

# Fixed dose combination drugs for secondary prevention of cardiovascular disease among Syrian refugee and Lebanese patients attending MSF clinics in Lebanon

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## Introduction

Cardiovascular disease (CVD) is the leading cause of death and disability globally, including in humanitarian contexts. Fixed-dose combination (FDC) drugs are cost-effective for primary and secondary prevention of CVD. From 2012 until the end of 2020, MSF provided care for CVD patients from Syrian refugee and host populations in primary care clinics in Tripoli, north Lebanon. In this implementation study, we assessed whether FDC use is linked with adherence to CVD medications and treatment simplification in a humanitarian setting.

## Methods

Our prospective, before-and-after cohort study followed CVD patients in MSF clinics in Lebanon during two consecutive six-month periods. Eligible patients, enrolled February-May 2019, were switched to Trinomia® FDC (atorvastatin 20mg, aspirin 100 mg, ramipril 2.5/5/10/mg) after six months' usual care. During the study, the Covid-19 pandemic, an economic crisis, and clinic closures occurred. Descriptive and regression analyses compared key outcomes: medication adherence, non-high density lipoprotein cholesterol (non-HDL-C) levels, and systolic blood pressure (SBP) control, at six and twelve months. We performed intention-to-treat analyses and secondary analyses of non-switchers.

## Ethics

This study was approved by the MSF Ethics Review Board, the LSHTM Research Ethics Committee, and the Lebanese American University's Institutional Review Board.

## Results

Of 521 enrolled patients, 460 (88.3%) were retained at six months and 418 (80.3%) switched to FDC. By month 12, 84% of switched patients remained on FDC (n=351), 8.1% (n=34) discontinued, and 7.9% (n=33) were lost to follow-up. Among the 385 who initially switched and remained in the study at 12 months, total adherence improved by 23% from 63% (95% confidence intervals (CI) 0.58-0.68) at month six to 86% (95% CI 0.82-0.90) at month 12. Mean non-HDL-C levels dropped 0.28 millimoles/litre (mmol/L; 95% CI -0.38 to -0.1; p=0.000) from 2.39 (95% CI 2.26 - 2.51) to 2.11 mmol/L (95% CI 2.00 - 2.22); mean SBP dropped 3.07 mmHg (95% CI -4.76 to -1.38; p= 0004) from 132.7 (95% CI 130.8 - 134.6) to 129.7 mmHg (95% CI 127.9 - 131.5). Among non-switchers, total adherence was lower and improvements in clinical outcomes were less pronounced.

## Conclusion

Implementing a CVD secondary prevention FDC was associated with better adherence and intermediate clinical outcomes in an MSF primary care clinic in Lebanon. Further operational experience is needed to ascertain how best to integrate and sustain CVD FDC's in humanitarian operations. MSF could advocate for their broader use with other humanitarian actors and within public health systems of crisis-affected countries.

## Conflicts of interest

None declared.



Philippa Boule, MBBS(Hons), MPH, DTMH, is the Non-Communicable Diseases Advisor and leader of the Chronic Diseases group in MSF, and leads MSF's international working group on non-communicable diseases. She publishes and lectures on non-communicable diseases in humanitarian settings. She was previously the medical lead responsible for an operational team in MSF Switzerland, overseeing MSF

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