Unsafe abortion

Global and regional estimates of the incidence of unsafe abortion and associated mortality in 2008

SIXTH EDITION

World Health Organization

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Preface

This sixth edition of the WHO *Global and regional estimates of unsafe abortion and associated mortality* is intended for policy-makers and programme managers, health workers and nongovernmental organizations in the area of sexual and reproductive health, researchers, groups and individuals concerned with unsafe abortion as well as others interested in information on unsafe abortion. More details of the data and methods used in the estimates are given in Annex 1.

A background to and characteristics of unsafe abortion are presented in Chapter 1. To better understand the levels and trends in unsafe abortion, the legal context of abortion and barriers both to abortion services and to medical care for women who have had an unsafe abortion and experience complications are described in Chapters 2 and 3. Chapter 4 covers interactions in abortion, unplanned pregnancy, contraceptive use and failure and unmet need for contraception; as well as the role that abortion plays in the transition from high to low fertility levels. The health consequences of unsafe abortion and the global burden for women and for society are examined in Chapter 5.

The distinction in rates and ratios when calculated for *all* countries or for countries *with evidence* of unsafe abortion are explained in Chapter 6. The global incidence and subregional differentials are presented in Chapter 7 with an in-depth analysis of the levels and trends. The geographical regions and subregions referred to in this report are those classified by the United Nations Population Division (UNPD).

Chapter 8 presents the mortality estimates. The report highlights the urgency in preventing unsafe abortion and concludes (Chapter 9) with policy and programme recommendations to reduce unsafe abortion.

Acknowledgements

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Definitions

Contraceptive prevalence (CPR): Percentage of married or cohabiting women of reproductive age (15–49 years) using any method of contraception.

Unmet need for family planning (%): Women with unmet need are those who were fecund but were not using any method of contraception at the time of the survey, and yet reported not wanting any more children or wanting to delay the next child. Data pertain to women in union. (A union involves a man and a woman regularly cohabiting in marriage or a marriage-like relationship.)

Total fertility rate per woman (TFR) aged 15–44 years: TFR is the average number of live births a woman would have by the end of her reproductive life if she were subject, throughout her life, to the age-specific fertility rates observed in a given year.

Unsafe abortion rate: The unsafe abortion rate is the number of unsafe abortions per 1000 women aged 15–44 years in a year. This measure describes the level of unsafe abortions in a population.

Unsafe abortion ratio: The unsafe abortion ratio is the number of unsafe abortions per 100 live births (as a proxy for pregnancies)[a] in a year. The unsafe abortion ratio indicates the likelihood that a pregnancy will end in unsafe abortion rather than a live birth.

Per cent of maternal deaths due to unsafe abortion: The number of unsafe abortion deaths per 100 maternal deaths for all causes. This measure describes the relative importance of unsafe abortion as a cause of maternal death. Where the maternal mortality ratio is relatively low and other causes of maternal deaths have already been substantially reduced, a small number of unsafe abortion deaths may account for a significant percentage of maternal deaths. The interpretation of this measure is, therefore, not straightforward and it is not useful for comparison purposes.

The number of unsafe abortion deaths: These are estimated from the number of all estimated maternal deaths.[2–6] New estimates of maternal deaths have recently been released for 2008.[6]

Unsafe abortion case-fatality rate: The unsafe abortion case–fatality indicates the estimated number of deaths per 100 000 unsafe abortions. This rate shows the mortality risk associated with unsafe abortion.

Unsafe abortion indicators: rates and ratios are calculated for *all* countries, unless indicated to the contrary. Indicators may be calculated for two differing regional groupings of countries:

(1) **all countries in the region or subregion,** whether they show evidence of unsafe abortion or not; or
(2) **only the countries with evidence of unsafe abortion,** thereby excluding from the denominator the populations of countries where there is no evidence of unsafe abortion for rate and ratio calculations. These countries do not report unsafe abortions (numerator) and therefore their populations appropriately are not included in the denominator. (See Section 6.1 for further details.)

Unsafe abortion mortality ratio: The unsafe abortion mortality ratio is the number of deaths due to unsafe abortion per 100 000 live births.[a] This measures the risk of a woman dying due to unsafe abortion relative to the number of live births.

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[a] The number of live births serves as a proxy for the number of pregnancies. A more appropriate denominator would be the total number of pregnancies (live births, stillbirths, induced and spontaneous abortions, ectopic pregnancies), but this figure is rarely available. Live births are therefore used in the denominator for international comparisons.

