



The Prevalence of Pulmonary Hypertension Associated with HIV in Sub-Saharan Africa: A Significant Burden

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BACKGROUND

HIV is among the leading causes of death in sub-Saharan Africa (SSA)

HIV can lead to pulmonary hypertension (PH), and PH-HIV is associated with poor prognosis and increased healthcare utilization and costs

Despite this clinical relevance, the prevalence of PH-HIV in SSA is not known

METHODS

We conducted a systematic review following **PRISMA** guidelines searching **PubMed**, **Embase**, **Web of Science**, and **LILACS** for studies published until 09/2023 on people living with **HIV in SSA** that **underwent echocardiography (ECHO)** or **right heart catheterization (RHC)**

We **excluded studies without a clear PH definition** and performed a meta-analysis using a random-effects model for PH-HIV prevalence

We then extrapolated our data to the overall HIV population in SSA, while accounting for referral patterns in PH assessments

RESULTS

We **included N=19 studies** published between 2005 and 2023, **compromising N=4,488 patients** (Table 1)

The **estimated mean PH prevalence was 5.3%** (95%CI: 1.8–10.4%) **using sPAP threshold of 35 mmHg** (Figure 1)

There was a **significant difference** in estimated PH-HIV prevalence between groups who received **echocardiography for cardiovascular symptoms** (16.6% [95% CI 8.6–26.6%]) and those receiving **asymptomatic screening** (2.3% [95% CI 0.7–4.6%]) (Figures 2 and 3).

Based on all-age prevalence of HIV in SSA of 26 million cases (95% CI 23.6–28.8), and weighting our calculations by the proportion of people with HIV who were referred for ECHO either due to cardiopulmonary symptoms or for asymptomatic screening, **we estimate the prevalence of PH-HIV in SSA to be 1.2 million cases** (95% CI 0.5–2.4) (Figure 4)

RESULTS

Patient Age Mean (SD)	33.3 (14.6)
Patient Sex Male (%) Female (%)	41.9 58.1
Geographical Region West (%) East (%) Southern (%)	11 47 42
Setting Multi-center (%) Single-center (%)	4.2 95.8
Risk of Bias High (%) Intermediate (%) Low (%)	
Income Level Low (%) Lower-middle (%) Upper-middle (%)	31.6 42.1 26.3

