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TECHNICAL REPORT

Assessment of Selected Best Practices for Maternal and Newborn Care in Albania, Armenia, Georgia, and Russia

JUNE 2012

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DISCLAIMER

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Abbreviations

AMTSL	Active Management of the Third Stage of Labor
BP	Blood Pressure
CIS	Countries of the Independent Commonwealth States
CME	Continuing Medical Education
DHS	Demographic and Health Surveys
E&E	Europe and Eurasia
EEBF	Early (immediate) and Exclusive Breastfeeding
ENC	Essential Newborn Care
HIS	Health Information System
IMPAC	Integrated Management of Pregnancy & Childbirth (<i>WHO guidelines</i>)
IRB	Internal Review Board
LAC	Latin America and the Caribbean Region
LBW	Low Birth Weight
MCH	Maternal-child health
MgSO ₄	Magnesium Sulfate
MMR	Maternal Mortality Ratio
MNC	Maternal and Neonatal Care
MNH	Maternal and Neonatal Health
MOH	Ministry of Health
NMR	Neonatal Mortality Rate
PE/E	Pre-eclampsia/ Eclampsia
PMTCT	Prevention of Mother-to-child Transmission of HIV/AIDS
PPH	Post-partum Hemorrhage
pPROM	Premature Prolonged Rupture of Membranes
QI	Quality Improvement
ROM	Rupture of Membranes
TB	Tuberculosis
UNFPA	United Nations Population Fund
USAID	United States Agency for International Development
WHO	World Health Organization

EXECUTIVE SUMMARY

Introduction

This report describes the results of a four-country assessment, funded by the US Agency for International Development (USAID), of high-impact maternal and newborn childbirth practices in the Europe and Eurasia (E&E) region. Conducted between October 2010 and August 2011 in 42 maternities in Albania, Armenia, Georgia, and Russia, the assessment examined the quality of high-impact childbirth and early post-partum maternal-newborn practices in sampled facilities, including the status of cross-cutting health system functions and provider and client attitudes, knowledge, and self-reported practices. The study provides a multi-perspective look at the quality of maternal- newborn care currently provided and as perceived by clients, with an eye toward assessing areas of strength and areas needing improvement.

The assessment found evidence for solid coverage of many best practices in the sampled maternities. The generally positive assessment findings are consistent with measured reductions in maternal and neonatal mortality in this region over the past few decades. Although assessment results suggest some areas of common strength and weakness across the four countries, the methodology does not support comparison of individual country results. It is hoped that the individual country results will be useful to policy-makers and implementers working in the unique health system context of each individual country.

While overall maternal and newborn mortality trends are positive in the region, maternal and newborn mortality and morbidity rates in the E&E region continue to exceed those in high-resource countries. The region's maternal mortality rates remain nearly three times higher and neonatal (0–27 day) mortality rates nearly four times higher than in high-resource countries (WHO, 2012; Li et al., 2012). However, recent evidence suggests that these mortality gaps are narrowing. A 2012 report by the World Health Organization (WHO) and other agencies reports an impressive 54% reduction in the maternal mortality ratio (MMR) in Central and Eastern Europe and the Commonwealth Independent States (CIS) from 1990–2010. Albania and Armenia had the lowest estimated MMR in 2010 among the four assessed countries at 27 and 30 maternal deaths per 100,000 live births, respectively (WHO 2012). A recent analysis of global child mortality trends found on average a nearly one-third reduction in all-cause neonatal mortality from 2000 to 2010 in each assessment country (Liu et al., 2012; appendix), with less variation in country-specific neonatal mortality rates (NMRs) than for MMRs. The NMR estimate for Armenia (11 neonatal deaths per 1,000 live births), generated in the recent analysis of global child mortality trends, is fairly comparable to the estimate of eight neonatal deaths per 1,000 live births measured in the latest Armenia 2010 Demographic Health and Survey (DHS) (Liu et al., 2012; Armenia DHS, 2010). This assessment looked at the status of high-impact maternal-newborn interventions associated with improved outcomes for mothers and newborns to identify 1) areas of established strength in sampled maternities and 2) priority areas needing continued improvement to close the mortality gap between individual countries in the E&E region and between E&E region countries and their higher resource neighbors.

Assessment Objectives

The overarching assessment objective was to assess the coverage and quality of high-impact childbirth and early post-partum maternal-newborn practices in sampled maternities, including the status of essential, supporting health system functions and provider and client attitudes, practices, and knowledge. The assessment examined the application of evidence-based, high-impact intra- and post-partum interventions proven to reduce major direct causes of maternal and newborn mortality. These interventions included routine childbirth and early post-partum care best practices as well as prompt detection of and evidence-based treatment for major life-threatening complications for mothers and newborns during and after delivery. For the most part, the assessment evaluated WHO-endorsed clinical interventions and standards of care (WHO, 2006; 2010).

A second objective was to illustrate examples of USAID investments in maternal-newborn health (MNH) in assessment countries, including, when applicable, examples of USAID-supported country results that may have contributed to assessment findings. Country and international stakeholder regional investment in maternal, newborn, and child health and in other important sectors (e.g., education) has been substantial over the past several decades. USAID has been a leading partner and donor in the region since the early 1990s. In the health sector, USAID has provided both technical and financial support for improved maternal-child health, primary care, family planning and reproductive health, HIV/AIDS, and TB, as well as programs that support cross-cutting health system strengthening. USAID support for improved MNH services in the region has prioritized the scale-up of high-impact interventions demonstrated to reduce mortality rates due to leading causes of death and disability for pregnant women, neonates, and young children. The agency has supported highly active maternal-newborn-child health portfolios in assessment countries since the mid-1990s. USAID-supported activities in the region have targeted a range of MNH best practice areas, including pre-conceptual counseling (Armenia); antenatal care; routine childbirth and early post-partum care; client- and family-centered care; and increasingly in recent years, best practices for the prevention, early detection, and management of life-threatening childbirth complications for mothers and newborns, including sepsis (mother/newborn), obstructed labor, post-partum hemorrhage, pre-eclampsia, management of premature birth and the premature neonate, and asphyxia of the newborn (see Annex Tables A45 and A46 summarizing current and past USAID-supported MNH activities in assessment countries and Sections III and IV for illustrative examples of results of USAID-supported maternal-newborn health work).

Methodology

Assessment methods, standardized across the four countries, included semi-structured interviews with key informants (at national and regional levels) and an assessment of MNH services in a representative sample of maternities in each country. Quantitative data sources included a chart review; structured questionnaires with clients, managers, and providers; and an inventory of maternity inputs and organizational processes. The assessment interviewed 32 expert stakeholders in the countries from a range of institutions, including Ministry of Health, in-service and post-service medical training institutions, health information officials, and partners. It selected 42 maternities for a representative sample of urban, rural, primary, secondary, and tertiary referral facilities. It reviewed 592 charts and used a structured quantitative questionnaire to survey 292 clients, 239 providers, and 42 managers in the maternities.

Findings

Routine delivery and newborn care and complications care

Assessment findings demonstrate many important gains and several areas needing continued strengthening. Comprehensive results are presented in the synthesis results section, which highlights areas of individual country strengths and weakness as well as inter-country variability and common trends. In general, chart, client, and provider results demonstrate fairly strong delivery of many routine best practices during labor, delivery, and the immediate post-partum period. These practices included initiation of early breastfeeding, thermal protection, routine eye care, and vaccination of the newborn. Areas of strength in all countries included generally good availability of essential maternal-newborn care inputs and protocols; generally high rates of provider-reported continuing medical education (CME) for many MNH topics, generally high rates of early newborn care best practices, and client-reported privacy and satisfaction with services. Promoting routine adherence with best practices in labor, delivery, and the early post-partum period has been a strong focus of USAID-supported work in the region since the early 2000s. Illustrative results of country-level, USAID-supported improvements in routine childbirth and early post-partum care are highlighted in Sections III and IV.

Areas of weakness observed in most facilities in all countries included relatively weak documentation (in patient charts) by providers of the application of many best practices, such as post-partum monitoring of mother and newborn for early detection of complications. Despite strong provider knowledge of normal labor progression in all countries (measured by a questionnaire), chart documentation of labor progress and regular measures of maternal and fetal well-being during labor (such as maternal blood pressure and cervical dilatation) varied across and within countries. Documentation in patient charts of post-partum patient education and counseling services was weak in all countries. The observed low provider documentation of many best practices may be due in part to the lack, in most maternities, of a standardized medical chart, which could be designed to support routine best practices. Other areas of relative weakness included weak adherence with routine patient consent practices (reported by both providers and patients).

Chart and provider results suggest variable rates of routine administration of active management of the third stage of labor (AMTSL), including immediate post-partum administration of Oxytocin, in many maternities. AMTSL is a best practice for preventing post-partum hemorrhage, an important cause of maternal mortality. Newborn care best practices—including initiation of early breastfeeding, thermal protection, routine eye care, and vaccination—were strong in all four countries. Although immediate breastfeeding was reported by a high proportion of post-partum mothers, *exclusive* breastfeeding as reported by mothers was less strong. Most mothers and newborns remained in the maternity hospital for two to three days after birth, the highest risk period for both mother and newborn when monitoring for complications and delivery of best practices can have important benefits. The assessment found moderate to weak chart documentation of post-partum monitoring of mother and newborn during these stays.

In general, maternities demonstrated good availability of essential laboratory, medication, equipment, and infrastructure inputs for providing high-quality maternal-newborn care. Assessment results for active surveillance, early recognition, and evidence-based treatment of pre-eclampsia/eclampsia (PE/E), maternal/newborn sepsis, and premature birth and newborn care were generally weak in most countries with some inter-country variability. However, the results for the quality of complications care are inherently limited by methodological issues, given the relatively rare occurrence of complications and the difficulty of extrapolating data on complex care processes from a weakly organized patient chart. Despite methodological limitations, several results merit highlighting. Half or less of relevant charts in all countries documented specialized and/or standardized care for the premature/low birth weight infant. Despite good availability of magnesium sulfate, less than half of charts with documented cases of pre-eclampsia recorded administration of this important treatment intervention to prevent the progression of pre-eclampsia to life-threatening eclampsia. Assessment results varied for neonatal resuscitation care, although it was not evaluated in depth. Global awareness is rapidly increasing of the burden of PE/E, neonatal asphyxia, and premature birth, with many governments, partners, and donors, including USAID, engaged in scaling up best practices for these important causes of maternal and neonatal mortality. However, large-scale support for improved management of complications is relatively recent. Assessment results likely reflect this reality. Continued investments supporting improved management of PE/E, premature birth, and asphyxia will undoubtedly be essential for achieving continued mortality and morbidity reductions for women, mothers, and neonates in the region in the next decade.

Post-partum and pre-discharge counseling of mothers to promote best practices at home and to teach women to recognize early danger signs indicating a possible complication for themselves or their newborn varied across countries as reported by mothers and documented in charts. With the exception of Russia, less than a third of patient charts documented any pre-discharge counseling. Less than 10% of charts in all countries except Armenia documented the package of pre-discharge counseling, a pre-discharge physical exam, and a designated time and place for the mother and newborn to return for follow-up care. The assessment identifies strengthening systematic post-partum counseling and pre-discharge planning as an area for improvement.

Client-centered care

Assessment results related to client-centered best practices demonstrate many positive findings and some areas of relative weakness across countries, with inter-country variability. Most clients reported that they felt that their physical privacy and confidentiality of personal information had been respected during their maternity stay. Most also reported immediate physical contact with their infant and “rooming in” with him/her after delivery, with highest rates of rooming-in observed in Georgia and Albania. A large majority of women reported having felt respected and treated kindly by providers and staff. (The timing and place of the interview, while the mother was still in the maternity, may have influenced this result.) Almost a fifth of women reported an episiotomy. Provider questionnaire results suggest that episiotomy is not routinely provided but that many providers performed episiotomies under certain circumstances. Future interventions to reduce this practice in this region would need to evaluate the factors that influence this practice, including provider beliefs and attitudes.

The practice of regularly obtaining client consent for clinical interventions was intermediate; 74% of women on average who had undergone a cesarean section reported having signed a consent form before the procedure, but less than 40% of mothers in all countries except Russia (84%) reported having signed such form at any time after admission, despite the high priority accorded to consent procedures by 57% of clients. Provider questionnaire results suggest that providers may hesitate to discuss complex labor care management decisions with women, especially in the event of a complication. The presence of a birth companion of choice and choice of birth position were reported by less than a fifth of mothers in every country except Georgia, where 51% reported a companion of choice and 37% reported choice of birth position (provider questionnaire results mirrored those of clients). Interviews with clients suggest, however, that for cultural reasons women may not always want a companion. Indeed, considerable variation emerged in client ranking of birth companion as an important priority, ranging from 3% of surveyed clients in Russia to 69% in Georgia. USAID-supported MNH work in assessment countries has strongly prioritized client-centered practices, including immediate post-partum skin-to-skin contact between mother and newborn; rooming-in of mother and newborn; privacy and confidentiality; choice of birth position; and freedom from unnecessary, potentially harmful procedures, such as pre-delivery enema, shaving, and episiotomy (Tables A45 and A46 and illustrative results of USAID-supported, country-level, client-centered MNH best practices in Section IV).

Health system functions

Cross-cutting health system functions related to delivery of best practices in maternities had many areas of strength and several needing improvement. As mentioned, availability of essential inputs and human resources care were generally strong in all countries. However, the availability of a uniform patient medical chart to promote and standardize documentation of best practices was generally weak, with negative results for quality of facility-level primary data and downstream health information systems at district, regional, and national levels. The generally weak documentation in charts has especially important implications for the accurate recording and verification of diagnoses used to calculate morbidity and mortality rates. In many cases, even when a standard partogram was in a chart (55% of charts), it was blank or only partially completed, signaling a failure to use of the partogram to optimize labor and delivery management (early detection of obstructed labor), to record vital elements of patient care for rationale clinical decision making (especially during staff shift changes, which are commonly linked to medical errors), and to generate reliable data for health information systems. Since the capacity of such systems to generate meaningful data to guide local and national results-based decision making depends on the quality of primary data, weaknesses in patient charts are an important problem.

For the most part, managers reported an adequate supply of providers, including specific provider cadres. Not surprisingly given the relatively abundant provider supply, the volume of monthly deliveries reported by individual providers was generally low. In all countries except Russia, a third or more of providers reported attending fewer than 10 deliveries per month, and a fifth of neonatologists reported

having attended fewer than three neonatal resuscitations in the past three months. Since a higher volume of clinical cases for both individual providers and individual facilities has been linked to better patient outcomes in most studies, providers' low delivery and resuscitation rates are worrisome for the maintenance of competence, especially for management of rare complications. The general over-supply and urban concentration of physicians, especially specialists, in the region is well recognized. Many national governments there are trying to balance physician supply and geographical coverage to match needs.

Despite fairly high rates of regular provider supervision reported by both providers and managers, the small proportion of providers who reported a regular, known supervisor suggests inconsistency in supervision. Managers and providers were also asked about their involvement in quality improvement initiatives. Manager-reported use of provider performance data to support performance-based supervision varied, ranging from 92% of managers in Georgia to 30% in Armenia. Regulation of providers via mechanisms like continuing medical education (CME) requirements also varied between countries. Less than a half of providers in all countries except Russia reported a CME requirement to practice medicine. This finding is consistent with the known dissolution of provider CME requirements in Georgia and Armenia in recent years as part of general health care reforms. Although over half of managers reported performance-based, financial incentives or bonuses for providers, only about a fifth of them reported ever receiving a performance-based bonus.

Conclusions

In summary, the assessment found many strong results in sampled maternities. Measured results are undoubtedly in part attributable to high stakeholder investment in the region, including by USAID, and most importantly are reflected in the decreasing maternal and neonatal mortality rates. However, despite the narrowing of the maternal and newborn mortality gap between E&E countries and their richer neighbors, the persistently higher rates of maternal and newborn mortality in the region demonstrate a need to hold and expand the gains, with a focus on areas of demonstrated service delivery weakness for high-burden conditions. Moreover, the legacy of the Soviet health care system (Semashko model) remains strong in the region, with a lasting orientation toward highly specialized and medicalized care even for routine, uncomplicated deliveries. This legacy is unlikely to be cost-effective over the long-term. Most births in maternities in post-Soviet countries continue to be attended by both a neonatologist and an obstetrician.

Recommendations

Recommendations in the final section of this report focus on closing the gap between known best practices and observed practices for high mortality and morbidity maternal and neonatal conditions. Based on assessment findings, we provide specific recommendations to improve care in five areas: 1) labor, delivery, and immediate post-partum care; 2) early post-partum care; 3) complications care; 4) client-centered best practices; and 5) health system recommendations to improve care delivery.

Recommendations for improving routine childbirth and post-partum care call attention to the need to improve systematic monitoring of both mother and newborn during all phases of delivery and post-partum care to 1) improve early detection of complications (e.g., improved partograph use); 2) improve systematic administration (and recording) of immediate post-partum Oxytocin to reduce the occurrence of post-partum hemorrhage; 3) strengthen support for *exclusive* breastfeeding; and 4) improve post-partum counseling and discharge processes. *Routine care* improvement recommendations could be achieved with minimum investment since most focus on improving routine processes of care for more efficient and reliable delivery of best practices in a setting of generally robust basic health system supports (e.g., human resources, commodities).

Complications care recommendations emphasize improving early detection and management of pre-eclampsia/eclampsia, asphyxia, and premature birth. In particular, recommendations emphasize the

need to strengthen services for premature/low birth weight infants as a key finding, since premature birth is the most common cause of newborn mortality in the assessed countries (and the region) (WHO, 2012).

Recommendations for strengthening client-centered best practices focus on improving routine patient consent procedures, choice of birth position, and continuing to reduce rates of non-evidence-based, potentially harmful practices, such as episiotomy, shaving, and enemas.

Cross-cutting health system recommendations focus on improving laboratory microbiology and blood transfusion capacity; improving the quality of facility data collection systems to support higher quality data for clinical decision making and improved health information systems that can guide results-based decision- and policy-making; strengthening provider regulation and supervision practices and access to high-quality mandated CME; and actively engaging providers and staff in ongoing quality improvement processes.

I. INTRODUCTION

Objectives

This assessment was funded by the USAID Europe and Eurasia (E&E) Bureau to assess the quality of high-impact maternal-newborn health (MNH) services in a sample of maternities in four USAID-supported E&E countries. The overall objective was to gauge progress in achieving maternal-newborn best practices in the region and illustrate examples of USAID investments in MNH in assessed countries, including, when applicable, examples of USAID-supported country results that may have contributed to measured results in sampled maternities.

Specific assessment objectives included:

1. Assess high-impact, evidence-based labor and delivery and early post-partum MNH practices (routine and complications care) and health system supports in a representative sample of maternities;
2. Describe provider, client, and manager knowledge, attitudes, and reported MNH behavior and/or care practices; and
3. Describe client-centered best practices during labor, delivery, and the early post-partum period, including privacy, confidentiality, consent for care, and client experience of care.

Background

Maternal and child health (MCH) indicators in the E&E region lag behind those in higher resource, European countries. Despite important gains in reducing maternal and newborn mortality in the region over the past two to three decades, the maternal mortality rate (MMR) remains nearly three times higher and the neonatal mortality rate (NMR) nearly four times higher in region countries than in neighboring western European countries (WHO et al., 2012; Liu et al., 2012). From 1981 to 2006, the average MMR in the Commonwealth of Independent States (CIS) fell by nearly 50%, from approximately 75 maternal deaths per 100,000 live births to 38 (UNFPA, 2010). A 2012 report by the World Health Organization (WHO), other UN agencies, and the World Bank reports a 54% reduction in maternal mortality in Central and Eastern Europe and the CIS, from 70 deaths per 100,000 live births in 1990 to 32 in 2010. Albania's estimated MMR dropped from 48 maternal deaths per 100,000 live births to 27 in 2010, and Russia's fell from 74 to 34 from 1990 to 2010 (WHO et al., 2012), a decrease of roughly 50% and comparable to the estimated E&E regional trend. Armenia's estimated MMR demonstrated a more modest decrease: from 46 in 1990 to 30 in 2010, but remained lower than Russia's 2010 estimate. The regional estimated MMRs are nearly two to three times higher than those in most high-resource settings, with some individual country MMRs in the region nearly four to five times higher. Nevertheless, despite country variability and likely under-reporting of maternal deaths, the regional MMR statistics indicate that most CIS states and countries in Central and Eastern Europe have witnessed impressive reductions in maternal mortality over the past three decades (UNFPA, 2009). Not surprisingly, institutional delivery and antenatal care coverage rates are universally high: close to 100% for most populations of women in assessment countries, with some exceptions (e.g., Roma gypsy populations).

Leading causes of maternal mortality and morbidity in the region include post-partum hemorrhage, obstructed labor, pre-eclampsia/eclampsia (PE/E), sepsis, and post-abortion complications, as well as, increasingly, indirect causes such as pulmonary embolism and cardiovascular disease. Most deaths and serious morbidity due to direct causes of maternal mortality (and many indirect causes) can be prevented through routine surveillance, prompt recognition, and evidence-based management of complications applying high-impact prevention and/or treatment interventions. For example, Active Management of the Third Stage Labor, a series of three steps, including immediate post-partum administration of Oxytocin, reduces the occurrence of post-partum hemorrhage (PPH) by about 50% when administered correctly. Similarly, prompt recognition and administration of magnesium sulfate

(MgSO₄) for pre-eclampsia is a highly evidence-based best practice for reducing the condition's progression to life-threatening eclampsia (characterized by seizures and often death).

As early childhood mortality falls worldwide, newborn mortality constitutes an increasingly important proportion of early childhood mortality. Indeed, newborn mortality accounts for approximately 40% of all childhood deaths. Recent estimates of neonatal mortality as a percentage of total childhood mortality in assessed countries range from 65% in Georgia to 57% in Armenia and 50% in Russia and Albania (Liu et al., 2012; calculated from published appendix). Depending on the source, NMRs per 1,000 live births range from 9–11 in Albania (2008–2009 DHS; Liu et al. 2012), 8–11 in Armenia (DHS, 2010), 15 in Georgia (Liu et al., 2012), and 8 in Russia (Liu et al., 2012). A recent systematic review of early childhood mortality estimates that all-cause neonatal mortality in the first 27 days of life (largely determined by newborn mortality) decreased by roughly a third or more from 2000 to 2010 in each assessment country, from 13 neonatal deaths to 9 in Albania; from 18 to 11 in Armenia; from 21 to 15 in Georgia; and from 11 to 6 in Russia (Liu et al., 2012; figures calculated from country-specific results in published appendix). The 2010 Armenia Demographic and Health Survey (DHS) estimates an even lower rate of neonatal mortality in Armenia: 8, representing an impressive reduction from the estimated 17 in the 1996–2000 Armenia DHS (Armenia DHS, 2010). Nevertheless, the persistently high proportion of neonatal deaths as a proportion of childhood deaths in this region and its continued gap in NMR compared with high-resource settings highlight the importance of continued investments in newborn care services by government and other stakeholders. Since most neonatal deaths occur in the first two to three days after birth, the quality of childbirth and newborn health services is essential for improving neonatal outcomes.

Leading global causes of newborn mortality include asphyxia, sepsis (serious infection), and premature birth. Worldwide, premature birth is the leading cause of newborn mortality, directly causing 35% of all neonatal deaths. Premature birth is the second leading cause of early childhood mortality worldwide after pneumonia and the leading cause of early childhood mortality in most high- and middle-resource countries (March of Dimes et al., 2012). Premature birth occurs in 1 out of 10 births worldwide and preterm birth is estimated to be a risk factor for at least 50% of all neonatal births worldwide (Lawn et al., 2010). The E&E region is no exception, with prematurity constituting the leading cause of neonatal mortality in the assessment countries: 30% of all newborn deaths in Albania, 36% in Armenia, 40% in Georgia, and 33% in Russia (tied with congenital causes) (Born too Soon, 2012; Li Liu, 2012). Preterm birth rates in assessed countries range from 9.0 deaths of preterm infants per 1,000 live births in Albania to 11.0 in Armenia, 8.8 in Georgia, and 7.0 in Russia. Among 184 ranked countries, Albania ranks 110th for preterm births and 125th for deaths due to complications of preterm birth (Born too Soon, 2012). Armenia ranks 74th and 117th, respectively, for preterm births and deaths due to preterm birth complications; Georgia ranks 116th and 112th, respectively; and Russia ranks 155th and 47th, respectively (Born too Soon, 2012). Country-specific figures reveal higher rates of preterm birth incidence in Russia but better survival rates for preterm infants there and lower rates of preterm incidence in Armenia, which has higher rates of premature infant mortality. Preterm birth is a syndrome with a variety of causes that can be broadly categorized into spontaneous preterm labor and provider-initiated preterm birth (e.g., for a maternal or fetal medical condition). However, the cause of preterm birth remains unidentified in up to half of all cases (Menon, 2008). Nevertheless, there are some known risk factors for preterm birth, ranging from maternal history of preterm birth and multiple pregnancies (strong risk factors) to infections, young or advanced maternal age, short inter-pregnancy intervals, and low body mass index. Some lifestyle factors, including stress, smoking, and excessive alcohol intake, are also been associated with an increased risk of preterm birth (Gravett et al., 2010). Chronic maternal medical conditions like hypertension and diabetes have also been associated with both spontaneous and provider-initiated preterm birth. Although the cause of preterm birth remains unidentified in up to half of all preterm births, there are high-impact, antenatal, intra-partum, and neonatal interventions that can reduce the risk of death from premature birth complications in low- and middle-resource countries.

Global, regional, and national efforts are increasingly focused on scaling up these high-impact prevention and treatment interventions for preterm birth, including antenatal administration of maternal corticosteroids for preterm labor, systematic antibiotics for premature prolonged rupture of membranes (ROM), and specialized care such as Kangaroo care for preterm newborns. For the 80% of worldwide premature births that occur between 32 and 37 weeks of gestation, systematic delivery of low-cost, relatively simple intra- and post-partum interventions can prevent approximately 75% of deaths due to prematurity. Neonatal sepsis, another important cause of newborn mortality, can be prevented in many cases by simple interventions, including strict hand-washing and prophylactic use of antibiotics in labor and for the neonate in the presence of major risk factors. Most cases of asphyxia can be successfully managed through simple interventions administered during the first “golden minute,” including tactile stimulation and sometimes brief resuscitation with a bag and mask.

This assessment evaluated the status of both *routine* best practices known to reduce the incidence of complications and death as well as the status of best practices for management of the major direct causes of maternal and newborn mortality: post-partum hemorrhage (PPH), PE/E, obstructed labor, sepsis (mother and newborn), asphyxia, and premature birth. The assessment also examined the status of client-centered childbirth practice. Over the past couple of decades, commitment has grown worldwide, endorsed by WHO and many other stakeholders, to promote client-centered maternal care. USAID-supported MNH programming in the region has included a focus on client-centered care, such as client choice of birth companion, immediate post-partum skin-to-skin contact between mother and newborn, and rooming in of the newborn with the mother throughout the maternity stay. Client-centered maternal care generally positions women at the center of their childbirth experience, reduces unnecessary and often costly medical interventions for routine normal childbirth, promotes full client participation in all aspects of childbirth care, and maximizes support of the maternal-newborn unit during the immediate and early post-partum period. Much of the interest in client-centered maternal care, often referred to under the umbrella term “humanization of childbirth in the LAC region, has been driven by the accelerating medicalization of normal childbirth witnessed in many countries, reflected by the soaring rates of cesarean deliveries and unnecessary or harmful childbirth practices (e.g., episiotomy) in many countries. The assessment includes a focus on client-centered practices to offer a clearer picture of the status of both client-centered and non-centered practices in sampled maternities.

II. METHODOLOGY

A. Selection of Priority MNH Practices

High impact intra- and post-partum best practices were selected based on the epidemiology of maternal and newborn mortality in the Europe and Eurasia region as described above and the evidence-based highest-impact interventions demonstrated to reduce these leading causes of maternal and newborn mortality and morbidity. For the most part best practices are taken from WHO standards (WHO 2006; 2010). Client- and family-centered best practices selected for assessment generally reflect best practices supported by most international safe motherhood organizations and institutions, including WHO’s Department of Making Pregnancy Safer, UNFPA and other stakeholders. Table I below summarizes leading causes of maternal and neonatal mortality and best practices based on current evidence and international guidelines for prevention, early detection, and prompt evidence-based management of leading direct causes of maternal and newborn mortality including: post-partum hemorrhage, eclampsia, obstructed labor, maternal and newborn sepsis, newborn asphyxia and premature/low birth weight newborn. For the most part, maternal-newborn standards and high impact interventions are taken directly from WHO Department of Making Pregnancy Safer Integrated Management of Pregnancy and Childbirth (IMPAC) guidelines and the WHO partograph (WHO 2006, 2009, 2010). Client-centered best practices assessed are summarized in the third row of Table I and include birth companion, skin to skin contact between mother and newborn and early breastfeeding, informed consent, privacy and confidentiality, and respect for individual preferences.

Table 1: Leading Causes of Maternal and Newborn Mortality and Evidence-based Intra- and Post-partum Best Practices and Client-centered Practices

Assessment Category	Leading Causes of Mortality	Evidence-based Best Practices
Maternal Health*	Hemorrhage Eclampsia Infections (Sepsis)	-Best <i>routine</i> maternal intra- and post-partum care practices -Best practices for prevention, early detection & treatment maternal <i>complications</i> : --PPH: AMTSL, monitoring & treatment --Pre/Eclampsia: early detection & treatment MgSO ₄ --Obstructed labor: partograph --Sepsis: Prevention, prophylaxis, early detection & treatment
Newborn Health*	Prematurity Infections Asphyxia	-Best <i>routine</i> newborn care practices: Thermal protection; EEBF; umbilical & eye care; immunizations -Best care practices for newborn <i>complications</i> : --Neonatal resuscitation --Special care for premature infants (intra-partum maternal steroids; pPROM antibiotics; Kangaroo care, special feeding support) --Prevention & prompt treatment Sepsis
Client- Centered Practices		Birth companion Skin to skin & early breastfeeding Informed consent Privacy & Confidentiality Respect for Individual Preferences

*Based primarily on WHO Integrated Management of Pregnancy and Childbirth Guidelines

PPH: Post-partum Hemorrhage; AMTSL: Active Management of Third Stage of Labor; EEBF: Early (immediate) & Exclusive Breastfeeding; pPROM: premature prolonged rupture of membranes.

Documents reviewed include WHO, UNFPA, USAID and other partner documents, E&E region and individual country documents (country demographic health surveys, health information reports, country surveys, national disease prevention and treatment programs, clinical guidelines, etc.).

B. Selection of Maternities

Standardized sampling criteria was applied for selection of maternities in each country with the goal of including as wide a regional representation as possible, as well as a representative mix of urban and rural, private and public, primary and secondary, and partner and non-partner supported maternities. Standard sampling criteria for selection of maternity facilities in each country included:

- Minimum 10 maternities in each country.
- Maximum geographic representation possible.
- 75% urban and 25% rural
- Mix of USAID and non-USAID supported sites
- Mix of public sector & private sector sites representative of public-private service delivery mix in the country
- Mix of district, regional and referral maternities

C. Data Sources, Collection, and Analysis

Assessment measurement methods in each country included semi-structured interviews with key informants (usually at national level) and an assessment of maternal-newborn labor and delivery services in a representative sample of maternities. Expert informants were selected in advance of each country assessment to represent a range of perspectives and in-country institutions including MOH officials, academic clinician experts and pre- and in-service educators, regional managers, partners and other

stakeholders. In general, expert informants were interviewed during the first week in each country in tandem with data collector training and pre-testing of tools for launch of maternity assessments in weeks two to four.

Data collection methods at facility level were primarily quantitative, using a common set of data sources and standardized data collection tools across the four countries. Quantitative data sources include six distinct data sources, summarized in Table 2 below. Given the challenges of assessing best practices without resource-intensive direct observation, a variety of data sources was deliberately included to capture as rich and accurate a picture as possible of maternal and newborn labor, delivery and post-partum practices in sampled facilities. In addition to quantitative data collection, semi-structured interviews were conducted with health center managers and providers when time allowed, although this was not formalized due to time and cost constraints.

Table 2: Data Collection Tools and Sampling Criteria

Tool Category	Description
Inventory of Essential Inputs and Service Organization	1 per facility; completed by trained data collector, assisted by Manager and appropriate clinic staff (varied by maternity).
Medical Record Review	Non-random selection of 15 charts (linked mother-newborn pair) per maternity; inclusion of both routine deliveries and obstetric complications as possible (1-2 cases of PPH, pre-eclampsia, sepsis, newborn asphyxia).
Manager Questionnaire	1 per facility: senior manager interviewed by trained data collector (occasionally managers completed questionnaires independently with assistance of data collector)
Provider Questionnaire	As many providers per site as possible with 3-4 minimum (except rural sites); Quantitative multiple-choice questionnaire to assess knowledge, attitude and self-reported practice. Providers included: Obstetricians, Neonatologists and Midwives (midwives included if able to deliver babies independently); Providers independently completed questionnaires assisted by data collector when necessary.
Client Questionnaire	As many clients as possible per facility; 5 minimum if possible depending on maternity size; Quantitative multiple-choice questionnaire to assess knowledge, health service utilization, medication utilization, and attitudes to MNC best practices; clients were actively interviewed by trained data collectors who transported client responses onto hard copy questionnaires.
Selected Maternity Statistics	Table summary of service coverage and mortality and morbidity statistics for individual Maternity; completed by trained data collector with assistance of Maternity health information official.

Feedback from each of the four countries USAID Mission staff was solicited on the assessment protocol prior to drafting a first version of tools for pre-testing. All tools were translated and pre-tested in each country prior to data collection. In each country, a trained and closely supervised team of content specialist data collectors travelled between selected health centers, spending an average 1.5-2 days in each of a minimum 10 maternities in each country. Data was collected onto hard paper tools and entered into an Excel data base. Data entered into Excel was imported into STATA and all data was analyzed in STATA. Standard quality assurance processes were implemented throughout all phases of data collection, entry, cleaning, and analysis, including a systematic review of completed tools at the end of each day of data collection and regular cross-checks during data entry, cleaning, and analysis.

D. Ethics Procedures

Internal Review Board (IRB) approval was requested and obtained from URC's IRB prior to initiation of data collection.

- *Potential Risks and Measures to Minimize Risks:* The assessment posed minimal risk given that the formative and evaluative assessment components were non-invasive, consisting of anonymous written questionnaires by providers and clients and chart reviews without any identification of

individual provider or client information. The risk to assessment participants was minimal given that the questions and topics discussed were within the realm of day-to-day health service delivery and utilization parameters.

- *Informed Consent:* All participating maternities provided informed consent agreeing to participate in the assessment. All subjects completed a consent form, supported by verbal explanation, before completing any questionnaire or being interviewed. The purpose of the study, procedures involved in the study foreseeable risks and discomforts, benefits that may arise from the study, commitments and actions to ensure confidentiality, voluntariness of the study, and persons to contact should the subject have any future questions were verbally reviewed and consent obtained prior to administering any questionnaire.
- *Voluntary Participation, Confidentiality and Data Security* As part of the informed consent process, potential study participants were verbally informed that the decision to participate in the assessment was entirely voluntary. All data collected was kept confidential and securely stored with the Senior Country Coordinator. To protect the subject(s) privacy and confidentiality, no data collection instruments (including notes) included the names of study participants.

III. FINDINGS

Findings of the 42-maternity MNH assessment in Albania, Armenia, Georgia, and Russia are summarized in this section and include sample characteristics for different data sources; results of chart review for mother and newborn best practices for both routine and complications care; review of cross-cutting health system supports for best practices in sampled maternities; and results of client, provider, and manager questionnaires. Cross-cutting health system functions assessed in maternities are presented based on WHO Health System Building Blocks, including: human resources, health information systems, essential inputs, service delivery organization, and financing. The final results section presents and discusses of synthesized data across all sources in the categories of maternal, newborn, and client-centered results.

A. Sample Characteristics

The assessment selected 42 maternities according to standard sampling criteria summarized above. Table 3 shows the distribution of different maternity types by sampling category in all four countries. Tables A1, A2, A3, and A4 in the Annex summarize maternity types within each individual country.

Table 3: Maternities Assessed (n=42 Maternities)

Facility Type	Maternity Type
District or Secondary Maternity	28 (66%)
Regional or Tertiary Maternity	14 (33%)
Rural	8 (19%)
Urban	34 (81%)
USAID-supported	15 (36%)
Non-USAID supported	27 (64%)
Public	35 (83%)
Private	7 (17%)

Table 4 summarizes sample sizes by data source. In the combined countries, 592 charts were reviewed, and 292 clients, 239 providers, and 42 managers completed survey questionnaires. Trained data collectors completed 42 checklist inventories, structured surveys of facility and service delivery organization, and facility statistics (one per maternity).

Table 4: Total Maternities and Sample Sizes by Data Source (n=42 Maternities)

Data Sources	Total	Albania	Armenia	Georgia	Russia
Total maternities assessed	42	10	10	12	10
Facility inputs and service organization inventory	42	10	10	12	10
Chart review	592	145	150	149	148
Manager questionnaire	42	10	10	12	10
Provider questionnaire	239	66	48	69	56
Client questionnaire	292	61	52	88	91
Facility statistics	42	10	10	12	10

B. Chart Review Findings: Maternal Care

This section presents results of the chart review with respect to best routine and complications care practices for the mother. The next section presents chart review results for best practices for the newborn. However, of course, labor and delivery practices strongly influence outcomes for both newborn and mother, so many maternal best practices described in this section are essential for a good outcome for the newborn. Routine best practices are described for three key childbirth phases relevant for every woman who gives birth: active labor, delivery and immediate post-partum, and post-partum and discharge care. In general chart review data are reported as the percentage of charts for which a best practice is recorded by review of the 592 charts sampled. Later sections describe provider, client, and manager results to expand the picture generated by chart review results.

Chart Review Sample Characteristics

Table 5 summarizes characteristics of the chart sample. Charts were non-randomly selected in all maternities to try to include cases of normal childbirth and maternal and newborn complications. 592 charts were selected in the 42 maternities, targeting approximately 50% “normal uncomplicated births” and 50% complicated ones in each maternity chart sample. Due to the non-random selection of charts it is not possible to draw conclusions about the true incidence of complications in any maternity assessed or to compare frequencies between countries. The most frequent complications observed in the non-random, four-country sample were PPH (7%), prematurity and LBW (17%), and neonatal asphyxia (8%). The higher proportion of complications in the Russia chart sample is likely due to a combination of factors, including facility characteristics (slightly greater proportion of higher level maternities due to Ministry of Health authorization issues), non-random chart selection in all countries, and over-selection of charts with complications in Russia, as well as a probable higher quality diagnosis of complications in Russia due to higher quality of care results in general there. The mothers’ average ages in this sample were very similar in all four countries and averaged 26 years.

Table 6 summarizes the delivery types observed in the (non-random) sample. Most deliveries in all four countries were vaginal deliveries (average 80%) with a smaller percentage of assisted deliveries (forceps, suction) and a relatively low proportion of cesarean deliveries relative to the proportion of complications in the non-random chart sample. In tandem with the higher proportion of complications observed in the Russia chart sample, the rate of cesarean was higher in the Russia chart sample than for other countries.

Table 5: Chart Review Sample Characteristics (n=592 Non-randomly Selected Charts)

Indicator	4-country Average	% (#) of charts with indicator			
		ALB (n=145)	ARM (n=150)	GEO (n=149)	RUS (n=148)
Average maternal age (years)	26	26.2	25.7	25.7	26.7
Mother alive at discharge	99.8%	100% (143)	99% (148)	100% (149)	100% (148)
Newborn alive at discharge	98%	98.6% (139)	97% (145)	100% (149)	98% (145)
Delivery with recorded birth complications	37%	27% (25)	36% (54)	11% (17)	74% (106)
Obstructed labor	15%	6.7% (9)	1% (2)	0% (0)	53% (79)
Maternal sepsis	0.4%	1.5% (2)	0% (0)	0% (0)	0% (0)
Pre-eclampsia	7%	8% (11)	10% (15)	3% (5)	6% (9)
Eclampsia	0.5%	0.7% (1)	0.7% (1)	0.7% (1)	0% (0)
PPH	7%	2.9% (4)	9.4% (14)	4% (6)	11% (16)
Prematurity (<37 weeks)	17%	17% (24)	13% (19)	1% (2)	36% (53)
Low birth weight (<2500 gms)	17%	13% (18)	17% (25)	4% (6)	35% (42)
Neonatal asphyxia	8.4%	8.6% (12)	4.7% (7)	0.7% (1)	20% (30)
Neonatal sepsis	0.5%	0% (0)	0% (0)	1.3% (2)	0.7% (1)

Table 6: % (#) of Charts by Delivery Type (n=592 Charts)

Type of Delivery	4-country Average	ALB (n=145)	ARM (n=150)	GEO (n=149)	RUS (n=148)
Normal vaginal delivery	80% (474)	74% (104)	89% (133)	95% (141)	65% (96)
Assisted vaginal delivery	3.5% (21)	2.84% (4)	2% (3)	4.03% (6)	5% (8)
Cesarean	15.7% (92)	23 (33)	9% (14)	1.34% (2)	29% (43)

Chart Review Findings: Maternal Care

In general, documentation of best evaluation practices at admission was recorded in most charts in all countries, including gestational age (to rule out prematurity) and maternal blood pressure (Table 7). However, documentation of the presence or absence of mothers' co-morbid conditions (e.g., asthma) was observed in only a third or less of charts in all countries except Albania (79%). Maternal tobacco use and alcohol use status (+ or -) was documented in less than a fifth of charts in all countries.

