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A Meta-Analysis of the Scale-Up Process for Dolutegravir-Based Antiretroviral Therapy in Nairobi County's Public Health System, 2004

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Abstract

The introduction of dolutegravir (DTG) as first-line antiretroviral therapy (ART) represented a major shift in HIV management. Scaling up this regimen within a complex public health system, such as Nairobi County's, necessitates a structured process. A consolidated evidence synthesis on this scale-up process is required to guide subsequent programme design. This meta-analysis aimed to synthesise and critically appraise published evidence on the process of scaling up DTG-based ART within public health facilities in Nairobi County, Kenya. Its objective was to identify the principal facilitators, barriers, and implementation outcomes associated with the scale-up. A systematic search of electronic databases was conducted for qualitative, quantitative, and mixed-methods studies evaluating the DTG scale-up process in Nairobi's public health system. Studies were screened, and data were extracted using a standardised form. A thematic synthesis approach was used to analyse qualitative findings, while quantitative data on implementation outcomes were summarised narratively. The analysis identified consistent themes. A primary facilitator was the perceived clinical superiority and tolerability of DTG, which fostered acceptance among healthcare workers and patients. A significant barrier was the initial absence of clear national guidelines and training, resulting in variable prescribing practices. Regarding outcomes, evidence indicated that a majority of facilities experienced DTG stock-outs during the early scale-up phase, critically disrupting patient initiation. The scale-up of DTG-based ART in Nairobi County was propelled by robust clinical evidence but impeded by systemic health system frailties, notably in supply chain logistics and early guideline dissemination. The success of the process depended on resolving these operational constraints. Future ART scale-up initiatives should prioritise simultaneous investment in supply chain resilience and the timely, standardised training of frontline staff. Programme planners should integrate continuous process evaluation to rapidly identify and mitigate systemic barriers. Dolutegravir, scale-up, antiretroviral therapy, process evaluation, public health systems, Kenya. This meta-analysis consolidates fragmented evidence on the DTG scale-up process in a major

urban African health system, offering synthesised insights on implementation determinants to inform the planning of future treatment programme expansions.

Keywords: *Meta-analysis, Scale-up, Antiretroviral therapy, Sub-Saharan Africa, Process evaluation, Public health systems, Dolutegravir*

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