QUALITY IMPROVEMENT INTERVENTION TO INCREASE ADHERENCE TO PRESCRIPTION POLICY AT HIV TREATMENT CLINICS

CLUSTER-RANDOMIZED DIFFERENCE-IN-DIFFERENCE STUDY IN LUSAKA DISTRICT, ZAMBIA

INTRODUCTION

In urban areas such as Zambia's capital city, Lusaka, an expanding HIV treatment program can result in crowded facilities with long patient wait times, which can be deterrents for patients to attend their clinical appointments and pick up their medications. With demand for HIV treatment becoming greater than the available capacity of the health infrastructure, the Ministry of Health (MOH) and other stakeholders are concerned about the effect that congestion within facilities may have on patient retention in antiretroviral therapy (ART) care, particularly in urban areas where there is a high concentration of patients. Therefore, in 2014, Zambia's MOH and Ministry of Community Development, Mother and Child Health (MCDMCH) requested an evaluation to generate evidence on ways to address facility congestion, such as the provision of three-month refills to stable patients. As of 2013, Zambia's national ART guidelines recommended that stable ART patients be provided with prescriptions for up to three-months at a time,[1] but there was great variation in the degree to which this policy was being implemented in health facilities. The evaluation aimed to 1) assess barriers to three-month refills provision for stable patients, 2) design an intervention to overcome identified barriers, and 3) evaluate the impact of the intervention on the proportion of stable ART patients receiving three-month antiretroviral drug refills.

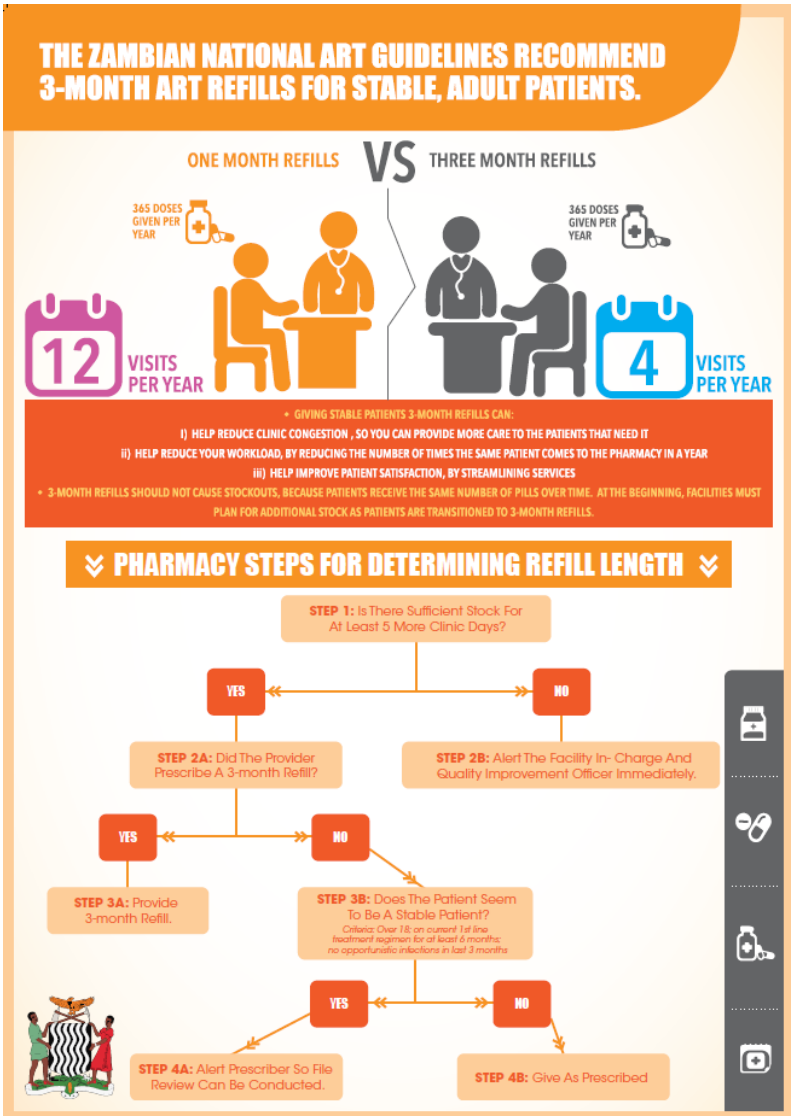
EVALUATION DESIGN AND INTERVENTION TESTED