Acronyms

AGI	Alan Guttmacher Institute
CDC	Centers for Disease Control and Prevention, United States
DHS	Demographic and Health Surveys
HCM	hospitalization complications method
ICPD	International Conference on Population and Development (ICPD), Cairo, Egypt, 1994
ICPD+5	Five-year Review and Appraisal of the Programme of Implementation of the International Conference on Population and Development, New York, 1999
RAMOS	reproductive age mortality studies
RRT	randomized response technique
UN	United Nations
UNFPA	United Nations Population Fund
UNICEF	United Nations Children's Fund
UNPD	United Nations Population Division
WHO	World Health Organization

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Executive summary

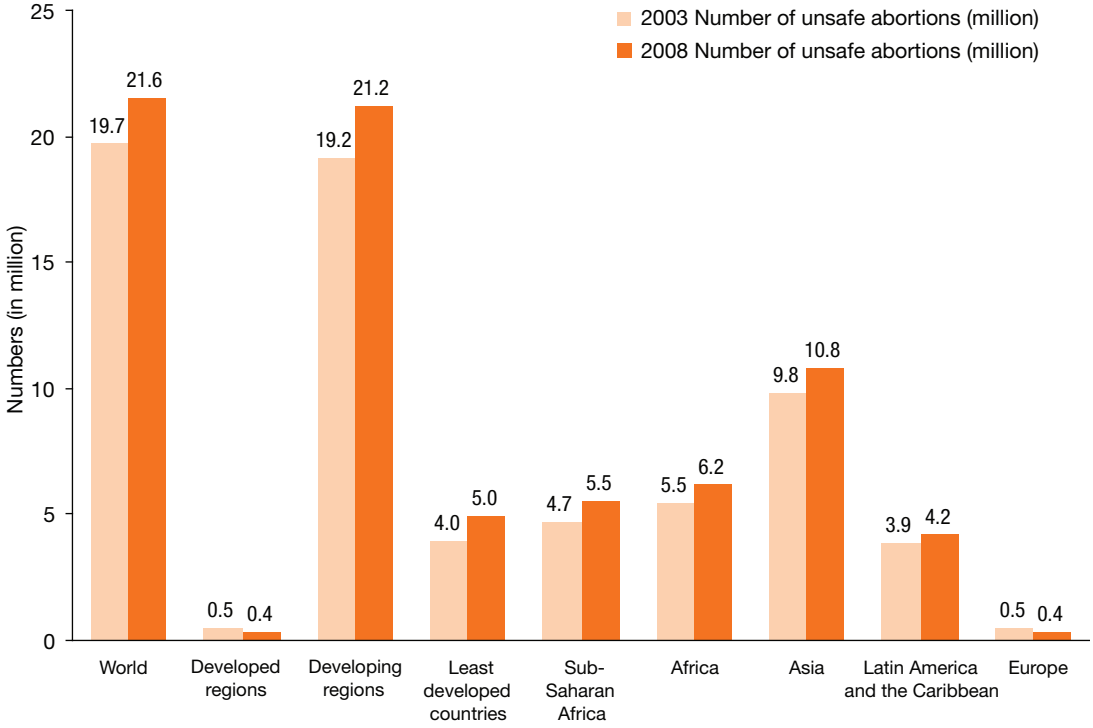
Deaths due to unsafe abortion remain close to 13% of all maternal deaths. Unsafe abortion-related deaths have, however, reduced to 47 000 in 2008 from 56 000 in 2003 and 69 000 in 1990; corresponding to the decline in the overall number of maternal deaths to 358 000 in 2008 from 546 000 in 1990.[6] Although unsafe abortions are preventable, they continue to pose undue risks to women's health and lives.

An estimated 21.6 million unsafe abortions took place worldwide in 2008, almost all in developing countries. Numbers of unsafe abortions have increased from 19.7 million in 2003 (Figure 1) although the overall unsafe abortion rate remains unchanged at about 14 unsafe abortions per 1000 women aged 15–44 years. This increase in number of unsafe abortions without a corresponding increase in the rate is mainly due to the growing population of women of reproductive age.

Absolute numbers of unsafe abortions cannot be compared meaningfully across different regions and subregions because of differing population size. Ratios (relative to live births) and rates (relative to women of reproductive age of 15–44 years) are therefore calculated in this report for comparisons.