Documentation of labor progression and measures of maternal and fetal well-being was variable with respect to individual measures and individual country. Except in Albania (74%), a standard intra-partum clinical record was observed in one half or less of charts or less in all countries (Table 8).

Table 7: % of Charts in Which Selected Best Admission Practices Recorded (n=592 Charts)

Admission Information	4-country Average	ALB	ARM	GEO	RUS
Antenatal care information recorded	81%	81% (117)	100% (150)	48% (74)	94% (140)
Gestational age recorded	97%	100% (133)	88% (132)	98% (146)	100% (146)
Blood pressure (BP) recorded at admission	94%	89.6% (129)	98% (147)	95% (141)	94% (139)
Urine protein recorded	67%	69% (100)	87% (130)	77% (115)	36% (53)
Maternal co-morbid chronic conditions (+ or -) recorded in chart (e.g., asthma)	38%	79% (114)	9% (14)	32% (48)	32% (47)
Alcohol use status recorded	2%	5.6% (8)	0% (0)	0% (0)	3% (4)
Tobacco use recorded	6%	5.5% (8)	0% (0)	0% (0)	19% (28)

Table 8: % (#) of Charts with Standard Intra-partum Record and in Which Routine Best Labor Practices Recorded (n=592 Charts)

Intra-partum (Labor) Best Practice	4-country Average	ALB	ARM	GEO	RUS
Standard intra-partum record (partogram or non-partogram) is available in patient chart	55%	73.6% (106)	27.3% (41)	50.3% (75)	43% (64)
Fetal heart tones recorded at least every 60 minutes	34%	18.1% (26)	26.7% (40)	50.3% (75)	42% (62)
Contractions frequency recorded at least every 30 minutes	29%	20.1% (29)	26.7% (40)	40.3% (60)	28% (42)
Cervical dilation recorded at least every 4 hours	64%	*	52.8% (38)	*	76% (72)
BP recorded at least every 4 hours during labor	71%	*	57.1% (40)	*	85% (81)
Maternal temperature recorded at least every 2-4 hours	19%	15.9% (23)	25.9% (20)	17.4% (26)	18% (20)
Time of ROM recorded	65%	36.5% (53)	95.3% (143)	35.6% (53)	93% (138)

* No valid data for indicator.

Documentation of contraction frequency every 30 minutes to assess adequacy of labor and fetal heart tones at least every hour (to assess fetal well-being) was observed in a third of charts on average with little country variation. Regular documentation of cervical dilation and maternal BP at least every four hours (a WHO standard) was stronger than for other intra-partum measures in the two countries with valid results (Russia and Armenia; data in Georgia and Albania were incorrectly collected for these measures). Documentation of maternal temperature (to assess for infection) at least every four hours (a WHO standard) was observed in a quarter or less of charts in all countries. The recording of specific time of ROM (to guide appropriate initiation of prophylactic antibiotics for prolonged ROM) was more variable, demonstrating strong results in Russia and Armenia and weaker ones in Albania and Georgia.

Immediate post-partum best practices for the mother varied. Less than a quarter of charts in Albania, Georgia, and Armenia and less than a half of them in Russia documented immediate post-partum administration of Oxytocin less than one minute after delivery of the fetus (one of three elements of

active management of the third stage of labor [AMTSL], which reduces PPH), although a higher proportion of charts documented post-partum administration of Oxytocin within five minutes, suggesting the practice may be more common than the one-minute results suggest (Table 9). Documentation of controlled cord traction and external uterine massage (the other AMTSL elements) was generally low in all countries. The time of placenta delivery was recorded in most charts, with most placenta deliveries occurring within 30 minutes of birth.

Table 9: % (#) of Charts in Which Immediate Post-partum Best Practice for Mother Was Recorded (n=592 Charts)

Indicator		4-country Average	ALB	ARM	GEO	RUS
Controlled cord traction recorded during delivery of placenta		21%	9.2% (10)	2.9% (4)	59% (87)	11.5%
External massage of uterus recorded after delivery of placenta		31%	60% (65)	2.9% (4)	48% (71)	14%
All three elements of AMTSL recorded		15%	4.6%	2.9% (4)	41.5%	10.5%
Time of Oxytocin administration recorded		73%	88% (95)	57% (78)	68% (100)	80%
Time intervals between recorded delivery of fetus and recorded administration of Oxytocin (if Oxytocin administered post-partum)	<1 min	23%	8% (9)	13% (18)	24.5% (36)	46%
	1–5 min	18%	10% (11)	24% (33)	23% (34)	16%
	>5 min	31%	64% (70)	21% (29)	19% (28)	19%
Time of placenta delivery NOT recorded		13%	13% (14)	7% (9)	32% (47)	1%
Placenta: time of delivery relative to fetus delivery	< 30 minutes	86%	88% (95)	98% (134)	62% (91)	96%
	> 30 minutes	2%	1.8% (2)	1.4% (2)	3.4% (5)	2%
	Retained placenta	1%	0% (0)	0.7% (1)	1.4% (2)	2%

With the exception of a maternal exam before discharge, post-partum best practices for mothers were uniformly low in all countries, with less than 15% of charts in every country except Albania documenting regular monitoring of maternal bleeding status, blood pressure, and temperature per WHO-recommended standards (WHO, 2006). Regular early post-partum monitoring of the mother is important for early detection and rapid treatment of life-threatening complications (especially PPH) for the mother that can occur in the early post-partum period (Table 10). Documentation of post-partum counseling for the mother was likewise low in all countries except Russia.

Table 11 shows results for selected maternal early post-partum practices, stratified by USAID-supported and non-USAID-supported sites and district/secondary versus regional/tertiary maternities. With the exception of maternal temperature monitoring in labor, USAID-supported maternity sites demonstrated stronger results for all measures than non-USAID-supported ones. Regional/tertiary maternity sites demonstrated stronger results than district/secondary ones, although many results were very close between the two types.

Table 10: % (#) of Charts in Which Best Post-partum Practice Was Recorded for Mother (n=592 Charts)

Indicator	4-country Average	ALB	ARM	GEO	RUS
Bleeding assessment recorded at least every 30 minutes for the first 2 hours, then at least every 6 hours	11%	26% (37)	0.7% (1)	15% (22)	3% (5)
Maternal BP recorded at least every 6 hours for the first 24-48 hours	13%	32% (46)	1% (2)	13% (19)	8% (12)
Maternal temperature recorded at least every 6 hours for the first 24-48 hours	14%	43% (62)	0% (0)	7.4% (11)	6% (9)
Maternal physical exam documented prior to discharge	82%	52% (76)	95% (143)	83% (123)	96% (142)
Maternal counseling documented prior to discharge	29% (170)	3% (5)	25% (37)	28 (42)	58% (86)

Table 11: % (#) of Maternities with Routine Best Maternal Practice, by USAID- and Non-USAID-supported Sites and by District/Secondary vs. Regional/Tertiary Maternities

Childbirth Phase	Labor and Delivery Routine Best Practice For Mother	2- or 4-country Average	USAID	Non-USAID	District and Secondary	Regional or Tertiary
Labor	Cervical dilation recorded at least every 4 hours during labor	2-country average Arm/Rus 64%	49% (87)	39% (111)	41% (123)	47% (75)
	BP recorded at least every 4 hours during labor	2-country average Arm/Rus 71%	49% (86)	41% (114)	43% (128)	45% (72)
	Maternal temp recorded every 2-4 hours	77.2% (89)	13% (24)	22% (65)	14%(45)	26% (44)
Immediate post-partum	Charts with all 3 AMTSL elements recorded	15%	22% (42)	13% (39)	16% (54)	17% (27)

Illustrative Results of USAID-supported Activities for Routine Labor and Immediate Post-partum Care Best Practices for Mothers

As summarized in Tables A45 and A46, USAID has supported routine labor and delivery best practices, including routine use of the partogram to guide labor management and routine application of AMTSL within one minute after birth to reduce PPH incidence. Figure 1 demonstrates the decreasing incidence of PPH from 9% at baseline to 0.8% in 2010 as AMTSL was introduced in USAID-supported maternities in five and then nine regions in Georgia, covering 97–99% of births in 29 maternities in the nine regions in 2007–2008. The figure shows that gains were maintained through 2011, with administration of AMTSL a regular part of monitoring in the participating 29 maternities.

Figure 1: PPH Incidence and AMTSL Coverage in USAID-supported Maternities in Georgia: Five Regions, 2003–2009; Nine Regions, 2009–2011

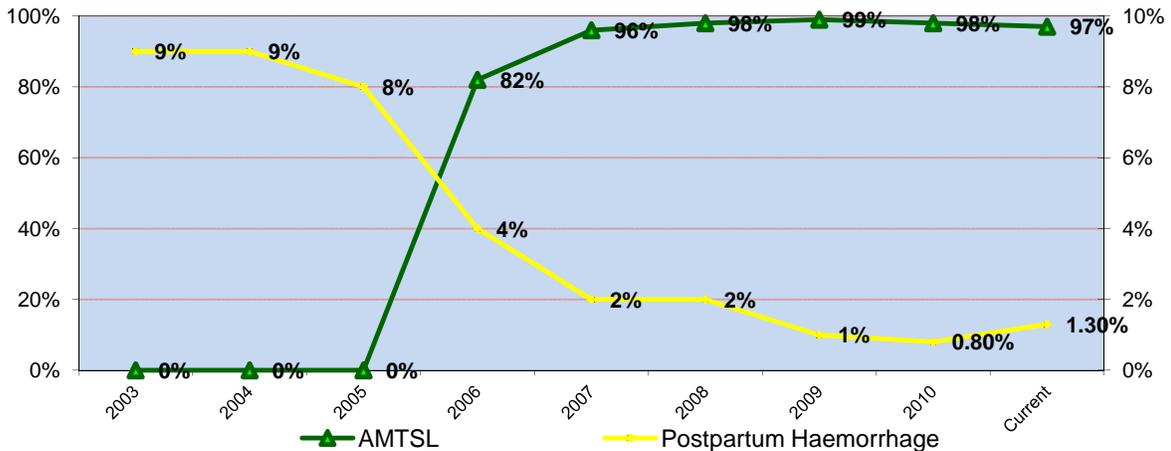
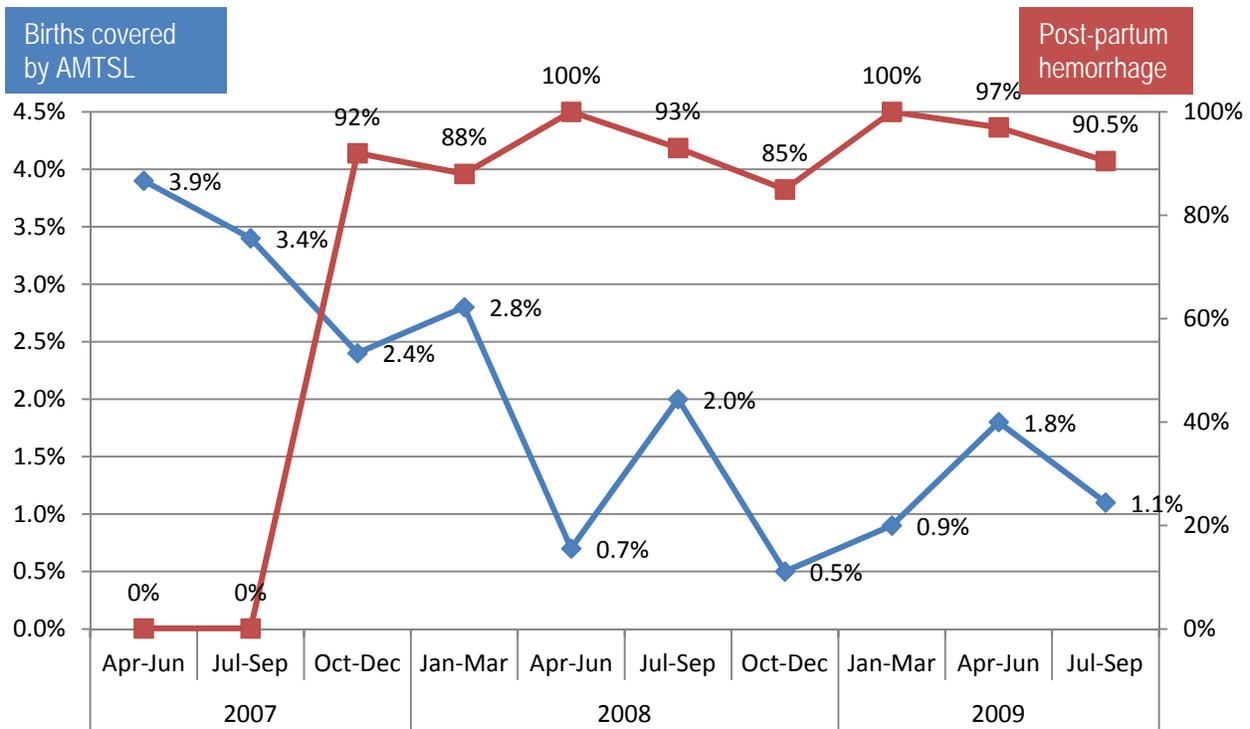


Figure 2 shows similar reductions in PPH incidence with the introduction and routine administration of AMTSL in five USAID-supported regional maternities in Armenia. Activities undertaken to support AMTSL’s introduction and spread included competence-based training of providers; follow-on, on-site support to trained providers and staff in maternities, and support for continuous quality improvement (QI) processes led by providers and staff in participating maternities.

Figure 2: PPH Incidence and AMTSL Coverage in Five USAID-supported Regional Hospitals in Armenia: 2007–2009



Reduction of unnecessary and potentially harmful labor and delivery practices, such as unnecessary labor augmentation and/or use of episiotomy, has been a routine focus of USAID-supported MNH activities in the region (see Tables A45 and A46). Figure 3 shows a decreasing percentage of deliveries with augmentation or episiotomy after the introduction of routine labor care improvement processes in USAID-supported maternities in Georgia.

Figure 3: % of Births with Augmentation of Labor and Episiotomy Before and After a QI Intervention in 29 USAID-supported Maternities in Nine Regions of Georgia

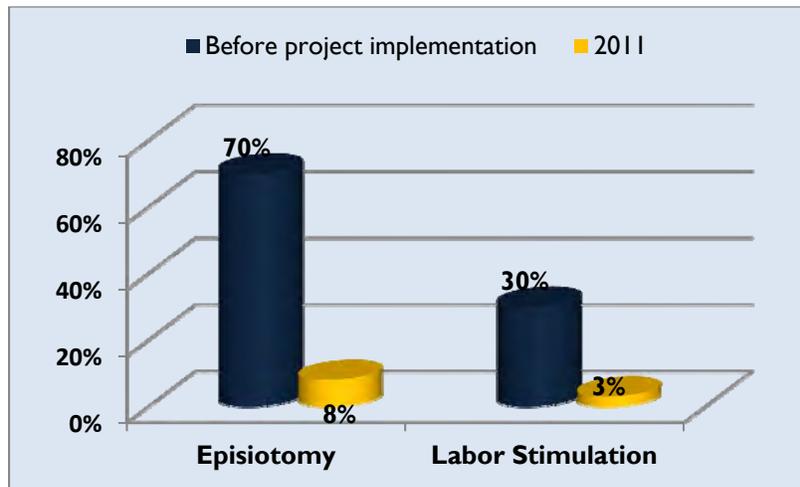


Chart Review Findings: Maternal Complications

This final section on the maternal chart review results summarizes such results for the administration of best practices for maternal complications care. In the absence of high-quality standardized charts with good documentation practices, the chart review methodology precludes comprehensive evaluation of best complications care practices. Indeed, given the strong limitations of the chart review methodology for assessing the management of PPH, the reader is referred to the synthesis section on PPH treatment, which summarizes other data source results relevant to PPH management in Section IV B. Despite the limitations of the chart methodology, however, several generalizations can be made with regard to management of PE/E and maternal sepsis. Thirty-four non-randomly selected charts documented a diagnosis of PP/E (Table 12). Although an anti-hypertensive medication was administered in most cases of documented PE/E, magnesium sulfate (MgSO₄) was documented as being administered in only a minority of charts in all countries except Russia (100%). For charts in which administration of MgSO₄ was recorded, documentation of monitoring for toxicity signs was relatively weak in all countries.

The assessment reviewed 16 charts with maternal fever (labor or post-partum) with a diagnosis of sepsis (Table 13). Initiation of antibiotics in the event of a documented maternal fever associated with maternal infection was observed in over two-thirds of charts in every country except Georgia, for which there were no cases of sepsis in the chart review. Routine administration of maternal antibiotics in labor for prolonged ROM (> 18 hour) or for prolonged active labor (> 24 hours), a best practice for preventing maternal and newborn sepsis, varied across countries: 100% of charts in the Russia chart sample, however, documented administration of prophylactic antibiotics if ROM > 18 hours was recorded.

C. Chart Review Findings: Newborn Care

This section summarizes chart review results with regard to best early post-partum care practices for the newborn and best practices for complications care. In general, most charts in all countries documented best early newborn care practices, with the exception of documentation of the newborn

temperature (to assess for hypothermia or fever) and initiation of breastfeeding within one hour in charts in Russia and Armenia (Table 14).

Table 12: % (#) of Charts with PE/E Diagnosis with Recorded Best Management Practices (n=34 Charts with Pre-Eclampsia; 1 Chart with Eclampsia)

Indicator	4-country Average	ALB	ARM	GEO	RUS
Pre-eclampsia diagnostic criteria met	5.6%	4.8% (7)	8% (12)	4.7% (7)	5% (8)
Eclampsia diagnostic criteria met	0.17%	0% (0)	0.7% n(1)	0% (0)	0% (0)
Antihypertensive meds administered if PE/E diagnostic criteria met	88.5%	74% (14)	80% (12)	100% (6)	100% (8)
MgSO4 administered if PE/E diagnostic criteria met	40%	0% (0)	15% (2/13)	43% (3/7)	100% (8/8)
Urine output recorded at least twice during MgSO4 administration	36%	0% (0/8)	37.5% (3)	33% (2)	75% (6)
BP recorded at least hourly while on MgSO4	22.5%	15% (2)	0% (0/7)	50% (3)	25% (2)
Respiration and reflexes recorded at least twice during MgSO4 administration	38%	0% (0/13)	37.5% (3)	50% (3)	63% (5)
Time between PE/E diagnosis and delivery recorded	42.5% (22)	73% (11)	64% (9)	33% (2)	0% (0)
Average time interval between PE/E diagnosis and delivery recorded in chart in hours	16 hours	42 hours (12)	6 hours (9)	4 hours (2)	Not observed
Referral made to a higher level facility	16%	14% (1)	0% (0)	0% (0)	50% (2)

Table 13: % (#) of Charts with Maternal Fever or Sepsis Diagnosis in Which Best Practice Recorded (n=16 Charts with Maternal Fever Anytime Intra- and Post-partum)

Indicator	4-country Average	ALB	ARM	GEO	RUS
Maternal fever documented (intra- or post-partum)	2.7% (16)	6.2% (9)	0.7% (1)	0% (0)	4% (6)
Antibiotics initiated if maternal temp > 38.0 C recorded (intra- or post-partum)	83%	66.7% (6)	100% (1)	No cases	83% (5)
Maternal antibiotics initiated if ROM > 18 hours at any time	40%	61% (11)	0% (0)	0% (0)	100% (9)
Antibiotics initiated if labor > 24 hours at any time	28%	63.6% (7)	0% (0)	0% (0)	50% (2)

Documentation of best practices for the newborn varied, depending on the best practice. Although most charts in every country documented newborn respiratory status and temperature at least once per day, less than a third documented newborn temperature and respiratory status at least four times a day, considered a best practice by WHO for early detection of complications in the newborn (Table 15). Most charts documented a pre-discharge newborn physical exam, also considered a best practice for prompt recognition of problems before discharge. Pre-discharge counseling for the newborn was documented in two-thirds of charts or less in all countries, with some variability. Except in Armenia, a follow-up plan for the newborn was documented in less than 10% of charts. All three pre-discharge items (counseling, physical exam, and designated follow-up) were documented in less than 5% of charts in all countries except Armenia (59%).

Table 14: % (#) of Charts with Routine Best Newborn Care Early Post-partum Care Practices Recorded (n=592 Charts)

Indicator	4-country Average	ALB	ARM	GEO	RUS
Newborn birth weight recorded	99.9%	97.2% (141)	99.3% (149)	99% (148)	100% (148)
Newborn respiratory status recorded at time of birth (could be as part of Apgar score)	91%	73.8% (107)	97.3% (143)	95.3% (142)	99% (147)
Newborn temperature recorded within one hour of birth	60%	90.3% (131)	26.5% (39)	81% (121)	43% (64)
Initiation of breastfeeding recorded within first 24 hours	78%	98.5% (130)	91.1% (134)	77% (115)	45% (67)
Initiation of breastfeeding within first hour	50%	71% (97)	29% (43)	72% (107)	28% (42)
Newborn eye care recorded (antibiotic or Povidine)	95%	88% (128)	99% (146)	95.9% (143)	97% (144)
BCG vaccination administered	74%	69.6% (101)	79.6% (117)	93% (139)	55% (81)
Hepatitis B vaccination administered	79.5%	84% (122)	93% (137)	92% (137)	49% (73)

Table 15: % (#) of Charts with Routine Post-partum Monitoring and Discharge Best Practices for Newborn (n=592 Charts)

Indicator	4-country Average	ALB	ARM	GEO	RUS	
Frequency of respiratory rate recorded post-partum	At least every 4 hours	19% (109)	31.6% (43)	3.4% (5)	2.7% (4)	39% (57)
	Twice a day	15.6% (91)	15.4% (21)	14.9% (22)	10% (15)	22% (33)
	Once a day	60.5% (360)	52% (79)	79% (116)	76% (113)	35% (52)
	Not recorded	4.6% (28)	1.5% (2)	3% (4)	11% (17)	3% (5)
Frequency with which newborn temperature recording during post-partum period	At least every 4 hours	17% (97)	36% (50)	0.7% (1)	17% (97)	29% (42)
	Twice a day	35.8% (210)	17.3% (24)	63% (92)	35.8% (210)	54% (80)
	Once a day	40.6% (236)	46.37% (64)	22% (32)	40.6% (236)	14% (21)
	Not recorded	6.6% (38)	0% (0)	15% (22)	6.6% (38)	3% (4)
Frequency with which newborn feeding status recorded	At least every 4 hours	34% (190)	92% (125)	21% (31)	1.3% (2)	22% (32)
	Twice a day	7.4% (45)	0.7% (1)	3% (5)	8% (12)	18% (27)
	Once a day	46% (271)	6% (8)	70% (103)	79% (117)	29% (43)
	Non-recorded	12.4% (74)	1.5% (2)	5.4% (8)	12% (18)	31% (46)
Pre-discharge newborn physical exam of newborn recorded	89% (524)	85% (123)	100% (147)	77% (115)	94% (139)	
Pre-discharge counseling recorded	46% (270)	21% (30)	67.3% (99)	39% (58)	56% (83)	
Follow-up appointment specified for newborn at time of discharge	25%	4% (6)	88% (129)	10% (15)	0.7% (1)	
All 3 pre-discharge items noted (counseling, physical exam, and follow-up)	16.7%	4% (6)	59% (87)	3.4% (5)	0.7% (1)	

Illustrative Results of USAID-supported Activities for Essential Newborn Care Best Practices for Newborns

As summarized in annex Tables A45 and 46, USAID has strongly supported routine best practices for newborns in the assessed countries, including support for early and exclusive breastfeeding, thermal protection of newborn to prevent hypothermia (an important cause of neonatal mortality), skin-to-skin

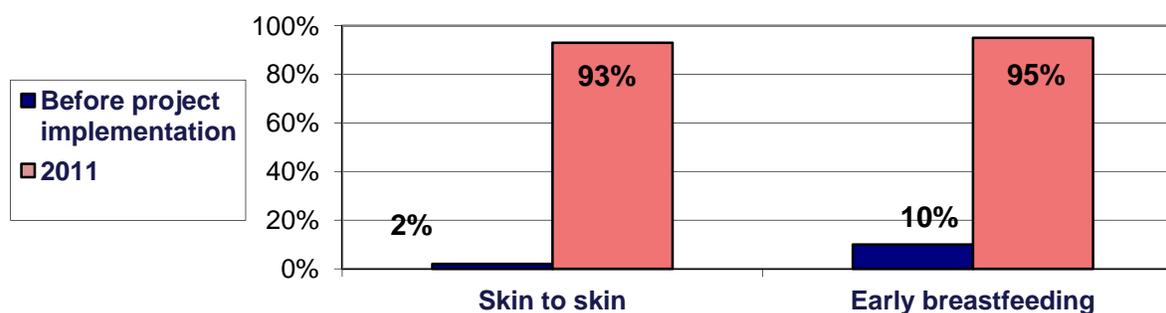
contact between mother and newborn, and other routine post-partum best practices. Table 16 shows improved rates of initiation of early post-partum breastfeeding in USAID-supported maternities in Albania in 2005 and sustained improvements in 2009 after implementation of an intervention to support improved post-partum breastfeeding practices.

Table 16: % of Women Initiating Breastfeeding in First Hour after Birth in USAID-supported Maternities in Albania Pre- and Post-implementation of a Quality Improvement Program: Six Districts, 2005 and 2009

Initiation of Breast Feeding	Reproductive Health Survey (2002)		Pro Shëndetit Survey (2005)		2009 Selected Group
	All Albania	3 Prefectures	3 Prefectures	Percent Change	
Ever	--	--	96.5	--	100.0
Less than 1 hour	7.6	10.0	20.8	+ 10.8	11.4
2-23 hours	57.2	54.8	50.3	- 3.5	59.1
24-47 hours	21.7	21.6	18.3	- 3.3	18.1
48 + hours	13.6	13.6	10.6	- 3.0	11.4

Figure 4 demonstrates similar improvements in initiation of breastfeeding and skin-to-skin contact between mothers and newborns in USAID-supported maternities in Albania before and after implementation of an intervention to improve comprehensive essential newborn care.

Figure 4: % of Mothers Initiating Skin-to-skin Contact with Newborns and Early Breastfeeding in USAID-supported Maternities in Five Districts of Armenia



Introducing and reinforcing essential newborn care (ENC) best practices have been a strong focus of the USAID Institutionalizing Best Practices in MCH project, which is active in 10 regions in Russia. From 2009, the number of newborns benefitting from ENC rose 22%, from 37,388 newborns to 48,043 in 10 regions. The Tyumen Region witnessed the largest increase, at 29% (from 8,436 to 11,878), while Leningrad Region, one of the most recent regions to implement the practice, witnessed the smallest increase, at 5% (from 7,711 to 8,129) (Mid-term project report, 2012). The USAID-supported Improving Care for Mothers and Babies project—active in 10 maternities in three regions in Russia in 2009–2011—promoted thermal protection for newborns, an essential component of ENC to prevent neonatal hypothermia ($T < 36.5$), a leading cause of neonatal mortality. As demonstrated in Figure 5, a QI intervention to improve the “warm chain” (delivery room ambient room temperature, skin-to-skin contact, new heating source, and routine monitoring of neonatal temperature) in participating maternities through a participatory process of shared learning resulted in an 80% reduction in incidence of measured hypothermia in monitored newborns.

Chart Review Findings: Newborn Complications

Chart review results for newborn sepsis, asphyxia, and prematurity are summarized briefly in this final chart review results section. As for maternal complications, the chart review methodology does not

permit comprehensive evaluation of newborn complications care best practices. Nevertheless, several generalizations can be made regarding the 30 cases of newborn sepsis in the chart sample. As for maternal sepsis, initiation of antibiotics was documented in most cases of newborn sepsis although the methodology precludes evaluation of the quality of diagnosis or treatment (e.g., antibiotic choice, correct dosing, etc.). Use of microbiology testing to guide neonatal sepsis treatment was generally very limited, especially with respect to urine culture and cerebrospinal fluid culture (Table 17). This is probably due to the low level of microbiology laboratory capacity observed in most maternities (discussed in the next section). Chart documentation of blood culture testing for cases of neonatal sepsis was stronger, especially in Russia and Albania where over half of charts documented blood culture testing. The assessment methodology precludes evaluation of the quality of laboratory microbiology testing or the use of culture results to influence treatment decisions.

Figure 5: Preventing Hypothermia in Newborns in Russia through Implementation of a “Warm Chain” Intervention

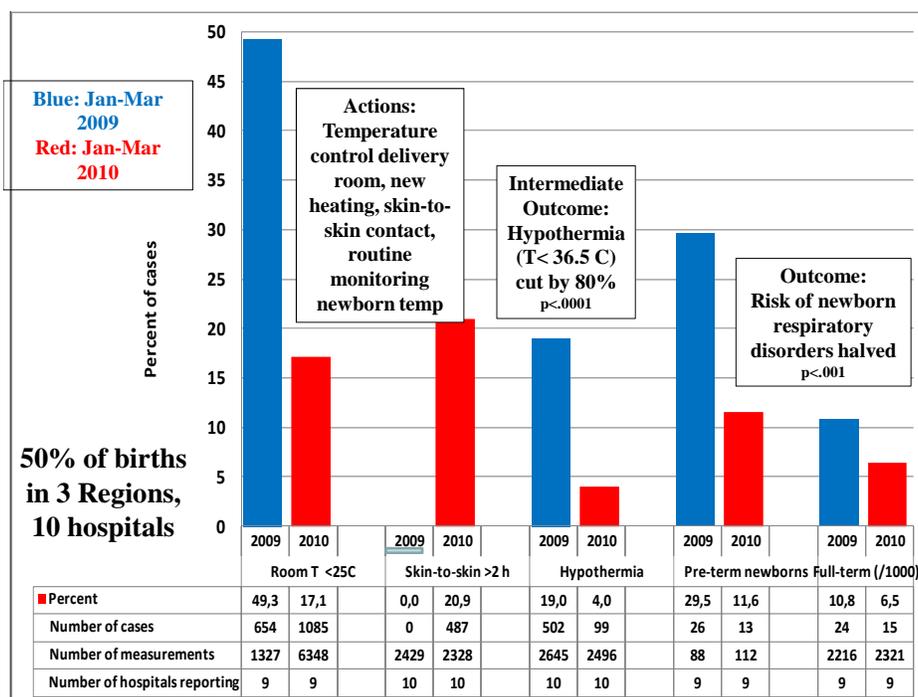


Table 17: % (#) of Charts with Newborn Sepsis or Infection Risk in Which Best Practices Recorded (n=30 Cases of Newborns with Sepsis)

Indicator	4-country Average	ALB	ARM	GEO	RUS
Newborn infection risk factor or signs recorded	5% (30)	7% (10)	6% (9)	3.3% (5)	4% (6)
Diagnosis of neonatal sepsis recorded	0.5%	0% (0)	0% (0)	1.3% (2)	0.7% (1)
Blood culture collected if newborn infection risk-factors or signs recorded	37%	58% (14)	29% (2)	0% (0)	60% (3)
Urine culture collected if newborn infection risk-factors or signs recorded	14%	21% (5)	14% (1)	0% (0)	20% (1)
Cerebrospinal fluid culture collected if newborn infection risk-factors or signs recorded	0%	0% (0/10)	0% (0/9)	0% (0/5)	0% (0/6)
Antibiotics initiated if newborn infection risk-factors or signs recorded	92%	80% (8)	88% (7)	100% (5)	100% (6)

Of the 52 cases of neonatal asphyxia in the sample, most charts in Albania, Armenia, and Russia documented resuscitation with bag and mask (Table 18). It is not possible, however, to comment on the quality of the resuscitation except to observe that 98% of the newborns in the sample lived to discharge, suggesting a high rate of successful resuscitation.

Table 18: % (#) of Charts with Newborn Asphyxia with Resuscitation Recorded (n=52 Cases)

Indicator	4-country Average	ALB	ARM	GEO	RUS
Neonatal asphyxia recorded	8.7% (52)	11% (16)	6% (9)	0.7% (1)	17% (26)
Resuscitation with bag and mask recorded (+ asphyxia recorded)	65.5% (45)	81% (13)	89% (8)	0% (0)	92% (24)
Newborn intubation recorded in case of newborn asphyxia	38% (29)	31% (5)	44% (4)	0% (0)	77% (20)

Of the 65 premature deliveries in the sample, over three-quarters of charts in all countries except Armenia documented maternal administration of a corticosteroid during labor, considered a best practice for accelerating fetal lung growth in premature inevitable labor between 26–35 weeks of gestation. However, specialized care of the premature and LBW infant was documented in half or less of charts. Referral of the premature infant to a higher level maternity was documented in most charts in Russia and Georgia. (See Table 19.)

Table 19: % (#) of Charts with Premature and/or LBW Newborn with Best Practices Recorded (n=65 Premature/LBW Newborns)

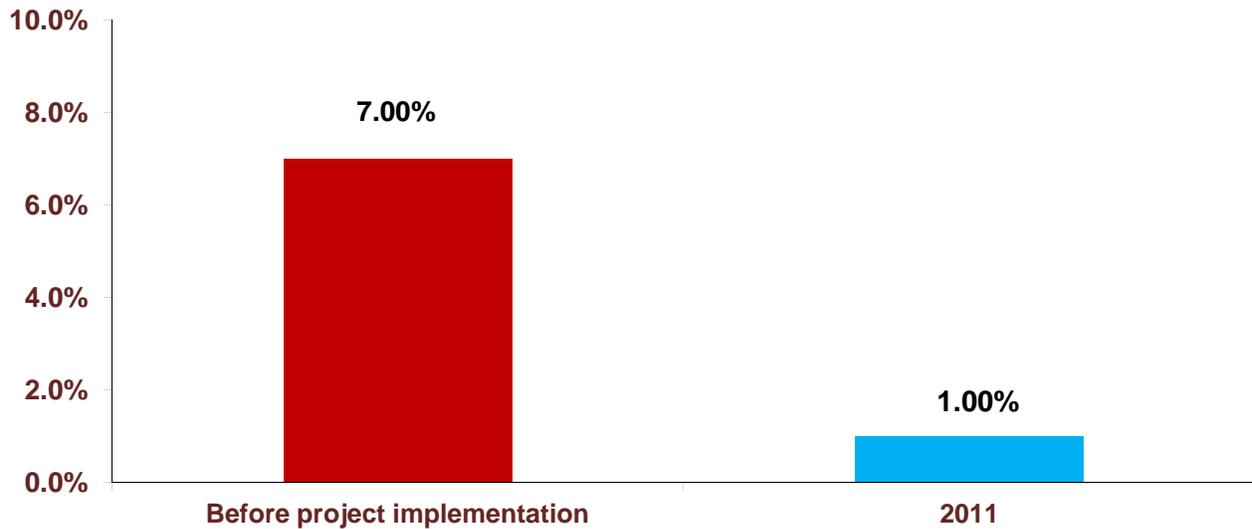
Indicator	4-country Average	ALB	ARM	GEO	RUS
Gestational age < 35 weeks recorded	11% (65)	6.2% (9)	6.7% (10)	0.7% (1)	30% (45)
Antenatal corticosteroids administered at least 24 hours prior to delivery if gestational age 26–35 weeks	72% (62)	74% (26)	28% (6)	100% (1/1)	85% (29)
Specialized LBW care provided	25% (36)	50% (24)	43% (9)	0% (0)	5% (3)
Referral to higher level facility	54% (58)	0% (0)	24% (5)	100% (1)	91% (52)

Illustrative Results of USAID-supported Activities to Improve Management of Neonatal Complications

As summarized in Tables A45 and A46, USAID-supported activities in the assessment countries (and worldwide) are increasingly investing in the scale-up of best practices for prevention and management of newborn complications. USAID supports and helps to lead a number of global initiatives, including the Helping Babies Breathe global initiative to improve access to quality neonatal resuscitation services in collaboration with the American Academy of Pediatrics and other partners. In addition to supporting improved capacity for resuscitation of neonatal asphyxia as part of routine essential newborn care, USAID supports a variety of interventions known to reduce preventable deaths due to prematurity, the leading cause of neonatal mortality in the region and worldwide, including: administration of antenatal and intra-partum corticosteroids to mothers in preterm labor to accelerate fetal lung maturation; administration of antibiotics for premature ROM; and specialized care for the preterm neonate, including thermal protection (ideally skin-to-skin via Kangaroo mother care), active feeding, surveillance, and treatment of infections in the premature neonate. Figure 6 demonstrates reduced incidence of asphyxia in neonates in 29 maternities in 9 regions in 2011 as compared to 2005 (before implementation) after introduction of a QI intervention to improve intra-partum best practices

including: restriction of labor induction and/or augmentation to medically indicated cases only; elimination of Kristeller Maneuver (uterine fundal pressure in 2nd stage); close monitoring of labor progression and fetal wellbeing through use of a partogram to improve prompt identification of and intervention for obstructed labor or fetal distress.

Figure 6: Asphyxia Rate in Neonates in USAID-supported Maternities in Georgia Before (2005) and After a QI Intervention (2011): 29 Maternities in 9 Regions



D. Cross-cutting Health System Functions

This section reports assessment results related to cross-cutting health system functions at the maternity service delivery level that are essential for consistent delivery of best practices, including human resources, essential inputs, health information systems, financing, and service delivery organization to support efficiency and high quality care.

Service Delivery Quality of Care Supports: Standardized Records, Accessible Protocols, and QI Processes Reported by Managers

Most maternities in Russia and Armenia had a standard admission and intra-partum care documentation form, while Georgia and Albania had lower rates of such form (Table 20). Most maternities in all countries had a standardized maternal and newborn post-partum form. However, as reported in the previous section and in Table 20, half or less maternity charts in every country except Albania contained a (physical) copy of a standardized intra-partum form. In general, two-thirds of maternities or more in every country except Armenia had a standard consent form readily available in patient care areas.

Table A6 in the Annex summarizes the availability of specific maternal-newborn care guidelines in maternities, including provider-reported access to specific protocols. In general, with some country- and guideline-specific variability, there was good general availability of guidelines and protocols for most major maternal-newborn care areas. The guidelines with lowest availability in maternities were maternal sepsis and newborn sepsis case-management guidelines. Table 21 shows that a consistently higher percentage of USAID-supported maternities than non-USAID-supported ones demonstrated availability of accessible standard guidelines and standardized clinical care (labor, post-partum, and newborn) and consent forms. The same result was seen for percentage of charts with a standard intra-partum form (physically) in the chart: 58% of charts in USAID-supported maternities had one and 42% of non-USAID-supported maternities did.

Table 20: % (#) of Maternities with Standard Maternal Newborn Medical Record Forms Available (n=42 Maternity Inventory Checklists; n=592 Non-randomly Selected Charts)

Indicator	4-country Average	ALB n=10	ARM n=10	GEO n=12	RUS n=10
Standard admission and evaluation form (if no national guidelines on site)	71% (16)	33% (3)	100% (8)	50% (2)	100% (3)
Standard Intra-partum care record (e.g., partogram)available in maternity	75% (31)	90% (9)	70% (7)	58% (7)	80% (8)
Charts surveyed with standard intra-partum record physically in chart (n=592 non-randomly selected charts)	49%	74% (106)	27% (41)	50% (77)	43% (64)
Standard patient consent form available in labor and delivery patient care areas	71%	60% (6)	40% (4)	83% (12)	100% (10)
Standard maternal post-partum care documentation form	89%	79% (7)	100% (10)	75% (9)	100% (10)
Standard newborn care documentation Form	91%	80% (8)	100% (10)	83% (10)	100% (10)

Table 21: % (#) of Maternities with Selected Standardized Clinical Care Forms, Guidelines, and Consent Forms, by USAID-supported and Non-USAID-supported Sites (n=42 Maternities; n=592 Charts)

Essential Chart Supports and Documentation	4-country average	USAID	Non-USAID
Maternities with patient consent form available	71% (42)	88% (14)	62% (16)
Charts surveyed with standard intra-partum form in chart	49% (286)	58% (134)	42% (152)
Maternities with standard partogram available	77% (31)	100% (16)	50% (15)
Standard maternal post-partum care form	89% (36)	88% (14)	85% (22)
Standard newborn post-partum care form	91% (38)	94% (15)	88% (23)
Standard labor and delivery guidelines available in clinical labor and delivery area	69% (27)	87% (13)	56% (14)

Table A7 summarizes maternities for which post-partum guidelines (when available) included specific monitoring standards and high-impact interventions for mother and newborn. Over two-thirds of these guidelines in every country except Albania included AMTSL. Table A7 shows that the inclusion of specific best practices in post-partum monitoring guidelines varied across countries, with highest rates of inclusion for newborn vaccinations and eye care. Table A8 presents results for specific content of post-partum counseling materials, when available in maternities. In general, maternity counseling materials included danger signs for mother and newborn and routine best practices for care of the newborn.

