Meeting the need for safe abortion care in Ethiopia: Results of a national assessment in 2008

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Meeting the need for safe abortion care in Ethiopia: Results of a national assessment in 2008

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Complications of an unsafe abortion are a major contributor to maternal deaths and morbidity in Africa. When abortions are performed in safe environments, such complications are almost all preventable. This paper reports results from a nationally representative health facility study conducted in Ethiopia in 2008. The safe abortion care (SAC) model, a monitoring approach to assess the amount, distribution, use and quality of abortion services, provided a framework. Data collection included key informant interviews with 335 health care providers, prospective data on 8911 women seeking treatment for abortion complications or induced abortion and review of facility logbooks. Although the existing hospitals perform most basic abortion care functions, the number of facilities providing basic and comprehensive abortion care for the population size fell far short of the recommended levels. Almost one-half (48%) of women treated for obstetric complications in the facilities had abortion complications. The use of appropriate abortion technologies in the first trimester and the provision of post-abortion contraception overall were reasonably strong, especially in private sector facilities. Following abortion law reform in 2005 and subsequent service expansion and improvements, Ethiopia remains committed to reducing complications from an unsafe abortion. This study provides the first national snapshot to measure changes in a dynamic abortion care environment.

Keywords: safe abortion care; abortion complications; Ethiopia; health facilities; maternal mortality

Introduction

Globally, 358,000 women die each year from the causes related to pregnancy and childbirth (World Health Organization [WHO], 2011). The disparity between developed and developing countries is greater for maternal mortality than for any other index of health (AbouZahr and Royston 1991, United Nations 1992). Although modern contraceptive use in Ethiopia has increased from 6% to 27% among married Ethiopian women over the past decade, 25% of married women still express an unmet need for contraception, and contraceptive use is far lower among single and young women (Central Statistical Agency and ICF International 2012).

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The high proportion of unintended pregnancies contributes to one of the highest maternal mortality ratios in the world at 676 maternal deaths per 100,000 live births (Central Statistical Agency and ICF International 2012). Many of these deaths are preventable, lives that could be saved with the proper medical equipment, health provider training and decision-making on the part of both families and their health providers.

As in most developing countries, the major causes of maternal deaths in Ethiopia are haemorrhage, sepsis, an unsafe abortion, hypertensive disorders of pregnancy and obstructed labour. In Eastern Africa it is estimated that 18% of all maternal deaths are the result of complications of poorly performed abortions (WHO 2011). When performed in sanitary conditions by trained health care providers, induced abortion is a very safe procedure with the likelihood of death less than 1 per 100,000 procedures (WHO 2011).

Many women suffer from serious but non-fatal health problems as a result of an unsafe abortion. Survivors of unsafe abortion complications often suffer long-term disabilities such as infertility or chronic pelvic pain (Grimes et al. 2006). About 20–30% of unsafe abortions lead to reproductive tract infections (RTI), and between 20% and 40% of women with these infections develop pelvic inflammatory disease and resulting infertility (WHO 2007). Fortunately, interventions that reduce abortion-related deaths also reduce abortion morbidity.

With the exception of an unsafe abortion, the major causes of maternal deaths cannot be easily predicted. In contrast, abortion-related deaths and morbidity are preventable through the use of proven approaches. In countries with ready access to safe and legal abortion, deaths and serious complications related to abortion are virtually non-existent and all women are counselled about modern contraception as a part of comprehensive abortion care (Berer 2004). Several countries, including the USA, Romania and South Africa, that have liberalised their abortion laws and improved safe abortion access have evidenced dramatic declines in maternal mortality (Alan Guttmacher Institute 2006, Benson et al. 2011).

To further address maternal deaths and morbidity from abortion complications, in 2005, the Ethiopian Parliament expanded the indications for legal induced abortion to include cases of pregnancy from rape or incest, incurable foetal deformities, women’s physical or mental disabilities, preservation of women’s life or health or lack of physical or mental preparedness for childbirth due to young age. Prior to the 2005 reforms, pregnancy terminations were permitted only to avoid ‘grave or imminent danger’ to the pregnant woman. Abortion service delivery guidelines followed in 2006 vastly expand the potential for safe and legal abortion care by expanding the types of health care workers and facilities that could potentially provide this service. The 2006 guidance put forward national standards for abortion training for physicians, health officers, midwives, clinical and public health nurses and criteria for expanding this service to a wider number of facilities, including public health centres and hospitals and four categories of private health facilities (Ethiopian Ministry of Health 2006). Yet according to a national study conducted in Ethiopia in 2008, only 27% of induced abortions were safe procedures performed in health facilities (Singh et al. 2010).

In Ethiopia, monitoring abortion and emergency obstetric services is especially important following the revision of the abortion law and subsequent programmatic efforts to scale up safe abortion services introduced in 2005–2006. The results
reported in this paper describe findings from a nationally representative survey of public and private sector health facilities in Ethiopia to meet the nationwide demand for safe abortion services. The study builds on the safe abortion care (SAC) indicators which were proposed for regional and international replication in 2006 (Healy et al. 2006). To date only one intervention, and the corresponding evaluation of the indicators, has been conducted in the Ethiopian region of Tigray (Otsea et al. 2011). This paper describes the first national study to assess the current availability, distribution, utilisation and quality of abortion services using the SAC model.

