

**SHORT COMMUNICATION****Do non-monetary incentives for pregnant women increase antenatal attendance among Ethiopian pastoralists?**M. Khogali,<sup>1</sup> R. Zachariah,<sup>1</sup> A. J. Reid,<sup>1</sup> S. C. Alipon,<sup>2</sup> S. Zimble,<sup>2</sup> M. Gbane,<sup>2</sup> W. Etienne,<sup>3</sup> R. Veerman,<sup>3</sup> A. Hassan,<sup>2</sup> A. D. Harries<sup>4</sup><http://dx.doi.org/10.5588/pha.13.0092>

In a pastoralist setting in Ethiopia, we assessed changes in attendance between the first and subsequent antenatal care (ANC) visits following the implementation of non-monetary incentives in a primary health care centre over a 3-year period from October 2009 to September 2012. Incentives included the provision of a bar of soap, a bucket, a mosquito net, sugar, cooking oil, a jerrycan and a delivery kit. The first ANC visits increased by 48% in the first year to 60% in the second. Subsequent visits did not show a similar pattern due to ruptures in incentive stocks. Incentives appear to increase ANC attendance; however, ruptures in stock should be avoided to sustain the effect.

**A**ntenatal care (ANC) is an essential component of a health service package aimed at improving maternal and neonatal health.<sup>1,2</sup> The World Health Organization recommends that a woman with an uncomplicated pregnancy should have at least four antenatal care visits.<sup>3</sup> However, in Ethiopia, where the maternal mortality ratio remains among the highest in the world, at 676 deaths per 100 000 live births, about six in every 10 women do not receive any ANC (ANC coverage = 43%).<sup>4</sup> Coverage is even lower (21%) in the Somali Regional State (SRS) of Ethiopia,<sup>4</sup> where the majority of the population are pastoralists who frequently migrate with their livestock in search of fresh pasture and water. This migratory lifestyle poses a tremendous challenge to accessing health care.<sup>4</sup> In addition, people in the SRS are extremely poor due to the long running history of armed conflict in the region, which has weakened the delivery of social services to the majority of its population.<sup>5</sup> In an attempt to increase ANC attendance rates in this population, Médecins Sans Frontières (MSF) implemented a non-monetary incentive package in its primary health care (PHC) centre in the Imey District of SRS.

A previous study described the increase in health facility-based deliveries following implementation of non-monetary incentives in rural Malawi.<sup>6</sup> However, no information on the impact of such incentives given during ANC in a pastoralist setting and at a primary care level has been published. In Imey, Ethiopia, we assessed the changes in the numbers of first and subsequent ANC visits (second to fourth visits), following the introduction of non-monetary incentives.

**METHOD****Design and setting**

This was a descriptive before-and-after intervention study conducted in the MSF PHC project in Imey District, a rural area in the eastern part of the SRS of Ethiopia, with approximately 65 000 inhabitants, mainly pastoralists.

In September 2010, MSF implemented a non-monetary incentive programme to encourage pregnant women to attend ANC services. Incentives provided were a bar of soap and a bucket at the first visit; a mosquito net at the second visit; sugar, cooking oil and a jerrycan at the third visit; and a delivery kit at the fourth visit. These were chosen after consultation with community leaders and the women's association in Imey District. The total cost of the package was 220 Ethiopian Birr (about US\$10).

In addition to the incentives, specific efforts were made to enhance the quality of ANC services, including 1) recruitment of a well-trained and experienced midwife, 2) introduction of standardised guidelines, and 3) close monitoring and supervision. These interventions had already been initiated in the pre-incentive period (October 2009–September 2010).

**Outcome measures**

The outcome measured was the number of ANC visits, stratified by the first through to the fourth. The 12-month period from October 2009 to September 2010 before the implementation of the incentive package was considered as the baseline pre-intervention period. The post-intervention period was the period from October 2010 until September 2012 (years 1 and 2).

**Data collection, variables and statistical analysis**

Study variables were sourced from patient cards, which were filled out by a trained midwife and cross-checked by the health centre supervisor every month. Data were double entered by two independent encoders into a data entry file (EpiData version 3.1, EpiData Association, Odense, Denmark). The two data files were compared and discordances resolved by cross-checking with patients' cards. Summary statistics were used to compare groups. Data were analysed using EpiData version 2.2 (EpiData Association).