Although very non-specific, most managers in all maternities in all countries reported regular activities to improve maternal-newborn services, including prioritizing specific objectives for improvement (high percentage), engaging staff in defining priorities (medium result), and regular QI activities to promote best practices (high percentage in every country except Armenia) (Table 22). Interestingly, however, a sizable proportion of managers did not report their own engagement in QI activities, nor did they report the involvement of staff cadres other than provider cadres in most cases. Manager-reported involvement in QI activities was strongest in Georgia and Armenia (as was manager-reported involvement of non-provider cadres).

Table 22: % (#) of Maternities with Manager-reported Quality Improvement Activities (n=42 Managers)

Indicator (s)		4-country Average	ALB	ARM	GEO	RUS
Regularly prioritize specific objectives for improving maternal-newborn childbirth services		92%	100% (10)	100% (10)	67% (8)	100% (10)
Actively involve maternity staff in defining priorities for improving maternal and newborn services		68%	56% (5)	90% (9)	67% (8)	60% (6)
Regular QI activities to evaluate and/or promote adherence with defined best maternity practices		81%	50% (5)	90% (9)	83%(10)	100% (10)
Manager-reported involvement of specific cadres in improving clinical care	Manager	47% (20)	30% (3)	70% (7)	58%(7)	30% (3)
	Clinical supervisor/head of the department	68% (28)	50% (5)	70% (7)	50%(6)	100% (10)
	Maternity medical staff	68% (28)	50% (5)	70% (7)	50%(6)	100% (10)
	All cadres participating in childbirth services (e.g., providers, nurses, laboratory, auxiliary, pharmacy)	39%	10% (1)	60% (6)	67%(8)	20% (2)

Human Resources: Provider Availability, Regulation, Supervision, and Financial Incentives

Table A9 summarizes manager-reported availability of staff cadres, including availability of cadres for which maternity had a shortage of providers. In general, two-thirds or more of managers in each country except Russia reported adequate cadres to staff the maternity 24 hours a day, seven days a week. The cadre for which providers reported the highest rates of shortage was anesthesiologists. Table 23 summarizes provider-reported volume of births and resuscitation cases attended. It shows that a sizable proportion of providers in every country except Russia reported attending fewer than 10 deliveries per month. A smaller, but still considerable, proportion of neonatologists reported having attended fewer than three resuscitations in the previous three months.

Table 23: % (#) of Maternal Providers Reporting Attending < 10 Deliveries per Month and % Neonatologists Reporting Attending < Three Neonatal Resuscitations in Last Three Months (n=239 Providers; n=60 Neonatologists)

Provider-reported Volume of Clinical Cases	4-country Average	ALB	ARM	GEO	RUS
% maternal providers who reported attending < 10 deliveries per month	40%	35%	66%	39 %	19% (8)
% of neonatologists who reported attending < 3 neonatal resuscitations in the last 3 months	29%	23%	23%	72%	0%

Manager- and provider-reported supervision practices varied in supervision frequency, with a sizable proportion of both providers and managers in Albania and Armenia reporting *no* regular supervision of providers (Table 24). Less than two-thirds of providers in all countries except Armenia reported a designated, known supervisor.

Table 24: % (#) of Managers and Providers Reporting Supervision Frequency (n=42 Managers; n=239 Providers)

Supervision Frequency and Known Supervisor		4-country Average	ALB	ARM	GEO	RUS
Provider-reported known regular supervisor		51%	52% (33)	79% (37)	65% (44)	9% (3)
Provider-reported last supervision	< 6 months	58%	37%	45%	83%	65%
	6–12 months	2%	0%	4%	2%	2%
	> 1 year	3.7%	3% (2)	10% (7)	2% (1)	0% (0)
	Never	29%	60% (37)	40% (27)	13% (6)	4% (2)
Manager-reported normal frequency of provider supervision	Every 6 months	58%	50% (5)	40% (4)	100% (10)	40% (4)
	Every 6-12 months	15%	20% (2)	20% (2)	0% (0)	20% (2)
	Ever 13+ months	5%	0% (0)	10% (1)	0% (0)	10% (1)
	No regular supervision	28%	50% (5)	30% (3)	0% (0)	30% (3)
Manager-reported routine use of clinical data for evaluation of staff performance (e.g., productivity, adherence with standards)		55.5%	40% (4)	30% (3)	92%(11)	60% (6)

Less than half of providers in all countries except Russia reported any kind of requirement related to CME to practice medicine (Table 25). This result is consistent with the recent dissolution of CME requirements in Georgia and Armenia as part of general health care reforms. Interestingly, a sizable proportion of managers in all countries reported maternity requirement for provider CME, including some level of reimbursement for CME costs and regular participation of providers in CME. Most providers reported a certification exam within the past 10 years.

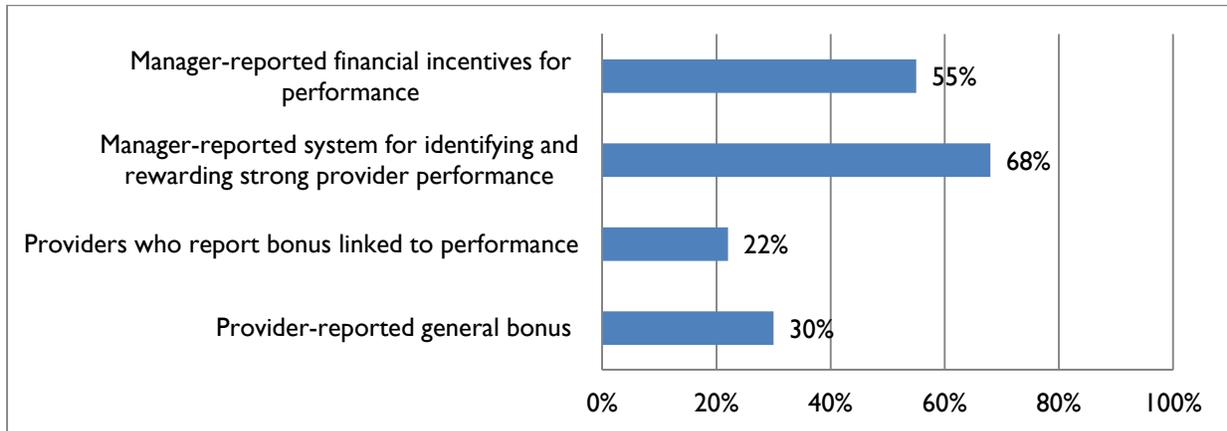
Table 25: % (#) of Managers and Providers Reporting Provider Certification and Continuing Medical Education Requirements (n=42 Managers; n=239 Providers)

Manager or Provider Report		4-country Average	ALB	ARM	GEO	RUS
Provider-reported CME requirement to practice medicine ¹		42%	41% (27)	17% (8)	29% (20)	81% (44)
Provider-reported mandate for specific CME topics if CME required		28%	12% (8)	15% (7)	25% (17)	61% (33)
Manager-reported maternity requirement for regular provider clinical training or CME		72%	80%(8)	70% (7)	67 % (8)	70% (7)
Manager-reported frequency of provider participation in clinical training	Rarely	16%	20% (2)	20% (2)	25% (3)	0% (0)
	Once/ year	19%	0% (0)	30% (3)	8% (1)	40% (4)
	Twice or more per year	61%	80% (8)	50% (5)	67% (8)	50% (5)
Manager-reported provider reimbursement for cost of CME		65%	40% (4)	90%(9)	50%(6)	80% (8)
Provider-reported years since last certification exam	Never	7.5% (18)	15% (9)	15% (9)	0% (0)	0% (0)
	0–4 years	68%	69% (41)	70% (41)	35%(24)	98% (55)
	5–9 years	21%	12% (7)	12% (7)	56%(38)	2% (1)
	> 10 years	4%	3% (2)	3% (2)	9% (6)	0% (0)

¹ TableA26 reports provider-reported participation in CME by topic in the previous three years.

Figure 7 and Table A34 summarizes results of provider- and manager-reported provider incentives or bonuses linked to performance measures of any kind. In all countries more managers than providers reported performance-based incentives for providers. On average, 68% of managers reported performance-based financial incentives and/or a system for identifying and rewarding provider performance. In contrast, only 30% of providers reported a general bonus, and 22% reported bonuses linked to performance. Country-specific results show higher rates of provider- and manager-reported provider financial incentives in Russia and Armenia than in Georgia and Albania (where provider-reported general bonus or financial incentives were very low).

Figure 7: Provider- and Manager-reported Bonuses and Performance-based Incentives for Providers (n=239 Providers; n=42 Managers)



Illustrative Results of USAID-supported Provider Training in Priority MNH Topics

As summarized in Tables A45 and A46, USAID-supported MNH activities in all four countries have included a strong focus on building provider capacity to deliver high-impact, evidence-based best MNH practices. Activities to improve provider knowledge and competence in USAID-supported regions and maternities have included competence-based technical training, follow-on implementation support, supervision and refresher training, and CME activities. Figures 8 and 9 show improvements in provider knowledge in priority MNH topics after participation in USAID-supported training in Armenia and Russia.

Figure 8: Positive Changes in Health Worker Knowledge before and after USAID-supported NOVA Project Training of Armenian Providers in Selected Priority MNH Topics, Including Newborn Care and Resuscitation, Infection Prevention, and Emergency Obstetric Care



Training Diverse Health Workers in Comprehensive MCH

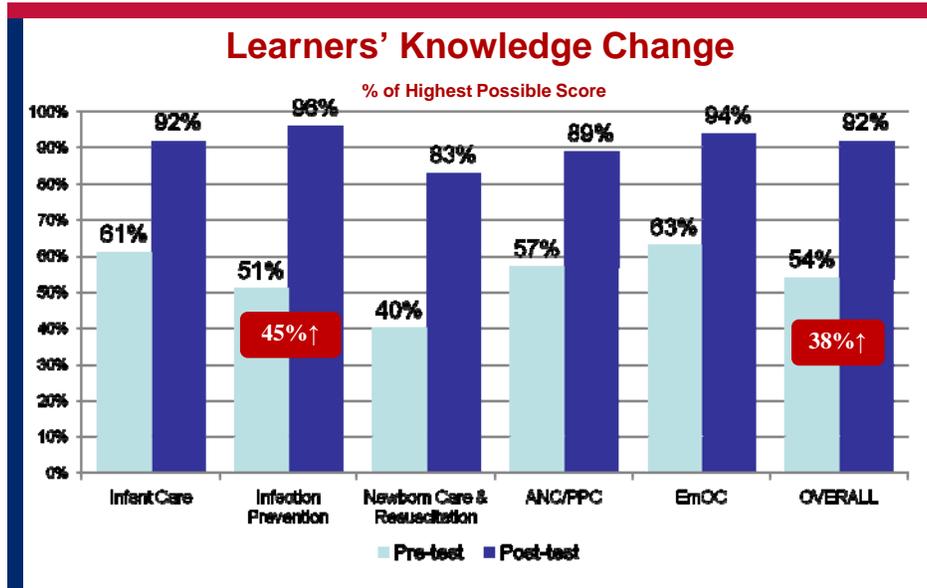
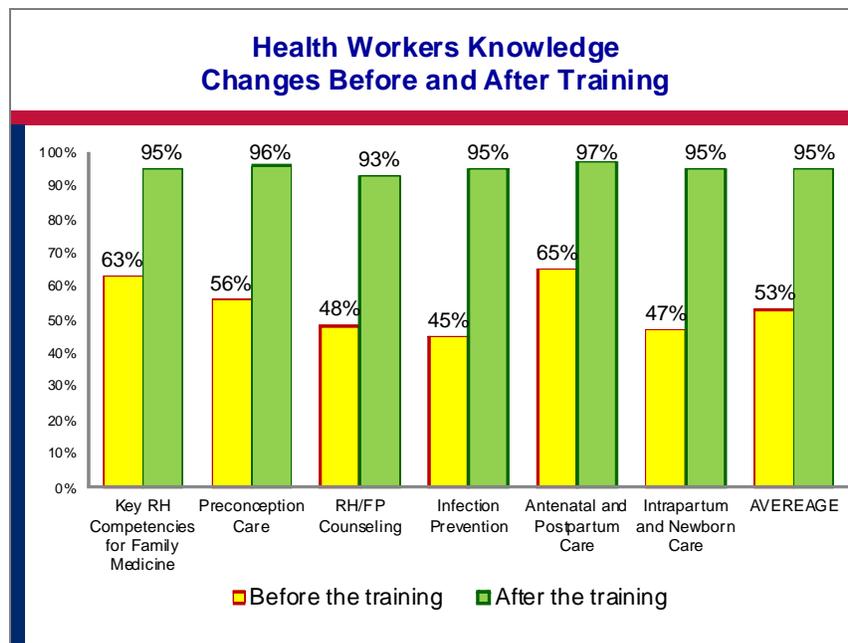


Figure 9: Positive Changes in Health Worker Knowledge before and after USAID-supported NOVA Project Training of Armenian Providers in Selected Priority Reproductive Health and MNH Topics, Including Preconception Care, Infection Prevention, Intra-partum and Newborn Care



Health Information Systems and Maternity Statistics

Tables A10, A11, and A12 summarize general maternity statistics based on maternity statistical records maintained in maternities. Table A10 summarizes delivery types for all countries. The proportion of cesarean deliveries as a percentage of births is quite high, ranging from 18% in Russia to 35% in Albania. The proportion of deliveries with specific maternal and newborn complications as documented in maternity statistical registers is summarized in Tables A11 (maternal complications) and A12 (newborn complications). The lower-than-expected rates of certain complications, such as maternal and newborn sepsis, suggest their possible under-diagnosis. The higher incidence of eclampsia relative to pre-eclampsia in Georgia suggests a data quality problem or a significant quality of care problem, since rates of pre-eclampsia are usually much higher than of eclampsia if treatment is successfully preventing progression from the former to the latter.

Results related to weak standardization of medical records; inconsistent use of standardized records when available; and generally weak documentation of best practices, including regular monitoring of the mother and newborn, are discussed in the chart review section and conclusion, but are noted briefly here for their impact on the ability of local health information systems to use and generate meaningful data for decision making at local, regional, and national levels.

Table 26 summarizes manager-reported use of data for decision making related to operational planning and service delivery improvement, among other factors. It shows that a sizable proportion of managers reported routine use of data for decision making of various kinds, although it is beyond the assessment methodology to explore the ways managers actually used data.

Table 26: % (#) of Managers Reporting Specific Data Use Practice (n=42 Managers)

Indicator	4-country Average	ALB	ARM	GEO	RUS
If regular data reporting, designated staff person who prepares data reports	82.5% (32)	60% (3)	90% (9)	100% (12)	80% (8)
Routine use of clinical or financial data for strategic planning	46% (20)	20% (2)	30% (3)	83%(10)	50% (5)
Routine use of financial data for operational planning (including financial/budget planning)	71% (30)	40% (4)	80% (8)	75%(9)	90% (9)
Routine use of clinical/financial data for design/implementation of new MNC services /programs	45% (19)	20% (2)	40% (4)	42%(5)	80% (8)
Routine use of clinical/financial data for evaluation of financial performance	63% (27)	40% (4)	60% (6)	83%(10)	70% (7)

Essential Infrastructure, Medications and Supplies

Tables A6–A22 report results of observed availability of essential infrastructure, laboratory, medication, and equipment inputs in the maternities. In general, maternities demonstrated strong availability of essential inputs with some variability between countries and for specific inputs. As mentioned, most countries had moderate to weak microbiology laboratory capacity. Except in Russia, a sizable proportion of managers (30–60%) reported difficulties ensuring essential blood products. Most maternities had good supplies of essential antibiotics, MgSO₄, and Oxytocin. In general, little difference was observed between availability of essential supplies in urban versus rural sites (Table A17). The availability of essential newborn care infrastructure and supplies was strong in all countries (Table 27).

Table 27: % (#) Maternities with Essential Newborn Care Infrastructure and Supplies (n=42 Maternities)

Indicator	4-country Average	ALB	ARM	GEO	RUS
Protective clothing for newborn	95.7%	100% (10)	100% (10)	83%(10)	100% (10)
Clean cloth or towel to dry baby	98%	100% (10)	100% (10)	92% (11)	100% (10)
Bag and mask for neonatal resuscitation (full term, size 1)	91%	90% (9)	90% (9)	83% (0)	100% (10)
Bulb for suction of newborn	78%	80% (8)	90% (9)	75% (9)	70% (7)
Laryngoscope for intubation if respiratory failure	86%	80% (8)	90% (9)	75% (9)	100% (10)
Endotracheal tubes (2.5 to 4 sizes) for intubation if respiratory failure	86%	80% (8)	90% (9)	75%(9)	100% (10)
Incubator to keep baby warm	86%	80% (8)	90% (9)	75% (9)	100% (10)
Newborn examination table with radiant warmer	88%	70% (7)	100% (10)	83%(10)	100% (10)

Financing

Most managers reported a range of financing sources for maternal-newborn services, including government, private, and out-of-pocket sources (Table 28). Government funding was reported as the greatest source of financing for MNH services by most managers in all countries except Georgia. Georgian managers were evenly divided between identifying government and out-of-pocket payments as the greatest source of funding. All managers in Russia and Armenia identified government funding as the greatest source of funding.

Table 28: % (#) Managers Reporting Specific Funding Sources for MNH Services (n=42 Managers)

Financing Source		4-country Average	ALB	ARM	GEO	RUS
Managers reporting at least some funding from specific sources for MNH services	Government funding	97.5% (41)	90% (9)	100% (10)	100% (12)	100% (10)
	Private insurance	35.7% (16)	20% (2)	20% (2)	83% (10)	20% (2)
	Out-of-pocket payments	37.5% (17)	20% (2)	20% (2)	100% (12)	10% (1)
Managers reporting specific source as the greatest source of financing for MNH services	Government	85% (35)	90% (9)	100% (10)	50%(6)	100% (10)
	Private insurance	0% (0)	0% (0)	0% (0)	0% (0)	0% (0)
	Out-of-pocket payments	15% (7)	10% (1)	0% (0)	50% (6)	0% (0)

Half of providers on average (70% in Russia) described the lack of reimbursement for the full cost of services as a barrier to implementing government-funded MNH services (Table 29). About a third reported no barriers to implementation of such services, and about a fifth reported delayed reimbursement for services as a barrier. Client-reported financial access to services is described in the client results section.

Table 29: % (#) Managers Reporting Specific Barriers to Implementing Government-financed MNH services (n=42 Managers)

Indicator	4-country Average	ALB	ARM	GEO	RUS
No important barriers	38% (16)	33% (3)	50% (5)	58% (7)	10% (1)
Full cost of MNC services is not reimbursed/covered (including monthly/annual limits on coverage)	51.5% (21)	44% (4)	50% (5)	42% (5)	70% (7)
Delayed reimbursement of billed services	22% (9)	44% (4)	20% (2)	25% (3)	0% (0)
Labor-intensive reporting requirements	18% (8)	11% (1)	10% (1)	8%(1)	50% (5)

The average length of stay by women and their newborns in maternities was considerably longer (two to three days) than in many other countries and may reflect financial incentives on the part of hospitals to prolong such stays. The average stay for a vaginal delivery ranged from 1.8 days in Albania (similar to U.S.) to almost five days in Russia and Georgia (Table 30). The average stay after a cesarean birth was, not surprisingly, even longer, ranging from 3.5 days in Albania to almost a week in Russia (6.5 days).

Table 30: Average Length of Stay in Maternity for Vaginal and Cesarean Deliveries (n=42 Maternity Statistical Reports)

Indicator	ALB	ARM	GEO	RUS
Average length of stay in days for vaginal delivery	1.8	3.0	4.6	4.9
Average length of stay in days for cesarean delivery	3.5	4.5	<i>Data missing</i>	6.5

E. Provider Knowledge, Attitudes, and Practices: Results of Provider Questionnaire

Provider Sample Characteristics

The sample of providers across all countries consisted of 231 providers. General characteristics of this sample are summarized in Tables A23 and A24. Figure 10 shows the providers' age distribution. More than half (62%) fell between ages 30 and 49, and just under a quarter (24%) were between 50 and 59. Ages 60 and over and 20–29 made up 9% and 5% of the distribution, respectively. In terms of gender, 74% of providers were female. Information regarding provider specialties is in Table 31. Most providers (70%) were obstetricians; 25% were neonatologists. Midwives and pediatricians each made up less than 5% of the distribution. On average nearly 40% of providers reported attending fewer than 10 births per month. This percentage was notably high in Armenia at 66% and considerably lower in Russia at 19%.

Figure 10: Distribution of Provider Age in Provider Sample (n=239 Providers)

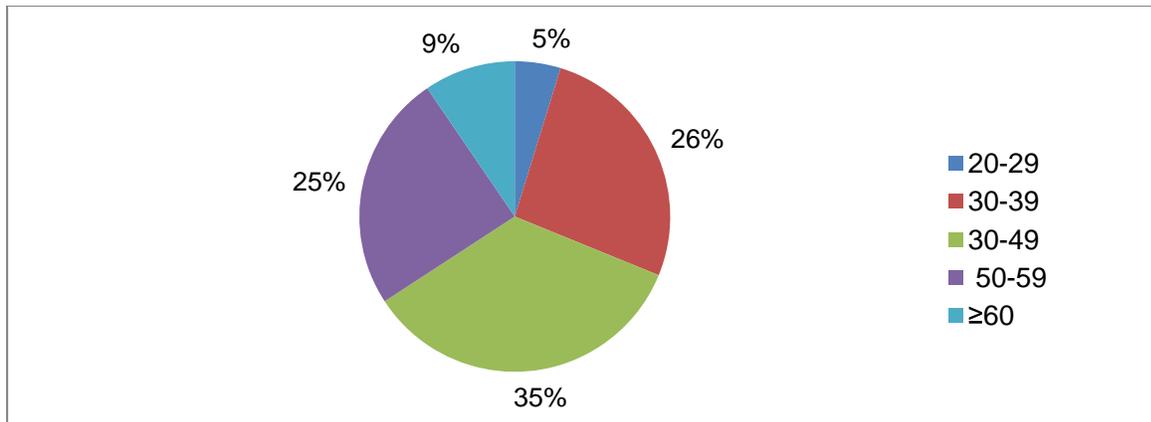


Table 31: Distribution of Provider Specialties in Provider Sample and Provider-reported Birth Volume Cases (n=239 Providers)

Indicator		4-country Average	ALB	ARM	GEO	RUS
Provider specialties	Obstetrician	70% (163)	53% (35)	67.6% (46)	81% (39)	77% (43)
	Neonatologist	24.5% (60)	27.3% (18)	30.9% (21)	18.7% (9)	21% (12)
	Pediatrician	0.8% (2)	1.5% (1)	0% (0)	0% (0)	2% (1)
	Midwife	4.5% (12)	18.2% (12)	0% (0)	0% (0)	0% (0)
% Maternal providers attending less than 10 deliveries per month		40%	35%	66%	39%	19% (8)
% Neonatologists who attended < 3 neonatal resuscitations in last 3 months		29%	23%	23%	72%	0%

As seen in Figure 11, most providers had completed their clinical training more than 15 years earlier. Just under 40% had completed it more than 20 years earlier, and all but 14% had completed it more than five years previously. Looking at individual country numbers, Armenia stands out for having nearly a third of providers with less than five years since completing clinical training.

Figure 11: Provider Sample Distribution of Years since Completing Provider Training (n=239 Providers)

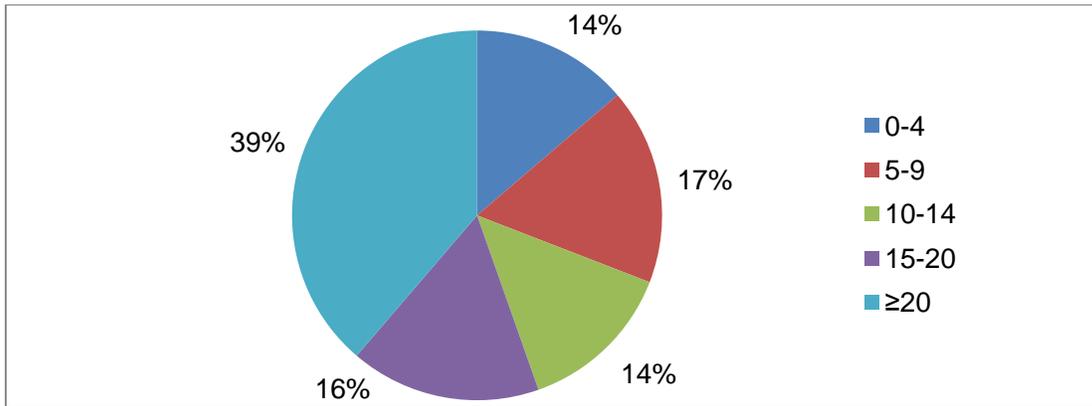
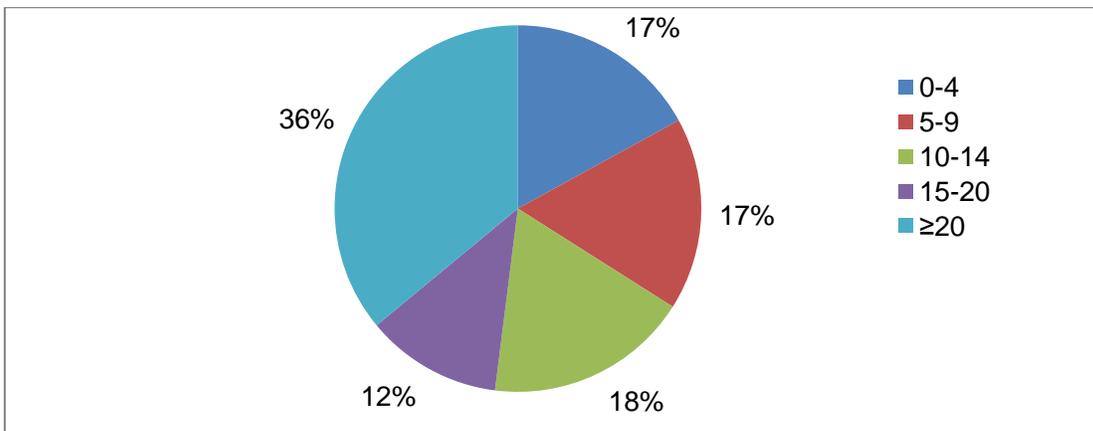


Figure 12 shows that on average across all countries, 36% of maternal providers had worked at their facility for 20 years or more; nearly 50% had done so 5–20 years; and 17% had done so less than five years.

Figure 12: Provider Sample Distribution of Years Working at Current Maternity (n=239)



Provider Self-reported Confidence, Access to Evidence, and Participation in CME

Figure 13 and Table A26 cover provider reports of recent CME training for specific topics across all countries. In general, CME reports were moderate with no topic garnering more than 65% of providers answering yes. The most common recent CME reported included PPH management (65%), PE/E management (61%), and AMTSL (58%). Less than half of providers reported CME in obstructed labor management (45%), neonatal resuscitation (42%), post-abortion care (33%), and maternal sepsis management (30%). Even fewer reported recent CME on LBW/premature infant care (22%), family-centered care (17%), and newborn sepsis management (14%).

Figure 13: % of Providers Reporting CME for Specific MNH Topics within Last Three Years (n=239 Providers)

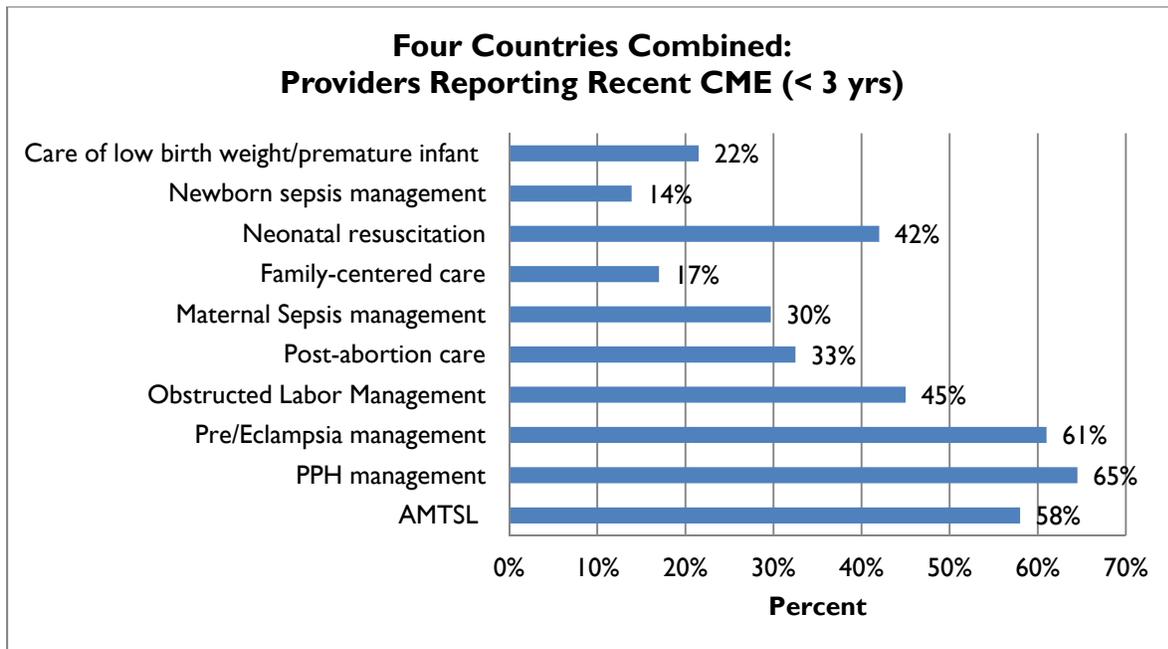


Figure 14 summarizes stratified results for provider-reported CME comparing USAID-supported sites with non-USAID-supported sites. For almost every category of CME (except maternal sepsis), providers from USAID-supported sites reported higher rates of recent CME training.

Figure 14: % of Providers Reporting Specific CME within Last Three Years, by USAID- and Non-USAID-supported Sites (n=239 Providers)

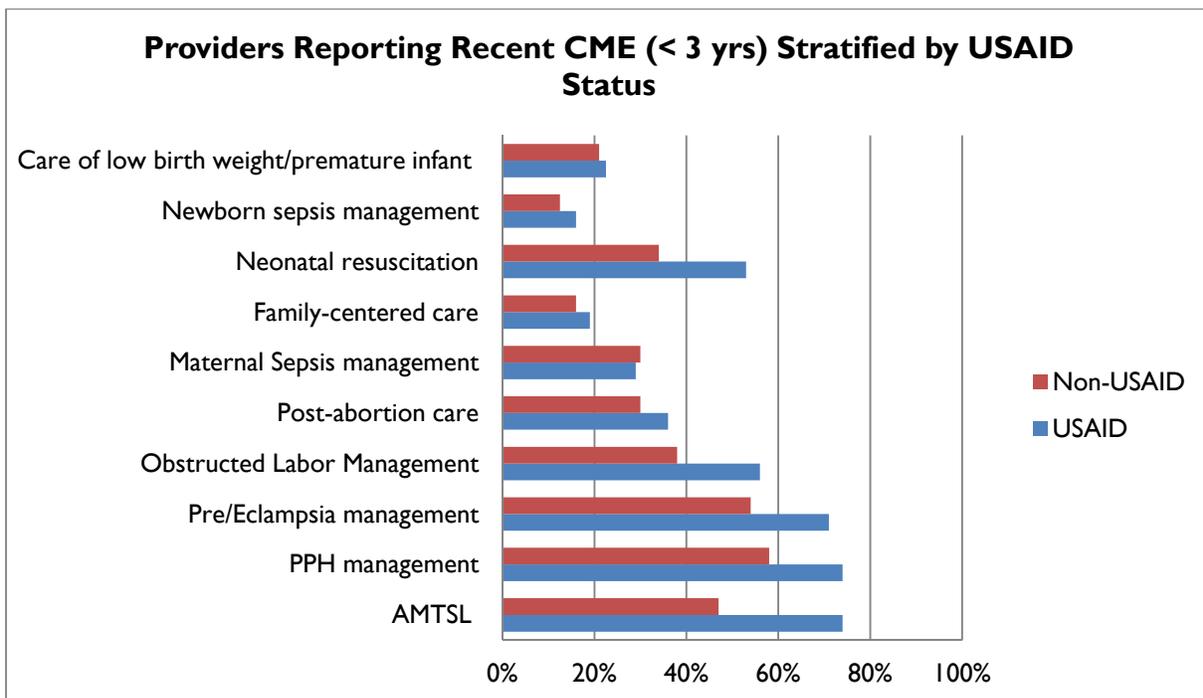


Figure 15 and Table A27 present stratified results comparing provider-reported CME for specific topics among providers in rural versus urban sites. Contrary to the assumption that urban providers are more likely to have access to CME, rates of provider-reported CME when viewed across all CME topics appear fairly similar between urban and rural providers.

Figure 15: % of Providers Reporting CME for Specific Topics within Past Three Years, by Rural and Urban Maternities (n=239 Providers)

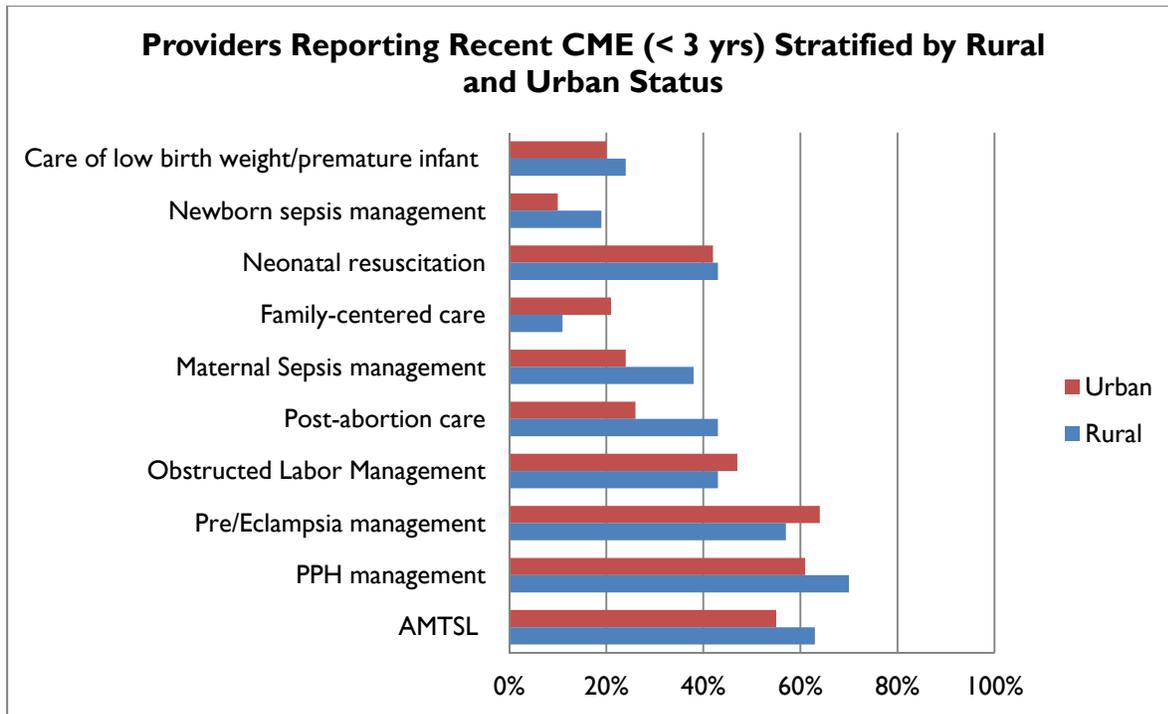


Figure 16 and Table A28 provide the four-country average percentages of maternal health providers reporting to be “very confident” when managing specific complications. Overall, it appears that providers have a lack of confidence managing maternal complications, particularly maternal sepsis and eclampsia. Post-abortion care was the only complication for which more than half of providers (53%) said they felt “very confident.” The complications of obstructed labor and PPH followed closely behind, with 50% and 47%, respectively. Eclampsia (26%) and maternal sepsis (20%) had the lowest percentage of “very confident” providers. In general there was fair consistency of results across the countries with regard to provider self-reported confidence in managing specific complications.

Similarly, Figure 17 and Table A29 show that most providers are not “very confident” managing newborn complications. For both asphyxia/resuscitation and LBW/prematurity, only 39% were “very confident,” and for newborn sepsis, only 29% were.

Figure 16: % of Maternal Health Providers Who Report Being Very Confident Managing Specific Obstetric Complications (n=239 Providers)

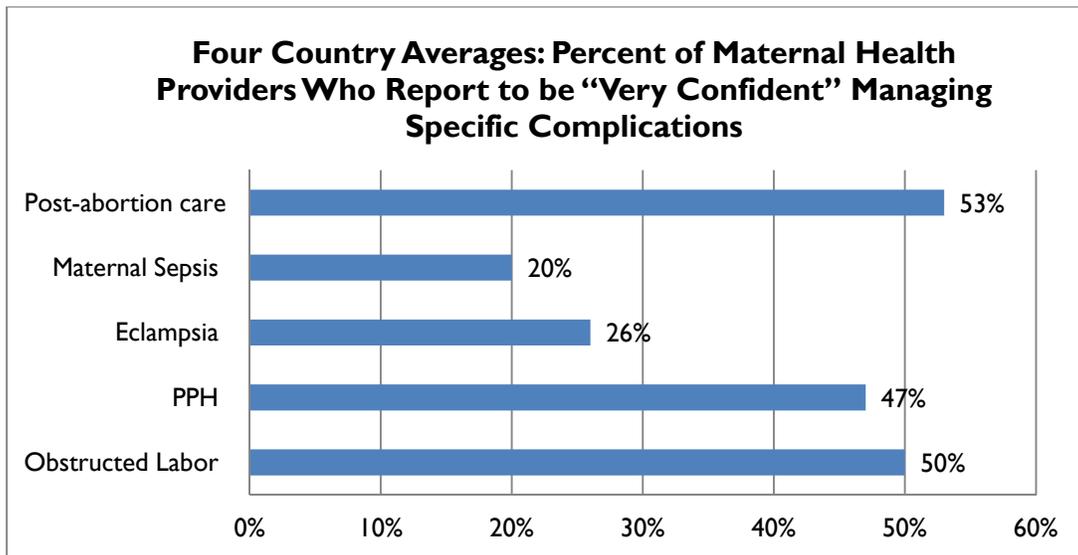
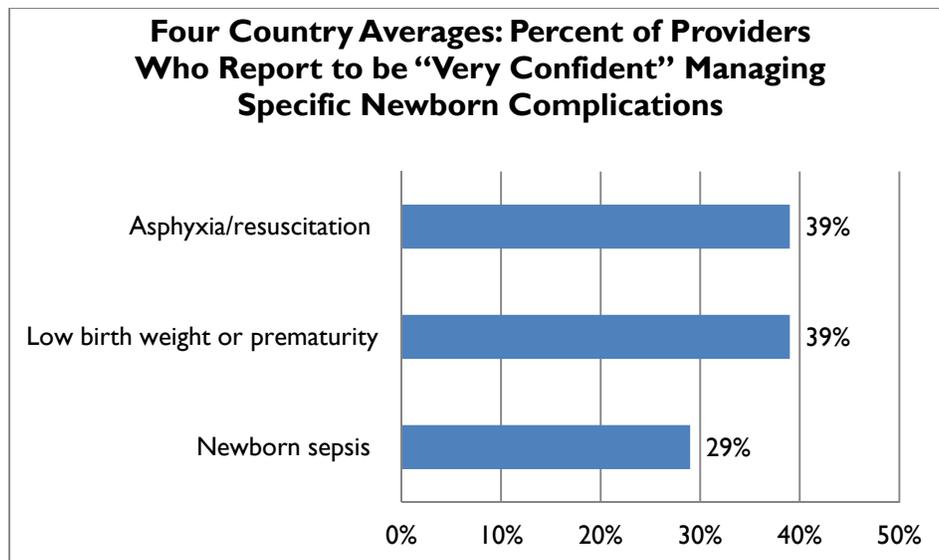


Figure 17: % of Providers Report Being Very Confident Managing Specific Newborn Complications (n=239 Providers)



Provider-reported Specific Maternity Practices, Including Client-centered Care

Table A33 summarizes provider reports of specific practices and protocols in their maternity. The four-country average indicates that just over half (51%) reported allowing a birth companion during labor and delivery, but this percentage obscures the wide range across countries, with a high of 94% in Georgia and a low of 31% in Armenia. Figure 18 illustrates provider-reported episiotomy practices based on four-country averages. Although widely practiced historically and still practiced in many countries, episiotomy is not evidence based and is discouraged in most academic institutions committed to evidence-based medicine. A large majority (73%) of providers reported that episiotomies were performed if a woman was considered likely to tear. Only 23% reported seldom performing episiotomies; 3% reported never performing them, and 1% reported doing them routinely.