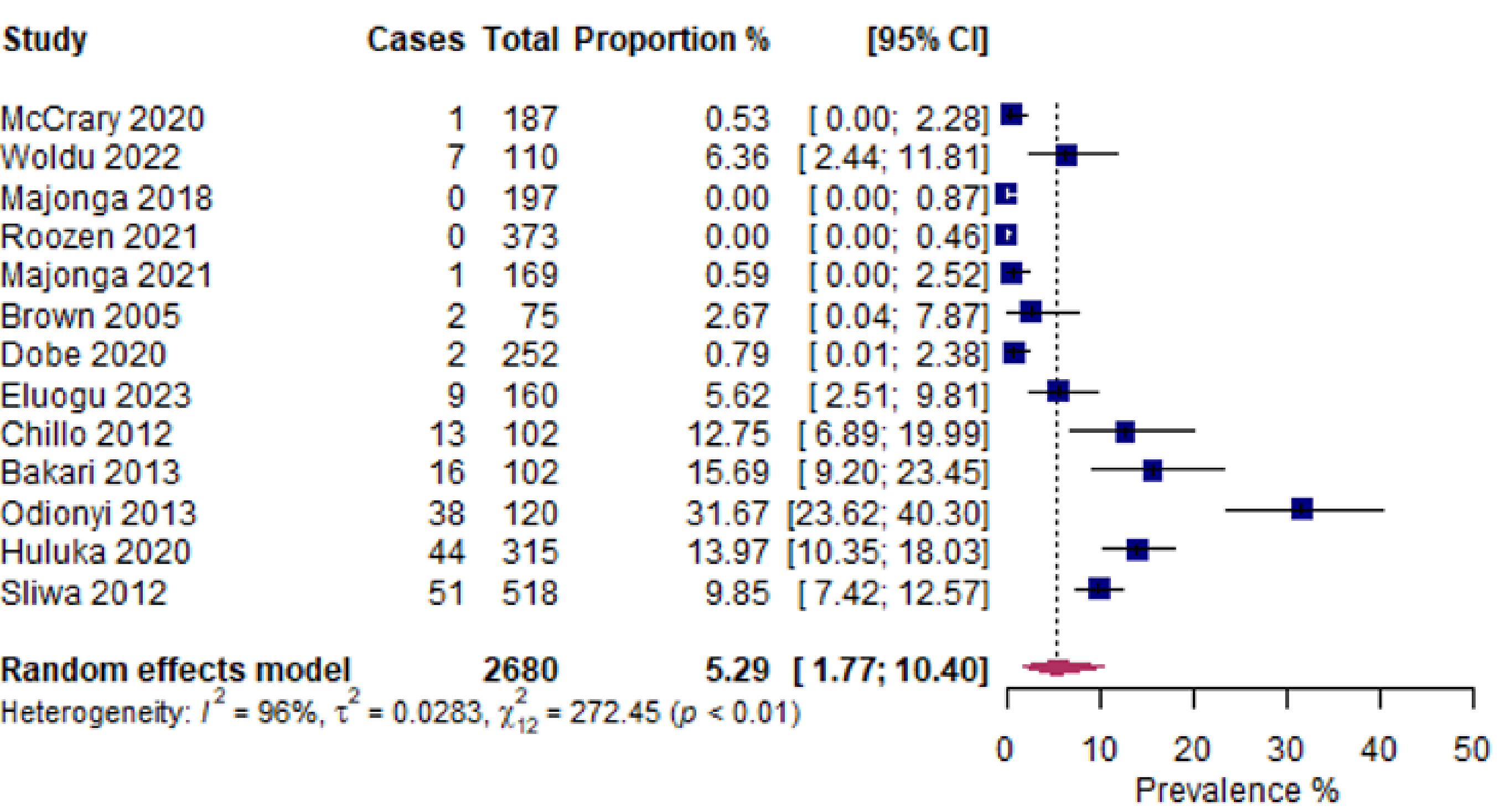


Table 1: Study Demographics

Figure 1. PH-HIV Prevalence (sPAP > 35 mmHg)

