Adding It Up: Costs and Benefits Of Meeting the Contraceptive and Maternal and Newborn Health Needs of Women in Nepal

Aparna Sundaram, Mahesh Puri, Ayana Douglas-Hall, Kusum Wagle, Kate Castle and Eva Weissman

Key Points

- Modern contraceptive services and maternal and newborn health care are essential for protecting the health of Nepali women and their babies.
- Based on data from 2017, women in Nepal have an estimated 539,000 unintended pregnancies each year.
- Most unintended pregnancies result from unmet need for modern contraception: About 44% of women of reproductive age (15–49 years) who want to avoid a pregnancy are not using a modern contraceptive method.
- If all unmet need for modern contraception were met, there would be 469,000 fewer unintended pregnancies annually, 306,000 fewer induced abortions and 300 fewer maternal deaths.
- At current levels of contraceptive use, providing maternal and newborn health care to all women who have unintended pregnancies, at the standards recommended by the World Health Organization, would cost an estimated $36 million.
- If all women wanting to avoid a pregnancy used modern contraceptives and all pregnant women and their newborns received the recommended care, then the country would save about $17 million compared with a scenario in which only maternal and newborn health care were increased. Each province would save between $0.7 million and $5 million.
- The combined investments would be cost-effective: For every additional dollar spent on expanding modern contraceptive use, the country would save $2 on maternal and newborn care.
- Expanding contraceptive services confers substantial benefits to women, their families and society. The provincial governments, national government, private sector and international development partners should increase their investment in modern contraceptive services.

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Introduction

Access to reproductive health services, including maternal and newborn care and contraceptive services, is essential for protecting the health of Nepali women and their children. Access to maternal and newborn care greatly improves women's health outcomes during pregnancy and delivery, in addition to improving the health of their newborns, while contraceptive use enables women and their partners to have the number of children they want, when they want them.

Receiving needed maternal and newborn care can mean the difference between life and death for pregnant women and their newborns, and appropriate services can also prevent the short- and long-term effects of pregnancy-related injuries, infection and disabilities.[1] Since the health of mothers and their newborns are intricately related, preventing death and disability requires implementing many of the same interventions for both mother and child, such as antenatal care, skilled assistance during delivery and emergency obstetric care.

However, providing a comprehensive package of maternal and newborn care can be costly for a low-resource country like Nepal. One way to manage the costs of providing such care is to reduce the number of unintended pregnancies—those that occur among women who want to postpone pregnancy or stop childbearing altogether. Reducing these pregnancies depends in part on women's and their partners' access to and use of modern contraceptive methods.* In Nepal, the use of modern methods increased from 25% of all women of reproductive age (aged 15–49) in 1996 to 34% in 2006.[2] However, use has leveled off since then.[3] Substantial unmet need for modern methods persists, contributing to high levels of unintended pregnancy and the health risks they entail, such as the increased risk of maternal death and disability.

In this report, we discuss the need for and costs and benefits of expanding sexual and reproductive health services in Nepal in two key areas: modern contraceptive services and maternal and newborn health care.† Estimates are presented at both the national and subnational levels (for both development regions and provinces; see box, page 4) because, under the new federal structure, much of the health planning and budgeting in Nepal is currently done at the subnational level.

Results are estimated for women aged 15–49 and their newborns needing these services. We show the levels of services they currently receive and the health benefits that accrue from current services, as well as the savings that would accrue from meeting 100% of service needs. We estimate the costs of current services and of fulfilling the unmet need for services, including the cost savings that would result from meeting all needs for contraceptive services and maternal and newborn health care simultaneously; these estimates are described in greater detail in the Methods section on page 5.

The Government of Nepal has already committed, as part of Family Planning 2020, to investing in the expansion of contraceptive services; it has also committed, as part of the United Nations' Sustainable Development Goals, to ensuring universal access to sexual and reproductive health care.[4–6] The findings presented here provide evidence to help policymakers and donors gauge how increased investment in reproductive health services will reduce unintended pregnancy, maternal mortality and morbidity in Nepal and improve the country's health system in cost-effective ways.[7–9]

*Sterilization, injectables, long-acting reversible methods (implants and IUDs), standard days methods, pills, condoms and other supply methods.
†This includes antenatal, labor, delivery, postpartum and newborn care, and care for women who experience stillbirth, miscarriage, ectopic pregnancy or induced abortion.

The Nepal Context

Nepal changed its administrative structure in 2017, converting its 14 administrative zones (which were grouped into five development regions: Far-Western, Mid-Western, Western, Central and Eastern) into seven provinces. In many cases, the new provinces include districts from two or more of the former development regions. Because many data and indicators are not yet available by province, this report provides estimates for both provinces and development regions.

Population density varies considerably by province and across Nepal's three ecological zones. The Terai (plains) area is the most densely populated part of Nepal, followed by the Hill area, and the Mountain area is the least populous. The most densely populated province is Province 2, which is in the Terai area.[10] Province 3 is the next most densely populated and includes Kathmandu. Province 5 is also densely populated, covering districts in the Terai area.

The social and demographic characteristics of the provinces also vary widely. While most provinces have a moderately high literacy level of at least 60%, Province 2 lags behind the rest of the country, with 50% literacy.[11] Further, Province 2 has the lowest female literacy, at 39%, while the highest is in Gandaki Pradesh (68%).[10] Karnali Pradesh and Province 2 are among the poorest in the country. A Nepal government report in 2014 estimated poverty levels in each province using a multidimensional indicator that included health, education and living standards.[12] It found that about half of the populations of Karnali Pradesh and Province 2 were poor, well above the national level of 29%. Multidimensional poverty was lowest in Province 3 and Gandaki Pradesh (12% and 14%, respectively).