It is likely that the numbers of unsafe abortions will continue to increase unless women's access to safe abortion and contraception – and support to empower women (including their freedom to decide whether and when to have a child) – are put in place and further strengthened.

Figure 1. Estimated annual number of unsafe abortions, globally and by major regions, 2003 and 2008.



Source: Table 5 and WHO[73]

1. Background

Each year, throughout the world, approximately 210 million women become pregnant[8] and over 135 million[9] of them deliver liveborn infants. The remaining 75 million pregnancies end in stillbirth, or spontaneous or induced abortion. It was estimated that in 2003 approximately 42 million[10] pregnancies were voluntarily terminated: 22 million safely and 20 million unsafely. Unsafe abortions are frequently performed by providers lacking qualifications and skills to perform induced abortion, and some abortions are self-induced. Unsafe induced abortions do not meet officially prescribed circumstances and safeguards; they are aggravated by unhygienic conditions, dangerous interventions or incorrect administration of medication. Although unsafe abortions are preventable, they continue to pose undue risks to a woman's health and may endanger her life.

WHO defines unsafe abortion as a procedure for terminating an unintended pregnancy carried out either by persons lacking the necessary skills or in an environment that does not conform to minimal medical standards, or both.[11] While the definition seems to be linked to the process, characteristics of an unsafe abortion touch on inappropriate circumstances *before, during* or *after* an abortion. The following conditions typically characterize an unsafe abortion, sometimes only a few conditions prevail, and sometimes all or most of them:

- no pre-abortion counselling and advice;
- abortion is induced by an unskilled provider, frequently in unhygienic conditions, or by a health practitioner outside official/adequate health facilities;
- abortion is provoked by insertion of an object into the uterus by the woman herself or by a traditional practitioner, or by a violent abdominal massage;
- a medical abortion is prescribed incorrectly or medication is issued by a pharmacist with no or inadequate instructions and no follow-up;
- abortion is self-induced by ingestion of traditional medication or hazardous substances.

Further hazardous features of unsafe abortion are:

- the lack of immediate intervention if severe bleeding or other emergency develops during the procedure;
- failure to provide postabortion check-up and care, including no contraceptive counselling to prevent repeat abortion;
- the reluctance of a woman to seek timely medical care in case of complications because of legal restrictions and social and cultural beliefs linked to induced abortion.

2. Legal context of abortion

Table 1 shows the legal grounds under which abortion is permitted. The legal grounds largely shape the course for women with an unplanned pregnancy towards a safe or an unsafe abortion.

Table 1. Percentage of countries by legal grounds on which abortion is permitted, by region and subregion, 2007

Country or area	To save the woman's life	To preserve physical health	To preserve mental health	Rape or incest	Fetal impairment	Economic or social reasons	On request	Number of countries
All countries	**98**	**67**	**65**	**49**	**46**	**34**	**28**	**193**
Developed regions[a]	98	90	88	85	85	79	69	48
Developing regions	97	60	57	37	32	19	15	145[c]
Africa	**100**	**58**	**55**	**30**	**30**	**8**	**6**	**53**
Eastern Africa	100	71	65	18	24	6	0	17
Middle Africa	100	33	22	11	11	0	0	9
Northern Africa	100	50	50	33	17	17	17	6
Southern Africa	100	80	80	60	80	20	20	5
Western Africa	100	56	56	44	38	6	6	16
Asia[a]	**100**	**67**	**62**	**49**	**56**	**40**	**38**	**45[c]**
Eastern Asia[a]	100	100	100	100	100	75	75	4
South-Central Asia	100	64	57	50	57	50	43	14
South-Eastern Asia	100	60	50	40	30	30	30	10[c]
Western Asia	100	65	65	41	59	29	29	17
Europe	**98**	**88**	**88**	**84**	**86**	**79**	**70**	**43**
Eastern Europe	100	100	100	100	100	90	90	10
Northern Europe	100	90	90	80	90	90	60	10
Southern Europe	93	79	79	79	79	64	64	14
Western Europe	100	89	89	78	78	78	67	9
Other developed countries[b]	**100**	**100**	**80**	**100**	**80**	**80**	**60**	**5**
Latin America and the Caribbean	**91**	**58**	**58**	**42**	**18**	**15**	**6**	**33**
Caribbean	100	69	69	38	23	23	8	13
Central America	75	38	38	25	13	13	0	8
South America	92	58	58	58	17	8	8	12
Oceania[a]	**100**	**50**	**50**	**7**	**0**	**7**	**0**	**14**

[a] Japan, Australia and New Zealand have been excluded from the regional count, but are included in the total for developed countries.