Figure 18: Providers Who Reported Episiotomy Practices (n=239 Providers)

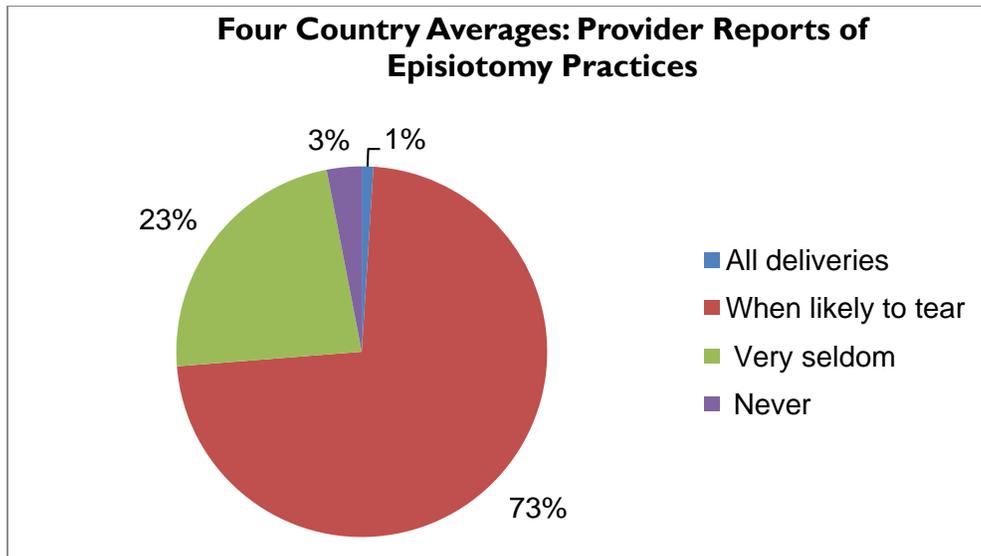


Figure 19 and Table A33 depict provider-reported, usual frequency of checking maternal blood pressure during labor. Half reported checking it every four hours; 32% every six hours; and 18% only at admission and after delivery.

Figure 19: Provider-reported Usual Frequency of Mother’s BP Measurements during Labor (n=239 Providers)

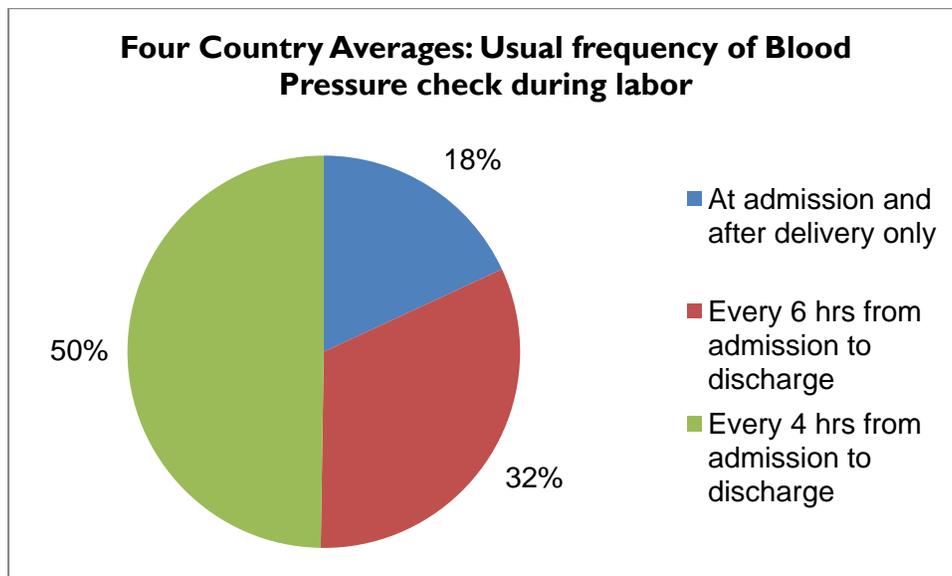
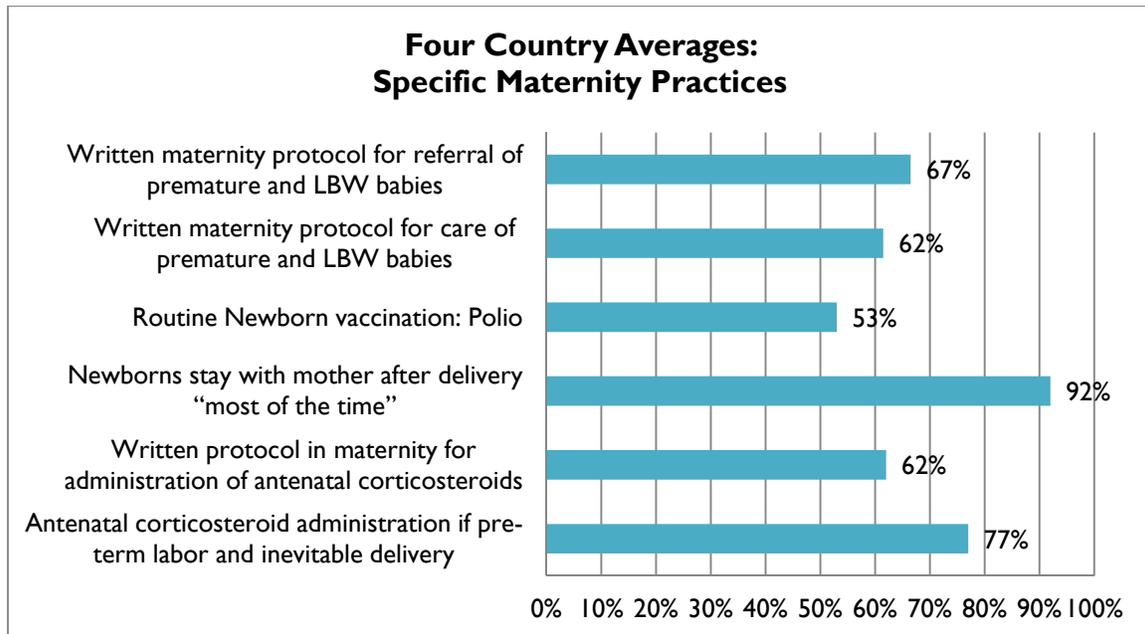


Figure 20 summarizes the four-country averages of other maternity practices and protocols. Over half of providers reported positively for each of these practices. Almost all providers reported that newborns stay with the mother “most of the time” (92%). More than three-quarters reported administering antenatal corticosteroids if the baby was preterm and delivery unavoidable (77%), although slightly fewer reported a maternity protocol regarding administration of antenatal corticosteroids (62%). In terms of a protocol for managing LBW/premature babies, 67% and 62% reported written protocols for referral and premature newborn care, respectively.

Figure 20: Provider-reported Maternity Practices (n=239 Providers)



Provider Knowledge Questions

Although provider knowledge is a generally weak measure of provider performance, and the assessment was therefore not designed to assess provider knowledge in any depth, the provider questionnaire did have several knowledge questions. The knowledge portion of the provider questionnaire posed a multiple-choice question for each of several areas of routine and complicated maternal-newborn care. A provider's response to such question does not necessarily represent the extent of a provider's knowledge, so results are not intended to be generalizable to overall provider knowledge.

Figures 21 and 22 present the percentage of maternal providers (obstetricians and gynecologists) who could answer specific questions correctly. Providers generally appear to have had a good grasp of classifying eclampsia severity, with 91% correctly answering a question in that area (Table A30). However, only 77% knew the immediate first steps indicated in PPH management, and only 47% identified AMTSL's three elements despite the multiple choice approach. Providers proved highly knowledgeable regarding minimal rate of cervical dilatation in the active labor phase (90%) and the normal time range for the second stage of labor (85%). About half on average answered the other questions correctly, with the lowest percentage correctly identifying the best way to prevent infection in the mother and newborn (hand washing). Table A30 shows that country-specific provider results for knowledge questions were quite variable without a clear pattern within or between countries. The vast majority answered correctly regarding the normal minimal rate of cervical dilatation during active labor (90%), the normal time range for second stage labor (85%), and immediate first steps for PPH (76%). However, considerably fewer knew sepsis prophylaxis material (58%), severe pre-eclampsia (55%), and the three AMTSL elements (47%).

Figure 21: % of Obstetricians and Midwives Who Answered Maternal Care Questions Correctly (n=163 Obstetricians; 12 Midwives)

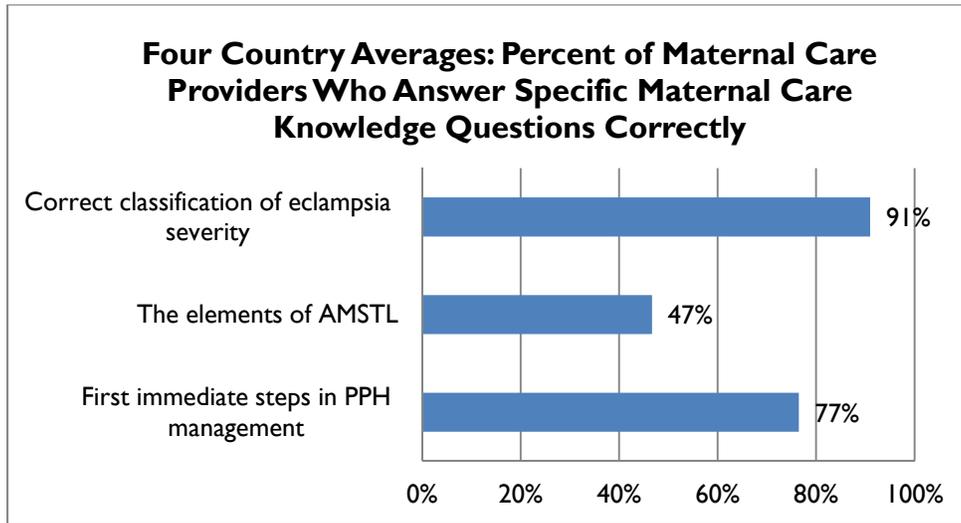


Figure 22: % of Maternal Care Providers Who Answer Specific Maternal Care Questions Correctly (n=163 Obstetricians; n=12 Midwives)

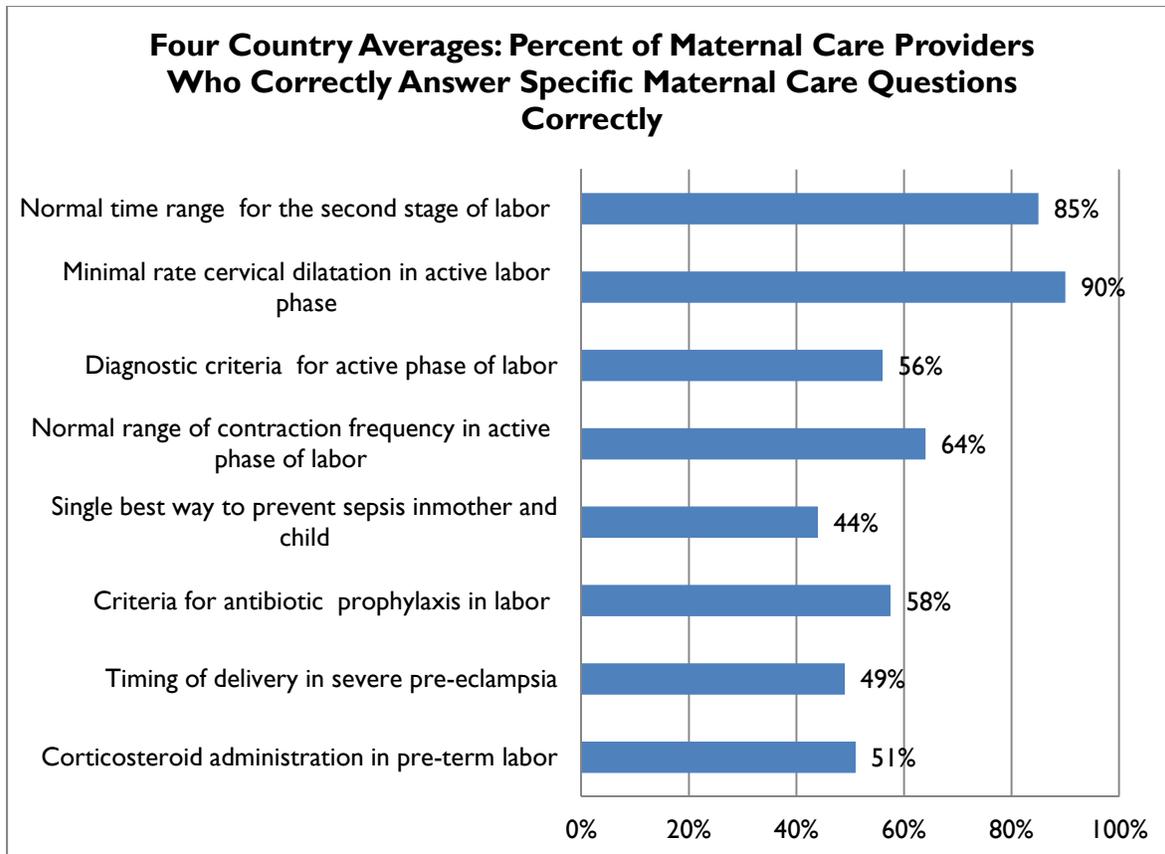


Table 32 presents selected provider knowledge results across the four countries, stratified by USAID-supported and non-USAID-supported sites. No large difference appears between these types of sites, but individual country stratification results might yield a different picture.

Table 32: % (#) of Providers Who Correctly Answered Selected Maternal Care Questions, by USAID-supported vs. Non-USAID-supported Sites (n=239 Providers)

Knowledge of Maternal Care	4-country Average	USAID-supported Sites	Non-USAID-supported Sites
Labor: normal minimal rate cervical dilatation, active labor	90% (151)	92% (65)	88% (86)
Sepsis prophylaxis criteria (antibiotics)	57.5% (96)	57% (41)	57% (55)
Second stage labor (dilatation to delivery): normal time range	84.5% (145)	83% (53)	86% (83)
PPH prevention & management: AMTSL's 3 elements	47% (80)	53% (39)	41% (41)
Immediate first steps of PPH management	76% (130)	75% (55)	76% (75)
Severe pre-eclampsia: Interrupt pregnancy as soon as possible	55% (88)	48% (32)	58% (56)

Table 33 shows the percentage of providers who correctly answered selected newborn care questions. Again, the indicators using data from all countries combined suggest a wide range in provider knowledge depending on the specific topic. A large majority of providers answered correctly regarding routine newborn care (78%), and almost two-thirds knew the normal respiratory rate for newborns (64%) and newborn sepsis factors (63%). However, only half were knowledgeable regarding maternal steroids for premature labor (51%) and considerably less could identify the first most important action for newborn asphyxia (17%). In general, providers from USAID-supported sites demonstrated better knowledge of selected newborn care best practices than those from non-USAID-supported sites.

Table 33: % (#) of Providers Who Correctly Answered Selected Newborn Care Questions, by Providers in USAID-supported vs. Non-USAID-supported Sites (n=239 Providers)

Knowledge of Newborn Care	4-country Average	USAID-supported Sites	Non-USAID-supported Sites
Antenatal steroids for premature labor criteria	51% (82)	53%	51%
Routine newborn care	78% (145)	81%	76%
First action if newborn asphyxia (dry and stimulate)	19% (36)	27%	14%
Normal respiratory rate in newborn	64% (108)	65%	63%
Newborn sepsis risk factors	63% (114)	68%	60%

Provider Attitudes

Figure 23 shows that most providers agreed with each of the client-centered practices listed. Over 90% agreed that neonatal resuscitation skills are important for all childbirth care providers. In regard to labor and delivery, 84% agreed that it is appropriate for a woman to walk during labor; 79% agreed a woman should choose her delivery position; and 68% agreed a woman should be able to have a birth companion. On the topic of confidentiality, 78% agreed that confidentiality was not a problem at their maternity, and the same percentage agreed that patient privacy should be a priority. However, over half of providers in each country except Russia (29%) agreed that it is best to avoid discussing obstetric complications with a woman when she is in labor (Table A31). Except for the difference in Russian provider responses for this single statement, Table A31 shows fairly strong agreement between countries for provider attitudes regarding such practices.

Figure 23: % of Providers Who Agreed with Client-centered Practices (n=239 Providers)

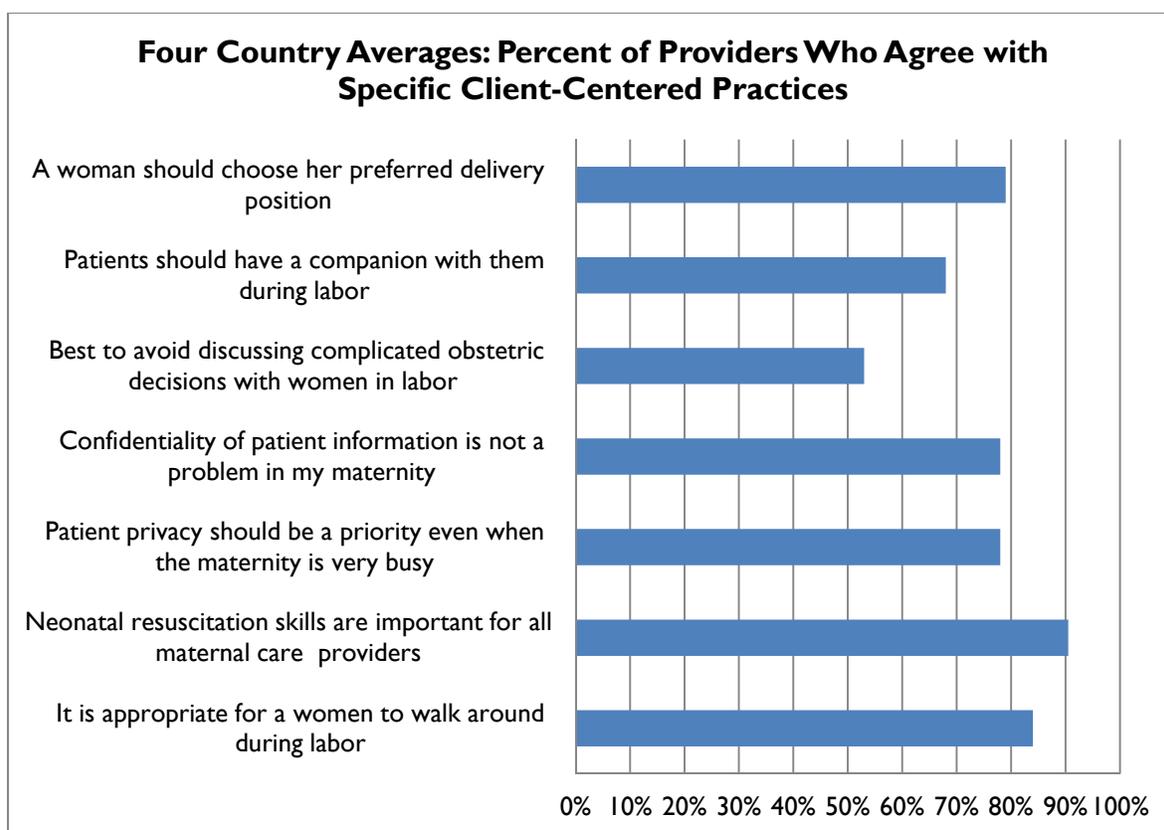


Table 34 indicates that most providers agreed with the client-centered practices listed there. On average across all countries, 96% agreed that it is appropriate to place a newborn directly onto the mother’s abdomen immediately after birth. Just over half agreed that if the newborn has no medical problems, the mother should decide whether her newborn rooms in with her (56%). Notably, 26% of providers on average agreed with the *non-best practice* that “if a mother has had a cesarean, it is usually best to encourage her to mix bottle feeding with breastfeeding so that she can recuperate adequately.”

Table 34: % (#) of Providers Who Agree with Specific Newborn Care Practices (n=239 Providers)

Indicator	4-country average	ALB	ARM	GEO	RUS
If no medical problems for newborn, the mother should decide where her newborn stays (in her room or not).	56%	69% (43)	51% (23)	44% (10)	60% (33)
If a mother has had a cesarean, it is usually best to encourage her to mix bottle feeding with breastfeeding so that she can recuperate adequately.	26%	24% (15)	36% (16)	26% (6)	19% (10)
It is appropriate to place a newborn directly onto the mother’s abdomen immediately after birth.	96%	90% (56)	98% (45)	96% (22)	100% (55)

Provider Remuneration and Incentives

Table 35 presents average monthly salaries in U.S. dollars reported by obstetricians, neonatologists, and midwives in the provider sample. The average salary for obstetricians across all countries was \$600, ranging from \$300 in Armenia to \$901 in Albania. The average salary for neonatologists was \$539 and

ranged from \$276 in Georgia to \$908 in Albania. Georgian and Russian obstetricians made more than the neonatologists, but in Albania and Armenia the reverse was true, with neonatologists making slightly more than obstetricians. The only country with midwives that reported their salaries was Albania, where their average monthly salary was reportedly \$588.

Table 35: Provider Self-reported Average Monthly Salary in US Dollars (n=163 Obstetricians, n=60 Neonatologists; n=12 Midwives)

Provider Type	4-country Average	GEO	ALB	ARM	RUS
Obstetrician	600	467	901 Midwife: 588	300	732
Neonatologist	539	276	908	326	645

F. Client Knowledge, Attitudes, and Practices: Results of Client Questionnaire

Client Sample Characteristics

Table A35 and Figure 24 show the age distribution of the client sample. More than two-thirds were between 20 and 30 years of age, and another quarter were 31–40. Only 10% were 15–19 years, and only 1% were over 40. The age distribution varies somewhat by country. Both Georgia and Albania had a larger percentage of teenage clients, 18% and 15%, respectively. Armenia had more than three-quarters of clients concentrated between ages 20 and 30. Russia’s client age distribution differs from the others’, with a larger percentage of clients aged 31–40.

Figure 24: Client Sample Age Distribution across Four Countries (n=292 Clients)

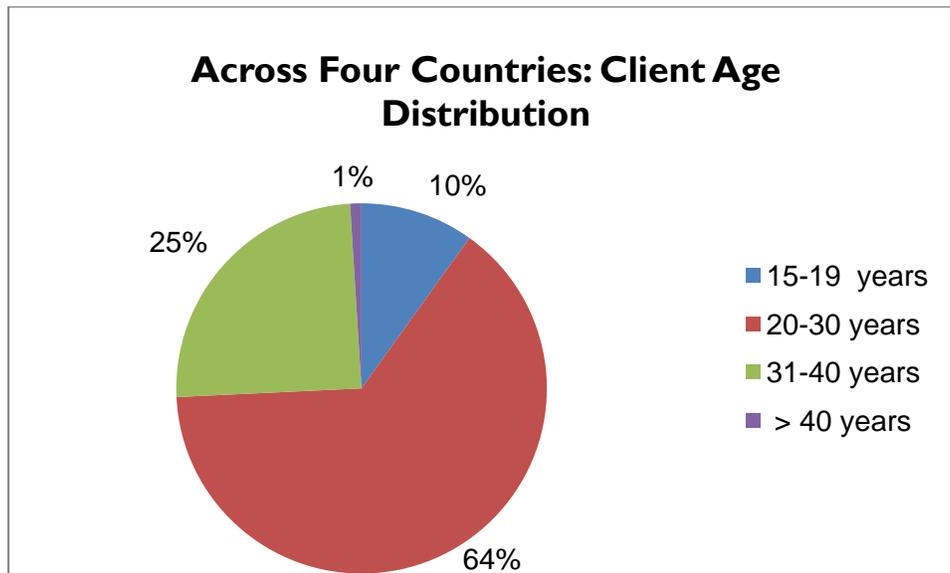


Figure 25 and Table A36 characterize the client-reported highest level of education in the client sample. Almost half of clients had attended university (47%), and another 34% had graduated from secondary school, while 11% had completed only primary school. The countries differ in several notable ways in terms of education level. Clients in Georgia and Russia appear to have been better educated, with 54% and 69%, respectively, reporting some post-secondary education. Armenia had the highest concentration of clients with only a secondary school education (77%) and the lowest percentage of university graduates (19%). Albania stands out for having almost half of its clients with only a primary school education (46%).

Figure 25: Client Sample Educational Level Distribution (n=292 Clients)

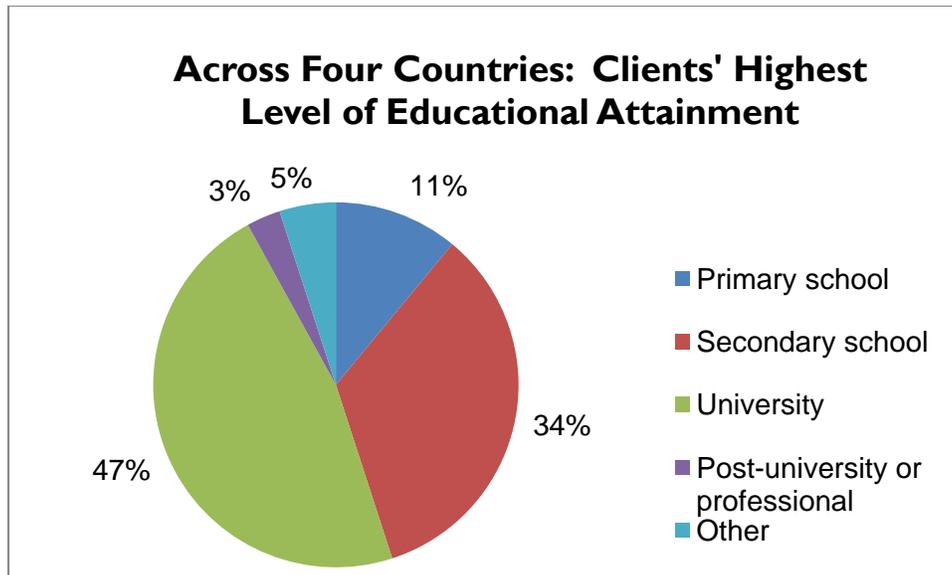


Figure 26 and Table A37 show clients' self-reported economic status. More than half the clients considered themselves to be middle class (54%), with 18% and 13% reporting to be low middle class and upper-middle class, respectively. Russia stands out with a relatively large percentage of clients reporting to be well off (23%).

Figure 26: Client-reported Wealth Quintile (n=292 Clients)

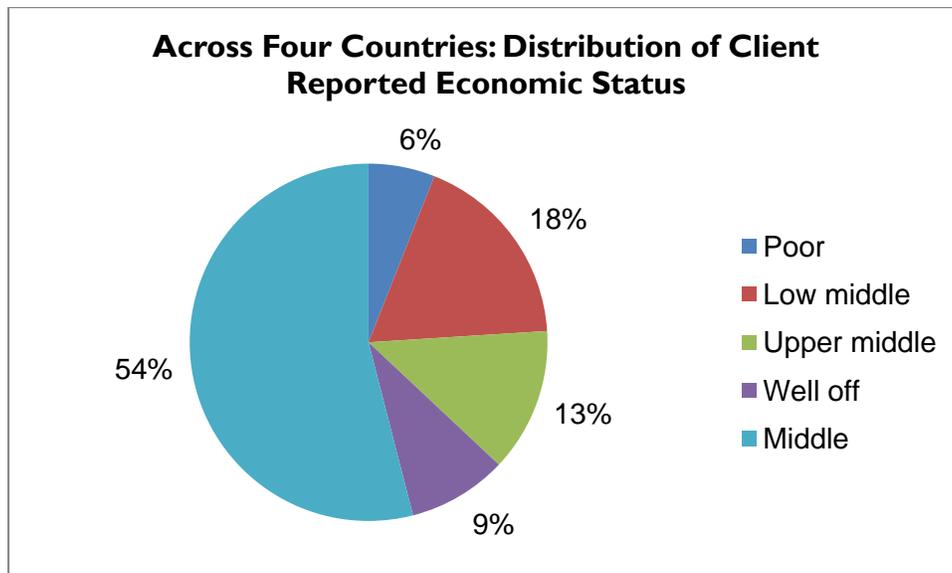


Table 36 presents data on client-reported tobacco and alcohol use. A very low percentage of clients reported using alcohol more than weekly (1%) or tobacco (4%). (Client-reported results of tobacco and alcohol use may under-represent actual use given the stigma associated with smoking and drinking for women, especially in rural areas.)

Table 36: % (#) of Clients Who Self-reported Tobacco and Alcohol Use (n=292 Clients)

Indicator	4-country Average	ALB	ARM	GEO	RUS
Tobacco use	3.5% (11)	3% (2)	2% (1)	1%(1)	8% (7)
Alcohol use > once per week	1% (3)	2% (1)	0% (0)	2%(2)	0% (0)

Client-reported Practices and Receipt of Specific MNH Services

Figure 27 and Table A38 report the number of antenatal visits clients reported. Nearly all (99%) clients reported at least one antenatal visit while pregnant, with 68% reporting more than six such visits. A high percentage (86%) reported a first antenatal visit in the first trimester.

Figure 27: Client-reported Total Number of Antenatal Care Visits (n=292 Clients)

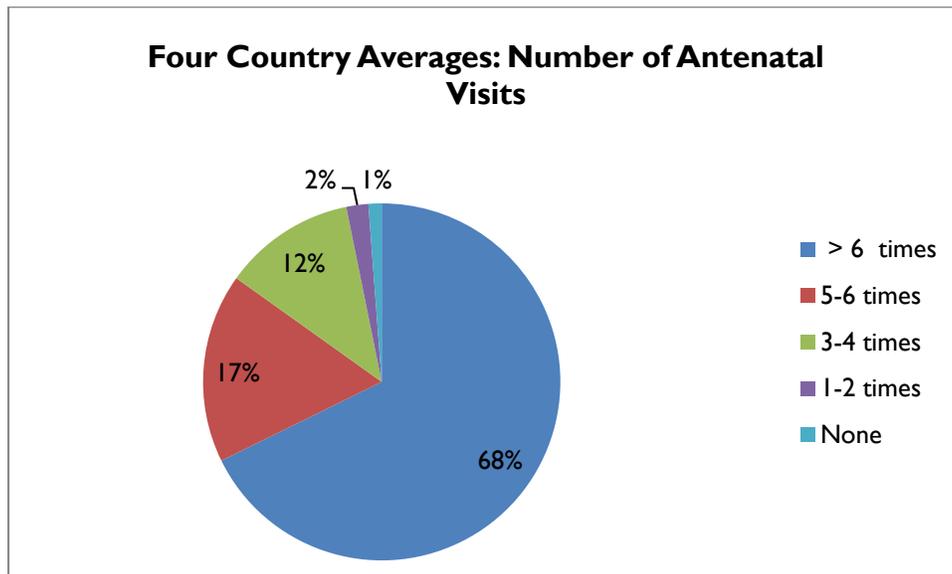
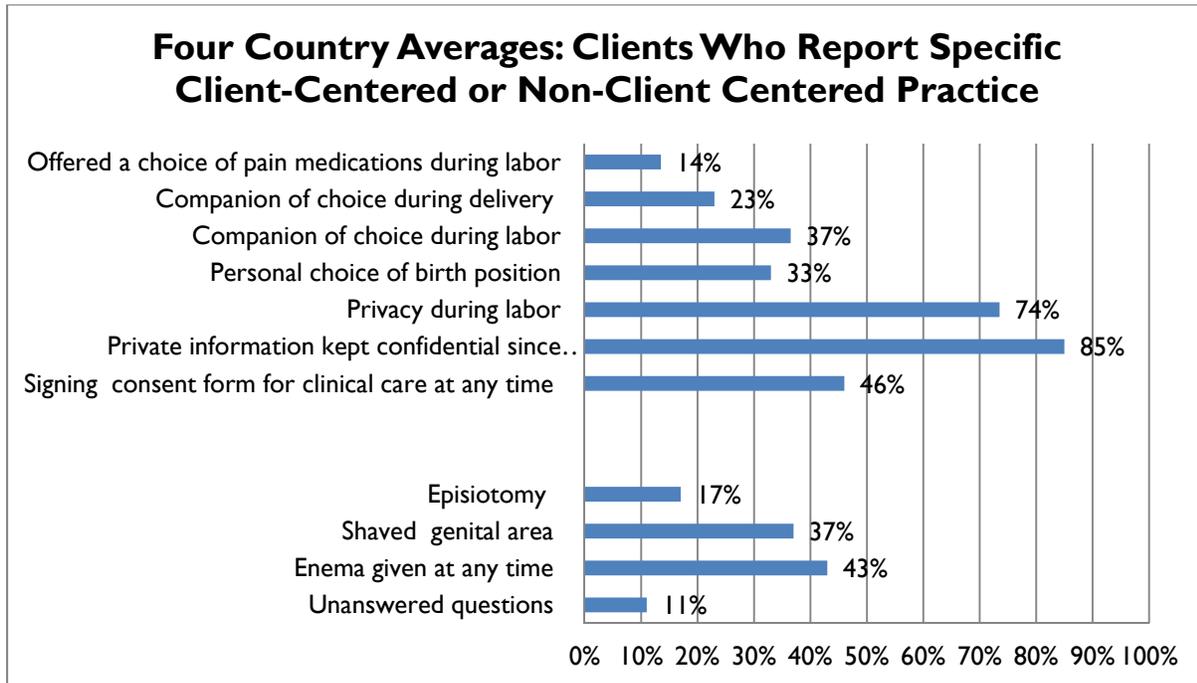


Figure 28 and Table A39 present percentages of clients that reported specific client-centered and non-client centered practices. The most common such practice on average across all countries was having private information kept confidential since admission (85%), followed by privacy during labor (74%). Less than half reported signing a consent form at any time (46%) or having a companion of choice during labor (37%). Even fewer reported a personal choice of birth position (33%), having a companion of choice during delivery (23%), and being offered a choice of pain medications (14%). With regard to non-client-centered practices, on average across the countries, 43% of women reported being given an enema; 37% reported being shaved in the genital area; and 17% of women reported having had an episiotomy.

Figure 28: % of Clients Who Report Specific Client-centered or Non-client-centered Practice (n=292 Clients)



Patient-reported first contact with newborn based on averages across all countries is shown in Figure 29 and presented in Table 39A. Nearly two-thirds of clients reported contact with their newborn immediately after birth, and an additional 12% reported contact within the first hour. However, nearly a quarter of women reported their first contact with their newborn was more than an hour after the birth (24%).

Figure 29: Client-reported Time of First Contact with Newborn (n=292 Clients)

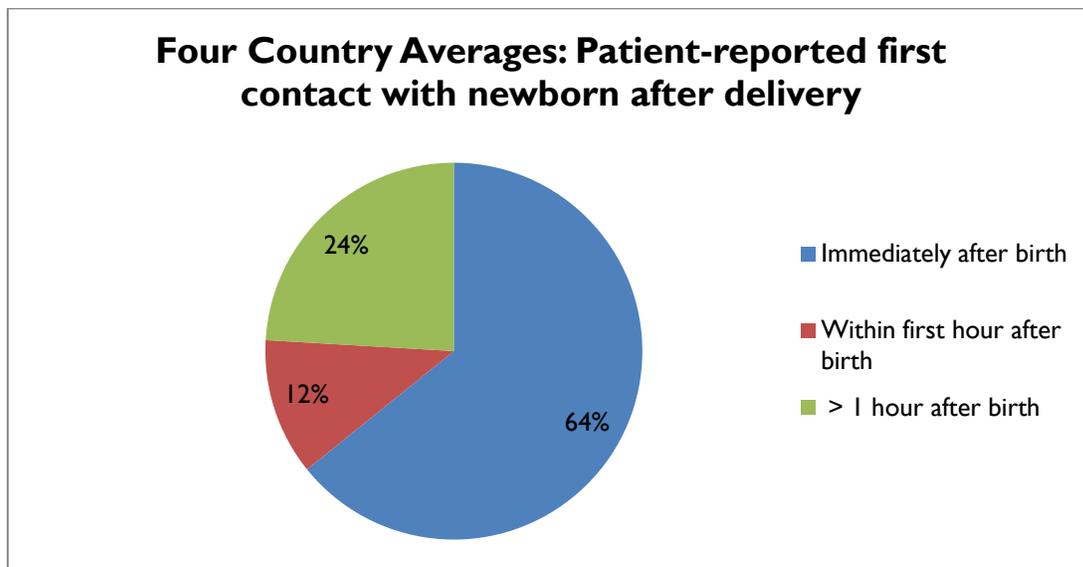
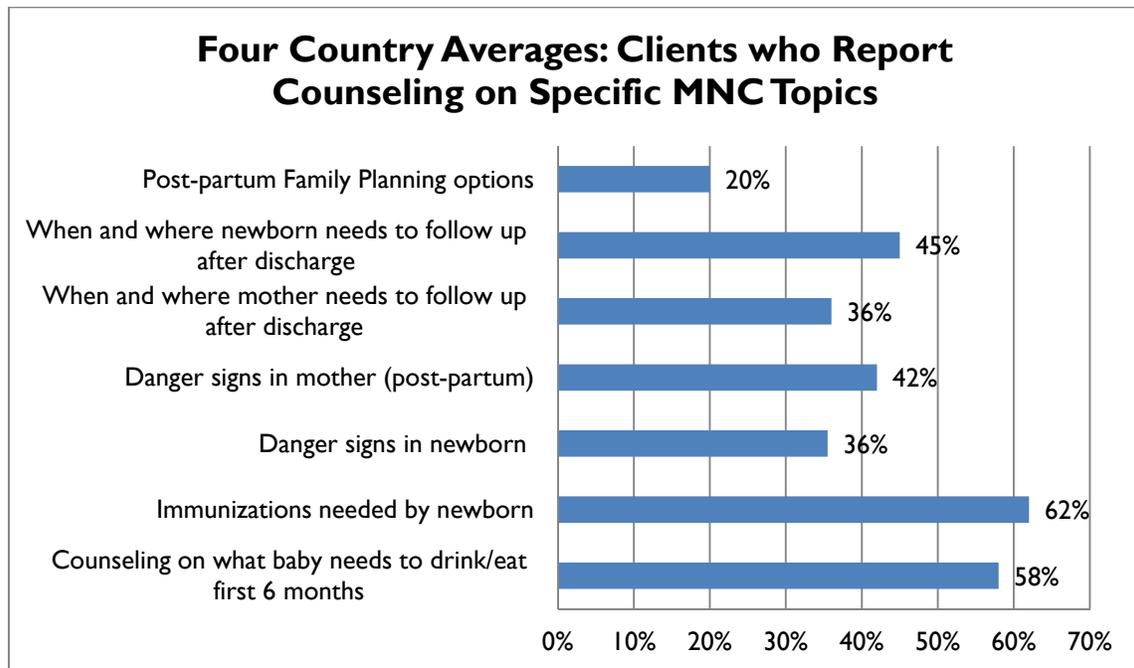


Table A39 presents client-reported results on the timing of first breastfeeding. On average, 35% of patients reported breastfeeding within the first hour, and an additional 26% reported doing so within the first six hours. Another 16% reported breastfeeding for the first time between six and 24 hours after birth. For 15% of clients the first attempt at breastfeeding did not occur until after 24 hours, and 8% never breastfed. On average, only 37% of clients reported exclusive breastfeeding since delivery. The low level of exclusive breastfeeding may be influenced by the considerably high percentage of post-partum mothers (29%) who reported not rooming in with their newborn after delivery, since exclusive breastfeeding is difficult if the mother and newborn are not physically together.

As evidenced in Figure 30 and Table A40, counseling on MNC topics was relatively low according to clients. Based on client-reported averages across all countries, the most common counseling topics were immunizations for newborns (62%) and newborn nutrition in the first six months (58%). Less than half of mothers reported counseling on newborn or mother follow-up after discharge or danger signs for mother and newborn. The least common counseling topic clients reported was post-partum family planning counseling.

Figure 30: % of Clients Who Reported Counseling, by Topic (n=292 Clients)



Client Knowledge and Awareness

Client knowledge regarding the fact that a baby needs only breast milk or formula for the first six months as well as the need for immunizations before discharge was quite high at 93.5% and 95%, respectively (Table 37). This potentially reflects higher rates of patient counseling on these two topics.

