

Use of AI in Identification of STIs and Anogenital Dermatoses

A Systematic Review and Meta-Analysis

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Background

- AI performs strongly across dermatology, yet its value for sexually transmitted infections remains poorly defined.
- We evaluated how well AI algorithms detect STIs and anogenital dermatoses from clinical images

Methods

- Six databases were searched for articles published between Jan-2010 and Apr-2024, with three concepts: AI, diagnosis, and STIs.
- Modified QUADAS-2 tool and CLEAR Derm checklist were used for quality assessment.

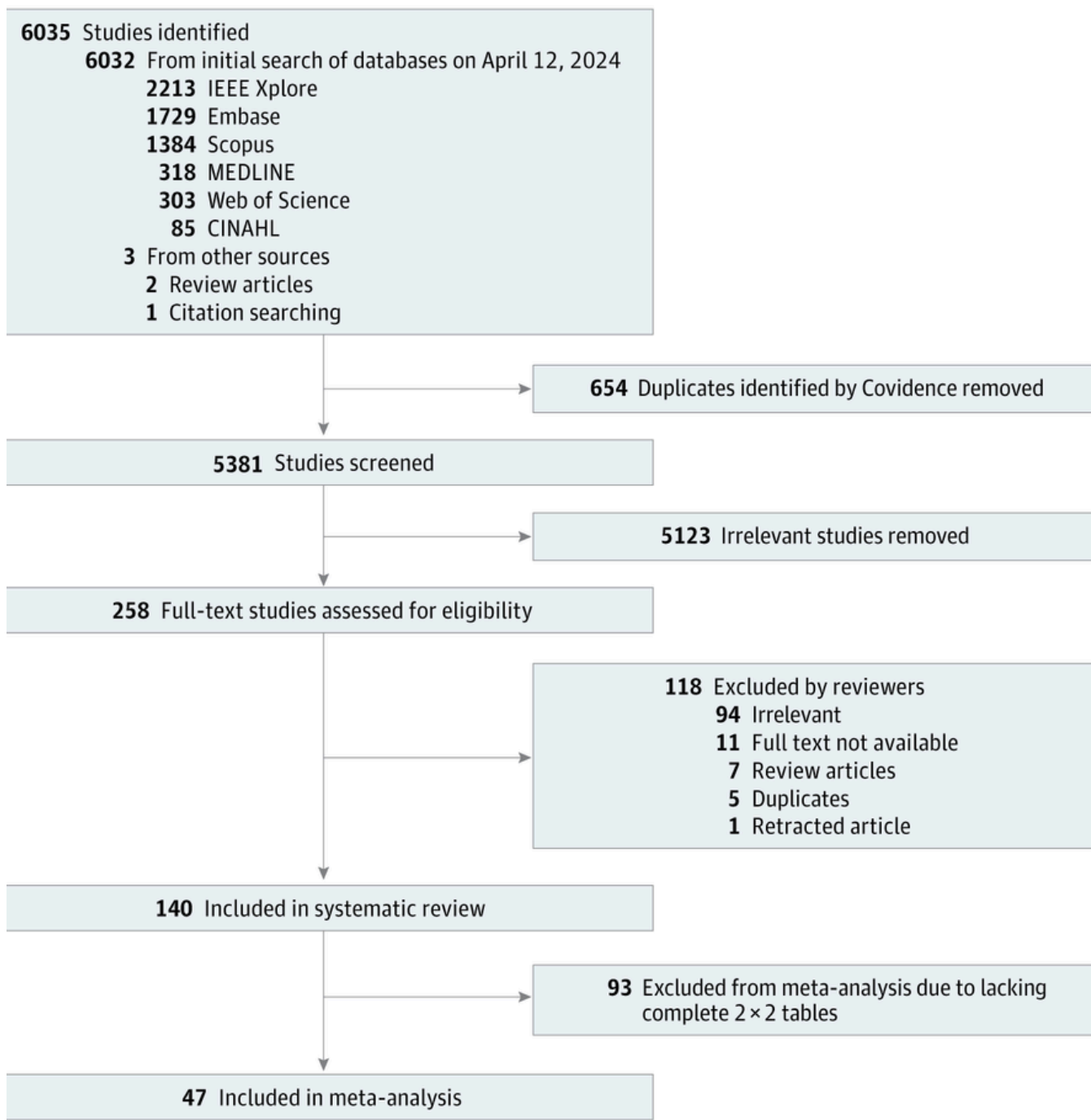
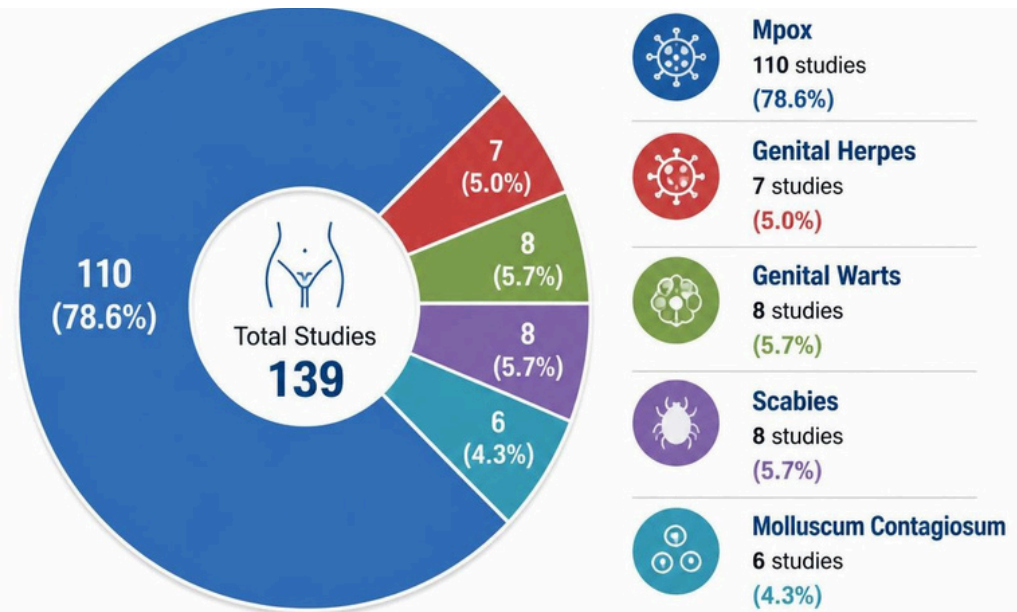