The SAC model

Although tracking changes in maternal deaths over time is the ideal measure of the impact of obstetric and safe abortion-related interventions, numerous methodological and cost barriers limit such assessments in developing countries (Benson 2005, WHO 2010, AbouZahr 2011). As an alternative measure, process indicators for emergency obstetric care (EmOC) have been used to monitor service delivery coverage, utilisation and quality of obstetric interventions for more than a decade (Maine et al. 1997, Paxton et al. 2006). However, the EmOC model gives minimal attention to the treatment for an unsafe abortion and no attention to safe abortion services or contraception. In 2006 the EmOC model was re-conceptualised to create a new approach exclusively to measure the burden of abortion complications and focused on the three elements of SAC: treatment for abortion complications, induced abortion and post-abortion contraception (Healy et al. 2006). Similar to the EmOC approach for reducing obstetric deaths, the SAC model assumes that if abortion services are available, geographically dispersed, well-utilised and of reasonable quality, abortion-related mortality and morbidity should decline.

The tools used to monitor the amount, distribution, utilisation and quality of abortion include a set of signal functions and indicators measured in a nation or sub-national area. The signal functions are a core list of essential services that health facilities should have available and functioning in order to ensure the delivery of all three SAC elements. They are categorised by those services necessary for facilities that offer first-trimester abortion care, or basic abortion care, usually in health centres and smaller private clinics, or those services required for second-trimester abortion services, often available only in hospitals.

According to the SAC model, signal functions of interest include the six services required for basic facilities (essential antibiotics, intravenous replacement fluids, oxytocics, removal of retained products with appropriate technology for uterine sizes $\leq 12$ weeks, induced abortion with appropriate technology for uterine sizes $\leq 12$ weeks for all legal indications and post-abortion contraception). According to the WHO, appropriate technology for removal of retained products in the first trimester is limited to vacuum aspiration or medication abortion; appropriate technology after 12 weeks of pregnancy includes medication or dilatation and evacuation (WHO 2003). The 10 services required for comprehensive facilities include all six basic services plus removal of retained products for uterine size $> 12$ weeks, blood transfusion, laparotomy and induced abortion for uterine size $> 12$ weeks for all legal indications. If the first six functions have been performed by the facility in the last three months, the site is considered a successful basic facility. Comprehensive facilities must have performed all the 10 signal functions in the past quarter.
The SAC model includes two indicators to monitor sufficient abortion service availability and geographic distribution. The model recommends a minimum of 5 sites per 500,000 residents, 4 of which should be basic and 1 comprehensive, at both national and sub-national levels. A more thorough description of the SAC model can be found in Healy et al. (2006).

Finally, in order to measure progress towards national utilisation and service quality, five indicators are calculated from facility service statistics. These five indicators include a measure of the proportion of all obstetric complications that are abortion complications, the proportion of abortion complications that are severe, the proportion of all abortion cases that are safe induced abortions performed in facilities, the proportion of all abortion procedures performed with WHO-recommended technologies and the proportion of all abortion clients who leave with a contraceptive method.

Methods
This study was a component of a larger project to assess the incidence of safe and unsafe abortion and the severity and consequences of an unsafe abortion in Ethiopia. Data collection occurred between November 2007 and February 2008 at a nationally representative sample of public and private health care facilities. The year 2008 was chosen as the reference year as this was the year of most of the data collection. Full details of the study design and implementation have been published and are available elsewhere in Gebreselassie et al. (2010) and Singh et al. (2010). The study was approved by the Ethiopia Science and Technology Committee.

Study sample and weighting
A list of all public and private health facilities in the country was created in collaboration with the Regional Health Bureaus, and validated to create a national sampling frame. Eligible facilities for inclusion were those that might provide treatment for abortion complications, induced abortion services (as permitted by law) and/or provide maternity and delivery services. All public health facilities smaller than a health centre, such as health posts and health stations, and private facilities without maternity and delivery services were excluded from consideration. The final sampling frame included 896 eligible facilities.

In order to provide thorough and robust national coverage, a stratified random sample of facilities was selected by forming 33 strata defined by the 11 regions of

<table>
<thead>
<tr>
<th>Expected type of SAC care</th>
<th>Unweighted n</th>
<th>Weighted n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospitals(^a)</td>
<td>Comprehensive</td>
<td>128</td>
<td>131</td>
</tr>
<tr>
<td>Public health centres</td>
<td>Basic</td>
<td>152</td>
<td>570</td>
</tr>
<tr>
<td>Private clinics(^b)</td>
<td>Basic</td>
<td>55</td>
<td>148</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>335</td>
<td>849</td>
</tr>
</tbody>
</table>

\(^a\)Public, private, non-governmental and ‘other governmental’ hospitals.