Table 37: % (#) of Clients Who Agree with Specific Newborn Care Statements (n=292 Clients)

Indicator	4-country Average	ALB	ARM	GEO	RUS
Newborn/baby needs only breast milk or formula until age 6 months	93.5%	94% (83)	96% (50)	94%(83)	90% (82)
Newborn needs immunization(s) before discharge from maternity	95%	97% (58)	96% (50)	97%(85)	91% (83)

Client Attitudes

Figure 31 and Table A42 summarize the percentages of clients who ranked client-centered issues as “very important” to them personally. These women felt strongly that interpersonal provider interaction was important, with 93% reporting that having a provider who was warm and compassionate and feeling respected by their provider was “very important” to them. On average 85% agreed with the statement that things had been explained clearly since their admission to the maternity, and 89% agreed that they had felt respected most of the time (Table 38). Also, 85% agreed that their providers had been warm and kind most of the time.

Over one half of clients ranked privacy and confidentiality as “very important” to them personally. Topics surrounding labor and delivery were also ranked as “very important” by a considerable number of women: having physical contact with their newborn (78%), choice of companion during labor (53%) and delivery (45%), choice of whether to use pain medication (51%) and which medication (41%), as well as choice of birth position (35%).

Figure 31: % of Clients Who Rank Specific Issue as “Very Important” (n=292 Clients)

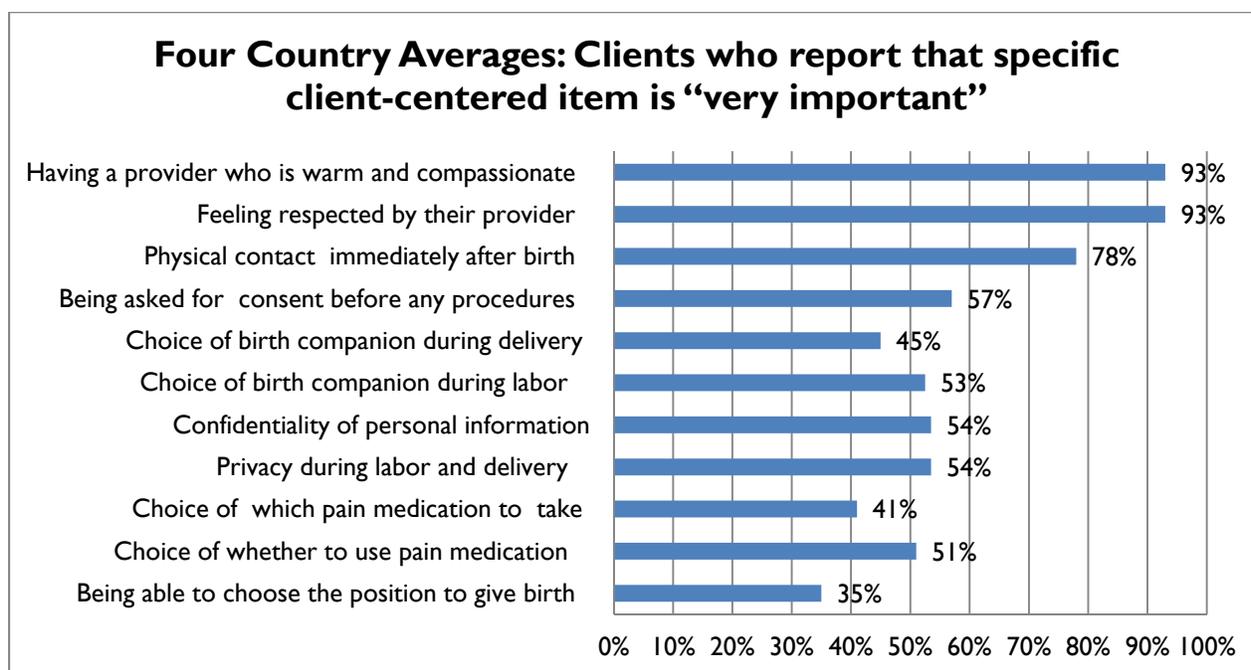


Table 38: % (#) of Clients Who Agreed with Client Satisfaction Statements (n=292 Clients)

Statement	4-country Average	ALB	ARM	GEO	RUS
My provider explained things clearly to me during labor and delivery	84.5% (249)	89% (54)	71% (37)	89% (78)	89% (80)
I have felt respected by my providers all of the time	88.5% (253)	90% (55)	100% (52)	77% (68)	87% (78)
My providers were warm and kind with me all of the time	85% (248)	89% (54)	100% (52)	78% (69)	83% (73)

Client-reported Access to MNH Services

On average across all countries, less than 1% of clients reported difficulty physically accessing MNH facilities. As shown in Figure 32 and Table A43, on average two-thirds of clients reported a nearest

maternity within 30 minutes driving distance, while 18% reported a 30–60 minute driving time, and 15% reported over an hour’s drive. Results were consistent across all countries (Table A43).

Figure 32: % of Clients Who Reported Driving Times from Maternity (n=292 Clients)

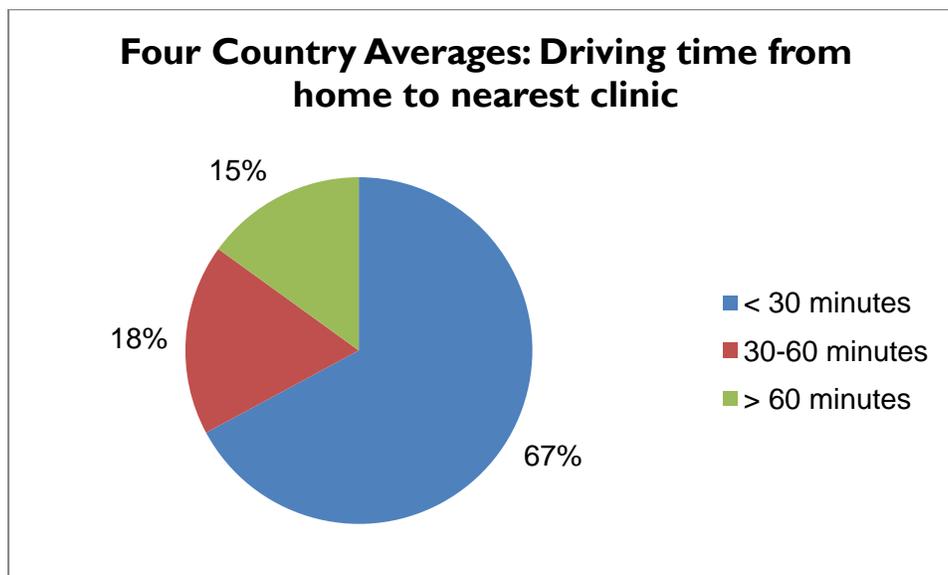


Table 39 provides data on client-reported insurance status across all countries, stratified by self-reported economic status. Two thirds of clients reported that they were uninsured and paid for pregnancy and childbirth services “out of pocket” (66%), while 24% reported a public or government-funded insurance program, and 10% had private insurance through an employer. Most clients in each wealth class report being uninsured, although being uninsured was highest among those reporting to be low-middle class (73%). A larger percentage of self-reported “poor” clients had public or government-funded insurance (43%) than did those in the other wealth categories. Clients reporting to be middle class were the most likely to have private insurance through employers (26%), although this is still a relatively low number. These results suggest that the clients who are not the poorest but are at the low end of the middle class are the most likely to incur out-of-pocket medical expenses.

Table 39: % (#) of Clients Who Reported Insurance Status, by Self-reported Wealth Quintile (n=239 Clients)

Insurance Status	Result N=88	Poor	Low-middle	Middle	Upper-middle	Well Off
I am insured by a public insurance scheme or I am covered by a government-funded program	24% (21)	43% (3)	27% (8)	11% (3)	29% (7)	0
I am insured by a private insurance scheme that I purchased through my employer	10% (9)	0	0	26% (7)	8% (2)	0
I am un-insured and pay for my pregnancy and childbirth services “out of pocket”	66% (58)	57% (4)	73% (22)	63% (17)	63% (15)	0

Table A44 summarizes client-reported barriers to accessing MNC services within the past two years. With 92% of clients reporting no difficulties, access to MNC services does not appear to be a major

concern for clients. The most common problem reported by insured clients was the inaccessibility of services because care was too expensive (28%). However, this seems to be less of an issue than might be expected given that on average two-thirds of clients reported being uninsured (Table 39). Table 40 shows out-of-pocket co-payments for government-funded MNC services. In all countries except Georgia, over 80% of clients reported not having to pay anything for government-funded services; in Georgia 34% reported having to pay for a fifth to half of the cost of services.

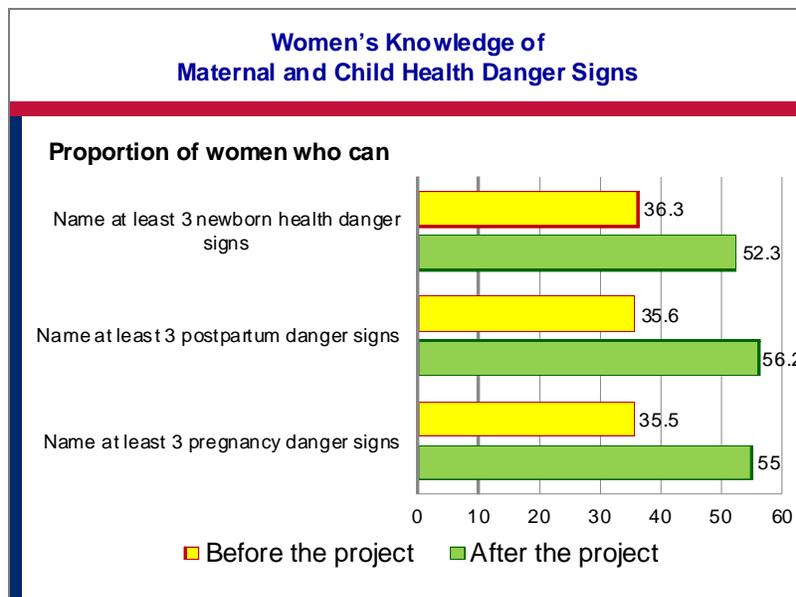
Table 40: % (#) of Clients Who Reported Specific Co-payments Out of Pocket for Government-funded MNC Services

Indicator	4-country average	ALB n=48	ARM n=47	GEO n=21	RUS n=91
I do not pay anything; all services are covered	87% (174)	100% (48)	96% (45)	67% (14)	84% (67)
I pay for 10–20% of services	4% (3)	0% (0)	4% (2)	0% (0)	11% (1)
I pay for 21–39% of services	1.3% (1)	0% (0)	0% (0)	5% (1)	0% (0)
I pay for 40–59% of services	6.3% (6)	0% (0)	0% (0)	24% (5)	1% (1)
I pay for > 60% of services	2% (3)	0% (0)	0% (0)	5% (1)	2.5% (2)

Illustrative Example of USAID-supported Maternity Results in Armenia

As shown in Tables A45 and A46, USAID supports antenatal and post-partum counseling and behavior change communication to promote educating women about best practices for themselves and their newborns and can recognize danger signs that should prompt care-seeking. Figure 33 illustrates improvements in post-partum mothers’ abilities to cite danger signs during pregnancy, in her newborn, and post-partum for herself after implementation of routine post-partum counseling in maternities in five districts in Armenia.

Figure 33: Change in Knowledge Scores of Post-partum Women in Armenian Maternities before and after Initiation of Counseling and Education Activities in NOVA-2 Project, Five Districts



IV. DISCUSSION

This section presents and discusses synthesized results across all data sources for client-centered best practices and best practices for routine and complications care for mothers and newborns; it highlights inter-country differences and common trends.

A. Client-centered Best Practices

Over the past couple of decades commitment has grown worldwide, with WHO and many stakeholders' endorsements, to the promotion of client-centered maternal care that positions women at the center of their childbirth experience, reduces unnecessary medical interventions for routine childbirth, promotes full client participation in all aspects of childbirth care, and maximizes support of the maternal-newborn unit during the immediate and early post-partum period. Much of this interest has been driven by the increasing medicalization of normal childbirth in recent decades in many countries, reflected by soaring rates of cesarean deliveries and unnecessary or harmful childbirth practices (e.g., episiotomy) in many countries, including the United States and many countries in the EE, LAC, and other regions. In addition to assessing clinical best practices and selected cross-cutting health system functions, the assessment deliberately focused on client-centered practices to provide a clearer picture of the status of both client-centered and non-client-centered practices in a sample of maternities in the EE region. This section presents client-centered practices related to labor, delivery, and post-partum care as well as client- and provider-reported practices and perspectives related to client privacy, confidentiality, consent for care, and general client satisfaction.

Clients who reported privacy during labor ranged from 53% of clients in Armenia to 94% in Georgia, with more than two-thirds of those clients ranking personal privacy as “very important,” as contrasted with half of clients in Russia and one quarter of them in Armenia (Table A42 in the Annex). The percentage of providers who agreed that patient privacy is a “priority even when the maternity is very busy” ranged from 57% in Armenia to 96% in Albania, demonstrating variable results for the importance providers accord to patient privacy. Review of maternity infrastructure demonstrated visual and auditory privacy in the admission and evaluation clinical area in over 90% of all maternities. However, in maternities in which delivery rooms were observed to have more than one bed, less than half of maternities in every country demonstrated a privacy screen around beds.

Results related to confidentiality of sensitive information were likewise quite variable across countries. Over 85% of clients in all countries except Albania (58%) agreed that their personal private information had been kept confidential since their admission to the maternity. The proportion interviewed mothers who ranked confidentiality of personal information as “very important” ranged from a low of 10% in Armenia to three-quarters in Georgia. The percentage of maternities in which a manager reported a standard protocol to ensure confidentiality of patient information ranged from close to half of maternities in Georgia and Albania to over 90% of maternities in Armenia and Russia (Table 41). The variable results observed across countries with respect to individual measures of confidentiality of patient information suggest a wide range of practices and perspectives among clients, providers, and managers on the importance of this issue.

Table 41: Client-Centered Best Practices: Privacy and Confidentiality of Personal Information

Providers Report Best Practice (n=239 Providers)	Mothers Report Best Practice (n=292 Clients)	Essential Inputs and Processes (n=42 Maternities)
Agree that “patient privacy a priority even when maternity is very busy”: Avg. 78% ALB_ 96% (49) ARM_ 56.7% (21) GEO_ 83.6% (51) RUS_76% (31)	Report privacy during labor: Avg. 74% ALB_ 85 % (28) ARM_ 53% (21) GEO_ 94 % (62) RUS_ 62% (40) Rank personal privacy as “very important”: 53.5% ALB_ 67% (41) ARM_ 26% (13) GEO_ 68% (60) RUS_ 53% (45) Agree “their private information has been kept confidential in maternity”: Avg. 85% ALB_ 58% (35) ARM_ 100% (51) GEO_ 93% (82) RUS_ 88% (78) Report confidentiality of private information a high personal priority: 53.5% ALB_ 68% (41) ARM_ 10% (5) GEO_ 76% (67) RUS_ 60% (53)	Visual and auditory privacy admission area: 96% ALB_ 90% (9) ARM_ 100% (10) GEO_ % (11) RUS_ 100% (10) Individual bed privacy screen if > 1 bed delivery room: 24% ALB_ 20% (1/5) ARM_ 44.4% (5/9) GEO_ 0% (1) RUS_ 33% (2) Standard protocol to ensure patient information confidentiality: 71% ALB_ 44.4% (4) ARM_ 90% (9) GEO_ 50% (6) RUS_ 100% (10)

More than 70% of maternity managers in all countries reported a written consent protocol requirement for cesarean delivery, and less than 50% of maternity managers reported to a written consent protocol requirement for vaginal delivery (Table 42). However, written consent forms (any kind) were observed to be available in clinical care areas in only 60% of maternities in Albania and 40% in Armenia, suggesting that in these countries written consent protocol requirements may not be enforced. Client results also suggest low enforcement of written consent protocol requirements. With the exception of Russia (84%), less than 40% of mothers in every country reported having signed any version of a consent form, while more than two-thirds of mothers in every country except Armenia (4%) ranked “being asked for consent for any clinical procedure” as “very important” personally. Over two-thirds of providers in every country reported a standard procedure in their maternities to obtain a consent form before a cesarean section, as contrasted with less than a fifth of providers in every country who reported a standard procedure for patient consent for episiotomy and augmentation or induction of labor, with the exception of consent procedure for augmentation in Georgia (54% of providers in Georgia reported a requirement of client consent before augmentation of labor). Overall, results suggest that both requirements and actual practice related to client consent varied by country and by clinical procedure, but that in general practice does not match the written protocol in most countries, suggesting a lack of implementation and enforcement of the protocols. Further assessment would be needed to explore specifics in greater depth.

Table 42: Client-centered Best Practices: Consent for Clinical Care Procedures

Providers Report Best Practice (n=239 Providers)	Mothers Report Best Practice (n=292 Clients)	Essential Inputs and Processes (n=42 Maternities)
Report standard practice to obtain client consent for: -- <i>Episiotomy</i> : Avg. 8.5% ALB_ 2% (1) ARM_ 5% (2) GEO_ 22% (10) RUS_ 5% (2) -- <i>Cesarean Section</i> : Avg. 74% ALB_ 60% (21) ARM_ 69% (27) GEO_ 87% (40) RUS_ 79% (34) -- <i>Augmentation or induction of labor</i> : 24% ALB_ 11% (4) ARM_ 13% (5) GEO_ 54% (25) RUS_ 19% (8)	Report signing consent form for clinical care (any kind, any time): Avg. 46% ALB_ 33% (20) ARM_ 27% (14) GEO_ 39% (34) RUS_ 84% (74) Rank “being asked for consent before any procedure as “very important”: Avg. 57% ALB_ 84% (51) ARM_ 4% (2) GEO_ 72% (63) RUS_ 67% (58)	Written consent protocol in maternity for: -- <i>Vaginal delivery</i> : Avg. 34% ALB_ 50% (5) ARM_ 20% (2) GEO_ 25% (3) RUS_ 40% (4) -- <i>Cesarean</i> : Avg. 87.5% ALB_ 70% (7) ARM_ 80% (8) GEO_ 100% (12) RUS_ 100% (10) Written consent forms easily available in patient care areas: Avg. 71% ALB_ 60% (6) ARM_ 40% (4) GEO_ 83% (10) RUS_ 100% (10)

Table 43 presents results for client-centered best practices during labor specifically. Over three-quarters of clients in each country agreed that their “provider had explained things clearly during labor and delivery,” and less than a fifth reported having had unanswered questions during labor and delivery. By contrast, over half of providers in every country except Russia agreed that it is “best to avoid discussing complicated obstetric care decisions with a woman in labor as she may become anxious or not understand,” suggesting that many providers may not be sharing complete clinical care information with women.

In every country except Georgia (61%), over 80% of providers agreed that it is appropriate to allow a woman to walk during labor (best practice). Although half or more clients ranked a personal choice of pain medication as “very important” only a fifth of or less of them in every country reported having had such choice. With regard to client non-centered practices, the percentage of clients reporting an enema before delivery ranged from a fifth of clients in Albania to two-thirds in Armenia. The percentage of clients reporting having been shaved in the private area before delivery ranged from 17% in Georgia and Armenia to 40% in Russia and three-quarters in Albania.

The presence of a companion during delivery is considered a best practice and has been linked to improved maternal and newborn outcomes. Both provider- and client-reported results related to this practice were generally low in all countries, suggesting that it is not routine there. Only an average one-quarter of clients reported having a companion during delivery, ranging from 3% in Russia to 51% in Georgia (Table 44). A third or less of providers in every country except Georgia (95%) reported allowing such companion, a low rate in general while higher than that reported by clients. Interestingly, more than three-quarters of providers in all countries except Russia (34%) agreed with the statement “clients should be given a choice to have a birth companion,” suggesting that a range of factors beyond provider perception may influence their beliefs. Notably, a third or less of clients ranked having a birth companion as “very important” personally in Armenia and Russia, while 69% in Georgia and 57% in Albania did, suggesting a range of client preference for a birth companion between countries (and perhaps within countries). Unknown is the degree to which client-reported priorities for a

Table 43: Client-Centered Best Practices: Labor Care

Providers Report Practice (n=239 Providers)	Mothers Report Practice (n=292 Clients)
<p>Agree appropriate for woman to walk during labor. Avg. 85%</p> <p>ALB_ 94% (46)</p> <p>ARM_ 82% (32)</p> <p>GEO_ 61% (37)</p> <p>RUS_ 100% (41)</p>	<p>Report that provider explained things clearly during labor and delivery “most of the time”. Avg. 84.5%</p> <p>ALB_ 89% (54)</p> <p>ARM_ 71% (37)</p> <p>GEO_ 89% (78)</p> <p>RUS_ 89% (80)</p>
<p>Agree “best to avoid discussing complicated obstetric decisions w/ woman in labor as she may become anxious or not understand”. Avg. 53%</p> <p>ALB_ 71% (36)</p> <p>ARM_ 59% (23)</p> <p>GEO_ 54% (33)</p> <p>RUS_ 29% (12)</p>	<p>Report unanswered questions during labor and delivery. Avg. 11%</p> <p>ALB_ 2% (1)</p> <p>ARM_ 21% (11)</p> <p>GEO_ 11% (10)</p> <p>RUS_ 9% (8)</p>
	<p>Report a choice of pain medication during labor: 13.5%</p> <p>ALB_ 13% (8)</p> <p>ARM_ 10% (5)</p> <p>GEO_ 20% (18)</p> <p>RUS_ 11% (10)</p>
	<p>Rank personal choice of pain medication as “very important”. Avg. 51%</p> <p>ALB_ 82% (50)</p> <p>ARM_ 17% (9)</p> <p>GEO_ 55% (48)</p> <p>RUS_ 49% (42)</p>
	<p>Report an enema prior to delivery. Avg. 43%</p> <p>ALB_ 20% (12)</p> <p>ARM_ 65% (34)</p> <p>GEO_ 30% (26)</p> <p>RUS_ 57% (52)</p>
	<p>Report being shaved in private area. Avg. 37%</p> <p>ALB_ 74% (45)</p> <p>ARM_ 17% (9)</p> <p>GEO_ 17% (15)</p> <p>RUS_ 40% (36)</p>

practice may be influenced by what women consider to be normative childbirth care based on usual practice in their country. Likewise the degree to which client versus provider preferences determine use of the practice in different countries and maternities remains unclear and would require further assessment. For example, the a third of providers in Russia who agreed that a woman should have a birth companion closely matches the proportion of clients there who reported having one, suggesting that provider preference may play an important role for this practice.

Roughly a third or less of clients in each country reported having chosen their delivery position, while three-quarters or more of providers in each country agreed that a woman should choose her position. With regard to the *non-evidence-based and non-client-centered* practice of episiotomy, approximately a fifth of clients on average in the four countries reported having had an episiotomy, ranging from 12% in

Georgia to 25% in Albania. Three-quarters of providers on average in all countries reported performing an episiotomy if they considered there to be a high risk of a tear, ranging from 45% in Georgia to 100% in Russia. No providers in all countries except Albania (4%) reported performing an episiotomy *routinely*, and 47% in Georgia and 37% in Armenia reported performing one “rarely.” These client- and provider-reported results suggest that the routine practice of episiotomy may be less common than previously but that it is still widely practiced if the provider deems it “necessary.” Only in Georgia (7%) and Albania (4%) did any percentage of providers report never performing an episiotomy.

Table 44: Client- and Non- Client-centered Best Practices: Delivery Care

Client- & Non-Client Centered Delivery Practices	% Providers Report Practice (n=239 Providers)	% Mothers Report Practice (n=292 Clients)
Birth Companion of Client’s Choice	Report to allow birth companion during labor and delivery. Avg 48% ALB_ 35.8% ARM_ 30.7% GEO_ 95% RUS_ 32% (18) Agree “that clients should have a companion of choice during both labor and delivery”. Avg. 73% ALB_ 95.4% ARM_ 78.3% GEO_ 83.9% RUS_ 34% (14)	Report a companion of their choice present during delivery. Avg. 23% ALB_ 18% (11) ARM_ 19% (10) GEO_ 51% (45) RUS_ 3% (3) Rank a companion during delivery is “very important”. Avg. 45% ALB_ 57% (35) ARM_ 23% (12) GEO_ 69% (61) RUS_ 31% (27)
Client Birth Position Choice	Agree that “a woman should choose her preferred delivery position”. Avg. 79% ALB_ 80% (40) ARM_ 74% (29) GEO_ 88% (54) RUS_ 73% (30)	Report choosing their birth position. 14% ALB_ 12% (4) ARM_ 0% (0) GEO_ 37% (25) RUS_ 8% (5) Rank personal choice of birth position as “very important”. Avg. 35%
Episiotomy (non client-centered)	% Providers report usual episiotomy practice as: –All deliveries/ 1% ALB_ 4.2% (2) ARM_ 0% (0) GEO_ 0% (0) RUS_ 0% (0) –“If high risk of tear” 73% ALB_ 83.3% (40) ARM_ 63.1% (24) GEO_ 44.7 % (21) RUS_ 100 % (41) –Rarely. 23% ALB_ 8.3% (4) ARM_ 36.8% (14) GEO_ 46.8% (22) RUS_ 0% (0) –Never. 3% ALB_ 4.1% (2) ARM_ 0% (0) GEO_ 8.5% (4) RUS_ 0 % (0)	Report choosing their birth position as “very important”. Avg. 35% ALB_ 38% (23) ARM_ 14% (7) GEO_ 50% (44) RUS_ 37% (32) % Clients who report an episiotomy. Avg. 17% ARM_ 25% GEO_ 12% RUS_ 18%

More than 85% of providers in every country and more than two-thirds of clients in every country but Russia (58%) reported that newborns normally room in with their mothers (Table 45). In every country, a greater proportion of providers than clients reported this best practice. For example, 91% of providers and 58% of clients in Russia reported rooming in of mother and newborn. All managers in all countries reported a maternity protocol allowing rooming in, suggesting a large gap between maternity protocol and practice. Interestingly, the relatively low percentage of clients in Russia (21%) who reported that the provider made the decision about where the baby stayed suggests that at least some mothers may be choosing not to have their newborn room in, which may also be true in other countries. However, the roughly one-half of providers on average in all countries who agreed that a woman should decide where her newborn stays after delivery (if no complications), indicates that roughly half do not support having the woman make the decision. Further assessment would be required to tease out the factors that influence the practice of rooming in.

Table 45: Client-centered Baby-Friendly Care: Rooming in of Mother and Newborn

Baby Friendly Care	Providers Report Best Practice (n=239 Providers)	Mothers Report Best Practice (n=292 Clients)	Managers Report Best Practice (n=42 Managers)
Rooming-in of Newborn with Mother after delivery	Report that newborns usually stay with their mothers after delivery. Avg. 92% ALB_ 88.9% (56) ARM_ 88.6% (39) GEO_ 100% (23) RUS_ 91% (50) Agree that “in absence of medical contra-indications, mother should decide where newborn stays after delivery until discharge. Avg. 56% ALB_ 69.3% (43) ARM_ 51% (23) GEO_ 43.5% (10) RUS_ 60% (33)	Report rooming in of baby since delivery. 71% ALB_ 73% (44) ARM_ 67% (35) GEO_ 87% (75) RUS_ 58% (53) Report providers made decision about where baby has stayed after delivery. Avg. 64.5% ALB_ 78% (45) ARM_ 98% (51) GEO_ 61% (53) RUS_ 21% (19)	Maternity allows newborns to room in with mother after delivery. Avg. 100% ALB_ 100% (10) ARM_ 100% (10) GEO_ 100% (12) RUS_ 100% (10)

In every country except Albania (30%), over 80% of managers in each country reported regular measurement of client satisfaction, although it was beyond the assessment’s scope to address the strategies used to measure patient satisfaction (Table 46). Roughly a fifth of providers in the four countries on average reported participation in “family-centered” CME within the past three years. A high proportion of mothers in every country reported to “have felt respected at all times” and that “my providers have been warm and caring at all times,” with the highest client-reported results observed in Armenia, where all clients agreed to both statements. The degree to which client responses to these questions may or may not have been biased due to the client’s presence in the maternity at the time of the interview is unknown and would require a follow-up interview after discharge. Nevertheless, client-reported results of respectful, compassionate maternal care are encouraging.

Table 46: Client-centered Best Practices: Respectful and Compassionate Care

Respectful Care and Client Satisfaction	Providers Report Best Practice (n=239 Providers)	Mothers Report Best Practice (n=292 Clients)	Managers Report Best Practice (n=42 Managers)
Respectful care and client satisfaction	% providers report family-centered CME/training last 3 years. Avg. 18% ALB_ 6% (4) ARM_ 23 % (11) GEO_ 22% (15) RUS_ 20% (11)	“Have felt respected by my provider at all times”. Avg. 88.5% ALB_ 90% (55) ARM_ 100% (52) GEO_ 77% (68) RUS_ 87% (78) “My providers have been warm and kind with me at all times” Avg. 85% ALB_ 89% (54) ARM_ 100% (52) GEO_ 78% (69) RUS_ 83% (78) Rank a warm and compassionate provider as “very important”. Avg. 93% ALB_ 98% (60) ARM_ 85% (44) GEO_ 90 % (79) RUS_ 98% (86)	Report to measure client satisfaction regularly (any method). Avg. 68% ALB_ 30% (3) ARM_ 80% (8) GEO_ 83% (10) RUS_ 80% (8)

Illustrative Examples of USAID-supported Client-centered Best Childbirth Practices

USAID support in the E&E region of MNH activities very strongly emphasizes promoting client-centered childbirth practices, such as having a birth companion, choice of birth position, privacy, and reducing unnecessary and potentially harmful practices such as episiotomy, enema, and shaving. Figure 34 shows increasing rates of having a birth companion in USAID-supported maternities in Georgia from 2005 to 2009.

Figure 34: % Births with Birth Companion Present in USAID-supported Maternities in Georgia: 16 Maternities in Five Regions 2003–2008; 29 Maternities in Nine Regions 2009

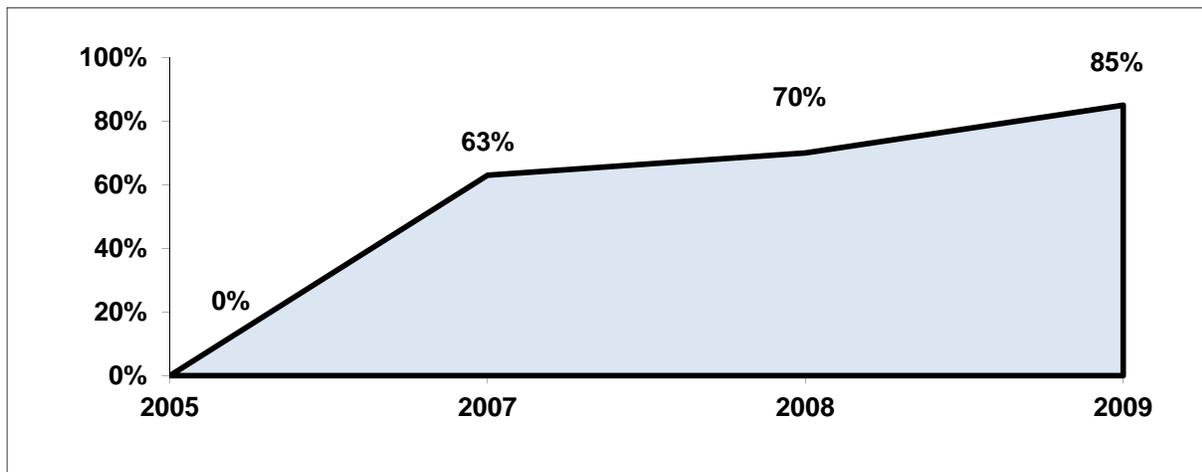
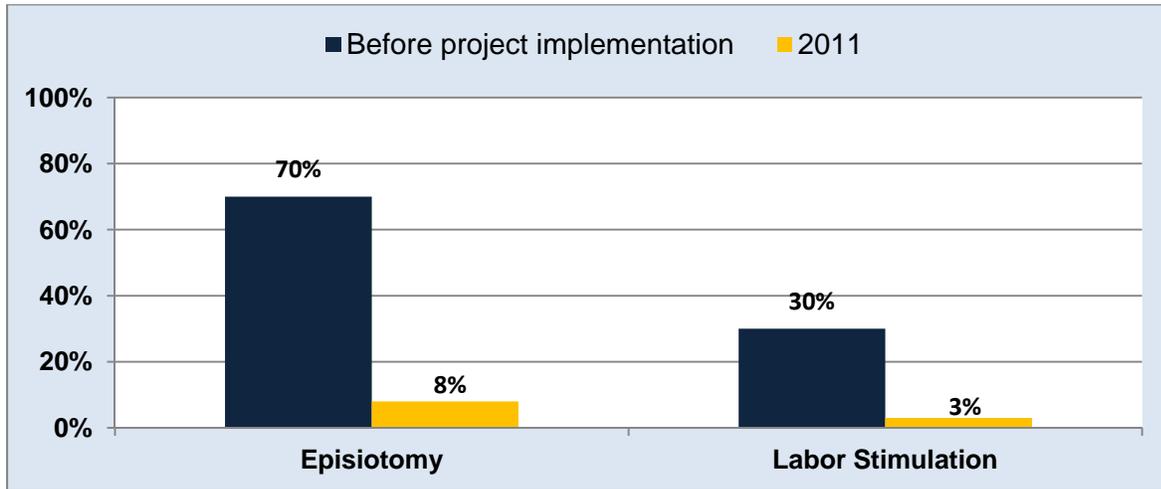


Figure 35 demonstrates impressive reduction in rates of episiotomy and labor augmentation in USAID-supported maternities in Georgia before and after introduction of a client-centered QI intervention.

Figure 35: Use of Episiotomy and Labor Augmentation in USAID-supported Georgia Maternities Before (2005) and After USAID Support (2011) (29 Maternities in Nine Regions)



B. Maternal Care

This section summarizes and discusses results across all data sources relevant to best practices for routine care of the mother (intrapartum, immediate post-partum, early post-partum) and best practices for maternal complications care (PPH, eclampsia, sepsis, obstructed labor).

Routine Intrapartum and Immediate Post-partum Maternal Care: Table 47 presents results across all data sources for intrapartum and immediate post-partum best practices for women. Documentation of the presence or absence of any chronic medical conditions (e.g., asthma) at admission to the maternity was observed in only a third of charts on average with considerable variation between countries: from 9% in Armenia to 79% in Albania. Because the presence of such condition increases the risk for complications during childbirth, failure to note them at admission in most charts in most countries represents a quality of care gap and signals missed opportunities. Another important admission best practice is the ability to correctly diagnose the active phase of labor to determine when a woman should be admitted to the maternity (since the inactive phase of labor can last a long time, and admitting women before the active phase is neither cost-effective nor necessary). On average, two-thirds of providers failed to identify as “false” *inaccurate* criteria for diagnosis of the active phase of labor; 56% agreed incorrectly that active labor is diagnosed when a woman has regular contractions and a cervical dilation of at least 2 cm.

Although general availability of a standard labor and delivery medical record was observed in more than 70% of maternities in all countries except Georgia (58%), observation of a standard intra-partum record (partogram or other) *present in charts* was lower, ranging from 27% of charts in Armenia to 74% in Albania. A standardized, actively completed labor and delivery medical record to enable routine documentation of best practices and vigilant monitoring of labor progress for early detection of obstructed labor and other complications is essential for achieving high-quality, intra-partum obstetric care. The absence of such a standardized record in over half of maternity charts in every country represents a significant quality of care problem.

Documentation of best monitoring practices during labor, whether or not as part of a standardized record (depending on presence in chart), to permit early detection of obstructed labor and abnormalities (mother or fetus) varied within and across countries depending on the practice. Regular recording of cervical dilatation to permit early detection of obstructed labor was documented in less than a fifth of charts in Armenia as contrasted with three-quarter of charts in Russia (data incorrectly

collected in Georgia and Albania). However, 90% of providers in all countries except Georgia (77%) correctly identified the normal rate of cervical dilation during the active phase of labor, suggesting strong provider knowledge of normal labor progression with regard to cervical dilatation. Correct identification of the normal frequency of contractions during active labor to assist recognition of ineffective active labor was less strong, ranging from 45% of providers in Albania to 92% in Armenia. Over three-quarters of maternal care providers in each country correctly identified the normal time interval for the second stage of labor (complete cervical dilatation to delivery). Except in Russia (60%), approximately 40% of providers in each country reported CME on obstructed labor within the past three years, and 50% of providers on average reported being very confident managing obstructed labor, ranging from 22% in Russia to 71% in Armenia. This indicates low levels of provider-reported confidence amid recent CME for management of obstructed labor.

Less than a quarter of charts in each country recorded a maternal temperature value at least every four hours during labor, considered a best practice for prompt detection and treatment of maternal infection, which, if unrecognized, can have major negative consequences for both mother and fetus. Less than half of charts in all countries, ranging from 18% in Albania to 50% in Georgia, documented a value for fetal heart rate at least every four hours, considered a best practice for detecting fetal distress during labor (e.g., high heart rate can signal infection). Immediate post-partum administration of Oxytocin within a minute after birth (an AMTSL element considered a best practice for reducing the occurrence of PPH) was documented in less than a quarter of charts except for Russia (46%), despite availability of Oxytocin in the delivery room in more than 90% of maternities. Detailed AMTSL results are in the synthesized results section on PPH below.

In all countries except Russia, a third or more of providers reported attending fewer than 10 deliveries per month, with two-thirds of them in Armenia reporting so few. This result is consistent with the region's known over-supply of obstetricians and neonatologists. Since higher volume of clinical cases with regard to both individual providers and facilities has been linked to better patient outcomes in most studies, the low volume of provider-reported monthly births raises concern for maintenance of provider competence, particularly for complications care. The over-supply of physicians, especially specialists, in the region is well recognized, and many of the region's national governments are trying to re-balance physician supply to match need. With regard to obstetric and neonatal care, a reasonable balance of obstetrician and neonatologist supply is essential to maintain basic competence.

Routine early post-partum care: The early post-partum period (first 24-48 hours) is a period of vulnerability for both mother and newborn, when a large proportion of deaths occur. Systematic monitoring for and prompt detection and treatment of complications for mother and newborn are essential for reducing morbidity and mortality during this period. Monitoring the mother for danger signs (suggesting a complication may be developing) and counseling her to recognize and seek care for danger signs after discharge are considered an early post-partum best practice. Routine documentation of early post-partum monitoring of the mother to detect PPH (bleeding), infection (fever, pain), and pre-eclampsia (high blood pressure and other danger signs) was found in few charts in all countries. Only an average 11% of charts, ranging from 0.7% in Armenia to 26% in Albania, recorded the mother's bleeding status at least every four times a day during early post-partum. Likewise only an average 14% of charts documented a measure of maternal temperature at least four times a day for early detection of infection, and only 13.5% of charts on average documented a blood pressure at least four times a day for early detection of pre-eclampsia or surveillance of established pre-eclampsia. As will be seen in the synthesis section of newborn results, monitoring of newborn status in charts was similarly low.

Table 47: Routine Intra-partum, Labor, and Immediate Post-partum Care Practices for Mother

Routine Intra- and Post-partum	Charts with Best Practice (n=592 Charts)	Providers Reporting Practice (n=239)	Essential Inputs (n=42 maternities)
<p>Admission Best Practices</p> <p>Practice, Knowledge And Attitude</p>	<p>Maternal co-morbid conditions recorded: Avg. 38% ALB_ 79% ARM_ 9% GEO_ 32% RUS_ 32%</p> <p>Standard intra-partum record in chart: Avg. 48.5 % ALB_ 74% (106) ARM_ 27 % (41) GEO_ 50% (75) RUS_ 43% (64)</p> <p>Maternal BP recorded at least every 4 hours during labor. Avg. 71% ARM_ 57% (40) RUS_ 85% (72)</p> <p>Maternal temperature recorded at least every 4 hours: Avg. 19% ALB_ 16% ARM_ 26% GEO_ 17% RUS_ 18%</p> <p>Fetal heart tones recorded at least every 30-60 minutes: Avg. 34% ALB_ 18% (26) ARM_ 27% (40) GEO_ 50 % (75) RUS_ 42% (62)</p> <p>Cervical dilation recorded at least every 4 hours. Avg. 47.5%* ARM_ 19 % (27) RUS_ 76% (72)</p> <p>Immediate post-partum oxytocin recorded. Avg. 23% ALB_ 8% (9) ARM_ 13% (18) GEO_ 24.5% (36) RUS_ 46%</p> <p>Detailed AMTSL results presented in PPH section</p>	<p>Correctly recognize as false incorrect criteria for active phase of labor. Avg. 56% ALB_ 39% (16) ARM_ 56% (22) GEO_ 47% (22) RUS_ 81% (30)</p> <p>Correctly identify normal frequency contractions in active labor phase. Avg. 64% ALB_ 45% (18) ARM_ 92% (35) GEO_ 48% (22) RUS_ 72% (10)</p> <p>Correctly identify minimal rate Cervical dilatation Active phase of Labor: Avg. 90% ALB_ 98% (43) ARM_ 90% (34) GEO_ 77% (36) RUS_ 95% (38)</p> <p>Obstructed Labor CME last 3 years: Avg. 45% ALB_ 40.4% (19) ARM_ 41% (16) GEO_ 41.3% (19) RUS_ 60%</p> <p>% Providers report “very confident” managing obstructed labor. Avg. 50% ALB_ 67% (30) ARM_ 71% (27) GEO_ 41% (19) RUS_ 22% (9)</p> <p>Correctly identify normal time range 2nd stage of labor (cervical dilatation to delivery). Avg. 85% ALB_ 73% (27) ARM_ 82% (32) GEO_ 92 % (43) RUS_ 92% (34)</p> <p>Attend < 10 deliveries per month. Avg. 39% ALB_ 35% ARM_ 65.8% GEO_ 39% RUS_ 14% (8)</p>	<p>Standard Intrapartum Medical Record Available in Maternity: Avg. 74.5% ALB_ 90% (9) ARM_ 70% (7) GEO_ 58% (7) RUS_ 80% (8)</p> <p>Oxytocin available in delivery room. Avg. 93% ALB_ 90% (9) ARM_ 90% (9) GEO_ 92%(11) RUS_ 100% (10)</p>

*data collection problem in Georgia & Albania

Chart results may underestimate the rate of post-partum monitoring. Providers in several maternities informed the research team that charts under-documented post-partum monitoring practices since often mothers and newborns were being checked regularly without recording results in charts. This informal observation among providers may indicate better capacity for early detection of complications than chart documentation results suggest. Nevertheless, standardizing documentation of a best practice in a uniform medical record is essential for achieving the practice's reliable and consistent delivery. Routine documentation of post-partum monitoring is particularly important—especially during provider shift changes—for facilitating early recognition of a complication. A standardized and completed medical record is important for ensuring high-quality continuity of care and for minimizing the communication lapses and associated patient care errors associated with change-over in provider and nursing shifts.