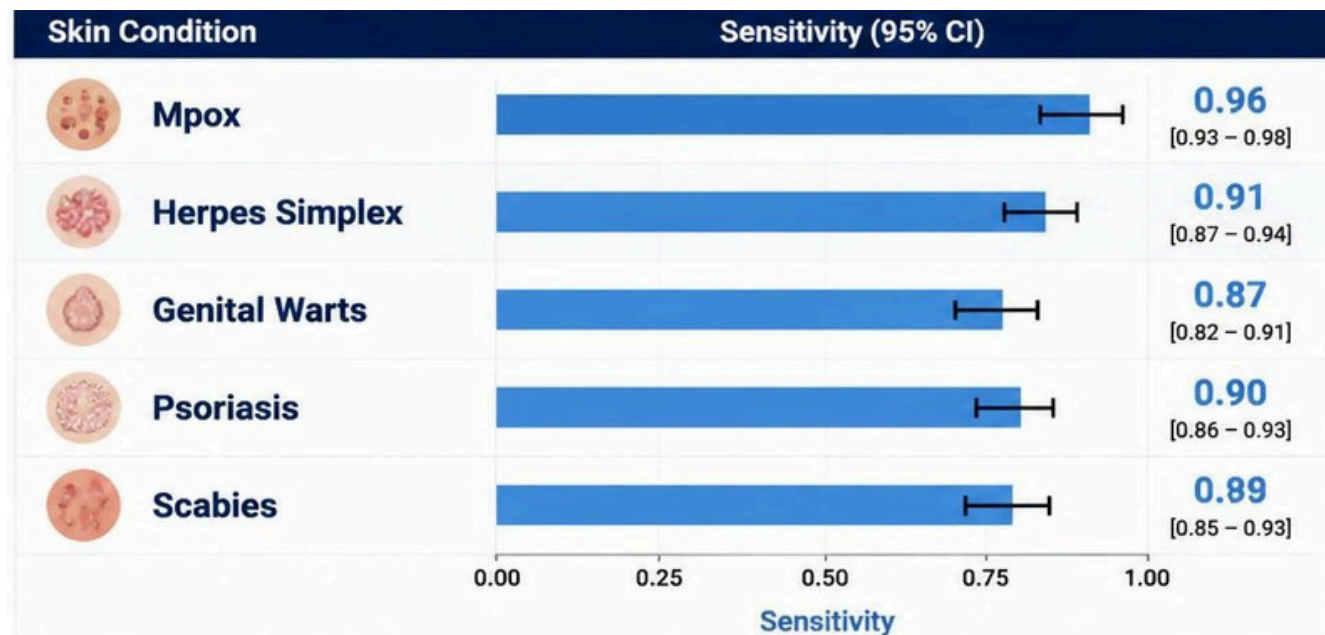
Fig 1. PRISMA Flow Diagram of the Study Selection Process