\(^b\)Includes non-governmental organisation clinics, private clinics and private specialised MCH centres.
Ethiopia and 3 types of facility/ownership (hospital, private and public primary). Within each region-facility type strata, a census (100%) of hospitals and private specialised maternal and child health (MCH) clinics and non-governmental organisation health facilities for that region was selected for inclusion; 30% of all public health centres and 40% of all higher private MCH clinics were randomly selected for inclusion in the study. Since a national census of all health facilities was deemed too costly, proportional representation for each facility type was based on experts’ estimation of anticipated national caseload amongst hospitals, health centres and private facilities. Each of the 33 strata was weighted for non-response; public health centres and private MCH clinics in all regions were also weighted for their probability of selection to achieve national representation. More detail on the sampling and weighting of the facilities has been published in Gebreselassie et al. (2010) and Singh et al. (2010).

As shown in Table 1, a total of 335 sampled health facilities participated in key informant data collection as part of the national assessment on abortion care. Efforts were made to reach a census of all hospitals and the difference in the unweighted sample \( (n = 128) \), and the national figure represented \( (n = 131) \) is related to only three refusals to participate. A total of 207 primary care facilities (152 public health centres and 55 private clinics) participated. After weighting, these facilities represent 718 primary care facilities in the country and comprise 85% of the weighted study sample.

For the purposes of this analysis, health facilities maintained their sampling weights appropriate for the study design, regional- and facility-type strata and participation regardless of aggregation. However, results have been presented as two groups, hospitals allowed by the Ethiopian Ministry of Health (MOH) to provide comprehensive abortion care (public, private, non-governmental and other governmental hospitals) and primary-level health centres and clinics that could offer only basic abortion care. The final calculation of SAC indicators has been disaggregated into three categories, hospitals, public and private primary-level facilities.

Data sources and definitions

During data collection three discrete data collection tools and methods were used to measure, confirm and validate the capacity to provide abortion-related care (SAC signal functions) for Ethiopia (Table 2). Trained data collectors visited the sampled facilities to obtain information on infrastructure, capacity, performance and caseload described as follows.

Key informant interviews with 335 health care providers

Information about the ability to provide and performance of each SAC signal function at least once during the previous three-month period was collected through interviews with a provider from each facility who worked in the maternity/delivery or abortion care ward or unit. Interviewers requested the respondent who was most knowledgeable about requests for induced abortions and the post-abortion care (PAC) provided for complications of an unsafe abortion. In some cases this was a provider working on the ward, in others this was a head of department or a combination of the two. Among the 393 selected facilities, 335 provided information
about signal functions. Final study weights for each strata and facility type were corrected for non-participation.

**Prospective morbidity methodology (PMM) data from 8911 women seeking abortion care**

Using a standardised form, data were collected prospectively on all women presenting with abortion complications or requests for a legal induced abortion during a consecutive 28-day period in each study facility. Monthly cases were annualised during analysis to represent the yearly cases in the facility. Providers in the facilities were trained to record information on each woman seeking PAC for complications of an unsafe abortion, miscarriage or a request for a safe induced abortion and in turn received a small monthly stipend for these additional responsibilities. Data were also recorded on patient demographics, self-reported induction attempts, reproductive history, vital signs, symptoms found on physical exam, abortion symptoms that drew the woman to the facility and essential elements of the care provided to her; none of the patients were interviewed directly. A woman with serious complications was defined as having one or more of the following signs: death, shock, pulse higher than 119 beats per minute, generalised peritonitis, evidence of mechanical injury or foreign body, organ or system failure or a temperature higher than 38°C. Among the 393 selected facilities, 344 collected prospective caseload information. Each woman was assigned a sample weight equivalent to that of her strata (a combination of region and facility type where she sought care) which had been adjusted for non-participation in this portion of the study.

**Logbook review**

Regional study coordinators were trained to compile retrospective logbook information on all cases of abortion and obstetric complications treated at each site for the previous year and to complete the key informant interviews. Abortion cases included women treated for complications of miscarriage or abortion induced outside the health facility or women seeking an induced abortion. Obstetric complications are defined as women who have one or more of the following conditions: ante- or post-partum haemorrhage, sepsis, prolonged or obstructed labour, complications from abortion, pre-eclampsia or eclampsia, ectopic pregnancy or ruptured uterus. Data collectors reviewed abortion logbooks in the facilities to record the number of cases and, when available, data on the severity of abortion complications treated. The characteristics of care received by abortion clients were also recorded, including the abortion technology used for uterine evacuation and receipt of contraception prior to facility discharge. In addition, data collectors recorded the number of obstetric complications treated in the facilities using operating theatre and other logbooks as information sources. Among the 393 selected facilities, 335 provided information about signal functions and caseloads. Logbook data were reviewed and assigned the facility weight appropriate for sampling and responses in this portion of the study.
Calculating SAC indicators to assess national performance

To determine the recommended number of basic and comprehensive SAC facilities, national population estimates were taken from the 2008 national census (Federal Democratic Republic of Ethiopia, Population Census Commission 2008). Based on the population figure of 73,918,505 residents, Ethiopia required 592 facilities providing basic and 148 hospitals providing comprehensive abortion care to meet the SAC needs of the population.

