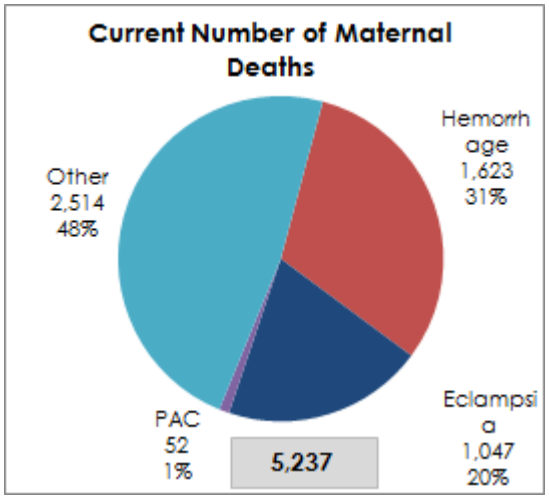
Bangladesh
Achieving MDG 5

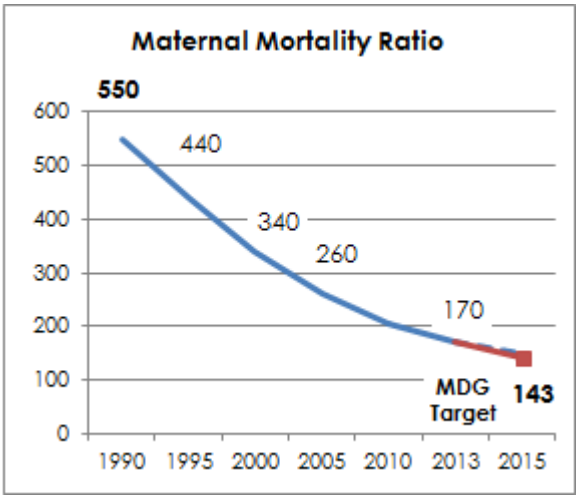
Maternal Mortality

With a population of 155 million in 2013[i], Bangladesh is the 8th most populous countries in the world. It is also among the top fifteen countries in the world when it comes to maternal mortality. With an estimated 5,200 women dying in pregnancy or childbirth each year, Bangladesh accounts for almost 2% of the global maternal death burden[ii].

Bangladesh has made significant progress in reducing the maternal mortality ratio and is currently on track to reach the 75% reduction in the MMR required by MDG5. According to UN data, in 2013 the MMR is 170 per 100,000 live births. If the current trend continues Bangladesh should be able to reach the MDG goal of a MMR of 143 by 2015.

Fifty percent of all maternal deaths in Bangladesh are due to just two direct obstetric causes – hemorrhage (31%) and eclampsia (20%). 36.5% of maternal deaths are due to indirect causes[iii]. An estimated 650 of these deaths are among adolescents[iv].





Family Planning and Maternal Health

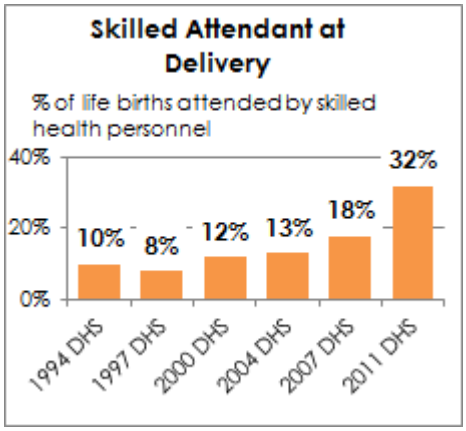
Population:	154,695,368	(vi)
Women of Reproductive Age:	43,169,640	(vi)
% Married:	81%	(vii)
Married WRA:	34,990,563	
Total Fertility Rate:	2.3	(viii)
Contraceptive Use (Any Method):	61.2%	(viii)
Contraceptive Use (Modern Methods):	52.1%	(viii)
Number of Modern Users:	18,230,083	
Unmet Need:	13.5%	(viii)
Number of Women with Unmet Need:	4,723,726	
Total Number of Births:	3,080,340	(vi)
Antenatal Care Coverage (4+ Visits):	25.5%	(viii)
% of Births with Skilled Birth Attendant:	31.7%	(viii)
No. of Births with SBA:	976,468	
No. of Births w/o SBA:	2,103,872	
% of Births to Adolescents (15-19)	21.2%	(vi)
No. of Births to Adolescents (15-19)	653,418	(vi)

In addition to a 75% reduction in the MMR, MDG5 also calls for universal access to reproductive health care by 2015. While Bangladesh is doing well with access to FP, maternal care indicators need to be improved. The following shows current coverage with key reproductive services in Bangladesh.

Family Planning
52.1% of women in Bangladesh use modern family planning methods, 13.5% have an expressed unmet need for family planning (DHS 2011).

Antenatal Care
Just 26% of pregnant women had at least 4 ANC visits.

Skilled Delivery Care
As measured by the 2011 DHS survey, only 32% of the annual 3.0 million births in Bangladesh were assisted by a skilled attendant[viii].



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 Bangladesh, i.e., supplying 1.2 million additional women with access to family planning would reduce the number of unintended pregnancies by 440,000 and deaths related to unintended births and abortions by about 770.