Methods

This report is part of the ongoing Adding It Up project by the Guttmacher Institute and a number of international and country-specific partner organizations. The methods used in this analysis are based on the previously published Adding It Up methodology;[13] they are described briefly here and in more detail online (download at https://www.guttmacher.org/report/adding-it-up-meeting-contraceptive-mnh-needs-nepal). This report first uses a range of sources to provide context regarding the current state of maternal and newborn health care in Nepal. Following that, we use original analyses to estimate current use of and need for modern contraceptive services. We estimate the benefits of expanded modern contraceptive services in terms of reductions in unintended pregnancies, maternal deaths, disability-adjusted life years (DALYs) and abortions. In addition to providing these estimates for the current level of modern contraceptive use, we discuss the costs and benefits of three hypothetical scenarios of contraceptive use: a scenario in which no women use modern contraceptives, an ideal scenario in which all women who need modern contraception use it (i.e., 100% of unmet need‡ is satisfied) and a scenario in which 50% of unmet need for modern contraception is satisfied. In all of these scenarios, maternal and newborn health care is held constant at current levels.

Next, the report provides estimates of the costs (in 2017 U.S. dollars) of expanding maternal and newborn health care to all women who need it, as well as the costs and savings associated with simultaneously expanding modern contraceptive services and maternal and newborn health care. We estimate current costs, as well as costs under three hypothetical scenarios: a scenario in which maternal and newborn care is provided to all women who need it while modern contraceptive services remain at current levels; an ideal scenario in which both modern contraceptive services and maternal and newborn health care are provided to all women who need them (that is, all unmet needs are met); and a scenario in which maternal and newborn care is provided to all women who need it, while modern contraceptive services are provided to half the women with an unmet need.

All analyses are based on the costs of care in the public sector, under the assumption that the government has a mandate to provide these services; we make no assumption about who pays for care or what proportion of the total is paid for out of pocket. In reality, the costs could be higher if a large proportion of women seek these services in the private sector, where costs are highly variable; the costs presented in this report could therefore be considered to be minimum estimates.

All estimates are for 2017 and are shown for the country as a whole and for each province and development region, and are broken down according to women's socioeconomic status, as measured by the Nepal Demographic and Health Survey (NDHS).[14] Where necessary, we projected estimates to 2017 from the most recent available data. Numbers of women in each wealth quintile and province and development region in 2017 by marital status, desire to avoid pregnancy and contraceptive use were calculated using data from the 2016 NDHS.[15] The estimates of women aged 15–49 in 2017 were projections of data from the 2011 Nepal National Population and Housing Census[10] and of 2014 estimates by the International Institute for Applied Systems Analysis.[16]

We calculated numbers of unintended pregnancies in each province and development region at current levels of contraceptive use, as well as the other scenarios, using contraceptive use failure rates and pregnancy rates for nonusers from the 2016 NDHS and other sources.[15,17–21] Pregnancy intendedness and pregnancy outcomes were estimated from provincial and regional data on the planning status of recent births from the 2016 NDHS,[15] estimates of unsafe induced abortion rates in 2014[22] and estimates of the number of miscarriages. The number of pregnancy-related deaths was calculated using the maternal mortality ratio estimated in the 2016 NDHS.[15]

‡In this report, unmet need is defined as the need for modern contraceptive methods among those women who want to avoid pregnancy but who are using either traditional methods (which typically have high failure rates) or no method. We define women who are trying to avoid a pregnancy as those women who are sexually active (that is, they are either married or are unmarried and sexually active in the three months prior to the survey) and able to become pregnant, but who want to postpone their next birth for two or more years, or who want to stop childbearing altogether. This definition differs from the definition of unmet need used by the DHS, which defines women using traditional methods (i.e., withdrawal, periodic abstinence and folk methods) as having their needs met. In addition, we present unmet need only among women who want to avoid pregnancy (excluding women with no need), whereas the DHS presents it among all married women.

Estimates of unsafe abortions are based on regional estimates of the abortion rate published jointly by researchers at the Center for Research on Environment Health and Population Activities (CREHPA) and the Guttmacher Institute.[22] Because the abortion incidence estimates had been calculated for the five development regions, we created proxies for the seven provinces by examining the overlap between the districts in the development regions and in the provinces. All abortions were assumed to have resulted from mistimed and unwanted pregnancies.

National-level estimates of 2017 pregnancy-related deaths and DALYs among women were obtained from the Institute for Health Metrics and Evaluation.[23]

Costs of contraceptive and maternal and newborn care were estimated using an ingredients-based costing method as follows: For each contraceptive method or health care intervention, we combined the direct costs (in 2017 U.S. dollars) of drugs, supplies, materials, labor and hospitalization with the indirect costs associated with programs and systems to arrive at an annual cost of protection against unintended pregnancy for each woman receiving pregnancy-related medical care. Indirect costs (e.g., overhead and capital expenditure) were based on estimates provided by the United Nations Fund for Population Activities.[24] Direct costs were obtained from Nepal's Ministries of Health, Finance and Home Affairs, as well as from Management Sciences for Health, the United Nations Children's Fund and the Alibaba website.

The Need for Increased Services

Many pregnant women in Nepal do not receive the maternal and newborn care they need. In 2016, only 64% of pregnant women obtained the minimum of four antenatal care visits recommended by the World Health Organization (WHO),§ and 61% of births were attended at delivery by a skilled birth attendant.[25] These components of care are crucial for managing the health complications that could arise during pregnancy and delivery.