All information presented in Table 2, SAC signal functions, and Table 3, percentages of basic and comprehensive SAC facilities by region and nationally, was calculated using data exclusively from key informant provider interviews on SAC signal functions. Information on obstetric and abortion cases presented in Table 4 combined the three previously described data sources in order to address data quality issues (such as under- or incomplete reporting) inherent in retrospective and longitudinal logbook data. The quality and consistency of logbook data, when compared to similar variables in the PMM and key informant interviews, were erratic in a large number of facilities. For each indicator a decision was made and, wherever possible, data from the PMM or key informant interviews were used in place of logbook records. For calculation of percentages requiring information on serious abortion complications, all abortion complications, induced abortion cases, all abortion cases, recommended technology and uterine evacuations, all figures were based on the frequency and distribution of symptoms and cases extracted from the PMM prospective data records offering a more robust and complete data source. Two figures, the total number of all obstetric complications in the facility and the number of women in each facility who received a contraceptive method after any abortion care, were found to be implausibly low because many providers were unlikely to record this information in logbooks. This resulted in a higher than normal amount of missing data in the logbook reviews. These two figures were not included in either the PMM records or key informant interviews. In order to improve the reliability of the estimates of obstetric complications and post-abortion contraceptive acceptors, these two figures were adjusted to correct for missing information and measurement differences in the following manner. A calculation of the percentage of women treated for obstetric complications that were abortion-related and the percentage of women who received abortion services that obtained contraception was created by combining the 12-month retrospective logbook data and the PMM morbidity data. Using the PMM morbidity data as a base (the numerator in the case of the abortion complications and the denominator of all abortion cases), a multiplier was calculated to scale the national estimate of obstetric complications and women who received post-abortion contraception to the magnitude of the more reliable prospective data. The multiplier for underreporting of 5–12 is specific to each facility type and is essentially an estimate of the scale of logbook underreporting when the 28-day PMM data from 8911 women are compared with the 28-day logbook estimates.

Data analysis

Data were entered and checked for consistency and completeness using Excel and Epidata version 3.1. The three separate data-sets were transferred to Stata version
11.2 and combined for recoding and analysis. All analyses were conducted accounting for the complex sample design using weighting appropriate for survey data. In the case of PMM data, missing data were negligible and analyses were limited to non-missing responses. In one instance key informant data with a substantial number of missing responses (11%) were used to determine whether the facility provided post-abortion contraception; these missing data were recoded to ‘not providing’ and treated in a conservative manner. Finally, a small number of key informants in primary-level facilities reported providing some aspects of comprehensive abortion care. These reports were excluded and analyses were restricted to only those facilities trained and authorised to provide comprehensive abortion care.

Performance of SAC signal functions was reported by facility type as unweighted frequencies and weighted percentages. The nationally representative weighted number of basic and comprehensive facilities was computed and reported as a percent of the recommended number of SAC facilities of each type. Regional estimates of SAC coverage were computed similarly. Unweighted frequencies in all tables are shown for presentation; weighted data were used for computation of percentages, overall and by facility type.

Results

Performance of basic abortion care was generally high in hospitals (Table 2). Almost all Ethiopian hospitals (92–99%) performed all signal functions with the exception of early pregnancy termination. More than two-thirds, 67%, of the nation’s hospitals provided this service.

Basic abortion care was more limited in primary-level Ethiopian health facilities than in hospitals. Only three-quarters of primary care facilities could provide intravenous fluids to a woman in crisis and only 79% could administer uterotonics to control bleeding – both of which are life-saving interventions that could be necessary to stabilise a woman with complications of an unsafe abortion or other obstetric complication and provide time to reach a hospital. Just over half of small health facilities (58%) could remove retained products of conception by providing a uterine evacuation essential for PAC. Only 39% of all facilities reported the provision of early pregnancy termination and more than one quarter did not provide post-abortion contraception to prevent another unwanted pregnancy.

National performance measures on comprehensive abortion care were calculated only for hospitals. Only 2 in 10 hospitals could provide treatment for an incomplete abortion by removing retained products for women with uterine sizes over 12 weeks. Just over 60% of all hospitals could provide a blood transfusion and only 7 in 10 hospitals could perform a laparotomy, sometimes required to treat haemorrhage, uterine or abdominal injury. Only 43% of all hospitals had the capacity to provide an abortion in the second trimester of pregnancy.

To meet the 5 facilities per 500,000 residents’ recommendation for basic abortion care (Table 3), Ethiopia would require a total of 591 basic and 148 comprehensive abortion care facilities dispersed throughout the country. According to the actual services provided, the country falls far short of meeting these goals with only 31% (181 of 591) of the number of basic abortion care providing facilities and 24% (36 of 148) of facilities needed to meet the comprehensive abortion care needs in the country.
The three least populous regions in the country, Harari, Dire Dawa and Gambella, were the only regions that had facilities that exceeded the recommended number of facilities necessary to meet their residents’ basic abortion care needs. The city of Addis Ababa had facilities that met almost three-quarters (73%) of its expected basic abortion care needs. The remaining seven regions of the country did not have enough facilities to meet the recommended levels for basic abortion care, with percentages of actual service coverage ranging from only 6 to 40% of the expected need.

