

**Baseline Study Summary:
ReMiND - Reducing Maternal and Newborn Deaths**

**Kaushambi District,
Uttar Pradesh, India**

**December 2012-
January 2013**



Copyright © 2013 Catholic Relief Services

For any commercial reproduction, please obtain permission from pqpublications@crs.org or write to:

Catholic Relief Services
228 West Lexington Street
Baltimore, MD 21201-3413 USA

Cover photo: Satish Srivastava/CRS.

**BASELINE
STUDY
SUMMARY:
REDUCING
MATERNAL
AND NEWBORN
DEATHS**

Kaushambi District, Uttar Pradesh, India
December 2012 – January 2013

TABLE OF CONTENTS

1. Overview	1
2. Background.....	1
3. ReMiND Project.....	2
4. Key Findings	3
5. Conclusions.....	5
6. Priority Recommendations	6

1. OVERVIEW

Catholic Relief Services (CRS), Dimagi Inc. and Vatsalya are partnering in the Reducing Maternal and Newborn Deaths (ReMiND) Project which works with government community health workers (called ASHAs) to improve the frequency and quality of pregnancy, postpartum, newborn, and young child home visits in Kaushambi District of Uttar Pradesh (India). ASHAs use basic mobile phones operating Dimagi's open-source CommCare software, which equips them with multi-media job aids to support client assessment, counseling, and early identification, treatment and/or rapid referral of pregnancy, postpartum and newborn complications.

A project baseline study was conducted by CRS from December 2012 to January 2013 to 1) establish baseline levels of ReMiND's strategic objective indicators; 2) assess baseline levels of knowledge and supplemental indicators; and 3) explore household level attitudes around maternal, newborn, and child health (MNCH), including local perceptions and beliefs on the wantedness of girls. The baseline study collected both quantitative and qualitative data in Manjhanpur and Mooratganj blocks (i.e., counties) of Kaushambi where ReMiND is implemented. Quantitative data was collected through a Knowledge Practice and Coverage survey of 1,103 women (495 Manjhanpur, 608 Mooratganj) who had a live birth less than six months prior to the baseline. Qualitative data were collected through semi-structured interviews with mothers, mothers-in-law, and fathers. Qualitative research encompassed practices, beliefs, and household decision-making surrounding prenatal careseeking, delivery, postpartum care, and the wantedness of girl children. Ethical approval for the baseline was given by the Institutional Review Board at Maulana Azad Medical College in New Delhi.

2. BACKGROUND

Kaushambi District

One in five of the world's children under five years of age (U5) resides in India; every fourth child in the world that dies is in India.¹ In this country of over 1.2 billion,² Uttar Pradesh (UP) is the most populous state and lags far enough behind in MNCH to threaten both national and global achievement of Millennium Development Goals 4 & 5.³ Among UP's 70 districts, Kaushambi exhibits some of the worst health statistics and has been identified by the National Rural Health Mission (NRHM) as one of 19 high focus districts in the state. A Kaushambi woman or child's chance of death is much greater than India's average for MMR (92% higher), NMR (84% higher), and CMR (103% higher). (See Table 1 on the following page).

Table 1. Comparison of Mortality, Nutrition & Sex Ratio in India, Uttar Pradesh and Kaushambi District

Indicator	India	Uttar Pradesh ⁴	Kaushambi District ⁵
Maternal Mortality Ratio (MMR) per 100,000	230	345	442
Newborn Mortality Rate (NMR) per 1,000 live births	32	50	59
Child Mortality Rate (CMR) per 1,000 live births, <5 years of age	63	94 99 girls, 90 boys	128 141 girls, 115 boys
Maternal Anemia ⁶	-	10%	68%
Low Birth Weight / Pre-Term Birth	-	32% ⁶	60% ⁷
Sex Ratio at birth (girls per 1,000 boys)	-	904	859
Measles immunization coverage (0 – 11 months) ⁶	-	32%	32%