Although maternal mortality in Nepal has declined over the last decade, it is higher than the average for the Southern Asia region overall.[26] For every 100,000 live births in 2005, an estimated 444 women in Nepal died from causes related to pregnancy and delivery.[27] This ratio declined to 349 maternal deaths per 100,000 live births in 2010[27] and to 239 in 2016.[15] In comparison, the 2015 average for Southern Asia was 176.[27] Nepal's maternal mortality ratio translates to the death of approximately 1,600 women each year, many of whom had not wished to become pregnant. Maternal deaths are likely to be highest among disadvantaged women—those who are poor, live in rural areas or have little education—because they tend to have the least access to health care.[28,29]

For every woman who dies from complications of pregnancy and childbirth, many others suffer illness and disability from such complications. In addition to the personal costs related to pain and ill-health, such morbidity may have wide range of social and economic ramifications, including impinging on a mother's ability to care for her newborn or other members of her family, or her participation in the workforce. The number of disability-adjusted life years (DALYs)** attributable to maternal death and morbidity in Nepal was estimated at 78,000 in 2017.[23]

Complications of unsafe abortion are a significant cause of maternal death and disability in many parts of the developing world. In Southern Asia, unsafe abortion accounts for an estimated 6% of maternal deaths.[31,32] Since 2002, all women in Nepal have had the right to terminate a pregnancy on request up to 12 weeks' gestation. Abortions are legally allowed up to 28 weeks' gestation if the pregnancy resulted from rape or incest or, with a doctor's recommendation, if the pregnancy poses a danger to the woman's life or her physical or mental health, there is a risk of fetal abnormality or impairment, or the woman has HIV or an untreatable illness.[15,22,33] Approximately 42 out of every 1,000 Nepali women aged 15–49 have an abortion each year[22]—around 351,000 abortions in total. Despite the fairly liberal provisions in the law, many Nepali women continue to seek abortions from lay providers outside the health system, potentially subjecting themselves to unsafe conditions or methods. Unsafe abortion carries a high risk of complications that can endanger women's lives. In 2014, more than 80,500 Nepali women received post-abortion care, indicating that they may have undergone—and experienced complications from—unsafe abortion.[22] This represents a large burden of avoidable complications experienced by women, as well as costs that strain the country's scarce resources.

For women who carry their pregnancies to term, the health care they receive during pregnancy directly affects the health of their newborns.[1] Nepal's neonatal mortality rate, 21 deaths in the first 28 days of life per 1,000 live births, is below the median rate of 28 for Southern Asia but far higher than most developed nations.[34] In Nepal and globally, the majority of newborn deaths are due to severe infections, asphyxia and preterm birth, all of which are preventable.[1,35,36]

In Nepal, many maternal and newborn care interventions have been designed and implemented over the past decade,[37] but much more needs to be done to protect women and their newborns, given gaps in service provision. Expanding such care would reduce women's exposure to the substantial risks inherent in pregnancy and childbearing. Preventing unintended pregnancies would reduce these risks even further.

§WHO recently updated its recommendation to at least eight contacts with an antenatal care provider. However, because the Government of Nepal has not yet adopted this recommendation, we use the prior WHO recommendation of at least four antenatal care visits, at least one of which is with a trained provider. **DALYs are a measure of the number of years of healthy life lost as a result of premature death and disability. One DALY equals one lost year of healthy life. The measure was developed to provide comparable estimates of the burdens of premature death and disability attributable to different causes across contexts.

Unintended Pregnancy

Of the estimated 1.2 million pregnancies occurring each year in Nepal, 539,000 (or 45%) are unintended, according to the most recent data (Table 1, page 9).[25] Nearly a quarter (24%) of these unintended pregnancies end in unplanned births, and two-thirds (65%) end in induced abortion. Nepali women report wanting an average of 1.7 children but end up having an average of 2.3.[15]

The proportion of pregnancies that are unintended varies by province, from 37% in Karnali Pradesh to 59% in Province 3.[25] The proportion of unintended pregnancies that are terminated also varies across provinces, from 47% in Sudurpaschim Pradesh to 73% in Province 3. Women across Nepal's socioeconomic strata experience high levels of unintended pregnancy.

Of about 8.5 million women of reproductive age (15–49) in Nepal, almost five million want to avoid a pregnancy (Table 2, page 10)—that is, they are married[††] or are unmarried and sexually active, are able to become pregnant, and want to either delay childbearing for at least two years or stop having children.[25] Nearly all women measured as wanting to avoid pregnancy are married,[25] since unmarried sexual activity is rarely reported in Nepal.[38,39]

According to 2017 data, the majority (80%) of unintended pregnancies are among women not using contraceptives, and 13% are among women using traditional methods (not shown).[25] Only 7% of unintended pregnancies are due to failure of a modern method. Analyses of the 2011 Nepal Demographic and Health Survey show that among married women with an unmet need for any contraception (i.e., those who want to avoid pregnancy but who are not using a modern or traditional contraceptive method), 73% cited infrequent sex as the main reason for not using any method.[40] Other reasons included concerns about the side effects or health risks of methods (10%), not having resumed menstruation after their last birth (9%), and opposition to contraception from the woman, her husband or others close to her (7%).

††In line with the Nepal Demographic and Health Survey (a key data source for this analysis), we assume all married women are sexually active.

