Global Public Health: An International Journal for Research, Policy and Practice

Abortion incidence in Cambodia, 2005 and 2010

Tamara Fetters\textsuperscript{a} & Ghazaleh Samandari\textsuperscript{b}

\textsuperscript{a} Ipas, Chapel Hill, NC, USA
\textsuperscript{b} Gillings School of Global Public Health, University of North Carolina, Chapel Hill, NC, USA

Published online: 04 Feb 2015.

To cite this article: Tamara Fetters & Ghazaleh Samandari (2015) Abortion incidence in Cambodia, 2005 and 2010, Global Public Health: An International Journal for Research, Policy and Practice, 10:4, 532-544, DOI: 10.1080/17441692.2014.992453

To link to this article: http://dx.doi.org/10.1080/17441692.2014.992453

PLEASE SCROLL DOWN FOR ARTICLE

Taylor & Francis makes every effort to ensure the accuracy of all the information (the “Content”) contained in the publications on our platform. However, Taylor & Francis, our agents, and our licensors make no representations or warranties whatsoever as to the accuracy, completeness, or suitability for any purpose of the Content. Any opinions and views expressed in this publication are the opinions and views of the authors, and are not the views of or endorsed by Taylor & Francis. The accuracy of the Content should not be relied upon and should be independently verified with primary sources of information. Taylor and Francis shall not be liable for any losses, actions, claims, proceedings, demands, costs, expenses, damages, and other liabilities whatsoever or howsoever caused arising directly or indirectly in connection with, in relation to or arising out of the use of the Content.

This article may be used for research, teaching, and private study purposes. Any substantial or systematic reproduction, redistribution, reselling, loan, sub-licensing, systematic supply, or distribution in any form to anyone is expressly forbidden. Terms &
Abortion incidence in Cambodia, 2005 and 2010

Tamara Fetter*a and Ghazaleh Samandari*b

aIpas, Chapel Hill, NC, USA; bGillings School of Global Public Health, University of North Carolina, Chapel Hill, NC, USA

(Received 27 March 2014; accepted 7 October 2014)

Although Cambodia now permits elective abortion, scarcity of research on this topic means that information on abortion incidence is limited to regional estimates. This estimation model combines national survey data from Demographic and Health Surveys (DHS) with national prospective data of abortion procedures from government health facilities, collected in 2005 and 2010, to calculate the national incidence of safe and unsafe abortion. According to DHS, the proportion of all induced abortions that took place in a health facility in the five years preceding each survey increased from almost 52% to 60%. Projecting from facility-based abortions to national estimates, the national abortion rate increased from 21 to 28 per 1000 women aged 15–44. The abortion ratio also increased from 19 to 28 per 100 live births. This research quantifies an increase in safely induced abortions in Cambodia and provides a deeper understanding of induced abortion trends in Cambodia.

Keywords: abortion; abortion incidence; Cambodia; demography

Background

The abortion law in the Kingdom of Cambodia was reformed in 1997 to allow abortion on request through the twelfth week of pregnancy and, in certain circumstances, during the second trimester of pregnancy. However, research has shown that legal reform, while necessary, is on its own insufficient for ensuring all abortions are performed safely; strong national efforts to promote equitable access, supportive policies and to reduce abortion-related stigma are still necessary to reduce unsafe abortions (Guttmacher Institute, 2012; Henshaw et al., 2008; Jewkes et al., 2005). Although abortion is legal in several countries in the region of Southeast Asia, 61% of the region’s estimated 5.1 million induced abortions in 2008 were estimated to be unsafely performed in poor conditions, by untrained providers or using unsafe procedures (Sedgh et al., 2012).

In addition to changes to Cambodia’s abortion law, the cessation of 30 years of internal conflict in 1992 and increasing development investments have resulted in significant changes to fertility patterns in the country. This development has fostered a decline in fertility, further spurred by rises in contraceptive use and a concomitant rapid reduction of desired family size (Liljestrand & Sambath, 2012; National Institute of Public Health, National Institute of Statistics [Cambodia], & ORC Macro, 2006; National Institute of Statistics, Director General of Health, & Macro International, 2011). In such an environment, abortion is a strong component of fertility dynamics, yet no current
estimate of induced abortions exists in Cambodia. This study examines changes in induced abortion in Cambodia for 2005 and 2010, estimated by innovatively combining two existing data sources.