Kaushambi is located in southeastern UP. This predominantly rural (93%) district has the state's second highest scheduled caste population (36%) with a Hindu majority (86%) and Muslim minority (14%).⁸ Kaushambi district has eight administrative blocks and a population of 1.6 million, including an estimated 422,102 women of reproductive age (WRA) and 160,328 children under the age of 5.⁹

3. REMIND PROJECT

The ReMiND Project emerged from a partnership that began in early 2011 between Catholic Relief Services India (CRS/India) and technology innovator Dimagi, Inc. At that time, CRS responded to a request from Dimagi for partners in India to participate in beta testing of a pregnancy checklist run on basic mobile phones operating Dimagi's CommCare software. Based on progress of the CommCare beta test with 10 ASHAs in Kaushambi District, CRS earmarked private funds for 2012 to support the start-up of the ReMiND Project with all ASHAs in Manjhanpur block of Kaushambi working with local implementing partner Vatsalya and in continued partnership with Dimagi. Additional USAID DIV 2.0 funding awarded to Dimagi helped to support scale-up of ReMiND to a second block, Manjhanpur, of the district in 2013.

The objective of the ReMiND Project (2012 – 2015) is to contribute to sustained improvements in maternal, newborn and infant health outcomes in Kaushambi District. The project will contribute to these improved outcomes by increasing the adoption of MNCH and nutrition practices among CommCare clients and by improving the quality of essential MNCH services in targeted blocks. By the end of September 2012, ReMiND had trained

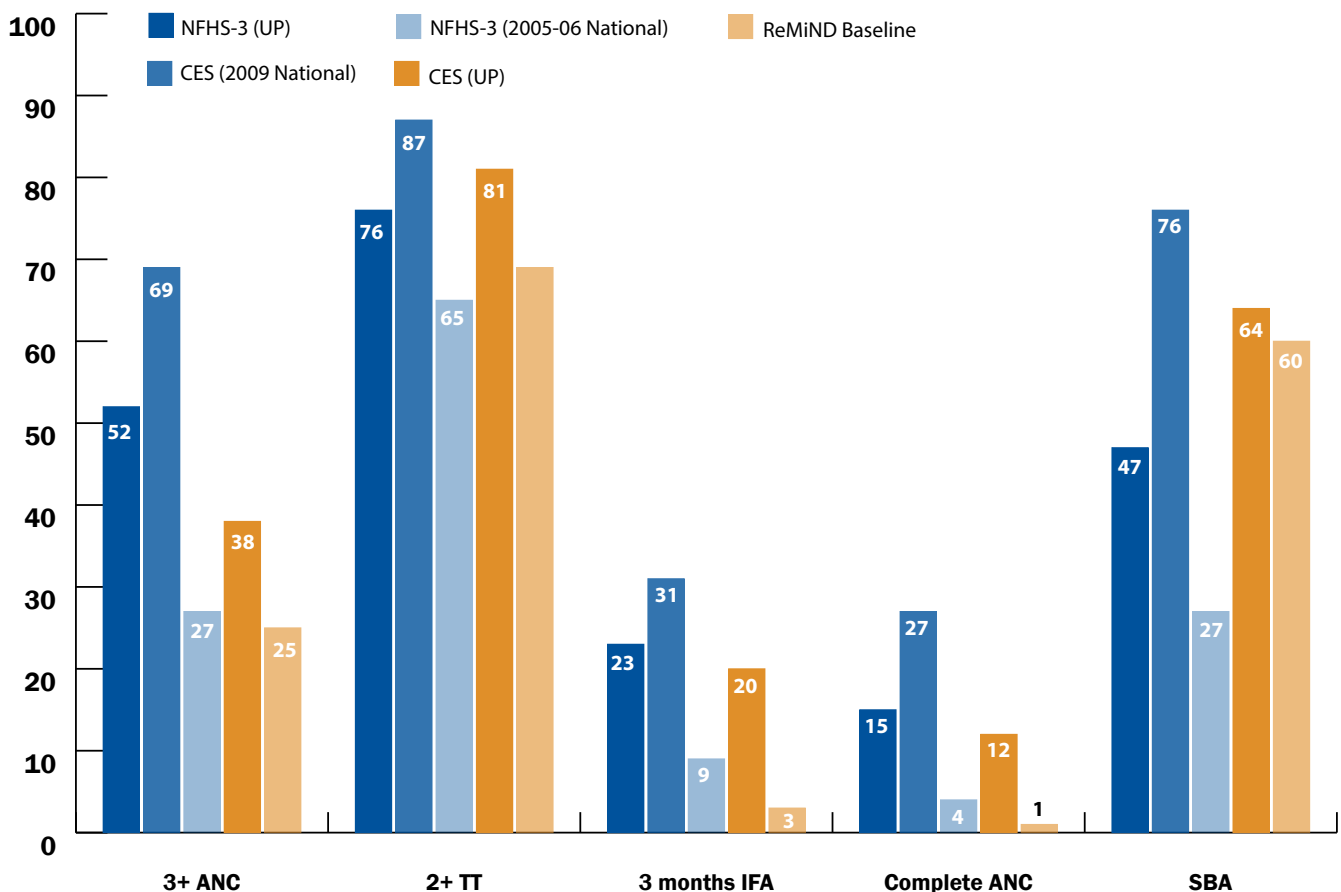
111 ASHAs from Manjhanpur Block of Kaushambi on a CommCare-based pregnancy application. In 2013, an additional 149 ASHAs in Mooratganj block of Kaushambi were trained. In addition to this expansion of coverage of ASHAs trained on the CommCare pregnancy application, the ReMiND Project will also roll out a CommCare-based postpartum, infant, and danger sign/referral application with ASHAs in both target blocks.