[b] Australia, Canada, Japan, New Zealand, USA.

[c] Status of the law in Timor-Leste is not known and is therefore not included in the table. Since publication of the wallchart on which this is based, [12] Mayotte and Aruba have been added.

Source: United Nations, 2007.[12]

The conditions under which abortion is legally permitted differ from country to country. In some countries, access is highly restricted; in others, pregnancy termination is available on broad medical and social grounds or on request. Table 1 shows the percentage of countries with conditions under which abortion is legally permitted. In 98% of countries abortion is allowed to save a woman's life, a figure that rapidly declines as grounds become more liberal; only in 28% of countries is abortion available on request. Induced abortion is generally permitted to save the woman's life in all but a few countries; however, among the 53 countries that permit abortion only to save the woman's life,

about half explicitly permit an induced abortion under this one condition while in others the law is not explicit and therefore access to abortion may be subject to legal scrutiny and/or provider refusal.[8, 13] All other countries (136) permit abortion both to save the woman's life and for one or several further conditions, that is, over 80% of the world's women of reproductive age have the legal right to abortion for some other provision than saving the woman's life.

Abortion laws are diverse and can be complex, usually stipulating limitations to gestational age; however, in some instances it requires conditions that may be contrary to the stated intent of the law with the effect that scarcely any official abortions can take place. For example in Zambia, abortion procedure requires the endorsement of several doctors, including a specialist, in a country where doctors and specialists are scarce. Also, additional requirements regarding consent and counselling may complicate and prolong the application procedure, sometimes meaning that a pregnancy progresses past the legally permitted time period for induced abortion. There may also be discrepancies between the wording of the law (de jure) and its application (de facto), which means that common practice can help or hinder the procurement of a safe and legal abortion.

Table 2 shows the number of grounds under which abortion was permitted in 2007, and applying the same conditions for 2008 the corresponding percentages of women aged 15–44 years and of births have been calculated. Of women aged 15–44 years, 39% live in countries where the abortion law allows abortion on request provided certain conditions (e.g. gestational age) are met. Only six countries permit abortion on all grounds though not on request; India falls in this grouping, which explains the high percentages of the world's women of reproductive age and of births in this category.

Close to 20% of women aged 15–44 years live in countries where abortion is not legally permitted at all or restricted to saving the woman's life, and 57% live in countries where induced abortion has fewer legal restrictions and women could request an abortion for a variety of reasons (Table 2); nevertheless, unsafe abortions take place along the whole legal spectrum. Only 36% of women of reproductive age live in countries where there is no evidence of unsafe abortion (Annex 1, Table A1.3), while 39% of women aged 15–44 years live in countries where abortion is available on request (Table 2). These two groups of countries largely coincide, however, there are countries that do not

Table 2. Number and percentage of countries by number of grounds under which abortion is permitted and the percentage of women aged 15–44 years and births in those countries, 2008

	Abortion is **not** permitted	Abortion is permitted **only** to save the woman's life	Abortion is permitted to save the woman's life **and** for another 1–5 other grounds, or on request					
	No grounds	Only to save the woman's life	**and** 1 other ground	**and** 2 other grounds	**and** 3 other grounds	**and** 4 other grounds	**and** 5 other grounds	On request
Number of countries (193)[a]	4	53	7	32	17	19	6	55
% of countries	2	28	4	17	9	10	3	28
% of women 15–44	0.4	17	6	10	4	6	18	39
% of births	0.4	21	5	17	3	7	20	27