Comprehensive abortion care service availability was far worse than basic abortion care in the country. Only the capital city of Addis Ababa, with its large number of teaching and other tertiary hospitals, exceeded the recommended number of comprehensive health facilities required to meet its population’s needs. One region, Dire Dawa, only required one facility to meet its comprehensive abortion needs and this target was met. Five Ethiopian regions had no facilities that could perform all of the signal functions necessary to provide essential comprehensive abortion care. The three regions with the largest population in the country, Oromiya, Amhara and Southern Nations, Nationalities and People’s Region (SNNPR), only met 15–21% of their regions’ comprehensive abortion care needs. The region of Tigray met just over half of its residents’ comprehensive abortion care needs.

Table 4 describes national facility-based results of calculated SAC indicators, a type of national scorecard on abortion services. According to these results, almost one-half (48%) of women treated for obstetric complications in Ethiopian health facilities were...
treated for abortion complications. Nationally, a large proportion of women who sought care for obstetric complications, 50% in public primary-level facilities, 75% of women seeking care in private clinics and 43% of women seeking obstetrics or gynaecology services in hospitals, were seeking treatment for complications of an unsafe abortion or a complicated miscarriage. More than one in four women (27%) seeking PAC, regardless of facility type, were already seriously ill based on their symptoms at the time of presentation. Almost three of every four women seeking any type of abortion care (72%) were requesting a safe abortion in the facility. The proportion of women seeking a safe abortion was far higher in primary care facilities, 95% versus only 30% of women seeking abortion care in Ethiopian hospitals.

A high proportion, 87% of all abortion care, was performed with appropriate technology, namely manual vacuum aspiration (MVA), at the time of this study. This trend was much more pronounced in private health facilities. In public facilities less than two-thirds of women in the first trimester of pregnancy (64% of hospital cases and 62% of health centre cases) received procedures either with vacuum aspiration or medication as recommended by the WHO, sharp curettage was used in the remaining cases. Appropriate technology, either medical induction or dilatation and evacuation, used for procedures in the second trimester of pregnancy was low, only 17–26% of all procedures, regardless of the type of facility. Since training and teaching programmes to perform abortions in the second trimester of pregnancy are rare in Ethiopia and around the globe, many facilities reported using less effective second-trimester technologies such as MVA, intra-uterine injections or sharp curettage to perform these procedures.

Finally, 75% of women who received abortion care left the facility with a contraceptive method. The proportion of post-abortion contraceptive acceptors was much higher, 89%, in primary care facilities than in hospitals where only 31% of women received a contraceptive method following abortion care.

<table>
<thead>
<tr>
<th>Region</th>
<th>Recommended</th>
<th>Actual</th>
<th>%</th>
<th>Recommended</th>
<th>Actual</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>National</td>
<td>591</td>
<td>181</td>
<td>31</td>
<td>148</td>
<td>36</td>
<td>24</td>
</tr>
<tr>
<td>Harari</td>
<td>1</td>
<td>7</td>
<td>700</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Dire Dawa</td>
<td>3</td>
<td>4</td>
<td>133</td>
<td>1</td>
<td>1</td>
<td>100</td>
</tr>
<tr>
<td>Gambella</td>
<td>2</td>
<td>3</td>
<td>150</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Addis Ababa</td>
<td>22</td>
<td>16</td>
<td>73</td>
<td>5</td>
<td>9</td>
<td>180</td>
</tr>
<tr>
<td>Tigray</td>
<td>35</td>
<td>14</td>
<td>40</td>
<td>9</td>
<td>5</td>
<td>56</td>
</tr>
<tr>
<td>Oromiya</td>
<td>217</td>
<td>65</td>
<td>30</td>
<td>54</td>
<td>8</td>
<td>15</td>
</tr>
<tr>
<td>Amhara</td>
<td>138</td>
<td>37</td>
<td>27</td>
<td>34</td>
<td>7</td>
<td>21</td>
</tr>
<tr>
<td>SNNPR</td>
<td>120</td>
<td>30</td>
<td>25</td>
<td>30</td>
<td>6</td>
<td>20</td>
</tr>
<tr>
<td>Benshangul-Gumuz</td>
<td>5</td>
<td>1</td>
<td>20</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Afar</td>
<td>11</td>
<td>2</td>
<td>18</td>
<td>3</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Somali</td>
<td>36</td>
<td>2</td>
<td>6</td>
<td>9</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

*aBasic or comprehensive status is based on signal function performance in a facility during the previous three-month period as reported by key informants.*

Table 3. Recommended and achieved levels of basic and comprehensive abortion care nationally and by region, Ethiopia, 2008.
Table 4. Indicators for safe abortion care by facility type and nationally, Ethiopia, 2008.