TABLE 1

Annual number of pregnancies and number and percentage distribution of unintended pregnancies by outcome, according to region, province and household wealth quintile, Nepal, 2017

	Total no. of pregnancies	% unintended	No. of unintended pregnancies	% distribution of unintended pregnancies, by outcome				
				Mistimed birth*	Unwanted birth†	Abortion	Miscarriage	Total
Total	**1,200,000**	**45**	**539,000**	**15**	**9**	**65**	**11**	**100**
Development region								
Eastern	259,000	42	109,000	14	8	66	11	100
Central	486,000	52	252,000	12	7	70	11	100
Western	208,000	41	86,000	18	8	62	11	100
Mid-Western	154,000	36	56,000	22	11	55	12	100
Far-Western	93,000	39	36,000	26	14	47	13	100
Province								
1	202,000	44	91,000	14	9	65	11	100
2	275,000	41	116,000	14	9	66	11	100
3	252,000	59	153,000	11	5	73	11	100
4 (Gandaki Pradesh)	96,000	42	41,000	18	4	67	11	100
5	196,000	38	77,000	19	10	59	12	100
6 (Karnali Pradesh)	69,000	37	26,000	20	17	51	12	100
7 (Sudurpaschim Pradesh)	93,000	39	36,000	26	14	47	13	100
Wealth quintile‡								
1 (poorest)	244,000	44	106,000	18	15	56	12	100
2	249,000	44	109,000	16	9	63	11	100
3	257,000	42	108,000	15	9	65	11	100
4	249,000	44	110,000	14	6	69	11	100
5 (wealthiest)	200,000	53	106,000	13	4	72	11	100

NOTE: Numbers and percentages may not add to totals (here or in the text) because of rounding. *Birth to a woman who did not want a child for at least two years when she became pregnant. †Birth to a woman who wanted no more children when she became pregnant. ‡The Demographic and Health Surveys rank individuals according to their household assets and divide the population into five groups of equal size (quintiles) to capture relative differences in wealth. SOURCE: reference 25.

TABLE 2

Contraceptive use and unmet need for modern methods among women aged 15–49 who want to avoid pregnancy, by region, province and household wealth quintile, Nepal, 2017

	No. of women aged 15–49	No. wanting to avoid pregnancy*	% distribution of women wanting to avoid pregnancy, by contraceptive use				% of women wanting to avoid pregnancy who have an unmet need for modern methods§
			Modern method†	Traditional method‡	None	Total	
Total	**8,450,000**	**4,989,000**	**56**	**13**	**31**	**100**	**44**
Development region							
Eastern	1,847,000	1,129,000	54	16	30	100	46
Central	2,999,000	1,711,000	61	12	27	100	39
Western	1,649,000	958,000	47	15	39	100	53
Mid-Western	1,139,000	711,000	59	8	33	100	41
Far-Western	815,000	479,000	61	12	27	100	39
Province							
1	1,469,000	902,000	50	19	31	100	50
2	1,522,000	883,000	62	8	30	100	38
3	1,853,000	1,057,000	61	14	25	100	39
4 (Gandaki Pradesh)	828,000	498,000	48	14	38	100	52
5	1,490,000	875,000	52	12	37	100	48
6 (Karnali Pradesh)	473,000	296,000	58	9	33	100	42
7 (Sudurpaschim Pradesh)	815,000	479,000	61	12	27	100	39
Wealth quintile**							
1 (poorest)	1,429,000	840,000	55	9	36	100	45
2	1,659,000	989,000	58	11	31	100	42
3	1,704,000	978,000	58	9	33	100	42
4	1,817,000	1,038,000	57	11	32	100	43
5 (wealthiest)	1,840,000	1,143,000	54	21	25	100	46

NOTE: Numbers and percentages may not add to totals (here or in the text) because of rounding. *Women who are married or are unmarried and sexually active (within the past three months), are able to become pregnant, and do not want any more children or do not want a child in the next two years. †The pill, IUD, injectable, implant, male condom, and male and female sterilization. ‡Rhythm, withdrawal and folk methods. §Women wanting to avoid pregnancy who are not using a contraceptive method or who are using a traditional method. **The Demographic and Health Surveys rank individuals according to their household assets and divide the population into five groups of equal size (quintiles) to capture relative differences in wealth. SOURCE: reference 25.

Modern Contraceptive Use

In many cases, a woman's likelihood of experiencing an unintended pregnancy depends on whether she and her male partner use a modern contraceptive method and whether they do so correctly and consistently.[19,41,42] The most effective modern methods are sterilization, long-acting reversible methods (e.g., IUDs and implants) and injectables. Following those are other hormonal contraceptives, such as the pill, and then condoms; these modern methods are more effective than traditional methods, such as periodic abstinence and withdrawal.[19]

Of all Nepali women who want to avoid a pregnancy, 20% prefer to wait at least two years before having a child, and 80% prefer to stop childbearing altogether.[25] However, only 56% of women who want to avoid pregnancy are using a modern contraceptive method (Table 2). About 13% of women wanting to avoid pregnancy rely on a traditional method (mostly withdrawal and periodic abstinence) and 31% use no method at all. Taken together, 44% of women wanting to avoid a pregnancy are not using a modern method; that is, they have an unmet need for modern contraception.

The proportion of women wanting to avoid a pregnancy who have an unmet need for modern contraception varies by geographic area but is substantial in all provinces of Nepal.[‡‡] It is highest in Gandaki Pradesh (52%) and lowest in Province 2 (38%). Further, although the proportion of women using no method is highest among the poorest women, a large proportion of wealthier women use traditional methods.[25] As a result, the proportion of women with unmet need for modern contraception is roughly similar across the socioeconomic strata of Nepali society.

Female sterilization is the most commonly used contraceptive method in Nepal, accounting for 29% of all contraceptive use and 34% of modern method use (not shown).[25] About one in six (17%) women using contraception rely on injectables, 10% on condoms, 10% on the pill, 7% on implants and 3% on IUDs. Among women who want to avoid a pregnancy, women wishing to stop childbearing altogether are substantially more likely to use a modern method than those wishing to space their births (85% versus 63%), which likely accounts for the high level of reliance on female sterilization.

‡‡The most recent NDHS (2016) indicates that after increasing for many years, modern method use may have stagnated because of high levels of male migration and consequent spousal separation. Among women who experience spousal separation, the level of risk of unintended pregnancy is reduced while their husbands are away and elevated when their spouse returns. Among currently married women whose spouse lives away, slightly more than half report the separation is less than a year, and about 40% report it is less than seven months. We therefore continue to include such women in our analysis.[14] However, we are unable to adjust for variation in the level of risk; this is an unavoidable limitation of this study.