4. KEY FINDINGS

Antenatal Care Practices

Antenatal care practices ranged greatly among surveyed mothers, with 69% receiving 2+ Tetanus Toxoid (TT) shots, 25% having at least three antenatal care (ANC) visits, and only 3% taking iron folic acid (IFA) tablets or syrup for at least three months during their most recent pregnancy (See Figure 1 below). Those who did have 3+ ANC visits and 2+ TT shots and those who did not differed significantly on household income source, mother's level of education, and the number of biological children the woman had. While mothers and mothers-in-law expressed value for ANC during qualitative research, both groups associated good antenatal care almost exclusively with registering the pregnancy with an Auxiliary Nurse Midwife (ANM) and receiving TT injections.

Figure 1. Comparison of Key Maternal Health Indicators - NFHS-3, CES, ReMiND Baseline



Preparation for Delivery & Skilled Birth Attendance

The majority of women (62%) reported preparing in some way for their most recent delivery. Sixty percent of women surveyed delivered their last baby with a skilled birth attendant (SBA); this was significantly higher in Manjhanpur (69%) than in Mooratganj (54%).

Newborn Visits by Skilled Providers

Among mothers surveyed, 35% reported their infants were visited by a skilled provider within three days of birth. Visits by a skilled health provider were slightly more common in Manjhanpur (37%) than in Mooratganj (34%). Among the infants visited within 3 days of birth (n=389) most were visited by an ASHA (56%), a nurse (23%), or an ANM (22%). In qualitative data, both pregnancy and postpartum visits by ASHAs were reported by key informants to be primarily associated with notifying the mother about child vaccinations.