Findings

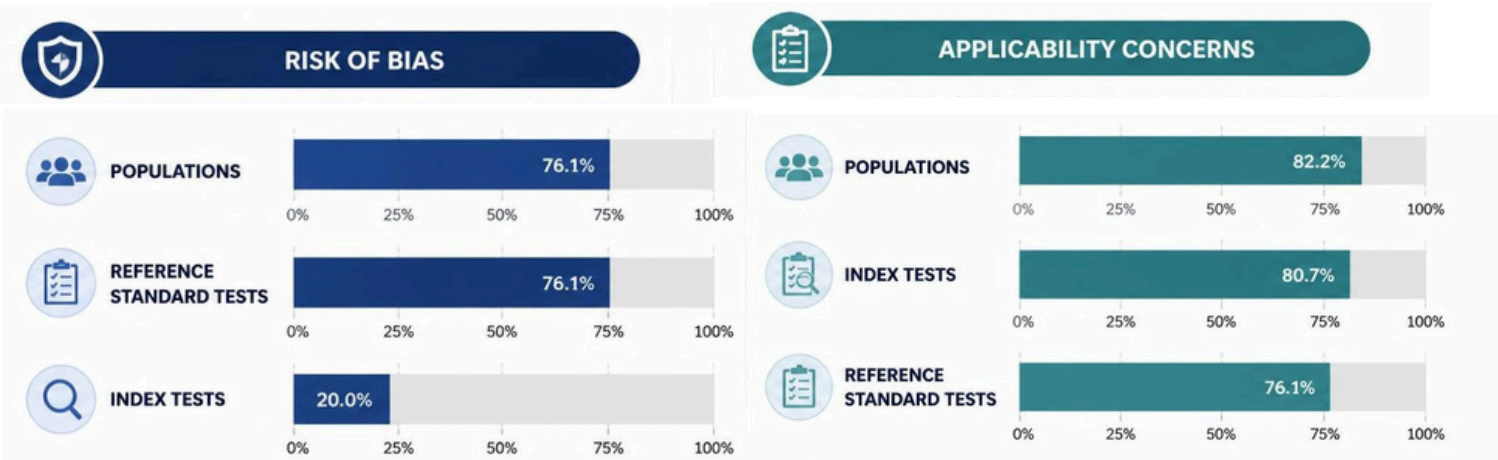
- Most studies focused on mpox, with other conditions receiving less attention.



- Meta-analyses showed high performance of AI for mpox, genital herpes, genital warts, psoriasis and scabies.



- We identified a high level of bias and a high concern for applicability in most studies.
- Only 1 study was at the proof-of-concept stage, and all models from other studies were not publicly available.



Key Points

Question: How accurately can AI identify sexually transmitted infections and anogenital dermatoses from clinical images?

Findings: Across 140 studies, mpox dominated the literature while clinically important STIs such as syphilis were largely neglected; AI performed well for mpox, herpes simplex, genital warts, psoriasis, and scabies, though high risk of bias and absent clinical validation temper these results.

Meaning: AI is promising for image-based diagnosis of STIs and anogenital conditions, but gaps in data quality, external validation, and coverage of clinically relevant infections must close before these tools reach practice.