This evaluation began with an exploratory assessment to understand the key barriers to three-month refills and the feasibility of increasing the proportion of stable patients receiving them. The assessment used a wide range of data sources, including patient records, stock data, patient and facility surveys, and health worker interviews. An intervention was developed based on this assessment, with input from health care workers and other key stakeholders. The intervention was tested using a cluster-randomized, difference-in-difference (DID) design that included two arms:

- *Basic improvements (control):* Received support in ordering using a stock forecasting tool, as well as a policy memo highlighting the MOH policy on three-month refills.
- *Comprehensive improvements (intervention):* Received the basic improvement components, as well as a pharmacist job aide (see image at right) and a designated Quality Improvement (QI) Officer who was tasked with the administration of an intervention launch readiness checklist and weekly checklists as well as troubleshooting problems and barriers to three-month refills as they arose. The QI Officers were coordinated and supported by a district-level Intervention Manager.

In total, 16 facilities in Lusaka District were included and randomized such that 8 were in each study arm. The primary outcome of the study was the mean difference in the change over time of the proportion of stable patients receiving three-month refills in the intervention facilities compared to control facilities without the targeted QI activities. Additional outcomes related to wait time, stock levels and patient and provider experiences were also examined. Data was obtained from the SmartCare system of patient records, observations of patient wait times, and stock bin cards. The baseline period was October to December 2014; the intervention was launched in January 2015;and the endline period was February to April 2015.

JOB AIDE POSTER DEVELOPED FOR USE BY PHARMACISTS IN DECONGESTION INTERVENTION



RESULTS

The mean change in the proportion of three-month refills among control facilities from baseline to endline was 10% (from 38% to 48%), compared to a 25% mean change (an increase from 44% to 69%) among intervention facilities. This represents a significant 15% mean difference (95% CI: 2%-29%; P=0.03) in the change in proportion of patients receiving three-month refills as shown in **Figure 1**. Additionally, the results suggested that the increase in three-month refills may have led to a reduction in clinic congestion. While not significant, control facilities had an average of 15 more visits per day in the endline than in the baseline, while intervention facilities had 20 fewer visits per day in endline than in baseline, a mean difference of 35 fewer visits per day (P=0.1) (**Figure 2**). The change in the mean facility total wait time for intervention facilities dropped 19 minutes between baseline and endline when compared to control facilities (95% CI: -10.2- 48.5; P=0.2). With respect to barriers to improving prescription of three-month refills, exploratory analysis of the stock data suggested that stockouts did not limit the facilities' ability to improve their three-month refill practices.

DISCUSSION

The results of this trial show that, in ART facilities within urban Lusaka, district- and facility-level quality improvement activities can increase adherence to the three-month prescription refill policy outlined in the national HIV treatment guidelines. We would expect on-going savings in per patient costs if the intervention were scaled up to additional sites, primarily due to increased workforce efficiency. Direct cost savings would likely accrue due to a reduction in health care worker time as stable patients transition from twelve to four prescription refill visits each year, and health workers have time available to reinvest within the facility. A more patient-centred service delivery schedule of three-month prescription refills for stable patients is a viable step towards reducing congestion in crowded clinics, improving the patient experience, improving retention and adherence, and ultimately improving clinical outcomes. We encourage the expansion of this sustainable intervention in Zambia's urban clinics.

