Perceptions and Experiences of Adolescent Mothers Accessing Antenatal Care Services in Volta and Eastern Regions, Ghana, and Singida and Iramba Regions, Tanzania

Final Report

(July 2015)

Prepared for the **Muskoka Initiative Consortium:**

Project undertaken with the financial support of the Government of Canada provided through Foreign Affairs, Trade and Development Canada (DFATD).

Credits

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Acknowledgements

The Centre for Global Child Health is grateful to the many individuals at World Vision and Plan International, both in-country and in Canada, who provided support in a myriad of capacities, particularly to the teams in Ghana and Tanzania who warmly welcomed and supported the research team during the field visits. The Centre for Global Child Health would like to thank Kofi Debrah and Ibrahim Abdallah of Plan Ghana and Peter Nyella and Mwivano Malimwi of World Vision Tanzania for their invaluable contributions during the planning stages of this research. The Centre for Global Child Health would also like to thank the governments of Ghana and Tanzania for their support of this research project.

The Centre for Global Child Health would like to extend sincerest admiration and warmest thanks to the young mothers who participated in this research: for sharing their personal experiences and their ideas on how to improve health outcomes for tomorrow's mothers and children.

The Centre for Global Child Health would like to recognize Dan Sellen for his guidance during the design phase, Jessica Broe-Vayda for her work coding and analyzing the transcripts, and Angela Turner for her work on the initial literature review. The Centre for Global Child Health would like to extend its sincere thanks to the research assistants Priscilla Ama Acquah in Ghana, and Faraja Mbungu in Tanzania for their hard work facilitating the focus group discussions and drafting the transcripts. The entire Centre for Global Child Health team at the Hospital for Sick Children is to be acknowledged for their ongoing support and contributions, including project support provided by Margaret Manley, Katie McLaughlin, Dylan Walters, Jo-Anna Baxter, Danielle D'Annunzio, Sahra Nathoo and Roland Ismael. Recognition also goes out to Sam Newton and Sidney Ndeki who were the Principal Investigators in Ghana and Tanzania, respectively.

The Centre for Global Child Health would like to recognize the funding contributions provided by World Vision, Plan International and the Government of Canada. In particular,

Beverly Edwards, for her pivotal role coordinating all the moving pieces of the MIC-KMI endeavour, and the involvement of the broader MIC-KMI group.

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1. Executive Summary

Background

Adolescence is the transitional life stage between childhood and adulthood, characterized by rapid physical and social shifts. This period presents unique challenges that necessitate tailored support services, particularly for pregnant adolescent women, who face heightened biological risks associated with early pregnancy and childbirth, and who may also be in more precarious social situations. As part of the Countdown to the United Nations 2015 Millennium Development Goals, there is a global emphasis on increasing women's uptake of antenatal care (ANC) services in low and middle-income countries (LMICs), and a concurrent spotlight on adolescent health. Despite this, research on these two subjects has typically occurred in silos, and the specific needs of adolescents have not been carefully explored within the context of ANC services. In particular, the perspectives of adolescents themselves have not been featured prominently within the growing peer-reviewed evidence base for promoting uptake of ANC services.

Study Objectives and Methods

In this study, 15-19 year-old females who had delivered only once were invited to participate in focus group discussions (FGDs) about the experience of attending ANC services, their perceptions towards these services, and their recommendations for ensuring that ANC services are adolescent-friendly. Eight health centres were purposively selected from World Vision Tanzania and Plan International Ghana's maternal, neonatal and child health (MNCH) program sites, funded by the Department of Foreign Affairs, Trade and Development (DFATD) Canada through its Muskoka Initiative.

The overall goal was to understand which components of ANC were working well in the communities studied based on the perspectives of adolescent users, with a view towards improving overall demand for ANC services by adolescents. This study explored the lived experiences of young women who had accessed ANC during their most recent pregnancy. One central objective was to determine what these young women valued and understood about ANC services, as this would help us to identify potential motivators for attending ANC and to gain insights into what factors enabled them to seek care.

Fourteen focus group discussions were carried out in Ghana and Tanzania by locally-hired research assistants (RAs) who were trained by the Hospital for Sick Children (SickKids) research team. Field visits were also conducted by the RAs and SickKids research team, along with discussions with Plan Canada and World Vision Canada, in order to gain a broader understanding of the context in which service seeking by adolescents occurs.

Key Findings and Recommendations

The participants' narratives elucidated a number of major themes related to their common experience of ANC (See Box 1 below). Based on data arising from the FGDs, integrated with concepts from behaviour change theory such as the Health Belief Model, a decision-making model was developed to illustrate the process and context surrounding adolescents' decision to attend ANC.

Emergent themes suggest that while decision-making by adolescent women may be highly individualized, it is also shaped by a unique combination of personal, household and societal factors. Participants shared important perspectives on how they think services could be improved. Recommendations have been sub-categorized into adolescent-specific and general recommendations for enhancing service provision. The study generated a range of ideas that point to gaps in evidence and practice related to ANC, and which may be useful in the development of future research agendas, designing interventions and adapting existing programs.

Key Findings

Aim 1 – How did these young mothers interpret and understand their ANC experiences?

- Participants understood that early pregnancy put them at higher risk of obstetric complications and readily articulated the main purposes of ANC, for example, as a way to reduce pregnancy-related risks.
- Participants narrated their experiences with varying degrees of detail and demonstrated varying levels of comprehension of services received and advice given. Reasons for this are likely multi-fold, relating to the quality of services received, as well as factors such as recall bias, varying comfort levels discussing pregnancy-related matters, and/or FGD facilitation techniques.
- Attitudes towards ANC varied, both within and across FGDs, with some participants expressing emphatic belief in its importance and others expressing greater ambivalence. Across all FGDs participants felt that they had not attained the "acceptable" age for pregnancy, in most cases because they were meant to be completing their schooling. For many, this led to anxiety about accessing ANC services, due to concern over judgment from family, peers and health care providers.
- Within and across FGDs, participants expressed concerns and frustrations over the services received, for a range of reasons. Participants wanted to actively engage with health care providers (HCPs) and to have more opportunities to enhance their own health literacy.

Aim 2 – What did these young mothers feel they gained, and what do they most value, about their ANC experiences?

- In terms of valued components of ANC, there was substantial overlap between the two countries, as well as some distinct themes. Across all FGDs, participants valued the sense of reassurance gained from interacting with health experts and from receiving medications, laboratory test and clinical procedures.
- Participants believed that they were proactively protecting their own health and the health of their unborn child.
- Participants also saw ANC as a gateway to facility-based birth with a skilled birth attendant.

Aim 3 – What are the major factors motivating and facilitating ANC attendance?

- Expectant adolescent mothers each grapple with a unique combination of individual, household, community and systems-level factors influencing their access ANC services. Participants expressed an array of experiences: A specific factor may be cited as a barrier for one individual, but as a motivator for another, even within a single FGD. This highlights the need for programs and policies capable of adapting to individuals' circumstances.
- Adolescents were highly motivated by the opinion of their peers, and by female family member who had previous experience with pregnancy and ANC services. Support from formal authority figures, including the male head of the household, was also important, but to a lesser extent.
- The decision-making model developed as part of the analysis (page 63) aids in conceptualizing the multiple layers and interplay of factors, and points to areas for future research and program development; the accompanying infographic (Appendix N) provides a full breakdown of the major motivating factors.

Aim 4 - How could ANC be promoted to other expectant adolescent mothers?

- Word of mouth was cited as the key channel for learning about ANC services, and participants were heavily influenced to attend ANC by peers and family members, particularly those with positive personal experiences.
- Participants suggest tapping into the enthusiasm of young mothers who had positive experiences of ANC, potentially through peer support groups; many participants were also eager to act as ANC champions.

Aim 5 – How could ANC be more adolescent-friendly?

- Many of the participants' recommendations for enhancing services related to improving quality of care broadly, and would be applicable to all health facility users, while other recommendations were specific to their own demographic.
- Participants emphasized two key systems-level factors that contributed to deterring adolescent women from accessing ANC services. Addressing these issues through a multi-pronged approach would aid in making ANC more accessible to adolescents:
    - In Tanzania, the standard practice at many health centres of conducting partner sexually transmitted infection (STI) testing at the first ANC session proved challenging for some participants who were unable to attend with a male partner, for various reasons.
    - In Ghana and Tanzania, adolescent females are typically required to leave school if they become pregnant, although this practice is reportedly declining in Ghana. Knowledge of this consequences acts as a deterrent for young women when deciding if they should seek care.
- Key recommendations include:
    - Enhancing training for HCPs to be able to deliver ANC in non-judgmental, non-discriminatory ways; adolescents want to be able to trust the HCPs and feel a strong sense of connection and rapport.
    - Providing more one-on-one time with HCPs during ANC, and more reproductive health education.
    - Ensuring more consistent access to medications and equipment, reducing wait times through increasing staff at facilities, and providing more centralized services (laboratory services and counselling at the same location).
    - Addressing discriminatory Health Centre practices (whether intentional or unintentional) through multi-pronged approaches including implementing enabling policies (at the national- and facility-level) and supporting HCPs with the education and resources needed to be able to provide high-level care and counselling.

Box 1. Key Findings

2. List of Acronyms

ANC	Antenatal care
CETS	Community emergency transport system
CHPS	Community-based Health Planning and Services
CHW(s)	Community Health Worker(s)
CM(s)	Community Mobilizer(s)
DFATD	Department of Foreign Affairs, Trade and Development
FANC	Focused antenatal care
FGD(s)	Focus group discussion(s)
GSS	Ghana Statistical Service
GHS	Ghana Health Service
HBM	Health belief model
HCP(s)	Health care providers (HCPs)
HIV	Human Immunodeficiency Virus
INGO(s)	International non-governmental organization(s)
LICs	Low-income countries
LMICs	Low- and middle-income countries
mHealth	Mobile phone health
MIC-KMI	Muskoka Initiative Consortium Knowledge Management Initiative
MNCH	Maternal, neonatal and child health
NGO(s)	Non-governmental organization(s)
PI(s)	Principal Investigator
PMNCH	Partnership for Maternal Newborn and Child Health
RA(s)	Research assistant(s)
SickKids	The Hospital for Sick Children
SES	Socioeconomic status
STI(s)	Sexually transmitted infection(s)
SUSTAIN	Supporting Systems to Achieve Improved Nutrition, Maternal, Newborn and Child Health
TWG	Technical working group
UNPFA	United Nations Population Fund
VSLA	Village Savings and Loan Association
WATCH	Women and Their Children's Health
WHO	World Health Organization

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6. Introduction

6.1 Background and Rationale

Canada's Muskoka Initiative, stemming from the 2010 G8 Summit, sought to assist low- and middle-income countries in preventing maternal and child deaths (DFATD, 2012). As part of this initiative, the Canadian federal government granted funding to the Canadian entities of four major non-governmental organizations (NGOs): Care, Plan International, Save the Children and World Vision (referred to as "the Consortium" from here on). These organizations led ten programs across seven countries: Bangladesh, Ethiopia, Ghana, Mali, Pakistan, Tanzania and Zimbabwe. The collective goal was to help strengthen health systems by improving the quality of, and access to health care services, training health care professionals and volunteers, and delivering behaviour change interventions (including increasing awareness of the importance of accessing skilled health care) for a range of maternal, newborn and child (MNCH) health topics.

As part of the Muskoka Initiative, The Hospital for Sick Children (SickKids) and the University of Toronto Munk School of Global Health partnered with the Muskoka Initiative Consortium Knowledge Management Initiative (MIC-KMI). The MIC-KMI was designed to produce a combined analysis of a set of common indicators using routinely collected data from each international non-governmental organization's (INGO's) Muskoka Initiative project(s). Additionally, two collaborative research projects were carried out on thematic topic areas of exclusive breastfeeding, and antenatal care (ANC), the package of clinical services administered intermittently to pregnant women by trained healthcare providers (HCPs) (WHO, 2006). This report addresses a study conducted on ANC for adolescent mothers in Tanzania and Ghana, in collaboration with Plan International and World Vision.

Adolescent health has progressed far slower than that of younger children over the past 50 years (Sawyer et al., 2012) thus the state of the world's adolescents constitutes a pressing issue on the global health policy agenda. Recently there have been a host of multilateral agency reports outlining the pertinent issues and proposed way forward for improving adolescent health, including a series of reports by The Lancet (Sawyer et al. 2012) and an action framework published by the United Nations Population Fund (UNPFA) (UNFPA, 2013). Other reports, such as Motherhood in Childhood: Facing the Challenge of Adolescent Pregnancy (UNFPA 2013), and, Marrying Too Young: End Child Marriage (UNFPA, 2012), highlight the key social (including gender-related) and health-related challenges faced by adolescent females, particularly those who are bearing children at young ages.

Poor maternal health outcomes for both adult women and adolescent girls in low- and middle-income countries (LMICs) result from numerous underlying causes, including gender-related causes, yet most pregnancy-related complications are preventable through a combination of cost-effective clinical interventions (Pell et al., 2013). Adolescents are at

particularly high risk for pregnancy-related complications, negative social repercussions, and livelihood costs. Given their heightened risks, adolescent females have been identified as a priority group by academics and practitioners alike. While there are numerous evidence-based interventions that can be delivered through ANC to reduce obstetric risk and improve maternal health outcomes, there is little evidence on whether they adequately address the needs of adolescent women, specifically. The voices and specific needs of adolescents themselves are currently underrepresented in the literature, and often are not taken into consideration by researchers, HCPs, or policy makers. To help fill this gap, this study explored adolescent women's perceptions and experiences of ANC, which the World Health Organization (WHO) recommends as an effective, life-saving package of maternal health services known to substantially improve maternal health outcomes (WHO, 2003; WHO, 2006; see also Save the Children, 2013; United Nations, 2013).

6.1.1 Antenatal Care Globally: Definitions & Recommendations

The Partnership for Maternal Newborn and Child Health (PMNCH) describes ANC as a health plan that prepares expectant mothers for childbirth and parenthood (2006). The WHO recommends that all pregnant women receive a minimum of four ANC check-ups. ANC is also designed to provide educational information for expectant mothers and their partners, and to prevent, detect, relieve, or manage three types of health issues during pregnancy: pregnancy-related complications, pre-existing conditions that are exacerbated by pregnancy, and the effects of unhealthy lifestyles. ANC services offer women and their families an entry point into the formal health system, and enable HCPs to promote healthy behaviours such as development of a birth plan, utilization of early postnatal care, optimal breastfeeding practices, and family planning (Lincetto et al., 2006; WHO, 2006b). ANC visits also provide opportunities for identification and management of obstetric complications, testing for human immunodeficiency virus (HIV) and other sexually transmitted infections (STIs), malaria prevention during pregnancy, and administration of tetanus toxoid vaccines. There is evidence that ANC indirectly reduces maternal mortality during labour by encouraging women to deliver with a skilled birth attendant (Rockers, Wilson, Mbaruku and Kruk, 2009). Rockers et al. (2009) found that women who attend ANC are more likely to deliver in the presence of a skilled birth attendant than those who do not.

The traditional ANC model applies a risk approach to determine which women are more likely to experience obstetric complications, and assumes that more visits are indicative of better outcomes for both mother and baby (USAID, 2007). However, recent evidence indicates that not all interventions encompassed in the traditional ANC model are effective at reducing negative health outcomes. This is largely because not all women develop complications at the same time, and many who do not develop complications during pregnancy experience complications during delivery (PMNCH, 2006). The WHO conducted a meta-analysis of ANC evidence and concluded that in most low-risk pregnancies the same health benefits achieved through the traditional model could be realized through a more

focused model (Carroli et al., 2001). Consequently, the WHO currently recommends a focused antenatal care (FANC) model which "prioritizes the integration of evidence-based interventions in a series of four individualized visits throughout pregnancy that include preventative care, necessary treatment and health promotion."

Each of the four visits in the focused FANC model is directed at specific goals and activities. The first visit, which should occur within the first trimester, focuses on assessment for ANC (including whether or not the mother should participate in the four visit model or if she requires additional care) and screening for common diseases or potential complications (PMNCH, 2006; WHO, 2007). Treatment for existing conditions such as anaemia or STIs is provided, as are preventive medicine and vaccinations. Education related to self-care and nutrition, safe sex, alcohol and tobacco use, rest, birth, and emergency planning are also important components of the initial ANC visit. The other three visits build off of the initial visit with continued assessment of maternal health occurring at each session, including, screening for common complications such as anaemia, pregnancy induced hypertension and bacteriuria. Education is also an important component of each visit, with reinforcement of self-care concepts and increasing discussion of birth and emergency planning, infant feeding and postpartum/postnatal care (PMNCH, 2006; WHO, 2007).

FANC is endorsed by the WHO and has been adopted by national governments across many LMICs, including Ghana and Tanzania. For a complete schedule of the recommended services and procedures to be provided at each goal-oriented visit under the FANC model, please refer to the WHO guidelines (WHO, 2002). LMICs adopting the FANC model have made adaptations to fit their respective contexts. Appendices K and L outline checklists for the FANC models for Ghana and Tanzania respectively.

For the purposes of this report, antenatal care services in Ghana and Tanzania are referred to as "ANC" but this is referring to the specific WHO FANC model that each country has adopted (Appendices K and L).

6.1.2 Overview of Study Design, Aim and Research Questions

Through focus group discussions (FGDs), this study captures perspective of young mothers (15-19 years old) who have delivered once and who have attended one or more ANC session(s). The specific research questions and inclusion criteria are detailed in the boxes below (box 2 and 3). Further details of study design and procedures can be found under Methods (page 18)

The **primary questions** of interest are as follows:

1. How do young mothers' interpret and understand the purpose of the procedures conducted, and advice given, during ANC visits?
2. What do young mothers feel they gain from attending ANC sessions, and what elements of ANC services do they see as most valuable?
3. What are the major motivators and facilitators that impacted the participants' decision-making process around ANC use?

Secondary questions of interest include:

4. What do participants suggest as ways to promote and facilitate ANC use for other adolescent females during pregnancy?
5. How could ANC services be made to be more adolescent-friendly?

Box 2. Research Objectives.

Inclusion criteria

1. Females aged 15-19 years who have delivered only once (including live births and stillbirths).
2. AND delivered within the past 12 months
3. AND used ANC services at the target health centres at least once during this pregnancy.
4. AND who are residents within the catchment areas of the target health centres in Singida Rural and Iramba (in Tanzania), and in Volta and Eastern Regions (in Ghana).

Box 3. Inclusion Criteria for Participants.

6.1.3 Defining Adolescent-Friendly ANC and Supportive Counselling

The concepts of adolescent-friendly ANC and supportive counselling are used throughout this report. One of the major objectives of the study, as described in Box 2 is to understand how adolescent mothers think about and define "adolescent-friendly services". The concepts laid out in the WHO report titled "Making Health Services Adolescent Friendly: Developing National Quality Standards for Adolescent Friendly Health Services" were used as a base for understanding why adolescent-friendly services are needed, and what these services might look like. Though adolescents are a heterogeneous group, and their needs vary thusly, two key themes have been identified: Adolescents "want to be treated with respect and to be sure that their confidentiality is protected" (WHO, 2012). From this base understanding, the concept of "adolescent-friendly" services will be explored further, as it relates to ANC uptake.

An additional concept used through the report is "supportive counselling", which is also referred to as client-centred care. This concept embodies services administered by health HCPs, typically midwives and nurses in the case of ANC delivery, that go beyond the basic provision of medications and didactic dispensing of health advice. Supportive counselling refers to health promotion and behaviour change communication strategies that support the client in understanding and engaging with the health information, and in developing goals and action plans to be able to carry out the health promoting behaviours. Under this model, the HCP strives to create a counselling environment where the client sets their own priorities for optimal health-promoting behaviours (Thorne, 2003).

6.2 Literature Review

6.2.1 Marriage & Pregnancy in Adolescence

UNICEF defines child marriage as a marriage where one or both spouses are below the age of 18 (2012). While most countries have laws specifying the marriageable age, tradition and culture often override such legislation, and practices such as monogamous and polygamous early marriage continue (UNICEF, 2005). Rates of early marriage are highest among girls living in families that are impoverished, live in rural areas, and have limited education (UNICEF, 2005; UNPFA, 2012; UNPFA, 2013a). Although rates of early marriage are slowly declining, the practice remains prevalent throughout the world, especially in South Asia and Sub-Saharan Africa (UNFPA, 2012). In Sub-Saharan Africa, approximately 37% of girls will be married before the age of 18 (UNFPA, 2012). In Ghana and Tanzania, rates are estimated to be 37% and 21%, respectively (UNICEF, 2014). Marriage in adolescence often leads the individual to leave school, can significantly limit vocational options, reduce personal freedoms and choices, and can lead to increased exposure to

gender based violence of all forms as well as poorer health outcomes (UNICEF, 2005; UNFPA, 2012).

Approximately 16 million teenage girls aged 15-19 years old in developing countries give birth every year. In 90% of these cases, the mother is already married (UNPFA, 2012). Even in marriages where contraception is used, modern contraceptive methods may be neglected in favour of traditional and less reliable methods (UNICEF, 2005). Approximately 140 million married women (or those in a union) who wish to prevent pregnancy do not use contraception (UN, 2013). Consequently, adolescent girls who are married are significantly more likely to become pregnant compared to girls who are not (UNICEF, 2005). Regardless of marital status, unwanted pregnancy in adolescence often results in early cessation of schooling, restricted autonomy, reduced earning potential, and increased poverty (Atuyambe et al., 2008; UNPFA, 2013a).

Adolescents face significant physical and psychosocial risks during pregnancy, delivery, and the postpartum period. Physical complications of early pregnancy include anaemia, hypertensive disorders, sexually transmitted infections, preterm labour, and prolonged or obstructed labour, (Mngadi et al., 2002). The latter puts adolescents at high risk of obstetric fistula, a debilitating condition characterized by an abnormal hole between a woman's genital tract and either the urinary or the intestinal tract (Tebeu et al., 2012). Approximately 2 to 3.5 million women in LMICs live with this preventable condition, with many women reporting that it developed during an adolescent pregnancy (UNPFA, 2013a). Pre-existing conditions such as malnutrition, HIV and malaria may also be exacerbated by early pregnancy (Kidanto, Mogren, Lindmark, Massawe and Nystrom, 2009; Rockers, et al., 2009; Watson-Jones et al., 2007).

Further, fetal and infant mortality (particularly during the first week of life) are 50% more common among babies born to adolescent mothers (UNPFA, 2012). Prenatal mother to child transmission of HIV and other STIs is another high-risk factor for adolescent mothers and their children. Youth aged 15 to 24 have the highest prevalence of STIs including HIV (UNPFA, 2013a; Yahya-Malima, Olsen, Matee and Fylkesnes, 2006), and therefore have an increased risk of transmitting infections to infants. Improperly managed STIs can increase the risk of obstetrical complications, including ectopic pregnancy (a potentially fatal complication), premature delivery, and neonatal complications such as low birth weight and other physical and neurological conditions (UNPFA, 2013a).

The multitude of risks associated with adolescent pregnancy and childbirth point to the critical importance of targeted care by HCPs during pregnancy for young women. Regular attendance of ANC by this cohort provides an opportunity for HCPs to address both the clinical and psychosocial risks faced young pregnant women.

6.2.2 Factors affecting ANC uptake

In low-income countries (LICs), an average of only 64% of all pregnant women attended four or more antenatal care sessions from 2007-2014 (WHO, 2014). In Sub-Saharan Africa, approximately 70% of women attend ANC at least once, however only 44% receive the four recommended visits (PMNCH, 2006). This pattern holds true in Tanzania, where the majority of pregnant women (88%) receive at least one ANC visit but only 43% receive the required four ANC visits. In Ghana, 96% of women attend at least once, and 87% attend four or more times (UNICEF, 2013). In both settings, women of all ages tend to initiate ANC later than the recommended timeframe of within the first trimester (Gross et al., 2012; Ghana Statistical Service (GSS), Ghana Health Service (GHS), and Macro International, 2009).

While there is limited national-level data on ANC uptake among adolescents in these contexts, a plethora of research suggests that in general, adolescents access fewer ANC visits, and initiate attendance even later than older women (McCaw-Binns, La Grenade, and Ashley, 1995; Van Eijk et al., 2006; Edirne et al., 2010; Kurth et al., 2010; Ochako et al., 2011). Monitoring data provided by Plan Canada from their Women and Their Children's Health (WATCH) program sites in Ghana indicate that at baseline (the start of the WATCH program), 72% of females <19 years attended at least four ANC visits during their previous pregnancy, compared to a slightly higher rate among women 20-49 years (79%). At the end of the WATCH program implementation phase, 87% of females <19 years reported attending at least four ANC sessions during their last pregnancy, compared to 90% of women 20-49 years. According to this data from Plan, in these contexts differences between age groups exist, albeit not as pronounced as the peer-reviewed literature suggests. However, it should be noted that these surveys were not necessarily designed to provide a representative sample of each age strata; therefore, the data should be interpreted with caution. In Tanzania, World Vision data indicates that at the start of the Supporting Systems to Achieve Improved Nutrition, Maternal, Newborn and Child Health (SUSTAIN) program, 43% of women (all ages) reported attending at least four ANC sessions during their previous pregnancy, compared to 50% at the end of the program[1].

Barriers to ANC uptake have been the focus of considerable research (Finlayson and Downe, 2013; Simkhada, Teijlingen, Porter and Simkhada, 2008). Major barriers include perceived risk of lost family resources, physical danger associated with travel, poor quality services (perceived and actual), and experiences of physical and emotional abuse during care (Finlayson and Downe, 2013). Other factors found to negatively impact ANC use include: high parity, low education levels, financial barriers, long distances to health facilities, poor quality of health infrastructure, and gaps in human resources for health (Simkhada et al., 2008). Further, in many sub-Saharan African countries, cultural beliefs about vulnerability during pregnancy and the potential influence of witchcraft may lead

[1] Monitoring data disaggregated by age was not available from World Vision's SUSTAIN program sites.

women to delay seeking ANC or disclosing their pregnancies early on (Simkhada et al., 2008; Gross et al., 2012; Chapman, 2006). Adolescents encounter many of these barriers, however less is known about the unique challenges faced by younger women.

The following sections elaborate on some of the key factors known to influence ANC utilization in LMICs. Several cited studies focus on adolescents; however, the majority of the literature is not specific to an age range and includes pregnant women of any age.

Education Level and Socioeconomic Status

Boller and colleagues (2003) performed an audit of 16 public and private health care providers in Tanzania and gathered feedback from over 300 patients (9% of which were adolescents). The authors found that women's use of ANC services was related to household socioeconomic status (SES). Similarly, an analysis of the 2008 Ghana Demographic and Health Survey supports this finding, reporting strong associations between women's formal education (a marker for SES), their health knowledge, and consequently, their utilization of ANC and other available health services (Greenaway et al., 2012).

