**Supplementary Content**

Search Statements

1. Embase

syphilis:de,ab,ti AND (serolog\*:de,ab,ti AND (fail\*:de,ab,ti OR resist\*:de,ab,ti OR response\*:de,ab,ti) OR serofast\*:de,ab,ti OR seroresistance:de,ab,ti)

2. CINAHL

((MH "Syphilis+") OR syphilis) AND ((serolog\* AND (fail\* OR resist\* OR response\*)) OR serofast OR seroresistance)

3. Web of Science

(syphilis AND ((serolog\* AND (fail\* OR resist\* OR response\*)) OR serofast OR seroresistance))

4. BIOSIS

(syphilis AND ((serolog\* AND (fail\* OR resist\* OR response\*)) OR serofast OR seroresistance))

5. PubMed

(Syphilis[mesh] OR syphilis[tw]) AND ((serolog\*[tw] AND (fail\*[tw]OR resist\*[tw] OR response\*[tw])) OR serofast[tw] OR seroresistance[tw])

6. Scopus

(syphilis AND ((serolog\* AND (fail\* OR resist\* OR response\*)) OR serofast OR seroresistance))

**Supplementary Table 1. STROBE Assessment**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **STROBE Items** | **Dionne-Odom** | **Fiumara** | **Ghanem 2007** | **Ghanem 2008** | **Goeman** | **Knaute** | **Li** | **Long** | **Malone** | **Rieder** | **Rolfs** | **Romanow-ski** | **Sena** | **Tong** | **Manavi** | **Yang** | **Jinno** | **Tsai** | **Tittes** | **Wu** |
| Indicate the study’s design with a commonly used term in the title or abstract | R | NR | R | R | R | R | NR | R | R | NR | R | NR | R | R | R | R | R | R | R | NR |
| Provide in the abstract an informative and balanced summary of what was done and what was found | R | R | R | R | R | R | NA | R | R | R | R | R | R | R | R | R | R | R | R | R |
| Explain the scientific background and rationale for the investigation being reported | R | R | R | R | R | R | R | R | R | R | R | R | R | R | R | R | R | R | R | R |
| State specific objectives, including any pre-specific hypotheses | R | R | R | R | R | R | R | R | R | R | R | R | R | R | R | R | R | R | R | R |
| Present key elements of the study design early in the paper | R | R | R | R | R | R | R | R | R | R | R | R | R | R | R | R | R | R | R | R |
| Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection | R | NR | R | R | R | R | R | R | R | R | R | R | R | R | R | R | R | R | R | R |
| Give the eligibility criteria, and the sources and methods for selection of participants | R | R | R | R | R | R | R | R | R | R | R | R | R | R | R | R | R | R | R | R |
| For matched studies, give matching criteria and number of exposed and unexposed | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable | R | NR | R | R | R | R | R | NR | R | R | R | R | R | R | R | R | R | R | R | R |
| For each variable of interest, give sources of data and details of methods of assessment (measurement). Describe comparability of assessment methods if there is more than one group | R | R | R | R | R | R | R | R | R | R | R | R | R | R | R | R | R | R | R | R |
| Describe any efforts to address potential sources of bias | R | NR | R | R | R | R | NR | NR | NR | R | R | R | R | R | NR | R | R | R | R | NR |
| Explain how the study size was arrived at | R | R | R | R | R | R | R | R | R | R | R | R | R | R | R | R | R | R | R | R |
| Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen and why | R | R | R | R | R | R | R | R | R | R | R | R | R | R | R | R | R | R | R | R |
| Describe all statistical methods, including those used to control for confounding | R | NR | R | R | R | R | R | NR | NR | R | R | R | R | R | R | R | R | R | R | R |
| Describe any methods used to examine subgroups and interactions | R | NR | R | R | R | R | R | NR | R | R | R | R | R | R | R | R | R | R | R | R |
| Explain how missing data were addressed | R | NR | NR | NR | R | R | NR | NR | NR | R | R | R | NR | NR | NR | R | R | R | R | NR |
| If applicable, describe analytical methods taking account of sampling strategy | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Describe any sensitivity analyses | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Report numbers of individuals at each stage of study – e.g., numbers potentially eligible, confirmed eligible, included, followed up, and analyzed | R | R | R | R | R | R | NR | NR | R | R | R | R | R | R | R | R | R | R | R | NR |
| Give reasons for non-participation at each stage | R | R | R | R | R | R | NR | NR | R | R | NR | R | R | R | R | R | R | R | R | NR |
| Consider use of a flow diagram | R | NR | NR | NR | NR | NR | NR | NR | NR | R | NR | NR | R | R | NR | R | NR | NR | R | NR |
| Give characteristics of study participant (e.g., demographic, clinical, social) and information on exposures and potential confounders | R | R | R | R | R | R | R | NR | R | R | R | R | R | R | R | R | R | R | R | R |
| Indicate number of participants with missing data for each variable of interest | R | R | R | R | R | R | NR | R | R | R | NR | R | R | R | R | R | R | R | R | NR |
| Report numbers of outcome events or summary measures | R | R | R | R | R | R | R | R | R | R | R | R | R | R | R | R | R | R | R | R |
| Give unadjusted estimates and, if applicable, confounder-adjusted estimates and their precision (eg 95% CI). Make clear which confounders were adjusted for and why they were included | R | NR | R | R | R | R | NR | R | R | R | R | R | R | R | R | R | R | R | R | R |
| Report category boundaries when continuous variables were categorized | NR | R | R | R | R | R | R | R | R | R | R | R | R | R | R | R | R | R | R | R |
| If relevant, consider translating estimates of relative risks into absolute risks for a meaningful time period | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Report other analyses done – eg, analyses of subgroups and interactions, and sensitivity analyses | R | NR | R | R | R | R | R | R | R | R | R | R | R | R | R | R | R | R | R | R |
| Summarize key results with reference to study objectives | R | R | R | R | R | R | NR | R | R | R | R | R | R | R | R | R | R | R | R | R |
| Discuss limitations of the study, taking into account sources of potential bias or imprecision. Discuss both direction and magnitude of any potential bias | R | R | R | R | NR | R | NR | R | NR | R | R | NR | R | R | R | R | R | R | R | R |
| Give a cautious overall interpretation of results considering objectives, limitations, multiplicity of analyses, results from similar studies, and other relevant evidence | R | R | R | R | R | R | NR | R | R | R | R | R | R | R | R | R | R | R | R | R |
| Discuss the generalizability (external validity) of the study results | R | R | R | R | R | R | NR | NR | R | R | R | R | R | R | R | R | R | R | R | R |
| Give the source of the funding and the role of the funders for the present study and, if applicable, for the original study on which the present article is based. | R | NR | R | R | R | NR | NR | R | R | R | NR | R | R | R | NR | R | NR | NR | R | R |
| Summary of items 1-33 | 28/29 | 18/  29 | 27/  29 | 27  /29 | 27/  29 | 27/  29 | 15  /28 | 19/  29 | 24/  29 | 28/  29 | 25/  29 | 27/  29 | 28/  29 | 28/  29 | 25/  29 | 29/  29 | 27  /29 | 27/  29 | 29/  29 | 22/  29 |