<table>
<thead>
<tr>
<th></th>
<th>Hospitals $(n = 128)$</th>
<th>Public health centres $(n = 152)$</th>
<th>Private health centres $(n = 55)$</th>
<th>Total $(n = 335)$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percentage of women treated for obstetric complications that are abortion related$^a$</td>
<td>43%</td>
<td>50%</td>
<td>75%</td>
<td>48%</td>
</tr>
<tr>
<td>Abortion complications cases</td>
<td>1459</td>
<td>1266</td>
<td>335</td>
<td>3060</td>
</tr>
<tr>
<td>Obstetric complications cases</td>
<td>3421</td>
<td>2512</td>
<td>445</td>
<td>6378</td>
</tr>
<tr>
<td>Percentage of women treated for abortion complications that are serious$^b$</td>
<td>27%</td>
<td>28%</td>
<td>20%</td>
<td>27%</td>
</tr>
<tr>
<td>Serious abortion complications cases</td>
<td>398</td>
<td>360</td>
<td>68</td>
<td>826</td>
</tr>
<tr>
<td>All abortion complications cases</td>
<td>1459</td>
<td>1266</td>
<td>335</td>
<td>3060</td>
</tr>
<tr>
<td>Percentage of women who received abortion services that had induced procedures$^b$</td>
<td>30%</td>
<td>39%</td>
<td>95%</td>
<td>72%</td>
</tr>
<tr>
<td>Induced abortion cases</td>
<td>635</td>
<td>819</td>
<td>6346</td>
<td>7800</td>
</tr>
<tr>
<td>All abortion cases</td>
<td>2094</td>
<td>2085</td>
<td>6681</td>
<td>10,860</td>
</tr>
<tr>
<td>Percentage of uterine evacuations performed with appropriate technology,$^b$ regardless of trimester</td>
<td>53%</td>
<td>85%</td>
<td>97%</td>
<td>87%</td>
</tr>
<tr>
<td>Uterine evacuation cases with recommended technologies</td>
<td>1043</td>
<td>1348</td>
<td>6427</td>
<td>8818</td>
</tr>
<tr>
<td>All uterine evacuation cases</td>
<td>1986</td>
<td>1581</td>
<td>6620</td>
<td>10,187</td>
</tr>
<tr>
<td>Percentage of uterine evacuations performed with appropriate technology,$^b,c$ first trimester</td>
<td>64%</td>
<td>62%</td>
<td>97%</td>
<td>85%</td>
</tr>
<tr>
<td>Uterine evacuation cases with recommended technologies</td>
<td>887</td>
<td>1266</td>
<td>6354</td>
<td>8507</td>
</tr>
<tr>
<td>All uterine evacuation cases</td>
<td>1392</td>
<td>2053</td>
<td>6532</td>
<td>9977</td>
</tr>
<tr>
<td>Percentage of uterine evacuations performed with appropriate technology,$^b,c$ second trimester</td>
<td>21%</td>
<td>17%</td>
<td>26%</td>
<td>21%</td>
</tr>
<tr>
<td>Uterine evacuation cases with the recommended technologies</td>
<td>156</td>
<td>83</td>
<td>73</td>
<td>312</td>
</tr>
<tr>
<td>All uterine evacuation cases</td>
<td>741</td>
<td>479</td>
<td>283</td>
<td>1503</td>
</tr>
</tbody>
</table>
Table 4 (Continued)

<table>
<thead>
<tr>
<th>Hospitals (n = 128)</th>
<th>Public health centres (n = 152)</th>
<th>Private health centres (n = 55)</th>
<th>Total (n = 335)</th>
</tr>
</thead>
<tbody>
<tr>
<td>n</td>
<td>%</td>
<td>n</td>
<td>%</td>
</tr>
<tr>
<td>31</td>
<td></td>
<td>65</td>
<td>93</td>
</tr>
<tr>
<td>Abortion cases receiving contraception</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>656</td>
<td>1349</td>
<td>6192</td>
<td>8197</td>
</tr>
<tr>
<td>All abortion cases</td>
<td>2094</td>
<td>2085</td>
<td>6681</td>
</tr>
</tbody>
</table>

*a* Numerator and denominator are taken from the SAC data-set (12 month, missing data issues) and then scaled to match the health facility survey (HFS) data using number of abortion complication cases and number of all abortion cases, respectively (for ease of reporting). Essentially we are applying the distribution in the SAC data to the weighted case counts in the prospective morbidity data.

*b* Numerator and denominator are taken from the health facility survey (HFS) data-set (28 days, complete data).

c* WHO recommendations for appropriate trimester are medical methods and vacuum aspiration in the first trimester and dilatation and evacuation or medication abortion.*
Discussion and recommendations

Reflecting a long and intensive effort to improve PAC services and reach every health facility in the country (Fetters et al. 2008), national availability is high for most of the individual signal functions in the basic category of abortion care provision, especially in hospitals. Yet many facilities were not consistently able to provide all of the aspects of basic abortion care. There are several reasons why a facility may not have performed one of the signal functions in recent months, including lack of caseload, absence or inconsistent presence of trained staff or stock-outs of required supplies. The gap in SAC signal functions suggests that there could be latent capacity for performance of the signal functions, and hence, good potential for increasing the availability of basic SAC services through training, supplies and ongoing technical support, particularly in primary care facilities.