Post-partum and/or pre-discharge counseling was recorded in 29% of charts on average in all countries, with strong variation between countries: from 3% in Albania to 58% in Russia. However, client-reported counseling results suggest that actual counseling rates were likely higher: 42% and 36% of women, respectively, on average in the four countries reported counseling on maternal danger signs and post-partum follow-up guidelines, although variation was considerable between countries (Table 48). Counseling on post-partum family planning methods was low across all countries, with less than a third of clients on average reporting contraceptive counseling. Because counseling may not be offered until just before discharge and assessment data collectors interviewed clients at varying times during their post-partum period, chart reviews may underestimate the true rate of counseling. Maternities in Armenia (90%) and Russia (70%) had the highest availability of counseling materials; approximately 40% of maternities in Georgia and Albania had counseling materials available, mirroring the lower rates of maternal post-partum counseling documented in charts in both countries and client reports in Georgia.

Best Practices for Maternal Complications Care

Post-partum Hemorrhage: Prevention, Early Detection, and Treatment: Routine administration of immediate post-partum AMTSL and regular monitoring for bleeding during the early post-partum period are considered best practices for reducing the occurrence of PPH (AMTSL) and for the prompt detection of PPH (monitoring). AMTSL (a combination of three elements: immediate post-partum administration of Oxytocin, controlled cord traction, and uterine massage) reduces the occurrence of PPH by approximately 50% by counter-acting uterine atony, the leading cause of PPH. Documentation of immediate post-partum administration of Oxytocin within one minute of birth was observed in 23% of charts on average, ranging from 8% in Albania to 46% in Russia (see Table 49). A higher proportion of charts (41% average) documented administration of Oxytocin *within five minutes of birth*, ranging from 18% in Albania to 62% in Russia. Chart results for immediate post-partum administration of Oxytocin in general mirrored provider knowledge results; approximately half of providers on average could correctly identify the three AMTSL elements (ranging from 30% in Albania to 60% in Russia), and a little over half (56%) could correctly identify the universal indication for AMTSL (that all women are at risk for PPH and benefit from AMTSL). On average 58% of obstetricians and midwives reported having taken AMTSL CME within the past three years, which is consistent with these knowledge results. Oxytocin was observed to be available in over 90% of the 42 maternities' delivery rooms, indicating that its unavailability is not likely contributing to the low rates of observed AMTSL administration. Less than a fifth of charts in every country recorded all three elements of AMTSL, ranging from 20% in Georgia to 2.9% in Armenia. Although documentation of controlled cord traction and external uterine massage may well have been under-recorded in charts relative to practice, the combined relatively low chart documentation of immediate post partum Oxytocin (23%) and low documentation of regular monitoring for vaginal bleeding (11% on average) suggest a need to improve delivery of these two best practices for the prevention and early detection of PPH. Less than a quarter of charts in all countries documented the post-partum bleeding status of mothers at least four times during the first 24 hours after birth (for early detection of hemorrhage), ranging from 0.7% in Armenia to 26% in Albania.

Table 48: Routine Early Post-partum Care Best Practices for Mother (in Maternity from Birth to Discharge)

Routine Post-partum Care	Charts with Best Practice (n=592 Charts)	Clients Report Best Practice (n=292 Clients)	Maternities with Essential Inputs (n=42 Maternities)
Routine Post-partum Care	<p>Pre-discharge maternal counseling documented. 29%</p> <p>ALB_ 3.4%</p> <p>ARM_ 25%</p> <p>GEO_ 28%</p> <p>RUS_ 58%</p> <p>Pre-discharge Maternal physical exam documented. Avg. 81%</p> <p>ALB_ 52% (76)</p> <p>ARM_ 95% (143)</p> <p>GEO_ 83% (12)</p> <p>RUS_ 96% (142)</p> <p>Vaginal bleeding status (+/-) recorded every 6 hours. Avg. 11%</p> <p>ALB_ 26% (37)</p> <p>ARM_ 0.7% (1)</p> <p>GEO_ 15% (22)</p> <p>RUS_ 3% (5)</p> <p>Maternal temperature recorded at least every 6 hours first 24-48 hours. Avg. 14%</p> <p>ARM_ 43% (62)</p> <p>ALB_ 0% (0)</p> <p>GEO_ 7% (11)</p> <p>RUS_ 7% (9)</p> <p>Maternal BP recorded at least every 6 hours first 24 hours post-partum. Avg. 13.5%</p> <p>ALB_ 32% (46)</p> <p>ARM_ 1.3% (2)</p> <p>GEO_ 13% (19)</p> <p>RUS_ 8% (12)</p>	<p>Counseling on maternal danger signs. Avg. 42%</p> <p>ALB_ 67% (41)</p> <p>ARM_ 38.5% (20)</p> <p>GeEO_ 19% (17)</p> <p>RUS_ 43% (39) Counseling on post-partum follow up for mother. Avg. 36%</p> <p>ALB_ 44% (27)</p> <p>ARM_ 31% (16)</p> <p>GEO_ 12.5% (11)</p> <p>RUS_ 56% (51)</p> <p>Post Partum Family Planning Counseling. Avg. 20%</p> <p>ALB_ 13.1% (8)</p> <p>ARM_ 23.1% (12)</p> <p>GEO_ 16% (14)</p> <p>RUS_ 28.5% (26)</p>	<p>Discharge counseling materials. Avg. 60.5%</p> <p>ALB_ 40% (4)</p> <p>ARM_ 90% (9)</p> <p>GEO_ 42% (5)</p> <p>RUS_ 70% (7)</p>

The sample size of PPH cases is relatively small (34 charts), and the unfortunate quality of chart documentation made it impossible to assess the quality of PPH management practices, including documentation of external uterine massage and immediate administration of a uteronic (e.g., Oxytocin) and intravenous fluids, two best practices to counter uterine atony. After immediate treatment for uterine atony for PPH, providers must rule out other common causes of PPH, including cervical or vaginal laceration or retained placental products in the uterus. Unfortunately, the assessment methodology precludes assessment of these practices. Likewise it was impossible to determine the appropriateness of a blood transfusion (necessary for severe hemorrhage) or surgical intervention for a specific case of PPH based on the quality of chart documentation in most charts. Nevertheless, some generalizations can be made relevant to treatment practices for PPH. As mentioned above, more than 90% of maternities had Oxytocin available in the delivery room. In addition, a PPH case management protocol was observed in patient care areas in an average 67% of maternities (all countries), ranging

Table 49: PPH Prevention and Early Detection

Routine Post-partum Care	Charts with Best Practice (n=592 Charts)	Providers with Best Practice (n=239)	Maternities with Essential PPH Inputs (n=42 Maternities)	Maternity General Statistics (n=42 Maternities)
PPH Prevention and early Detection	3 AMTSL elements recorded. Avg. 15% ALB_ 4.6% ARM_ 2.9% GEO_ 41.5% RUS_ 10.5% Oxytocin recorded as given: --within one minute of birth. Avg. 23% ALB_ 8% (9) ARM_ 13% (18) GEO_ 24.5% (36) RUS_ 46% --within 5 minutes of birth. Avg. 41% ALB_ 18% ARM_ 37% GEO_ 47.5% RUS_ 62% Bleeding assessment recorded at least every 6 hours until discharge. Avg. 11% ALB_ 25.5% (37) ARM_ 0.7% (1) GEO_ 15% (22) RUS_ 3% (5)	Correctly identify universal indication for AMTSL. Avg. 56% ALB_ 51% (22) ARM_ 46% (18) GEO_ 67% (32) RUS_ 59% (22) Correctly identify 3 AMTSL elements ALB_ 29.8% (14) ARM_ 42.1% (16) GEO_ 55.3% (26) RUS_ 60% (24) 4 country:46.7 % (80) AMTSL CME within past 3 years. Avg.58% ALB_ 66% (31) ARM_ 56% (22) GEO_ 59% (27) RUS_ 51 %	Oxytocin available in delivery room. Avg. 93% ALB_ 90% (9) ARM_ 90% (9) GEO_ 92%(11) RUS_ 100% (10)	PPH as % of all births in last year. Avg. 0.9% ALB_ 0.4% ARM_ 1.7% GEO_ 0.9% RUS_ 0.4%

from 30% in Albania to 90% in Russia. Furthermore, among providers, 65% in Albania to 87% in Russia reported PPH CME within the past three years. Provider-reported confidence managing PPH varied widely, from 33% of providers in Georgia to 100% in Russia. Approximately a third of maternity managers in Armenia, Albania, and Georgia (but none in Russia) reported difficulty ensuring blood products “most of the time.” Only 10% of maternities in Russia had no availability of blood products, whereas 67% of managers in Georgia, 50% in Armenia, and 30% in Albania reported no availability of blood products. Of these managers, 40% in Georgia, 38% in Armenia, and 10% in Albania reported > 60 minutes driving time to the nearest location with a blood supply, indicating limited rapid access to blood transfusion capacity for women in their maternities (see Table 50).

Table 50: Treatment of PPH (n=239 Providers; n=42 Maternities)

Routine Post-partum Care	Providers with Best Practice (n=239)	Maternities with Essential PPH Inputs (n=42)
PPH Treatment	<p>Correctly identify immediate PPH management actions (knowledge test). Avg. 76%</p> <p>ALB_ 65% (30) ARM_ 84.6% (33) GEO_ 69% (33) RUS_ 87% (34)</p> <p>PPH CME training last 3 years. Avg. 64%</p> <p>ALB_ 70.2% (33) ARM_ 51.3% (20) GEO_ 65.2% (30) RUS_ 70%</p> <p>Report very confident managing PPH. Avg 47%</p> <p>ALB_ 72% (26) ARM_ 60.5% (61) GEO_ 32.6% (15) RUS_ 22% (9)</p>	<p>PPH case management protocol available. Avg. 67%</p> <p>ALB_ 30% (3) ARM_ 80% (8) GEO_ 67% (8) RUS_ 90% (9)</p> <p>Oxytocin available in delivery room. Avg. 93%</p> <p>ALB_ 90% (9) ARM_ 90% (9) GEO_ 92%(11) RUS_ 100% (10)</p> <p>24/7 Hematocrit (or hemoglobin) testing availability. Avg. 92.5%</p> <p>ALB_ 90% (9) ARM_ 100% (10) GEO_ 100% (12) RUS_ 80% (8)</p> <p>No availability of Blood and blood products. Avg. 39%</p> <p>ALB_ 30% (3) ARM_ 50% (5) GEO_ 67% (8) RUS_ 10% (1)</p> <p>Report difficulty ensuring blood products “most of the time.” Avg. 25%</p> <p>ALB_ 40% (4) ARM_ 30% (3) GEO_ 33.3% (4) RUS_ 0% (0)</p> <p>Maternities without blood products within > 60 minutes driving time to nearest supply. Avg. 38%</p> <p>ALB_ 10% (1) ARM_ 37.5% (3) GEO_ 40%(4) RUS_ 67% (2)</p>

Early Detection and Treatment of Pre-eclampsia and Eclampsia: Pre-eclampsia (characterized by high blood pressure and abnormal protein levels in urine) and eclampsia (a complication of pre-eclampsia characterized by life-threatening seizures) are important direct obstetric causes of maternal mortality and morbidity that can present at any time during the second half of pregnancy, delivery, and the post-partum phase. Early detection and treatment of pre-eclampsia to prevent progression to eclampsia is critical for reducing maternal mortality and morbidity due to eclampsia. Regular monitoring of maternal BP, with a urine protein check for elevated BP, and prompt recognition of maternal danger signs (e.g., blurred vision, abdominal pain, headache) is a central strategy for the early detection and management of pre-eclampsia. The assessment found that 85% of sampled charts in Russia and 57% in Armenia documented a BP value at least every four hours during labor (no data from Georgia and Albania due to a collection problem) and that 67% of charts on average documented a urine protein level at any time, ranging from 36% of charts in Russia to 87% in Armenia (Table 51). Regular BP monitoring during the post-partum phase (at least four times a day), was less than 15% in all countries except Albania (32%). In

contrast to low chart results of post-partum BP monitoring, an average 82% of providers reported checking BP at least four times a day from delivery to discharge, suggesting that charts may under-document actual practice.

Table 51: Pre-eclampsia/Eclampsia Early Detection and Treatment (n=34 Cases of Pre-eclampsia and One Case of Eclampsia among 592 Non-randomly Selected Charts)

PE/E Best Practices	Charts with Best Practice (n=592 Charts)	Providers with Best Practice (n=239 Providers)	Maternities with Essential PE/E Inputs (n=42 Maternities)	Maternity General Statistics (n=42 Maternities)
Monitoring for early detection of pre-eclampsia and eclampsia	BP recorded at least every 4 hours during labor. Avg. 71% ARM_ 57% (40) RUS_ 85% (81) (No data for GEO and ALB) Urine protein recorded in chart. Avg. 67% ALB_ 69% (100) ARM_ 87% (130) GEO_ 77% (115) RUS_ 36% (53) BP recorded at least every 6 hours 1st 24-48 hours of post-partum period. Avg. 13.5% ALB_ 32% (46) ARM_ 1.3% (2) GEO_ 13% (19) RUS_ 8% (12) MgSO4 administered (+ PE/E): Avg. 40% ALB_ 0% (0) ARM_ 15% (GEO_ 43% (3/7) RUS_ 100% (8/8)	Report routine monitoring of BP at least every 6 hours from admission to discharge. Avg. 82% ALB_ 72% (33) ARM_ 77% (29) GEO_ 81% (38) RUS_ 97% (40) Report to very confident managing PE/E. Avg. 26% ALB_ 35% (14) ARM_ 26% (10) GEO_ 27% (12) RUS_ 15% (6) PE/E CME within past 3 years. Avg. 61% ALB_ 59% (28) ARM_ 62% (24) GEO_ 54% (25) RUS_ 70% ()	Sphygmomanometer available. Avg. 91% Albania-90% (9) Armenia-100% (10) GEO_ 83% (10) RUS_ 90% (9) MgSO4 available. Avg. 98% ALB_ 100% (10) ARM_ 100% (10) GEO_ 92% (11) RUS_ 100% (1) Urine protein measurement capacity 24/7. Avg. 91% ALB_ 90% (9) ARM_ 100% (10) GEO_ 75% (9) RUS_ 100% (10) Platelet measure lab testing available. Avg. 100% ALB_ 100% (10) ARM_ 100% (10) GEO_ 100% (12) RUS_ 100% (10)	Eclampsia as % of all births in last year. Avg. 4.3% ALB_ 0.1% ARM_ 0.08% GEO_ 4.2% RUS_ 0.009% Pre-eclampsia as % of all births in last year. Avg. 1.5% ALB_ 2% ARM_ 3.6% GEO_ 0% RUS_ 0.6 %

The availability of basic supplies in maternities for monitoring for and treating PE/E was strong, with the availability of urine protein measurement capacity (dipstick or laboratory) and a BP measurement device (sphygmomanometer) in 91% of maternities on average. MgSO4 was almost universally available: 98% of maternities. Capacity for measuring urine protein was likewise very strong, rendering over 90% of maternities (except Georgia 75%) able to measure urine protein. Laboratory capacity to measure platelets, sometimes indicated in the management of PE/E, was 100%.

Despite good availability of MgSO4, only 40% of charts on average—ranging from 100% of PE/E cases in Russia, 43% in Georgia, 15% in Armenia, to 0% in Albania—documented its administration in PE/E cases. Because the chart review did not categorize PE/E severity, we cannot comment on the proportion of charts with moderate to severe pre-eclampsia in which MgSO4 would be absolutely indicated as a basic standard of care.

In general, provider-reported confidence managing PE/E was fairly low across all countries, ranging from 15% in Russia to 35% in Albania. The fact that well over a half of providers reported PE/E CME within

the past three years, combined with chart and provider confidence results, suggests that pre- and in-service training (including quality of CME) as well as volume of PE/E cases being seen may be inadequate to build provider competence and confidence to ensure evidence-based management of PE/E.

Maternal Sepsis: Prevention, Early Detection and Treatment: Sepsis is an important direct obstetric cause of mortality for women. Best practices for the prevention, early detection, and treatment of sepsis of mothers during the intra-partum period have major benefits for both mother and fetus/newborn. The most important best practice by to prevent sepsis in mother and newborn is strict hand-washing for all providers and staff who come in contact with mother and infant. Less than half of providers on average correctly identified hand washing as the best way to prevent sepsis on a four-option, multiple choice question, ranging from 13% of providers in Armenia to 77% in Georgia (Table 52). Other best practices for preventing maternal and/or neonatal infection (which are beyond the scope of this assessment) include systematic antenatal screening for maternal infection, including for group B streptococcus, a leading cause of neonatal mortality for which vertical transmission can be significantly reduced if mother is treated during labor.

Table 52: Maternal Sepsis Prevention and Early Detection

Sepsis Best Practices	Charts with Best Practice (n=592 Charts)	Providers with Best Practice (n=239 Providers)	Maternities with Essential Sepsis Inputs (n=42 Maternities)
Prevention and early detection of maternal sepsis	Maternal antibiotics initiated if ROM > 18 hour at any time during labor. Avg. 40% ALB_ 61% (11) ARM_ 0% (0) GEO_ 0% (0) RUS_ 100% (9) Maternal antibiotics initiated if labor > 24 hours. Avg. 29% ALB_ 64% (7) ARM_ 0 % (0) GEO_ 0% (0) RUS_ 50% (2) Maternal temperature recorded at least every 2-4 hours during labor. Avg. 18% ALB_ 16% (23) ARM_ 26% (20) GEO_ 17% (26) RUS_ 14% (20) Maternal temperature recorded at least every 6 hours 1st 24-48 hours after delivery. Avg. 14% ALB_ 42.7% (62) ARM_ 0% (0) GEO_ 7.4 % (11) RUS_ 6% (9)	Correctly identify criteria for sepsis prophylaxis (antibiotics) in labor. Avg. 57% ALB_ 32.5% (14) ARM_ 73.7% (28) GEO_ 59.6% (28) RUS_ 63% (26) Correctly identify hand washing (among 4 options) as best way to prevent sepsis in mother and child. Avg. 44% ALB_ 50% (24) ARM_ 12.8% (39) GEO_ 76.5% (36) RUS_ 36% (15)	Maternal sepsis case management protocol available in delivery area. Avg. 55% ALB_ 20% (2) ARM_ 90% (9) GEO_ 33.3% (4) RUS_ 78 % (7) Laboratory capacity for: --Complete blood count: 100% --Urine culture. Avg. 67.5% ALB_ 70% (7) ARM_ 60% (6) GEO_ 50% (6) RUS_ 90 % (9) --Blood culture. Avg. 60.5% ALB_ 50% (5) ARM_ 60% (6) GEO_ 42% (5) RUS_ 90% (9)

Other important practices for sepsis prevention include initiation of prophylactic (preventive) antibiotics for the mother in the event of prolonged (ROM) over 18 hours or prolonged labor over 24 hours. There was considerable variation in chart results for initiation of antibiotics in the event of prolonged ROM or prolonged labor, with no charts in Georgia or Armenia demonstrating either practice;

approximately two-thirds of charts in Albania documenting both; and all charts in Russia documenting antibiotics if ROM > 18 hours and 50% of them documenting antibiotics if labor > 24 hours at any time (see Table 53). Despite low observed rates of antibiotic prophylaxis in Georgia and Armenia, a relatively high percentage of providers correctly identified criteria for sepsis prophylaxis in a multiple choice question (labor > 24 hrs and/or ROM > 18 hrs and/or maternal fever), including 59.6% of providers in Georgia and 74% in Armenia, suggesting that factors in addition to provider knowledge influence this best practice. Two-thirds of providers in Russia correctly identified sepsis prophylaxis criteria, as contrasted with a third of providers in Albania. As discussed previously, regular monitoring of maternal temperature, an important early indicator of infection, was universally low during labor and the early post-partum period in all countries with little inter-country variability, averaging 18% for documentation of temperature during labor at least every four hours and 14% for post-partum documentation of maternal temperature at least four times a day (Albania was an exception at 43%).

Availability of a maternal sepsis case management protocol or guidelines in maternities was highly variable across countries, ranging from 20% in Albania to 90% in Armenia. Laboratory capacity to measure a complete blood count (includes white blood cell count as an indicator of infection) was 100% in all countries. Laboratory capacity to do a urine culture ranged from 50% in Georgia to 90% in Russia; capacity to do a blood culture ranged from 42% in Georgia to 90% in Russia.

Table 53: Treatment of Maternal Sepsis

Sepsis Best Practices	Charts with Best Practice (n=592 Charts)	Providers with Best Practice (n=239 Providers)	Maternities with Essential Sepsis Inputs (n=42 Maternities)	Maternity General Statistics (n=42 Maternities)
Maternal sepsis treatment	Antibiotics initiated if maternal Temp > 38.0 °C recorded (intra and post-partum). Avg. 62% ALB_ 66.7% (6) ARM_ 100% (1) GEO_NA (no cases of maternal fever) RUS_ 83% (5)	Report “very confident” managing maternal sepsis. Avg. 21% ALB_ 37% (16) ARM_ 18% (7) GEO_ 16% (7) RUS_ 11% (4) Maternal sepsis CME within last 3 years. Avg. 29.5% ALB_ 40% (19) ARM_ 28.2% (11) GEO_ 13% (6) RUS_ 37% ()	Ampicillin available. Avg. 86% ALB_ 90% (9) ARM_ 100% (10) GEO_ 83% (10) RUS_ 70% (7) Gentamycin available. Avg. 91% (38) ALB_ 100% (10) ARM_ 100% (10) GEO_ 83% (10) RUS_ 80% (8) Metronidazole available. Avg. 69.5% ALB_ 50% ARM_ 90% GEO_ 58% RUS_ 80%	Maternal sepsis as % of all births in last year. Avg. 0.04% ALB_ 0 % ARM_ 0.1% GEO_ 0.07 % RUS_ 0%

While the assessment methodology precluded a comprehensive evaluation of the quality of maternal infection diagnosis and treatment, several results relate to such treatment. The availability of the antibiotics commonly used to treat maternal infection intra- and post-partum (e.g., Chorio-amnionitis) was high in all countries, with the availability of Ampicillin in an average 86% of maternities, Gentamycin in an average 91%, and Metronidazole in an average 70%, with limited inter-country variability (see Table 53). Among charts with a documented temperature > 38.0 °C (suggesting possible sepsis) at any time in labor or post-partum, 83% of charts in Russia, 67% in Albania, and 100% (only one chart) in Armenia documented the administration of an antibiotic, demonstrating initiation of antibiotic for fever in an average two-thirds of charts in all countries. However, the very low levels of regular temperature

documentation during labor, delivery, and the early post-partum period suggest that many cases of fever likely go undetected, even assuming staff are checking temperature more frequently than recorded in charts. The low level of maternal sepsis as a proportion of all births in the last year reported by the 42 maternities also suggests a failure to recognize and an under-diagnosis of infection signs. The low rates of provider-reported confidence to manage sepsis and the low rates of provider-reported recent CME mirrored the relatively weak chart results with some inter-country variability: Less than a fifth of providers in all countries except Albania (37%) reported to be very confident managing maternal sepsis and on average a third or less of providers reported sepsis CME within past three years (except for Albania).

C. Newborn Care

This section summarizes and discusses results across all data sources relevant to best practices for routine care of the newborn (immediate and early post-partum care) and best practices for newborn complications care (asphyxia, prematurity/LBW, and sepsis).

Routine newborn care best practices – immediate post-partum and early post-partum: There is strong evidence for the effectiveness of interventions administered in the immediate–early post-partum period to reduce neonatal mortality. Important immediate–very early post-partum interventions for the newborn include: immediate drying and wrapping, skin-to-skin contact with the mother, and other measures that provide thermal protection to prevent hypothermia in the newborn; recognition and immediate resuscitation of the newborn with asphyxia; and initiation of early breastfeeding, ideally in the first hour after birth. Over two-thirds of maternities in all countries had a protocol for maintaining a minimum temperature in delivery rooms for thermal protection for the newborn (Table 54). However, only 83% of maternities in Georgia and 80% in Albania had a gage to measure ambient temperature in delivery rooms (100% of maternities in Russia and Armenia), making implementation of the protocol unlikely in 20% of maternities in the former two countries. All maternities in all countries except Georgia (66%) had a functional heating system. With the exception of one maternity in Georgia, every maternity had a clean cloth or towel available in the delivery room to dry and wrap the newborn immediately after birth. Most maternities in all countries had a newborn examining table with a radiant warmer in or near the delivery room. With little inter-country variability, more than 90% of providers agreed that it is appropriate to place a newborn directly onto a mother’s abdomen immediately after birth, and over three-quarters of providers correctly identified drying and wrapping as the first step in thermal protection of the newborn. However, fewer clients reported immediate physical contact with the newborn, ranging from 52% of clients in Albania to 76% in Georgia. In every country except Armenia (42%), over three-quarters of clients agreed with the statement that “immediate contact with my newborn after birth is a high personal priority.”

Table 54: Routine Immediate Newborn Care Best Practices

Routine Newborn Care Best Practices	Charts with Best Practice (n=592 Charts)	Providers with Best Practice (n=239 Providers)	Mothers Report Best Practice (n=292 Mothers)	Essential Inputs and Processes for Best Practices (n=42 Maternities)
<p>Immediate newborn care: respiratory status assessment; skin to skin contact; thermal protection</p> <p>Provider- and mother-reported practice, knowledge & attitudes</p>	<p>Immediate newborn respiratory status recorded. Avg. 91% ALB_74% (107) ARM_97% (143) GEO_95% (142) RUS_99% (147)</p> <p>Newborn birth weight recorded. Avg. 99% ALB_97% (141) ARM_99% (149) GEO_99% (148) RUS_100% (148)</p> <p>Newborn temperature recorded after delivery (sepsis) Avg. 60% ALB_90% (131) ARM_26.5% (39) GEO_81% (121) RUS_43% (64)</p> <p>BF documented within first hour after birth. Avg. 50% ALB_71% (97) ARM_29% (43) GEO_72% (107) RUS_28% (42)</p>	<p>Correctly identify normal respiratory rate range for newborn (breathing diff). Avg. 64% ALB_75% (17) ARM_47.6% (20) GEO_73.9% (17) RUS_61% (31)</p> <p>Correctly identify first step in thermal protection newborn. Avg. 82% ALB_78.7% (48) ARM_74% (32) GEO_87% (20) RUS_87% (20)</p> <p>Agree that “appropriate to place newborn on mother’s abdomen immediately after birth.” 96% ALB_90% (56) ARM_98% (45) GEO_96% (22) RUS_100% (55)</p>	<p>Immediate physical contact with newborn Avg. 64% ALB_52% (31) ARM_66%(33) GEO_76% (59) RUS_62% (56)</p> <p>Agree that “immediate contact with newborn a high personal priority” Avg. 78% ALB_93.4% (57) ARM_42% (22) GEO_86.4% (76) RUS_92% (82)</p> <p>Report breastfeeding within first hour. Avg. 35% ALB_18% (11) ARM_37% (19) GEO_36% (32) RUS_48% (43)</p>	<p>Protocol for maintaining delivery room minimum temperature range. Avg. 74% ALB_60% (6) ARM_70% (7) GEO_67% (8) RUS_100% (10)</p> <p>Functional heating system. Avg. 92% ALB_100% (10) ARM_100% (10) GEO_66% (8) RUS_100% (10)</p> <p>Ambient temperature gage in delivery room. Avg. 91% ALB_80% (8) ARM_100% (10) GEO_83% (10) RUS_100% (10)</p> <p>Clean cloth or towel to dry baby. Avg. 98% ALB_100% (10) ARM_100% (10) GEO_92% (11) RUS_100% (10)</p> <p>Newborn examination table with radiant warmer in delivery room. Avg. 88% ALB_70% (7) ARM_100% (10) GEO_83% (10) RUS_100% (10)</p>

Thirty-five percent of mothers reported breastfeeding within the first hour, ranging from 18% of mothers in Albania to 48% in Russia. Documentation of breastfeeding within the first hour ranged from 29% of charts in Armenia to 72% in Georgia. Charts in Georgia and Albania documented higher rates of early breastfeeding than did client reports, while charts in Russia and Armenia under-recorded rates of BF relative to client reports (since charts and clients were not matched, this trend may be due to sample factors rather than country differences).

Immediate newborn respiratory status (e.g., as part of an Apgar score), important for assessing the need for newborn resuscitation in the event of asphyxia, was documented in over 90% of charts in all countries except Albania (74%). Although not a strong competency measure of provider capacity to assess for asphyxia and respiratory distress, 64% of providers on average correctly identified the normal range of a newborn’s respiratory rate, ranging from 48% of providers in Armenia to 75% in Albania.

Newborn weight was recorded in over 90% of charts in all countries, but documentation of the newborn's temperature within the first hour of birth (to assess for hypothermia or fever) was more variable, ranging from 27% of charts in Armenia to 90% in Albania.

Most mothers (>85%) in all countries reported initiation of breastfeeding within the first 24 hours of birth, and these reports were confirmed by chart documentation in all countries except in Russia (see Table 55). However, only a fifth (Armenia) to a half (Russia) of mothers reported exclusive breastfeeding when interviewed in the maternity during the early post-partum period. Despite the relatively low reported rate of exclusive breastfeeding, more than 90% of mothers agreed that “a baby needs only breast milk until age six months,” suggesting that factors other than maternal knowledge of the benefits of exclusive breastfeeding influence mothers' feeding behaviors. On average, a quarter of providers agreed with the statement that it “is appropriate to mix bottle feeding and breastfeeding after a cesarean delivery” (even when mother and newborn are in good health), suggesting that providers may be negatively influencing exclusive breastfeeding after complicated deliveries.

Most providers, however, correctly identified early breastfeeding and thermal protection best practices, and most maternities in all countries had good availability of protective newborn clothing. However, monitoring of newborn temperature at least twice per 24-hour period to detect hypothermia or fever was documented in less than a fifth of charts in Albania and Georgia, a little over half of charts in Russia, and nearly two-thirds of charts in Armenia. Documentation of newborn respiratory rate (a sensitive early indicator of infection and other abnormalities) was universally low, with less than 15% of charts in all countries documenting a newborn temperature value at least twice in every 24-hour period. Newborn eye care (to prevent infection) was documented in > 90% of charts in all countries with good availability of Betadine or an antibiotic for eye care in all countries except Georgia (58%). Availability of BCG and hepatitis B vaccines was high in all countries while documentation of their administration was observed in more than 70% of charts in every country except in Russia, where documentation of vaccine administration was in roughly half of charts. Over 90% of mothers in all countries agreed that their baby needed vaccines before discharge.

In general, chart documentation of post-partum newborn counseling; availability of counseling materials; and mother reports of counseling on infant feeding, danger signs, immunizations, and follow-up was strongest across the board in Armenia. However, client-reported counseling on newborn danger signs was lower than for other counseling topics, with less than half of mothers in all countries reporting danger sign counseling. This finding mirrors the relatively low rate of client-reported maternal danger sign counseling discussed above. Client-reported counseling on average for all maternal-newborn topics, with significant country variation, was reported by clients in order of decreasing frequency for: newborn feeding (58%); post-discharge newborn follow-up instructions (50%); maternal danger signs (42%); newborn danger signs (36%); post-discharge mother follow-up instructions (36%); and post-partum family planning counseling (20%) (Table 56). The availability of maternal and newborn counseling materials was highest in Armenia and Russia (> 70% for each type of counseling materials in both countries). A pre-discharge physical exam for the newborn was documented in over 70% of charts in all countries. However, documentation of all three discharge elements (counseling, exam, and designated follow-up for newborn) was observed in less than 10% of charts, except in Armenia (59%).

Table 55: Early Post-partum Routine Newborn Care Best Practices (after Immediate Newborn Care)

Routine Newborn Care Best Practices	Charts with Best Practice (n=592 Charts)	Providers with Best Practice (n=239 Providers)	Mothers Reporting Best Practice (n=292 Mothers)	Essential Inputs and Processes for Best Practice (n=42 Maternities)
<p>Routine monitoring and care of newborn (after immediate delivery care)</p>	<p>First breastfeed within 24 hours (includes first hour). Avg. 78% ALB_ 99% (130) ARM_ 91% (132) GEO_ 77% (115) RUS_ 45% (67) Newborn temperature recorded at least twice per day. Avg. 26% ALB_ 17% (24) ARM_ 63% (92) GEO_ 9% (14) RUS_ 54% (80) Newborn respiratory rate recorded at least twice per day. Avg. 15.5% ALB_ 15% (21) ARM_ 15% (22) GEO_ 10% (15) RUS_ 22% (33) Newborn eye care recorded. Avg. 95% ALB_ 88% (128) ARM_ 99% (146) GEO_ 96% (143) RUS_ 97% (144) Hepatitis B vaccination administered. Avg. 79.5% ALB_ 84% (122) ARM_ 93% (137) GEO_ 92% (137) RUS_ 49% (73) Hepatitis B vaccine administered. Avg. 79.5% ALB_ 84% (122) ARM_ 93% (137) GEO_ 92% (137) RUS_ 49%(73) BCG vaccination administered. Avg. 74.5% ALB_ 70% (101) ARM_ 80% (117) GEO_ 93% (139) RUS_ 55% (81)</p>	<p>Correctly identified early breastfeed and thermal protection newborn care best practices. Avg. 78% ALB_ 71% (44) ARM_ 80% (37) GEO_ 91% (21) RUS_ 78% (43) Agree (incorrectly) that “appropriate to encourage mother to mix bottle and breastfeeding after a cesarean.” Avg. 26% ALB_ 24% (15) ARM_ 36% (16) GEO_ 26% (6) RUS_ 19% (10)</p>	<p>Initiation of breastfeeding 2–24 hours after delivery. Avg. 42% ALB_ 59% (46) ARM_ 38.4% (20) GEO_ 36.4% (32) RUS_ 35% (31) Initiation of breastfeeding >24hrs after delivery. Avg. 15% ALB_ 18% (11) ARM_ 15.4% (8) GEO_ 13.6% (12) RUS_ 13% (12) Exclusive breastfeeding since delivery. Avg. 37% ALB_ 45% (27) ARM_ 23% (12) GEO_ 32% (28) RUS_ 48% (44) Agree “baby needs only milk until age 6 months.” Avg. 94% ALB_ 97% (59) ARM_ 96% (50) GEO_ 94% (83) RUS_ 90% (82) Agree “baby needs immunization before s/he goes home from the maternity.” Avg. 95% ALB_ 96.7% (58) ARM_ 96.1% (50) GEO_ 96.6% (85) RUS_ 91% (83)</p>	<p>Protective newborn clothing. Avg. 96% ALB_ 100% (10) ARM_ 100% (10) GEO_ 83% (10) RUS_ 100% (10) Betadine or antibiotic ointment for eye care. Avg. 84.5% ALB_ 90% (9) ARM_ 100% (10) GEO_ 58% (7) RUS_ 90% (9) Hepatitis B vaccine. Avg. 92.5% ALB_ 70% (7) ARM_ 100% (10) GEO_ 100% (12) RUS_ 100% (10) BCG vaccine. Avg. 92.5% ALB_ 70% (7) ARM_ 100% (10) GEO_ 100% (12)</p>

Table 56: Counseling and Pre-Discharge Best Practices for Newborn

Routine Newborn Care Best Practices	Charts with Best Practice (n=592 Charts)	Mothers Report Best Practice (n=292 Mothers)	Essential Inputs and Processes for Best Practices (n=42 Maternities)
Pre-discharge care of newborn	Newborn care counseling recorded. Avg. 46% ALB_ 21% (30) ARM_ 67% (99) GEO_ 39% (58) RUS_ 56% (83) 3 pre-discharge elements recorded (physical exam, counseling, and follow-up). Avg. 16.7% ALB_ 4% (6) ARM_ 59% (87) GEO_ 3% (5) RUS_ 0.7% (1) Pre-discharge physical exam of newborn recorded. Avg. 70% ALB_ 85% (123) ARM_ 100% (147) GEO_ 77% (115) RUS_ 94% (139)	Counseling on infant feeding. Avg. 58% ALB_ 65.6% (40) ARM_ 84.6% (44) GEO_ 32.9% (29) RUS_ 48% (44) Counselored on immunizations their baby's needs. Avg. 62% ALB_ 64% (39) ARM_ 83% (43) GEO_ 28% (25) RUS_ 74% (67) Report counseling on newborn danger signs. Avg. 36% ALB_ 39% (24) ARM_ 44% (23) GEO_ 22% (19) RUS_ 37% (34) Report counseling on follow up for their newborn. Avg. 50% ALB_ 56% (34) ARM_ 48% (25) GEO_ 23.9% (21) RUS_ 52% (47)	Availability of counseling materials (routine care and danger signs). Avg. 55.5% ALB_ 20% (2) ARM_ 90% (9) GEO_ 42% (5) RUS_ 70% (7)

Newborn Complications Care

Newborn asphyxia case management: The assessment methodology precluded an in-depth assessment of the quality of newborn asphyxia case management, given the inherent limitations of a chart review for assessing such care. Nevertheless, several statements can be made in light of synthesized results. Most charts documented the respiratory status of the newborn, and most charts documenting neonatal asphyxia documented resuscitation (Table 57). The quality of resuscitation could not be gauged. In general, availability of essential supplies in the delivery room, including a bag and mask and neonatal resuscitation protocol, was quite strong in all countries, but provider-specific results suggest some weaknesses. A third or less of providers in all countries could correctly identify the first action if a newborn does not breathe spontaneously (dry and stimulate), and less than a half in all countries except Albania reported to be “very confident” managing neonatal asphyxia. The relatively high percentage (29%) of neonatologists on average who reported having attended fewer than three neonatal resuscitations in the past three months suggests an inadequate volume of cases to maintain basic competency. And although most providers in all countries agreed that basic resuscitation skills are important for all providers, over three-quarters of the total provider sample (neonatologists and obstetricians and midwives) reported to having attended fewer less than two resuscitations in the past three months, an extremely low number. The low volume of cases reported is consistent with known over-supply of physicians in the region. The percentage of providers reporting asphyxia CME within the past three years varied from 28% in Armenia to 100% of providers in Russia. The neonatal asphyxia rate as a percentage of all births within the past 12 months in participating maternities was lower than

expected in the sample, with a third of referral hospitals. This finding suggests under-reporting of neonatal asphyxia in maternities.

