

# Ethiopia

## Achieving MDG 5

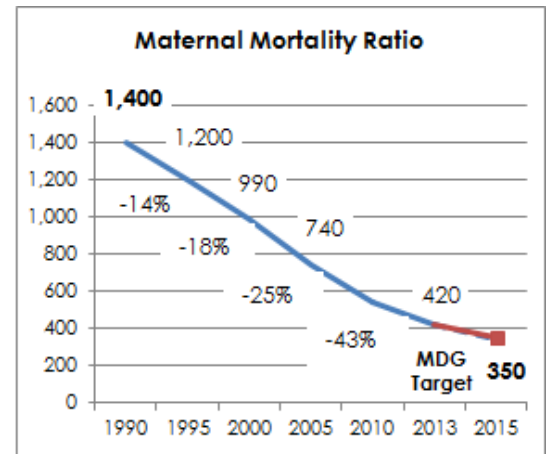
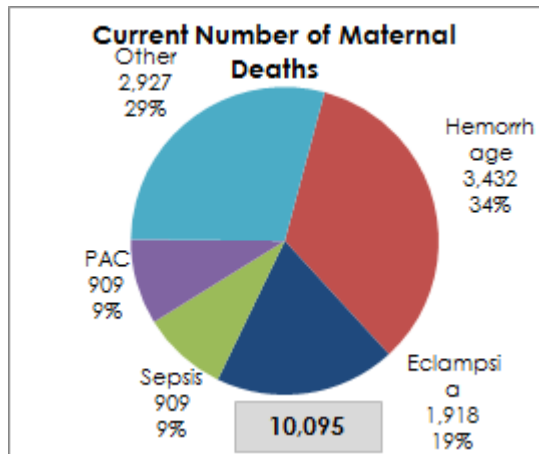
### Maternal Mortality

With an estimated population of almost 86 million in 2013<sup>i</sup>, Ethiopia is the second most populous country in Africa. It is also among the top ten countries in the world when it comes to the number of maternal death. With over 10,000 women dying in pregnancy or childbirth each year, Ethiopia accounts for 3.5% of the global maternal death burden<sup>ii</sup>.

Ethiopia has made significant progress in reducing the maternal mortality ratio, and is actually currently on track to reach the 75% reduction in the MMR required by the MDG5. Since 2000, Ethiopia has reduced its lifetime risk of maternal death by nearly two-thirds (from 1 in 24 to 1 in 67) – more than every other country on the African continent (Save the Children 2014 SOWM). According to UN data, in 2013 it had a MMR of 420 per 100,000 live births<sup>iii</sup>. If the current trend continues, Ethiopia should be able to reach its MDG goal of an MMR of 350 (or about 10,000 annual deaths) even before 2015.

More than 70% of all maternal deaths in Ethiopia are due to just four conditions - hemorrhage, eclampsia, sepsis and abortion complications<sup>iv</sup>.

An estimated 1,900 of these deaths are among adolescents<sup>v</sup>.



### Family Planning and Maternal Health

<b>Population:</b>	85,838,000	(vi)
<b>Women of Reproductive Age:</b>	20,459,227	(vi)
<b>% Married:</b>	61.0%	(vii)
<b>Married WRA:</b>	12,480,128	
<b>Total Fertility Rate:</b>	4.1	(viii)
<b>Contraceptive Use (Modern Methods):</b>	40.4%	(viii)
<b>Number of Modern Users:</b>	5,041,972	
<b>Unmet Need:</b>	18.8%	(ix)
<b>Number of Women with Unmet Need:</b>	2,337,606	
<b>Total Number of Births:</b>	2,403,464	(viii)
<b>Antenatal Care Coverage (4+ Visits):</b>	31.6%	(viii)
<b>% of Births with Skilled Birth Attendant:</b>	14.5%	(viii)
<b>No. of Births with SBA:</b>	348,502	
<b>No. of Births w/o SBA:</b>	2,054,962	
<b>% of Births to Adolescents (15-19)</b>	6.5%	(viii)
<b>No. of Births to Adolescents (15-19)</b>	156,225	

In addition to a 75% reduction in the MMR, the MDG also calls for universal access to reproductive health care by 2015 (MDG5B). The following shows current coverage with key sexual reproductive health services in Ethiopia. While some progress has been made, especially in the area of access to FP, there is a need for other indicators to show accelerated progress

