Integration of diabetes care and associated costs: MSF experience in Democratic Republic of Congo and Swaziland

*Éimhín Ansbro[1], Inga Meyer[2], Augustin Wika Kitembo[3], Michel Biringanine[3], Maria Verdecchia[2], Kees Keus[2], Velephi Okello[4], Grazia Caleo[5], Manisha Kumar[3], Marit de Wit-van Lenthe[6], Turid Piening[6], Cyril Ngadjo[7,] David Prieto-Merino[1], Zia Sadique[1], Pablo Perel[1], Bayard Roberts[1], Kiran Jobanputra[5]

[1]London School of Hygiene and Tropical Medicine, London, UK; [2]Médecins Sans Frontières (MSF), Mbabane, Swaziland; [3]MSF, Goma, Democratic Republic of Congo (DRC); [4]Ministry of Health, Swaziland; [5]MSF, London, UK; [6]MSF, Amsterdam, The Netherlands; [7]Ministry of Health, Mweso, DRC
*eimhin.ansbro@lshtm.ac.uk

Introduction
Little is known about the integration of noncommunicable disease (NCD) care in humanitarian settings. MSF has provided outpatient nurse-led diabetes care in Mweso hospital in conflict-affected North Kivu, DRC, and integrated NCD provision within a primary care and HIV service in Matsapha, Swaziland. We evaluated both programmes in order to examine: (i) programme effectiveness; (ii) factors influencing treatment outcomes; (iii) programme costs.

Methods
We carried out retrospective analyses of routine cohort data, including diabetic patients enrolled Jan 2014 - Feb 2017 (Mweso), and NCD patients enrolled Jul 2016 - Jun 2017 (Matsapha). For Mweso, we assessed the relationship between six study periods (related to programmatic changes or heightened insecurity) and visit frequency, or odds of per visit blood pressure (BP<140/90mmHg) and glycaemic (> 4.2 and ≤ 8.3 mmol/L) control. For Matsapha, logistic regression modelling and descriptive analysis examined outcome predictors. Total annual financial and unit costs for each programme were calculated from the provider perspective.

Ethics
The MSF Ethics Review Board (ERB) approved the Mweso study. For Matsapha, the research fulfilled the exemption criteria set by the MSF ERB for a posteriori analyses of routinely collected data; permission was obtained from Sidney Wong, Operational Centre Amsterdam, MSF.

Results
In Mweso, among 243 diabetic patients, glycaemic control was worse in those prescribed insulin (either with or without oral hypoglycemic agents, OHGs) versus OHGs alone. BP and glycaemic control were similar during a period of simplified care when international staff were evacuated (approximately 80% and 60% of visits per month at target, respectively), although control deteriorated on exhaustion of medications. In Matsapha, 895 NCD patients were enrolled; 373 (46.5%) were obese; 154 (17.4%) were HIV positive and 65 (11%) had documented tuberculosis. 608 (60.4%) of hypertensive and 289 (63.3%) of diabetic patients were at target at last visit. Obesity was associated with increased risk of uncontrolled hypertension (OR 1.9, 95%CI 1.1-3.2), as was HIV positivity (OR 1.6, 95%CI 1.0-2.6). Patients knew more about drug treatment than lifestyle recommendations, possibly because specific behaviour change counselling was lacking. In Mweso in 2015, total incremental annual financial costs were INT$32275 and per patient per year cost was INT$224. In Matsapha in 2016, these were INT$ 394784 and INT$ 441 respectively. These costs are similar to those of HIV programmes.

Conclusion
NCD care can be integrated into MSF-supported national services, and achieves acceptable intermediate clinical outcomes at a cost similar to HIV programmes. Simplification of diabetes care for stable patients may be possible. Contingency planning is required to minimise treatment interruption due to insecurity.

Conflicts of interest
None declared.