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 Bangladesh:

- 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 1,750 deaths, reducing the annual number of deaths to 2,700 and the MMR to about 95, making it possible for Bangladesh to not only reach, but substantially exceed its MDG goal of 143.

	Current Maternal Deaths	Deaths Prevented	Projected Maternal Deaths
Hemorrhage	1,623	1,244	141
Eclampsia	1,047	483	411
PAC	52	21	23
Other	2,514	0	2,145
All Pregnancy and Delivery Complications		**1,748**	
Averted by meeting 25 % of Unmet Need for FP		**768**	
TOTAL	**5,237**	**2,516**	**2,721**

In addition, these interventions would have a significant impact on child, and in particular, newborn mortality. Currently Bangladesh has about 75,000 neonatal deaths a year. More than 13% of these, or almost 10,000, could be prevented by providing women with the above life-saving interventions[ix].

Essential Drug Requirements and Costs

Maternal Health Drugs For Universal Coverage

	Units	Total Cost
Oxytocin injections	1,218,697	$182,805
Misoprostol tablets	5,960,345	$1,668,897
Magnesium sulfate injections	261,801	$164,935
Clean delivery kits	1,986,782	$5,433,848
Other sepsis prevention supplies		$110,655
Antibiotics		$457,047
TOTAL		**$8,018,185**

Drug and commodity requirements to provide the care detailed above would cost approximately $12 million, $4.2 million for additional FP supplies and $8 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 1.2 million (25% of the 4.8 million women with currently unmet need in Bangladesh) 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 39% of unintended pregnancies would be carried to term, 49% would be aborted and 13% would end in a miscarriage.

	Number	Comment
Current Number of Women using FP	18,230,083	Women Married or in Union x Modern CPR
Additional Number of Women Using	**1,200,000**	If estimated number of number of women with unmet need available, 25% of that number, otherwise increase in current numebr of modern method users by 25%
Would have gotten pregnant	480,000	Assumption that without contraception 40% of women would get pregnant in a year
Now getting pregnant (method failure)	36,000	Assumption that 3% of women get pregnant despite using contraception (average failure rate)
Unintended Pregnancies Prevented	**444,000**	Pregnancies that would have occurred without FP minus births that would occur with FP
Unintended Births Prevented	**171,436**	Averted Pregnancies x % that would have been carried to term (about 39% of all unintended pregnancies)
Abortions Prevented	**216,616**	Averted Pregnancies x % that would have been aborted (49%)
Miscarriages Prevented	55,949	Averted Pregnancies x % that would have been miscarried (13%)
Deaths Prevented through Contraception	**768**	Number of deaths that would have occurred during childbirth/abortions

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 live-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 MMR after FP and MH scale-up was calculated by dividing the remaining number of maternal deaths by the number of births expected at the new contraceptive prevalence level (current 3.1 million births annually minus 170,000 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
Hemorrhage Prevention				
Facility births				
Oxytocin, injection, 10 IU in 1 ml	$0.15	1	$0.15	UNICEF
Home births				
Misoprostol, tablet, 200mcg	$0.28	3	$0.84	MSH
Hemorrhage Treatment				
Oxytocin, injection, 10 IU in 1 ml	$0.15	4	$0.60	UNICEF
For atonic uterus. Not included: Syringes, IV sets, IV solutions				

Pre-Eclampsia/Eclampsia Treatment

Drug	Unit Costs	No. of Units Required	Total Costs	Source
Magnesium sulfate, injection, 500 m	$0.63	9	$5.67	UNICEF
For complications				
Calcium carbonate, tablet, 600mg	$0.02	1	$0.02	MSH
Needle for initial injection and IV set not included in costing				

Sepsis Prevention and Treatment

Drug	Unit Costs	No. of Units Required	Total Costs	
Gloves, exam, latex, disposable, pair	$0.05	2	$0.10	UNICEF
Soap for handwashing	$0.01	1	$0.01	UNICEF
Chlorohexidine for cord care	$0.01	1	$0.01	UNICEF
			$0.12	
Delivery Kit	$2.74	1	**$2.74**	UNFPA 200 FOR $547
Non-Severe Cases				
Amoxicillin, caplet, 250 mg	$0.05	2	**$0.10**	MSH
Severe Cases				
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
			$7.76	

[i] UN Population Division. World Population Prospects: The 2012 Revision, data for 2013

[ii] WHO 2014. Trends in maternal mortality:1990 to 2013;Estimates by WHO, UNICEF, UNFPA, The World Bank and the United Nations Population Division

[iii] Bangladesh Maternal Mortality and Healthcare Survey 2010.

[iv] According to the BMMS 2010, the 15-19 yr age specific mortality rate is 49/100,000LB and Lancet Global Health it's 93 (Lancet Glob Health 2014;2: e155–164;Published Online;January 21, 2014http://dx.doi.org/10.1016/S2214-109X(13)70179-7). Check current number with regard to these estimates.

[v] Bangladesh Demographic & Health Survey 2011

[vi] UN Population Division. World Population Prospects: The 2012 Revision, data for 2013

[vii] UN Population Division. World Marriage Data 2012.

[viii] Bangladesh Demographic & Health Survey 2011

[ix] Futures Institute. Spectrum, LiST module.