In Ethiopian hospitals performance of all basic abortion care functions has been achieved by over 90% of facilities in the country except for the provision of early abortions, available in only 67% of hospitals. While this measure is lower than the 100% standard necessary to meet the demand for care, scaling up safe abortion services in Ethiopian health facilities has been proceeding rapidly, beginning less than two years prior to this assessment. More recently, from 2008 to 2011, the Ethiopian Government, in collaboration with an international non-governmental organisation, trained more than 3800 health care workers across the country in the treatment for post-abortion complications and the provision of SAC (Ipas Ethiopia, 2012). Beginning in 2009, the same collaborators introduced a medical abortion regimen of mifepristone and misoprostol to further improve the reach, choice in technology and acceptability for women. Medical abortion is now the choice of more than half of women seeking an early abortion in the public sector. It is likely that repeating this study today would result in better measures of access to first- and second-trimester abortion services.

Scaling up Ethiopian PAC services began in 2000 with hospitals as first priority and later commitments to reach each Ethiopian health centre, yet in 2008, just 31% of the minimum number of facilities needed for basic abortion care was achieved. No policy prevents every primary-level care facility from providing this basic but essential care and meeting the needs of a country in the midst of demographic transition. Health centres and clinics are staffed by mid-level providers (nurses, midwives and health officers) allowed to provide early abortion and care for a woman with complications of an unsafe abortion using MVA. In contrast to several other African nations with recently revised or re-interpreted abortion laws, conscientious objection among Ethiopian providers was not mentioned in the technical and procedural guidelines and instead the forward remarks that, ‘Health care providers are expected not only to have a good grasp of the Guidance but also to be prepared to discharge their professional responsibilities as outlined in the document’ (Ethiopian Ministry of Health 2006). The implementation of this document and the entire safe abortion programme has left little room for dissent and instead, providers are vetted by non-governmental organisations and the Ministry of Health to ensure that they are committed to carrying out and sustaining abortion services. Post-abortion and abortion care routinely provided by mid-level providers and technology, namely MVA and medical abortion methods, are inexpensive and widely available in the public and private sectors.
Although each aspect of basic abortion care is simple, each component can be lifesaving when necessary to stabilise a woman suffering complications of an unsafe abortion or to prevent an unsafe abortion by terminating a woman’s pregnancy safely and legally. Providing an early legal abortion, treating incomplete abortion and administering antibiotics were available in less than two-thirds of primary care facilities in Ethiopia. Providing high-quality safe and legal abortions close to a woman’s home is likely the most important step towards preventing mortality and morbidity from an unsafe abortion in the country. Although abortions could be provided safely and legally in 2008, 58,000 women sought care for complications of an unsafe abortion or a complicated miscarriage, and 38% of these women sought treatment in a primary care facility (Gebreselassie et al. 2010).

Overall, achievement in meeting the comprehensive abortion care needs of the population is poor, and less than one quarter of the recommended number of facilities can provide all of these essential services. Except for removal of retained products of conception for women with uterine sizes over 12 weeks, which can be managed in almost 9 of 10 hospitals, performance of all other individual signal functions is weak. Only 6 in 10 hospitals can provide blood products and only 7 in 10 could provide a laparotomy in the case of severe haemorrhage, one of the most common causes of maternal deaths in Ethiopia. Far fewer hospitals, only 43%, can provide a safe abortion to a woman in the second trimester of pregnancy. As first-line referral centres, all hospitals should have the ability to provide every aspect of comprehensive abortion care. In total, 5 of 11 regions in the country did not have even one hospital able to perform all of the life-saving services required to provide comprehensive abortion care.

While most PAC in the country is provided by mid-level providers (Gebreselassie et al. 2010), Ethiopian law and guidance on abortion care prevents these providers from performing second-trimester abortions. Even though the use of appropriate technologies for first-trimester abortion care in all facilities is more than 85%, appropriate technology use remains lower in hospitals than in primary care facilities where physicians are the primary caregivers, and is extremely low for procedures performed in the second trimester. The low performance in abortion care was compromised by the extremely low use of appropriate technologies for second-trimester management (which was the lowest of the seven safe abortion indicators).

Women treated in hospitals, either receiving a pregnancy termination or being treated for complications of an unsafe abortion, are also less likely to leave with a contraceptive method and the means to prevent another unintended pregnancy. Strengthening medical school curricula and contraceptive training programmes for physicians is one long-term and sustainable approach along with improved linkages between abortion and contraceptive services, especially in hospitals. For longer-term change, intensive in-service training on comprehensive abortion care for physicians is imperative. Physician training in performance of second-trimester procedures, using medical methods recommended by the WHO, has begun in Ethiopia but needs to be expanded.

In general, the geographic distribution of abortion care is erratic and falls far short of the recommended levels, harming women in both rural as well as densely populated areas. Only Harari, Dire Dawa and the region of Gambella have met the requirements to provide basic abortion care for their populations. Harari and Dire Dawa are densely populated city administrations, and the region of Gambella is large
and sparsely populated requiring many women to travel hundreds of kilometres should they need this care.

