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INPLASY

# A Prognostic Correlation of Oral Manifestations of HIV and CD4 Count: A Protocol for Systematic Review

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**ADMINISTRATIVE INFORMATION**

**Support -** No external funding received.

**Review Stage at time of this submission -** Preliminary searches.

**Conflicts of interest -** None declared.

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**Amendments -** This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 6 August 2025 and was last updated on 6 August 2025.

## INTRODUCTION

**Review question / Objective** This systematic review aims to correlate CD4 count with oral manifestations of HIV in seropositive patients.

**Condition being studied** HIV is a fatal infection, which compromises the body's immune system and leaves the victim vulnerable to life-threatening opportunistic infections, neurologic disorders, or unusual malignancies. The key manifestation of HIV infection is a severe immunodeficiency state, which is principally caused by diminished CD4 T-lymphocytes. As the CD4 count declines, some characteristic oral manifestations are seen in the oral cavity. This systematic review will evaluate those lesions as per their CD4 count and escalate the existing classification of oral manifestations of HIV.

## METHODS

**Search strategy** (("oral disorders"[Text Word] OR ("linear gingival erythema"[Text Word] OR "Oral diseases"[Text Word] OR "oral lesions"[Text Word]) OR ("Oral Manifestations"[MeSH Terms] OR "candidiasis, oral"[MeSH Terms] OR "Mouth Diseases"[MeSH Terms] OR "leukoplakia, hairy"[MeSH Terms])) AND (("CD4 count"[Text Word] OR "Viral Load"[MeSH Terms] OR "CD4 Lymphocyte Count"[MeSH Terms]) AND ("HIV infection"[Text Word] OR "HIV"[Text Word] OR "Human immunodeficiency virus"[Text Word] OR "HIV"[MeSH Terms]))) AND (english[Filter]).

**Participant or population** HIV-seropositive patients of either gender, irrespective of age, race, and ethnicity. With no other condition associated with reducing the CD4 count, such as tuberculosis, patients on immunosuppressants, or organ transplantation.

**Intervention** Exposure: HIV.

**Comparator** Nil.

**Study designs to be included** Observational studies such as cross-sectional studies, case control studies and cohort studies.

**Eligibility criteria** Inclusion criteria: English literature and observational studies, studies with global evidence.
Exclusion criteria: animal studies, case reports, narrative reviews, clinical trials, and letters to the editor.

**Information sources** Searches will be conducted from database inception to 2025 in Medline (via PUBMED), EMBASE, COCHRANE, and WEB OF SCIENCE. Additionally, the first 10 pages of Google Scholar and the references of the included studies will be searched to identify any potential records.

**Main outcome(s)** 1. Oral manifestation of HIV (such as oral candidiasis, oral hairy leukoplakia, linear gingival erythema, etc.). 2. CD4 count.

**Data management** Two reviewers will independently screen the title/abstract and full-text, and any dispute will be resolved with the third reviewer, along with the data analyst for methodology. The articles will be screened in RAYYAN software for eligibility, followed by REVMAN for quality assessment. The data will be extracted using custom-made data extraction form, which will be piloted prior to its use. The data extraction will be carried by two reviewers independently. Any disagreements will be resolved until consensus and if need be, a third reviewer will make a final decision.

**Quality assessment / Risk of bias analysis** This systematic review will utilize prognostic assessment for risk of bias assessment given by Cochrane, the ROBIN-E tool. Two independent reviewers will assess the risk of bias of included studies, and any discrepancies will be resolved by the third and senior reviewer.

**Strategy of data synthesis** If quantitative data extracted has consistent outcome measures, then further quantitative analysis such as heterogeneity will be assessed, and further assessments will be conducted.

**Subgroup analysis** Subgroup analysis will be conducted under the infective, reactive, neoplastic, and miscellaneous.

**Sensitivity analysis** Sensitivity analysis will be conducted based on quantitative data.

**Language restriction** English language.

**Country(ies) involved** India.

**Keywords** HIV, CD4 lymphocytes, Acquired immunodeficiency syndrome, Mucocutaneous manifestations, Oral lesions.

**Dissemination plans** This systematic review will be published, presenting the results obtained, with a focus on the outcomes and updates to the existing classification.

**Contributions of each author**

Author 1 - Manisha Khorate - The author is the first reviewer and has contributed to conceiving the review, as well as selecting and evaluating the data incorporated in this study. And also contributed to the preparation and editing of the manuscript.
Email: khoratemanisha@gmail.com
Author 2 - Medhana Mangaonker - The author is the second reviewer and contributed to the drafting of the manuscript, as well as the collection of data, evaluation of studies, and selection of the risk of bias assessment. And also contributed to the preparation and editing of the manuscript.
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Author 3 - Shradha Parsekar - The author is a third reviewer and contributed to the development of the selection criteria along with methodological expertise. And also contributed to the preparation and editing of the manuscript.
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Author 4 - Miyola Fernandes - The author is a statistician and has also provided feedback and actively participated in the risk of bias assessment strategy and contributed to the preparation and editing of the manuscript.
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