To estimate country-specific abortion rates, surveys of health professionals, special country-based studies and, in certain cases, national health statistics have been used to examine, model and estimate regional and national abortion rates (Rossier, 2003; Sedgh et al., 2012; Singh, Wulf, & Jones, 1997). For the nine diverse countries of Southeast Asia, it is estimated that 36 induced abortions occur for every 1000 women aged 15–44 (Sedgh et al., 2012). The countries that comprise the Southeast Asia region, however, have a diverse mix of legislation regarding safe and legal abortion practices that vary among restrictive, pragmatic and unrestricted policies; only Cambodia has introduced recent legislation to liberalise the abortion law (Hoban, Rathavy, & Lam, 2010; Sedgh et al., 2012; Singh et al., 1997). Additionally, many countries in the region including Cambodia have a long and widely acknowledged history of traditional abortion practices using massage, herbs and aspiration by lay health workers. These practices make estimation even more difficult as abortions are performed outside of health facilities, which are generally considered less safe and effective than those performed in health facilities (Hegde, Hoban, & Nevill, 2012; Hemmings & Rolfe, 2008; Hoban, et al., 2010; Lester, 2003; Narkavonnakit & Bennett, 1981; Potts, Graff, & Taing, 2007). Although safe and legal abortion access is increasing it is far from universal, and utilisation continues to lag behind changing social norms that stigmatise abortion. In light of these changes, unsafe abortion – defined by the World Health Organization as one performed by a person lacking the necessary skills, in an environment lacking minimal medical standards, or both – persists in Cambodia (Shah & Ahman, 2010; World Health Organization, 2012).

Since legalisation of abortion in Cambodia, only a handful of studies on abortion have been conducted there (Delvaux, Sœur, Rathavy, Crabbé, & Buvé, 2008; Fetters, Vonthanak, Picardo, & Rathavy, 2008; Fetters et al., 2010; Hegde et al., 2012; Hemmings & Rolfe, 2008; Lester, 2003; McDougall, Fetters, Clark, & Rathavy, 2009; Potdar, Fetters, & Phirun, 2008; Rathavy et al., 2007). Additionally, no studies have attempted to extrapolate their findings to calculate the incidence of abortion on a national level. In this study we combine data from two existing sources, a population-based survey and prospective data from a nationally representative sample of health facilities, to estimate the rates of induced abortion in Cambodia in 2005 and 2010. These data are of particular importance as they occur shortly after liberalisation of the abortion law and also while the Kingdom was in the midst of operationalizing and scaling up safe abortion services to its population.

Data sources and methods

This estimation model combines national facility-based data on abortion morbidity, known as the prospective morbidity methodology (PMM; Fetters, 2010), collected during surveys on abortion conducted in 2005 and 2010 (Fetters et al., 2008, 2010) with national survey data collected during the 2005 and 2010 Demographic and Health Surveys (DHS; National Institute of Public Health, National Institute of Statistics [Cambodia], & ORC Macro, 2006; National Institute of Statistics, Director General of Health, & Macro International, 2011). The two individual data sources and the estimation methods are described in this section.
Prospective morbidity surveys

The first data source used in this model makes use of 2005 and 2010 PMM abortion morbidity methodology results (Fetters et al., 2008). Nationally representative samples of 188 public sector hospitals and health centres in 2005 and 205 hospitals and health centres in 2010 were selected using probability proportionate to size sampling (Fetters et al., 2008, 2010). Health care workers in these facilities prospectively collected data on all postabortion cases and pregnancy terminations over 21 consecutive days during a five-week period in July–August 2005, and in February–March 2010. Data capture forms contained questions associated with standard patient demographics and reproductive history, symptoms that drew the patient to the facility, clinical management and costs of care.

Data were collected on women with complications from an induced abortion or miscarriage in both 2005 and 2010, and from 304 women who requested a legal induced abortion in 2005; this number increased to 554 in 2010. To avoid double-counting incidents of induced abortion, all postabortion care (PAC) cases that began with an attempt to unsafely induce an abortion were considered to be accounted for in the self-reported incidence of abortion as reported to data collectors during the DHS. In this estimation model, only the induced abortion procedures (as opposed to any of the PAC cases) were used to estimate the total number of induced abortions. A full description of the 2005 results and the methodology is published elsewhere (Fetters et al., 2008).