Like most women of childbearing age in LICs, adolescent females are largely dependent upon their husbands or partners to attain funds necessary to access health care through the peri-partum and post-partum periods (Gross, Mayumana and Obrist, 2013). These dependencies are exacerbated among adolescents, as they are typically less financially secure than adult mothers. Thus, the SES of the male head of the household appears to be a key driver of ANC utilization. Rai and colleagues (2012) performed an analysis of data from over 2000 adolescent participants in the Nigeria Demographic Health Survey and found that the SES of both the expectant mother and her husband was a significant factor in adolescent mothers' ability to access ANC; those with higher SES had greater access to ANC than those with lower SES. A similar study in Malawi by the same group reported similar findings (Rai et al., 2013).

Social Context and Gender Norms

Gender norms and roles are also important determinants of women's ANC utilization, as service seeking is often strongly influenced by a woman's partner (Upadhyay et al., 2014). For example, a study in Nigeria found that those who chose a home birth option over a health care service did so to please their husbands (Iyaniwura and Yussuf, 2009). Additionally, in a qualitative study of couples in Tanzania, both men and women felt that it was the father's responsibility to manage all costs associated with ANC and other health needs throughout pregnancy (Gross et al., 2013).

In many contexts, strong social norms influence the extent to which male partners take on household activities during pregnancy. Such constraints may lead to barriers to accessing ANC if a women is unable to take leave from her daily routine in order to seek services (Gross et al., 2013). Furthermore, in some cultures, it is considered taboo to openly

acknowledge and discuss one's pregnancy; thus pregnant women may be less likely to seek health services that are specific to pregnancy (Brighton, D'Arcy, Kirtley and Kennedy, 2013; Gross et al., 2013; PMNCH, 2006).

Familial influence is also an important factor for adolescents. If a family member realizes that a young woman is pregnant before they disclose to others, they may encourage earlier initiation of ANC (Pell et al., 2013). Alternatively, if other female relatives living in the home have never accessed ANC themselves, then are likely to be unsupportive of service seeking by the adolescent. The context of the pregnancy, particularly for adolescent girls, seems to limit their autonomy and ability to access care; if they are married there is a large dependence upon her husband's willingness to initiate care, and if she is unmarried there is substantial dependence upon her family to do so (Pell et al., 2013).

Transportation

In a survey of 52 midwives in Zimbabwe, it was found that low education, cost, and difficulty accessing safe transportation were significant determinants of adolescents' late or non-utilization of ANC services (Chaibva, Ehlers and Roos, 2010). Through in depth interviews and focus groups in rural Tanzania, Mrisho and colleagues (2009) found that women had largely positive feelings related to ANC, however many women would typically initiate ANC later because they wanted to avoid multiple clinic visits due to both lack of money and the constraints of travel in rural environments. Travel barriers were also found to be a significant obstacle to utilization of care, as region of residence (i.e. rural or urban) tends to dictate women's ability to access care (McNamee, Ternent, and Hussein, 2009; Afulani, 2015). In a 2013 meta-synthesis of 21 qualitative studies, Finlayson and Downe found that travelling to an ANC provider presented potential physical danger for women in rural areas, due to poor road conditions and the potential for physical assault (from wild animals or other humans, often male aggressors).

Planned vs. Unplanned Pregnancy

Whether or not a pregnancy is planned impacts initiation of ANC. Exavery and others (2013) surveyed over 900 women between the ages of 15 and 49 in Ghana and found that women who had planned pregnancies tended to initiate ANC within the first trimester, and those with unplanned or mistimed pregnancies tended to initiate ANC much later.

Parity

Generally, the more children a woman has, the less likely she is to utilize ANC services (Van Eijk et al., 2006; Ali et al., 2010). Most first-time mothers tend to either initiate ANC earlier into the pregnancy due to uncertainty and perceived higher risk (Pell et al., 2013). For adolescent primagravidae, initiation of ANC is strongly influenced by pregnancy disclosure; many young women choose to delay disclosure in order to attend school for longer periods of time, and to avoid stigma if they are unmarried (Pell et al., 2013).

Quality of Care

Both perceived and objectively measured quality of care (i.e. availability of trained staff, services, medicines, equipment) have been shown to influence women's uptake of ANC services in many settings. For example, Duggan and Adejumo (2012) investigated adolescent mothers' perceptions of maternity care through in depth-qualitative interviews of 18 women in KwaZulu-Natal, South Africa and found that important factors for participants included interactions with health care providers, wait times, comfort level of the facility, quality of health education and support received for childbirth and parenting.

A Nigerian study found that decisions to access a health facility were strongly influenced by the SES of both parents, and their perception of the quality of care (Iyaniwura and Yussuf, 2009). In an audit of adolescent prenatal care in Bulawayo, Zimbabwe, 80 files were examined and investigators found that provider notes were often incomplete, the gaps most apparent in areas related to health promotion and social history (Chaibva et al., 2011).

Quality of care seems to be an important factor, however a cross-sectional study conducted in rural regions of Burkina Faso, Uganda and Tanzania found that although HCP compliance to ANC guidelines was inconsistent, women were still motivated to receive services (Conrad et al., 2012). This may indicate that the perception of quality is more important than objective measures of quality (i.e. as defined by WHO guidelines). This finding supports the work of Boller and others (2003) who found that the quality of care provided in private facilities was only marginally higher than the quality received in public facilities, however women with higher SES typically utilized the more expensive private care instead of public care. These findings are in line with a similar study by Cartoof, Klerman, and Zazueta (1991), which revealed that both quality of care and attractiveness of the facility were important determinants of timely ANC uptake. Perceptions of convenience and comfort, as well as positive interactions with clinic staff, were also important factors in treatment initiation and compliance amongst this age group. A recent study in Ghana found that women experience significant disparities in ANC quality, with poor illiterate women receiving the lowest quality of care (Afulani, 2015).

Patient/provider dynamics play an important role in determining ANC uptake. Numerous studies conducted throughout Africa by Pell et al. (2013) found that the desire to avoid chastisement from health care workers sometimes encouraged timely ANC attendance. In public facilities, booking interactions also play a large role in initiation of services. In a study examining booking practices in public facilities in Johannesburg, it was found that 19% of the 198 women interviewed who attempted to initiate ANC within the first 20 weeks were asked to return in a month to book, resulting in late ANC initiation, into the second trimester (Solarin and Black, 2012).

6.2.3 Unique Barriers to ANC Utilization Among Adolescents

ANC uptake is believed to be lower among adolescents than older women, in part because they tend to initiate ANC later in pregnancy, and therefore miss the opportunity to attend the first few recommended visits (McCaw-Binns, La Grenade, and Ashley, 1995). In addition, adolescent females face greater barriers to accessing ANC, increasing the likelihood of complications related to pregnancy and childbirth (UN, 2013; UNPF, 2012). Adolescent girls are more likely to be stigmatized due to early pregnancy, and as a result, may have lower levels of family and social support as compared to older women. They may also delay pregnancy disclosure out of fear of being forced by administration to leave school (Pell et al., 2013). Adolescents also tend to have limited autonomy with respect to decision-making and financial resources. These "demand-side" barriers can limit young women's motivation and/or ability to seek out ANC services. On the other hand, "supply-side" barriers include health system-level factors such as a lack of adolescent-friendly services, and negative attitudes of HCPs (Chaibva et al., 2010).

7. Methods

7.1 Study Design

This is an exploratory multi-country qualitative study employing FGDs with adolescent users of antenatal care services. Data was collected from within specific WATCH and SUSTAIN program implementation areas in Ghana and Tanzania, respectively.

The research topic was selected through an iterative process involving the Consortium team members. Broad areas of interest were selected for the two research projects under MIC-KMI, which covered priority areas for the INGO partners. Each of the two research projects had two INGOs as the leads: World Vision and Plan Canada are the leads on the ANC study and Care Canada and Save the Children Canada are the leads on the second research project, focused on exclusive breastfeeding. Based on the broad topics and lead INGOs, countries of focus were selected: Ghana and Tanzania were selected, as there is an ANC focus in both WATCH and SUSTAIN. Through a series of meetings, the topic was further refined and the study design and implementation strategies were developed.

A two-tiered sampling strategy was used: First, health centres within the WATCH and SUSTAIN program areas were purposively selected, based on criteria established a priori to meet the study objectives (as described in Section 7.3), followed by random sampling of health centre clients meeting the study inclusion criteria. Methods for site selection and participant sampling are detailed below. The subsequent sections also detail the FGD procedures, ethical considerations and analysis methods.

7.2 Research Team Structure

The ANC Research Project Team included members from each of the INGOs in the Consortium, in-country NGOs (Plan Ghana and World Vision Tanzania), SickKids and local Principal Investigators (PIs) from Praxis Consulting (Tanzania) and Kintampo Health Research Centre (Ghana). Appendix I includes a detailed table of the roles and responsibilities of each group within the collaborative research team. Note, within the categories in the appendix there were multiple individual team members with designated roles and responsibilities. The table provides a high level description and is not exhaustive in its description of team members, nor their individual contributions to the project. In this report, “The ANC research team” is an umbrella term used to refer to the technical working group (TWG) representatives, SickKids, the INGO representatives in Canada, Ghana and World Vision, and the in-country PIs.

7.3 Site Selection and Participant Sampling Approach

A purposive sampling strategy was employed, in keeping with theoretical approaches to qualitative research: The goal here is to seek out a specific sub-set of the population with relevant insight, rather than seeking to collect data from a representative sample of a population.

As mentioned above, this study employed a two-tiered sampling approach. A purposive sampling method was used at the level of the health centre for several reasons: First, given potential variation in the demographics of the populations served by health centres, the team wanted to be certain that there would be sufficient numbers of potentially eligible participants for multiple FGDs. Similarly, there is a wide range of services offered within the various types of health centres operating in the program areas where WATCH and SUSTAIN were being implemented. The team needed to ensure that the selected centres were offering comparable packages of services, in order to be able to compare across sites (Refer to Appendices A to C for a summary of selected health centres, based on data provided by the INGOs). The team also targeted health facilities with functioning community health worker/community mobilizer teams, in order to have means of tracing randomly selected participants and inviting them to participate in the FGDs. Finally, health centres needed to be physically/geographically accessible to the field teams conducting the research. Plan Ghana and World Vision program managers selected the data collection sites based on the criteria described above, which were established by the research team to meet the study objectives. Based on these criteria, the project teams at Plan Ghana and World Vision Tanzania each selected four appropriate health centres.

In order to tap into a range of experiences and insights, the team decided to sample from different communities. Two health centres from each of two regions in both countries were selected to provide the desired heterogeneity of experience/context, while also being logistically feasible for a single research team to collect data across all sites. It should be noted that the FGDs each had a mixture of participants, and didn't seek to stratify based on community of origin, religion, relationship status (or any personal characteristics beyond those laid out in the inclusion criteria). This approach was chosen in order to generate discussion from individuals with varied experiences and characteristics, but has implications for data analysis: it is not possible to make causal statements (nor to draw firm conclusions) about the role of personal characteristics such as religion or relationship status on the views expressed. Rather, the FGDs were designed to be formative and exploratory in nature: to elucidate major themes and generate recommendations for further investigation.

The target was to conduct two FGDs at each of the eight selected health centres. This number was purposively selected[2] by the research team, based on timelines and availability of resources, as well as estimates of the number of adolescents meeting the study criteria within the WATCH and SUSTAIN project areas. The decision around the target number of FGDs was largely based on the data collection window (i.e. two weeks in each country) and budgetary considerations, which allowed for the hiring of one RA and one note-taker in each country. Considering these parameters, a target of 16 FGDs spread across two countries, four regions and eight different health facilities would provide a rich data set with sufficient variation in environmental, behavioural and personal factors.

At two health centres (Dabala and Anyaboni in Ghana) there were insufficient eligible participants to fill two FGDs. Therefore, only one FGD was conducted for each of these centres.

In each country there is a tiered system of health facilities, ranging from dispensaries that offer a limited range of services, to regional hospitals offering much more comprehensive care. For this study, the team chose to focus on health centres as the target level of health facility because they provide prenatal and delivery services and are staffed with skilled health professionals, more so than Community-based Health Planning and Services (CHPS) clinics in Ghana or dispensaries in Tanzania, which are more variable in the level of services and type of staff available.

[2] A common qualitative methodology is to continue sampling and conducting data collection within the defined population until "saturation" is reached (Green and Thorogood, 2009), that is, until there are no new themes emerging from the FGDs. However, "saturation point" is arguably difficult to define (ie. what constitutes a "new" idea versus a nuanced variation of an existing idea?). Furthermore, sampling until saturation requires a more open timeframe and long-term presence in the target community than could be attained for this particular study.

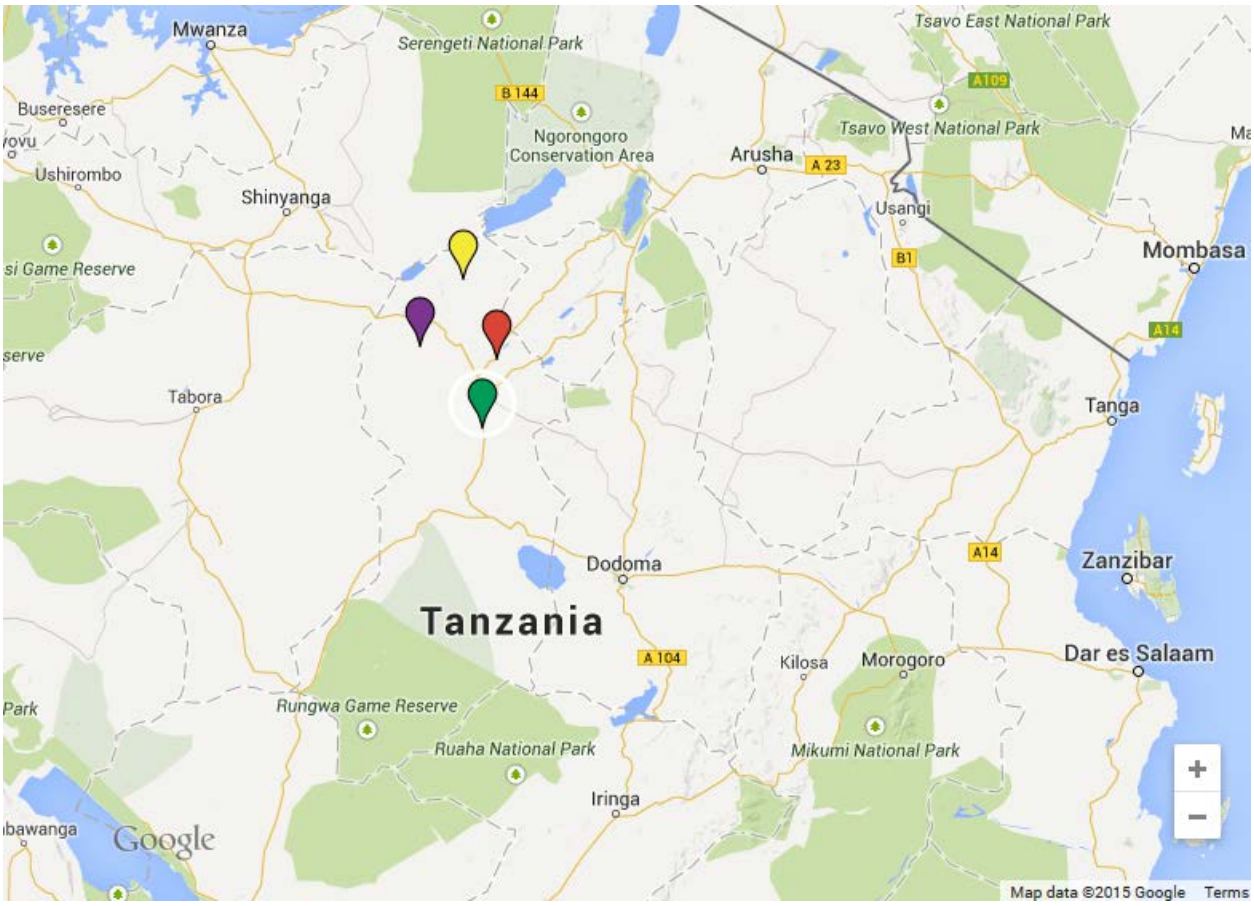

Figure 1. Map of data collection sites in Tanzania. RED: Ilongero YELLOW: Mkalama PURPLE: Ndago, GREEN: Ikungi

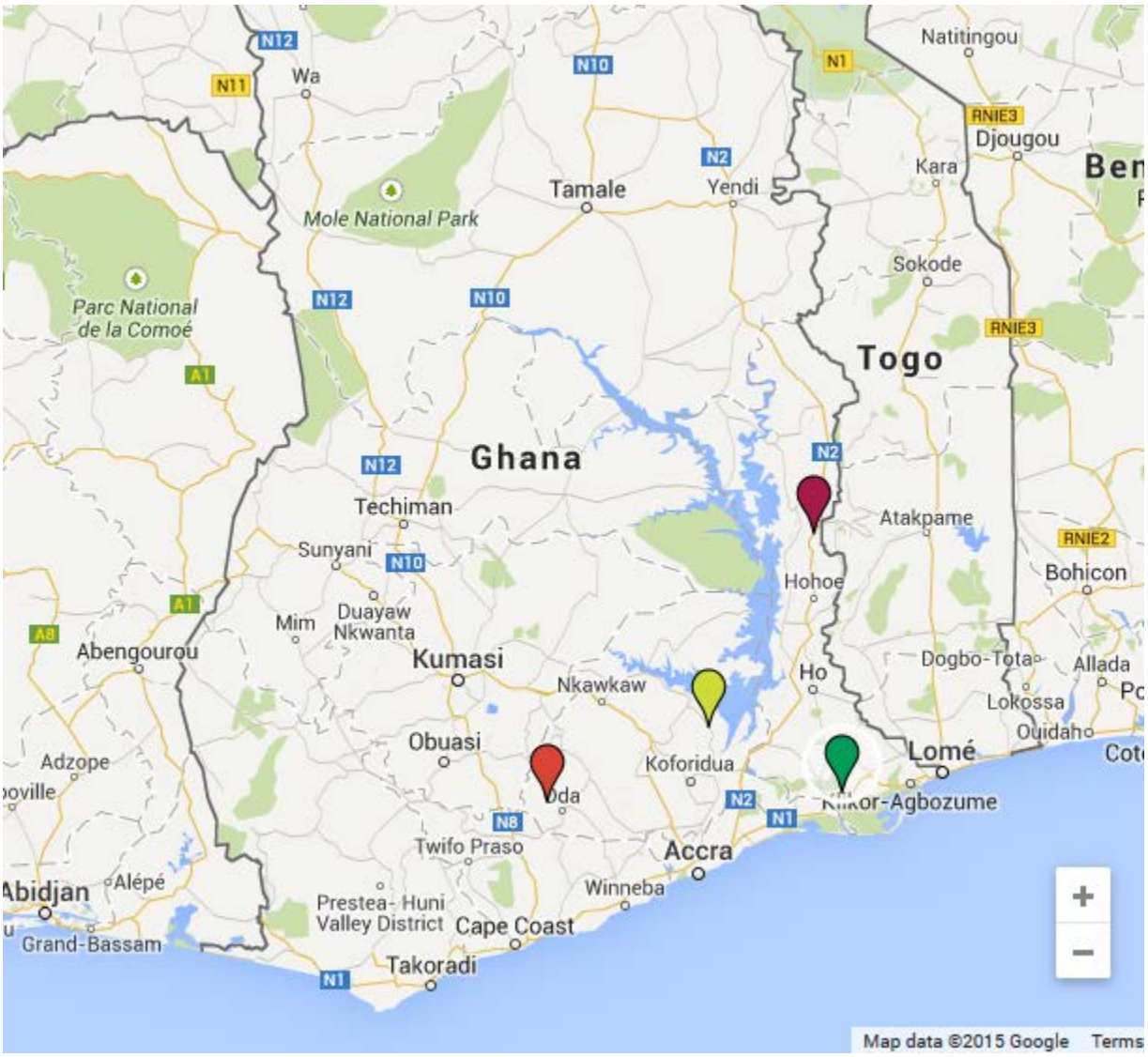

Figure 2. Map of data collection sites in Ghana: RED: Adawso Health Centre, YELLOW: Anyaboni Health Center, PURPLE: Ahamansu Health Centre, and GREEN: Dabala Health Centre.

Once the health centres were selected and the local research teams recruited and trained, each of the health centres were visited (by a team comprised of the SickKids researchers, in-country RAs and representatives of the Plan Ghana or World Vision Tanzania). The purpose of the health centre visits was multi-fold. First, the aim was to seek approval and buy-in from the local authorities and health centre staff. Plan Ghana and World Vision Tanzania staff spoke with the necessary authorities to introduce the study broadly, and then the research teams spent half a -day at each facility, meeting with local authorities, facility staff and Community Health Workers (CHWs)/Community Mobilizers (CMs). Local

authorities were informed of the study and permission to conduct the study was sought, however they were not involved in the design or implementation of the study.

During the health centre site visits, ANC rosters were used to create lists of patients meeting the eligibility criteria. In line with ethical approval from the Hospital for Sick Children and the national ethics boards in Ghana and Tanzania, the research team only collected basic information to screen individuals for eligibility. The data was not used in the analysis without consent (see Ethical Considerations section below, page 35, for further details). The site visits also provided the opportunity for the SickKids research team to observe the facilities and gain a more fulsome understanding of the local context, to gather logistical information for the FGDs and to help inform the later analysis stages (see Box 4 for sample of questions asked during health centre visits).

Health Centre Visits – Sample of Questions Asked

• Languages spoken in the catchment area
• Details of the ANC services offered
  ◦ Specific days? Who is responsible for delivering the services?
  ◦ Have ANC services been tailored for adolescents?
• Most appropriate days and times to conduct FGDs?
• Farthest distance a pregnant woman would travel to reach the health centre?
• Spoke with a CHW or community mobilizer in each setting to get a sense of transport costs and refreshment costs.
• Neutral location for conducting FGD?

Box 4. Examples of questions asked during health centre visits

Study participants were randomly selected from the compiled lists of eligible health centre clients. Standard focus group methodology suggests that six-eight participants per FGD is a reasonable target (Krueger ,2002). This number allows for a range of opinions, experiences and ideas that can create stimulating discussion, while maintaining an intimate group atmosphere that promotes sharing of sensitive information ('sensitive information' meaning topics that may be considered inappropriate to talk about in a public setting, or may be emotionally distressing to verbalize).

The team over-recruited for each FGD by approximately 20% in order to account for some non-participation. Hence the CHWs/CMs were requested to invite eight-ten mothers to participate in each FGD, expecting that six-eight would actually make it on the scheduled day and time.

In all but two sites, the number of eligible participants exceeded the target of ten participants per FGD, therefore the research team used the random number generator to select a sample of participants to invite to the study. In the event that a selected individual

could not be reached, or declined to participate, another number was randomly generated by the RA and provided to the CHW/CM.

Random selection of the FGD participants was an essential element of the study design, particularly because the team relied on CHWs/CMs to trace potential participants and invite them to be part of the study. The team aimed to ensure that participants coming to the FGDs would have a variety of experiences with ANC. Random selection helps to avoid possible selection biases that could be introduced by CHWs/CMs themselves: for example the selection of participants who only had positive experiences of ANC services, or participants who are easiest to access geographically. Moreover, had the local NGO teams or CHWs/CMs been able to select participants purposively, there may have been some systematic bias to the type of participant in the FGDs which could have shifted group dynamics in ways that were invisible to the research team.

Once the potential participants had been randomly selected, CHWs/CMs from their communities met individually with potential participants to inform them about the study using a standard script prepared by the research team (and translated into the local language as needed). Individuals were invited to participate in the study, and those who agreed were given the details about the timing and location of the FGD several weeks in advance. Participants were reminded of the FGD one to two times by the CHW/CM. If a randomly selected individual did not agree to participate, the CHW/CM contacted the RA and a replacement name was randomly selected.

7.4 Study Procedures

In Ghana, the field visits occurred from July 19th to July 29th, 2014 and included members from the SickKids research team, local RA, Plan Canada representative. Once the final ethical approval was obtained the RA returned to the sites to screen the ANC rosters, compile lists of potential participants and plan the logistics of the FGDs. Finally, the FGDs were conducted from September 17th to 30th, 2014. Transcription and translation occurred from October through December 2014, with quality assessments taking place from December 2014 through February 2015.

In Tanzania the field visit occurred from October 3rd to 12th, 2014 and included members from the SickKids Research team, local RA and in-country PI and in-country NGO representative. Because ethical approval was already obtained, the ANC rosters were screened and lists of potential participants were compiled during this initial set of site visits. The FGDs were conducted from November 3rd to November 11th, 2014. Transcription and translation was completed at the end of December 2014. Quality assessments of the transcripts were conducted from January through February 2015.

In both Ghana and Tanzania, an RA was recruited and trained by the SickKids research team during the field visit. The RA participated in the health facility visits in their respective country. The RA was responsible for organizing recruitment of the participants and for logistical considerations of the FGDs, with support and guidance from the SickKids Research Team. The RA was also in charge of facilitating the FGDs with the support of a note-taker (also hired locally). These individuals were independent of the health centres and INGOs. The SickKids research team elected not to be present during the FGDs; the team felt that the young mothers would be more comfortable discussing issues related to child bearing with a female RA of similar age and background.

The research team established criteria where the FGDs would be held, in order to create a comfortable and familiar environment conducive to open discussion about potentially sensitive topics: The FGD were held in a space that has been identified as welcoming/neutral by the community; they could not be held at, or near, the health centre where the participants had attended ANC (in order to disassociate the study from the health centre). Additionally the FGDs were held in an indoor space to protect the privacy of the participants and to facilitate digital recording of the conversations.

On the day of the FGD, the RA obtained individual informed consent from the participants when they arrived for the FGD (refer to Ethical Considerations section, page 35). The RA also administered a short individual-level questionnaire. This questionnaire was anonymous and the results were not shared during the FGD. While the RA was conducting the intake activities, the note-taker conversed with participants and helped to create a relaxed, informal environment. Additional information about the consent process, confidentiality and data security considerations can be found in the study protocol as well as the RA training manual (available upon request).

Each FGD began with the RA reviewing the information that CHWs/CMs had already provided to participants about the purpose of the study and important ethical considerations. Refreshments were offered, typically at the end of the FGD. Transportation costs were covered; no additional incentives were provided, in line with Research Ethics Board standards.

The FGDs were semi-structured, intending to cover a range of major topics related to the study aims, but without constricting the flow of the conversation. The RA was trained in using a semi-structured discussion guide (see Appendix D). The discussion guide was divided into major sections, each representing a topic of relevance to the aims of the study; specific questions were laid out within the sections as a means to help the flow of conversation. Facilitators were instructed to be flexible and to allow participants to steer the conversation towards topics of most interest (within the aims of the study). Facilitators were trained to ask follow-up questions to probe deeper into comments, and were told to avoid prompting (ie. not to give examples or specific details that could constrain the participants' thoughts about a topic).