#### Family Planning

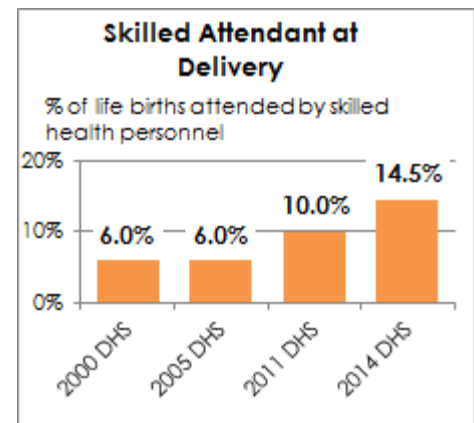
40.4% of women in Ethiopia use modern family planning methods (Mini EDHS 2014), 18.8% have an expressed unmet need for family planning (PMA2020 Report 2014).

#### Antenatal Care

31.6% of women have at least 4 ANC visits (Mini EDHS 2014).

#### Skilled Delivery Care

14.5% of the annual 2.4 million births in Ethiopia were assisted by a skilled attendant. (Mini EDHS 2014)



## Estimated Impact of Universal Access to Reproductive Health

### Family Planning

Providing women with access to family planning and making it possible for them to decide how many children they want and when to have them, reduces the overall number of deaths by reducing the number of women dying due to pregnancies they never intended to have.

Meeting only 25% of the unmet demand for family planning in Ethiopia, i.e., supplying 580,000 additional women with access to family planning would reduce the number of unintended pregnancies by over 210,000 and maternal deaths by almost 650. In addition, it would significantly reduce the number of abortions that are particularly high among women with unintended pregnancies.

### Maternal Health

Most maternal deaths are preventable, as the health-care solutions to prevent or manage complications are well known. The following interventions and drugs tackle the four top causes of maternal deaths in Ethiopia:

- Prevention and management of hemorrhage/treatment of postabortion complications - **Oxytocin/Misoprostol**:
- Prevention and management of eclampsia **with Magnesium sulfate**
- Prevention and treatment of sepsis with **Clean delivery kits** and **antibiotics**

### Number of Maternal Deaths that Could be Prevented

Providing all women with the required maternal health medicines and supplies would prevent an additional 5,000 deaths, reducing the annual number of deaths to 4,400 and the MMR to just over 190, making it possible for Ethiopia to not only reach, but significantly exceed its MDG goal of 350.

In addition, these interventions would have a significant impact on child, and in particular, newborn mortality. Currently Ethiopia has about 70,000 neonatal deaths a year. About 13% of these, or more than 9,000 could be prevented by providing women with the above life-saving interventions<sup>x</sup>.

	Current Maternal Deaths	Deaths Prevented	Projected Maternal Deaths
Hemorrhage	3,432	2,889	328
Eclampsia	1,918	970	827
Sepsis	909	783	68
PAC	909	404	447
Other	2,927	0	2,743
<b>All MH</b>		<b>5,047</b>	
Averted by meeting 25 % of Unmet Need for FP		<b>636</b>	
<b>TOTAL</b>	<b>10,095</b>	<b>5,682</b>	<b>4,412</b>

## Essential Drug Requirements and Costs

### Maternal Health Drugs For Universal Coverage

	Units	Total Cost
Oxytocin injections	965,515	\$144,827
Misoprostol tablets	4,669,190	\$1,307,373
Magnesium sulfate injections	205,994	\$129,776
Clean delivery kits	1,556,397	\$4,256,745
Other sepsis prevention supplies		\$87,891
Antibiotics		\$359,619
<b>TOTAL</b>		<b>\$6,286,232</b>

Drug and commodity requirements to provide the care detailed above would cost approximately \$7.7 million, \$1.5 million for additional FP supplies and \$6.2 million for maternal health (detailed calculations are available in Annex 1).

## Required health system investments

Additional investments will be necessary to strengthen countries' logistics systems and to ensure that health providers (both at facility and community level) know how to administer these drugs.

## Annex 1. Methodology

The following describes the methodology used to arrive at the impact and cost estimates in the factsheet.