Benefits of Increased Contraceptive Use

Comparing different scenarios of contraceptive use among women wanting to avoid pregnancy shows the extent to which current modern contraceptive services are preventing unintended pregnancies, as well as the extent to which unmet need for modern contraception might decline—and the incidence of unintended pregnancy along with it—as investment in modern contraception increases. At the current 2017 level of modern contraceptive use, Nepali women have roughly 539,000 unintended pregnancies annually, of which approximately 188,000 end in unplanned birth or miscarriage and 351,000 in induced abortion (Figure 1, page 13 and Table 3, page 13).[25]

In a hypothetical scenario in which no women use modern contraceptives, there would be 1.3 million unintended pregnancies each year. Of those, 463,000 would likely end in unplanned birth or miscarriage. An estimated 875,000 would end in abortion, and given that recent research has shown high current levels of unsafe abortion, it is likely that a large proportion of these abortions would be unsafe.[22] Thus, the current level of modern contraceptive use already yields considerable benefits by averting an estimated 799,000 unintended pregnancies and 524,000 abortions each year.[25]

Because childbirth carries health risks and unsafe abortion is prevalent, the pregnancies prevented by the current level of contraceptive use in turn prevent 400 maternal deaths and the loss of 52,000 healthy years of life among women each year. This is a 40% reduction compared with the hypothetical scenario in which no modern methods are used.

We expect that proportionally greater health benefits will accrue as larger proportions of women who want to avoid a pregnancy begin using a modern contraceptive method. Under a hypothetical scenario in which all unmet need for modern contraception is fulfilled, only 70,000 unintended pregnancies would occur each year (those caused by method failure).[25] This would result in 469,000 fewer unintended pregnancies than currently occur, a reduction of 87%. In absolute numbers, the drop in unintended pregnancies would be largest in Province 3 (124,900; Table 4, page 14), and the percentage reduction would range from 82% in Sudurpaschim Pradesh to 92% in Province 2. Under this scenario, the annual numbers of unplanned births, abortions and miscarriages would also be reduced by 87%, the number of maternal deaths would drop by 16% (a decline of 300 deaths), and the loss of 44,000 years of healthy life would be averted, compared with current levels. The number of induced abortions would decline by 306,000. These outcomes could dramatically improve the well-being of women and their families.

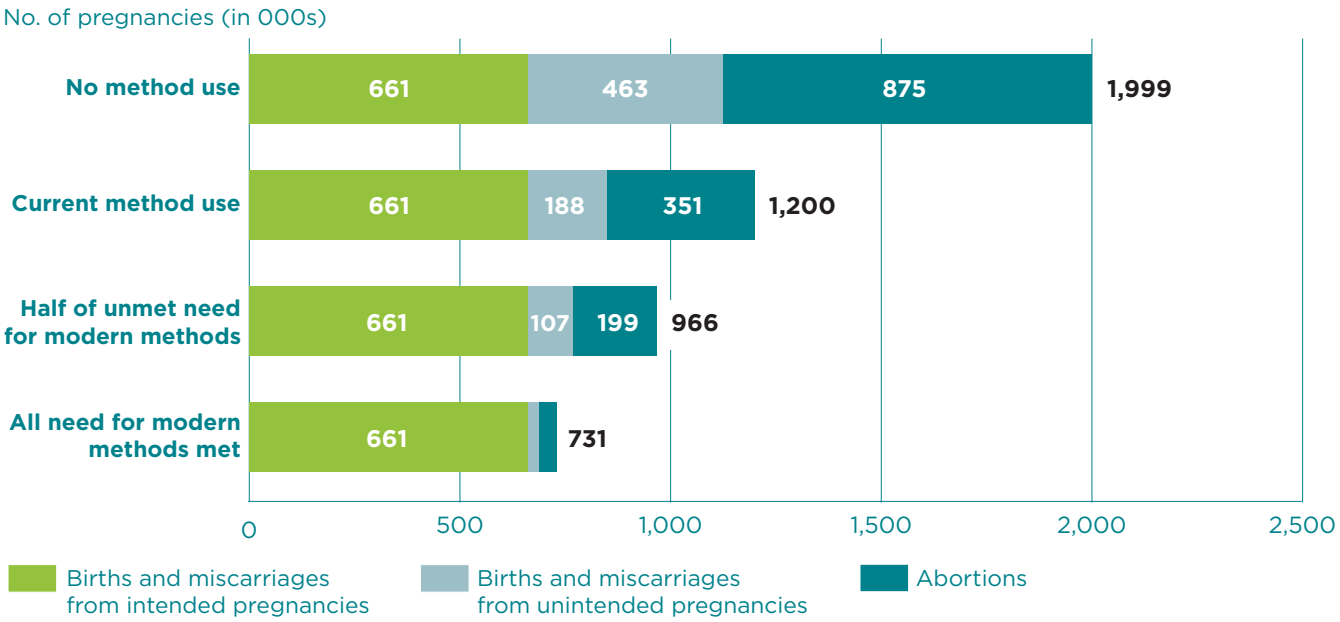
Fully meeting the need for modern contraception may be difficult to achieve. A scenario that may be more attainable in the near term would be to meet just half of the current unmet need for modern methods. Even in this less demanding scenario, the benefits over the current situation would be striking. Because some women in Nepal already use modern methods, meeting half of unmet need would mean that a total of 78% of women who want to avoid pregnancy would be using a modern method. This level of modern contraceptive use would result in 234,000 fewer unintended pregnancies per year, compared with current levels—a reduction of 43%, as well as 55,000 fewer unplanned births, 152,000 fewer induced abortions, 100 fewer maternal deaths and the loss of 10,000 fewer years of healthy life, compared with current levels.