In several parts of the discussion guide, a generalized case example was presented by the facilitator as a way of introducing a topic, particularly when talking about issues that may be challenging to speak about in a public forum, for emotional, cultural or other reasons. The facilitator then asked the participants to weigh in on their opinions of this situation. This is a common approach used when talking about sensitive topics, particularly with groups that may be hesitant to share their opinions. It allows a participant to share their ideas in a more general sense, and reduces anxiety about divulging personal details to the group.

The FGDs were audio recorded and the note-taker also took detailed written notes as well as observations of group interaction, mood and other relevant details to provide context to the analysis. Participants were instructed to speak one at a time in order for all ideas to be captured by the recording and for ease of transcription. Two tape recorders were used in each FGD, in case one failed. The primary tape recorder was passed around the room as participants speak, and the secondary tape recorder was left in a central part of the room.

FGDs were conducted in the local languages of each country/region (i.e. Swahili in Tanzania, and Twi, Ewe or Krobo in Ghana). The RAs and note-takers were proficient in these languages.

Specific consideration was given to scheduling the FGDs. The team designed a schedule that spaced the FGDs close enough together that the RA would recall their training and remained focused, but spaced out enough to avoid fatigue. At most, two FGDs were scheduled within one day. During the health facility visits, the team gathered information on local market days and typical schedules in order to select FGD timing that would be minimally disruptive to participants.

As the SickKids study coordinator was not present for the FGDs, she met with the RAs by Skype to discuss impressions of the sessions in order to give the SickKids Research Team contextual information to help ground the analysis and interpretation. These meetings occurred shortly after the FGDs took place, to ensure that impressions were fresh and details easily recalled.

7.5 Transcription and Translation Methods

All FGDs were recorded, transcribed and translated from Swahili, Twi, Ewe and Krobo to English by RAs. Because they had intimate knowledge of the material from leading the sessions, they were therefore best positioned to execute these tasks.

The RAs were trained to conduct simultaneous translation and transcription of the audio recordings. This involved an iterative process of listening to a portion of audio, transcribing

the conversation in English, and then listening to the section again to ensure that no details were lost. They were instructed to transcribe each participant's response, in as much detail as possible without collapsing or summarizing responses. The RAs were also instructed to add relevant notes about the context in square brackets. For example, they noted if there was laughter, or if something disruptive happened in the background. At the end, the RAs were instructed to listen to the whole recording again, following along with the transcribed text, to check for any errors or omissions.

The in-country PIs conducted quality and consistency checks of the transcripts using a standard protocol developed by the SickKids research team (refer to appendix H for the assessment form). The SickKids research coordinator reviewed each of the assessments and followed up with the both the reviewers and the relevant RA to clarify any issues and make edits, where necessary. The transcripts were also checked for any personally identifying information, which was removed before analysis began.

7.6 Coding and Data Analysis Methods

The analysis followed the principles of conventional content analysis, whereby the aim is primarily to describe a phenomenon and secondarily to draw linkages to existing models and concepts by comparing and contrasting results with similar studies, and explore how the results fit or do not fit with models that have been built through previous research (Hsieh & Shannon, 2005).

The principles guiding the approach to qualitative analysis stemmed from the Focus Group Discussion Kit (Kreuger et al., kit6, p4), as follows:

- Disciplined process
- Systematic steps
- Defined protocol
- Verifiable results
- Multiple feedback loops

The analysis largely followed an inductive approach, with themes and theory arising from the data (Green & Thorogood, 2009), rather than a deductive approach where data collection and analysis is designed to test the validity of specific ideas and theories. For this reason, a semi-structured interview guide was used and prompting was discouraged. Similarly, a basic coding framework was developed and applied, in order to avoid over-constraining the foci of the analyses under each study aim. The SickKids study coordinator and two experienced graduate students, conducted the analyses using NVivo 10.

An initial coding framework was developed based on broad themes identified through an initial review of the transcripts. In keeping with the approach of conventional content analysis, the coding structure emerged from the data, not from pre-conceived categories

(Green & Thorogood, 2009; Hsieh & Shannon, 2005). The framework was developed in NVivo based on the nested nodes function (major 'parent' nodes with nested 'child' nodes). At most, one layer of nested 'child' nodes was created under major parent nodes in order to avoid fragmenting and over-compartmentalizing the data.

Two individuals coded each of the transcripts. The 'primary coder' analyzed the transcripts and was able to make minor changes to the coding framework. Then a 'second coder' reviewed the primary coders analysis and made additions or changes based on their impression of the data. Each coder also kept a 'coding diary' within NVivo, to note down ideas about emerging themes, surprising findings, connections between FGDs, and other details useful for analysing and interpreting the data. The study coordinator supervised the graduate students' coding process through regular meetings. At these meetings, differences in the primary and secondary coding were discussed and resolved until all team members were satisfied with how the transcripts were coded. These discussions also acted as the initial round of analysis and interpretation, whereby team members had the opportunity to discuss their impressions of the data and to begin drawing connections within and across FGDs.

Once the coding was finalized, The SickKids research team independently ran queries, read and re-read the coded transcripts in order to synthesize themes and to identify interesting outliers and surprising features of the data. The analysis team met to discuss findings and then drafted summaries of the findings for each aim (see section 6.1.2 for Study Aims and Research Questions) in the form of briefing notes. The team also kept track of questions emerging during the analysis process – questions related to gaps in the data and related to nuances of the culture and context that were unfamiliar to the SickKids research team. These questions were used to inform the discussions within the Report-back phase, as described below.

Results summaries and guiding discussion questions were prepared and circulated to research team members, including in-country PIs, INGO representatives in Canada, Ghana and Tanzania, and RAs. Calls were scheduled with the team members to discuss their impressions of the findings, to validate the interpretation of the data, and to fill in any gaps in the interpretation. Written feedback was solicited where calls were not feasible. This process was designed to enhance the internal validity of the analysis: multiple sets of eyes looking at the themes emerging from the analysis helped to enhance validity of the interpretation, particularly when team members come from a variety of backgrounds and bring different perspectives to the table (Hsieh & Shannon, 2005).

The facility visits also provided a means through which the research team could informally collect observational data in order to better understand the local contexts. This organic understanding of the context was essential for helping the SickKids research team as they coded, analyzed and interpreted the data i.e. it helped ground the analysis within the local

context, and also helped alert the team to their own gaps/limitations in understanding the context.

7.7 Ethical Considerations

Data Security and Protection of Subject Confidentiality
As outlined in the Research Protocol, data collected as part of the study will be retained at the Ghana and Tanzania Country office for seven years after last study publication. Data sent to SickKids will be retained for seven years after last study publication. All data is stored securely; procedures are as follows:

- NGO partners are instructed to store consent forms and other hard copies of materials are stored in a locked filing cabinet in a locked room in the country-partners' office space.
- Soft copies of all data (including audio files and transcriptions) are stored in password-protected files, on password-protected computers in a locked office.
- During the transcription/translation process, the audio files were listened to by the study staff in a private office, using headphones.
- All names and identifying information was left out of the transcriptions.
- Audio files and transcriptions will be transferred from Ghana and Tanzania via the SickKids secure file transfer system.

Consent Process and Documentation
The selected mothers were invited to participate in the study by CHWs/CMs who were known to them. The CHWs/CMs were trained on the sensitive nature of this process, and supported by the RA to ensure that they approach the potential participants in a non-threatening manner and appropriate environment.

The formal consent process took place on the day of the FGD, before the discussion began. The RA sat one-on-one with participants in a quiet space, away from the other participants. Given the relatively low literacy rates in this region, the FGD RA read the consent form aloud to the participant, and once the participant confirmed that she fully understood the information and wanted to participate, she signed or provided a thumbprint on the consent form.

At the start of the FGD, the RA reviewed details of the requirements of participation, and the participants' right to provide as little or as much information as they are comfortable with. Participants were informed that they could leave the focus group discussion at any point and withdraw consent. However, participants were informed that it would not be possible to remove an individual's responses once the data was collected, since the questionnaires, digital recordings and transcripts would be de-identified.

The RA outlined risks or potential benefits of participation in the study and explained the security measures taken to protect personal information. The RA also explained to the participants that should they choose not to enroll, or should they choose to withdraw consent, the quality of services offered by the CHW and health centre would not be diminished in any way.

Risks

The study required some time input on the part of participants, during the initial invitation from the CHW and for the actual FGD. The timing and locations for the FGDs were selected to minimize travel time and inconvenience for participants.

Potential distress caused to the participants as a result of participating in the FGD was not expected to be substantial, nor was there any indication from participants of emotional distress. As mentioned earlier, participants were informed that they may contribute to the discussion as little or as much as is comfortable for them. The FGD guide was also designed such that questions could be asked in non-personal, non-threatening ways. Efforts were made, as described above, to conduct the FGD in a neutral, non-threatening environment.

Participants were asked not to share the views expressed by other participants outside of the FGD, in order to protect participants' personal security and create an environment conducive to sharing. Participants were instructed that they could talk about their FGD in general terms, if a relative or friend asked them about the experience.

Benefits

The participants may have benefitted from the opportunity to explore their own opinions about a health topic (antenatal care) and may also have benefitted from hearing and opinions of their peers and having the opportunity to engage in active discussion. While the benefits are not a guarantee, and these outcomes were not specifically measured, feelings of social connectedness and enhanced self-efficacy may be stimulated through participation in a FGD. The wider social benefit of this study includes an enhanced understanding of issues surrounding low uptake of ANC services, and could contribute to the design and implementation of more effective and supportive programming.

Remuneration to Participants

Refreshments were provided at the FGDs, in line with the customs of the local communities. Participants' travel costs were reimbursed based on amounts estimated by soliciting input from the CHWs/CMs, Plan Ghana and World Vision Tanzania staff and the RA's expertise. No further remuneration to participants was given, in line with generally accepted global health research practices that aim to minimize the impact of the external research team's presence on the community.

8. Study Limitations and Considerations for Collaborative Research

As with all studies, there are a number of limitations to be acknowledged, which must be considered when interpreting the data and recommendations. Additionally, there are a myriad of lessons learned which could be applied to future collaborative research endeavours.

The study design allowed for high-level themes to be generated, but not to draw inferences about the impact of more specific factors on health-seeking behaviour. For example, to understand the differences in the experiences of married and unmarried pregnant adolescents specifically, this would need to be built into the study design. Separate focus groups would need to be conducted within the same communities, selecting married participants for one group and unmarried in another group, and subsequently analyzing the differences and similarities in the emergent themes. The study was not designed to draw such comparisons; based on themes arising from this study, follow-up studies could be designed to investigate specific themes of interest further.

Principally, though the RAs were trained in the same manner, there were differences in their approach to moderating the FGDs. Some of these were minor stylistic differences, and some were positive in the sense that one of the RAs tailored her approach to suit the local culture. However, in Tanzania, the RA tended to prompt more often (ie. giving specific examples and asking participants whether they agreed), despite instruction to employ general probing questions (ie. "please tell me more about that"). The intent of this study was to explore emergent themes; that is, to allow the participants to drive the discussion towards the topics that were most relevant to them. When prompting occurs, it is difficult to know if a participant is parroting/paraphrasing the examples given, or if they would have responded in a similar manner un-prompted. This may have some impact on comparability of the data between the countries; however, in qualitative research it is common for there to be multiple investigators who naturally have different styles. One of the approaches to mitigating negative impacts is to have a common analysis team and to conduct member-checks and report-back steps, to ensure that the data is being interpreted accurately (Thorogood and Green, 2009). These steps were carried out in this research project; the only lingering limitation is that the data emerging from Tanzania was not as rich as the data from Ghana, therefore some of the emergent themes in the analysis may be more heavily weighted towards the Ghanaian context; however, care was taken to draw upon the content of the Tanzanian FGDs as much as possible.

A further limitation relates to the recruitment of participants. In both countries, CHWs/CMs were involved in tracing and inviting the participants to the study. In specific sites in Ghana CHWs/CMs work for WATCH were also involved. Although the CHWs, health

centre and INGO staff were not present for the FGDs themselves, participants may still have associated the FGD with the health centre, and may have been hesitant to share their opinions fully. Furthermore, at one specific site in Tanzania, participants reported receiving false information from the CHW about the nature of the FGD. They reported being told that they were asked to attend an informational session where they would also receive fortified flour to take home. The FGDs at this site were the most brief, with participants not eager to share or engage in discussion; this challenge has led to the results and themes being potentially more heavily weighted towards the Ghanaian context, given that there was more richness and detail to the responses. The research team made efforts to ensure that themes emerging from Tanzania were represented as much as possible, but the level of detail within these themes is less than for Ghana, given the challenges with data collection. Wider implications for CHW performance are outside the scope of this study, but could be explored by the INGOs in the future.

The presence of multiple languages in the study sites in Ghana presented a number of challenges, many of which were mitigated through careful planning, However, unanticipated issues related to language emerged at the time of the FGDs, and were mitigated as best as possible. For example, in two of the Ghanaian FGDs, the notetaker who was hired to support the RA, ended up taking the lead role in facilitating the discussions because the composition of languages was different than expected. This did not appear to have impacted the quality of the FGDs since the RA was present to support the notetaker; however, it should be noted that only the RA received the full training from the SickKids team.

Language challenges may also have had an impact at the analysis stage: transcripts were written in English, and though efforts were made to ensure high quality data (through independent reviewer assessment of translation and transcription), it is possible that some nuances in the responses may have been lost in translation. For this reason the research team also conducted report-back calls with Plan Ghana and World Vision Tanzania team members, and requested input from the local RAs. Input was received from the local PIs in each country; however, only the RA and country staff from Plan Ghana were able to provide feedback on a summary of the results. While the report-back step provided the research team with some useful insight, leading to improvements in the analysis and interpretation of the data, the ideal scenario would have been to conduct a report-back step with the participants themselves, to ensure their ideas were accurately captured. Thus, as discussed in the Looking Forward section (page 91), a report-back phase could be designed as follow-up to this study, both with the communities that participated in the study, and with other communities where programs are being implemented by the INGOs.

The research team took great care to schedule the FGDs in neutral locations, however this proved more challenging in Tanzania to find quiet indoor spaces that were not associated with the health facility. The village offices were used in several cases, and in one specific case a village official entered the room to speak with the group while the conversation was

still happening. This could have impacted participants' willingness to share – if they felt that village officials might directly hear their responses.

9. Findings

This section presents the main themes emerging from the FDGs The findings are broken down by aim; where there are overlapping themes, data will be presented once, then referred back to under subsequent aims.

The analysis focuses on generating themes and learnings from the pooled dataset in order to develop a holistic understanding of the adolescent experience of ANC and key recommendations for tailoring ANC to adolescent needs. This is viewed as the first step (ie. exploratory or formative research) that would lay the foundation for continued research and program development in this realm. Details of recommended next steps are discussed in the Looking Forward section (page 91).

In the interest of protecting participants' identities FGDs were assigned a code (Gha-1 to Gha-6 for Ghana and Tza-1 to Tza-8 for Tanzania). Quotes are referenced using these codes in order to demonstrate that the themes draw upon data from a range of FGDs and a range of different participants (participants are denoted by "R-#"). In other words, efforts were made to incorporate all participants' views into the themes, and to avoid cherry-picking convenient data.

Also note: Where "M" appears next to a quote, this indicates that the RA (the FGD moderator) is speaking.

9.1 Participant Characteristics

The tables below (Tables 1 and 2) show the participant characteristics for each FGD. The tables present summaries for each country; a detailed breakdown by FGD site can be found in Appendix M. Eight FGDs were conducted in Tanzania with a total of 62 participants; six FGDs were conducted in Ghana with a total of 50 participants The target number of participants was achieved in all but one of the FGDs (one group in Tanzania had only four participants as discussed in the limitations section).

On average, participants across the sites were the same age (17.8 years in Ghana and 18.5 years in Tanzania), and were towards the upper end of the included age range of 15-19 years (Table 1). The reported age range shows an upper limit of 20 years in Tanzania, which is beyond the inclusion criteria. However, this is not an issue because all potentially eligible participants met the inclusion criteria based on the screening data collected from the health centres' patient files (ANC rosters). Therefore, at the time of accessing ANC services, all participants were 15-19 years according to the ANC roster data.

There was a higher proportion of married/partnered participants in the Tanzanian sites, compared to the Ghanaian sites on average. Additionally, participants in Ghana had

achieved a higher level of education on average, despite being roughly the same age, on average, as the Tanzanian participants (Table 2). Some adolescent girls in Ghana (29%) are currently enrolled in school, whereas none of the participants in Tanzania were enrolled in school at the time of the study (Table 2).

Participants in Ghana reported attending a slightly higher number of ANC sessions, and on average attended their first ANC session earlier in their pregnancy, compared to participants in Tanzania (Table 1).

In Tanzania, all participants attended only one facility to receive ANC services, whereas in Ghana, some participants reported attending more than one facility (34% reported attending two facilities, and 2%, one person, reported attending three). Refer to Table 1, and to appendix M for a breakdown across FGD sites.

The participants' first-born (and only) child were of similar ages, on average, between the two countries: 8.0 months (SD 4.9) in Tanzania and 6.6 months (SD 1.1) in Ghana (Table 1). In both countries, none of the participants reported being currently pregnant; therefore no participants were currently attending ANC.

	Ghana [mean (SD), range]	**Tanzania [mean (SD), range]**
Age of participants (years)	17.8 (1.1), 15-19	18.5 (1.6), 15-20
Age of participants' child (months)	6.6 (1.1), 0.5 - 19	8 (4.9), 1-21
Mean # ANC Visits	5.3 (2.1), 1-9	4.2 (1.0), 1-6
Mean # Facilities used	1.4 (0.5)	1 (0)
Month of gestation at first ANC visit	3.5 (1.6), 1-8	5 (1.4), 1-8

Table 1. Participant characteristics: Age of participant and their first-born child, number of ANC visits during last pregnancy and number of facilities attended for ANC services, approximate month of gestation at first ANC visit.

		Ghana	Tanzania
Relationship Status	Married Co-habitating Single	18% 32% 50%	58% 11% 30%
Education Level	Primary Only Secondary No school	22% 76% 2%	69% 24% 7%
Currently in school?	Yes No	30% 70%	0% 100%

Table 2. Participant characteristics: Relationship status, education level and current school attendance.

9.2 Aim 1: How do young mothers interpret and understand the purpose of the procedures conducted, and advice given, during ANC visits?

ANC Services in the Context of Overall Health Services

In both Ghana and Tanzania, participants recounted a range of interactions with the health system when asked to describe their experience of ANC. This included elements of the ANC package (refer to Appendix K and L), as well as delivery services, post-natal care services and follow-up clinic visits (ie. to refill a prescription). This pattern was present across all FGD sites, despite careful efforts on the part of the RA to initially define ANC, and subsequently remind participants that the scope of the FGDs was specific to ANC.

The participants were often initially thinking about health services broadly, and didn't distinguish ANC from other services until prompted to do so. The RAs were careful to steer the discussion back towards ANC-specific discussions, in order to collect data specific to the research aim. The interesting point to note is simply that the participants had a natural tendency to want to discuss a broad range of health services received. This points to a fluidity in their perceptions and experiences of health services, which contrasts clinicians' and academics' perspectives, whereby "ANC" has a rigid definition and refers to a very specific package of interventions and counselling. Implications for this difference in perception are explored further in the discussion section (page 84).

In many cases, these examples were given in direct response to a question about ANC, suggesting that the participants were lumping together a range of health services as part of their ANC experiences. In other cases, it may be possible that the participants understood the distinction between ANC and other services, and still chose to bring up experiences that were not strictly "ANC sessions". The key take-away point is that participants experienced

the Health Centre services holistically. As we will see subsequently, negative experiences related to one aspect of care (ie. post-natal care) inform the participants' overall perceptions of services, including their opinion of the value and quality of ANC services.

The First Visit

Participants were asked to describe their first exposure to ANC. In some cases the "first ANC visit" involved only confirming the pregnancy through urinalysis, while in other cases it meant simply registering under the National Health Insurance program (Ghana). In some instances, however, the first visit involved the complement of services recommended for the first visit under the FANC model.

> *M: What happened at your first ANC session? R: They only gave me a card the first day. [GHA-1, R8]*

A majority of Ghanaian participants reported that the impetus to attend the clinic (and thus their first exposure to ANC) was derived from a desire to confirm their pregnancy. In some instances this was self-motivated and in other instances a family member recommended that she seek advice from a health expert:

> *"My sister-in-law was the one who took me there [to the clinic]… they alleged I was pregnant and I said I wasn't pregnant. But when they took me there then it was confirmed that I was pregnant, so I accepted it." [GHA-5, R2]*

> *"She [the midwife] will tell you to do the labs to confirm if you are pregnant or not so if you go you will be told if it is true or it is not true. So when you come back to the midwife she will get the drugs you have to take and give it to you to drink." [Gha-6, R7]*

In Tanzania, it was more common for young women to seek clinic services at later gestational ages, once they were already certain they were pregnant:

> *"When you are on your 3rd or 4th months you just start going to the clinic. (RA: 'But how do you know that's it's a time to start clinic?')… I just heard from people and from my mother at home." [TZA-8, R1]*

Regardless of their motivation, or whether they received specific FANC services during their first clinic visit, for many young women this initial point of access served as their initial exposure to FANC and informed their overall perceptions of ANC.

General Descriptions of Services Received During ANC

When describing the events of their first ANC visit, most participants had vague recollections of services received, including confirmation of pregnancy, registration, and provision of medications. While some participants claimed that they received a health or

clinic card during their first visit, others did not recall this event at all, suggesting that there might be some inconsistency in this feature of ANC.

Study participants reported receiving a number of clinical services during ANC, with varying levels of detail. In both contexts, the most frequently recalled services included:

- Laboratory work – blood and urine tests, iron levels, STI tests
- Medicine dispensing – malaria prophylaxis, de-worming, iron supplementation
- Physical examinations – weight and height measurements, position of the fetus
- Injections/shots – tetanus, measles
- 'Scans' - ultrasonography (mentioned only in Ghana)

In both countries, most participants referred to all blood work and urinalysis as "labs", suggesting a lack of knowledge about the purpose of various tests. Participants generally assumed that practitioners tested blood and urine in order to check for undiagnosed diseases; few demonstrated a more detailed understanding of why certain tests are administered during pregnancy.

In Tanzania, the narratives of services received were briefer than in Ghana. This could point to a lack of understanding or clear recollection of the services, or to greater degrees of shyness interacting with the RA and sharing personal experiences of culturally sensitive topics; possible explanations will be explored further in the discussion section. Even after being prompted, and after listening to other young mothers speak about their experiences, some participants recalled very little about the clinical aspects of ANC. When participants did recall services received, most named only one or two features of any given clinic visit.

The quotes below illustrate the types of services recalled by young women in Tanzania:

> *"You enter the room, lay on a bed, they take an instrument and check your blood pressure, heartbeat and sometimes they check your private parts to check if you have STIs." [IKFGFD01, R2]*

> *"During my first visit with my husband first I was measured my height and weight, when I got inside I was told to make sure that I will deliver at the facility. Also they checked up if the baby is well positioned." [IKFGFD01, R5]*

> *"[They] test blood for HIV." [NDGFGD01, R1]*

> *"They gave me pills to add blood." [TZA-7, R1]*

In Ghana, participants shared more detailed accounts of services received during ANC. The reasons for this are likely multi-fold and may include: varying degrees of understanding of services received, varying recall abilities about the services received, as well as different cultural norms around sharing of personal experience; it could also be due to differences in

facilitation of the FGD (discussed in the limitations, page 37). Some participants recalled only one or two features of any visit, others provided more vivid narratives of their first and subsequent visits:

> *"The first day I went with my sister and she asked my sister why we had come there. And she said it is her sister she has brought there because she said she is not having her period. And she gave me a bottle to urinate in and bring it back. So I went to urinate in it and brought it back to her. Then she placed something like a ruler in my urine then took it out and asked me to have a look at it. Then she explained to me that if I wasn't pregnant the thing won't change but it because I am pregnant that is why the thing has changed. Then she gave me card and wrote my name on it. She also asked about my family, who is the head of the family and I explained it to her then she gave a drug and I returned again. [GHA-5, R6]*

> *"You go through a test to confirm your pregnancy. And then you will be given an antenatal card which you take to the pharmacist for medicine, when you are given [the medicine] you take some of the medicine right there and take the rest at home." [GHA-3, R8]*

> *"They ask us of our names and they have lively chats with us. Then they take our blood samples to know what diseases we have, and then they prescribe drugs for us and tell us when to go for those drugs. So they have conversations with us and ask us how many months we are [with the pregnancy], they ask about the child's movement and all that. Then they make is lie down and examine our abdomen and measure the month of the baby and all that." [GHA-1, R1]*

> *"I was given ANC card and asked to go and take my blood pressure. My blood was also tested and I was asked if I had any condition in my blood or any heart condition and I said no. They also asked me if I felt the movement of the child in my stomach I said yes, I felt its movement in my stomach sometimes. So I was asked me to lie on the table and my abdomen was examined and I was told that the baby was lying in a right position" [GHA-2, R2]*

> *"They measure us and check our blood levels to know if it has gone high. They make us stand on a scale to examine our weight, they ask us where we from, the work we do, are we married or we are not married they ask all these things." [GHA-5, R5]*

In both Ghana and Tanzania, there is little indication as to whether discrepancies in reports of services received reflect a lack of awareness or understanding of ANC features among adolescents, or whether delivery of services by health care practitioners was inconsistent.

This question warrants further investigation in future studies.

STI Testing and Partner Accompaniment to ANC

Participants emphasized several aspects of the services received, and discussed these in relatively greater detail. In Tanzania, one such topic was STI testing as part of the FANC service package.

Most participants clearly understood the value of being tested for STIs such as HIV, but many disliked that tests were administered only when husbands/partners were present. A number of Tanzanian participants were reportedly told that they would not be tested or cared for if a partner did not accompany them to receive STI testing at the same time.

Participants with supportive husbands had less trouble bringing them to the facility, but some young women were unable to bring a partner or the father of their child (ie. if paternity was unknown, or the man "refused to take responsibility for the pregnancy"). While male involvement in ANC is encouraged and valued, requiring all pregnant women to bring their partners to ANC left some vulnerable adolescents without access to care, as expressed by two participants:

> *"I disliked that we were told that we must bring men who got us pregnant. I disliked it because sometimes you are pregnant but the man is no longer in the picture. But still they tell you that they won't attend you until you bring the man. Where will I get him?" [TZA-3, R3]*

> *"The first time I went there the provider told me to bring the man who got me pregnant, because he was not in the picture, I went back home unattended." [TZA-3, R6]*

Young women in Ghana did not raise the same concerns, presumably due to less emphasis on partner accompaniment to ANC visits in this context.