Knowledge of Danger Signs

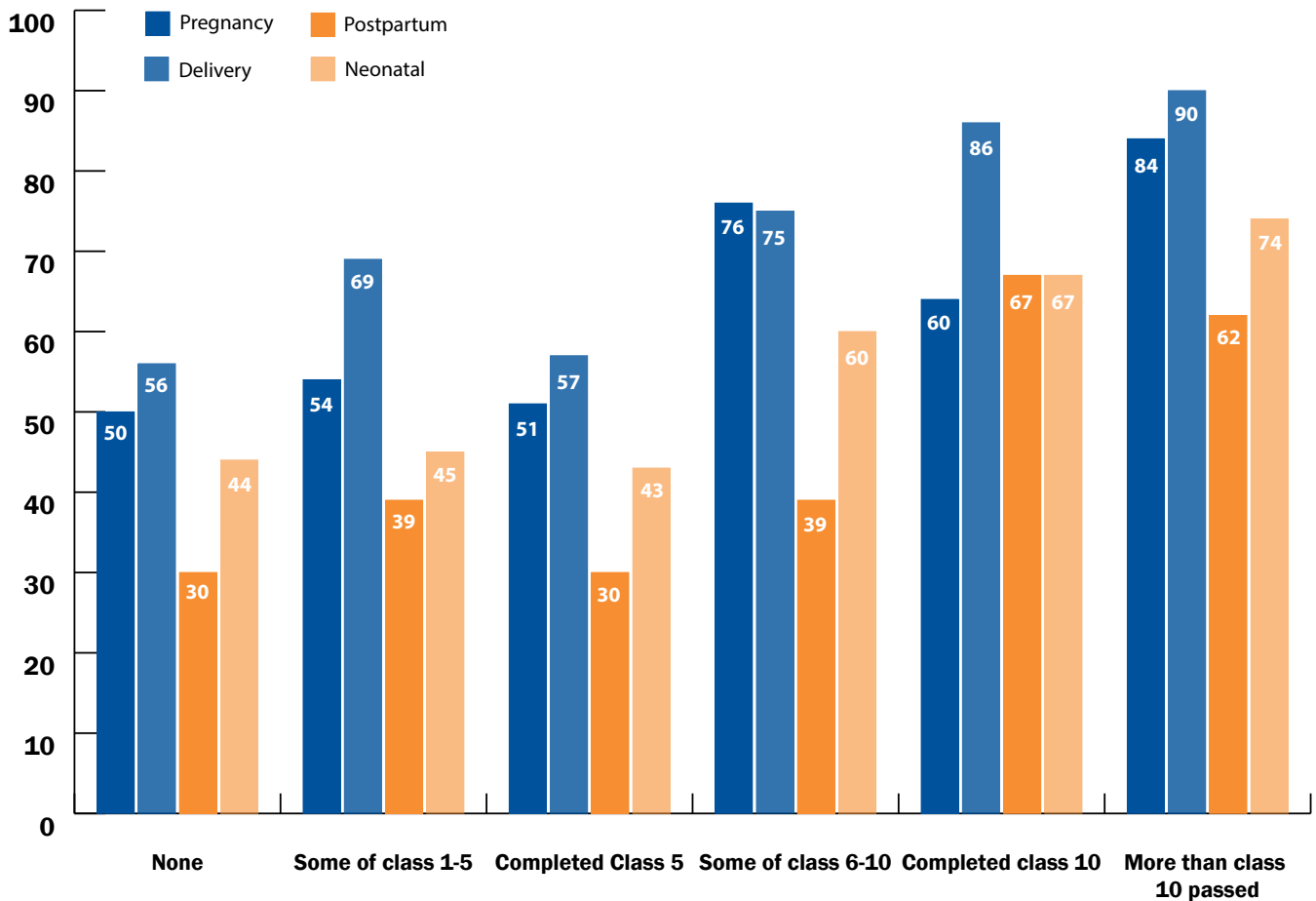
Knowledge of danger signs among women who had given birth in the last six months was highest for the neonatal period, with 63% able to correctly cite two or more danger signs. Knowledge was lowest for danger signs associated with delivery (24%), while approximately one-third of women (35%) were able to correctly cite at least two danger signs associated with pregnancy and 44% with the postpartum period. Women's education level was significantly associated with correct knowledge of danger signs during pregnancy ($p=0.005$), delivery ($p=0.04$), and the postpartum period ($p=0.021$), compared to women with low or no formal education. However, a woman's level of education was not significantly associated with knowledge of danger signs during the neonatal period. Women who had experienced danger signs were significantly more likely to correctly cite two or more danger signs associated with pregnancy ($p<0.001$), delivery ($p<0.001$), and the postpartum period ($p<0.001$). This association was not seen for complications during the neonatal period.