Table 57: Newborn Asphyxia Case Management Best Practices (n=35 Cases of Asphyxia; Non-random Sample)

Asphyxia Care Best Practices	Charts with Best Practice (n=592 Charts)	Providers with Best Practice (n=239 Providers)	Essential Inputs and Processes for Best Practices (n=42 Maternities)	Maternity Statistics
Newborn asphyxia best practices	<p>Charts with neonatal asphyxia recorded. Avg. 8.6%</p> <p>ALB_ 11% (16) ARM_ 6% (9) GEO_ 0.7 % (1) RUS_ 17% (26)</p> <p>Newborn respiratory status recorded at time of birth. Avg. 91%</p> <p>ALB_ 74% (107) ARM_ 97% (143) GEO_ 95% (142) RUS_ 99% (147)</p> <p>Newborns with asphyxia diagnosis for which resuscitation recorded. Avg. 92%</p> <p>ALB_ 81% (13) ARM_ 89% (8) GEO_ 0% (0) RUS_ 92 % (24)</p> <p>Newborns with asphyxia diagnosis in which intubation recorded. Avg. 38%</p> <p>ALB_ 31% (5) ARM_ 44% (4) GEO_ 0% (0) RUS_ 77% (20)</p>	<p>Correctly identify first action if newborn does not breathe (dry & stimulate). Avg. 21%</p> <p>ALB_ 14.5% (9) ARM_ 13% (6) GEO_ 30.4% (7) RUS_ 25% (14)</p> <p>Neonatologists who attended < 3 resuscitations in last 3 months: Avg. 29%</p> <p>ALB_ 23% ARM_ 23% GEO_ 72% RUS_ 0%</p> <p>Report neonatal resuscitation training/CME last 3 years. Avg. 56%</p> <p>ALB_ 38% (25) ARM_ 28% (13) GEO_ 57% (39) RUS_ 100% (91)</p> <p>Agree that “neonatal resuscitation skills important for all providers”. Avg. 78%</p> <p>ALB_ 83% (43) ARM_ 95% (37) GEO_ 89% (54) RUS_ 45% (40)</p> <p>Report to be “very confident” managing newborn asphyxia/ resuscitation. Avg. 39%</p> <p>ALB_ 56.7% (17) ARM_ 25.7% (9) GEO_ 48% (19) RUS_ 26% (7)</p>	<p>Written newborn resuscitation protocol in delivery room. Avg. 79%</p> <p>ALB_ 40% (4) ARM_ 100% (10) GEO_ 75% (9) RUS_ 100% (10)</p> <p>Bulb suction available. Avg. 86%</p> <p>ALB_ 80% (8) ARM_ 90% (9) GEO_ 75% (9) RUS_ 100% (10)</p> <p>Neonatal resuscitation bag and mask available in delivery room. Avg. 86%</p> <p>ALB_ 70% (7) ARM_ 90 % (9) GEO_ 83.3% (10) RUS_ 100% (10)</p> <p>Neonatal laryngoscope for intubation available. Avg. 86%</p> <p>ALB_ 80 % (8) ARM_ 90% (9) GEO_ 75% (9) RUS_ 100% (10)</p> <p>Endotracheal tubes available. Avg. 86%</p> <p>ALB_ 80% (8) ARM_ 90% (9) GEO_ 75 % (9) RUS_ 100% (10)</p> <p>Oxygen available in or close to delivery room. Avg. 95.5%</p> <p>ALB_ 100% (10) ARM_ 90% (9) GEO_ 92% (11) RUS_ 100% (10)</p>	<p>Neonatal asphyxia cases as % of total annual births. Avg. 1.57%</p> <p>ALB_ 0.8% ARM_ 2.8% GEO_ 1% RUS_ 1.7 %</p> <p>Asphyxia case fatality rate in newborns. Avg. 8.6%</p> <p>ALB_ 15% ARM_ 3% GEO_ 8% RUS_ 8.5%</p>

As shown in Table 58, assessment results for newborn sepsis early detection and management varied. Although most chart cases of documented newborn sepsis in all countries recorded the administration of an antibiotic, regular recording of newborn temperature to facilitate prompt detection of sepsis was weak, as demonstrated by the less than two-thirds of charts in all countries except Russia (83%) that

recorded a newborn temperature at least twice every 24 hours during the early post-partum period. For documented chart cases of newborn sepsis, investigation of specific etiologies to guide effective treatment after initiation of antibiotics in suspected sepsis was generally limited. Less than two-thirds of charts in all countries documented a blood culture, and less than a fifth of all charts documented a urine culture for cases of suspected sepsis. No charts documented a culture of cerebrospinal fluid to rule out meningitis for suspected cases of neonatal sepsis.

Table 58: Newborn Sepsis Early Detection and Management Best Practices (n=30 Cases of Sepsis or Signs of Sepsis; Non-random Chart Sample)

Newborn Sepsis Care Best Practices	Charts with Best Practice (n=592 Charts)	Providers with Best Practice (n=239 Providers)	Essential Inputs and Processes for Best Practices (n=42 Maternities)	Maternity Statistics
<p>Newborn sepsis early detection and treatment</p> <p><i>(For intra-partum newborn sepsis prevention best practices, see maternal sepsis table results above, e.g., antibiotics for prolonged ROM and labor)</i></p>	<p>Meet diagnostic criteria for newborn sepsis. Avg. 5%</p> <p>ALB_7% (10) ARM_6% (9) GEO_3% (5) RUS_4% (6)</p> <p>Post-partum newborn temperature monitoring at least twice per 24 hour period: Avg. 53%</p> <p>ALB_53% (74) ARM_64% (93) GEO_12% (18) RUS_83% (122)</p> <p>Lab tests conducted if newborn sepsis or high risk/suspected sepsis.</p> <p>–Blood culture. Avg. 37%</p> <p>ALB_58% (14) ARM_29% (2) GEO_0% (0) RUS_60% (3)</p> <p>–Urine culture. Avg. 14%</p> <p>ALB_21% (5) ARM_14% (1) GEO_0% (0) RUS_20% (1)</p> <p>– CSF culture. Avg. 0%</p> <p>ALB_0% (0) ARM_0% (0) GEO_0% (0) RUS_0% (0/6)</p> <p>Antibiotics initiated if sepsis diagnosis in chart. Avg. 91%</p> <p>ALB_76% (22) ARM_88% (7) GEO_100% (6) RUS_100% (6)</p>	<p>Correctly identify newborn sepsis risk factors. Avg. 62%</p> <p>ALB_56% (35) ARM_66% (29) GEO_48% (11) RUS_76% (39)</p> <p>Report newborn sepsis CME last 3 years. Avg. 13%</p> <p>ALB_19.6% (13) ARM_6.4% (3) GEO_17.6% (12) RUS_9% (5)</p> <p>Report “very confident” managing newborn sepsis.” Avg. 29%</p> <p>ALB_44% (12) ARM_25% (6) GEO_35% (19) RUS_11% (2)</p>	<p>Newborn sepsis case management protocol easily available. Avg. 56%</p> <p>ALB_70% (7) ARM_60% (6) GEO_25% (3) RUS_70% (7)</p> <p>Ampicillin antibiotic available: --Oral. Avg. 86%</p> <p>ALB_90% (9) ARM_100% (10) GEO_83% (10) RUS_70% (7)</p> <p>--Injectable. Avg. 90%</p> <p>ALB_100% (10) ARM_90% (9) GEO_100% (12) RUS_70% (7)</p> <p>Gentamycin antibiotic available. Avg. 91%</p> <p>ALB_100% (10) ARM_100% (10) GEO_83% (10) RUS_80% (8)</p> <p>Microbiology laboratory testing available:</p> <p>--Urine culture. Avg. 50%</p> <p>ALB_70% (7) ARM_60% (6) GEO_50% (6) RUS_20% (2)</p> <p>--Blood culture: Avg. 45%</p> <p>ALB_50% (5) ARM_60% (6) GEO_41.7% (5) RUS_30% (3)</p> <p>--CSF Culture. Avg. 25%</p> <p>ALB_50% (5) ARM_33.3% (3) GEO_16.7% (2) RUS_0% (0)</p>	<p>Neonatal sepsis cases as a % of total annual births in last year.</p> <p>Avg. 0.22% ALB_0.01% ARM_0.4% GEO_0.5% RUS_0%</p>

Laboratory capacity for microbiology testing was generally low but higher than the rate of microbiology testing documented in charts with a diagnosis of neonatal sepsis. For example, despite the availability of urine culture capacity in 50% of maternities, only 14% of charts on average documented a urine culture in the event of newborn sepsis. Cost as well as provider competence may contribute to these findings. Indeed, in most district and secondary maternities visited as part of the assessment, cases of suspected neonatal sepsis were reported to be referred to a higher level maternity. This practice pattern stands in contrast to the sepsis management pattern in high-resource settings, where all levels of maternity are expected to manage basic neonatal sepsis. Referral for management of suspected sepsis is probably not cost-effective or efficacious in most cases.

Provider results for neonatal sepsis detection and management were likewise quite low. On a multiple choice question, less than two-thirds of providers in all countries except Russia (76%) could correctly select the two newborn sepsis risk factor options that should prompt close observation of the newborn for signs of sepsis and consideration for initiation of antibiotics (neonatal hypothermia and prolonged ROM). Provider-reported rates of neonatal sepsis CME within the past three years were low at less than 20%. Likewise, the proportion who reported feeling very confident managing neonatal sepsis was less a third in all countries except Albania (44%).

The availability of essential inputs for specialized care of the premature and/or LBW infant varied by country and input, with Russian maternities demonstrating the highest availability of these inputs. The availability of a functioning incubator was observed in an average 86% of maternities, ranging from 75% of maternities in Georgia to 100% of them in Russia (Table 59). However, the availability of neonatal corticosteroids (such as Betamethasone), a high-impact, preterm labor intervention that accelerates lung development in the premature infant when given to the mother before delivery, was lower, ranging from a third to half of maternities in all countries except Russia (100%). The percentage of charts in which corticosteroids were administered in preterm labor varied from 29% of charts in Armenia to 85% in Russia (the sample size of premature/LBW newborns in Georgia was too small for valid results). The low rate of corticosteroid administration documented in charts of premature infants in Armenia may have been due in part to the low availability of the steroid in maternities there (37%). The percentage of providers who correctly answered a case study question requiring administration of a corticosteroid (inevitable delivery of a 28-week gestational age fetus) ranged from 56% of providers in Armenia to 88% in Georgia. Provider-reported access to maternity protocols for management of preterm labor, LBW/premature infant care, and referral criteria for the premature and sick neonate varied, averaging two-thirds of providers in all countries for each type of protocol but with considerable inter-country variability. In general, providers in Armenia and Russia reported the highest rates of access to maternity protocols for management of premature labor, the preterm or LBW infant, and referral criteria for sick and/or premature infants. Less than a quarter of providers in all countries reported CME related to care of the premature infant in the past three years, and less than half in every country except Albania (62%) reported being very confident managing premature and LBW infants. A low percentage of charts of premature/LBW infants documented specialized care, ranging from 5% in Russia to 50% in Albania (sample size of 1 in Georgia precludes analysis). However, the assessment methodology did not permit a detailed examination of management of the preterm and LBW infant.

Table 59: Management of Preterm and LBW Infant (n=65 Premature Infants; Non-random Chart Review)

Premature and LBW Infant Care Best Practices (General)	Charts with Best Practice (n=592 Charts)	Providers with Best Practice (n=239 Providers)	Essential Inputs and Processes for Best Practices (n=42 Maternities)	Maternity Statistics
	<p>Charts with gestational age <35 weeks. Avg. 11%</p> <p>ALB_ 6.2% (9)</p> <p>ARM_ 6.7 % (10)</p> <p>GEO_ 0.7% (1)</p> <p>RUS_30% (45)</p> <p>Corticosteroids administered if gestational age < 35 weeks. Avg. 72%</p> <p>ALB_ 75% (26)</p> <p>ARM_ 29% (6)</p> <p>GEO_ 100 % (1 of 1)</p> <p>RUS_ 85% (29)</p> <p>Specialized care for LBW premature infants recorded. Avg. 24.5%</p> <p>ALB_ 50% (24)</p> <p>ARM_ 43% (9)</p> <p>GEO_ 0% (0)</p> <p>RUS_ 5% (3)</p>	<p>Report to routinely administer antenatal corticosteroid in preterm labor that cannot be stopped in impending delivery of 28 week gestational infant. Avg. 77%</p> <p>ALB_ 78% (35)</p> <p>ARM_ 56% (19)</p> <p>GEO_ 88% (42)</p> <p>RUS_ 85% (35)</p> <p>Report accessible maternity written protocol for:</p> <p>--Preterm labor corticosteroids. Avg. 62%</p> <p>ALB_ 63% (38)</p> <p>ARM_ 74% (32)</p> <p>GEO_ 26% (6)</p> <p>RUS_ 85% (46)</p> <p>--LBW/premature infant care. Avg. 61%</p> <p>ALB_ 65% (40)</p> <p>ARM_ 86% (37)</p> <p>GEO_ 21.7% (5)</p> <p>RUS_ 72% (39)</p> <p>--Referral criteria for LBW/sick newborns. Avg. 66.5%</p> <p>ALB_ 58% (35)</p> <p>ARM_ 66% (27)</p> <p>GEO_ 52% (12)</p> <p>RUS_ 90% (47)</p> <p>Premature infant care CME in last 3 years. Avg. 21%</p> <p>ALB_ 24% (16)</p> <p>ARM_ 19% (9)</p> <p>GEO_ 19% (13)</p> <p>RUS_ 23% (13)</p> <p>Report "very confident" caring for LBW & premature infants." Avg. 39%</p> <p>ALB_ 62% (18)</p> <p>ARM_ 27% (8)</p> <p>GEO_ 46% (11)</p> <p>RUS_ 21% (5)</p>	<p>Functioning incubator available. Avg. 86%</p> <p>ALB_ 80% (8)</p> <p>ARM_ 90% (9)</p> <p>GEO_ 75% (9)</p> <p>RUS_ 100% (10)</p> <p>Neonatal corticosteroids available (e.g., Betamethasone Avg. 56.5%</p> <p>ALB_ 37% (11))</p> <p>ARM_ 50% (15)</p> <p>GEO_ 39% (14)</p> <p>RUS_ 100% (10)</p>	<p>% total live births LBW (< 2500 gms)</p> <p>Avg. 6.5%</p> <p>ALB_ 6.4%</p> <p>ARM_ 8.4%</p> <p>GEO_ 8.5%</p> <p>RUS_ 2.6%</p> <p>% live births very LBW (< 1000 gms). Avg. 5%</p> <p>ALB_ 10%</p> <p>ARM_ 4%</p> <p>GEO_ 5.2%</p> <p>RUS_ 0.9%</p>

V. CONCLUSIONS AND RECOMMENDATIONS

This assessment of selected maternal-newborn care best practices and client-centered best practices during labor, delivery, and the early post-partum period in a sample of 42 maternities in Albania, Armenia, Georgia, and Russia found many important gains and several areas of weakness. Comprehensive results are presented in depth in the synthesis results section, which highlights areas of individual country strength and weakness as well as inter-country variability and common trends. For many best practices, results vary considerably between countries and require country-specific analysis for meaningful interpretation. Nevertheless, several areas of strength are noted across all countries, including: generally strong availability of essential maternal-newborn care inputs and protocols; generally high rates of provider-reported CME for many MNH topics; generally high rates of early newborn care best practices, including early initiation of breastfeeding, thermal protection, eye care, and vaccination; and generally high rates of client-reported privacy and satisfaction with services. Areas of weakness observed across all countries include a lack of standardized patient medical records to support documentation of best practices as well as weak documentation of many routine and complications care best practices; weak systematic post-partum monitoring and counseling of mother and post-partum monitoring of newborn for early detection of complications; weak chart documentation of and provider-reported confidence for best treatment practices for maternal and newborn sepsis, pre-eclampsia/eclampsia, and premature birth management and premature infant care; weak performance-based supervision practices; and lack of routine patient consent practices for certain procedures. General assessment results trends are summarized briefly in this section, with recommendations following for addressing weaknesses.

Despite strong provider knowledge of normal labor progression in all four countries, chart documentation of labor progress and regular measures of maternal and fetal well-being during labor varied. Chart and provider results suggest intermediate to low rates of routine administration of Active Management of the Third Stage of Labor, including immediate post-partum administration of Oxytocin, a best practice for preventing PPH (an important cause of maternal mortality in all countries). Initiation of early breastfeeding and other best newborn early care practices—including thermal protection, routine eye care, and vaccination—were strong in all countries. Exclusive breastfeeding as reported by mothers was less strong, however, and systematic monitoring of mother and newborn during the early post-partum period to facilitate recognition of common early post-partum complications for mother and newborn was generally weak in all countries.

Post-partum and pre-discharge counseling of mothers to promote best practices at home and to teach women to recognize early danger signs (indicating a possible complication) for themselves and their newborn also varied across countries as reported by mothers and documented in charts: With the exception of Russia, less than a third of charts in all countries documented any pre-discharge counseling. Less than 10% of charts in all countries except Armenia documented the package of pre-discharge counseling, a pre-discharge physical exam, and a designated time and place for the mother and newborn to return for follow up care. The opportunity to strengthen systematic post-partum counseling and pre-discharge planning is identified as an area for improvement.

Client-centered best practices results demonstrate several common trends and many inter-country differences. Most clients in all countries reported that they felt that their physical privacy and confidentiality of personal information had been respected since their admission to the maternity. However the practice of regular client consent for clinical interventions was weaker, with less than 40% of mothers in all countries except Russia reporting having signed a consent form at any time, despite the high priority most clients accorded to consent procedures. Provider results suggest that providers may not systematically discuss labor care management decisions with women, especially in the event of a complication. The presence of a birth companion of choice and choice of birth position were reported by less than a fifth of mothers in every country except Georgia (51% and 37% in Georgia, respectively),

with provider results mirroring client results. Almost a fifth of women reported an episiotomy, and provider results suggest that many of them continue to perform episiotomies under certain circumstances, albeit not routinely. Future interventions to reduce the practice of episiotomy in this region would need to evaluate the factors that influence this practice, including provider beliefs and attitudes. Most mothers in all countries reported immediate physical contact with their infant and rooming in (having their newborn in their room) since delivery, with the highest rates of rooming-in in Georgia and Albania. The large majority of women in all countries reported having felt respected by and treated kindly by providers and staff. (The timing and place of the interview while the mother was still in the maternity may have influenced this result.)

In general, maternities demonstrated good availability of essential laboratory, medication, equipment, and infrastructure inputs for providing high-quality maternal-newborn care services. The one exception was weak availability of blood products in some maternities and generally weak availability of laboratory microbiology capacity (to support high-quality care for mothers and newborns with suspected sepsis) in most countries. Assessment results for the early recognition of and evidence-based treatment for PE/E, maternal and newborn sepsis, and care of the premature newborn were limited by small sample size and methodological challenges, but generally demonstrated intermediate to weak adherence with best practices in most countries, with some inter-country variability. For example, half or less of charts in all countries documented specialized and/or standardized care of any kind for the premature/LBWV infant. Despite good availability of MgSO₄—the most important treatment intervention to prevent progression of pre-eclampsia to life-threatening eclampsia—less than half of charts with documented cases of pre-eclampsia recorded the administration of MgSO₄. Assessment results suggest variable results for neonatal resuscitation care, although it was beyond the scope of the assessment methodology to evaluate neonatal resuscitation practices in depth. Global awareness is growing of the burden of PE/E and neonatal asphyxia, with many stakeholders, including USAID, engaged in scaling up best practices for these two leading causes of maternal and neonatal mortality. The relatively weaker assessment results for management of maternal and newborn complications are not inconsistent with the relatively newer investments in this area by governments and stakeholders. The highly successful public-private Helping Babies Breathe initiative, the increasing focus on PE/E among maternal health stakeholders, and the recent publication of *Born Too Soon: The Global Action Report on Preterm Birth* (March of Dimes et al., 2012), which lays out a forceful strategy for tackling premature birth, should all help propel country-level progress in reducing maternal and newborn deaths and morbidity in the E&E region in the next five to ten years.

Cross-cutting health system functions related to delivery of best practices in maternities demonstrate many important strengths and several areas needing improvement. As mentioned, availability of essential inputs for maternal-newborn care was generally strong in all countries. However, chart documentation using a standardized chart was generally weak in all countries and negatively impacts the quality of data generated by maternities to inform both rationale clinical decision making and strong health information systems at all levels. In many cases, even when a standard partogram was present in a chart (55% of charts), it was blank or only partially completed, preventing effective use of the partogram to manage labor effectively (a common problem in many countries). Since the capacity of health information systems to generate meaningful data for decision making at local and national levels depends on the quality of primary data sources, the lack of systematic documentation in a standardized chart represents an important data and health information quality problem. Standardized charts and high-quality documentation also help to promote more consistent delivery of best practices and to streamline internal maternity communication for better quality and continuity of care (e.g., during staff shifts, when many medical errors occur).

For the most part, managers reported an adequate supply of provider cadres; however, in line with the abundant provider supply, the volume of monthly deliveries reported by individual in some cadres was generally low. In all countries except Russia, a third or more of providers reported attending less than

10 deliveries per month, and a fifth of neonatologists reported attending less than three neonatal resuscitations in the previous three months. This result is consistent with the known over-supply of obstetricians and neonatologists in the region. Since higher volume of clinical cases for both individual providers and individual facilities has been linked to better patient outcomes in most studies, the low volume of provider-reported monthly births is worrisome for maintenance of basic provider competence, especially for the care of relatively rare complications. The over-supply of physicians, especially specialists, in the E&E region is well recognized, and many country governments there are trying to re-balance physician supply to match need.

Despite fairly high rates of regular provider supervision reported by both providers and managers, the small proportion of providers who reported a regular known supervisor suggests inconsistency in supervision. Regulation of providers via mechanisms like CME requirements was varied between countries: Less than a half of providers in all countries except Russia reported a CME requirement to practice medicine, consistent with the known dissolution of provider CME requirements in Georgia and Armenia in recent years. Although over half of managers reported performance-based provider financial incentives or bonuses, only about a fifth of providers reported ever receiving a performance-based bonus.

In summary, the four-country assessment results demonstrate many gains in maternal-newborn service delivery that reflect the strong investment by many stakeholders in the region and are reflected most importantly in region's decreasing maternal and newborn mortality rates. Assessment findings suggest that host country governments are positioned to drive ongoing and future strengthening of MNH services in their respective countries. As USAID anticipates phase-down and phase-out of its MNH work in the region, assessment findings support host country government leadership for continued investments in scaling up and sustaining proven best practices as well as supporting implementation of best practices in areas with demonstrated weak performance (e.g., special care of the premature newborn).

The latest mortality data indicate impressive and relatively rapid reductions in maternal and neonatal mortality in the region over the past several decades but persistently higher maternal and neonatal mortality rates in the region's countries compared to those in higher-resource neighbor countries.

Many gaps identified by the assessment could be closed fairly easily with minimal investment to help drive down the leading causes of childbirth mortality and morbidity for mothers and newborns intra-partum. The recommendations below focus on key gaps and areas of weakness. Any may or may not apply to an individual country, depending on a country's assessment results, epidemiologic data, and priorities. Indeed, it is hoped that individual countries will use country-specific results to guide follow-on country implementation work. Nevertheless, many of the recommendations are likely to be useful for holding and expanding the gains led by host country policy makers, program managers, and providers working at country level.

Recommendations for Improving Best Practices for Maternal-newborn Routine and Complications Care

Labor, Delivery, and Immediate Post-partum Care

- Develop a standard intra-partum clinical record to support best practices and systematic monitoring of labor progress and maternal/fetal well-being (e.g., implement a standardized partograph).
- Ensure every patient chart has a standard intra-partum record in which best practices are routinely recorded.
- Systematically record maternal co-morbid conditions and tobacco/alcohol use status at admission.
- Promote routine immediate post-partum administration of Oxytocin (and other AMTSL elements if accepted) to reduce occurrence of PPH.

- Promote birth companion of choice and choice of birth position for mother.
- Promote systematic full disclosure/communication and use of a consent form for any clinical interventions during labor and delivery (e.g., augmentation of labor) for full engagement of patient in decision making.
- Reduce rates of episiotomy, enema, and shaving.

Early Post-partum Care

- Develop a standard post-partum clinical care form to support best practices, including systematic monitoring of mothers and newborns.
- Ensure every mother and newborn record has a standard post-partum record in which best practices are routinely recorded.
- Systematically monitor mother and newborn (including chart documentation) for signs of early post-partum complications (PPH, sepsis, pre-eclampsia); recruit auxiliary and nursing staff to assist as needed.
- Promote exclusive breastfeeding by mothers, including rooming-in of mother and child.
- Improve post-partum counseling, prioritizing household best practices and danger sign recognition; promote availability of counseling materials and use of trained nursing staff to ensure systematic counseling.
- Ensure systematic pre-discharge practices (designated follow-up for mother and newborn, etc.).

Complications Care

- Ensure accessibility of user-friendly, simple protocols for complications care.
- Help prevent sepsis for mother and newborn via systematic staff hand washing and initiation of prophylactic antibiotics in protracted labor and prolonged rupture of membranes.
- Help prevent PPH through the systematic application of AMTSL.
- Develop a standard medical record for systematic recording of mother/newborn vital signs/bleeding status during the labor and post-partum periods to detect complications early.
- Strengthen prompt recognition of pre-eclampsia and consistent, appropriate use of magnesium sulfate.
- Promote standardized, specialized premature infant/LBW care through standardized flow sheets and protocols, provider (doctor and nurse) training, and performance-based management.
- Strengthen the quality and accessibility of provider CME opportunities (especially for maternal/newborn sepsis, pre-eclampsia/eclampsia, and premature/LBW care).
- Strengthen intra- and post-partum best practices for preterm infants

Client-centered Best Practices

- Develop a standard, client consent form linked to strong client communication for all clinical interventions. Ensure the availability these forms in all patient care areas.
- Develop standard protocols to protect clients' physical privacy and the privacy of their confidential information.
- Explore factors that influence birth companion practices and institute maternity-wide, culturally acceptable birth companion protocol and processes. These processes should be enforced by management.
- Explore factors that influence episiotomy practice and institute a maternity-wide protocol linked to oversight processes to reduce episiotomy.

Cross-cutting Health System Recommendations to Improve Delivery of Best Practices

- Improve provider access to up-to-date evidence/guidelines and practical job aids in maternities.
- Standardize medical charts to promote and track high-impact best practices, including systematic monitoring of the mother and fetus/newborn the intra-partum period.
- Promote availing nurses and mid-level staff for systematic monitoring and counseling.
- Strengthen provider regulation and supportive supervision to improve provider competence and motivation to deliver best practices, including requirements for provider CME, linked to access and remuneration for a proportion of costs.
- Aim CME at areas of country weaknesses; priority CME topics for all countries include premature infant/LBW care; maternal/newborn sepsis; pre-eclampsia/eclampsia; PPH prevention; and client-centered care.
- Promote stronger engagement of professional societies to support provider performance and access to up-to-date evidence in the local language.
- Consider pay-for-performance incentives for providers; link them to evidence-based performance measures.
- Build capacity for continuous quality improvement centered on sequential achievable improvement objectives, participatory team-work and regular use of selected indicators for decision making and continued improvement.

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VIII. ANNEXES

Table A1: Facility Types in Albania (n=10)

Albania Maternity Facility Type	Total	Urban	Rural	Public	Private	USAID-Supported
Secondary	4	4	0	4	0	0
Tertiary	3	3	0	2	1	1
Regional	3	3	0	3	0	2
Total	10	10	0	9	1	3

Table A2: Facility Types in Armenia (n=10)

Armenia Maternity Facility Type	Total	Urban	Rural	Public	Private	USAID-Supported
Primary Maternity	1	0	1	1	0	0
District w/ surgical suite	3	2	1	3	0	1
Secondary	3	3	0	2	1	2
Regional	1	1	0	1	0	0
Tertiary level	2	2	0	1	1	0
Total (by type)	10	8	2	8	2	3

Table A3: Facility Types in Georgia (n=12)

Georgia Maternity Facility Type	Total	Urban	Rural	Public	Private	USAID-Supported
District w/ surgical capacity	6	3	3	5	1	1
Secondary	3	3	0	1	2	2
Regional	2	2	0	1	1	0
Tertiary	1	1	0	1	0	1
Total	12	9	3	8	4	4

Table A4: Maternity Types in Russia

Russia Maternity Facility Type	Total	Urban	Rural	Public	Private	USAID-Supported
Primary and district (Level 1)	4	2	2	4	0	2
Secondary (Level 2)	4	3	1	4	0	2
Tertiary referral (Level 3)	2	2	0	2	0	1
Total	10	7	3	10	0	5

Table A5: % of Maternities with Specific Maternal-newborn Care Services (n=42 Maternities)

Indicator	4-country average	ALB	ARM	GEO	RUS
Antenatal care	93%	100% (10)	90% (9)	83% (10)	100% (10)
Antenatal Screening for HIV	78%	80% (2)	70% (7)	83% (10)	80% (8)
Prevention of Mother-to-Child Transmission of HIV/AIDS (PMTCT)	54%	10% (1)	50% (5)	67% (8)	90% (9)
Provide referral Services for lower level maternities	72%	90% (9)	80% (8)	17% (2)	100% (10)

Table A6: % (#) of Maternities with Standard Clinical Guidelines Available in Patient Care Areas; Provider Reported Availability of Protocols (n=42 Maternities; n=239 Providers)

Indicator	4-country average	ALB N=10	ARM N=10	GEO N=12	RUS N=10
National Childbirth guidelines available in clinical area	65%	13% (1)	90% (9)	75% (9)	80% (8)
Standard Facility Labor and Delivery Guidelines (if no National childbirth care guidelines on site)	75%	33% (3)	100% (8)	67% (2)	100% (3)
PPH case-management protocol Available in Clinical Area	67%	30% (3)	80% (8)	67% (8)	90% (9)
Pre-eclampsia/Eclampsia case-management protocol available in clinical area	75%	40% (4)	100% (10)	58% (7)	100% (10)
Maternal sepsis case-management protocol available in clinical area	55%	20% (2)	90% (9)	33% (4)	78% (7)
Newborn resuscitation case-management protocol available in clinical care area	79%	40% (4)	100% (10)	75% (9)	100% (10)
Newborn sepsis case-management protocol	56%	70% (7)	60% (6)	25% (3)	70% (7)
Provider-reported written protocol for administration of antenatal steroids in preterm labor	62%	63% (38)	74% (32)	26%(6)	85% (46)
Provider-reported written protocol for preterm/LBW newborn care	62%	67% (40)	86% (37)	22%(5)	72% (39)
Provider-reported written protocol for referral criteria for sick and premature/LBW infants	67%	58% (35)	68% (27)	52% (12)	90% (47)

Table A7: % (#) of Maternities in which Post-partum Guidelines (If Available) include Specific Standards for Mother and Newborn (n=42 Maternities)

Indicator	4-country average	ALB N=10	ARM N=10	GEO N=12	RUS N=10
Facility Specific Guidelines include: AMTSL (if no National childbirth care guidelines)	67%	33% (3)	100% (8)	67% (2)	67% (2)
Maternal Post-partum BP every 4 hours	54%	14% (1)	100% (8)	67% (2)	33% (1/3)
Temperature every 4 hours	55%	20% (1)	100% (8)	67% (2)	33% (1)
Uterine check for firmness every 30 minutes first 2 hours post partum	65%	60% (3)	100% (8)	67% (2)	33% (1)
Bleeding assessment every 4 hours after delivery	69%	75% (3)	100% (8)	67% (2)	33% (1)
Breastfeeding for newborn within one hour	71%	67% (4)	100% (8)	50% (1)	67% (2)
Thermal protection (wrap & dry; skin to skin)	71%	67% (4)	100% (8)	50% (1)	67% (2)
Eye care	73%	43% (3)	100% (8)	50% (1)	100% (3)
Vaccination	83%	80% (4)	100% (7)	50% (1)	100% (3)

Table A8: % (#) of Maternities in Which Post-partum Counseling Materials (if available) Include Specific Content (n=42 maternities)

Indicator	4-country average	ALB n=10	ARM n=10	GEO n=12	RUS n=10
Pre-discharge counseling	66%	40% (4)	90% (9)	42% (5)	90% (9)
Routine best practices care for newborn	85%	67% (2)	90% (9)	71% (5)	100% (9)
Danger signs for mother and newborn	87% (24)	100% (3)	90% (9)	71% (5)	78% (7)

Table A9: % (#) of Managers Reporting Sufficient Staff and Availability of Specific Staff Cadres

Indicator	4-country average	ALB	ARM	GEO	RUS	
Sufficient staff to ensure 24/7 staffing of essential provider cadres	69% (29)	60% (6)	90% (9)	75% (9)	50% (5)	
% (#) managers reporting shortage of specific provider cadre	Obstetrician	12% (5)	0% (0)	0% (0)	12% (5)	40% (4)
	Neonatologist	17.5% (7)	40% (4)	30% (3)	17.5% (7)	0% (0)
	Nurse	4.5% (2)	0% (0)	0% (0)	4.5% (2)	10% (1)
	Midwife	2.5% (1)	0% (0)	0% (0)	2.5% (1)	10% (1)
	Anesthesiologist	25% (11)	30% (3)	10% (1)	25% (11)	10% (1)

Table A10: Distribution of Delivery Types and Outcomes in the Past Year Based on Maternity Annual Statistics (n=42 Maternities)

Indicator	ALB	ARM	GEO	RUS
Average number of annual deliveries (total)	1967	1249	1200	2043
Average number of annual live births	1770	1209	1194	2041
Cesareans as % of total annual deliveries	35% (682)	23% (286)	30% (365)	18%
Assisted vacuum extraction deliveries as % of total annual deliveries	0.1%	0.3%	0.1%	0.4%
Assisted forceps deliveries as % of total annual deliveries	0.02%	0.008%	0.05%	0.04%
% of annual deliveries complicated by obstructed labor	1% (39.75)	3% (38.55)	1.2% (14.5)	34%

Table A11: % of Annual Births with Specific Maternal Complications and Interventions (n=42 Maternity Statistical Records)

Indicator	Avg.	ALB	ARM	GEO	RUS
Post-partum Hemorrhage as % of total annual births	0.85%	0.4%	1.7%	0.9%	0.4 %
Blood transfusion as % total annual births	0.29%	0.003%	2.8%	0.2%	1%
Eclampsia as % total annual births	4.4%	0.1%	0.08%	4.2%	0.009%
Pre-eclampsia as % total annual births	6.1%	2%	3.6%	0%	0.5%

Table A12: % of Annual Births with Specific Newborn Complications (n=42 Maternity Statistical Records)

Indicator	Avg.	ALB	ARM	GEO	RUS
Perinatal Deaths (still births + neonatal deaths prior to discharge) as % total annual births	1.96%	1.49	4.1	1.68	0.57
Neonatal sepsis as % total annual births	0.22%	0.01	0.4	0.5	0
Low birth weight (<2500 gms) as % total annual births	6.5%	6.4%	8.4%	8.6%	2.6%
Very Low Birth Weight (< 1500 gms) as % total annual births	1%	0.6%	1.3%	1.2%	0.9%
Newborn Asphyxia as % total annual births	1.57%	0.8%	2.8%	1%	1.7%
Asphyxia case fatality rate	8.6%	15%	3%	8%	8.5%

Table A13: % (#) of Maternities with Essential Supplies and Equipment (n=42 Maternities; Data Sources: Checklist Inventory and Manager Interviews)

Indicator	4-country average	ALB	ARM	GEO	RUS
Running water	95.5% (40)	100% (10)	90% (9)	92% (11)	100% (10)
Functioning electricity	98% (41)	100% (10)	100% (10)	92% (11)	100% (10)
Functioning heating system	91.7% (38)	100% (10)	100% (10)	67% (8)	100% (10)
Protocol for maintaining minimum temperature in delivery room(s)	74% (31)	60% (6)	70% (7)	67% (8)	100% (10)
temperature gage to record ambient temperature in delivery room	91% (38)	80% (8)	100% (10)	83% (10)	100% (10)
Sphygmomanometer (BP measurement device)	90.7% (38)	90% (9)	100% (10)	83%(10)	90% (9)
# /% of maternities with delivery table with functioning light.	95.5% (40)	90% (9)	100% (10)	92% (11)	100% (10)
# /% of maternities with essential emergency respiratory support equipment for mother easily accessible in delivery area (pulsoximeter, Laryngoscope, endotracheal tubes, oxygen)	80.7% (34)	50% (5)	90% (9)	83% (10)	100% (10)
% maternities in which manager reports “difficulty ensuring availability of essential MNC care supplies most of the time”	16.7% (7)	10% (1)	30% (3)	17 % (2)	10% (1)

Table A14: % (#) of Maternities with Essential Newborn Care Infrastructure and Supplies (n=42 Maternities)

Indicator	4-country average	ALB	ARM	GEO	RUS
Protective clothing	95.7%	100% (10)	100% (10)	83% (10)	100% (10)
Clean cloth or towel to dry baby	98%	100% (10)	100% (10)	92% (11)	100% (10)
Bag and mask for neonatal resuscitation (full term, size 1)	91%	90% (9)	90% (9)	83% (10)	100% (10)
Bulb for suction of newborn	78%	80% (8)	90% (9)	75% (9)	70% (7)
Laryngoscope	86%	80% (8)	90% (9)	75% (9)	100% (10)
Endotracheal tubes (2.5 to 4 sizes)	86%	80% (8)	90% (9)	75% (9)	100% (10)
Incubator	86%	80% (8)	90% (9)	75% (9)	100% (10)
Newborn examination Table with radiant warmer	88%	70% (7)	100% (10)	83% (10)	100% (10)

Table A15: % of Maternities with Essential Laboratory Supplies (n=42 Maternities)

Essential Laboratory Test	4-country average	ALB	ARM	GEO	RUS
Hemoglobin	100%	100% (10)	100% (10)	100% (12)	100% (10)
Hematocrit	95%	80% (8)	100% (10)	100% (12)	100% (10)
Platelet count	95%	80% (8)	100% (10)	100% (12)	100% (10)
White blood cell count	100%	100% (10)	100% (10)	100% (12)	100% (10)
Urine protein measurement	91%	90% (9)	100% (10)	75% (9)	100% (10)
Blood glucose measurement	95%	80% (8)	100% (10)	100% (12)	100% (10)
Rh typing	97.5%	90% (9)	100% (10)	100% (12)	100% (10)
Rapid HIV/AIDS Test	72%	20% (2)	60%(6)	92% (11)	90% (9)
Syphilis Test	78%	30% (3)	100%(10)	92% (11)	90% (9)
Urine Culture (microbiology)	70%	70% (7)	60%(6)	50% (6)	100% (10)
Blood Microbiology (Culture)	60.5%	50% (5)	60%(6)	42% (5)	90% (9)
CSF culture	40%	50% (5)	33%(3)	17% (2)	60% (6)
% Managers Report Difficulty “Most of the Time” Ensuring MNH laboratory Supplies	25.7%	20% (2)	10% (1)	33% (4)	40% (4)

Table A16: % of Maternities with Essential Laboratory Testing Capacity Daytime and 24 Hours 7 days a Week (n=42 Maternities)

Essential Laboratory Test	ALB		ARM		GEO		RUS	
	Test Available	24/7	Test Available	24/7	Test Available	24/7	Test Available	24/7
Hematocrit	80% (8)	70% (7)	100% (10)	60% (6)	100% (12)	67% (8)	100% (10)	80% (8)
Platelet count	80% (8)	70% (7)	100% (10)	70% (7)	100% (12)	58% (7)	100% (10)	60% (6)
White blood cell count	100% (10)	100% (10)	100% (10)	70% (7)	100% (12)	67% (8)	100% (10)	80% (8)
Urine protein measurement	90% (9)	90% (9)	100% (10)	70% (7)	75% (9)	42% (5)	100% (10)	90% (9)
Blood glucose	80% (8)	80% (8)	100% (10)	70% (7)	100% (12)	67% (8)	100% (10)	80% (8)
Rh typing	90% (9)	70% (7)	100% (10)	60% (6)	100% (12)	75% (9)	100% (10)	90% (9)
Rapid HIV Test	20%(2)	11%(1)	60% (6)	40% (4)	92%(11)	75%(9)	90% (9)	80% (8)

Table A17: % of Maternities with Selected Essential MNH Inputs Stratified by Rural and Urban Sites

Essential Maternal-newborn Care Input	Rural	Urban
Sphygmomanometer (BP cuff)	84% (16)	96% (22)
Hematocrit or Hemoglobin 24/7	89% (17)	100% (23)
Oxytocin	89% (17)	100% (23)
Magnesium Sulphate	95% (18)	100% (23)
Ampicillin	89% (17)	91% (21)
Ambient Temperature gage available in delivery room	70% (15)	100% (23)
Functioning heating system	84% (16)	95% (22)
Clean Cloth and blanket for newborn	94% (18)	100% (23)
Newborn Bag and mask	84% (16)	96% (22)
Newborn examination Table with radiant warmer	74% (14)	100% (23)
Incubator	74% (14)	96% (22)
No blood products available	47%	30%

Table A18: % (#) of Maternities with Essential Supplies and Equipment (n=42 Maternities; Data Sources: Checklist Inventory and Manager Interviews)