Medicine Dispensing

As illustrated below, study participants in Ghana emphasized medication provision when describing memorable ANC services:

> *"R5: When we attend the 2nd session, our blood pressure is taken, then our weight is taken as well then we are given drugs. R4: We are given some drugs to take. M: What drugs are you given? R4: Some people have low blood levels so they are given blood tonic and paracetamol. R3: There are other times too when you are sick and you go there your blood is tested and you are diagnosed as having malaria so then you are given malaria drug. R1: When we go we are given blood tonic* [iron folate supplements] *and other times pain killers." [GHA-2, multiple participants]*

Participants in Tanzania also remembered being given drugs during ANC visits, however they did not mention any specific medications, other than those prescribed to "increase the blood" (iron folate tablets), except in one FGD in Tanzania (TZA-3) where several participants recalled being given antimalarial and deworming medication.

Health Information and Counselling

When asked what types of health information they learned during ANC, Tanzanian participants primarily recalled learning about family planning and basic advice about labour and delivery. These women stressed the value of family planning information in particular, often because their partners or husbands participated in these discussions: "*I liked attending the family planning session with my husband" [TZA-5, R2].* Another participant noted the following:

> *"What I liked most was first to go there with a husband or relative, then being taught family planning and being told what to prepare for child's delivery." [TZA-4, R2]*

In Tanzania, some participants recalled learning that certain complications are more prevalent among young mothers. Nearly all participants said they were instructed to deliver at a larger regional/district-level hospital because of their increased risk for complications during childbirth:

> *"R: I was told to deliver in a bigger hospital M: Why were you told that? R: Because it was my first pregnancy" [TZA-5, R4]*

> *"It is important because child delivery can be very complicated because of young women's pelvic bones." [TZA-4, R1]*

Some participants recalled very few details regarding the counselling received during ANC, and one participant claimed that she "was told nothing" [TZA-3, R1]. Other participants remember being counselled regarding what to prepare prior to childbirth. Several participants listed the items they had been instructed to prepare for delivery:

> *"They teach you about family planning, then preparation for baby delivery such as underwears, 6 pieces of khanga fabric, a bucket, plastic dish, that's all." [TZA-4, R3]*

Interestingly, though there has been a push to educate women on the danger signs of pregnancy as part of the emphasis on encouraging facility-birth, when asked to narrate the things they remember most about ANC, danger signs were not commonly recounted. Participants only vaguely recalled being told to report to the hospital if they felt any "unusual feelings" because childbirth can be "very complicated" at their age. This was consistent in both countries, with one exception of a participant who shared the following:

> *"They said that if you experience very severe headaches you must report it at the hospital. And if you are vomiting, at certain times you will vomit a lot, at the ninth month you are not to vomit but if you still vomit at the ninth month you must report it at the hospital. If you observe that your feet are getting swollen you must report at the hospital." [GHA-6, R6]*

More commonly, participants spoke about the importance of not delaying to go to the facility when they first feel labour pains. For example, the risk of obstetric fistula was vividly recounted by a participant:

> *"The midwife told us that if our time is due we shouldn't stay home and try to deliver, we should come to them otherwise our anus will burst [laughing]."* [GHA-5, R10]

What stood out from these discussions was that although young women narrated their memories of being instructed on *what* to purchase/prepare and *what* to bring with them at the time of delivery, they did not narrate experiences of being counselled on *how* to ensure the proposed birth plan could be achieved. Aside from one participant who mentioned that she was told to "save some money" in preparation for childbirth [GHA-4, R9], no participants mentioned being given advice regarding financial considerations. Similarly, participants did not speak to being counselled on options and strategies for arranging transportation, and for negotiating the role of partners and other family members in decision-making related to the pregnancy.

Reasons for this are likely multi-fold: Recall bias could have steered the discussions in specific directions. Additionally, in some settings, CHWs and CMs are tasked with providing birth-preparedness counselling (personal communication, Susan Smandych, Plan Canada). However, it is interesting to note that although the RAs asked questions in an open-ended manner that would have allowed for mention of services received from CHWs, participants did not explicitly describe receiving counselling or services from CHWs as part of ANC. This does not necessarily mean that these services were absent, it simply points to the fact that participants focused heavily on their experiences of the health centres, and their interactions with nurses and midwives specifically, when narrating their experiences of ANC.

Young Ghanaian mothers reported learning about a variety of topics during ANC visits. When asked what types of health information they were specifically given, participants tended to focus on medication compliance and most importantly, nutrition advice ("*in our diet we must be watchful of what we eat and all that", [GHA-1, R6])*; many recalled the specific foods that practitioners suggested they eat during pregnancy:

> *"We were told that if we take our medications it strengthens us and the baby so we were also advised to take our drugs so that we will be healthy. And also eat lots green leaves and vegetables to give the baby more blood." [GHA-6, R1]*

As suggested above, participants connected the intake of these foods with the health of their unborn children. One participant stated the following:

> *"They asked us to eat oranges, pineapples and banana so that the child will have good health. They asked us not to do hard work." [GHA-1, R6]*

Notably, participants' narration of the nutritional advice they were given centred on increasing intake of fruits and vegetables only. Reportedly, this advice was intended to "ease labour pains" [GHA-3, R1]. There were also instances of participants either receiving or recalling inaccurate nutritional advice:

> *"The nurse… said that I should not eat heavy foods because I was not having enough blood. So she said when I got to the house I should prepare palm nut soup and eat." [Gha-1, R9]*

The nutrition advice recalled by participants does not fully encompass the additional nutritional needs of the pregnant woman; the advice to increase intake of green leaves likely relates to increased iron and folate needs; likewise, increased fruit and vegetable intake may be recommended as a means of obtaining additional micronutrients. However, pregnant women also have increased macronutrient needs, including protein and total energy/calories. There are also standard recommended rates of weight gain for pregnant women that vary by trimester – these recommendations were either not given or not recalled accurately by participants (refer to Discussion section, page 84, for further exploration of this topic).

In addition to nutrition, another important counselling topic in Ghana had to do with recommended physical activity levels during pregnancy, as illustrated below:

> *"When I went there what I liked most is that when we were pregnant and we went there they advised us that while we are pregnant we should eat good foods that will protect the baby in our stomach, they said so much. And they also told us that when we are working at home and we are tired we can ask our husbands to assist us so that we all do the work together. At other times too we get so tired and feeling too sleepy we don't want to come to the hospital but if we come fine and when we are coming too we will be laughing on the way while coming." [GHA-5, R8]*

Another participant was given similar advice:

> *"They told us that after some time we shouldn't get engaged in hard work. And also when we are walking up a hill and we are tired we should take a rest before we continue [GHA-1, R1]*

With respect to physical activity levels during pregnancy, participants reportedly received conflicting messages, even within the same FGD. While most participants said they were advised to reduce their workload during pregnancy, several participants were reportedly given the opposite advice:

> *"We were told not to be inactive we must be active so that when the time is due for delivery of the child we will not have difficulty. So we should continue to engage in hard work. [GHA-5, R8]*

While there are medically indicated reasons that women may be given different advice regarding physical activity levels (ie. Higher risk pregnancy may require more rest), it is interesting that this participant recalled being told to engage in "hard work". More typical counselling advice would be to remain physically active, but not to over-exert one's self.

Ghanaian participants identified a number of additional counselling topics, summarized below:

Counselling topics during ANC	Illustrative quote
Personal hygiene	*"We were told to take good care of ourselves. We are not to drink unclean water and not to bath unclean water." [GHA-6, R6]*
Preparation for birth (including a list of items that they should purchase for their infants)	*"They advised me to save money to buy my babies stuff before delivery." [GHA-4, R9]*
Malaria prevention	*"We were asked to sleep in mosquito nets so that we will not be bitten by mosquitoes." [GHA-2, R3]*
Family planning	*"They say family planning will help us so that after having given birth we will not immediately give birth to our next child. It will help us till the time we ourselves want to give birth again then we can give birth." [GHA-5, R8]*
Male partner involvement during pregnancy	*"…they also told us that when we are working at home and we are tired we can ask our husbands [to] also assist us so that we all do the work together." [Gha-5, R8*]

Table 3. Counselling topics mentioned by Ghanaian participants.

Overall, participants recounted general messages about the risks associated with pregnancy, safe delivery, and the overall importance of ANC; however, when asked to elaborate, few provided more detailed accounts of the reasons why these behaviours are important. As evidenced in the following section, participants often expressed confusion or frustration about services and recommendations received, further indicating that they were not taking away a detailed understanding of their ANC experience.

Participant narratives suggest that while healthcare providers are delivering important health promotion messages, they may not be engaging in supportive counselling[3] techniques that would support a full understanding of ANC processes and procedures. Differences exist across countries and FGD sites, however. At one site, there is a notable exception, where one of the HCPs was apparently engaging in providing counselling beyond simply dispensing core messages. As illustrated by this participant's response, at least one nurse was providing counselling to enhance fetal development and male partner bonding during pregnancy.

[3] Refer to definition of supportive counselling on page 13: a client-centred approach designed to empower patients to set goals for their own health and to provide the necessary support to help patients achieve their goals. This is in contrast to simply dispensing health messages and services.

> *"When I am sitting with my husband, I should tell him to put his hand on my stomach and feel the movement of the child and say "hey baby, how are you?" [Laughing] When I go there, they show me these things and we laugh about it"* [GHA-5, R5].

While recall bias is certainly a possibility (over time, participants may recall fewer and fewer of the nuanced details of their experience). In this situation, participants had delivered on average six-eight months prior to the FGD, thus recall bias is not expected to be a substantial issue since their ANC experience was fairly recent. More importantly, as elucidated below, many participants were holding onto frustrations and disappointments over the quality of services received – even if recall issues are the root of this problem, it is a problematic issue that some participants possessed these views (implications for this are explored further in the Discussion section, page 84).

Confusion about Services and Counselling Received

In many cases, participants expressed confusion over specific aspects of the services provided, as well as distrust towards the decisions made by the HCPs. From the available data, it is not possible to confirm the root cause of these issues; however, in the instances highlighted here, it appears that it was not necessarily the result of inappropriate care being provided. There may have been a valid justification for the HCP's action or recommendation; this justification may not have been adequately communicated to, and understood by, the participants. Regardless, these participants came away with the impression that they had received inadequate or inappropriate care.

For example, several participants voiced frustrations about being given insufficient amounts, or incorrect types of medication. For example,

> *"The drugs we are supposed to be given, they do not give them all to us. They only give small portions of it… There are times you have stomach pains and you are not given stomach pain drug but rather a drug for headaches." [GHA-2, R4]*

As reported elsewhere in this section, there are clear instances of drug stock-outs and limited human resources impacting on the standard of care. However, in other situations there may be logical reasons behind decisions made by HCPs – for example in the quote above, a simple analgesic can be used to treat different types of pain. Whether or not this was explained at the time; the participant was ultimately not satisfied with the actions of the HCPs.

Furthermore, several participants spoke about being turned away from a specific facility because they had been referred to a different facility, specifically in the context of delivery. Participants were left feeling aggravated and confused as to why they had been refused services.

> *If you were told on the delivery date to go to the bigger hospital and it happens by mistake that you forget or are late to catch the bus, the providers at the clinic look at your card and if it says you are to deliver at the bigger hospital then they don't help you at all. They continue with their other activities and at the end of their day they close the doors and leave you there.* [TZA-6, R5]

All participants were able to recite the rationale for referrals to larger hospitals for delivery: That they are under 20 and first-time mothers. However, they may not have fully appreciated the rationale for the referral to a more specialized facility with more highly trained staff. Furthermore, given the apparent lack of counselling and support around birth planning by CHPs, it also seems as though participants were not always supported in finding ways to reduce the barriers to delivering with a skilled birth attendant at a health facility (which is one of the intended purposes of ANC).

There are a host of factors affecting the quality of services delivered, and how the participant interprets these actions and verbal communications. Many of these factors will be discussed as part of the ANC use model presented under Aim 3 (page 59-76). Language is an important consideration, particularly in Ghana where multiple languages and dialects are spoken within a relatively condensed geographical area. As explained by one participant, "well we are taught a lot of things but because they talk in the Akan dialects we hardly understand anything." [GHA-4, R2].

Frustrations with General Health Centre Services

The expressions of frustration were not limited to services received during pregnancy, they extend into post-natal care and care for their children. While some participants expressed impressions about ANC directly, the majority spoke about overall impressions of service quality, indicating that they are integrating their experiences of both routine and specialized care. These experiences had profound impacts on participants' overall perceptions about accessing care from health centres, including ANC.

Frustrations oftentimes related to perceptions of inconsistent practices with medication dispensation, as noted above and as expressed by the following participant:

> *"Some of the nurses would also give you prescriptions to go and buy certain drugs when you don't have enough blood, meanwhile they have the drugs which they can give to us and we also have no money to buy them." [GHA-3, R7]*

Additionally, distance to the centres (and the hospitals, for delivery), was a major concern. Not only because of the cost of hiring transport, but due to rigid scheduling and intake procedures at the facilities. Participants in Tanzania spoke about relying on one bus that could take them to the regional hospital: "We have to wait for the 5:00 am bus to go there or else our clinic just won't accept us for delivery" [TZA-6, R4].

Participants also spoke at length about frustrations with the way they were treated during labour and delivery:

> *"I personally had a painful experience with the nurses during labor. She told me there was no midwife and so she referred me to the hospital where I went and paid a lot of money. So after the delivery, the midwife saw me and asked why I went to the general hospital and I told her she was absent by then and she said it was a lie and that she was around, so the nurse actually deceived me which is something I can never forget." [GHA-3, R8]*

> *"They have canes in the labour wards… if you are about the push you will be given some lashes"* [GHA-4, R1]

Other participants mentioned frustrations with the quality services received when they brought their ill child to the facility, particularly when they felt that the wrong type or dose of medication was dispensed. One participant also spoke about a lack of counselling when her child's weight dropped:

> *"One day my child was having flu and cough. I took her to the clinic. The nurses there told me to bring an empty bottle then they poured in half dosage of cough syrup. Is it okay to receive only half dosage of medication for a child? [TZA-2, R1]*

> *"When you take a baby to the clinic and they measure weight, when the weight goes down they don't tell you any advice"* [TZA-4, R2]

> *"Sometimes the providers give us wrong medicines… Sometimes when a baby has flu, the nurses at the facility tell you to give the baby tea with lemon. Is that the real medicine for flu?"* [TZA-6, R3]

> *"Vaccination should be on time. Sometimes they tell us to bring children in a certain date but when you get there they don't have the vaccine and they give you another date. They keep postponing"* [TZA-4, R2]

9.3 Aim 2: What do young mothers feel they gain from attending ANC sessions, and what elements of ANC services do they see as most valuable?

Attending ANC centres can promote positive feelings of health, security, and strength. When attending ANC, many participants felt protected, well cared for, and even comforted at times. These positive feelings helped alleviate young women's concerns about pregnancy, and their unfamiliarity with its associated social and physical changes.

> *"I felt at ease in the sense that the sickness I had has stopped." [GHA-6, R7]*

Overall, the most valued aspects of ANC, according to participants in each country are summarized below (Table 4). Key components are elaborated on in the subsequent text.

Tanzania	Ghana
Medication dispensation (especially antiretroviral medication in Tanzania)	
Laboratory tests and physical examinations	
Confirmation of pregnancy (divided opinions)	
ANC as a gateway to facility-based delivery	
Family planning lessons	Nutrition counselling
Vaccinations (although some strongly disliked the routine vaccinations)	Obstetric scans
General emotional support and supportive counselling	

Table 4. Reported most valued aspects of ANC services.

Young mothers valued any services that were thought to protect them, improve and promote their continued wellbeing, and make them feel healthy. Responses from Ghanaian participants suggest that both the services and the health care practitioners working at ANC facilities can help to reassure first time mothers and promote positive emotional responses:

> *'It's good, it helps you to know a lot of things and if you don't go for antenatal you might not know the condition of yourself and the fetus so it's good that we go." [GHA-3, R6]*

One service in particular – the provision of medication and/or vaccinations – protects, strengthens, *and* promotes feelings of 'good health', which is why many participants identified the medications provided by the facility as the most important services they received over the course of their pregnancy:

> *"When you go you are given drugs and injection and you are also examined and given advice on what to do to stay healthy for both you and the child." [GHA-2, R1]*

"I liked that I was given the [iron] tablets to increase blood." [TZA-5, R1];

"I liked that I was vaccinated against measles, tetanus, worms, whooping cough." [TZA-5, R4]

"The medicine aspect also which helps strengthens our bodies and bones." [GHA-3, R5]

"When we go and they realize the baby is not healthy enough they tell us and give you medicine to make the baby healthy and strong." [GHA-4, R6]

Receiving prescribed medication during clinic visits was perceived to be a valuable, or even vital, feature of ANC among young mothers, particularly in Ghana. Young mothers viewed medications as a necessary remedy for a number of illnesses and health conditions including high blood pressure, "low blood" (a sign of iron deficiency), and malaria. As one participant explained:

"I was told that the medicine given to me will help fight against any disease in my body if I take them as prescribed. They always tell us that." [GHA-3, R4]

Participants seemed to have confidence in the medications and supplementation they received; they believed these drugs helped to improve or maintain their health, as noted below:

"I liked the medicines we were given and we are well taken care of." [GHA-2, R3]

"When you go for ANC they will give you medicine to take and in case you have any sickness, you will be diagnosed and treated. So it's very good." [GHA-4, R1]

Because they believed in the efficacy of the medications dispensed by ANC practitioners, participants also reacted strongly when medications were unavailable. This was particularly true among young women in Ghana; their overall impressions of health facilities and ANC services declined when medications were only available to purchase, or when stock outs occurred, as noted below:

"Some of the nurses would also give you prescriptions to go and buy certain drugs when you don't have enough blood, meanwhile they have the drugs which they can give to us and we also have no money to buy them." [GHA-3, R7]

"The drugs we are supposed to be given, they do not give them all to us. They only give small portions of it." [GHA-2, R4]

"Sometimes when you go there the nurse will frown and there are other times too when you go she will not give the drug she is supposed to give you." [GHA-2, R1]

This problem was also reported in Tanzania:

> *"Every time you go to the clinic or the facility they just write a medication to buy outside at the pharmacy. So people are used of that and now whenever they get sick they decide not to go to the facility but to go straight to the pharmacy and buy medicine." [TZA-3, R3]*

Participants in Tanzania understood that young mothers are at higher risk for complications during pregnancy and delivery, and many believed that ANC protected both themselves and their unborn children from various complications and infections, including timely treatment of HIV infection and prevention of mother-to-child transmission. The following quotes illustrate how ANC services are conceptualized as having protective effects against pregnancy and obstetric complications:

> *"It is important because child delivery can be very complicated because of young women's pelvic bones. To also be told what is useful for you." [TZA-4, R1]*

> *"It is important because you can go there, test for HIV and if you're positive you can start medication. If you don't go and you're affected you can transmit to your baby." [TZA-3, R1]*

In both Ghana and Tanzania, an important perceived benefit of ANC was that it facilitated access to safe delivery. As one Tanzanian mother remarked,

> *"It is important to go [to ANC] because if do not they might get pregnant complications and problems during child delivery." [ILLFGD02, R2]*

Young women participating in a focus group discussion in Ghana [GHA-5] further illustrated the link between ANC attendance and safe delivery with the following comments:

> *"It [ANC] has helped in that the way I was taken care of, I didn't consider aborting the pregnancy and I have given birth safely preserving my life and that of my child" [R10]*

> *"My baby did not die so that I what I have gained from it" [R7]*

> *"It has helped me, I can eat well, I did not get any sickness and the day I went to deliver, I gave birth and my life and that of my child was preserved." [R8]*

ANC Promotes Feelings of 'Good Health'

This was one of the most consistent narratives, and one that was articulated by women in both countries. Regular utilization of ANC was associated with good overall health during pregnancy and seemed to calm and reassure adolescent women during an otherwise vulnerable period. As expressed by the participants, receiving medical treatment, counselling and support from expert practitioners can alleviate the stress associated with pregnancy and uncertainty about the future. Even when it appeared that participants did not fully understand the purpose of specific services/tests, ANC was generally well regarded as an opportunity to ensure that "everything was OK". In other words, the absence of problems during pregnancy could be verified during ANC visits, and timely treatment could be administered. This meant that a young woman and her unborn child were in good health. The quotes below illustrate participants' linking of ANC to positive health and general wellbeing:

> *"Over there they will take good care of you. But if you stay at home [and do not attend the ANC clinic], you will not know what is wrong with you." [GHA-6, R6]*

> *"The way they took good care of us so that we will not get any illness. And also teaching us the good food to eat so that the baby will be fine and both of us will get good health. That is why I liked it." [GHA-5, R4]*

> *"It is important that you go and be examined to know what is wrong with you and be told what you should do and what can be treated." [GHA-6, R5]*

> *"It is important because it helps you when you get pregnant to go to the clinic or if you get any problems to seek for help." [TZA-6, R1]*

Negative emotions (e.g. fear, uncertainty, anxiety) may be modulated by positive interactions with health care practitioners. The most nuanced stories of good care and positive health outcomes came from women who developed the strongest connections with nurses and midwives at their local clinics, as exemplified by the statements below:

> *"When I get there the way and manner in which I am treated anytime I go there I do not have any fear because they treat me very well." [GHA-2, R6]*

> *"Please when I went what I liked most about it was the way they conversed and laughed with us and how they gave us drugs and told us how to take them. That is what made me like them." [GHA-1, R1]*

Ambivalence Towards ANC

Some adolescent mothers saw ANC as a health service no different from any other. What set these participants apart from others was the quality of their interactions with health practitioners: they were not poorly treated, but they were not welcomed either. Professional distance prevented adolescent mothers from developing strong bonds with their healthcare providers, and thus their feelings and opinions about ANC. Instead of recalling any positive emotional experiences, they focused more closely on the services rendered at the facilities.

Interestingly, participants expressed these views within the same FGDs where others emphasized their positive ANC experience and their positive feelings about the importance of ANC.

> *"For me no one joked or was nice to me whenever I went. They just rendered the service I needed from them and went on my way." [GHA-2, R1]*

Non-communicative healthcare providers also prevented young mothers from forming a positive opinion about the care provided – these women expected to be informed about nature of the tests performed, and the medication dispensed, but oftentimes healthcare providers did not explain the purpose of the tests and services administered:

> *"I didn't get anything... The first time I went I was given a form to go to the lab. They took my blood but I didn't know what they did with it. So when they were done they gave me a receipt to go and get some drugs." [GHA-6, R6]*

When asked if she had gained anything from attending ANC, the same participant [R6, above] responded with "I have had good health. They have told me that I do not have any bad condition". This suggests that even in the absence of positive interactions with practitioners, young women still perceive ANC as crucial to maintaining good health during pregnancy.

9.4 Aim 3: What are the major motivators and facilitators that impacted the participants' decision-making process around ANC use?

As a means for organizing and interpreting the emerging themes under Aim 3, the Health Belief Model (HBM) (Nutbeam & Harris 1998; Glanz et al., 2008) was selected. Developed in the 1950s, the HBM has become one of the most commonly used frameworks for understanding health behaviours (Glanz et al., 2008). There are several core constructs of the model used to explain why individuals take action to prevent or control illness/health conditions. Core constructs of this model include: one's beliefs about susceptibility to a condition and severity of that condition, considerations of the benefits and barriers to a

health-promoting behaviour, cues to action, and self-efficacy. Each construct is defined in the tables that follow; tables 5 to 11)

The HBM is a useful conceptual framework for two key reasons:

- Many of the central themes emerging from the data fit seamlessly into the HBM model, indicating that this model is useful for conceptualizing findings and guiding interpretation.
- This is a commonly used model in the behaviour change literature and it is useful for understanding why individuals choose to take a specific action. It therefore dovetails with the INGO partners' interest in designing programs to address 'demand side' factors influencing health service uptake.

However, the HBM did not represent a perfect fit for the data. During analysis, it became clear that although the individuals are demonstrating a dynamic process of decision making at the individual level, there are layers of factors beyond the individuals' control which affect her decision and ability to attend ANC. Therefore, in order to represent 'supply side' factors of relevance to the INGOs, and in order to encapsulate emergent themes that do not fit neatly into the HBM, the model was adapted to incorporate additional constructs taken from the Theory of Planned Behaviour, (Montaro et al., 2008) as well as ecological models of behaviour change such as Social Cognitive Theory (Bandura, 1997).

Taken all together, the adapted model combines the notions of individual autonomy and rational decision-making, while recognizing the sociocultural context and health systems in which health seeking decisions are made. Many of these constructs are specific to circumstances surrounding adolescent pregnancies.

The adapted HBM (Figure 4) also borrows from the principles of ecological models, similar to the model laid out in Motherhood in Childhood (UNPF, 2013 page vi) whereby the factors influencing the mother are categorized as: individual-level, household-level, community-level and societal-level. In the framework used in Motherhood in Childhood, these categories are layered in concentric rings, starting with the individual-level factors, moving outward towards more societal factors. But there is little exploration of how these layers interact with one another. The adapted HBM model also includes these major categories, and attempts to demonstrate interactions between the categories of factors.

In this adapted HBM, we posit that the individual is defined by a set of personal characteristics (white box on the left-hand side of Figure 4), and this individual then engages in a decision-making process about a health-related behaviour – uptake of ANC in this case. The decision-making process includes both individual level decision-making, represented by the blue box in Figure 4, but is couched within a set of household- and community-level variables (red box surrounding the blue box in Figure 4). The traditional HBM (Figure 3) does not include this red box, yet we felt it was imperative to include based

on existing literature as well as data emerging from this study, as explored in the subsequent analysis. Additionally, based on data emerging from this study, and constructs from ecological models of the determinants of health, we also included a health service delivery portion to the model (red box at the bottom of Figure 4) to represent the most distal health systems and policy issues which impact the adolescents' decision-making process regarding ANC uptake.

Figure 4 provides one approach to representing and understanding the narratives shared by the participants. Analyzing the qualitative data through the lens of this adapted model allows us to develop insight into factors motivating ANC uptake. It should be recognized that there are multiple useful ways to represent the data – the ANC Infographic (appendix N) accompanying this report lays out the same themes in a slightly different way, intended to be more plain-language and accessible for a general audience. In this report, the adapted HBM has been employed, allowing for a more nuanced exploration of the themes.

The adapted model is intended as an aid to help frame the discussion and interpretation of the FGD data, and may also be useful in helping to identify key points where INGO programming could have a marked impact on pregnant adolescents' uptake of ANC services.