Cambodia demographic and health surveys

The second data source used in this model comes from the 2005 and 2010 Cambodia Demographic and Health surveys (CDHS; National Institute of Public Health, National Institute of Statistics [Cambodia], & ORC Macro, 2006; National Institute of Statistics, Director Generate of Health, & Macro International, 2011). The CDHS is a nationally representative household survey of women of reproductive age (WRA; ages 15–49) that, in Cambodia, explores abortion through a series of questions beginning with a direct request for information on induced abortion (including self-induction) in the past five years. Specifically, the survey ascertained the number of women who had an abortion in the five years preceding each survey, and the location in which the most recent abortion took place. A total of 16,823 women were surveyed for the 2005 CDHS, of which 582 reported history of having had an induced abortion in the previous five years; 18,754 women were interviewed in 2010, where 853 women reported having had induced an abortion in the five years preceding the that year’s CDHS. A full description of the questions, results and methodology is published in the Cambodian DHS (National Institute of Public Health, National Institute of Statistics [Cambodia], & ORC Macro, 2006; National Institute of Statistics, Director Generate of Health, & Macro International, 2011).

To build the abortion measures, a third data source was used: population figures based on the 2008 Cambodian Census results (U.S. Census Bureau, 2013). The number of WRA between 15 and 44 years (3,317,162 in 2005 and 3,709,713 in 2010), and live births in Cambodia (361,822 in 2005 and 369,725 in 2010) were adjusted for annual population growth and fertility trends as presented in the US Census Bureau’s international data compiler (U.S. Census Bureau, 2013).
Analysis

The analytic procedures used to obtain national abortion estimates for Cambodia involved a multi-step process that combined information from both PMM and CDHS data-sets with the WRA and live birth estimates to calculate the abortion rates and ratios.

First, estimates of the total annual number of legal induced abortions performed in Cambodian public sector health facilities in 2005 and 2010 were calculated using the PMM (Fetters et al., 2008). Information on all abortion cases was recorded during the study periods. Weights were applied to the number of induced abortions performed in the study facilities to calculate the point estimate and 95% confidence interval for the number of induced abortions performed in the national public sector during the study period. The weighted number of cases and the corresponding confidence interval from the 21-day period was multiplied by 17.38, the number of 21-day periods in a calendar year, in order to obtain estimates of annual abortion cases managed in Cambodia’s public sector.

Next, the distribution of women’s reported locations for abortion from the 2005 and 2010 CDHS were applied to the induced abortion point estimates captured in the prospective abortion morbidity surveys. This distribution is based on a survey item that asks women who reported having had an abortion in the past five years where their most recent abortion took place. Eleven per cent of women in the 2005 CDHS reported having their abortion in a public facility, a proportion that increased to 14.1% in the 2010 CDHS; 36.7% of women reported abortions performed in private sector sites, which increased to 42.7% in 2010; nearly 45% of abortions in 2005, declining to 38% in 2010, were performed in someone’s home; and 7.6% and 5.5% (2010) were missing abortion locations (National Institute of Public Health, National Institute of Statistics [Cambodia], & ORC Macro, 2006; National Institute of Statistics, Director General of Health, & Macro International, 2011).

Using a pro rata distribution method, the CDHS estimates were further adjusted for the per cent of women in each year who reported to the DHS interviewer that they had an abortion but gave no location. This method assumes the distribution of locations for the CDHS ‘missing location’ category to be equal to the distribution of those with a given response for location (National Institute of Public Health, National Institute of Statistics [Cambodia], & ORC Macro, 2006; National Institute of Statistics, Director General of Health, & Macro International, 2011). The pro rata adjustment, calculated first by dividing the missing proportion by 100 then multiplying all other response categories by this factor, yielded a new set of abortion location estimates which include the quantity of women with a missing location but still indicated they had an abortion in order to include the total number of self-reported abortions. Based on the pro rata adjustment, new estimates of abortions taking place in the public sector were calculated for 2005 (12.1%), and for 2010 (14.9%). Using the distribution of the ‘location of abortion’ question from the DHS and replacing the adjusted public sector proportions with 8236 annual induced abortions in 2005 (95% CI: 3,135–13,337) (Fetters et al., 2008), and with 15,416 annual induced abortions estimated in 2010 (95% CI: 10,463–20,352) allows for estimation of the total number of pregnancy terminations in Cambodia, regardless of location when the two data-sets are combined.