Fully meeting the need for modern contraception would require large investments in the country's health infrastructure, training of health care providers and outreach services. It would increase the annual cost of providing modern contraceptive services from the current estimate of $18 million to $33 million (Figure 2, page 15), a total that includes the costs of contraceptive commodities, staff salaries, indirect costs, health infrastructure upgrades, contraceptive counseling and communication activities for behavior change.[25] Meeting half of the current unmet need for contraceptive services would cost $26 million per year.

FIGURE 1

BENEFITS OF MEETING CONTRACEPTIVE NEEDS

Modern contraceptive use reduces the abortions, unplanned births and miscarriages that result from unintended pregnancies.



NOTE: Miscarriages are estimated to account for 17% of intended pregnancies and 12% of unintended pregnancies (which include abortions). SOURCE: reference 25.

TABLE 3

Numbers of unintended pregnancies and their outcomes and maternal deaths and DALYs under various scenarios of modern contraceptive use, Nepal, 2017

	No. of each outcome, by contraceptive use scenario				% reduction in outcome under alternative scenarios		
OUTCOME	No contraceptive use	Current contraceptive use*	Half of unmet need for modern methods met†	All need for modern methods met‡	Current use vs. no use	Half of unmet need for modern methods met vs. current use	All need for modern methods met vs. current use
Unintended pregnancies	1,339,000	539,000	305,000	70,000	60	43	87
Unplanned births	313,000	128,000	72,000	17,000	59	43	87
Induced abortions	875,000	351,000	199,000	45,000	60	43	87
Miscarriages	150,000	61,000	34,000	8,000	60	43	87
Maternal deaths	2,100	1,600	1,500	1,400	22	8	16
Maternal DALYs	131,000	78,000	68,000	48,000	40	13	39

NOTES: Numbers and percentages may not add to totals (here or in the text) because of rounding. DALY=disablity-adjusted life year, or a healthy year of life lost to disability. *Among women wanting to avoid a pregnancy, 31% currently use a modern method, 8% use a traditional method and 61% use no method. †Among women wanting to avoid pregnancy, 65% would use a modern method, 4% would use a traditional method and 31% would use no method. ‡All women wanting to avoid pregnancy would use a modern method. SOURCE: reference 25.

TABLE 4

Numbers of outcomes of intended and unintended pregnancies under current modern method use, and the numbers of outcomes expected to result if all need for modern methods were met, according to province, 2017

PROVINCE	Scenario	No. of pregnancy outcomes			
		Births and miscarriages from intended pregnancies	Births and miscarriages from unintended pregnancies	Abortions	Total
Province 1	Current modern method use	114,000	31,500	57,700	203,200
	All need for modern methods met	114,000	4,400	8,100	126,500
Province 2	Current modern method use	162,000	39,000	74,900	275,900
	All need for modern methods met	162,000	3,000	5,700	170,700
Province 3	Current modern method use	103,300	40,300	109,500	253,100
	All need for modern methods met	103,300	6,700	18,200	128,200
Province 4 (Gandaki Pradesh)	Current modern method use	56,600	13,500	26,800	96,900
	All need for modern methods met	56,600	1,400	2,800	60,800
Province 5	Current modern method use	122,000	31,100	44,300	197,400
	All need for modern methods met	122,000	4,300	6,100	132,400
Province 6 (Karnali Pradesh)	Current modern method use	44,600	12,800	12,800	70,200
	All need for modern methods met	44,600	1,600	1,600	47,800
Province 7 (Sudurpaschim Pradesh)	Current modern method use	58,100	19,100	16,800	94,000
	All need for modern methods met	58,100	3,400	3,000	64,500

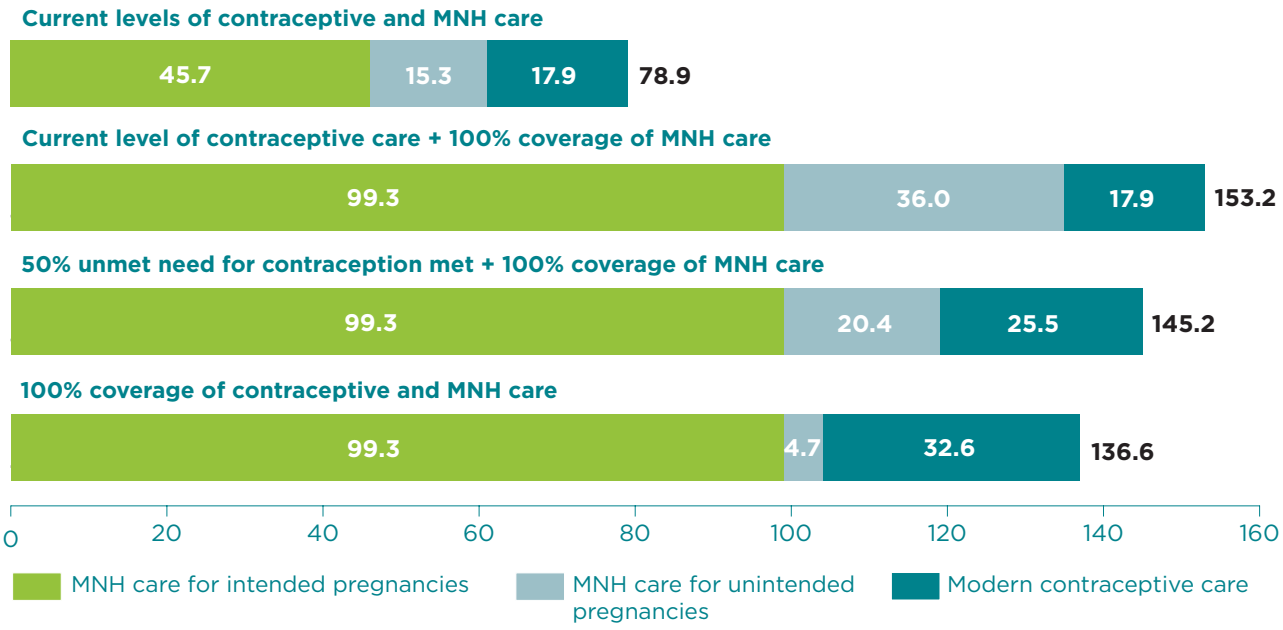
NOTE: Miscarriages are estimated to account for 17% of intended pregnancies and 12% of unintended pregnancies (which include abortions).
SOURCE: reference 25.

