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## Impact of a community-based medication delivery program for antihypertensive medications on adherence and blood pressure reduction

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**Background:** Elevated blood pressure (BP) is the leading risk of death globally, and its burden continues to rise, disproportionately so in low- and middle-income countries. Non-adherence to antihypertensive medications is a major cause of uncontrolled hypertension, leading to cardiovascular morbidity and mortality. Ensuring consistent medication access and possession is crucial in addressing non-adherence. Community-based medication delivery is a strategy that can lead to improvement in medication possession, medication adherence, and subsequently BP reduction.

**Purpose:** Our program in western Kenya piloted a community medication delivery program for hypertensive patients, aiming to remove structural barriers to medication possession and ensuring consistent access to antihypertensive medications. Here, we reviewed secondary clinical data to evaluate the impact of this program on BP reduction and medication adherence.

**Methods:** We conducted a retrospective analysis using clinical records of hypertensive patients who participated in the medication delivery program. Between September 2019 and March 2020, patients who received care from our community-based chronic disease management program also received anti-hypertensive medications delivered to them at their doorstep. We compared differences in self-reported medication adherence and BP reduction between patients who got medication deliveries versus those who did not. Mixed effect models, controlling for baseline measurements,

age, gender, and health insurance status were used to analyze outcomes of interest.

**Results:** A total of 124 patient records (80.6% female) were reviewed. Baseline systolic blood pressure (SBP) was 155.7 mmHg and baseline self-reported adherence per the Voils DOSE-Nonadherence measure was 2.7, with 1 being perfect adherence and 5 representing poor adherence. 48.4% of patients received at least 1 successful medication delivery. Patients who did not receive any medication deliveries had an SBP increase of 1.5 mmHg relative to baseline, whereas patients who received 1 medication delivery had an SBP reduction of 8 mmHg and patients who received 2 or more medication deliveries had an SBP reduction of 15.2 mmHg (Figure 1). Similarly, change in self-reported medication adherence was poorer in patients who received no medication deliveries (+0.1) versus those who received one medication delivery (-0.5) or 2 or more deliveries (-0.7). Mixed-effect model estimates demonstrated that relative to patients who did not receive any medication deliveries, mean SBP reduction was significantly greater among individuals who did receive medication deliveries (Table 1).

**Conclusions:** A community medication delivery program in western Kenya led to improved medication adherence and systolic blood pressure reduction. This is a promising strategy to improve hypertension outcomes for patients with uncontrolled hypertension by removing structural barriers to medication possession.

Figure 1. Change in systolic blood pressure and self-reported medication adherence

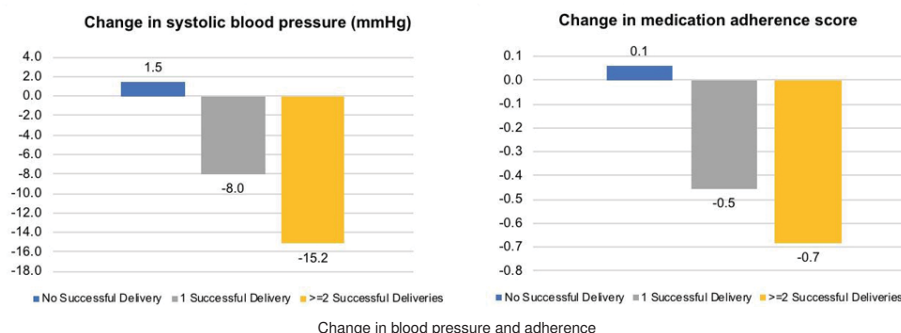


Table 1. Mixed-effect model estimates

	Systolic blood pressure (mmHg)			Self-reported Voils score		
	Estimate	95% CI	p-value	Estimate	95% CI	p-value
1 successful delivery vs. No successful delivery	-14.16	(-25.12, -3.20)	0.01	-1.30	(-2.32, -0.28)	0.01
≥2 successful deliveries vs. No successful delivery	-12.27	(-23.17, -1.37)	0.03	-1.10	(-2.01, -0.19)	0.02

Mixed-effect model estimates