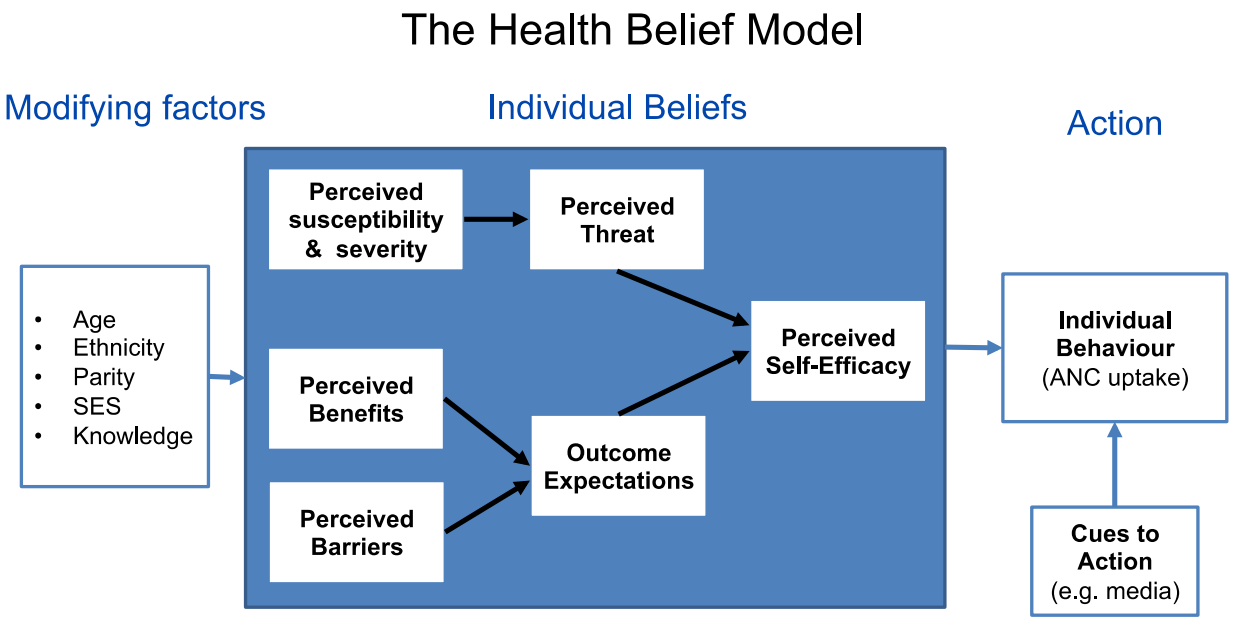

Figure 3. Health Belief Model. Adapted from Nutbeam & Harris 1998; Glanz et al., 2008.

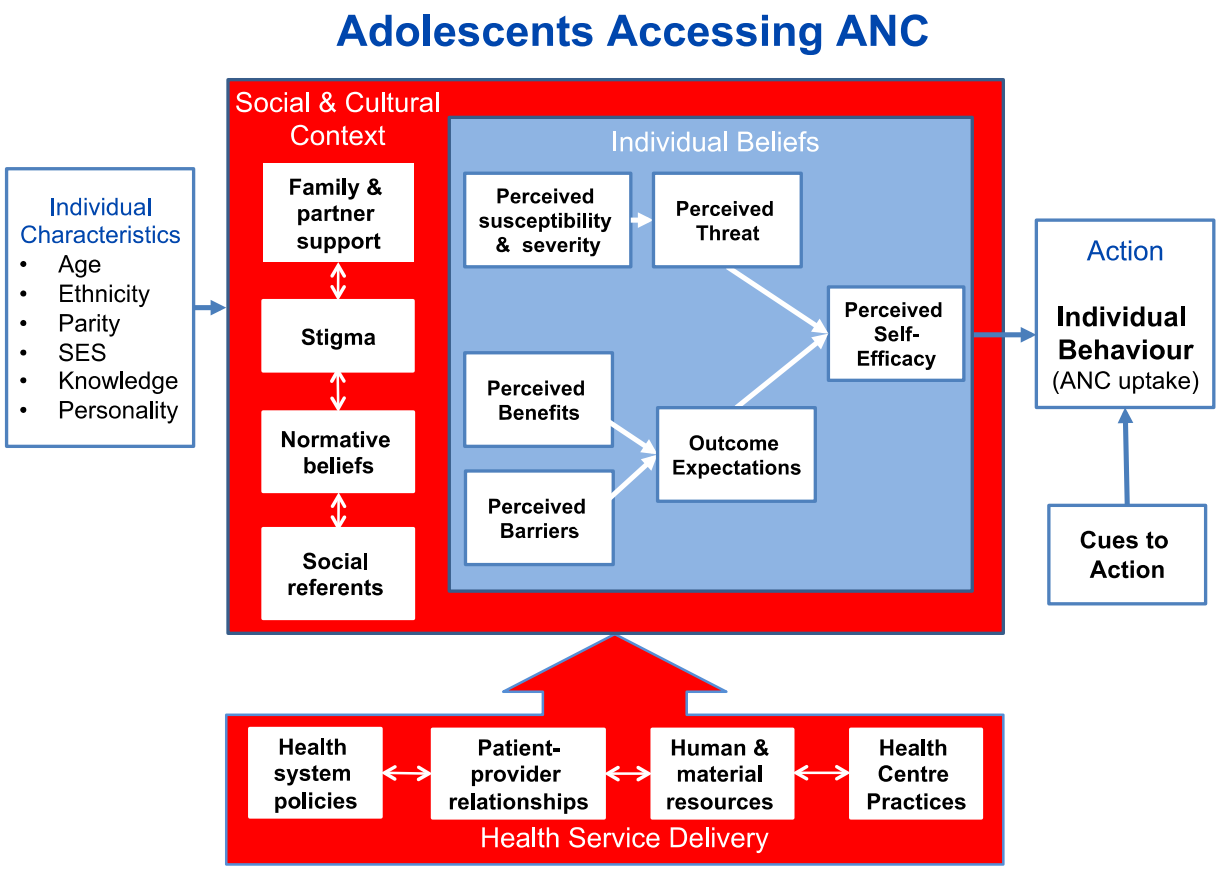

Figure 4. Model for the factors facilitating and motivating ANC uptake amongst adolescents.

Uptake of ANC Services by Participants

In every FGD, multiple participants expressed a clear understanding of the higher risk of obstetric complication they faced, due to their age, as explained under Aim 1. Participants expressed an awareness of the potential for serious adverse pregnancy outcomes, oftentimes in relation to their own health but frequently in relation to the health of the fetus. This implied an understanding and appreciation of the importance of ANC. Participants also often expressed the importance of giving birth at a facility, under the care of a skilled birth attendant.

Additionally, perception of risk was associated not only with health outcomes but with fears of future repercussions if they did not attend ANC. One participant expressed that she was afraid she would not be able to deliver in a facility without an ANC card, while another expressed fear that she would not be able to enroll her child in school without presenting proof that she had attended ANC. This participant may have been confusing the birth

registration card for her child (used to record vaccination status, etc.) with her ANC clinic card; regardless, it was a source of concern and worry for the participant, and something that apparently had not been explained and/or understood well.

> *"In some schools if you are going to register the child for admission they will tell you to bring the child's antenatal card before the child is admitted. If you do not present it they will not admit the child." [GHA-1, R8]*

Across all FGDs, participants expressed a clear understanding that they were not 'meant' to be pregnant yet and many claimed that they were not 'of-age' to be bearing children. Their knowledge of heightened obstetrical risk associated with their 'abnormal' situation, is captured in the blue box of Figure 4 as "perceived susceptibility and severity". These notions of risk inform the perceived threat associated with being pregnant at a young age. According to the Health Belief model, the higher the perceived risk, the more likely that the associated health-promoting behaviour will be practiced. Participants clearly identified ANC as the best practice for mitigating risks associated with pregnancy (refer to Aims 1 and 2 for greater detail).

Construct	**Definition and application to ANC uptake by adolescents**	**Illustrative Quote(s)**
Perceived Susceptibility	Believes that if she *does* experience a complication or illness during pregnancy, the risk of maternal and/or fetal illness or death is high. Individual is more likely to attend ANC if she believes the risk of experiencing illness or pregnancy/obstetric complications as a first time mother is high	"She has to go so that she will be taken care of. Some of them they don't have a strong waist [developed pelvis] to go through childbirth." [GHA-6, R6]

Perceived Severity	One's opinion of the seriousness of a condition and its consequences. Individual is more likely to attend ANC if she believes that if she *does* experience a complication or illness during pregnancy, the risk of maternal and/or fetal illness or death is high.	"I was advised by different people, my friend, but also I thought because nowadays babies are born with disabilities, I better hurry to the clinic." [TZA-3, R4]

Table 5. Perceived susceptibility and severity

In addition to perceived threat, the outcomes anticipated from ANC attendance factor into the decision around whether to attend. Given that this data was collected retrospectively, participants' answers regarding the perceived outcomes of ANC are a mixture of initial perceptions and actual experiences. One's expectations of the outcomes are determined by weighing perceived benefits against perceived barriers. According to the HBM, when perceived benefits were thought to outweigh the higher than perceived barriers, this increases the likelihood that the target behaviour will be performed.

The participants generally expressed an understanding of the benefits of receiving ANC services; however, there was variability in the enthusiasm and conviction with which these benefits were described. Some participants were emphatic about the benefits, while others were fairly passive in their descriptions of what one gains from attending ANC (refer to Aim 2 for more detail, page 55).

Construct	Definition and application to ANC uptake by adolescents	Illustrative Quote(s)
Perceived Benefits	ANC uptake is more likely if one believes early and frequent ANC attendance will minimize risk and severity of illness, complications. **Key benefits described by participants**: - Confirm pregnancy and ensure partner "takes responsibility" - Blood test (HIV) - To receive drugs if necessary - To protect the welfare of the baby	"We go early because if we delay our boyfriend might deny the pregnancy… If you get impregnated by someone and the person refuses responsibility, a paternity test could be performed to know the real person responsible for the pregnancy. Otherwise you will be left with the responsibility and care of the pregnancy alone." [GHA-6, R3] "When you go there your blood is tested to know if you have any form of disease and you would then be given medication for any disease found from your blood." [GHA-6, R1] "We feel much healthier and stronger than if we do not go. I was given medicine." [GHA-4, R1]

Table 6. Perceived Benefits of attending ANC

Participants spent considerable time discussing barriers to ANC uptake; in some cases the RA asked follow-up questions to steer the discussion toward factors that motivated ANC attendance, or might improve ANC utilization in the future.

Perceived barriers tended to fall under two categories: Tangible and psychosocial costs (Table 7). These barriers were largely considered 'hindrances' but not as insurmountable obstacles. While these situations were not ideal or favourable to the participants, they did not appear to be significant deterrents, given the high ANC uptake among study participants (4 visits in Tanzania and 5 in Ghana).

Shyness and anxiety were heightened prior to attending the clinic for the first time, likely due to fear and stress related to possibility of being pregnant, but also due to anticipation of poor treatment by health centre staff. In Ghana, participants were often pleasantly surprised by their interactions with staff, or at the very least, found they were able to cope with how they were treated. In these cases, anxiety was substantially reduced after the first visit, which encouraged participants to return for subsequent visits.

Though changes in levels of anxiety were not explicitly brought up by any of the Tanzanian participants, initial perceptions about negative HCP attitudes seem most often to be confirmed and to persist throughout the ANC experience (to be discussed subsequently). Additional barriers are summarized in Table 7.

The action of confirming the pregnancy appears to be a pivotal consideration for participants, determining if, and at what point, they attend ANC. In Ghana, confirming one's pregnancy was often framed positively, as a benefit of being seen at the clinic. Having the pregnancy confirmed by a professional was seen as a way of ensuring that the 'responsible' male could not deny the pregnancy. Participants often spoke about being motivated to confirm their pregnancy as soon as possible; and it was at the hospital where they went to be tested that they learned about ANC.

However, confirmation of the pregnancy is also a barrier for many, because the individual's status will become known. Confirmation of pregnancy can thus act as a significant barrier to uptake of ANC services, because once the pregnancy is known to HCPs or community members, there are serious ramifications: it may make terminating the pregnancy more difficult (as expressed in Ghana) and because it will mean having to leave school (in Tanzania), or possibly being 'sacked' from home (both countries).

> *"If I want to abort the baby and I go for the session and later abort it maybe the midwife might notice me later and question me and if I tell her the truth she might call the police to arrest me." [GHA-6, R3]*

The blue box in Figure 4 encapsulates the decision-making process undertaken by the individual, as explained above. Ultimately, the decision is influenced by the individual's belief in her ability to successfully execute a given behaviour. Participants spoke about overcoming one's shyness and fears in order to attend ANC and expressed a belief that some people are just more courageous by nature. These inferences are mainly drawn from Ghana, where participants provided more detailed narratives of their decision-making process.

Construct	Definition and application to ANC uptake by adolescents	Illustrative Quote(s)
Perceived Barriers	One's opinion of the tangible and psychological costs of the advised action. ANC uptake is more likely if perceived barriers are lower than perceived benefits. **Barriers described by participants:** 1) <u>Psychosocial costs</u>: - Shyness, embarrassment - Fear of harsh treatment by nurses Fear of social discrimination 2) <u>Tangible costs</u>: - Long distance to walk - Long wait times - Cost of transport - Confirmation of pregnancy (alerting others to status) - Dislike for medications or services - Having to leave school	*"I was scared of getting a full body check-up as I never had one before and I heard that the will completely undress me to be touched." [TZA-3, R6]* *"For instance you might be a student and when your classmates see you going they could make fun of you." [GHA-2, R2]* *"The distance from villages to the facility. We have to walk for a very long distance to reach the clinic and we don't have transport." [TZA-5, R1]* *"Some of the medicines smell a lot and I don't like that medicine" [GHA-4, R1]*

Table 7. Perceived barriers to attending ANC

Cues to action are another important element of the model. These are sources of information present in the environment, which the individual isn't necessarily seeking out. Cues to action can influence the individual but also the household decision maker and other social referents. Participants spoke of various 'cues to action' that promoted ANC attendance; however, these cues to action (ie. CHWs/CMs, mHealth notifications and radio advertisements) were mentioned less often than actual people in the participants' lives who would motivate them to attend ANC (see 'Positive Social Referents' below).

Construct	Definition and application to ANC uptake by adolescents	Illustrative Quote(s)
Cues to Action	Strategies to activate "readiness". ANC uptake is more likely if she receives reminders or public health messages promoting the use of ANC (media, campaigns, school, key social referents etc.) 1. Radio 2. Traditional birth attendant or CHW/CM 3. mHealth notifications (one participant only)	*"I receive text messages at times on the dos and don'ts of a pregnant woman. We also get phone calls at times." [GHA-3, R4]*
Self-Efficacy	Confidence in one's ability to take action. ANC uptake is more likely if she believes that she is capable of overcoming barriers and accessing ANC (assertive, self-assured)	*"There are some girls who are not shy of anything" [GHA-2, R4]*

Table 8. Cues to action and self-efficacy prompting ANC use.

Since these participants attended ANC on average four times, it can be reasonably inferred under the HBM that perceived barriers would be lower for participants and perceived benefits, considered in tandem with the perceived threat, would be higher. This is consistent with the data given that participants, particularly in Ghana, spent considerable time narrating their beliefs about ANC and demonstrated a degree of rational, individual-level decision-making. However, these adolescents are operating within social contexts and household situations that exert a strong influence over their actions; therefore the decision-making process is potentially less autonomous than it would be for an older woman.

There are a host of external/environmental factors affecting her decision-making process. These have been added to the core HMB model (Figure 4, in red). Because of their age, living situation and the fact that they are not earning an independent income, these participants are likely dependent on the opinions and beliefs of their parents and partners/husbands. In some cases, participants may have very little choice, particularly where they are financially dependent on the head of their household. However, as

evidenced by the following quotes, participants are, in some cases, undertaking an individualized decision-making process. Therefore, the model incorporates both layers: the individual's internal decision-making process (blue) and the external factors influencing the ultimate decision (red).

> *"The distance is far and you would have to spend money to board a car to get here and when you get here… you will have to wait for long almost till evening before you will be attended to. So sometimes when you are at home and you remember some of these things than you feel lazy and you don't want to come." [GHA-5, R4]*

> *"M: The midwife that you went to, did you go there on your own initiative or you were directed by someone? R: I went there on my own. M: You took the initiative on your own? R: Yes M: No one asked you to go? R: No" [GHA-6, R5]*

While 'perceived' barriers are items that an individual has the power to address or mitigate, there are other more substantial structural barriers that the individual has little control over. The participants mentioned a number of these more substantial barriers as things that acted to delay their ANC attendance or diminish the number of visits. For example, stigma experienced from peers and health care providers was a major issue, as were the challenges associated with a lack of family or partner support (in terms of financial and emotional support). A host of health service delivery issues were also recounted.

Strict cultural definitions of what constitutes proper timing for motherhood influenced adolescents' willingness to attend ANC. Stigma associated with teenage pregnancy represented a powerful deterrent from attending, most notably in the initial stages of deciding whether to attend the clinic and when disclosing the pregnancy to peers, school masters and family.

> *"When we were schooling, our mothers advised us not to take boyfriends, but because we were disobedient and took boyfriends and ended up getting pregnant. So when we go to the hospital, we are shy." [GHA-5, R8]*

Oftentimes in Ghana the participants explained that their assumptions about nurses' negative attitudes changed after attending ANC the first time. However, some participants, particularly in Tanzania, continued to feel stigmatized throughout their pregnancy. Interestingly, experiences of stigmatization were reportedly not confined to pregnant adolescents: some women were also 'harshly criticized' by nurses for being 'too old' to bear children [TZA-3, R1].

Social referents also played a crucial role in promoting ANC attendance, as did partner and family support – these constructs are closely linked. Positive social referents are individuals with the ability to influence the individual's notions about ANC. Participants

described two main types: a) formal authority figures and b) role models with lived experience. Formal authority figures included fathers, male partners and health care providers (nurses in particular) – if these individuals believed ANC was important, it had an impact on the participants' beliefs. However, participants placed far more emphasis on the opinions of those with lived experience of childbirth. If a mother, sister or female in-law had a positive experience of attending ANC, these were the opinions that reportedly mattered the most.

In addition to the opinions of role models and authority figures in the participants lives, they also required support to be able attend ANC. The types of 'support' described by participants included psychosocial and material support.

Each of the constructs in the social and cultural context box makes up the context in which an adolescent makes decisions about whether to attend ANC, and these decisions are made with varying degrees of autonomy. These constructs interact with each other: the opinions of social referents and household decision makers are influenced by prevailing norms; those same individuals contribute to creating and reinforcing norms through their attitudes and behaviours (such as stigmatization of the pregnant adolescent).

Construct	Definition and application to ANC uptake by adolescents	Illustrative Quote(s)
Family and social support	The degree of involvement of other household members and parties associated with the pregnancy. ANC attendance is more likely in situations where there is a male 'taking responsibility' (financially) for the pregnancy or where there is support from family members. This includes financial and psychosocial support.	*"If she has someone who supports her then she will be able to go, if not she cannot go. There are some who are unable to go because when they got pregnant they were sacked from home by their parents. So when it happens like that she has no helper who will support her financially to attend ANC." [GHA-2, R6]* *"It was my partner who gave me money to begin attending antenatal." [GHA-2, R4]* *"Sometimes too your husband does not have money to give you and you have no other place to get money from. You will have to wait for him to get money from wherever he can get if from." [GHA-5, R10]*

		"I was living with a sister of mine who has delivered two children. So even when my mother mentioned it, I said I was afraid and all that. She was the one who advised me that they were good and they will give me drugs for me to deliver safely and all that" [GHA-1, R1]
Social referents	People in the individual's life with the power to influence the individuals' perceptions of a behaviour. ANC uptake is more likely when the individual has social referents who believe ANC is important. **Types described by participants:** 1. Formal authority figures 2. Role models with relevant lived experience	*"It is because she [her mother] is the one who gave birth to me and knows what happens during pregnancy so that is why if she tells me to go, I would go." [GHA-2, R2]* *"Our fathers have never delivered a child before and they know nothing about pregnancy that is why if they tell us to go we are less likely to go." [GHA-2, R1]*
Normative Beliefs **(Social norms)**	An individual's perception of pressures to perform (or not to perform) a behaviour based on prevailing ideas, culture and value systems. ANC uptake is more likely where normative beliefs encourage ANC attendance and are tolerant of adolescent pregnancy. **Participants described prevailing beliefs/norms which impacted ANC use:** • Best source of care (western vs. traditional medicine) • Acceptable age for motherhood	*"During the older days they were no hospital so our mothers never went for antenatal. But now with modernization there are hospitals, so those who refuse to go are still living in the past" [GHA-3, R3]* *"For some people they take local medicine at home. So they know that even if they do not go to the hospital, because they take local medicine from home they will give birth [at home]" [GHA-1, R6]* *"[Our peers] say it is stupid that we are going for antenatal. Because the new crop of nurses they are young so if you go there and you are young they insult you so they tell us not to go but take*

	• Who 'ought' to attend ANC • Stereotypes of nurses' personalities	*medicine from home." [GHA-1, R6]* *"Some of the girls also say that their already pregnant and they only must be sure their baby kicks in the stomach. And so God will take care of them until they deliver. They also have the notion that even if the go for those sessions, the midwives only give them lots of drugs which do not help them in anyway." [GHA-6, R3]* *"We are females, but there is an age you must first attain. When we were going to school we were taught the age we must attain first before we get pregnant but for us we didn't attain that age… that is why we are shy." [GHA-5, R5]*

Table 9. Social and cultural factors influencing ANC use.

Construct	Definition and application to ANC uptake by adolescents	Illustrative Quote(s)
Stigma	Negative stereotypes perpetuated by individuals' opinions and behaviours. ANC uptake is more likely where there is lower stigmatization of adolescent pregnancy (or where there are positive social referents challenging the prevailing stigma on behalf of the pregnant adolescents). **As described by participants, main sources of stigma arise from:** 1. Peers and social circle 2. Health care providers	*"Sometimes, if we go for the test and it is confirmed that we are pregnant and we go back home and tell our friends, when we are passing by our friends will be murmuring saying, "look at this girl she is not grown and she is pregnant and look at what it has done to her." [GHA-5, R4]* *"Sometimes too they complain saying that we are not grown and have gone following after boys then we get pregnant we come and bother it with them at the hospital" [GHA-5, R4]* *"Because the elderly are around [during ANC clinics] they keep on staring at you and then you begin to feel embarrassed" [GHA-4, R3]* *"Some of the nurses are rude and ill-mannered. There is one at [the clinic], because of her I don't like going there, they look down on you and they think [more] highly of themselves than others." [GHA-3, R4]*

Table 10. The influence of stigma on ANC use.

The decision-making process not only depends on the individual's understanding of risks and benefits, but on her social and cultural context. In addition, the data demonstrates that several health systems level factors also play a role in influencing ANC uptake. Thematic analysis of the data indicates that these factors can be grouped into four categories, as shown in the red box labeled "Health Service Delivery" (Figure 4). In some cases, obstacles experienced by the participants coincide with regulations mandated by the government, whereas in other cases these obstacles are related to interpretation of policies by frontline staff (ie. Health Centre practices).

Patient-provider relationships are also included in this category as part of the structural factors influence ANC uptake. The patient-provider relationship includes both the

participants' initial perceptions of how they might be treated, as well as their actual experience interacting with HCPs (discussed extensively under Aims 2 and 5). Because perceptions are included here, this construct overlaps/interacts somewhat with normative beliefs – the participants' ideas about how they would be treated were informed by the experiences of those close to them, as well as prevailing beliefs about the attitudes of nurses and other HCPs.

Tables 9-11 defines each of the constructs and provides supporting evidence through key quotes. These issues are the least under the control of the individual, and have a marked impact on her experience of ANC, including ease of accessing quality care as well as her overall attitude towards the quality of the services she received.

Participants largely described these elements in terms of their negative impact on promoting ANC uptake. These factors have been captured in the tables in the same way they were framed by participants. When considering their application to the overall model (which looks at facilitating ANC use), it can be inferred that actions to remove or address these challenges would facilitate ANC uptake. Specific recommendations are discussed under Aims 4 and 5.

Construct	Definition and application to ANC uptake by adolescents	Illustrative Quote(s)
Health Systems Policies	National, or high-level, rules dictating patients' access to health services. ANC uptake is more likely where policies do not discriminate against adolescents. **Problematic policies:** • Pregnancy not permitted at school (Tanzania only)	*"I disliked that we were told that we must bring men who got us pregnant. I disliked it because sometimes you are pregnant but the man is no longer in the picture. But still they tell you that they won't attend you until you bring the man. Where will I get him?" [TZA-3, R3]* *"I was late [in seeking ANC] because I was scared that the clinic will tell me to go with my husband." [TZA-3, R1]* *M: "Any other reason why young women are late to start attending ANC? R3: Sometimes it is when the woman is a student" [TZA-5]*
Patient-provider relationships	Interactions between individual patients and their health care provider at point-of-care.	*"Sometimes [the HCPs] get so angry and rude. They rip your clinic card into pieces" [TZA-3, R4]*

	Participants described three categories of relationships: 1) Motivating and inspiring interactions with HPC 2) Neutral, purely transactional interactions 3) Inhibitory and discriminatory interactions. ANC uptake is more likely when participants developed meaningful, supportive relationships with HCPs. Positive interactions were particularly important for motivating repeat ANC visits.	*"I was afraid that, if I went, she (the nurse) will tell me that I was going to school and had not completed but have got myself pregnant, she will insult me. But when I went she held my hand and took me to the madam who attended to me really well." [GHA-1, R1]* *"My sister-in-law said the nurses treated her harshly and rudely, so if I go they will treat me the same, but fortunately for me I experienced none of that so the nurses should treat us well." [GHA-3, R10]* *"Madam sometimes even when you are pregnant and you go there and you are shy, you are not happy and you can frown. But if the nurse likes you she can say something funny for both of you to laugh at to create happiness." [GHA-5, R4]* *"When a woman is dirty, they took long time waiting to decide to attend you." [TZA-6, R5]*
Human and Material Resources **(Health Systems Issues)**	The resources (human and material) necessary for implementing ANC services at the health centre. ANC uptake is more likely when participants know that services and medications will be consistently available. **Key issues described by participants:** • Staff shortages • Medication stock-out • Lack of obstetric equipment and other	*There is no water supply at the facility. When you go there to deliver you need to bring a bucket of water with you. [TZA-4, R4]* *"I disliked the waiting time. You go there and wait for many hours and the nurse said they are going for tea break." [TZA-8, R1]* *"They did everything for me but there is only one midwife so we have to be delivered by the traditional birth attendant" [GHA-4, R2]* *"When you arrive at the clinic they tell*

	materials (ANC cards)	*you that the cards are finished and that you should buy a notebook. Then they use that notebook to record all your details until when you give birth." [TZA-3, R1]* *"Some of the nurses would also give you prescriptions to go and buy certain drugs when you don't have enough blood, meanwhile they have the drugs which they can give to us and we also have no money to buy them." [GHA-3, R7]* *"Sometimes, even if you have paid for the community health insurance (CHF), when you go to the facility they tell you to go outside to buy medicine, so the CHF is useless." [TZA-3, R5]*
Health Centre Practices	The operationalization of health systems policies, as well as specific approaches to scheduling and delivering services; interpretation of policies and rules may vary from one HCP to the next. ANC uptake is more likely when frontline workers are interpreting policies and practicing in a non-discriminatory manner, and when health centres are known to operate smoothly. **Key problematic practices described by participants:** • Partner testing for STIs (mainly HIV) at first visit (Tanzania only) • Illegal fees and inconsistent provision of	*"When I went for ANC she asked me to sit down and I waited. But later I realized that she was attending to people who came to meet me while I was still sitting. Do you think it is good? So I dislike her a lot." [GHA-3, R4]* *"I remember that if you are new there and you are being given a card, you will not be given a drug until you have done labs and taken the scan before you will be given a drug. So no matter how many times you come there they won't give you the drug unless you go to [The Referral Hospital]." [GHA-1, R8]* *Sometimes we have to be transferred to [a larger facility] where we have no money for the service" [Gha-4, R2]*

	medications • Opaque or unfair scheduling and triaging practices • Problems with referrals and transfers • Only conducting ANC clinics on specific days rather than on all days. • Lack of privacy and confidentiality for adolescents	

Table 11. Health service delivery factors influencing ANC use.