FIGURE 2

ANNUAL COST OF SERVICES

Investing in modern contraceptive services could greatly reduce maternal and newborn health (MNH) costs associated with unintended pregnancy.

Annual costs in millions of U.S. dollars, 2017



NOTE: Maternal and newborn health care includes interventions related to antenatal care; labor, delivery and postpartum care; newborn care; postabortion care; and HIV treatment. SOURCE: reference 25.

Need for and Costs of Improved Coverage of Maternal and Newborn Health Care

Maternal and newborn health care is necessary to protect and enhance the health of women and their babies throughout pregnancy, delivery and the postpartum period, and the World Health Organization has established internationally accepted standards for such care. We have used their standards to gauge the adequacy of current maternal and newborn health care in Nepal and to estimate the costs of fulfilling unmet need for such care. It is beyond the scope of this report to estimate the benefits to women and newborns of different scenarios of maternal and newborn health service provision, but a related analysis estimated that by providing all pregnant women with recommended maternal health care, Nepal could reduce maternal deaths by 64%.[43]

The coverage of maternal and newborn health care varies widely across Nepal's provinces. For the country as a whole, only 27% of women who experience serious medical complications during pregnancy or delivery receive the care that they or their newborns need.[44] The proportion of pregnant women who make four or more antenatal care visits is lowest (49%) in Karnali Pradesh, which is one of the poorest provinces, and highest (77%) in Sudurpaschim Pradesh (not shown).[25] Delivery in a health facility ranges from 52% in Province 2 to 75% in Sudurpaschim Pradesh. As for newborns, only 41% in Karnali Pradesh have their first postnatal checkup in the first two days after birth, while 67% in Province 3 receive such essential newborn care.[45] Similarly, only 39% of women in Karnali Pradesh have their first postpartum check-up within two days of delivery, compared with 68% in Gandaki Pradesh.[46]

Bringing the full package of recommended maternal and newborn health care (a wide array of interventions related to antenatal care; labor, delivery and postpartum care; newborn care; postabortion care; and HIV treatment) to all women who need it would require much work and significant financial investments. In 2017, the total cost of providing this package of care was an estimated $61 million (Figure 2): $41 million in direct costs (personnel, equipment and supplies) and $20 million in indirect costs (also known as programs and systems costs, including management, infrastructure, and communications and outreach).[25] The largest proportion of the total costs are for labor and delivery care (56%), while antenatal care accounts for 19%, newborn care accounts for 10%, postabortion care for 7%, and HIV testing and treatment for 8%.

In the absence of increased investment in contraception, providing all 1.2 million pregnant women each year with maternal and newborn health care that meets WHO standards would cost $135 million—$99 million for care for women with intended pregnancies and $36 million for those with unintended pregnancies.[25] This scenario represents an increase of $74 million in costs, compared with current costs. The greatest cost increase, $32 million, would be in Province 2, followed by Provinces 3 and 5, which would increase by $24 million each (not shown). This would place a serious financial burden on a country whose resources are already constrained.

Investing in Modern Contraception and Maternal and Newborn Health Care

The contraceptive use scenarios discussed above assume that current levels of maternal and newborn health care remain constant; likewise, the scenarios describing the costs of maternal and newborn health assume contraceptive care (and therefore unintended pregnancy) remain constant. However, simultaneously expanding modern contraceptive services and maternal and newborn care would result in cost savings compared with expanding either set of services alone.

By preventing unintended pregnancies and thus averting the need for care related to abortion or to carrying those pregnancies to term, modern contraceptive use makes maternal and newborn care more affordable. Under an ideal scenario in which both modern contraceptive services and maternal and newborn care are provided to all women in Nepal who need them, the cost of both types of services combined would be $137 million: $33 million for full modern contraceptive care and $104 million for full maternal and newborn health care (Figure 2). In comparison, it would cost $153 million in a hypothetical scenario in which modern contraceptive services remain at current levels but maternal and newborn health care is expanded to serve all women in need: $18 million for contraceptive care plus $135 million for full maternal and newborn care. Investing in both services simultaneously results in a savings of nearly $17 million because although the ideal scenario involves greater contraceptive costs than a scenario in which only care for pregnant women and newborns is expanded, the savings associated with averting unintended pregnancies more than covers that cost. In short, the cost of averting an unintended pregnancy is much lower than the cost of maternal and newborn health care associated with that pregnancy, such that every additional dollar spent on modern contraceptives services lowers the cost of maternal and newborn care by more than $2.

Each province would also see cost savings from simultaneous investment in both sets of services. Costs would be highest in Province 2: The cost of fully providing both maternal and newborn care and modern contraceptive services would be $30 million, but the cost of providing full maternal and newborn care would be $35 million if modern contraceptive coverage remained at current levels (Table 5, page 18). The cost savings of investing in both sets of services (rather than just maternal and newborn health care) would vary between $0.7 million and $4 million for the other provinces.

A more modest scenario in which maternal and newborn health care is provided to all who need it but only half of unmet need for modern contraception is met would cost $145 million: $26 million for modern contraceptive care and $119 million for maternal and newborn care. The country would still realize significant savings of $8 million on maternal and newborn care because of reductions in unintended pregnancy.

