

HEPATITIS B VIRUS OUTBREAK INVESTIGATION SOLWEZI CORRECTIONAL FACILITY, SOLWEZI DISTRICT, NORTH-WESTERN PROVINCE, ZAMBIA, JUNE 2026

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ABSTRACT

Background: Hepatitis B virus (HBV) infection disproportionately affects correctional populations in sub-Saharan Africa, where overcrowding, communal living, and limited access to screening and vaccination increase transmission risk. In Zambia, routine HBV screening and vaccination are not implemented in correctional facilities. This study describes the implementation of a routine HBV screening and vaccination programme and its early outcomes at Solwezi Correctional Facility.

Methods: Between 5–8 June 2026, an unmatched case-control investigation (1:3 ratio) was conducted following routine HBV screening. HBsAg rapid testing was offered to 391 inmates. All 27 HBsAg-positive individuals were enrolled as cases, together with 89 randomly selected HBsAg-negative controls (116 participants). Structured interviews collected demographic, behavioural, medical, and environmental data using Kobo Toolbox. All HBsAg-positive specimens underwent confirmatory testing with anti-HBc total and anti-HBc IgM assays.

Results: Of 391 inmates screened, 27 (6.9%) were HBsAg-positive, including two previously identified during a November 2025 cabotegravir pre-screening. All positive specimens were anti-HBc total reactive; six (22.2%) had anti-HBc IgM, indicating acute infection, while 21 (77.8%) had chronic infection. All cases were male, with the highest prevalence among those aged 25–34 years (59.3%) and housed in Cell Block 2. Five of six acute cases had been incarcerated for less than six months, suggesting infection was acquired before incarceration. Most participants were asymptomatic (68.1%), unvaccinated (98.3%), and had never previously been tested (85.3%). Sharing bathing facilities was independently associated with HBV infection (OR 3.55; $p=0.042$), while sharps sharing, piercing, and STI history were more common among cases but not statistically significant.

Conclusion: HBV infection was predominantly chronic, with most infections likely acquired before incarceration. Routine HBV screening at prison entry, catch-up vaccination, and strengthened infection prevention measures are needed to reduce HBV transmission in Zambian correctional facilities.