The national abortion rates and ratios were calculated based on the total number of safe and unsafe induced abortions in Cambodia, using abortion location (those reported as performed in facilities and in homes) as a proxy measure for procedure safety. Results were estimated using the total annual number of induced abortions performed in the public sector from the PMM, the CDHS distributions of previous abortion locations, and
the estimates of live births and WRA in the Kingdom. The difference between the midpoint estimate and the upper and lower bounds of the 95% confidence interval on the 2005 and 2010 annual estimates of induced abortions performed in public sector facilities was used to apply lower and upper boundaries to the estimates for the adjusted total abortions and the abortion rate and ratio. A mid-year population of 3,317,162 (2005) and 3,709,713 (2010) women aged 15–44 and 361,822 (2005) and 369,725 (2010) live births were used to calculate the rates and ratios (U.S. Census Bureau, 2013). Although the CDHS define WRA as women aged 15–49, global abortion figures are typically presented over a denominator of 15- to 44-year-olds, assuming that pregnancies resulting in induced abortions among 45- to 49-year-olds are rare (Sedgh et al., 2012). The denominator of 15- to 44-year-olds has been used here to allow for global consistency and comparison.

Results

Table 1 presents the results of the induced abortion estimation calculations from the prospective morbidity surveys conducted in 2005 and 2010. The total number of induced abortions performed in public sector facilities in 2005 was estimated to be 8236 (95% CI: 3135–13,337), and 15,416 (95% CI: 10,463–20,352) in 2010, based on counts of all women who sought and received abortions in 188 and 205 public sector facilities over a three-week period in each of 2005 and 2010, respectively. Although the number of women who had abortions in public facilities increased substantially between 2005 and 2010, many women sought care in both years and were turned away. While no specific reasons were collected, some facilities or providers were likely not prepared to provide the service, and in some cases women arrived too late for the facility’s capacity to appropriately care for them. Over 10,000 women in 2005 and in 2010 were sent away without an abortion procedure; however, due to the increases in services provided during the two years, the proportion of women who did not receive care decreased from 56% to 40% of all women seeking an induced abortion.

Table 2 presents the estimated number of induced abortion procedures performed in each type of location when the CDHS distribution from women’s reported abortion locations (adjusted for responses missing location) is applied to the groups. Distributed proportionately, the 2005 CDHS abortion locations resulted in: facility-based induced abortions performed in public sector facilities (12.1%), private sector facilities (39.7%), respondent’s home (12.6%) or another home (35.6%).

<table>
<thead>
<tr>
<th>Prospective abortion and morbidity survey resultsa</th>
<th>No. (%)</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annual induced abortions performed in public sector facilities in 2005</td>
<td>8236 (44)</td>
<td>3135–13,337</td>
</tr>
<tr>
<td>No. (%) of women denied an abortion due to late gestation, facility preparedness or other reasons in 2005</td>
<td>10,254 (56)</td>
<td>7,595–12,896</td>
</tr>
<tr>
<td>Annual induced abortions performed in public sector facilities in 2010</td>
<td>15,416 (60)</td>
<td>10,463–20,352</td>
</tr>
<tr>
<td>No. (%) of women denied an abortion due to late gestation, facility preparedness or other reasons in 2010</td>
<td>10,063 (40)</td>
<td>6,570–13,539</td>
</tr>
</tbody>
</table>

aData from national prospective abortion morbidity surveys conducted in 2005 and 2010 as described in Fetters et al. (2008).
In the case of the 2010 CDHS data, abortion locations distributed proportionately resulted in facility-based induced abortions performed in public sector facilities (14.9%) and private sector facilities (45.2%). Both proportions increased between the 2005 and 2010 surveys. Subsequently, a smaller proportion of women in the years preceding the 2010 survey had procedures in homes, with what were more likely unsafe or unreliable methods. In 2010, however, the adjusted proportion of women who reported performing an abortion in their own home increased to 26.8%, while those reporting to have had the procedure in another home decreased to 13.1%.