Careseeking for Complications

When surveyed about the occurrence of complications, 55% of the women self-reported that they had experienced complications during their most recent pregnancy; 40% reported complications during the postpartum period; 40% reported that their infants had experienced complications during the neonatal period; and 38% of those surveyed self-reported complications during delivery. Women were most likely to have sought appropriate care if they experienced complications during delivery (66%), followed by pregnancy (58%), neonatal (50%), and the postpartum period (37%). Appropriate careseeking for complications during pregnancy and delivery was significantly associated with household income sources. Appropriate careseeking for complications during every stage was significantly associated with women's education level (see Figure 2 Below). The type of health facility nearest to the household was significantly associated with appropriate careseeking in

case of complications during delivery ($p=0.014$) and postpartum ($p=0.045$), but not during pregnancy ($p=0.102$) and neonatal periods ($p=0.174$). Women having their own income source were less likely to seek appropriate care for all types of maternal complications and were significantly less likely to seek appropriate care during the neonatal period ($p=0.030$). The use of recommended health services, notably having 3+ ANC visits and skilled birth attendance, was significantly associated with appropriate careseeking in the case of both maternal and newborn complications.

Figure 2. Appropriate careseeking for maternal & newborn complications by level of maternal education



Early Infant Feeding Practices

The baseline found that only 45% of infants less than 6 months of age were reportedly not given prelacteal feeds, 45% received colostrum, and 42% were exclusively breastfed at the time of the survey. For all of these indicators, mothers in Mooratganj consistently reported lower levels of appropriate infant feedback practices than their peers in Manjhanpur. In qualitative interviews, a large majority of babies were reported to have been breastfed within the first two hours after birth, especially if they were born in a public health facility. However, informants expressed a pervasive belief that mothers' breastmilk is not sufficient until the third or fourth day after birth.

During this time, newborns are reportedly often given goat or cow milk which may or may not be mixed with water. Breastfeeding generally resumes after three or four days, but many infants continue to receive goat or cow milk through the newborn and early infant period.

Immunizations

Among infants less than 6 months of age with a vaccination card, only 6.3% had received all recommended immunizations for their age. The vaccination rate was highest for BCG (85%). While slightly more than half (53%) had received the birth dose of oral polio (OPV-0), less than a quarter (20%) received the birth dose of Hepatitis B (HBV-0). Among infants eligible for OPV-1, more than half (56%) had received it. Diphtheria Pertussis Tetanus (DPT) first dose coverage was higher at 64%. OPV and DPT second and third dose coverage are comparable: OPV-2 (35%), DPT-2 (38%), OPV-3 (18%), and DPT-3 (18%). HBV coverage is consistently lower than that of OPV and DPT: HBV-1 (51%), HBV-2 (28%) and HBV-3 (16%).

CommCare Coverage

At baseline, 10% of women surveyed reported that an ASHA had used a mobile phone with multi-media content as part of home visit follow-up during her most recent pregnancy (i.e., proxy for CommCare coverage). Four percent of women also reported that an ASHA used a mobile phone as part of newborn follow-up visit(s) with her youngest infant. Reported CommCare coverage was much higher in Manjhanpur for women (22%) and children (9.5%) than in Mooratganj, where baseline coverage was essentially zero for both. CommCare was rolled-out in Manjhanpur 3 months prior to the baseline, but was not yet introduced in Mooratganj at the time of the survey.