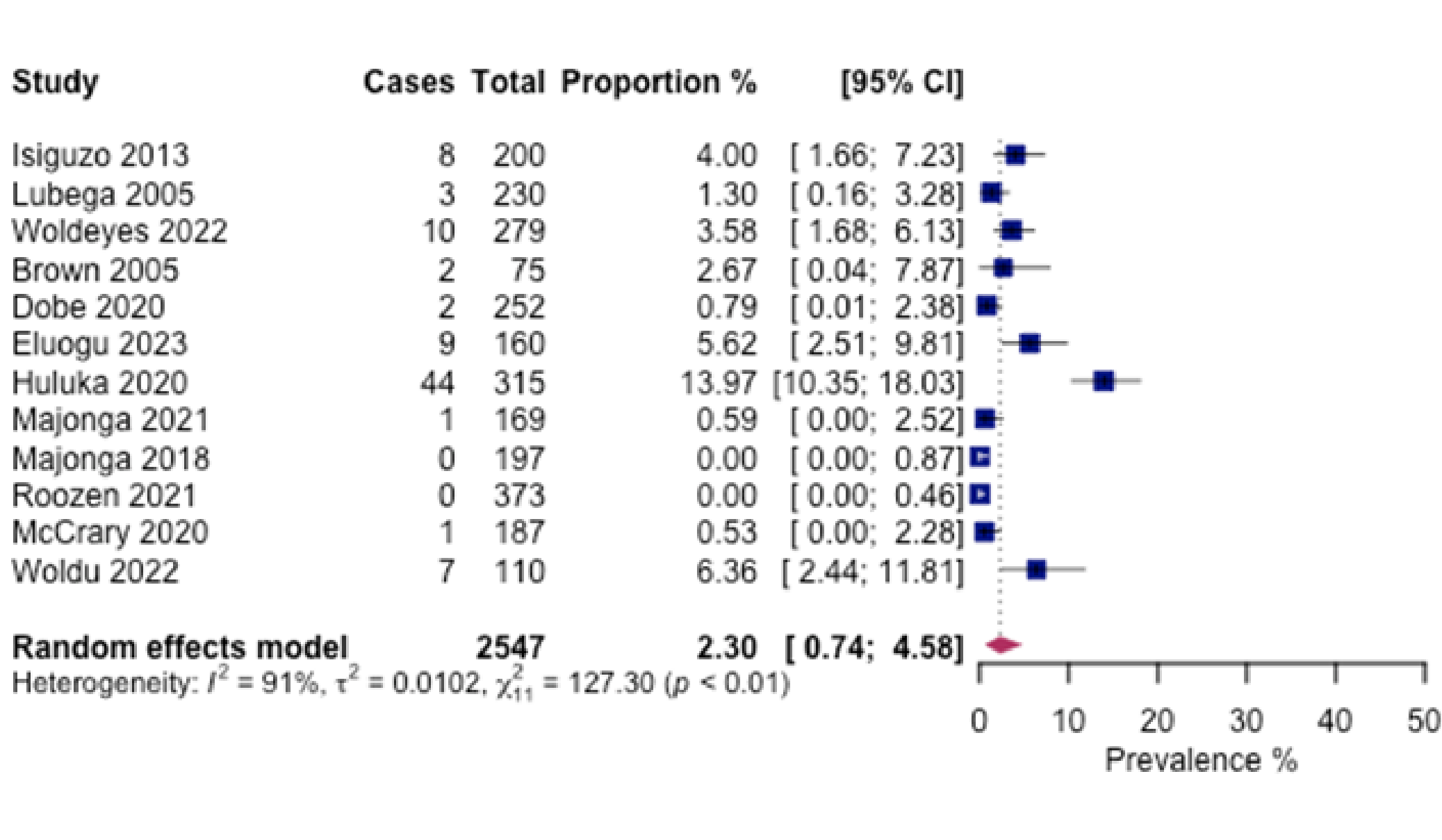


Figure 2. PH-HIV Received Asymptomatic Screening Echo

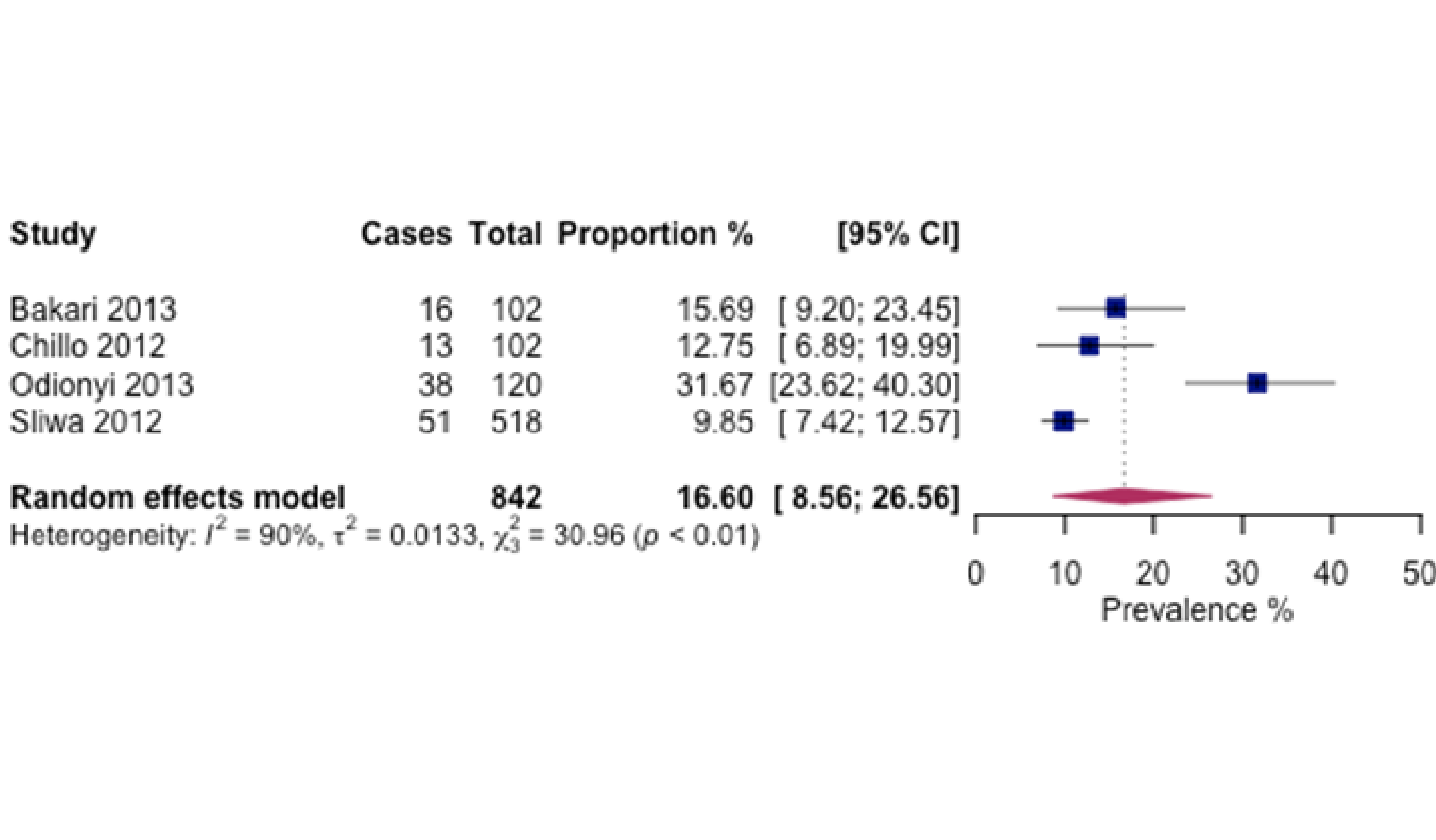


Figure 3. PH-HIV Referred for Symptoms

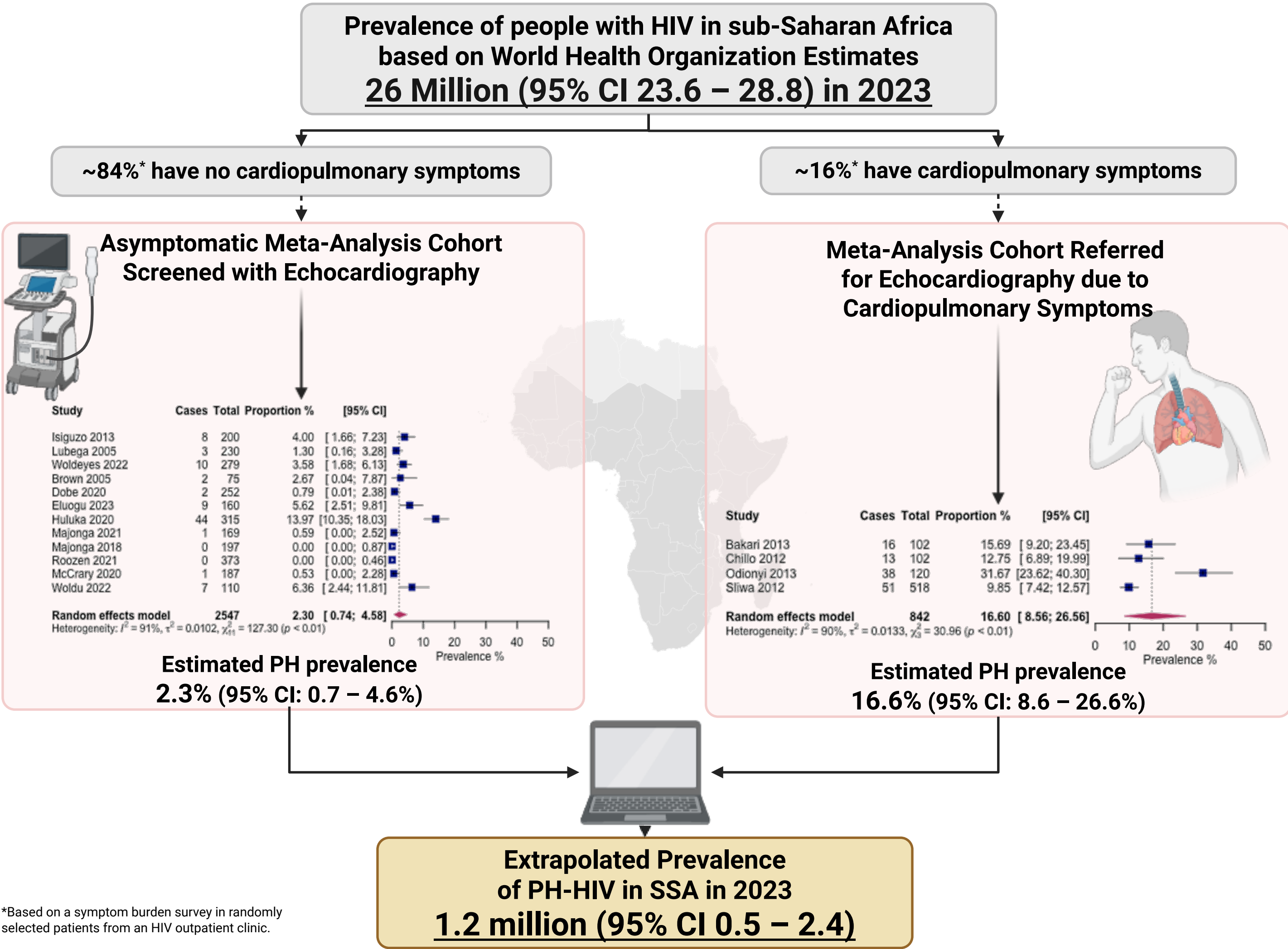


Figure 4. Extrapolated Prevalence of PH-HIV in SSA

CONCLUSIONS

Based on echocardiographic data using a sPAP threshold of 35 mmHg, PH-HIV affected 1.2 million people (95%CI 0.5 – 2.4) in SSA in 2023

FUTURE DIRECTIONS

The contribution of PH-HIV to the mortality burden of people living with HIV in SSA needs clarification

Public health measures that focus on systematic screening for PH-HIV are needed, as is research to find suitable therapeutic targets to mitigate the burden of PH-HIV in SSA

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