9.5 Aim 4: What do participants suggest as ways to promote and facilitate ANC use for other adolescent females during pregnancy? And Aim 5: How could ANC services be made to be more adolescent-friendly?

During the analysis phase, it became apparent that there was substantial overlap between the participants' suggestions of ways to improve the current services and their suggestions for ways to promote ANC use among pregnant adolescents. Therefore Aims 4 and 5, which were secondary aims of the study, have been combined into a single section.

The participants' recommendations stem from two sources:

1) Direct suggestions mentioned explicitly by participants either when:
    a. directly asked about changes they would like to see to services offered, or
    b. arising unprompted during the discussion.
2) Implicit, or Inferred, suggestions stemming directly from participants' expressed frustrations.

The direct and inferred suggestions are presented separately in Table 12, and are woven together in the narrative.

Is ANC Tailored to Adolescents?

Across the six FGDs in Ghana, participants were divided in their responses to the question about whether they thought the ANC services were tailored to adolescents' needs. Many felt that ANC was not intended for them, because they felt profoundly different from the other pregnant women at the clinic. They were keenly aware when they were the only adolescent at the ANC clinic, and felt that ANC was not tailored to their needs, because they were not 'supposed to be' pregnant at their age.

> *Sometimes when you go you meet only older women. So when you meet them there, you begin to think that it was made for older women [GHA-1, R6].*
>
> *… it is for adults, not us young girls who are not old enough to get pregnant. So I have seen that it is not for us. [GHA-5, R5]*

Several participants expressed distinct feelings of being treated differently at the health centre, due to their age. As evidenced by one participant's comment: "Sometimes too they complain saying that we are not grown and have gone following after boys then we get pregnant we come and bother it with them at the clinic" [Gha-5, R4]. This sentiment was echoed by another participant in a separate FGD: "[The midwives] will insult you and at times what they have to take their patience and [care] for you. They won't do it, yet they will insult you" [Gha-6, R4].

As explored under Aim 3 (page 59-77), participants often felt stigmatized by HCPs for being school-aged and pregnant, and participants also often expressed feeling ostracized by older women at the Health Centres when they were attending their ANC sessions. These feelings informed their belief that ANC was not intended for them. As expressed by one participant:

> *Actually, at the age when you are supposed to give birth, we have not attained it yet…. So when I observe and I see that I am the only young girl there and not being attended to immediately, that is what will make me think and ask myself, "Ah! Why is it that the adults are being attended to and I am not being attended to?" I can ask that and someone will tell me that it is for adults and not for children" [GHA-5, R4]*

Within a given FGD, participants tended to express similar opinions, or to agree with the first person to speak. However, across FGDs in Ghana, participants expressed contrary views. In some FGDs, participants felt that ANC was suitable for all women "anyone can get pregnant, so everyone can visit there" [GHA-2, R1]. These participants tended to revert back to ideas about the importance of ANC. They narrated their understanding of why all women 'ought' to attend ANC services, rather than discussing whether the services were tailored appropriately for their unique needs as adolescents. In each instance, the RA steered the conversation back to whether ANC had been suitably designed for adolescents. Once participants understood the question better, they were eager to provide suggestions for how existing ANC services could be tailored to the adolescent's circumstances.

Across the eight FGDs in Tanzania, participants largely provided the same answer: They felt the services provided to pregnant women were comparable, regardless of age. They largely did not elaborate on these opinions, providing brief responses that ANC was equally suited to younger and older women. However, in one FGD, two participants felt that adolescents received higher quality services compared to older women "because it is the first time to

have a baby. The services and education are of higher quality than that of experienced women" [TZA-4, R3].

Enhancing Heath Centre Services: ANC and Beyond

In Ghana, the responses overwhelmingly related to non-clinical dimensions of care: participants felt that the most important way to improve the adolescents' experience of ANC is to create a friendly environment, where they will feel at ease. This directly related to the intense feelings of shyness and apprehension about attending clinic, based on their understanding that they are not yet 'of age' to be pregnant.

Participants expressed a desire to interact with nurses in a friendly, social manner. They wanted to be counselled by health care practitioners "like we are their sisters" [GHA-1, R7].

> *They must make us feel at home so that when we visit we would not be afraid" [GHA-2, R2]*
>
> *When we go they should smile at us and chat with us heartily so that we will also be glad in our hearts to go there all the time.* [GHA-1, R1]
>
> *If the nurse likes you she can say something funny for both of you to laugh at to create happiness.* [GHA-5, R10]

Participants felt it was important for health facility staff to recognize their unique circumstances as young women, and to provide care in a non-judgmental manner. Additionally, participants felt that the attitude of the nurses was crucial for setting the tone amongst other patients at the clinic – if the nurse was kind and accepting, it would lead others to adopt a similar non-judgemental attitude. As explained by one participant, "there are many people there, [so] you tend to feel embarrassed, but if [the nurses] do not frown their faces and talk nicely to you, it is good" [GHA-5, R10].

Several participants expressed a desire for social support from nurses, beyond the boundaries of ANC. They shared their desires to return to school or learn a vocation, and expressed wanting their health care providers to be supportive of these goals.

> *They should say some things that would encourage us. For instance, because we could not complete school, they should not say things that will dampen our spirit because we have given birth… with that we would be happy always to go to antenatal. [GHA-1, R6]*
>
> *[Give] good advice like… maybe you couldn't complete school, so after delivery you should continue with your schooling or learn a trade so that in future you will also become a responsible person"* [GHA-1, R8].

Secondary to the desire for a welcoming environment and supportive counselling from health care providers, the participants in Ghana expressed a number of suggestions for enhancing clinical aspects of care. These suggestions are summarized in Table 12. A desire for more centralized services featured heavily in the discussions, as a way to reduce costs to the individual and to improve the quality of care.

"If they had the machine for scan I would not have to spend more money to go to town to take the scan. If they had it I would be very happy" [GHA-5, R5]. This sentiment was echoed by another participant in the same FGD: "we are living at far places and we cannot get lorry fare to board a car and come. But if we can come to one specific place and be well taken care of, that is what will make us happy". [Gha-5, R4]. These sentiments were also expressed in the second FGD at the same location.

> *They should add medicine. Medicine, medicine, medicine. Every time you go there they tell you that the medicines are missing you should go and buy outside the facility premises. To purchase, to purchase*. [TZA-3, R3]

In Tanzania, the focus of the discussions differed from Ghana: desired changes centered on more basic elements of service delivery: understaffing, medication stock-outs, scheduling and organizational issues, with discussions about supportive counselling and interpersonal relationships with HCPs coming second.

> *What they need to add is the machine they use to check for the baby's position and heartbeats, because one day they tell you the baby's position is alright, next month they say it's badly positioned. Then they tell you the baby has no heartbeat. They just don't know what they are doing. They are not sure. [TZA-4, R2]*

Across almost all FGDs in Tanzania, increasing the number of health care providers, nurses in particular, was the most emphasized suggestion for improving services, alongside increasing availability of medication and "tools" (ie. ultrasounds, general obstetric equipment; even ANC attendance cards).

Participants understood that long wait times were in part due to staffing shortages, as captured by a participant who said: "*they should add the number of health providers… because the same providers have to attend the many children first, then pregnant women. That is why pregnant women have to wait for [a] long time to be attended*" [TZA-2, R1].

However, certain aspects of the delays and challenges to receiving services were felt to be due to disorganization, lack of supervision, and poor communication within the Health Centres. "*Even if they won't make big changes, they should at least try to keep time. That will be great*" [TZA-6, R4].

One participants' experience illustrated common frustrations with the nurses' practices around ANC scheduling at the health centres:

> *I will never forget the day I went there with my husband around 11:00am. I saw all the nurses sitting there but they wouldn't attend me because I went there at my own time" (RA: At what time were you supposed to go there?) "At 8:00am. But even when you go at 8:00am, they do not attend anyone until 10:00am".* [TZA-6, R5]

Additionally, participants expressed a desire for respectful one-on-one interactions with nurses. This is illustrated by one participant who stated, "*the nurses should be told to stop being rude and to keep time. If the starting time is 8:00 am then they should be there at 8:00 am*" [TZA-5, R1].
Of note, in one specific Tanzanian FGD, participants provided no suggestions for enhancing services. They simply replied "We don't know" when asked for recommendations [TZA-1].

	Directly Stated Suggestions	Implicit or Inferred Suggestions
Adolescent-specific suggestions		
Ghana	• Friendly and supportive patient-provider relationship. • Non-judgmental approach to adolescent pregnancy. • More frequent interactions with HCP to discuss personal health status and receive education.	• Improved communication on rationale for HCP recommendations and health centre practices. • Sensitivity training for HCP on caring for adolescents during pregnancy.
Tanzania	• More opportunities for sexual and reproductive health education for adolescents. • Provision of family-planning services. • HCP to treat expectant adolescent mothers more respectfully. • Allow choice of where to go for ANC services and where to go for facility-based delivery.	• Change in health centre policies and/or practices regarding partner-testing for HIV/STIs at first ANC visit • Change in government policy requiring adolescents to leave school as soon as pregnancy is disclosed. • Improved communication on rationale for HCP recommendations and health centre practices. • Sensitivity training for HCP on caring for adolescents during pregnancy • Training and supervision of HC staff to ensure policies are appropriately applied in practice.
Suggestions applicable to all ages and across all health centre services		
Ghana	• Greater choice of which facilities patients can access care from.	• Improved communication on rationale for HCP recommendations

	• Consistency in provision of mosquito nets • More consistently available supplies of medication. • Centralized services (have ultrasound and lab services within the Health Centre) to reduce travel costs and improve quality of care. • Increased staffing to reduce wait times	and HC practices • Elimination of wrongful/illegal fees for services and medication • More attention given to birth planning during ANC counselling sessions[4] • Greater flexibility in the time of day and days of the month when patients can access ANC services
Tanzania	• Increased staffing at facilities o To reduce overall wait-times o Improved triaging (which HCP deals with which cases) • Improved scheduling and timeliness of services • More consistently available supplies of medication. • Consistency in provision of coupons for mosquito nets • Increased availability of laboratory services and medical equipment at health centres. • Enhanced supervision of nurses to ensure they keep to a schedule	• Greater choice of which facility to seek ANC services from and which facility to deliver at. • Improved communication on rationale for HCP recommendations and health centre practices • Elimination of wrongful/illegal fees for services and medication • More attention given to birth planning during ANC counselling sessions. • Greater flexibility in the time of day and days of the month when patients can access ANC services.

Table 12. Recommendations for Health Centre Service Improvements.

[4] In Ghana, birth preparedness counselling is carried out by CHWs (personal communication, Susan Smandych, Plan Canada); coordination and tracking will ensure that these activities are carried out. Potentially, the HCP who delivers ANC counselling sessions could ask and record in the ANC roster whether birth preparedness counselling has happened. If not, the HCP responsible for ANC should follow-up with the CHW.

Who plays a role in promoting ANC amongst adolescents?

In Ghana it was noted that nurses should be open and friendly when encountering pregnant adolescents in the community. One participant explained that just because an individual has not yet attended an ANC appointment, it doesn't mean she will never attend. If the nurse is friendly and engaging, it would increase the individual's likelihood of attending the ANC clinic [GHA-1, R1].

Participants also spoke about other positive social referents acting as ANC promoters. Across the FGDs in Ghana, it was agreed that women who had given birth before (mothers, sisters and sisters-in-law) could act as the most powerful influencing force.

Participants who had positive experiences of ANC were emphatic that they would take it upon themselves to promote ANC attendance among other pregnant adolescents. Particularly in Ghana, participants often found that their actual experience of ANC was not as scary as their initial perceptions, and they felt they received helpful services and guidance. They explained that the general perceptions amongst their peers are that the nurses are unfriendly and that older women attending the clinic would ridicule pregnant adolescents.

> *M: What do you friends say about antenatal? R1: Some of them say the new madams who are there the way they walk and all that, they will be proud. So they usually ask us that if we go there, do they insult us. Then we tell them no. [GHA-1, R1]*

These participants who felt positively about ANC expressed the need to shift the normative perceptions of their peers and explained that they could act as ambassadors.

> *Sometimes when you visit, the manner in which you are attended to makes you so happy that you will also tell a friend about it and assure her that it is the same way she will be treated if she visits there. As a result, there will be friendliness between the nurse and other adolescents so anyone can testify of what she has been told of the facility, concerning their friendliness and non-embarrassing attitude* [GHA-2, R6]

In Tanzania, the discussions were far more brief; participants mentioned the key sources of information that would influence their decision to attend ANC: these included female relatives (mothers and sisters predominantly) and very occasionally a CHW or village health officer. Radio and television were also mentioned as important sources prompting participants to attend ANC.

10. Discussion

The voices of service users are not always well represented or carefully considered when designing and refining programs, and when setting research priorities. Yet, in order to ensure that programs and services are meeting the needs of the users, it is essential to bring their voices to the forefront. The results from this study should be viewed as a mosaic of voices, with each voice drawing attention to the wide range of individual experiences of ANC. The views presented in this study stem from a particular sample of individuals and are likely not exhaustive of all adolescent mothers' experiences of ANC. As well, the views presented here may overlap with the experiences and perceptions of older expectant mothers.

The following section links and synthesizes key ideas presented under the Findings section. For a summary of emergent themes, please refer to the accompanying Research Snapshot and Infographic; this section delves deeper into a selection of priority issues that emerged from the data and hypothesizes about broader implications for policy and programming. Thus, the themes, questions and ideas that emerged from this study are intended to help point researchers towards topics for further investigation, and to provoke a re-evaluation of common practices, policies and assumption amongst program implementers.

The lessons learned and topics discussed in this report represent a useful piece of the puzzle, yet at the same time they are just one piece of the puzzle. Follow-up research and community engagement strategies that build on the insights from this study should be executed in order to have a more fulsome understanding of issues impacting access to ANC services (refer to the Looking Forward and Conclusions section, page 91 for further detail).

10.1 What does 'adolescent-friendly ANC' mean to these participants?

The WHO Report "Making Health Services Adolescent Friendly: Developing National Quality Standards for Adolescent Friendly Health Services" (WHO 2012) consulted adolescent groups from a range of contexts, soliciting their opinions on the meaning of "Adolescent-friendly" services, and how they wish to be treated when accessing health services. Across all contexts, two major themes emerged: adolescents wished to be treated with respect and called for confidentiality in their interactions with HCPs. In the study, respect came through strongly as a theme, but framed in slightly different terms. Participants' desired strong rapport with HCPs; in Ghana, participants expressed a desire for friendly, entertaining interactions with HCPs, while in Tanzania the focus was more on being treated with basic respect. Participants also expressed a desire for HCP to reduce the likelihood that expectant adolescents mothers would experience stigma or discrimination from other patients and community members by setting an example through their own attitudes and behaviours. Furthermore, participants expressed a desire for welcoming

health centre environments, which includes policies and practices that are non-discriminatory towards the specific situations of expectant adolescent mother.

Confidentiality was expressed less clearly as a standalone theme, contrary to what was found in WHO consultation (WHO 2012). However, certain themes emerging from this study correspond with aspects of the confidentiality concept. For example, participants spoke about concerns over their pregnancy status being disclosed, as it would mean (in Tanzania) that they would have to leave school. Additionally, participants often spoke about feeling shyness or embarrassment when waiting for their ANC appointment in the general waiting area at the facilities, yet they didn't directly express a desire to be able to access services with a greater degree of confidentiality.

As documented in previously published research, adolescents are not completely autonomous in their ability to make health-seeking decisions, due to financial dependency and age-related factors (Pell et al., 2013). The head of the household may be making many of the decisions related to care-seeking practices, yet, the adolescent female should not be seen as a passive vessel. It is important not only to consider access to care, but also *how* the care is delivered.

From our results it is clear that participants were experiencing high levels of anxiety about stigmatization and discriminations from HCPs (both based on real experiences and perceptions based on the experiences of peers and family members). These participants still attended ANC, and in many cases had a more positive experience than anticipated. However, many, particularly in Tanzania, experienced anxiety and stress related to their ANC services throughout their pregnancy. One of the central principles underlying the recommendations for the implementation of the new WHO antenatal care model is that "HCPs should make all pregnant women feel comfortable at their clinic" - this notion was strongly echoed by the participants in this study.

Additionally, it has been shown that the number of women seeking antenatal care at clinics increases proportionally with increases in hours of operation of those clinics (WHO 2012). The WHO recommends as best practice that "HCPs should make every effort to keep their appointments with women in order to reduce patient waiting time" and that "women who come without an appointment should not be turned away, even when there is no emergency. As far as possible, any required interventions (for treatment) or tests should be done at the women's convenience, for example, on the same day of the woman's visit". More than a decade later, the adolescent participants in this study are calling for the same standards: for nurses to keep to the appointment schedule, and to not turn clients away for arriving at slightly different times from the prescribed ANC intake time.

Furthermore, when asked to provide suggestions that would enhance the quality of services, participants requested more face-to-face time with HCPs to discuss their health status; they also requested more opportunities for sexual and reproductive health

education. Many adolescents questioned the types and standards of care received (as explored under Aim 1, page 42), demonstrating an active engagement in the process. Thus, although adolescents are dependents due to their age, they are also moving towards motherhood and demonstrating a desire to be more aware of, and engaged in, the services they receive.

Although participants provided some insight into adolescent-specific needs, a large portion of their discussions about the nature of 'adolescent-friendly' ANC services, as well as their recommendations for enhancing services, were focused on improvements to quality of care generally. These participants were motivated to attend ANC when they knew that medications and services would be consistently available, that HCPs would keep to their schedules, and when they felt that high quality counselling was being delivered. Thus, making ANC more appealing to adolescents can likely be accomplished in part by addressing health systems and service provision issues generally.

10.2 Considering complexity and variability of participants' experiences

The mosaic of narratives points to extensive variability in adolescents' experiences of ANC; the results of this study demonstrate that while some themes overlap neatly with existing peer-reviewed literature on determinants of ANC use among women broadly, there are also features which are specific to the adolescent experience. Additionally, this study points to the need to consider complexity when discussing determinants of ANC use. The determinants of individual-level behaviour are not a static, standalone list of factors. They vary between individuals, even within the same community, and they are intrinsically interconnected with broader systems-level issues.

When describing barriers and facilitators, the role of context and individual circumstances was paramount. Major themes around factors that motivate and facilitate ANC uptake (and conversely, factors which have a negative impact on service uptake) align with the existing literature of on ANC uptake by women in LMICs. As explored in the Literature Review section (page 17), lack of financial and decision-making autonomy (Pell 2013) and challenges related to transportation (Chaibva et al., 2009) are significant determinants of ANC access, which were also reported in this study. The circumstances around the pregnancy also emerged as an important theme in this study, and is echoed by existing literature indicating that women who had unplanned pregnancies were more hesitant about accessing ANC (Exavery et al. 2013). Attitudes of HCPs and levels of trust between patient and provider emerged as a central theme in this research, and is also echoed by peer-reviewed research (Duggan and Adejumo 2011). Finally, this study suggests that perceptions of quality of care can sometimes be driven by subjective experiences (for example, friendliness of the HCPs), rather than purely objective measures of quality. This observation was also seen in research conducted by Conrad et al., (2012) where

participants reported being motivated to attend ANC despite variable quality and consistency of services.

With respect to adolescent-specific ANC research, in a qualitative study of adolescents, Duggan and Adejumo (2011) found participants included prioritized interactions with health care providers, wait times, comfort level of the facility, quality of health education and support received for childbirth and parenting as factors determining ANC use. This study showed corresponding results.

Additionally, Pell (2013) found that disclosure of pregnancy was a crucial variable impacting the decision to attend ANC, and the timing of the first visit. The participant narratives emerging from this study support Pell's finding. This study found a mixed relationship to this factor: for some, confirming the pregnancy was a draw, and they were motivated to do so as soon as possible. This perspective was expressed across FGDs in Ghana, where participants wanted a HCP to confirm their pregnancy so that the male partner could not 'deny the pregnancy' and would have to 'take responsibility'. Meanwhile, others did not want to access health services because once the pregnancy was known to others it would have broader ramifications, for example on school attendance (Tanzania) or on her options for abortion (Ghana).

It is essential to note that while there were common themes arising from the data, many of which link into existing literature, we must not to lose sight of the individuality of the participant's experience. Across the two different countries, and even within focus group discussions, some participants described HCPs that were caring and supportive, others described nurses who were harsh and discriminatory, while still others described nurses who carried out their duties with perceived proficiency but did not engage in developing close patient-provider relationships. Participants reported receiving a range of health and nutrition advice, their recollections of the information were not always technically sound and in some cases, conflicting advice was recounted by participants who attended the same health centre.

The 'confirmation of pregnancy' theme is another prime example of variability in the determinants of ANC access. For some participants in this study, having an HCP confirm the pregnancy was a major draw towards the health centre, while for others, it was a deterrent; this was influenced both by the individual's personality and household dynamics, as well as by factors in her environment (national policies and health care practices). Thus, while there are commonalities of experience to be gleaned, there is also a need to design systems that are able to respond flexibly to the individual's needs.

Due to the variability of the individual's experience, despite commonalities of context, a decision-making model was developed (Figure 4). This model is intended to help further the collective understanding of why and how adolescents decide to access ANC, rather than simply curating a list of significant factors. This model can be applied at the community

level, when developing programming, to help conceptualize the myriad of factors influencing the adolescent's behaviour. The model aids in parsing out different 'buckets' or categories of factors influencing decision-making and attempts to piece together the ways in which these factors interact. Programs and policies developed to promote ANC use amongst adolescents can use this model to ensure that the full gamet of factors has been considered, and that programs are both responsive to individual-level variability and are also considering the broader, structural issues. However, please note, this model has only been tested against data from a limited number of FGDs in a limited number of sites, thus further work is needed to validate the model and to ensure that it is broadly applicable across all LMIC contexts.

10.3 Perceptions of Quality of Care and the Impacts on ANC Service Uptake

An issue of paramount importance is perceptions of the quality of care, as evidenced by the themes emerging from this study. This topic has several important facets: First, because word of mouth was cited as such an important way of learning about ANC and an important motivator in the decision to attend ANC; thus the perceptions individuals take away from their ANC experience have the potential to influence many others' decisions. Additionally, it is clear from this study as well as other peer-reviewed literature, that perceptions of services are not always based on objective measures of quality of care. For these reasons, it is crucial to consider what individuals are taking away from their encounters with the health care system, and in the case of adolescents, to consider how their unique life-stage/circumstances could influence their perceptions.

Considerations of quality of care and the individual's experience of care should be embedded within the target of 'four ANC visits during pregnancy', not only as a moral imperative to respect the rights, dignity and autonomy of the patient, but from a sustainability perspective as well. In order for gains in women's use of ANC to be sustained over the long-term, it is important to ensure that women are taking away positive experiences of ANC services. This is because word-of-mouth represented a key channel for promoting ANC use, and women with positive experiences of ANC seemed to be able to act as powerful champions to motivate service uptake amongst their social circle.

There are examples of FGDs where participants voiced positive perceptions towards ANC and were emphatic that they would promote ANC uptake amongst their social circle. However, within the same FGDs, participants recounted inaccurate or incomplete advice they had reportedly been given. Thus, where individual report receiving high quality care and have high levels of satisfaction, it should be recognized that this may be driven by positive social dimensions of care, and clinical quality of care may still be lacking.

From their narratives, it is apparent that adolescents are considering their peers' and family members' personal experiences of ANC, and similarly they are sharing their own experiences of ANC with their peers and family members. Individuals with personal experience of ANC seem to be key social referents and heavily influence the decision to attend ANC amongst this group. However, even when participants did decide to attend ANC, confusing and frustrating experiences left a marked impact on them. Thus, regardless of any objective measure of the standard of care received, participants' perceptions and impressions of the care will influence subsequent decisions to seek care, and will likely also influence the decisions of others in their social circle. This finding is supported by findings in a similar population in Ghana (Conrad 2012).

10.4 ANC in the broader context: Topics for further investigation and consideration

It is crucial to note, that the decision to attend the clinic and confirm the pregnancy ties into a much broader social and cultural context. This points to the need for multi-sectorial policies and practices that are synchronized to be supportive of adolescents. Issues around ANC uptake cannot be addressed effectively solely through the lens of the health system. The negative repercussions on school attendance in Tanzania clearly illustrate this point. Because they do not want to be forced to leave school, pregnant adolescents report delaying seeking care from the health centres until the later stages of their pregnancy. According to Plan Ghana staff, the situation used to be similar in Ghana, but policies have since changed and headmasters are now supposed to allow female students to stay in school while pregnant.

In addition to the Tanzanian policy that pregnant girls must leave school (personal communication, Dr. Ndeki, Praxis Consulting), it is important to consider other policies and common health centre practices that may dissuade ANC uptake. For example, the informal requirement for women to bring their partners to ANC for STI testing – participants report being refused services because their partner is not present. In some cases this practice may just delay access to ANC (i.e. the pregnant female may return at a later date with her partner), however in other cases she may elect not to return at all. Proper training and empowerment of HCPs is essential for ensuring that individuals do not 'slip through the cracks' of the health care system. HCPs need to be able to critically assess an individual's circumstances and appropriately tailor their care to the situation, rather than turning them away or refusing to provide care. This ties into broader health systems issues, and it is recognized that frontline staff face heavy workloads and are not always trained or supported to be able to deliver high quality care. Improving standards of care and opportunities for HCPs to engage in a client-centred practices is a goal to strive for, and a goal that the study participants are calling for through the experiences they shared and recommendations they put forth.

The powerful impact of interpersonal relationships also merits further discussion. Participants' perceptions regarding quality of care were closely linked to their interpersonal experiences with facility staff. Participants in Ghana highly prioritized light-hearted, engaging interactions with nurses as something that would ensure their attendance at ANC. Responses in Tanzania were more subdued, but similar: participants called for timely, respectful interactions with nurses and staff.