### Maternal Mortality

The number of current annual maternal deaths was calculated using the 2013 MMR from the 2014 publication: Trends in Maternal Mortality: 1990-2013. UNFPA, WHO, World Bank, UNICEF

<http://www.who.int/reproductivehealth/publications/monitoring/maternal-mortality-2013/en/> applied to the estimated number of births in 2013 (based on population data from the UN Population Division).

### Deaths Prevented through Family Planning

The number of unintended pregnancies averted was calculated by comparing the number of pregnancies that would have happened if the 580,000 (25% of the 2.3 million women with currently unmet need in Ethiopia) had not been able to access contraception to the number of pregnancies that would occur if these women used contraception (i.e. only experienced pregnancies due to failure of their chosen method). It was assumed that 40% of all women would have gotten pregnant if not using contraception. The average failure rate of contraceptives was estimated to be 3%.

Based on regional data collected by the Guttmacher Institute for its 2014 update of "Adding It Up" it was estimated that only about 53% of unintended pregnancies would be carried to term, 33% would be aborted and 14% would end in a miscarriage.

	Number	Comment
<b>Current Number of Women using FP</b>	4,140,547	Women Married or in Union x Modern CPR
<b>Additional Number of Women Using</b>	<b>580,000</b>	If estimated number of number of women with unmet need available, 25% of that number, otherwise increase in current number of modern method users by 25%
<b>Would have gotten pregnant</b>	232,000	Assumption that without contraception 40% of women would get pregnant in a year
<b>Now getting pregnant (method failure)</b>	17,400	Assumption that 3% of women get pregnant despite using contraception (average failure rate)
<b>Unintended Pregnancies Prevented</b>	<b>214,600</b>	Pregnancies that would have occurred without FP minus births that would occur with FP
<b>Unintended Births Prevented</b>	<b>114,645</b>	Averted Pregnancies x % that would have been carried to term (about 53% of all unintended pregnancies)
<b>Abortions Prevented</b>	<b>70,023</b>	Averted Pregnancies x % that would have been aborted (33%)
<b>Miscarriages Prevented</b>	29,931	Averted Pregnancies x % that would have been miscarried (14%)
<b>Deaths Prevented through Contraception</b>	<b>636</b>	Number of deaths that would have occurred during childbirth/abortions

Note: Family planning reduces the absolute number of maternal deaths in a country but since it reduces both numerator AND denominator of the Maternal Mortality Ratio (defined as deaths per 100,000 live births) the reduction in maternal deaths caused by family planning is not reflected in the MMR. The estimated reduction in number of deaths required to achieve the country's MMR goal differs therefore slightly depending on the assumption made about the number of births. The estimate in the first paragraph uses the current number of births, while the estimate in the Estimated Impact paragraph is based on a lower number of births (originally projected number of births minus unintended births averted through the provision of contraception to women with unmet need).

### Deaths Prevented through Maternal Health Interventions

It was assumed that half of the women currently covered by skilled birth attendance, i.e. about 16%, already had access to the three life-saving drugs. This coverage was then scaled up to 100%.

The following effectiveness data were used in estimating the expected reduction in maternal deaths:

Intervention	Effectiveness	Source
1. Hemorrhage Prevention - Oxytocin	62%	Prendiville WJ, Elbourne D, McDonald S. Active versus expectant management in the third stage of labour. In: The Cochrane Library, Issue 1.
2. Hemorrhage Prevention - Misoprostol	43%	Found to be about 30% less effective than oxytocin Gulmezoglu AM, Villar J, Ngoc NTN, et al. WHO multicentre randomized trial of misoprostol in the management of the third stage of labour. Lancet. 2001; 358:689-695
3. Hemorrhage Treatment - Oxytocin	80%	Pollard et al. Estimating the impact of interventions on cause-specific maternal mortality: a Delphi approach. BMC Public Health 2013, 13(Suppl 3):S12
4. Eclampsia Management - MgSulfate	43%	Cochrane Database Syst Rev. 2010 Nov 10
5. Sepsis Prevention - Facility Births	60%	Pollard et al. Estimating the impact of interventions on cause-specific maternal mortality: a Delphi approach. BMC Public Health 2013, 13(Suppl 3):S12
6. Sepsis Prevention - Home Births	60%	Pollard et al. Estimating the impact of interventions on cause-specific maternal mortality: a Delphi approach. BMC Public Health 2013, 13(Suppl 3):S12
7. Sepsis treatment - Antibiotics	80%	Pollard et al. Estimating the impact of interventions on cause-specific maternal mortality: a Delphi approach. BMC Public Health 2013, 13(Suppl 3):S12
8. PAC management - Misoprostol	50%	

The final MMR was calculated by dividing the remaining number of maternal deaths by the number of births expected at the new contraceptive prevalence level (current 3.0 million births annually minus 110,000 averted through increased use of family planning).