The interpretation of this indicator for widely dispersed and remote regions such as Gambella, Afar and Somali means that some women still have to travel vast distances to seek and receive care. Transportation is difficult in these areas and many nomadic groups live in remote villages. Use of minimum standards may need to be supplemented with information about timely access to treatment to determine whether facilities are available for most women, even though these regions have met (or come close to meeting) SAC recommendations.

Women living in regions with less than the recommended level of basic or comprehensive abortion care face multiple barriers to meet their reproductive intentions. The delay in timely decision-making and access to a basic facility-providing PAC services or early abortion can lead to increased demand for services in the second trimester. These services, pre- or post-abortion, entail more risk and are more expensive to the woman and the health system (Grimes et al. 2006, Gebreselassie et al. 2010). Since second-trimester abortions are limited to hospitals where there is an obstetrician or trained general practitioner or health officer, this service, especially to those living in rural areas, is often unattainable.

Nationwide, abortion complications accounted for almost half of all admissions with obstetric complications (48%), an extraordinarily high percentage. More than one quarter of these women presented for care with serious complications. In 2008, one in four women seeking PAC presented with signs of infection, physical interference to the pregnancy, organ failure, or died (Gebreselassie et al. 2010). Many of these women continue to seek treatment in primary-level facilities with the least capacity to provide comprehensive abortion care. The importance of proper and timely treatment cannot be underestimated.

The wide variation between achievement of indicators in public facilities and private health centres is notable (Table 4). The percentage of abortion services for induced care, the use of appropriate technologies and the provision of post-abortion contraception were markedly higher among private facilities. For women able to access private services, these results are reassuring but they underscore the need for improvements in public facilities that serve large numbers of poor and rural women.

A more recent application of the SAC model among public facilities in the Tigray region confirmed many of these study findings and documented the rapid pace of improvements with sufficient attention to training and service expansion. In 2007, availability of basic SAC increased from 40% of the recommended number of facilities to 91% in 2009, although gaps in provision of second-trimester services limited comparable improvements in availability of comprehensive SAC (Otsea et al. 2011). The proportion of women receiving abortion care who had an induced procedure increased from just over 7% to 60% between 2007 and 2009 (Otsea et al. 2011).

Our study had several limitations. First, whenever logbook data are used there is a substantial likelihood of underreporting. We avoided using retrospective data extracted solely from logbooks by relying on more robust prospective data from clients except in two cases, the total number of obstetric complications and the proportion of post-abortion contraceptive acceptors. For these two variables we analysed the relationship of all variables in the two data sources by facility type and created estimates of the scale of underreporting in logbooks to improve reliability. Still, some imprecision is inherent in combining these two types of data.
Additionally, the prospective data are likely a slight underestimate due to cases missed in other parts of the health facility, during night shifts or while the data collecting provider is busy or away. Strong supervision during data collection and meetings with other providers in the facility have been used to improve the completeness of the data but these figures should still be considered conservative estimates. Finally, this methodology does allow for the possibility of double counting women with severe PAC cases among women who may be stabilised and referred. However, in a service delivery setting such as this and with these indicators, this possibility should be minimal and should have little bearing on measurement. Each facility was using resources, skills and treatment for each woman, even if she required referral to a higher-level facility for further treatment. In the case of induced abortions, only women who received the procedure, and not referrals, were counted.

This study design offers better information on access and utilisation of services than on the quality of those services. Indicators, such as the use of WHO-recommended technologies and the proportion of women who accept a contraceptive method, provide a measure of service quality that can be measured on a vast national scale important for policy-makers. Data collection methods used in this study relied heavily on logbooks and not direct observation; these data provide more information on the extent to which services are or are not provided and only cursory information about the quality of the abortion care provided. Further complementary research is needed to determine whether women are satisfied with these services.

Yet, this study design offers several other advantages. A robust national sample makes this the first national study of its kind and provides an opportunity to eventually measure progress over time in a country that has recently reformed its abortion law and embarked upon a national scale up of safe and legal abortion care. The opportunity to rely predominantly on prospective data, rather than retrospective logbook data, is also a strong methodological improvement in a design such as this one. Finally, rarely has a national study on abortion included measures of primary level and private sector provision and performance although the importance of these sectors in providing PAC services and induced abortion is well known.

Results of this study present a one-time snapshot following changes in the legal framework for abortion and in a rapidly changing environment for policies and services in abortion care. As the deadline for the 2015 Millennium Development Goals rapidly approaches, governments and policy-makers alike continue to question each strategy that moves us towards these goals. Applying the SAC model longitudinally in Ethiopia or in other countries offers opportunities to measure the impact on the health system of unsafe abortion treatment. This model also places a new emphasis on prevention by measuring the capacity to prevent further unwanted pregnancies post-abortion and replacing unsafe abortions with safe and legal procedures. We can no longer be timid about adoption of evidence-based interventions such as SAC that have demonstrated decreases in maternal morbidity and mortality. Ensuring that every woman has the knowledge and ability to meet her own reproductive goals should be the ultimate measure of success.
References