The annual estimate of 8236 abortion cases represents all induced abortions taking place in Cambodia’s public sector facilities in 2005. Based on this distribution, the total number of abortion cases in all locations (8236 divided by 0.121) is 68,066 procedures; lower and upper boundaries of the estimate are 25,866–110,267. The annualised study estimate of 8236 abortions represents only 12.1% of the total number of induced abortion procedures nationally. The private health sector provided just over 27,000 procedures this year, 39.7% of the total. Using the CDHS distribution of abortions suggests that 32,808 abortions, more than 48% of the total annual number of abortions, took place in a non-clinical setting (such as the respondent’s or another individual’s home) in 2005. An estimated 68,066 women had either a safe or unsafe abortion procedure in 2005.

### Table 2. Cambodian distribution of abortion locations for abortions reported in the five years prior to DHS data collection applied to abortion survey results.

<table>
<thead>
<tr>
<th></th>
<th>% reported in CHDS</th>
<th>% adjusted for 7.6% missing abortion locations</th>
<th>Estimated number of abortions</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Public sector health facility</td>
<td>11.2</td>
<td>12.1</td>
<td>8236</td>
</tr>
<tr>
<td>Private sector health facility</td>
<td>36.7</td>
<td>39.7</td>
<td>27,022</td>
</tr>
<tr>
<td>Respondent’s home</td>
<td>11.6</td>
<td>12.6</td>
<td>8576</td>
</tr>
<tr>
<td>Other home</td>
<td>32.9</td>
<td>35.6</td>
<td>24,232</td>
</tr>
<tr>
<td>Total with source stated</td>
<td>92.4</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td>Total adjusted number of induced abortions in 2005</td>
<td>68,066 (Lower-upper estimates: 25,866–110,267)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>% reported in CHDS</th>
<th>% adjusted for 5.5% missing abortion locations</th>
<th>Estimated number of abortions</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Public sector health facility</td>
<td>14.1</td>
<td>14.9</td>
<td>15,416</td>
</tr>
<tr>
<td>Private sector health facility</td>
<td>42.7</td>
<td>45.2</td>
<td>46,685</td>
</tr>
<tr>
<td>Respondent’s home</td>
<td>25.3</td>
<td>26.8</td>
<td>27,661</td>
</tr>
<tr>
<td>Other home</td>
<td>12.4</td>
<td>13.1</td>
<td>13,557</td>
</tr>
<tr>
<td>Total with source stated</td>
<td>94.5</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td>Total adjusted number of induced abortions in 2010</td>
<td>103,319 (Lower-upper estimates: 70,257–136,381)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

In 2010, an estimated 15,416 women, or 14.9% of the total number of abortions, sought and received an induced abortion in Cambodia’s public health system. However, most procedures performed during this year, 45.2% or 46,685 cases, were terminated in private sector facilities. Even in 2010, more than 41,000 women (39.9%) reported having obtained an abortion procedure in their own or someone else’s home. An estimated 103,319 women had abortions (lower and upper estimates: 70,257–136,381) during 2010, a 52% increase in induced abortions when compared with 2005.

Finally, Table 3 shows the demographic projections for Cambodia in 2005 and 2010 which were used to estimate the abortion rate and ratios. Using the total number of induced abortions (68,066 in 2005, and 103,319 in 2010) and the projected estimate of women ages 15–44 in Cambodia in 2005 (3,317,162) and 2010 (3,709,713), the national abortion rate for 2005 is estimated to be 21 (estimate boundaries 8–33) and 28 (estimate boundaries 19–37) per 1000 women ages 15–44, respectively. Using the total number of pregnancy terminations and the estimate of total live births in Cambodia in 2005 (361,822) and 2010 (369,725), the national abortion ratio for 2005 is estimated to be 19 (estimate boundaries 7–31) per 100 live births and 28 (estimate boundaries 19–37) per 100 live births in 2010.