The reported inconsistencies in counselling received, as well as the strong call from participants for more supportive relationships with HCPs both point to the need for enhanced training and supervision of HCPs along multiple dimensions including on understanding gender and age related barriers and issues faced by adolescent pregnant girls. The identified issues with high level policies and health centre practices point to a need to reconsider how rigid policies can constrain both practitioners and patients, leading to the creation of obstacles in accessing care. For example, in Tanzania, there has been a recent push to do couples testing and counselling for HIV at the first ANC visit (Theuring, 2009), which can prove problematic when rigidly enforced if woman's partner is not available or interested in participating in this activity.

Finally, it is crucial to consider adolescents' access to many of the programs and services being implemented by the INGOs and local health systems. During the health centre site visits, many of the midwives and heads of the facilities spoke about initiatives such as the community ambulance (community emergency transport system (CETS) in Ghana) or community banking (Village Savings and Loan Association (VSLA) in Ghana), and described how these could be accessed when trying to arrange transport to a facility (see Appendix J). The initiatives were described specifically in relation to women's empowerment. In other words, that these community programs were designed to help women to have greater control over the decision to seek health services, by reducing barriers related to finances and transportation. Within the FGDs, many participants spoke about financial constraints and transportation challenges, and often alluded to relying on the male head of the household for financial support to attend ANC. Yet none of the participants brought up these initiatives as enabling factors that would have motivated their decision to attend ANC – in developing services and programming to support adolescents, it would be worth investigating ease of access to initiatives like the CETS and VSLAs.

11. Looking Forward and Conclusions

The purpose of this study was to explore the ANC experiences of adolescent women, a typically underrepresented population within existing ANC literature. The study design and sampling approach enabled us to achieve this aim; however, further investigations could be undertaken to round out the understanding of ANC attendance in adolescence, for example by conducting key informant interviews with service providers, policy-makers and household decision-makers.

The decision-making model developed under Aim 3 and the table of recommendations generated under Aim 4 (and further summarized below) could be used as foundational material for community engagement activities: These tools could inform workshops with communities where the core themes generated here (factors motivating ANC uptake and recommendations for making services more adolescent-friendly) are used to begin discussions with a range of stakeholders. A series of consultations with policymakers, service providers and youth based on these core themes could be used to develop programming tailored to specific communities. The results of the community consultations could also feed back into the adapted HBM (Figure 4) and the set of recommendations (Table 12) in order to round out current understanding of ANC access in adolescence. These consultations would shed further light on feasible changes that could be made at program and policy levels.

Focused ethnographic research could help to answer additional questions about factors motivating and enabling ANC attendance. The present study includes ideas that the participants were able to vocalize; however, there may be equally important issues that they are conscious of but not comfortable vocalizing, and there may also be issues that they simply are not conscious of but which have a direct impact on ANC access. These types of influencers could be elucidated through direct observation and focused ethnographic research. Additionally, other methods of qualitative inquiry, such as Photovoice[5], could give participants a chance to express themselves and share their lived experience.

Table 12 provides a detailed list of suggestions for enhancing ANC services, both directly expressed by participants, and inferred from their experiences. Additional key considerations for future design and development of new ANC programs, and modification of existing ANC programs are outlined below. These considerations may be important for a range of actors, including policymakers, health centre staff and INGOs working on issues related to ANC uptake.

[5] Photovoice is a digital storytelling methodology developed to help marginalized groups share their personal experiences with a range of audiences, in an effort to engender local change. See www.photovoice.ca for further detail.

- This research indicates that it is important to see the expectant adolescent mother as a rational decision-maker who should be supported in her ability to make autonomous decisions, yet the research also points to the need to recognize that she is still a dependent in many ways. Any policy or program developed needs to recognize and be sensitive to the space that adolescents occupy between adulthood and childhood.
- Current policies and practices can inadvertently discriminate against females of this age, so there is a need to work with policymakers and authorities to advocate for supportive policies and practices that recognize the unique circumstances of adolescents.
- Others individuals' positive experiences of ANC were highly valued; participants who had positive experiences were eager to share with other adolescents, and participants also called for additional education sessions. This points towards an opportunity to develop peer-support groups for adolescents, which could incorporate mentoring and support for pregnant adolescents, and could be nested within broader youth-engagement strategies covering topics around women's empowerment, skills building and vocational training, and reproductive education. Where peer-support groups already exist, a focus specifically on ANC uptake among adolescents may be warranted.
- The highly variable experiences of HCP attitudes, and recounting of inaccurate nutritional/health advice points to a need for enhanced HCP training and supervision. HCPs also need to not only be trained to be sensitive to gender- and age-related issues and barriers that adolescent women of child-bearing age face. This would enable HCPs to be able to provide respectful, compassionate and non-judgmental care, and to provide instruction in a way that is understood and retained by adolescents.
- Time and resource constraints on HCPs are well-recognized, even by the participants; these more structural issues will take time to address. In the short-term, participants experiences point to some key areas where relatively straightforward changes in communication may be beneficial:
    - Providing more options for timing and location of ANC counselling (in case they are not comfortable coming on the same day as the rest of the pregnant women from their village, for example), and
    - Explaining scheduling and referral decisions, including the rationale for these decisions; not just explaining the *what,* but the why and the *how* as well.

Across all suggestions for future research and action, it is essential to consider that adolescents are a diverse and heterogeneous group. Policies and practices should be developed that are tailored to commonalities of the adolescent experience, but that are also capable of being responsive and flexible to variation in individual needs.

Adolescence is a phase of the lifecycle where rapid biological and social shifts are taking place. This transition phase can present unique challenges necessitating tailored support

services, and this is particularly true for pregnant adolescents who face heightened biological risks associated with pregnancy and delivery, and who may also be in more precocious social situations. There has been a global spotlight on increasing uptake of ANC services as part of the Countdown to the Millennium Development Goals, and there has been a simultaneous spotlight on adolescent health and preconception care. However, the specific needs of adolescents have not been carefully explored within the context of ANC services. And in particular, the perspectives of adolescents themselves have not featured within the growing peer-reviewed evidence base for promoting uptake of ANC services.

This study endeavoured to explore ANC use from an improvement perspective. Given that females in this demographic face significant barriers to accessing and fully utilizing ANC services, the key interest was in how ANC services could be better facilitated and supported for these young women. The research team explored the lived experiences of these women, to gain insight into what motivated and enabled them to use ANC services, and was particularly interested in learning what these young women value and understand about ANC services, and what might motivate them to use ANC services in their first and/or subsequent pregnancies.

The participants' narratives elucidated a number of major themes related to their common experience of ANC, but also highlighted the ways in which decision-making is highly individualized, and depends on the unique configuration of personal, household and environmental factors. Participants shared important perspectives on how they think services could be improved, which points towards priorities for focused research and programming in the future.

12. References

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13. Appendices

Appendix A. Description of Health Centres in Ghana, as provided by Plan Ghana via Plan Canada.

	Type of facility	Description of facility	Location of facility	Improvements to ANC service (Y/N)	Description of improvements to ANC service	Population size of catchment area	Number of CHWs serving facility catchment area	Name of Villages in CHW catchment area	CHW trained in BCC and promoting ANC use? (Y/N)	Number of women served by CHW	Approximate number of women aged 15-19 who delivered in this catchment area (2013)
Adawso Health Center	Health center	Size: Medical Assistant*, Midwife, CHO, FT. Services include; ANC, PNC, Growth monitoring, CWC, Adolescent health, deliveries*	Adawso, Akwapim North, Eastern Region	Y	(none given)	11894	4	Kwamoso; Adawso; Baware	Y	2736	48
Ahamansu Health Center	Health center	Size: Medical Assistant*, Midwife, CHO, FT. Services include; ANC, PNC,	Ahamansu, Kadjebi District, Volta Region	Y	(none given)	8302	4	Ahamansu	Y	1993	13

		Growth monitoring, CWC, Adolescent health, deliveries*									
Anyaboni Health Center	Health center	Size: Medical Assistant*, Midwife, CHO, FT. Services include; ANC, PNC, Growth monitoring, CWC, Adolescent health, deliveries*	Anyaboni Resettlement, Upper Manya Krobo District, Eastern Region	Y	(none given)	18018	4	Anyabobi; Fantem; Agajajeteh; Akokoma Sisi	Y	N/A	12
Dabala-Adutor Health Center	Health center	Size: Medical Assistant*, Midwife, CHO, FT. Services include; ANC, PNC, Growth monitoring, CWC, Adolescent health, deliveries*	Dabala-Adutor, South Tongu District, Volta Region	Y	(none given)	N/A	4	Bludo	Y	N/A	N/A

Appendix B. Description of Health Centres, Singida, Tanzania as provided by World Vision Tanzania via World Vision Canada.

Health Facility Name	Ward	Villages Served	Type	Ownership	Population Served	Distance KM*	Physical State
Ilongero	ILONGERO	Ilongero	Health Centre	Local Government	29,734	22	B
		Sekouture				none given	
		Mwakiti				none given	
		Mwahango				none given	
		Madamiga				none given	
		Mrama				none given	
		Itamka				20	
Ikungi	IKUNGI	Ikungi	Health Centre	Local Government	25,634	40	A
		Mahambe					
		Muungano					
		Ighuka					
		Ulyambiti				none given	
KEY: A= Good, B= minor rehabilitation needed, C = major rehabilitation needed, D = demolition and reconstruction, E= under construction,							

Appendix C. Description of Health Centres, Iramba, Tanzania as provided by World Vision Tanzania via World Vision Canada.

Facility Name	Type of facility	Description of facility	Location of facility	Improvements to ANC service (Y/N)	Description of improvements to ANC service	Population size of catchment area	Number of CHWs serving facility catchment area	Name of Villages in CHW catchment area	CHW trained in BCC and promoting ANC use? (Y/N)	Number of women served by CHW	Approximate number of women aged 15-19 who delivered in last year, in this catchment area (2013)
Ndago	Health Centre	RCH, OPD,PMTCT,IPD,DBS	IRAMBA	Y	Training done in BEmONC,IMCI, IYCF,PMTCT,DBS, Training of community health workers, Supply of immunazation, medicine and gas	16201	6	Ndago,Zinziligi,songambele	6	1116	27

Mkalama	Health Centre	RCH, OPD,PMTCT,DBS	MKALAMA		Training done in BEmONC,IMCI, IYCF,PMTCT,DBS, Training of community health workers, Supply of immunazation, medicine and gas	13770	not given	not given	not given	551	5

Appendix D. RA's Focus Group Discussion Guide

Items needed for this FGD:

- Chart paper, stand and markers (multiple colours)
- Copies of consent forms (~12 copies)
- Copies of Participant Characteristics Survey (~12 copies)
- Pens and ink pad
- Tape recorder(s)
- Copies of this discussion guide (x2)
- Travel reimbursements and token of appreciation for participants (if applicable)

Instructions to RA:

- Arrive early to the location and work with the note taker to set-up the room. Set up the chart paper on a stand or a wall, and set up the refreshments area. Ensure that there is adequate seating, within view of the chart paper.
- The note taker is responsible for greeting participants as they arrive; the RA is responsible for reading the consent letter to each participant individually (and obtaining her signature)
- Once the informed consent process is completed, the FA is to administer the Participant Characteristics Questionnaire individually to each participants.
- Once all participants have completed the consent process and the questionnaire, you may gather everyone together and begin the session.

Introduction [RA to read aloud to the whole group]

Thank you all very much for joining me today. My name is [insert RA name] and I will be leading today's discussion about antenatal care. I have a colleague with me called [insert name of note taker] who will assisting me and writing down notes.

We are working with a research team from Canada who are conducting a study in Ghana and Tanzania to learn about the experience of young mothers who have used antenatal care services during their pregnancy, and to investigate how these services could be made more accessible to young women. In the end, the goal is to contribute to improving the health of mothers and children by providing recommendations to the organizations who provide ANC services.

You were asked to participate in this study because we are interested in hearing about your experience and ideas, as a young mother who went to some antenatal care visits during your pregnancy.

Your safety is very important to us, and we want you to feel comfortable sharing your opinion. As I explained earlier, your comments will be kept confidential by the research team, so your name or other identifying information will never be used. I also ask that you do not share the things that your peers have said today when you return to your homes.

You are free to participate as little or as much as you want in the discussions. And you are free to leave at any point, if you wish. As I told you before, we will be recording the discussion so that the research team will have very detailed information about your ideas.

If you have any questions during the discussion, please ask me. Before we get started, my last request is for everyone to be respectful of their peers. This means that when someone else is talking, we allow them to finish and that we do not use hurtful or insulting language/behaviour towards other participants. We all have our own opinions and should feel free to express them, and to discuss in a safe environment.

This discussion will take about two hours in total, and we will have a break partway through so we can all have some refreshments.

Icebreaker Activity:

As per your training and orientation with the study team, select 1-2 icebreaker activities so that the participants can introduce themselves and have the opportunity to become more comfortable.

Now you can begin the discussion, following the guide below:

Section/ Question	**Question and activity guide**	**Notes (RA may quickly jot notes as reminders; the Note Take must write detailed notes throughout)**
A. Initial questions: Experience of ANC services		
A.1	What are your impressions of ANC services?	
A.2	What do you remember about your experience attending ANC sessions?	

A.3	Starting with the first ANC session you attended, can you tell me about what happened? ***Activity:*** *Start with the first visit, and walk through the process with the group. Use the chart paper to write down each step of the first ANC visit. Once the steps have been written down, revisit each step and probe:* What happened specifically at this stage? How did that make you feel? What were your impressions of the ANC service at this stage?	
A.4	How was your experience at subsequent ANC visits, if you attended more than one? In what ways did your experience differ from the first session? In what ways was it the same?	
A.5	What did you like the most about the ANC sessions? *Probe for additional responses. Use prompts like:* *Can you tell me more about this?* *What else did you like?* *Does anyone else have a similar or a different idea to add?* *Is there anything else you would like to share?*	
A.6	What was missing from the ANC sessions? *Probe for additional responses. Use prompts like:* *Can you tell me more about this?* *What else did you like?* *Does anyone else have a similar or a different idea to add?* *Is there anything else you would like to share?*	

B. Awareness of ANC services		
B.1	How did you come to know about ANC services? *Prompt for more individuals to share their ideas:* *Did anyone else find out about ANC services in this way?* *What other ways did you hear about ANC services?*	
B.2	How would other young girls in your community find out about ANC services if they became pregnant? *Write these down on the chart paper*	
B.3	***Activity**: Read through the full list of ways that girls might find out about ANC services and ask the participants to rank the list from most important to least important (#1, 2, 3 etc).* *If participants disagree, ask them to explain their reasons. Give participants time to explore their different opinions, and then ask them to come to an agreement collectively.*	
B.4	Who might not know about ANC services in your community?	
B.5	How did you come to know about ANC services? *Prompt for more individuals to share their ideas:* *Did anyone else find out about ANC services in this way?* *What other ways did you hear about ANC services?*	
C. Timing of ANC		

C.1	***Activity**: Draw a long horizontal line on the chart paper, and divide this line into 10 months using small vertical lines. Explain to the participants that this line shows a pregnancy, from conception (the far left) to birth (the far right).* *Ask the participants to tell you where to mark down the timing of each ANC visit that young mothers would go to.* *If there is disagreement between participants, probe into what makes them disagree.* *Remind participants that this is not about what you are "supposed" to do, it is about what young mother actually do.* *Once the different opinions have been thoroughly explored, ask the group to come to an agreement about a 'typical' young pregnant girl in their community.* When does this girl attend ANC visits? How many does she attend? *Continue the discussion until the participants come to agreement, and mark the timing of each visit down on the timeline.* *Then ask probing questions about the reasons behind the number of visits and the timing of the visits.* (For example, if the first visit is late in pregnancy, ask what are the reasons that a girl might attend her first ANC visit late in her pregnancy?	
D. Facilitators and barriers		
D.1	*Ask the participants to imagine a 'typical' young pregnant girl from their community. [You could make up an example to describe a fictitious girl who is similar to the girls in the FGD].* *Tell the participants that this young girl was*	

	able to attend 4 ANC sessions, and that her first session was early in her pregnancy. Then ask: What are the reasons that this girl was able to attend her 4 ANC sessions? *Probe:* *Any other reasons?* *What things helped her to be able to attend? (This could include people, knowledge, beliefs, services, etc)*	
	Now ask the participants to think about another 'typical' young pregnant girl from their community. [You could make up another example to describe a fictitious girl who is similar to the girls in the FGD] *Tell the participants that this girl was not able to go to ANC sessions. Then ask:* What are the reasons that this girl was not able to attend her 4 ANC sessions? *Probe:* *Any other reasons?* *What things stopped her from being to be able to attend? (This could include people, knowledge, beliefs, services, etc)*	
D.2	*Tell the participants that most women in Ghana are somewhere in the middle, between these two examples. Most women are able to attend one or two visits. But it is often later on in their pregnancy.* *Revisit the facilitators and barriers to attending ANC (that emerged during the*	

	previous two questions), to ask for more specific information on the themes that were mentioned: What does [insert theme/idea] mean specifically? Can anyone provide an example? How often does [insert theme/idea] happen? In your community, who experiences [insert theme/idea]? Why do you think individuals might experience [insert theme/idea]? How might [insert theme/idea] change throughout the course of the pregnancy? (Or do they remain the same always?)	
E. Importance of ANC		
E.1	What, if any, are the reasons that a young woman should attend ANC sessions during pregnancy? *Probe: Why do you think that is a reason? Any other reasons?*	
E.2	What, if any, are the reasons that a young woman should not attend ANC sessions during pregnancy? *Probe: Why do you think that is a reason? Any other reasons?*	
F. Improving ANC services		

F.1	What are some ways that ANC services could be improved to be more friendly towards young women? *Tie the conversation back to any ideas mentioned in earlier questions.* *Probe:* Any other ideas? How could we motivate more young women to use ANC services when they are pregnant? What would be the most important improvement to make? Who should make these improvements?	
F.2	Is there anything else you have thought of during today's discussion that you would like to talk about? We can revisit a previous question, or you can mention a completely new idea.	

Wrap-up and thank you:

- Thank all of the participants for their contributions to the discussion
- Remind the participants that the information shared in today's discussion is meant to be confidential. So they should not share the information with other people who were not part of the FGD.
- Remind participants that when this study is completed, they will be able to access the results from the local NGO office (provide contact details if needed).
- Distribute the token of appreciation (if applicable)
- Address any needs for transportation reimbursement (if applicable)

Appendix E. Participant Characteristics Questionnaire

Research assistant instructions:

This survey is to be administered by the research assistant, as the participants arrive, after obtaining informed consent and prior to the start of the focus group discussion.

Introduce yourself and ask the participant if they are willing to answer a few short questions about themselves. These questions will help the research team to understand what types of young mothers were present during the discussion. Answers will not be shared with any other participants, and names will not be written down on the questionnaire (the answers will be anonymous).

Question number	**Question**	**Answer options**
1.0	What is your age? (in complete years) *Read question aloud*	*Please write age (years)* _____
1.1	What is the age of your child? (in complete months) *Read question aloud*	*Please write age (months)* _____
1.2	What is your current marital status? *Read question aloud & then answer choices aloud*	*Please select one answer choice:* 1. Married 2. Common law 3. Single 4. Divorced/separated 5. Other. Specify: _____
1.3	Where did you attend your ANC visits? *Read question aloud*	*Please write the name of the health facility:* _____
1.4	How many ANC visits did you attend while you were pregnant? *Read question aloud.*	*Please enter the number of visits:* _____
1.5	When did you attend your first ANC session?	*Please enter the month of pregnancy (gestation). If timing of first visit is not known, write "unknown".* _____

1.6	Are you currently pregnant? *Read question aloud & then answer choices aloud*	*Please select one answer choice:* 1. Yes 2. No 3. Did not respond
1.7	*If yes to question 1.6:* Are you attending ANC sessions? *Read question aloud & then answer choices aloud*	*Please select one answer choice:* 1. Yes 2. No 3. Did not respond
1.8	I*f no to question 1.8*: If you were to become pregnant again, do you think you would attend ANC sessions? *Read question aloud & then answer choices aloud*	*Please select one answer choice:* 1. Yes 2. No 3. Did not respond

Appendix F. CHW/CM Resources: Instructions for Participant Recruitment

CHW name: _____
Associated Health Facility name: : _____

1. Contact information for Research Assistant Research assistant name: _____ Research assistant telephone number: _____
2. Community list The following are the locations (communities) that you are being asked to recruit participants from: 1. 2. 3. 4. 5.
3. Community approval In each of the communities listed above, you are asked to approach the community leaders to seek their informal approval to conduct research in their community (using the Study

Explanation Letter for Community Leaders). Please make sure that you organize meetings with the following leaders, before inviting any potential participants:

- ☐ Local governing body
- ☐ Community elders group
- ☐ Religious leader(s)
- ☐ Other: _____

If you are unsure of who these individuals are, or where to find them, please discuss with the research assistant.

4. Focus group discussion schedule and details

The following are the details for the focus group discussions that are being held for your assigned community/communities:
Date:
Location:
Time:

5. Potential participant list

The following is a list of the potential participants who you are to invite to be a part of the study (using the Study Invitation Letter). Please approach each potential participant and remember to sign the bottom of each letter as verification.

No.	Name	Contact information

Appendix G. CHW/CM Resources: Study Invitation Letter

Instructions to Community Health Worker: This invitation letter is to be administered to adolescent mothers who have been identified through the screening process as potential participants. You have been given a list of these potential participants within your catchment area. Please follow the instructions below:

1. All of the individuals on your list should be invited; however, please double check that each potential participant meets the criteria to be included in our study:
   - Between the ages of 15 and 19
   - Recently given birth to a child AND this was her first time giving birth
   - Used antenatal care services during their pregnancy

2. Ensure that you are approaching each potential participant in a safe space, at a time when she is not going to feel uncomfortable or concerned about others' overhearing the conversation. For example, this could be administered as part of a routine visit.

3. Please introduce yourself and the name of the study to the potential participant. Then read the introduction letter (in the box below):

"I would like to tell you about a study that is being conducted by a team of researchers from a Children's Hospital in Toronto, Canada (The Hospital for Sick Children) in partnership with Plan and World Vision.

The purpose of this research study is to learn about the experience of young mothers who have used antenatal care services during their pregnancy, and to investigate how these services could be made more accessible to young women. In the end, the goal is to contribute to improving the health of mothers and children.

You are being invited to participate in this study because the team is interested in hearing about your experience and ideas, as a young mother who went to some antenatal care visits during your pregnancy.

We are very concerned about your safety and about confidentiality. If you would like to participate, it will not affect the care you receive from the Health Centre because the researchers are working separately. The research team will make sure that your identity is protected, so that when the results of the research are presented, all participants will be anonymous.

The group discussion should take about two hours and will not be far from your home. If you are interested in participating, we will cover any costs that you might have from traveling to the meeting place. I will give you the details about the meeting place and time.

On the day of the group discussion, an independent study team staff will provide you with more information about the project and will ask you to sign a consent form. This is our way of being sure that you have agreed to participate".

4. Ask the potential participant if she has any questions. Answer these questions if you can, or tell her that you will find out the answers from the study staff, and will bring her the answers.

5. Provide the potential participant with the date, time and location of the focus group discussion.

Verify that the invitation letter has been read & discussed, and the details about the focus group discussion have been provided:

CHW name: _____

Signature: _____

Date (dd/mm/yy): _ _ / _ _ / _ _

Appendix H. Transcription and translation: Reviewer Assessment Form

Study Background

We have conducted focus group discussions (FGDs) in Eastern and Volta regions of Ghana, with adolescent mothers who have delivered only once, and used antenatal care (ANC) services during their pregnancy. We recruited participants from 4 different health facilities and conducted 6 FGDs in total. We focused on Health Centres that have been supported through the WATCH Program (run by Plan Ghana with the support of Plan Canada).

The research team at SickKids developed the study protocol and will be conducting the final analysis, with input from our NGO partners. Plan supported the research team in selecting the Health Centres and inviting the participants. However, the FGDs were conducted independently in a neutral location (neither Plan nor the Health Centre staff were involved in the FGDs). We hired two independent Research Assistants who spoke the local languages (Twi, Ewe and Krobo). The Research Assistants conducted the FGDs and also translated and transcribed the audio recordings.
The Research Assistants used a simultaneous translation and transcription process: they listened to the audio recording in the original language and transcribed the conversations in English.

Purpose of the Independent Checks

We want to make sure that the transcripts capture the whole story of what the participants were trying to communicate. This is important in order to conduct a high quality analysis and to draw conclusions that are meaningful and helpful to all the stakeholders (community, non-governmental organizations and funding partners).

Our Research Assistants worked very hard to conduct the FGDs and put a lot of time into translation/transcription. But since translation can be somewhat subjective, and since the RAs were immersed in the study, we are asking you to complete an independent check step in order to provide a second, non-biased opinion. This will help reduce the chances of accidental errors, misinterpretations, or omissions etc.

The transcripts should be thorough and in-depth, and should be a written record of the entire FGD conversation. There should be no summarizing or skipping parts of the conversation. We will be conducting a detailed thematic analysis, so it is important to have as much "raw data" as possible in the transcripts. A good, complete transcript should include indications of any pauses, laughter, repeated questions, and any "filler" words (e.g. um, uh, ahh, etc.). A good transcript might also contain comments in square brackets [these comments provide additional information to the reader to clarify anything that might be confusing for people who were not present during the discussion].
Please keep in mind that a high quality translation is not necessarily "word-for-word" because certain expressions/idioms may be different between the original language (Ewe,

Twi or Krobo) and the final language (English). The important thing is that the original, intended meaning is the same.

Instructions

1. You have been provided with transcripts and audio files for each FGD that we would like you to review. Each audio file is named the same as the matching transcript - please ensure that you read the transcript that corresponds to the audio file from the same FGD.
2. Please conduct a separate assessment for each FGD that you have been assigned. (You will complete this document separately, for each FGD that you were assigned. For example, if you are checking 4 FGDs, you will complete 4 separate assessment forms.
3. Follow the steps in the tables below.
4. Email Lindsey at lindsey.lenters@sickkids.ca if you have any questions or concerns. Or call on Skype (username: lmlenters).
5. Send this completed document, plus the edited transcript (according to the instructions below) back to Lindsey by the arranged deadline.