**Ethics approval**

This study met the MSF Ethics Review Board approved criteria for analysis of routinely collected programme

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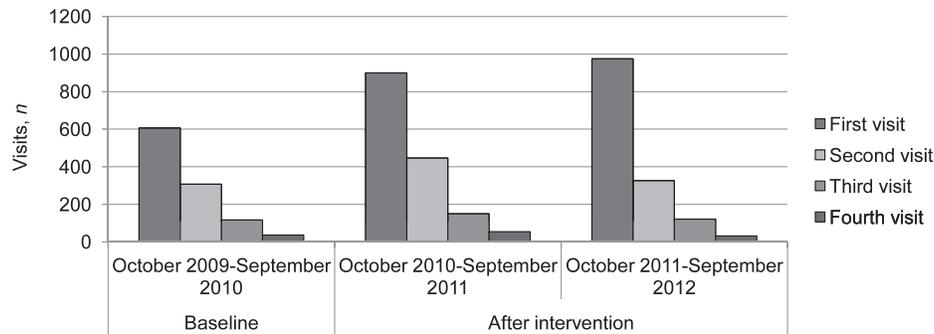
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**KEY WORDS**

Ethiopia; pastoralists; incentives; antenatal care; operational research

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**FIGURE** Number of first, second, third, and fourth antenatal care visits per year in the Médecins Sans Frontières primary health care centre, Imey, Ethiopia, October 2009–September 2012.

data (MSF, Geneva, Switzerland). It was also approved by the Somali Regional Health Bureau in Ethiopia.

## RESULTS

Between October 2009 and September 2012, a total of 2851 pregnant women were included in the study. The median age was 27 years (interquartile range [IQR] 22–30), and the median gestational age at first presentation was 24 weeks (IQR 18–30).

The Figure shows the number of first and subsequent ANC visits per year. The number of first ANC visits increased from 606 during the baseline period to 900 in year 1 immediately after the implementation of the incentive package (a 48% increase), and to 975 visits during the second year (a 60% increase). There was a slight increase in the number of subsequent visits during year 1, followed by a drop in the number of visits in year 2. While the incentives were provided as planned for the first year, the stock of items given at subsequent visits ran out in the second year.

## DISCUSSION

This is the first study to assess the number of ANC visits following the implementation of non-monetary incentives to encourage pregnant women to attend ANC services in a pastoralist setting. It shows that the provision of non-monetary incentives is associated with increased attendance at ANC services, with the incentives likely acting as a motivating factor.

The most important elements of the incentives are that 1) they were designed based on the needs of pregnant women in that setting and were culturally acceptable; this was achieved through a process of community participation; and 2) the total cost of the incentives for four visits (US\$10) seems a reasonable financial investment for the purpose of increasing ANC use.

Improvements in human resources and the introduction of standard guidelines and supervision had already been initiated during the pre-intervention period, with the incentives being

only a 'top-up'; the former are thus unlikely to be confounders. Despite the linear increase in the number of first ANC visits, the increase was not sustained in subsequent visits. This can be explained by shortages of some of the incentive items provided during subsequent visits, which were mainly due to poor supply. Avoiding stock outages is thus crucial to the success of this kind of programme, and should be avoided.

As this was an observational study using routine programme data, the increase in the number of visits might also have been influenced by other factors during the study period, such as health promotion activities and the establishment of a partnership with traditional birth attendants, encouraging them to advise pregnant women to attend ANC services at the MSF PHC centre. However, these activities were only started in late 2011 after much of the observed increase in ANC visits had already occurred. Our findings provide only a snapshot of the pattern of ANC visits in a pastoralist setting, and a wider evaluation is needed.

In conclusion, despite the limitations, our experience supports the use of non-monetary incentives to increase attendance at ANC services in a pastoralist setting. However, a steady supply of incentives is an operational imperative for the programme to be effective.

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Dans une zone pastorale d'Éthiopie, nous avons évalué le changement de fréquentation entre la première consultation prénatale (ANC) et les suivantes après la mise en œuvre d'incitations non-financières sur une période de 3 ans (octobre 2009–septembre 2012) dans un centre de soins de santé primaire. Ces incitations étaient du savon, un seau, une moustiquaire, du sucre, de l'huile de

cuisine, un jerrycan et un kit d'accouchement. Les ANC ont augmenté de 48% la première année à 60% la deuxième année. Les consultations suivantes n'ont pas connu la même augmentation en raison de ruptures de stock des incitations. Ces incitations ont donc un effet positif sur la fréquentation, mais il faut éviter les ruptures de stock pour que l'effet soit durable.

En un medio pastoril en Etiopía se evaluó la modificación de la asistencia a la primera consulta y a las siguientes citas en el programa de atención prenatal, tras la introducción de incentivos no monetarios durante un período de 3 años, entre octubre del 2009 y septiembre del 2012, en un centro de atención primaria de salud. Los incentivos consistieron en el suministro de jabón, un balde, un mosquitero, azúcar, aceite de cocción, un bidón y un estuche de preparativos para

el parto. La asistencia a la primera consulta del programa de atención prenatal aumentó en un 48% durante el primer año y un 60% en el segundo. No se observó una modificación equivalente de la presencia a las siguientes citas, debido al desabastecimiento de los incentivos. El suministro de incentivos parece aumentar la asistencia al programa de atención prenatal, pero con el fin de mantener el efecto es preciso evitar el agotamiento de las existencias de los mismos.