### Cost Estimates Family Planning

Unit costs for the different supply methods were taken from UNFPA's RH Interchange database and multiplied by the amount required to provide one couple-year of protection (CYP). It was assumed that 15 cycles of the pill, 120 condoms or 4 injectables would provide one CYP. IUDs and Implant were assumed to provide 3.5 years of protection or CYPs. Their cost was thus divided by 3.5. The RH Interchange price for implants (\$18.80) was replaced with a cost estimate per implant of \$8.50 to reflect the recent price reduction seen, but not yet reflected in the database, due to the introduction of Sino-Implants.

Drug and supply cost for male and female sterilization came from calculations carried out by the Guttmacher Institute for its Adding It Up 3 publication using UNFPA's RHCT costing tool with updated 2013 prices.

It was assumed that new users would adopt methods based on the current modern method mix.

### Cost Estimates Maternal Health Interventions

Based on WHO treatment guidelines the following drugs and supplies were costed using drug prices from both the MH International Drug Price Indicator and the UNICEF Supply Catalogue.

#### Hemorrhage Prevention and Treatment

Drug	Unit Costs	No. of Units Required	Total Costs	Source
<b>Hemorrhage Prevention</b>				
<b>Facility births</b>				
Oxytocin, injection, 10 IU in 1 ml	\$0.15	1	\$0.15	UNICEF
<b>Home births</b>				
Misoprostol, tablet, 200mcg	\$0.28	3	\$0.84	MSH
<b>Hemorrhage Treatment</b>				
Oxytocin, injection, 10 IU in 1 ml	\$0.15	4	\$0.60	UNICEF
<i>For atonic uterus. Not included: Syringes, IV sets, IV solutions</i>				

#### Sepsis Prevention and Treatment

Drug	Unit Costs	No. of Units Required	Total Costs	Source
<b>Non-Severe Cases</b>				
Gloves, exam, latex, disposable, pair	\$0.05	2	\$0.10	UNICEF
Soap for handwashing	\$0.01	1	\$0.01	UNICEF
Chlorhexidine for cord care	\$0.01	1	\$0.01	UNICEF
			<b>\$0.12</b>	
<b>Severe Cases</b>				
Delivery Kit	\$2.74	1	\$2.74	UNFPA 200 FOR \$547
<b>Non-Severe Cases</b>				
Amoxicillin, caplet, 250 mg	\$0.05	2	\$0.10	MSH
<b>Severe Cases</b>				
Ampicillin, powder for injection, 500mg	\$0.14	24	\$3.46	MSH
Gentamicin, injection, 40 mg/ml in 2ml	\$0.09	6	\$0.54	MSH
Metronidazole, injection, 500 mg in 100	\$0.47	8	\$3.76	MSH
			<b>\$7.76</b>	

#### Pre-Eclampsia/Eclampsia Treatment

Drug	Unit Costs	No. of Units Required	Total Costs	Source
Magnesium sulfate, injection, 500 mg	\$0.63	9	\$5.67	UNICEF
<b>For complications</b>				
Calcium carbonate, tablet, 600mg	\$0.02	1	\$0.02	MSH
<i>Needle for initial injection, afterwards IV, not included in costing</i>				

<sup>i</sup> CSA Projection.

<sup>ii</sup> WHO. 2014. Maternal Mortality 1990-2013.

<sup>iii</sup> WHO. 2014. Maternal Mortality 1990-2013.

<sup>iv</sup> WHO and UNICEF. 2012 Countdown, Country Profiles

<sup>v</sup> Based on: Blanc et al. 2013. New Findings for Maternal Mortality Age Patterns: Aggregated Results for 38 Countries. PLoS ONE 8(4): e59864.

<sup>vi</sup> CSA Projection.

<sup>vii</sup> UN Population Division. World Marriage Data 2012.

<sup>viii</sup> Mini EDHS 2014.

<sup>ix</sup> PMA Survey 2020.

<sup>x</sup> Futures Institute. Spectrum, LIST module.