5. CONCLUSIONS

Maternal Education

Maternal education is arguably the most important demographic factor linked to maternal, newborn and child health in the ReMiND project area. Women with less than 5 years of education are consistently identified as having less healthy practices than women with higher levels of education for the majority of indicators assessed in the survey. Other influential demographics identified through the quantitative survey include the number of biological children, type of closest health facility, type of household income and a woman's having her own income source—the latter surprisingly associated with less healthy practices.

Involvement of Family Members

Mothers are clearly important in managing their own health and that of their newborn, but fathers and mothers-in-law are also integrally involved. When they are present in the household, mothers-in-law play a major role in the pregnancy of younger women in their family. They are often regarded as the

primary decision maker in matters related to maternal and child health. Even if mothers-in-law are not identified as the main decision-maker, they are often still heavily involved and consulted on issues related to accessing antenatal care, delivery, nutrition, household chores, and child care. Husbands provide financial support for any direct or indirect health costs, and also frequently wield decision-making authority.

The Role of ASHAs

The role of ASHAs in assisting mothers to register with the ANM, notifying them of vaccination opportunities, and accompanying mothers to the public health facility for delivery is well entrenched in the project area. Much less frequently, ASHAs play the important role of counseling mothers on essential pregnancy issues such as nutrition, danger signs, or the importance of IFA supplements. The ASHAs' actual involvement is especially minimal during the postpartum period, and is historically limited to informing the family about vaccinations for the newborn. However, mothers seem very appreciative and interested in having ASHAs provide them with more information, and especially in the potential of the ASHAs to respond to their questions and tailor information for their personal circumstances.

CommCare

ReMiND's CommCare-based pregnancy, postpartum, infant and referral applications have strong potential to improve the quality of ASHA home visits by equipping them with practical job aids to support assessment, counseling and referral of women, newborns and children. Qualitative responses from women visited by ASHAs using CommCare suggests that the tool and information provided is appropriate for and appreciated by women. CommCare can also help to support the identified gaps in the quality and frequency of ASHAs' visits by providing systematic guidance for counseling, assessment, treatment and referral in addition to SMS reminders to conduct home visits. The scope of CommCare to support outreach to mothers-in-law and fathers is less clear, but could be considered as a potential tool in a broader reflection on appropriate platforms for reaching these two influential audiences.

Gender Equity

Changing deeply entrenched gender-related social norms is an incredibly difficult and complex process. However, raising awareness of the issue and possibly also increased stigma and social disapproval related to gender discrimination toward the girl child and women who give birth to girls is an important step. While this can be addressed in a multitude of different ways, engaging and involving community leaders, as well as household leaders, is one way of promoting change.

6. PRIORITY RECOMMENDATIONS

a) Priority Demographics to Target

The baseline identified certain demographics that require special focus for specific MNCH messages. While ASHAs' use of CommCare is intended to target all pregnant and postpartum women and children up to 2 years of age in the ReMiND project area, increased emphasis is recommended for high focus demographics for specific topics (see Table 2). It is further recommended that the ReMiND team share this information with health authorities in Kaushambi and with ASHAs to help them better target counseling and follow-up to vulnerable or higher risk women.

Table 2. Summary of high priority demographics recommended for special focus in the ReMiND project

MNCH topics for pregnant/postpartum women & mothers of children under-2 years	High focus demographic
Importance of completing at least 3 ANC visits during pregnancy	Maternal education less than 5 years, households in primary income from agricultural or wage labor, high parity women (4+ biological children), other backward castes, scheduled castes
Issues related to IFA consumption for 3 months during pregnancy	Households in primary income from agricultural or wage labor, other backward castes, scheduled castes
Birth preparedness and presence of SBA at delivery	Women whose closest health facility is a sub-center or primary health center, (Manjhanpur) women living 3+ hours from nearest health facility
Knowledge of pregnancy, delivery, postpartum and newborn danger signs that require care from an appropriate care provider	Maternal education less than 5 years, households in primary income from agricultural or wage labor, women with own income source, first pregnancy, women with no history of maternal or newborn complications, women whose closest health facility is a sub-center or PHC, pregnant women who have not attended 3+ ANC, women who do not deliver with an SBA, women with newborn girls
Infant feeding practices	Other backward castes, scheduled castes, women in Mooratganj
Issues related to routine immunization	Low maternal education