Indicator	4-country average	ALB	ARM	GEO	RUS
Running water	95.5% (40)	100% (10)	90% (9)	92%(11)	100% (10)
Functioning electricity	98% (41)	100% (10)	100% (10)	92%(11)	100% (10)
Functioning heating system	91.7% (38)	100% (10)	100% (10)	67%(8)	100% (10)
Protocol for maintaining minimum temperature in delivery room(s)	74% (31)	60% (6)	70% (7)	67% (8)	100% (10)
Temperature gage to record ambient temperature in delivery room	91% (38)	80% (8)	100% (10)	83%(10)	100% (10)
Sphygmomanometer (BP measurement device)	90.7% (38)	90% (9)	100% (10)	83%(10)	90% (9)
# /% of maternities with delivery table with functioning light	95.5% (40)	90% (9)	100% (10)	92%(11)	100% (10)
# /% of maternities with essential emergency respiratory support equipment for mother easily accessible in delivery area pulsoximeter, Laryngoscope, endotracheal tubes, oxygen)	80.7% (34)	50% (5)	90% (9)	83% (10)	100% (10)
% maternities in which manager reports “difficulty ensuring availability of essential MNC care supplies most of the time”	16.7% (7)	10% (1)	30% (3)	17% (2)	10% (1)

Table A19: % Maternities with Essential Laboratory Supplies (n=42 Maternities)

Essential Laboratory Test	4-country average	ALB	ARM	GEO	RUS
Hemoglobin	100%	100% (10)	100% (10)	100% (12)	100% (10)
Hematocrit	95%	80% (8)	100% (10)	100% (12)	100% (10)
Platelet count	95%	80% (8)	100% (10)	100% (12)	100% (10)
White blood cell count	100%	100% (10)	100% (10)	100% (12)	100% (10)
Urine protein measurement	91%	90% (9)	100% (10)	75% (9)	100% (10)
Blood glucose measurement	95%	80% (8)	100% (10)	100% (12)	100% (10)
Rh typing	97.5%	90% (9)	100% (10)	100% (12)	100% (10)
Rapid HIV/AIDS Test	72%	20%(2)	60%(6)	92%(11)	90% (9)
Syphilis Test	78%	30%(3)	100%(10)	92%(11)	90% (9)
Urine Culture (microbiology)	70%	70%(7)	60%(6)	50% (6)	100% (10)
Blood Microbiology (Culture)	60.5%	50%(5)	60%(6)	42%(5)	90% (9)
CSF culture	40%	50%(5)	33%(3)	17%(2)	60% (6)
% Managers Report Difficulty “Most of the Time” Ensuring MNH laboratory Supplies	25.7%	20% (2)	10% (1)	33% (4)	40% (4)

Table A20: % (#) of Maternities with Specific Infrastructure to Support Specific Client-centered Best Practices

Indicator	4-country average	ALB n=10	ARM n=10	GEO n=12	RUS n=10
Admission/Evaluation Care Area: visual and auditory privacy 12)	93% (39)	90% (9)	100% (10)	92% (11)	90% (9)
Labor Area: Privacy screen for each bed if > 1 bed per room	31% (11)	20% (1)	33% (3)	0% (0/6)	70% (7)
Delivery Area: privacy screen for each bed if >1 bed	41% (15)	20% (1)	44% (4)	0% (0/11)	100% (10)
Option for 24 hour “rooming in” for mothers and babies	77% (32)	100% (10)	100% (10)	67% (8)	40% (4)
Post-partum Area: # (%) of privacy screen for each bed i if > 1 bed per room	25% (10)	40% (4)	30% (3)	0% (0/12)	30% (3)

Table A21: % (#) of Maternities with Specific Blood Transfusion Capacity Items (Data Source: Checklist Inventory and Manager Questionnaires)

Indicator		4-country average	ALB	ARM	GEO	RUS
Essential blood products NOT available (either red blood cells, frozen plasma and whole blood)		69% (29)	50% (5)	70% (7)	75% (9)	80% (8)
Essential blood products NOT available (none of following available: red blood cells, frozen plasma and whole blood)		39% (17)	30% (3)	50% (5)	66.7% (8)	10% (1)
Managers report difficulty most of the time ensuring availability of essential blood products		26% (11)	40% (4)	30% (3)	33% (4)	0% (0)
Driving time intervals to nearest site to obtain blood products if not available within maternity (< 30 minutes; 30-60 minutes; > 60 minutes)	< 30 min	43% (14)	60% (6)	38% (3)	40% (4)	33% (1)
	30-60min	18.7% (7)	30% (3)	25 % (2)	20% (2)	0% (0)
	>60min	39% (10)	10% (1)	38% (3)	40% (4)	67% (2)

Table A22: % (#) of Maternities with Availability of Essential MNH Medications, Vaccines, and IV Supplies

Indicator	4-country average	ALB	ARM	GEO N=12	RUS
Ampicillin	90% (38)	100% (10)	90% (9)	100% (12)	70% (7)
Gentamycin	91% (38)	100% (10)	100% (10)	83% (10)	80% (8)
Metronidazole (both oral and inject.)	69.5% (29)	50% (5)	90% (9)	58% (7)	80% (8)
Methodlopha or Catapressan	49% (19)	79% (7)	50% (5)	17% (2)	50% (5)
Magnesium Sulphate	98% (41)	100% (10)	100% (10)	92% (11)	100% (10)
AZT (Zidovudine)	67.5% (20)	20% (2)	100% (10)	8% (1)	70% (7)
Nevirapine	47% (19)	0% (0)	100% (10)	8% (1)	80% (8)
Vitamin A	30% (12)	10% (1)	40% (4)	0% (0)	70% (7)
Betadine or antibiotic ointment for eye care	77% (33)	90% (9)	100% (10)	58% (7)	70% (7)
Tetanus vaccine	33.7% (14)	30% (3)	20% (2)	25% (3)	60% (6)
Polio vaccine	17% (7)	20% (2)	20% (2)	8% (1)	20% (2)
Heptatis B	92.5% (39)	70% (7)	100% (10)	100% (12)	100% (10)
BCG	92.5% (39)	70% (7)	100% (10)	100% (12)	100% (10)
Oxytocin	95% (40)	80% (8)	100% (10)	100% (12)	100% (10)
Available in delivery room	93% (39)	90% (9)	90% (9)	92% (11)	100% (10)
Ergometrine	61% (25)	80% (8)	30% (3)	33% (4)	100% (10)
Intra-venous fluids (normal saline, lactated ringer or other)	97.5% (41)	90% (9)	100% (10)	100% (12)	100% (10)
Pharmacy operates 24/7	21% (10)	30% (3)	10% (1)	25% (4)	20% (2)
Managers report difficulty ensuring availability essential medications “most of the time”	9.5% (4)	11% (1)	0% (0)	17% (2) (100% of rural facilities)	10% (1)

Table A23: Distribution of Provider Sample Age and Gender (n= 239 providers)

Indicator (s)		4-country average	ALB	ARM	GEO	RUS
Age	20-29	4.5% (11)	5% (3)	4% (3)	2% (1)	7% (4)
	30-39	26% (61)	35% (21)	24% (16)	21% (10)	25% (14)
	30-49	36% (80)	23% (14)	31% (21)	53% (25)	36% (20)
	50-59	24% (57)	33% (20)	28% (19)	17% (8)	18% (10)
	≥60	9% (15)	3% (2)	13% (2)	6% (3)	14% (8)
Gender	Male	25% (50)	41.5% (27)	15% (10)	22% (10)	23% (13)
	Female	75% (175)	58.5% (38)	85% (58)	78% (36)	77% (43)

Table A24: Completion of Training and Years Working in Current Facility (n=239 Providers)

Indicator (s)	Year range	4 country Average	ALB	ARM	GEO	RUS
Years since completion of the clinical training	0-4 yrs	14% (31)	12% (8)	32% (15)	8.82% (6)	4% (2)
	5-9 yrs	17.5% (37)	24% (16)	13% (6)	19% (7)	14% (8)
	10-14 yrs	14% (33)	15% (10)	13% (6)	13.2 (9)	14% (8)
	15-19 yrs	17% (39)	12% (8)	21% (10)	16% (11)	18% (10)
	≥20 yrs	39.5% (73)	36% (24)	21% (10)	51% (11)	50% (28)
Years working at the facility	0-4 yrs	17% (41)	25% (16)	16% (8)	12% (8)	16% (9)
	5-9 yrs	17% (40)	14% (9)	13% (6)	22% (15)	18% (10)
	10-14 yrs	18% (43)	23% (15)	21% (10)	15% (10)	14% (8)
	15-20 yrs	12% (27)	8% (5)	17% (8)	12% (8)	11% (6)
	≥20 yrs	36% (86)	31% (20)	33% (16)	40% (27)	41% (23)

Table A25: % (#) of Providers Who Answer Specific Newborn Care Questions Correctly (n=292 providers)

Question Category	4-country average	ALB	ARM	GEO	RUS
% (#) of providers who correctly identified routine newborn care interventions for all babies	80% (145)	71% (44)	80% (37)	91% (21)	78% (43)
% (#) of providers who correctly identified most important first action if a newborn does not spontaneously breathe at birth within 60 seconds (dry and stimulate)	21% (36)	15% (9)	13% (6)	30% (7)	25% (14)
% (#) of providers who correctly identified factors that should prompt close observation for symptoms of sepsis in a newborn	61.5% (114)	56% (35)	66% (29)	48% (11)	76% (39)
% (#) of providers who correctly identified a normal respiratory rate for a newborn	65% (108)	76% (40)	48% (20)	74% (17)	61% (31)
% (#) of providers who Correctly identified the first step in thermal protection of newborns	79% (141)	79% (48)	74% (32)	87% (20)	77% (41)

Note: all providers answered knowledge newborn care questions regardless of specialty cadre.

Table A26: % of Providers Reporting Recent Training/CME for Specific Topics (< Three Years) (n=239 Providers)

Indicator	ALB	ARM	GEO	RUS
AMTSL	66% (31)	56% (22)	59% (27)	51% ()
PPH management	70% (33)	51% (20)	65% (30)	70% ()
Pre/Eclampsia management	59% (28)	62% (24)	54% (25)	70% ()
Obstructed Labor Management	40% (19)	41% (16)	41% (19)	60% ()
Post-abortion care	32% (21)	23% (11)	22% (15)	Res.p % ()
Maternal Sepsis management	40% (19)	28% (11)	13% (6)	37% ()
Family-centered care	6% (4)	23% (11)	22% (15)	20% (11)
Neonatal resuscitation	38% (25)	28% (13)	57% (39)	41% (23)
Newborn sepsis management	20% (13)	6% (3)	18% (12)	9% (5)
Care of low birth weight and/or premature infant	24% (16)	19% (9)	19% (13)	23% (13)

Table A27: % Providers Reporting Recent CME (< 3 yrs) Stratified by Providers Working in USAID-supported vs. Non USAID-supported Sites and Rural vs. Urban Sites (n=239 providers total)

Indicator	ACROSS ALL 4 COUNTRIES	USAID	Non-USAID	Rural	Urban
AMTSL	58%	74%	47%	63%	55%
PPH management	64.5%	74%	58%	70%	61%
Pre/Eclampsia management	61%	71%	54%	57%	64%
Obstructed Labor Management	45%	56%	38%	43%	47%
Post-abortion care	32.5%	36%	30%	43%	26%
Maternal Sepsis management	29.7%	29%	30%	38%	24%
Family-centered care	17%	19%	16%	11%	21%
Neonatal resuscitation	42%	53%	34%	43%	42%
Newborn sepsis management	13.9%	16%	12.5%	19%	10%
Care of low birth weight and/or premature infant	21.5%	22.5%	21%	24%	20%

Table A28: % (#) of Maternal Health Providers Who Report to Be “Very Confident” Managing Specific MNH Complications

Specific Complication	4-country average	ALB	ARM	GEO	RUS
Obstructed Labor	50% (85)	67% (30)	71% (27)	41% (19)	22% (9)
PPH	47% (73)	72% (26)	61% (23)	33% (15)	22% (9)
Eclampsia	26% (42)	35% (14)	26% (10)	27% (12)	15% (6)
Maternal Sepsis	20% (34)	37% (16)	18% (7)	16% (7)	11% (4)
Post-abortion care	53% (39)	83% (33)	73% (27)	33% (14)	22% (6)

Table A29: % (#) of Providers Who Report to be “Very Confident” Managing Specific Newborn Complications (n=239 Providers)

Newborn complications	4-country average	ALB	ARM	GEO	RUS
Newborn sepsis	29% (28)	44% (12)	25% (6)	35% (8)	11% (2)
Low birth weight or prematurity	39% (42)	62% (18)	27% (8)	46% (11)	21% (5)
Asphyxia/resuscitation	39% (52)	57% (17)	26% (9)	48% (19)	26% (7)

Table A30: % (#) of Maternal Care Providers Who Answer Specific Maternal Care Knowledge Questions Correctly (n=169 Obstetricians; n=12 Midwives)

Knowledge Question Category	4-country average	ALB	ARM	GEO	RUS
First immediate steps in PPH management	76.5% (130)	65% (30)	85% (33)	69% (33)	87% (34)
The elements of AMSTL	46.7% (80)	30% (14)	42% (16)	55% (26)	60% (24)
Correct classification of eclampsia severity based on case study example	91% (158)	89% (41)	100% (39)	86% (42)	88% (36)
Management of Severe preeclampsia in preterm labor (28 weeks gestation) based on case study					
Limit external stimuli:	94% (161)	97.7% (43)	89.7% (35)	91.5% (43)	97% (40)
Interrupt pregnancy as soon as possible	55% (88)	51% (22)	62.2% (23)	35.6% (16)	73% (27)
BP check every 15 minutes	48% (80)	60.9% (25)	23.5% (8)	85% (40)	23% (7)
Initiate Mg. Sulfate:	90.5% (153)	84% (37)	97% (37)	89% (42)	92% (37)
Administer Corticosteroid (e.g., Betamethasone) for prematurity:	51% (82)	52.3% (22)	48.6% (17)	51% (24)	54% (19)
Timing of delivery	49% (79)	32% (14)	42% (21)	32% (15)	91% (29)
Timing of referral	52% (143)	39% (16)	77% (26)	14.9% (7)	77% (24)
Criteria for antibiotic prophylaxis in labor	57.5% (96)	33% (14)	74% (28)	60% (28)	63% (26)
Single best way to prevent sepsis in both mother and child	44% (114)	50% (24)	13% (39)	77% (36)	36% (15)
Normal range of contraction frequency in active phase of labor	64% (101)	45% (18)	92% (35)	48% (22)	72% (26)
Diagnostic criteria for active phase of labor (contraction frequency and cervical dilatation) MNH#4	56% (90)	39% (16)	56% (22)	47% (22)	81% (30)
Minimal rate of cervical dilatation in active labor phase	90% (151)	98% (43)	90% (34)	77% (36)	95% (38)
Normal time range for the second stage of labor (between full cervical dilatation and delivery)	85% (136)	73% (27)	82% (32)	92% (43)	92% (34)

Table A31: % (#) of Providers Who Agree with Specific Statements About Client-centered Practices (n=239 Providers)

Patient-centered Best Practice	4-country average	ALB	ARM	GEO	RUS
It is appropriate for a women to walk around during labor	84% (156)	94% (46)	82% (32)	61% (37)	100% (41)
Neonatal resuscitation skills are important for all maternal care provider	90.5% (173)	83% (43)	95% (37)	89% (54)	95% (39)
Patient privacy should be a priority even when the maternity is very busy	78% (152)	96% (49)	57% (21)	84% (51)	76% (31)
Confidentiality of patient information is not a problem in my maternity	78% (150)	67% (34)	62% (24)	89% (54)	93% (38)
“Best to avoid discussing complicated obstetric decisions with a woman in labor as she may become anxious or not be able to understand”	53%	71% (36)	59% (23)	54% (33)	29% (12)
Patients should have a companion with them during delivery	73%	95%	78%	84%	34% (14)
A woman should choose her preferred delivery position	79% (153)	80% (40)	74% (29)	89% (54)	73% (30)

Table A32: % (#) of Managers (M) and Providers (P) Who Rank Specific Elements as “Very Important” for Improving Maternal and Newborn Services in Their Facility (n=42 Managers; n=239 Providers)

Indicator	4-country average		ALB		ARM		GEO		RUS	
	M	P	M	P	M	P	M	P	M	P
Infrastructure (including basic equipment and supplies)	89% (37)	83% (193)	90% (9)	84% (52)	100% (10)	94% (43)	75% (9)	85% (58)	90% (9)	68% (37)
Availability essential medications	76% (32)	86% (196)	60% (6)	82% (51)	100% (10)	98% (45)	75% (9)	87% (59)	70% (7)	76% (41)
Number (Shortage or surplus) of medical personnel	56% (23)	37% (82)	50% (5)	34% (21)	80% (8)	38% (17)	33% (4)	22% (15)	60% (6)	54% (29)
Effective Management and supervision	78% (33)	70.5% (162)	100% (10)	72% (44)	100% (10)	80% (36)	83% (10)	90% (61)	30% (3)	40% (21)
Financial incentives	81% (34)	82% (164)	70% (7)	75% (48)	80% (8)	61% (28)	75% (9)	78% (52)	100% (10)	67% (36)

Table A33: % (#) Providers who report Specific Practice and/or written Protocols in their Maternity (n=239 providers)

Specific MNH practice		4-country average	ALB	ARM	GEO	RUS
Birth companion allowed during labor and delivery		51%	36%	31%	94%	44%
Circumstances under which episiotomy performed	All deliveries	1% (2)	4% (2)	0% (0)	0% (0)	0% (0)
	Woman considered likely to have a tear	73% (126)	83% (40)	63% (24)	45% (21)	100% (41)
	Very seldom	23% (40)	8% (4)	37% (14)	47% (22)	0% (0)
	Never	3% (6)	4% (2)	0% (0)	8% (4)	0% (0)
Interventions for which Consent Form Obtained	None	8% (18)	18% (12)	13% (5)	1.5% (1)	0% (0)
	Generic consent form at time of admission	32% (73)	12% (8)	23% (9)	34% (23)	59% (33)
	Augmentation or induction of labor	%	11% (4)		54% (25)	
	Episiotomy	%	2.1% (1)		22% (10)	
	Cesarean section	%	60% (21)		87% (40)	
Usual frequency of Blood Pressure check during labor	At admission and after delivery only	18% (32)	28% (13)	24% (9)	19% (9)	2% (1)
	Every 6 hrs from admission to discharge	32% (22)	61% (28)	45% (17)	10% (5)	12% (5)
	Every 4 hrs from admission to discharge	49.5% (85)	11% (5)	32% (12)	70% (33)	85% (35)
	At admission only	0% (0)	0% (0)	0% (0)	0% (0)	0% (0)
Antenatal corticosteroid administration if preterm labor and inevitable delivery		77% (131)	78% (35)	56% (19)	88% (42)	85% (35)
Written protocol in maternity for administration of antenatal corticosteroids		62% (122)	63% (38)	74% (32)	26% (6)	85% (46)
Newborns stay with mother after delivery "most of the time"		92% (168)	89% (56)	87% (39)	100% (23)	91% (50)
Routine Newborn vaccination: BCG		70%	65% (43)	100% (45)	34% (23)	82% (46)
Routine Newborn vaccination: Polio		53%	9% (6)	100% (45)	100% (68)	4% (2)
Routine Newborn vaccination: Hepatitis B		69.5%	68% (45)	96% (43)	34% (23)	80% (45)
Written maternity protocol for care of premature and LBW babies		61.5%	66% (40)	86% (37)	22% (5)	72% (39)
Written maternity protocol for referral of premature and LBW babies		66.5%	58% (35)	66% (27)	52% (12)	90% (47)

Table A34: % Providers and Managers reporting Provider Incentives (n=239 providers; n=42 managers)

Financial incentive Result % (#) Provider- or manager reported	4-country average	ALB	ARM	GEO	RUS
Provider-reported general bonus	30% (65)	6% (4)	45% (21)	16% (11)	53% (29)
% providers who report bonus linked to performance (e.g., clinical outcomes of patients)	22% (35)	1.5% (1)	35% (15)	9% (6)	42% (20)
Manager-reported system for identifying and rewarding strong provider performance	68% (29)	40% (4)	70% (7)	83% (10)	80% (8)
Manager-reported financial incentives for performance	55% (23)	10% (1)	80% (8)	50% (6)	80% (8)

Table A35: Distributions of Clients by Age (n=292 clients)

Indicator : Distributions of Clients by Age	4-country average	ALB	ARM	GEO	RUS
15-19 years	9.5% (28)	15% (9)	4% (2)	18% (16)	1% (1)
20-30	66% (189)	61% (37)	77% (40)	67% (59)	58% (53)
31-40	24% (73)	23% (14)	19% (10)	15% (13)	40% (36)
> 40	0.7% (2)	2% (1)	0% (0)	0% (0)	1% (1)

Table A36: Client Sample Self-reported Highest Level of Education (n=292 clients)

Indicator	4-country average	ALB	ARM	GEO N=88	RUS
Primary school	13.5% (32)	46% (28)	4% (2)	1%(1)	3% (1)
Secondary school	44% (120)	25% (15)	77% (40)	46%(40)	27% (25)
University	36% (114)	25% (15)	19% (10)	47%(41)	53% (48)
Post-university or profess'al	2.5% (8)	5% (3)	0% (0)	0% (0)	5% (5)
Other; technical school	4.5% (16)	0% (0)	0% (0)	7%(6)	11% (10)

Table A37: Client Sample Self-reported economic status; (x clients)

Economic Status	4-country average	ALB	ARM	GEO	RUS
Poor	6.5% (18)	8% (5)	8% (4)	8% (7)	2% (2)
Low middle	16% (52)	10% (6)	8% (4)	34% (30)	13% (12)
Middle	58% (158)	77% (47)	71% (37)	31% (27)	52% (47)
Upper middle	12% (39)	5% (3)	6% (3)	27% (24)	10% (9)
Well off	8% (25)	0% (0)	8% (4)	0% (0)	23% (21)

Table A38: Number of Client-reported Antenatal Visits during Pregnancy (n=292 Clients)

Indicator	4-country average	ALB	ARM	GEO N=88	RUS
> 6 times	68% (202)	64% (39)	62% (32)	47%(41)	99% (90)
5-6 times	17.2% (45)	23% (14)	27% (14)	19%(17)	0% (0)
3-4 times	12% (37)	3% (2)	10% (5)	33%(29)	1% (1)
1-2 times	2% (5)	7% (4)	0% (0)	1%(1)	0% (0)
None	1.2% (3)	3% (2)	2% (1)	0% (0)	0% (0)

Table A39: # % (#) Clients who report specific client-centered or non client centered practice (n=292 clients)

Indicator	4-country average	ALB	ARM	GEO (N=88)	RUS
Signing of a consent form for clinical care at any time since admission to maternity	46% (142)	33% (20)	27% (14)	39% (34)	84% (74)
Private information kept confidential since admission	85% (246)	58% (35)	100% (51)	93% (82)	88% (78)
Privacy during labor	73.5% (151)	85 % (28)	53% (21)	94 % (62)	62% (40)
Unanswered questions	11% (30)	2% (1)	21% (11)	11% (10)	9% (8)
Enema given at any time	43% (124)	20% (12)	65% (34)	30% (26) (prior assessment _ 79%	57% (52)
Shaved in genital area	37% (105)	74% (45)	17% (9)	17% (15) (Prior Perinatal Care assessment: 57%)	40% (36)
Episiotomy	17% (45)	25% (15)	14% (7)	12% (8)	18% (15)
Personal choice of birth position	33% (77)	7% (4)	83% (43)	37% (25)	6% (5)
Companion of choice during labor	36.5% (94)	39% (24)	33% (17)	70% (49)	4% (4)
Companion of choice during delivery	23% (69)	18% (11)	19% (10)	51% (45)	3% (3)
Offered a choice of pain medications during labor	13.5% (41)	13% (8)	10% (5)	20% (18)	11% (10)
Patient-reported first contact with newborn after delivery:					
Immediately after birth	64% (179)	52% (31)	66% (33)	76% (59)	62% (56)
Within first hour after birth	11.7% (33)	20% (12)	6% (3)	5% (4)	16% (14)
> 1 hour after birth	24% (66)	28% (17)	28% (14)	19% (15)	22% (20)
Patient-reported time of first breastfeeding after delivery					
No breastfeeding any time	8% (23)	5% (3)	10% (5)	14% (12)	3% (3)
<1 h	35% (105)	18% (11)	37% (19)	36% (32)	48% (43)
1-6h	26% (72)	38% (23)	27% (14)	20% (18)	19% (17)
6-24h	16% (47)	21% (13)	12% (6)	16% (14)	16% (14)
24>	15% (43)	18% (11)	15% (8)	14% (12)	13% (12)

Indicator	4-country average	ALB	ARM	GEO (N=88)	RUS
Patient-reported exclusive breastfeeding since delivery					
Yes	37% (111)	45% (27)	23% (12)	32% (28)	48% (44)
NO	53.5% (149)	50% (30)	73% (38)	66% (58)	25% (23)
I do not know	9.25% (31)	5% (3)	4% (2)	2% (2)	26% (24)
Baby rooming in with mother since delivery	71% (207)	73% (44)	67% (35)	87% (75)	58% (53)
Baby's location has been determined by maternity staff	79% (220)	78% (45)	98% (51)	61% (53)	79% (71)

Table A40: % Clients who Report Counseling on Specific MNC Topics (n=292 clients)

Indicator	4-country average	ALB	ARM	GEO N=88	RUS
Counseling on what baby needs to drink/eat first 6 months	58%	66% (40)	85% (44)	33% (29)	48% (44)
Immunizations needed by newborn	62%	64% (39)	83% (43)	28% (25)	74% (67)
Danger signs in newborn	35.5%	39% (24)	44% (23)	22% (19)	37% (34)
Danger signs in mother (post-partum)	42%	67% (41)	39% (20)	19% (17)	43% (39)
When and where mother needs to follow up after discharge from maternity	36%	44% (27)	31% (16)	12% (11)	56% (51)
When and where newborn needs to follow up after discharge from maternity	45%	56% (34)	48% (25)	24% (21)	52% (47)
Post-partum Family Planning options	20%	13% (8)	23% (12)	16% (14)	29% (26)

Table A41: % (#) Clients Report to Know Specific Services Covered by Government Funding (n=292 clients)

Client knowledge of Specific Government-funded MNC Services	4-country average	ALB	ARM	GEO N=88	RUS
Clients who know which services are covered by government	67% (186)	67% (41)	94% (49)	65% (57)	43% (39)
Antenatal consultations	63.5% (175)	66% (40)	87% (45)	65% (57)	36% (33)
Medications	23% (63)	46% (28)	19% (10)	2% (2)	25% (23)
Basic diagnostic services	46% (123)	64% (39)	65% (34)	22% (19)	34% (31)
Specialist treatment of complicated pregnancy	29% (81)	44% (27)	29% (15)	2% (2)	41% (37)
Normal delivery services	43% (113)	62% (38)	65% (34)	11% (10)	34% (31)
Complicated delivery services (e.g. cesarean)	26.5% (72)	44% (27)	29% (15)	2% (2)	31% (28)
Routine Newborn care	45% (115)	62% (38)	79% (41)	1% (1)	38% (35)
Care for newborn complications (e.g., prematurity)	23% (67)	43% (26)	23% (12)	0% (0)	25% (23)

Table A42: % (#) Clients Who Rank Specific Client-centered Item as Personally “Very important” (n=292 clients)

Client’s attitude on:	4-country average	ALB	ARM	GEO (N=88)	RUS
Being able to choose the position in which they give birth	35% (106)	38% (23)	14% (7)	50%(44)	37% (32)
Choice of whether to use pain medication	51% (149)	82% (50)	17% (9)	55%(48)	49% (42)
Choice of which pain medication to take (if any)	41% (125)	59% (36)	8% (4)	53% (47)	45% (38)
Privacy during labor and delivery	53.5% (159)	67% (41)	26% (13)	68% (60)	53% (45)
Confidentiality of personal information	53.5% (166)	68% (41)	10% (5)	76% (67)	60% (53)
Choice of birth companion during labor	52.5% (152)	85% (52)	27% (14)	65% (57)	33% (29)
Choice of birth companion during delivery	45% (135)	57% (35)	23% (12)	69% (61)	31% (27)
Being asked for consent (permission) before any procedures	57% (174)	84% (51)	4% (2)	72% (63)	67% (58)
Physical contact (e.g., hold my baby) immediately after birth	78% (237)	93% (57)	42% (22)	86% (76)	92% (82)
Feeling respected by their provider	93% (270)	100% (61)	85% (44)	89% (78)	98% (87)
Having a provider who is warm and compassionate	93% (269)	98% (60)	85% (44)	90% (79)	98% (86)

Table A43: % (#) clients Report Specific Physical Proximity (driving time) to Maternity (n=292 Clients)

Driving time from home to nearest clinic	4-country average	ALB	ARM	GEO N=88	RUS
< 30 minutes	67% (199)	67% (41)	61.5% (32)	65%(57)	76% (69)
30-60 minutes	17.8% (54)	18% (11)	13.5% (7)	20%(18)	20% (18)
> 60 minutes	15% (39)	15% (9)	25% (13)	15%(13)	4% (4)
Patients reporting difficulties to physically access MNH services	0.75% (2)	3% (2)	0% (0)	0% (0)	0% (0)

Table A44: Clients Report Specific Obstacles to Accessing MNC services (n=292 clients)

Result	4-country average	ALB	ARM	GEO	RUS
No difficulties	91.5% (265)	93% (57)	98% (51)	83%(73)	92% (84)
Client uninsured and MNC services too expensive for client to access	27.5% (100)	0% (0)	0% (0)	10% (9)	100% (91)
Although client a beneficiary of government-funded services, services too expensive for client to access	2.5% (7)	2% (1)	2% (1)	5% (4)	1% (1)
Although client has private insurance, services too expensive to access	0.25% (1)	0% (0)	0% (0)	0% (0)	1% (1)
Client able to see health care provider but cannot afford prescribed medicines	2.25% (7)	0% (0)	2% (1)	5% (4)	2% (2)
Client s able to see the health care provider but cannot afford recommended laboratory tests	2.2% (6)	2% (1)	4% (2)	1% (1)	2% (2)

Table A45: Country-level USAID-supported Activities in Maternal Health in Albania, Armenia, Georgia and Russia

Maternal Health Technical Area	<u>Albania</u>	<u>Armenia</u>	<u>Georgia</u>	<u>Russia</u>
	<p>2003-2009: Improving primary care, including RH/MNC project (Pro Shendetit): 6 districts</p> <p>2004-2007: RH/MCH project: 244 facilities/20 districts</p> <p>2008-2011: Communication for Behavior Change MCH/RH (C-Change): 3 districts</p>	<p>2004-2009: Innovations in Reproductive Health (NOVA) Project: 10 districts/10 facilities</p> <p>2010-2011: MCH Improvement Project (Project NOVA-2): 5 districts/5 facilities</p> <p>2011-2014: HS Star Project</p>	<p>2003-2009: Healthy Women in Georgia: 5 regions/16 facilities</p> <p>2009-present: SUSTAIN project: 9 regions/29 facilities</p>	<p>2008-2012: Institutionalizing best practices in MCH (IBP-MCH): 10 regions/196 facilities</p> <p>2008-2011: Improving Care for Mothers and Babies: 6 regions/50 facilities</p>
Pre-conception counseling		<p>NOVA/HS STAR: Preconception Care Training 10 regions; TOT Yerevan State Medical U: 150 providers trained</p>		
Antenatal Care	<p>2003-2009: > 25% of women in 6 project districts beneficiaries of ANC, MCH, FP, breast cancer & other communication and care activities</p> <p>Provider ANC manual and laminated cards</p>	<p>2007-2011: 5-day ANC training 10 regions; 225 providers trained</p>		<p>2008-present: IBP-MCH provides strong support to ANC services; 545 providers trained 2010-2012</p>
Routine birth care (partogram, etc.)		<p>Integral part of 5-day emergency obstetric care training</p> <p>2009: USAID supported MOH in developing normal childbirth management guidelines, approved as official national policy in 2010</p> <p>NOVA 1 & 2 disseminated new standards among 10 project provider networks</p>	<p>2003-Present: Effective Perinatal Care (EPC) training & implementation support; includes partogram as routine delivery management tool</p>	<p>2008-2011 ICMB: Improvement collaborative on optimizing labor management via partograph</p> <p>Note: no national standard partograph in Russia</p>
Routine post-partum care		<p>2007-2009: 150 providers trained in 10 facilities</p>	<p>2003-present: Routine post-partum care promoted as part of EPC activities</p>	<p>2008-2012: IBP-MCH: Family Centered training, incl. post-partum counseling/care: 109</p>

Maternal Health Technical Area	<u>Albania</u>	<u>Armenia</u>	<u>Georgia</u>	<u>Russia</u>
			above, including monitoring of mother/newborn pair, BF support and counseling (FP, newborn care, danger signs mother and newborn)	providers trained
Hemorrhage prevention (AMTSL) & management		EOC training including AMTSL & PPH management:2007-2011: 160 providers in 10 regions; 2011-present: ongoing training 5 Yerevan and 8 regional hospitals	2003-Present: AMTSL & PPH mgmt. strong focus of all USAID-supported MNH activities to date SUSTAIN project in collaboration with UNICEF developed national protocol on management of PPH	2008-2010: Emergency obstetric care provider training, incl. PPH prevention/management; 41 providers trained 1 region Support for implementation of MOHSD PE/E protocol
Pre/Eclampsia management/ early detection (PE/E)	2009: Support to Albanian Assn. Obstetrics and Gynecology for training support including for area of PE/E	NOVA: 5-day Emergency Obstetric Care training; providers trained: 75 HS STAR continues to support training	Provider training (obstetricians) in 29 facilities SUSTAIN project in collaboration with UNICEF developed national protocol on management of PE/E	2008-2010: Emergency obstetric care provider training, incl. PE/E; 41 providers trained 1 region Support for implementation of MOHSD PE/E protocol
Maternal sepsis		NOVA/NOVA 2: 5-day Emergency Obstetric Care training HS-STAR 4-day Basics of delivery Care training planned for 75 Yerevan & 120 regional providers	SUSTAIN project in collaboration with UNICEF developed national protocol on management of maternal sepsis	
Obstructed labor		NOVA/NOVA 2: 5-day Emergency Obstetric Care training HS-STAR 4-day Basics of delivery Care training planned for 75 Yerevan & 120 regional providers	Management of obstructed labor part of EPC curriculum supported by SUSTAIN and HWG Partogram introduction and	2008-2010: Emergency obstetric care provider training, incl. obstructed labor; 545 providers trained Support for implementation of

Maternal Health Technical Area	<u>Albania</u>	<u>Armenia</u>	<u>Georgia</u>	<u>Russia</u>
			reinforcement and provider training (obstetricians) in 29 facilities	MOHSD new obstructed labor protocol
Client-centered Care Practices	MNCH Behavior Change Communication activities in facilities to strengthen provider interpersonal and communication skills	NOVA/HS STAR Emergency Obstetric Care & Basics of Antenatal-postpartum care trainings include: birth companion, client privacy & confidentiality, client consent, choice of birth position & reduction harmful & non-evidence based practices (episiotomy; enema & shaving)	2003-Present:very strong focus on client-centered practices including birth companion, private delivery room, patient choice of birth position, and elimination of harmful practices (e.g., routine shaving, episiotomy, enema)	Client-centered care including rooming-in of mother and newborn, BF, warm chain strong focus of both IBP-MCH and ICMB projects Family-centered care one of core provider training modules; 545 providers trained 2010-2012 Clinical audits of family-centered practices to improve adherence with best practices
Other	MNCH Behavior Change Communication activities in facilities to strengthen provider interpersonal and communication skills Support to Tirana Univ. to create a Center of Excellence for BCC, including masters level training			IBP-MCH: Support for regular clinical audits to improve quality of care ICMB: Application of improvement collaborative methodology to rapidly extend best practices Post-abortion Care and post-partum FP services

Table A46: Country-level USAID-supported Newborn Health Activities in Albania, Armenia, Georgia and Russia

Newborn Health Tech. Area	Albania	Armenia	Georgia	Russia
	<p>2003-2009: Improving primary care, including RH/MNC project (Pro Shendetit): 6 districts</p> <p>2004-2007: RH/MCH project: 20 districts/244 facilities</p> <p>2008-2011: Communication for Behavior Change MCH/RH (C-Change): 3 districts</p>	<p>2004-2009: Innovations in Reproductive Health (NOVA) Project: 10 districts/10 facilities</p> <p>2010-2011: MCH Improvement Project (Project NOVA-2): 5 districts/5 facilities</p> <p>2011-2014: HS Star Project</p>	<p>2003-2009: Healthy Women in Georgia: 5 regions/16 facilities</p> <p>2009-2013: SUSTAIN project: 9 regions/29 facilities</p>	<p>2008-2012: Institutionalizing MCH best practices: 10 regions/196 facilities</p> <p>2008-2011: Improving Care for Mothers and Babies (ICMB): 6 regions/50 facilities</p>
<p>Essential Newborn Care (ENC) (skin to skin, Immediate and exclusive BF, umbilical care, thermal protection)</p>	<p>2003-2009: Pro Shendetit Project; reached > 25% women in 6 districts with health promotion activities, including focus on ENC, exclusive BF</p> <p>Developed Newborn Care manual and laminated child care cards</p>	<p>5-day Emergency Newborn Care trainings: approx. 75 providers trained in 5 regions</p> <p>2-day training sick newborn care management: approximately 45 providers trained</p>	<p>ENC extensively promoted in 9 regions through training and follow up implementation support cascade (EEBF, dry umbilical care, thermal protection warm chain to prevent hypothermia)</p> <p>2 hour skin to skin contact with mother (or father after cesarian) is promoted</p>	<p>IBP-MCH: ENC one of core provider training modules; 545 providers trained 2010-2012</p> <p>2008-2010 ICMB: Improvement Collaborative (multi-site shared learning) on hypothermia prevention/ EEBF; 6 participating hospitals certified “baby-friendly”</p>
<p>Routine expanded newborn care (exclusive BF, surveillance of newborn, eye care, immunization, vitamin A, etc)</p>	<p>2003-2009: Pro Shendetit Project; CME manuals and materials for health promotion produced and disseminated; promotional campaign and materials distributed</p>	<p>5-day Emergency Obstetric care trainings & 5-day newborn care and resuscitation trainings</p> <p>2007-2009: approximately 70 providers trained</p> <p>2010-2011: approximately 65 providers trained in 10</p>	<p>Routine expanded NC extensively promoted in 9 regions/29 maternities through training and follow up implementation support cascade (EBF, eye care, immunization vitamin K administration for hemorrhage prevention, etc)</p>	<p>2008-2010: IBP-MCH: Family centered maternity care one of core provider training modules; 109 providers trained 2010-2012</p> <p>Clinical audits of routine newborn care to improve adherence with best practices.</p> <p>ICBP 2008-2010: Breastfeeding improvement collaborative 6 regions</p>

Newborn Health Tech. Area	Albania	Armenia	Georgia	Russia
Resuscitation/newborn asphyxia	2003-2009: Pro Shendetit Project: MOH, USAID and FBO supported nationwide training in maternities 2010: Support to Albanian Assn of Neonatology to conduct workshop on neonatal asphyxia and related issues	2004-2006:65 providers trained 2-day course 2004-2009: 180 providers trained in 10 regions 2010-2011: 50 providers trained	Resuscitation part of EPC training and implementation support in 9 regions/29 maternities	2008-2012: IBP-MCH: neonatal resuscitation training 2 regions; 42 providers trained 2008-2011: ICMB: 5 regional training centers established; > 850 specialists trained; 2 Federal Center Simulation-based training centers created; clinical audits
Neonatal Sepsis management		2-day training sick newborn care management; approx. 45 providers trained (neonatologists & neonatal nurses) in Yerevan-based NICU, Inst. of Obstetrics Perinatology & Gynecology	Neonatal sepsis mgmt part of EPC training/ implementation support in 9 regions/29 maternities Neonatologists trained in 29 maternities in neonatal sepsis management SUSTAIN project in collaboration with UNICEF-developed national protocol on neonatal sepsis management	

Newborn Health Tech. Area	Albania	Armenia	Georgia	Russia
Special care for premature infants	2003-2009: Pro Shendetit Project; reached > 25% women in 6 districts w/health promotion activities including focus on ENC, exclusive BF and care of premature infant	2-day training sick newborn care management; approx. 45 providers trained (neonatologists & neonatal nurses) 5-day Trainings Emergency Newborn Care; approx. 75 providers trained (neonatologists, anesthesiologists & nurses)	Premature newborn care management part of EPC training and implementation support in 9 regions/29 maternities SUSTAIN project in collaboration with UNICEF developed national protocol on care of the premature/LBW infant	IBP-MCH and ICMB: Support to implement new MOHSD protocol on management of premature birth and newborn & support for improved regionalization of perinatal care ICMB: Improvement collaborative 6 regions to improve best intra-partum and newborn practices for premature birth/newborns
Pre-discharge counseling (examination, counseling, follow-up)		Post-partum counseling part of 5-day Emergency obst care training & 5-day antenatal/ postpartum care training 2004-09: 150 providers trained 2010-2011: 75 providers trained	Pre-discharge counseling part of EPC training and implementation support in 9 regions/29 maternities	

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