**Discussion**

Measurement of induced abortion is crucial for evaluating family planning efforts, understanding fertility dynamics and contraceptive failure rates, and for disaggregating the proximate determinants of fertility. Worldwide, almost one-quarter of recognised pregnancies are believed to end in induced abortion (Sedgh et al., 2012). However, stigma and shame surrounding abortion, even in societies where abortion is a woman’s legal right, make it difficult to collect accurate data on the incidence of induced abortion; longitudinal data are even more uncommon (Jones & Kost, 2007; Oliveras, Ahiadeke, Adanu, & Hill, 2008; Rossier, 2003). Women who have an abortion may be reluctant to report having done so, or may fearfully seek assistance from friends, drug sellers, or through the use of traditional methods, even in locations where abortion laws have been reformed (Fetters et al., 2008; Guttmacher Institute, 2012).


<table>
<thead>
<tr>
<th>Cambodian demographic data</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Women aged 15–44 in 2005</td>
<td>3,317,162</td>
</tr>
<tr>
<td>Women aged 15–44 in 2010</td>
<td>3,709,713</td>
</tr>
<tr>
<td>Live births in 2005</td>
<td>361,822</td>
</tr>
<tr>
<td>Live births in 2010</td>
<td>369,725</td>
</tr>
<tr>
<td>Abortion estimates for Cambodia, 2005 and 2010</td>
<td>Rate</td>
</tr>
<tr>
<td>Abortion rate per 1,000 women 15–44 for 2005</td>
<td>21</td>
</tr>
<tr>
<td>Abortion rate per 1,000 women 15–44 for 2010</td>
<td>28</td>
</tr>
<tr>
<td>Abortion rate per 1,000 women 15–44 for 2010</td>
<td>Ratio</td>
</tr>
<tr>
<td>Abortsions per 100 live births for 2005</td>
<td>19</td>
</tr>
<tr>
<td>Abortsions per 100 live births for 2010</td>
<td>28</td>
</tr>
</tbody>
</table>

aData from the US Census Bureau’s international data compiler available at [http://www.census.gov/population/international/data/idb/informationgateway.php](http://www.census.gov/population/international/data/idb/informationgateway.php) last accessed on 15 May 2013.
During the five-year period between 2005 and 2010, nearly all reproductive health indicators in Cambodia showed substantial improvement (Liljestrand & Sambath, 2012; National Institute of Statistics, Director General of Health, & Macro International, 2011). Modern contraceptive use among married women increased from 27% to 35%, while the reported unmet need for contraception amongst this same group, decreased from 25% to 17%. Young women reported waiting longer to begin having sex (from 20.4 to 20.8 years) and to marry (20.1 to 20.3 years). Female literacy climbed during the same time period, from 69.4% to 73.6% of women reporting being able to read and write. The total fertility rate (TFR) declined from 3.4 to 3.0 children per woman over her lifetime.

These data have important repercussions for Cambodia, a country in demographic transition and with an abortion law liberalised in 1997. This study suggests that the level of induced abortion occurring in Cambodia is increasing, from a rate of 21 abortions per 1000 WRA in 2005 to an abortion rate of 28 in 2010. Changing fertility desires, improved education and employment opportunities for girls and women, and improved abortion service availability are likely causing more women and their families to choose abortion rather than carry an unintended pregnancy to term. While the increase in the rate is substantial, the Cambodian abortion rate remains moderate in comparison to other countries in the Southeast Asian region that contribute to a regional rate of 36 abortions per 1000 WRA in 2008 (Sedgh et al., 2012).

While abortion rates did rise in Cambodia during the study period, there was not a corresponding and proportional rise in unsafe abortions. In the five years preceding the 2005 CDHS, women reported that more than 48% of all of the abortions performed in the country were performed in a home, in conditions that were unknown and likely without reliable patient information on the potential risks of the procedure or when to seek skilled assistance. In the five years preceding the 2010 survey, this proportion of women presumed to have had unsafe care (or at least inadequate information), declined to 40%, with more women seeking care in a health facility.

Some studies indicate that merely amending laws to make abortion legal does not make it available, acceptable or safe (Beck, Berry, & Choijil, 2013; Benson, Andersen, & Samandari, 2011; Guttmacher Institute, 2012). Women need to feel assured that legal facility-based services are a better option, especially in an environment with a long cultural history of locally and widely available traditional abortions. This appears to be happening in Cambodia as unsafe abortions, either self-inductions or with the assistance of drug sellers or traditional abortion providers, are replaced by procedures being performed by health care workers in health facilities. These data – which correspond with national level abortion scale-up and expansion efforts by the Ministry of Health, in collaboration with international donors and partners and the introduction of medical abortion in public health facilities – indicate that progress is being achieved to reduce unsafe abortion in the country.