b) Mothers-in-law and Fathers

Due to their extensive involvement and influence upon issues related to maternal and child health, husbands and mothers-in-law should be a focus of MNCH education and behavior change communication. It is recommended that the ReMiND team explores socially appropriate platforms that can be used to effectively reach mothers-in-law and fathers with key information regarding MNCH, especially IFA consumption, danger signs and appropriate careseeking for maternal and newborn complications, infant feeding practices, and routine immunization. Appropriate platforms for reaching mothers-in-law and fathers may or may not include technology-based interventions.

c) Monitoring Iron Folic Acid & Vaccine Supply

The ReMiND team should regularly monitor the status of IFA and vaccine supply in the project area. If shortages or stock-outs are identified, appropriate engagement and advocacy with health authorities and communities leaders (i.e., Panchayati Raj Institution, Village Health Sanitation and Nutrition Committee) should be undertaken to help ensure adequate supply.

d) Promoting Wantedness of Girls

It is recommended that the ReMiND team begin piloting approaches to raise awareness and possibly increase social disapproval related to discrimination toward girls and mothers of girl children. Project discussions related to engagement with Village Health Sanitation and Nutrition Committees can be extended to consider the appropriateness of leveraging this platform as a way of engaging with and involving community and household leaders to begin promoting change in gender-related social norms. It is also recommended that CommCare counseling include content that emphasizes the cultural belief that a person's destiny (including the sex of a child) should be accepted as God's will. This belief could be stressed and capitalized upon in order to help reduce the burden and blame may be placed upon mothers who do not give birth to a son. This content can be initially piloted as part of field testing the project's postpartum application. The scope of field testing should be extended to mothers-in-law, fathers and other influential household or community members to better understand the appropriateness and effectiveness of this message to promote the wantedness of girls.

¹UNICEF. The Situation of Children in India: A Profile. New Delhi: UNICEF (May 2011).

²Gol. Census of India 2011-Provisional Population Totals: Paper 1 of 2011, Uttar Pradesh Series 10. Lucknow:Gol/DCO (2011).

³Gol/MoHA/ORG/Sample Registration System. Maternal and Child Mortality and Total Fertility Rates. New Delhi: Gol (7 July 2011).

⁴UNICEF. State of the World's Children 2012. New York: UNICEF (February 2012).

⁵Gol/MoHA/ORG/Vital Statistics Division. Annual Health Survey Bulletin 2010 – 11 – Uttar Pradesh. New Delhi: Gol (2011).

⁶Gol/MoHFW/NHSRC. HMIS – Analysis – Uttar Pradesh: Apr'11 to Sep'11. New Delhi: NHSRC. (2011).

⁷Gol/MoHFW/NRHM/NHSRC. District HMIS Data Analysis Apr'10-Mar'11: Uttar Pradesh – Kaushambi. New Delhi:NHSRC (2011).

⁸Gol. Census of India 2001. www.censusindia.gov.in, accessed 3 February 2012.

⁹Estimated 2012 population for Kaushambi is calculated from preliminarily Gol Census 2011 data multiplied by an annual growth rate of 2.36%, extrapolated from the district's Census 2011 decadal growth rate of 23.6%. Estimates of WRA (25.82%) and U5 (9.81%) are based on 2012 mid-year population data for India accessed at <http://www.census.gov/population/international/data/idb/country.php> on 20 February 2012.



Catholic Relief Services
228 West Lexington Street
Baltimore, MD 21201 USA
Tel: (410) 625-2220

crsprogramquality.org