Reviewer's Checks and Comments	
Focus Group Discussion ID Include the location name and #1 or #2, if applicable (For example: Adawso #1)	
A. Personal details	
Reviewer's name:	
Reviewer's institution and title:	
Date of review:	
B. General impressions of the transcript	
Instructions: Please listen to the first 10 minutes of the audio recording and read along with the transcript. On the transcript, please use the highlight tool in Adobe to mark portions of the text that you think have problems. Then use the comments tool in Adobe to make any additions, corrections or deletions that you think are needed to improve the quality. In the box below, please describe your overall impression of the translation & list any specific concerns. Please refer to any examples that may help to justify your impressions.	
C. Additional checks	
Instructions: Please listen to the audio recording at the specific time-points listed below. Read the English transcript as you listen to the audio recording segment (time points and page numbers are listed below). On the transcript, please use "Track Changes" to make any additions, corrections or deletions	

that you think are needed to improve the quality. In the boxes below, please describe your overall impression of the translation & list any specific concerns (in 2-5 sentences).	
Last 10 minutes of the FGD	
One random spot in the middle (please indicate the time point)	

Reviewer's Assessment		
Please provide a numerical score from 1-5 for each of the categories listed below. Then provide an overall score, and any additional comments. 1 = Needs major revisions 3 = Needs some revisions, but the issues are minor 5 = No revisions needed		
Category	Description of the Category	Grade Assigned (1 to 5)
Completeness of transcript?	Do all of the questions and answers that you heard on the audio file appear in the English transcript? (In other words, there is no skipping or condensing parts of the conversation)	
Reliability of translation?	Overall, is the meaning of the original questions and answers captured fully and accurately in the English version?	
Consistency and accuracy of terminology?	Are the English terms/words that were used the best possible translation of the Ewe/Twi/Krobo words? Is there consistency throughout the transcript in the way that specific words are translated?	
Overall impressions of quality?	Considering the three categories listed above, and your overall impressions, what is your assessment of the quality of the translation?	
Any additional comments or concerns?		

Appendix I. ANC Research Team Breakdown

Institution	Major Roles and Responsibilities
The Hospital for Sick Children ('SickKids')	• Responsible for development of research protocol, study materials, ethics submissions and implementation plans. • Responsible for training of in-country Research Assistants (RAs) and oversight of data collection • Conducted analysis and interpretation, drafted reports and Knowledge Translation (KT) products • Overall: responsible for coordination and liaison between all research team members.
The MIC-KMI Technical Working Group (TWG) Representatives from all 4 INGOs (Plan, World Vision, CARE and Save the Children) in Canada	• Participated in defining and refining the research topic • Provided ongoing input and direction
Plan Canada	• Participated as part of the TWG in initial stages: topic selection and protocol development • During implementation phase, provided input and acted as a liaison between SickKids and Plan Ghana • Provided input on interpretation of results • Overall: provided feedback and approval of each project phase and ultimately the project outputs
World Vision Canada	• Participated as part of the TWG in initial stages: topic selection and protocol development • During implementation phase, provided input and acted as a liaison between SickKids and World Vision Tanzania • Provided input on interpretation of results • Overall: provided feedback and approval of each project phase and ultimately the project outputs
Plan Ghana	• Provided input on protocol development and implementation plan development • Assisted with local research ethics board submissions • Assisted with SickKids' field visits and introductions to local authorities
World Vision Tanzania	• Provided input on protocol development and implementation plan development • Assisted with local research ethics board submissions • Assisted with SickKids' field visits and introductions to local

	authorities • Provided input on interpretation of results
In-Country Principle Investigators	• Provided input for development of the protocol and data collection instruments • Assisted with local research ethics board submissions • Responsible for quality assessment of the FGD transcripts • Provided input on interpretation of results
In-Country Research Assistants (RAs)	• Coordinated and facilitated data collection process • Responsible for transcription and translation of FGD audio recordings

Appendix J. Observational Notes from Health Centre Visits

The SickKids research team collected informal observational data during the site visits for multiple purposes: to develop and refine the implementation plan (ie. how best to reach potential participants, what days and times to schedule FGDs, etc) and to better understand the context in which the ANC services are being accessed. Informal discussions were held with the head of each facility (or a designated representative). Several questions were asked at each facility, and formed the basis of the conversation (see list below). However, the exact nature and content of the discussions varied between health centres. Only an overview of the key findings are presented below, since the purpose of these visits was largely intended for the researchers to gain an organic understanding of the context.

There are several key points from the observational data collected during the facility visits that warrant specific mention. It should be noted that the following information constitutes field notes collected by the SickKids research team collected for the sole purpose of providing a background understanding of the local context.

- At every facility, staff were specifically asked about how the ANC services were delivered: whether there were specific ANC clinic days or whether women could receive counselling at any point.
    - At 7 of the 8 health centres, the nurse or midwife told the research team that women could come for their ANC sessions any time of day from Monday to Friday; that there were no specific ANC clinic days, and that pregnant women were not confined to specific ANC clinic days based on where they resided.
    - Only in Ikungi did the midwife explain that they had a monthly ANC clinic day for each village, and that women had to be seen for the ANC services on their assigned day.
- During each health centre visit, staff were asked about tailored programs or special considerations for pregnant adolescents:

    - Adawso, in Ghana, was the only centre that advertised adolescent health services.
    - In all the Ghanaian facilities there were paper signs on the walls, pointing towards the 'adolescent corner'. At these centres, the midwives described a special intake process for adolescents (that they would be ushered in by the midwife and brought to a separate waiting area).
    - No specific programming or processes for adolescents were described in Tanzania.
- At Anyaboni, in Ghana, the midwife explained that they did not have laboratory services, so the clients had to travel to the hospital in Asesewa for tests. The midwife also explained that they conducted outreach clinics in the community to deliver ANC counselling.
- At Anyaboni, in Ghana, the midwife spoke about a community emergency transport system (a project initiated by the District Assembly and supported and expanded during the implementation of the WATCH project) that provides incentives to lorry drivers to provide transport to village residents in cases of medical emergency; the midwife also described a community banking scheme that enables members to access emergency funds to financially empower women to seek health services.
- At Ahamansu, Ghana the midwife mentioned that there is a village savings and loan association, the head WATCH CHW/ CM or CHO spoke about their community winning an award from Plan for the mobilization and community engagement efforts. At this site the CHWs brought a mother and her twins to meet the research team – the community had nicknamed her children 'WATCH babies' and were proud to report that her husband had been actively engaged in the pregnancy according to recommendations under the WATCH program (taking on domestic labour tasks, participating in clinic visits, etc).
- Also at Ahamansu, the midwife explicitly mentioned that family planning is not promoted for young people. Abstinence is taught at schools, but on an individual basis the clinic will offer family planning methods to adolescents.
- At Dabala, in Ghana, the midwife spoke about women coming from outside the catchment area to seek ANC services since there is a big market nearby, and because there is no midwife at the neighbouring clinic.
    - At Ilongero, in Tanzania, the midwife commented on the high rate of adolescent pregnancy; she felt this was due to females marrying young, once they finished primary school. At the same site, the head of the clinic commented on the fact that the CHW system is not well-coordinated, with many different NGOs providing training to different individuals, resulting in more concentrated numbers of CHWs in some communities, and none in others. Here, the head of the centre also mentioned that individuals do not have a choice of where they receive ANC services – that is it based on their village, and that they would be turned away if they tried to access services elsewhere. For example, if someone was assigned to a dispensary, but

wanted to access ANC services at a nearby health centre, this would not be permitted.

- At Ikungi, in Tanzania, there were no CHWs directly supported by the SUSTAIN project; here, the matron was a FANC expert (who, interestingly, had trained a World Vision staff member when they were in school). The matron here explained that ANC was offered to women on a specific day each month, depending on their village.
- Also at Ikungi, the head of the centre explained that young women frequently enter into the sex trade because 'there is nothing else to do'. This community bordered on a busy trucking route.

Appendix K. Focused Antenatal Care Checklist for Ghana

Table 3: Changes in the content of ANC in Ghana

Content	Traditional ANC	Focused ANC
Objectives	▪ Promote and maintain the physical, mental and social health of mother and baby by providing education to the pregnant mother and her family on nutrition, rest and personal hygiene ▪ Detect and treat high risk conditions arising during pregnancy, whether medical, surgical or obstetrical; ▪ Ensure delivery of a full term healthy baby with minimal stress or injury to mother or baby; ▪ Prepare the mother to breastfeed successfully, experience normal puerperium and take good care of the child physically, psychologically and socially	▪ Promote and maintain the physical, mental and social health of mother and baby by providing education to the pregnant mother and her family on nutrition, rest, personal hygiene, family planning, immunization, danger signs, RTI including STI/HIV/AIDS, birth preparedness and complication readiness; ▪ Detect and treat complications arising during pregnancy, whether medical, surgical or obstetrical; ▪ Ensure delivery of a full term healthy baby with minimal stress or injury to mother or baby; ▪ Prepare the mother to breastfeed successfully, experience normal puerperium and take good care of the child physically, psychologically and socially; and ▪ Prevent mother-to-child transmission of HIV/AIDS
No. of Visits	13	4
Timing of visits	✓ Monthly up to 28 weeks ✓ Fortnightly from 28th-36th week ✓ Weekly from 36th week to delivery	✓ 1st visit after two missed periods: <16 weeks; ✓ 2nd visit: 20 – 24 weeks; ✓ 3rd visit: 28 – 32 weeks; ✓ 4th visit: 36 weeks.
Comprehensive medical history	✓ Personal Medical and Surgical History ✓ Family Medical History ✓ Past Obstetric History ✓ History of present pregnancy	✓ Personal Medical and Surgical history ✓ Family Medical History ✓ Past Obstetric History ✓ History of present pregnancy
General examination	✓ Temperature ✓ Pulse ✓ Blood Pressure ✓ Weight and Height ✓ Gait or deformity	✓ Temperature ✓ Pulse ✓ Blood Pressure ✓ Weight and Height ✓ Gait or deformity
Physical examination	✓ Hair to toe ✓ Conjunctiva ✓ Nail beds for pallor ✓ Breast and abdomen ✓ Pelvis	✓ Hair to toe ✓ Conjunctiva ✓ Nail beds for pallor ✓ Breast and abdomen ✓ Pelvis
Vaginal examination	✓ Confirm pregnancy ✓ Detect position of the uterus ✓ Detect fibromyoma or any extrauterine abnormality such as ovarian cyst *Done during first trimester*	✓ Confirm pregnancy *Done during first trimester*
Obstetric examination	✓ Inspection for scar ✓ Deformities ✓ Palpation for foetal maturity ✓ Auscultation of foetal heart	✓ Palpation for foetal maturity ✓ Auscultation of foetal heart

Laboratory investigations	Urine test for: ✓ For proteins (albumin) ✓ Sugar ✓ Midstream specimen of urine for pus cells ✓ Pregnosticon test to confirm pregnancy (*First trimester*) ✓ Test stool for worms Test blood for: ✓ Haemoglobin level (Hb) ✓ Full blood count (FBC) ✓ Sickling ✓ Grouping and Rhesus factor ✓ VDRL ✓ HIV (on request)	Urine test for: ✓ For proteins (albumin) ✓ Sugar ✓ Midstream specimen of urine for pus cells ✓ Pregnosticon test to confirm pregnancy (*First trimester*) ✓ Test stool for worms Test blood for: ✓ Haemoglobin level (Hb) ✓ Full blood count (FBC) ✓ Sickling ✓ Grouping and Rhesus factor ✓ VDRL ✓ VCT
Routine Administration of Drugs	✓ Oral iron/folate ✓ Chloroquine tablets weekly for malaria prophylaxis; diaprim as back up option ✓ Tetanus toxoid immunization (*from 20 weeks, with second dose four weeks later*)	✓ Supplementary micronutrients (folic acid, ferrous sulphate) ✓ Malaria prophylaxis (Sulfadoxine Pyrimethamine tablets during first, second and fourth visits) ✓ Tetanus toxoid immunization (*from 20 weeks, with second dose four weeks later*)
Client education	✓ Care for health o Diet and nutrition o Rest and exercise o Personal hygiene ✓ Danger signs during pregnancy ✓ Education on drugs ✓ Purpose of antenatal care ✓ Psychological changes and events in pregnancy ✓ Effects of exposure to STDs and HIV/AIDS	✓ Health promotion o Diet and nutrition o Rest and exercise o Personal hygiene ✓ Danger signs during pregnancy ✓ Education on drugs ✓ Purpose of antenatal care ✓ Psychological changes and events in pregnancy ✓ STI/HIV/AIDS prevention ✓ PMTCT ✓ Prevention of malaria ✓ Family planning ✓ Birth preparedness and complication readiness ✓ Breastfeeding
Treatment of complications	✓ Anaemia ✓ Hypertensive disorders ✓ Eclampsia ✓ Malaria ✓ Haemorrhage ✓ Excessive vomiting ✓ Premature rupture of membrane ✓ Urinary Tract Infections ✓ Vulvo-vaginitis	✓ Anaemia ✓ Hypertensive disorders ✓ Eclampsia ✓ Malaria ✓ Haemorrhage ✓ Excessive vomiting ✓ Premature rupture of membrane ✓ Urinary Tract Infections ✓ Vulvo-vaginitis

Nyarko et al., 2006

Appendix L. Focused Antenatal Care Checklist for Tanzania

Table 4: Focused antenatal care model, Tanzania (checklist) - CONTINUED

PARAMETER	1ST VISIT (<16 WEEKS)	2ND VISIT (20–24 WEEKS)	3RD VISIT (28–32 WEEKS)	4TH VISIT (36 WEEKS)
8. Drug administration and immunisation				
Iron	✓	✓	✓	✓
Folic acid	✓	✓	✓	✓
Antimalarials (Fansidar 3 tablets)		✓	✓	
Tetanus toxoid	✓	✓	✓	
9. Client education and counselling (for the couple)				
Process of pregnancy and its complications	✓	✓	✓	✓
Diet and nutrition	✓	✓	✓	✓
Rest and exercise in pregnancy	✓	✓	✓	✓
Personal hygiene	✓			
Danger signs in pregnancy	✓	✓	✓	✓
Use of drugs in pregnancy	✓	✓	✓	✓
Effects of STI/HIV/AIDS	✓	✓	✓	✓
Voluntary counselling and testing for HIV	✓			
Care of breasts and breast feeding	✓			✓
Symptoms/signs of labour			✓	✓
Plans of delivery (emergency preparedness, place of delivery, transportation, financial arrangements)	✓	✓	✓	✓
Plans for postpartum care			✓	✓
Family planning			✓	✓
Harmful habits (e.g. smoking, drug abuse, alcoholism)	✓	✓	✓	✓
Schedule of return visit	✓	✓	✓	✓

Table 4: Focused antenatal care model, Tanzania (checklist)[30]

PARAMETER	1ST VISIT (<16 WEEKS)	2ND VISIT (20–24 WEEKS)	3RD VISIT (28–32 WEEKS)	4TH VISIT (36 WEEKS)
1. Registration	✓			
2. History taking	✓			
Personal history	✓			
Family history	✓			
Social history	✓			
Past medical/surgical history	✓			
History of complaints in current pregnancy	✓	✓	✓	✓
3. Examination				
Head to toe (whole body)	✓	✓	✓	✓
Pallor	✓	✓	✓	✓
Oedema (other than ankle-specify)	✓	✓	✓	✓
Breast	✓			✓
Lungs and heart	✓			✓
4. Observation and clinical investigation				
Temperature	✓			
Pulse	✓			
Blood pressure	✓	✓	✓	✓
Weight	✓	✓	✓	✓
5. Obstetric complications				
Fundal height	✓	✓	✓	✓
Foetal presentation and engagement			✓	✓
Foetal heart sound		✓	✓	✓
6. Pelvic (vaginal) examination				
Soft tissue assessment	✓			✓
Bony pelvic assessment				✓
7. Laboratory investigations				
BLOOD				
Haemoglobin	✓	✓	✓	✓
Grouping and rhesus factor	✓			
RPR	✓			
HIV testing	✓			
URINE				
Protein, sugar, acetone	✓	✓	✓	✓

Kearns et al., 2014

Appendix M. Participant Characteristics broken down by FGD site

Country	FGD Code	Number of Participants	Date of FGD (dd-mm-yyyy)
Tanzania	Tza-1	8	06-11-2014
	Tza-2	8	10-11-2014
	Tza-3	8	11-11-2014
	Tza-4	8	11-11-2014
	Tza-5	10	03-11-2014
	Tza-6	8	04-11-2014
	Tza-7	8	05-11-2014
	Tza-8	4	10-11-2014
	Overall	62	n/a
Ghana	Gha-1	9	22-09-2014
	Gha-2	6	24-09-2014
	Gha-3	8	30-09-2014
	Gha-4	10	25-09-2014
	Gha-5	10	16-09-2014
	Gha-6	7	17-09-2014
	Overall	50	n/a

Table M.1. Number of participants in each FGD and date of FGD.

		Participant Age [Years]	Participant Age Range [Years]	
Country	FGD Code	Mean (SD)	Youngest	Oldest
Tanzania	Tza-1	18.4 (0.9)	17	19
	Tza-2	18.8 (0.9)	17	20
	Tza-3	18.1 (1.6)	15	19
	Tza-4	18.6 (1.5)	15	20
	Tza-5	18.5 (1.0)	17	20
	Tza-6	18.4 (1.2)	17	19
	Tza-7	18.6 (0.7)	18	20
	Tza-8	19 (0)	19	19

	Overall	18.5 (1.1)	15	20
Ghana	Gha-1	17.8 (1.4)	15	19
	Gha-2	17.7 (1.2)	16	19
	Gha-3	18.3 (0.7)	17	19
	Gha-4	17.7 (0.9)	16	19
	Gha-5	17.5 (1.2)	15	19
	Gha-6	17.7 (1.0)	16	19
	Overall	17.8 (1.1)	15	19

Table M.2. Participant ages

		Child's Age [Months]	Child's Age Range [Years]	
Country	FGD Code	Mean (SD)	Youngest	Oldest
Tanzania	Tza-1	5.1 (3.5)	1	10
	Tza-2	9.5 (5.1)	3	21
	Tza-3	11.4 (4.5)	7	20
	Tza-4	7.6 (7.0)	1	22
	Tza-5	7.9 (3.1)	2	10
	Tza-6	1.8 (3.8)	2	12
	Tza-7	5.4 (3.4)	2	12
	Tza-8	12.8 (6.8)	7	20
	Overall	8.0 (4.9)	1	21
Ghana	Gha-1	6.3 (4.2)	1	12
	Gha-2	4.8 (4.3)	3	6
	Gha-3	6.3 (4.3)	4	8
	Gha-4	9.5 (3.6)	2	19
	Gha-5	5.4 (3.3)	3	9
	Gha-6	6.9 (1.7)	0.5	9
	Overall	6.6 (1.1)	0.5	19

Table M.3. Ages of participants' first-born children.

		Marital status [Number (%)]				
Country	FGD Code	Married	Common law	Single	Divorced /Separated	Other
Tanzania	Tza-1	8 (100%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
	Tza-2	3 (37.5%)	1 (12.5%)	4 (50%)	0 (0%)	0 (0%)
	Tza-3	2 (25%)	0 (0%)	6 (75%)	0 (0%)	0 (0%)
	Tza-4	5 (62.5%)	1 (12.5%)	2 (25%)	0 (0%)	0 (0%)
	Tza-5	6 (60%)	4 (40%)	0 (0%)	0 (0%)	0 (0%)
	Tza-6	5 (62.5%)	0 (0%)	3 (37.5%)	0 (0%)	0 (0%)
	Tza-7	4 (50%)	1 (12.5%)	3 (37.5%)	0 (0%)	0 (0%)
	Tza-8	3 (75%)	0 (0%)	1 (25%)	0 (0%)	0 (0%)
	Overall	36 (58%)	7 (11%)	19 (31%)	0 (0%)	0 (0%)
Ghana	Gha-1	0 (0%)	5 (55.5%)	4 (44%)	0 (0%)	0 (0%)
	Gha-2	0 (0%)	2 (33%)	4 (67%)	0 (0%)	0 (0%)
	Gha-3	3 (37.5%)	2 (25%)	3 (37.5%)	0 (0%)	0 (0%)
	Gha-4	0 (0%)	4 (40%)	6 (605)	0 (0%)	0 (0%)
	Gha-5	6 (60%)	3 (30%)	1 (10%)	0 (0%)	0 (0%)
	Gha-6	0 (0%)	0 (0%)	7 (100%)	0 (0%)	0 (0%)
	Overall	9 (18%)	16 (32%)	25 (50%)	0 (0%)	0 (0%)

Table M.4. Participants' marital status

		Currently in School [Number (%)]		Highest Point Achieved in School [Number (%)]		
Country	FGD Code	Yes	No	Primary	At least some Secondary	Did not attend
Tanzania	Tza-1	0 (0%)	8 (100%)	8 (100%)	0 (0%)	0 (0%)
	Tza-2	0 (0%)	8 (100%)	3 (37.5)	3 (37.5%)	2 (25%)
	Tza-3	0 (0%)	8 (100%)	4 (50%)	4 (50%)	0 (0%)
	Tza-4	0 (0%)	8 (100%)	5 (62.5%)	2 (25%)	1 (12.5%)
	Tza-5	0 (0%)	10 (100%)	7 (70%)	3 (30%)	0 (0%)
	Tza-6	0 (0%)	8 (100%)	7 (87.5%)	1 (12.5%)	0 (0%)
	Tza-7	0 (0%)	8 (100%)	6 (75%)	2 (25%)	0 (0%)
	Tza-8	0 (0%)	4 (100%)	3 (75%)	0 (0%)	1 (25%)
	Overall	0 (0%)	62 (100%)	43 (69%)	15 (24%)	4 (6.5%)
Ghana	Gha-1	1 (11%)	8 (89%)	1 (11%)	7 (78%)	1 (11%)
	Gha-2	3 (50%)	3 (50%)	1 (17%)	5 (83%)	0 (0%)
	Gha-3	2 (25%)	6 (75%)	1 (12.5%)	7 (87.5%)	0 (0%)
	Gha-4	2 (20%)	8 (80%)	3 (30%)	7 (70%)	0 (0%)
	Gha-5	2 (20%)	8 (80%)	4 (40%)	6 (60%)	0 (0%)
	Gha-6	5 (71%)	2 (29%)	1 (14%)	6 (86%)	0 (0%)
	Overall	15 (30%)	35 (70%)	11 (22%)	38 (76%)	1 (2%)

Table M.5. Participants' educational status

		# Facilities attended for ANC [Number (%)]			
Country	FGD Code	1	2	3	Mean (SD)
Tanzania	Tza-1	8 (100%)	0 (0%)	0 (0%)	1 (0)
	Tza-2	8 (100%	0 (0%)	0 (0%)	1 (0)
	Tza-3	8 (100%)	0 (0%)	0 (0%)	1 (0)
	Tza-4	8 (100%)	0 (0%)	0 (0%)	1 (0)
	Tza-5	10 (100%)	0 (0%)	0 (0%)	1 (0)
	Tza-6	8 (100%)	0 (0%)	0 (0%)	1 (0)
	Tza-7	8 (100%)	0 (0%)	0 (0%)	1 (0)
	Tza-8	4 (100%	0 (0%)	0 (0%)	1 (0)
	Overall	62 (100%)	0 (0%)	0 (0%)	1 (0)
Ghana	Gha-1	5 (55%)	3 (33%)	1 (11%)	1.6 (0.7)
	Gha-2	4 (67%)	2 (33%)	0 (0%)	1.3 (0.5)
	Gha-3	4 (50%)	4 (50%)	0 (0%)	1.5 (0.5)
	Gha-4	7 (70%)	3 (30%)	0 (0%)	1.3 (0.5)
	Gha-5	5 (50%)	5 (50%)	0 (0%)	1.5 (0.5)
	Gha-6	7 (100%)	0 (0%)	0 (0%)	1 (0)
	Overall	32 (64%)	17 (34%)	1 (2%)	1.4. (0.5)

Table M.6. Facilities attended during pregnancy

		# ANC Visits During Last Pregnancy		
Country	FGD Code	Mean (SD)	Lowest	Highest
Tanzania	Tza-1	3.9 (1.1)	2	5
	Tza-2	3.5 (1.5)	1	6
	Tza-3	3.4 (0.5)	3	4
	Tza-4	4.1 (0.6)	3	5
	Tza-5	3.1 (1.0)	1	4
	Tza-6	3.9 (0.8)	3	5
	Tza-7	3.7 (1.1)	3	6
	Tza-8	3.3 (0.6)	3	4

	Overall	4.2 (1.)	1	6
Ghana	Gha-1	5.1 (2.9)	1	9
	Gha-2	5.5 (2.8)	1	9
	Gha-3	6.1 (2.0)	3	9
	Gha-4	4.9 (1.2)	4	8
	Gha-5	4.5 (2.0)	3	8
	Gha-6	5.9 (1.7)	4	9
	Overall	5.3 (2.1)	1	9

Table M.7. Number of ANC visits during pregnancy

		First ANC Visit [Month of gestation]		
Country	FGD Code	Mean (SD)	Lowest	Highest
Tanzania	Tza-1	4.6 (0.7)	4	6
	Tza-2	5.5 (1.3)	4	8
	Tza-3	5.5 (1.6)	2	7
	Tza-4	4.0 (1.9)	1	6
	Tza-5	5.2 (1.9)	3	8
	Tza-6	5.0 (0.9)	4	7
	Tza-7	5.3 (0.7)	4	6
	Tza-8	5.3 (1.7)	3	7
	Overall	5.0 (1.4)	1	8
Ghana	Gha-1	3.4 (2.2)	1	8
	Gha-2	3.5 (1.0)	2	5
	Gha-3	3.5 (1.2)	2	6
	Gha-4	3.3 (1.3)	1	5
	Gha-5	4.1 (2.2)	1	7
	Gha-6	2.7 (1.4)	1	5
	Overall	3.5 (1.6)	1	8

Table M.8. Month of gestation of first ANC visit

		Currently Pregnant? [Number (%)]			
Country	FGD Code	Yes	No	I don't know	Did not respond
Tanzania	Tza-1	0 (0%)	8 (100%)	0 (0%)	0 (0%)
	Tza-2	0 (0%)	8 (100%)	0 (0%)	0 (0%)
	Tza-3	0 (0%)	7 (87.5%)	1 (12.5%)	0 (0%)
	Tza-4	0 (0%)	8 (100%)	0 (0%)	0 (0%)
	Tza-5	0 (0%)	10 (100%)	0 (0%)	0 (0%)
	Tza-6	0 (0%)	8 (100%)	0 (0%)	0 (0%)
	Tza-7	0 (0%)	8 (100%)	0 (0%)	0 (0%)
	Tza-8	0 (0%)	4 (100%)	0 (0%)	0 (0%)
	Overall	0 (0%)	61 (98%)	1 (2%)	0 (0%)
Ghana	Gha-1	0 (0%)	9 (100%)	0 (0%)	0 (0%)
	Gha-2	0 (0%)	6 (100%)	0 (0%)	0 (0%)
	Gha-3	0 (0%)	8 (100%)	0 (0%)	0 (0%)
	Gha-4	0 (0%)	10 (100%)	0 (0%)	0 (0%)
	Gha-5	0 (0%)	10 (100%)	0 (0%)	0 (0%)
	Gha-6	0 (0%)	7 (100%)	0 (0%)	0 (0%)
	Overall	0 (0%)	50 (100%)	0 (0%)	0 (0%)

Table M.9. Participants' current pregnancy status

Appendix N: Infographic on Accessing Antenatal Care Services by Adolescent Mothers in Tanzania and Ghana