In concert with extensive training and the expansion of abortion care service delivery in private and public sector facilities, the absolute number of women seeking abortions increased; further, these women were more likely to obtain this care from a health professional in a health facility. During the five-year study period, most facility-based abortion procedures were performed with manual vacuum aspiration, or dilatation and curettage in the early part of the time period (Fetters et al., 2008). Training and distribution of Mifepristone for medical abortion began with select facilities in 2010. However, use of Mifepristone was limited to women seeking abortions in public sector and non-governmental organisations (NGO) facilities under the care of a trained nurse or physician, and was not available to women for home use.
This study uses an innovative approach to estimate abortion by utilising two robust national surveys and employing several assumptions about the data. First, due to low levels of disclosure about unsafe abortion attempts, this model uses a proxy for unsafe abortion by measuring abortions attempted at home or in someone else’s home; conversely, abortions performed in private or public health facilities were considered to be safe, regardless of the status of the facility or skill of the provider, which was unknown to researchers.

Second, knowing that induced abortion is under-reported in every country and context (Jones & Kost, 2007; Oliveras et al., 2008; Rossier, 2003), and without the benefit of other contributing evidence on the topic, we assume abortion locations to be uniformly under-reported, regardless of the location where the abortion occurred. This assumption meant that 7.6% of women in 2005 and 5.5% of women in 2010 were distributed proportionally while calculating the pro rata increases, across the abortion location categories of public or private sector provider, at their own home, or at the home of someone else. Although abortion location data reported as ‘unknown’ or missing decreased in 2010, 1 in 20 women did not give a location for their abortion procedure. It is possible that women who had abortions at home were more likely to under-report abortions, yet without evidence to contribute to this adjustment we chose to use a balanced proportional distribution increasing the largest groups (private providers and another person’s home) by a maximum of 3%. Future research in this area, and improved data quality in the CDHS, could contribute to this question. Finally, we combine the abortion location data, without using incidence data from the CDHS (which is certainly under-reported), with a more reliable prospective measure of women seeking legal abortions in public health facilities. We also assume that women who made efforts to induce their abortions outside the formal health system viewed those attempts as ‘abortions’ even if they resulted in a need for further PAC. If reporting a previous abortion in a health facility is more acceptable than reporting non-health facility abortions, this would lead to an over-estimation of abortions in health facilities and an underestimate of those performed alone or otherwise attempted outside of health facilities.

Limitations
The measurement of induced abortion on a national level is complex for several reasons. These reasons are related to the legality as well as the social context for abortion; the limited availability of the service, particularly in rural areas; the plethora of untrained and traditional practitioners ready to exploit women; and the secrecy and shame often associated with abortions. During the 2005 PMM survey when public sector legal abortion services were still nascent, almost 10,000 women who sought terminations in the public sector alone were turned away; some of these women were probably given information about other private or public clinics (including the provider’s own private clinic), while others left with no information. According to this study, less than half of all Cambodian women who requested a safe and legal abortion procedure in the public sector in 2005 obtained one (Fetters et al., 2008). Women in these situations decided to continue the pregnancy were able to access a safe and legal abortion in another public or private facility, or may have sought assistance that resulted in an unsafe abortion requiring postabortion medical treatment later. The study did not capture what happened to women (and their pregnancies) after they initially sought and were denied treatment in a study facility. Although women continue to be denied abortions in 2010, some progress has
been achieved resulting in a 29% decrease in the number of women turned away, either because they arrived too late or because the facility was not prepared to care for them.

It is unclear how women who sought PAC after failed or self-induction could have affected estimation. For some women this could have increased reports by giving them two opportunities (at home during the DHS, and in a health facility where the pregnancy was resolved) to report these events as abortions. For others, the resolution of the unsafe abortion in a PAC ward may have caused them to report the pregnancy as a miscarriage, either to the provider or the data collector. More contextual research on women’s self-induction practices, and their perceptions of these events, would contribute to a better understanding of the impact on this estimation.