FOR FURTHER INFORMATION:

McCarthy EA, et al. (2017) Quality improvement intervention to increase adherence to ART prescription policy at HIV treatment clinics in Lusaka, Zambia: A cluster randomized trial. PLoS ONE 12(4): e0175534.

http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0175534

FIGURE 1. DIFFERENCE IN PROPORTION OF STABLE PATIENTS RECEIVING THREE-MONTH REFILLS IN INTERVENTION AND CONTROL FACILITIES

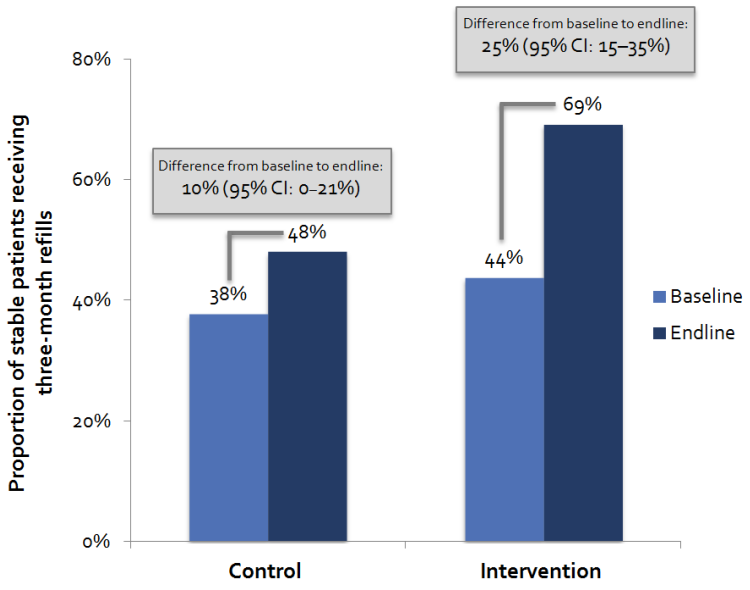
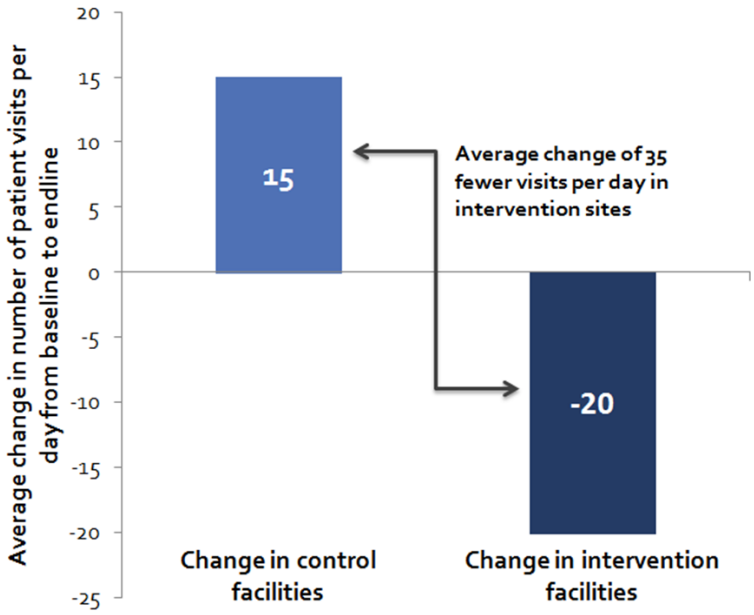


FIGURE 2. CHANGE IN THE AVERAGE NUMBER OF DAILY PATIENT VISITS FROM BASELINE TO ENDLINE AMONG CONTROL AND INTERVENTION ARMS



ABOUT THE 3DE PROGRAM

The Demand-Driven Evaluations for Decisions (3DE) program is a pioneering approach to support ministries active in the health sector with evidence-based decision-making by using rigorous impact evaluations in a demand-driven, rapid and efficient way. It seeks to generate reliable impact evidence that meets the ministries' needs and is used to catalyze implementation of cost effective action.

The Zambian Ministry of Health

The Zambian Ministry of Community Development, Mother and Child Health

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