictory data are taken into account</li> <li>• Whether the researcher critically examined their own role, potential bias and influence during analysis and selection of data for presentation</li> </ul>			
<p>9. Is there a clear statement of findings?</p> <p>HINT: Consider whether</p> <ul style="list-style-type: none"> <li>• If the findings are explicit</li> <li>• If there is adequate discussion of the evidence both for and against the researcher's arguments</li> <li>• If the researcher has discussed the credibility of their findings (e.g. triangulation, respondent validation, more than one analyst)</li> </ul>			

<ul style="list-style-type: none"> <li>• If the findings are discussed in relation to the original research question</li> </ul>			
<p>10. How valuable is the research?</p> <p>HINT: Consider</p> <ul style="list-style-type: none"> <li>• If the researcher discusses the contribution the study makes to existing knowledge or understanding (e.g. do they consider the findings in relation to current practice or policy, or relevant research-based literature</li> <li>• If they identify new areas where research is necessary</li> <li>• If the researchers have discussed whether or how the findings can be transferred to other populations or considered other ways the research may be used</li> </ul>			