A high proportion of women in the DHS surveys reported terminating their pregnancies in ‘a home’, indicating a level of comfort with this question in this legal environment (National Institute of Public Health, National Institute of Statistics [Cambodia], & ORC Macro, 2006; National Institute of Statistics, Director General of Health, & Macro International, 2011). The high level of self-reported abortions in homes (where a greater number and severity of postabortion complications are expected) also suggests that many women did see these procedures as abortions, whether they were required to seek further medical assistance or not. In the 2005 PMM study of morbidity in Cambodia, 37% of women reported to their health care worker that they had already tried to do something to terminate their pregnancies (Fetters et al., 2008); this figure increased slightly in 2010 to 39%. This is a high level of abortion self-disclosure, providing further evidence that Cambodian women are more willing to disclose information about their abortion experiences than research performed in other countries (Henshaw et al., 2008; Oliveras et al., 2008). High levels of self-induction attempts likely also reflect the large number of pharmaceutical products that women have used to try to induce their own abortions. In both years, among women who reported inducing their own abortions before seeking PAC, the most common source of information was drug sellers (Fetters et al., 2008). In late 2009, the drug Mifepristone was registered in the country, and medical abortion training and services were rolled out for use in NGO and public sector facilities, reinforcing local knowledge that the wide range of abortifacients available in pharmacies around the country are effective and safe.

Finally, the 2005 CDHS data on women’s reports of their own abortions represent the five-year period preceding the survey, with a mid-year point of 2002; recall would be better in the latter half of the five-year period. This is not precisely comparable to the PMM data, which was collected entirely in 2005. This potential recall bias would cause the abortion incidence figure in the DHS to be lower; however, it should not affect the abortion locations except to make them more representative of the last half of the five-year periods and more similar to the contexts in 2005 and 2010.

Conclusion

Despite earlier legal reform, the context, availability and accessibility of legal abortions changed most dramatically between 2005 and 2010. Technical guidelines on abortion and the national safe abortion training programme began in 2006 (Guttmacher Institute, 2012). While PAC services were universally available in both study years, facilities with legal abortion services increased by 55%, from 47% to 73% between 2005 and 2010. Availability improved even more dramatically in health centres; in these facilities less than half (41%) could provide PAC in 2005, compared to 76% in 2010. The availability of legal abortions in health centres was virtually non-existent in 2005 and grew by more
than 400%, from only 7% to 36% of all health centres in 2010 (Fetters et al., 2010; Rathavy et al., 2007).

A variety of cultural and logistical barriers continue to limit women’s access to safe legal abortion services in the country. In these two study years alone, more than 20,000 women were turned away when seeking a safe and legal service they were allowed to have. Fortunately, it appears that in 2010, most women (60%) who had abortions had them in health facilities where they were more likely to receive the information and care they desired, and fewer of them were turned away from public health facilities when compared with 2005. Although abortion was legal in Cambodia during this entire time period, CDHS indicate that most induced abortions in the years between 2000 and 2010 were still being assisted by women themselves or performed by unskilled, or at least untrained, abortion providers in people’s homes (National Institute of Public Health, National Institute of Statistics [Cambodia], & ORC Macro, 2006; National Institute of Statistics, Director Generate of Health, & Macro International, 2011). Future research should continue to explore women’s motivations for inducing their own abortions, or having them in less safe circumstances, outside of the public health system. Further research should also examine post-legal reform barriers to access, such as knowledge of the abortion law, shortages of trained health workers, infrastructural barriers or provider conscientious objection, which limits access to facility-based abortion services in the public sector.

Meeting the need for safe and legal abortions, and even more importantly, preventing the unwanted pregnancies that cause them, could save women, their households and the national health system from treating postabortion complications while also helping Cambodians achieve their desired family sizes (Singh & Darroch, 2012; Vlassoff, Shearer, Walker, & Lucas, 2008). It is important that governments and donors continue to monitor trends in fertility, including abortion incidence and utilisation, to truly alleviate the exploitation, morbidity and mortality due to unsafe abortion. This research indicates that, while progress in being made in Cambodia, these efforts need to continue well after legal reform.

Disclosure statement
No potential conflict of interest was reported by the authors.

Funding
Data collection for this research was partially funded by UKAid through a grant to the Reduction in Maternal Mortality Project II.

References