Benefits for Poor Women

Poorer women stand to gain more than wealthier women from improved coverage of modern contraceptive services. If unmet need for modern contraception were fully satisfied while maintaining current levels of maternal and newborn care, there would be an 89% decline in unintended pregnancies among women from poor households, compared with an 81% decline among women from wealthy households.[25] Similarly, the reduction in maternal mortality would be most pronounced among the poorest women: Fulfilling all unmet need would lead to a 20% decline in maternal deaths among the poorest women, compared with 15% among the wealthiest women.

TABLE 5

Annual cost of services under two hypothetical scenarios of increased MNH service provision, according to province, 2017

PROVINCE	Scenario	Estimated costs (in 2017 U.S. dollars)			
		MNH care for intended pregnancies	MNH care for unintended pregnancies	Modern contraceptive care	Total
Province 1	Current level of contraceptive care + 100% coverage MNH care	16,961,000	6,008,000	3,487,000	26,456,000
	100% coverage of contraceptive and MNH care	16,961,000	842,000	7,111,000	24,915,000
Province 2	Current level of contraceptive care + 100% coverage MNH care	24,159,000	7,512,000	2,959,000	34,630,000
	100% coverage of contraceptive and MNH care	24,159,000	575,000	4,910,000	29,645,000
Province 3	Current level of contraceptive care + 100% coverage MNH care	15,354,000	8,475,000	4,097,000	27,926,000
	100% coverage of contraceptive and MNH care	15,354,000	1,403,000	6,851,000	23,609,000
Province 4 (Gandaki Pradesh)	Current level of contraceptive care + 100% coverage MNH care	8,341,000	2,625,000	1,432,000	12,398,000
	100% coverage of contraceptive and MNH care	8,341,000	273,000	3,079,000	11,694,000
Province 5	Current level of contraceptive care + 100% coverage MNH care	18,160,000	5,647,000	2,931,000	26,738,000
	100% coverage of contraceptive and MNH care	18,160,000	773,000	5,838,000	24,771,000
Province 6 (Karnali Pradesh)	Current level of contraceptive care + 100% coverage MNH care	6,527,000	2,201,000	1,117,000	9,845,000
	100% coverage of contraceptive and MNH care	6,527,000	269,000	1,974,000	8,770,000
Province 7 (Sudurpaschim Pradesh)	Current level of contraceptive care + 100% coverage MNH care	8,565,000	3,226,000	1,891,000	13,682,000
	100% coverage of contraceptive and MNH care	8,565,000	584,000	3,173,000	12,323,000

NOTE: MNH=maternal and newborn health. SOURCE: reference 25.

Need for Additional Funding

Nepal is one of the focus countries of the Family Planning 2020 (FP2020) partnership, which supports the rights of women and girls to decide freely whether and when to have a child and how many children they wish to have. At the London Family Planning Summit in 2012, the Nepal government committed to the partnership that it would address the policy, financing, delivery, and social and cultural barriers to women's full access to contraceptive information, services and supplies. In doing so, the government stated it would "leave no one behind" and "reach the unreached" to accelerate progress toward meeting women's needs.[49]

Specifically, Nepal has committed to increasing the funds allocated for family planning programs by 7% every year until 2020, increasing the availability of a broad range of modern contraceptives and strengthening the capacity of service providers in the country.[6] Currently, to reduce barriers to accessing services, the government already provides women and couples with free contraceptive counseling and free access to a method of their choice. It also provides a nominal wage compensation for the time it takes to undergo sterilization. However, few people use these services.[43]

As part of the Nepal government's commitment to increasing resources to expand modern contraceptive use, it estimated the funds that would be needed to improve its advocacy efforts, communication strategy and management of its program implementation, as well as to increase the range of commodities offered and the capacity and number of health workers. The Ministry of Health's National Family Planning Costed Implementation Plan put the total estimate for five years, from 2015 to 2020, at about $154 million.[43] This plan aims for only a modest decrease in unmet need for modern contraception among all women, from 25% in 2014 to 22% in 2020.

Achieving significant reductions in maternal and newborn deaths will require greater investments in health care infrastructure, contraceptive services, and maternal and newborn health care. Largely through the contributions of foreign donors, Nepal has allocated approximately $37 million for 2017–2018 toward improving reproductive health care, and it has raised health care spending significantly over the last decade.[37] But the government has not been able to increase resources to the extent committed because resources were needed for recovery from the 2015 earthquake that devastated much of Nepal.[48] This shortfall points to the need for greater contributions from foreign donors to achieve and surpass Nepal's targets and commitments.

As this report shows, an effective strategy for reducing maternal and infant death and disability is to lower women's exposure to the risks of unintended pregnancy and childbirth in the first place. This requires women and couples to adopt modern methods of contraception, and policymakers must meet the demand for such methods. As women and couples in Nepal increasingly desire smaller families, the demand for modern methods will only grow. The responsibility for fulfilling this demand will have to be shared by various stakeholders, including local and provincial governments, the national government, the private sector and international development partners. Improving publicly funded family planning—through increased investment, continuous quality improvements and adoption of client-centered strategies—is especially important for meeting the needs of those who are most economically disadvantaged.

Because every additional dollar spent on modern contraceptive services lowers the cost of maternal and newborn care, increased contraceptive care will enable the country to reduce maternal and infant death and disability more quickly and affordably. The primary effect of such investment is to promote the health of women and their babies, but expanded contraceptive use and the prevention of unintended pregnancies can have wide-ranging secondary benefits, such as reductions in poverty and hunger, improvements in women's status and gains in education.[49] The benefits of improved quality of life and lives saved would be an incalculable gain to Nepali families.

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