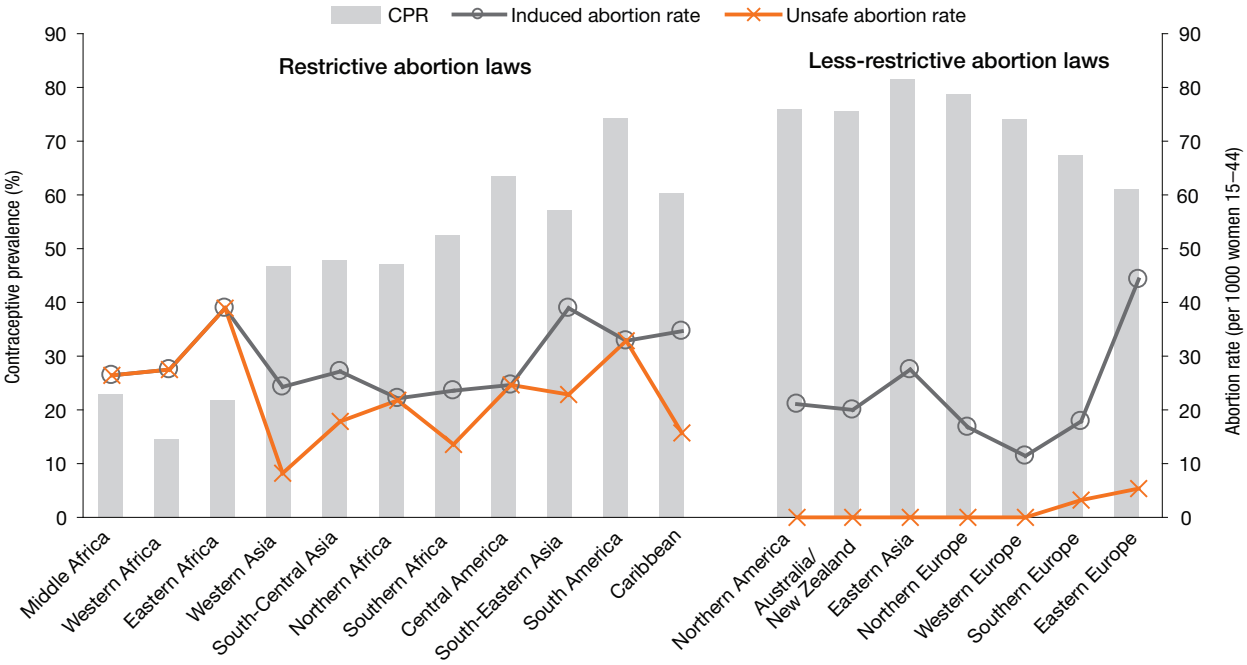
[a] Status of the law in Timor-Leste is not known and is therefore not included in the table. Since publication of the wallchart on which this is based, [12] Mayotte and Aruba have been added.

Source: United Nations.[12]

allow abortion on request (for example, in the United Kingdom abortion is not permitted on the grounds of rape or incest, and in New Zealand not for socioeconomic reasons). India where abortion was legalized in 1971 presents the opposite situation: abortion is available on all grounds (although not on request), nevertheless, unsafe abortions take place. In a number of countries in eastern Europe and countries of the former Soviet Union that allow abortion on broad grounds or on request, some unsafe abortions occur outside the legal framework because of poor access to safe abortion services, for example in rural areas of the countries. In most countries where the law is less restrictive but services are unevenly distributed, for example in rural areas, unsafe abortions still take place. Other countries such as Cambodia, Guyana, Nepal, South Africa and, most recently, Ethiopia are in the process of implementing less-restrictive abortion laws with varying success and therefore show unsafe abortions in parallel with safe and legal services.

The 2003 joint WHO and Guttmacher Institute induced abortion estimates[10] offer a unique opportunity to examine safe and unsafe abortion incidence in the UN Population Division Subregions against the backdrop of contraception and fertility. Figure 2 shows the 2003 estimates of contraceptive prevalence by decreasing level of total fertility rate, from 6.2 children per woman in the Middle Africa Subregion to 1.3 in the Eastern Europe Subregion. The circles, joined to facilitate visualization, show the combined induced abortion rate covering both safe and unsafe abortion; the crosses show the corresponding levels of unsafe abortion. The gap between the Caribbean and Northern America Subregions (at TFR 2.5 and 2.0, respectively) divides regions where unsafe abortion is dominant and those with hardly any, and where laws are restrictive compared with where they are not.

Figure 2. Induced abortion rates in subregions that have restrictive versus those that have less-restrictive abortion laws, by contraceptive prevalence (CPR) ordered by declining total fertility rate (TFR), 2003.



The abortion rates are linked in the graphs to facilitate visualization and do not imply a continuum.

Sources: United Nations[76], WHO[73], Sedgh et al.[10]

We note that, with the exception of Eastern Europe, regions with less restrictive abortion laws have low rates of *induced abortion*, shown by circles; *unsafe abortions* are nonexistent or the rate is very low. Note that the Eastern Asia Subregion fits among the developed regions with liberal abortion laws. For these regions the contraceptive prevalence rates are above 60% with a TFR of below 2 children per woman.

Conversely, where the laws are restrictive most abortions are unsafe; and the combined induced abortion rates are high at around 30. The contraceptive prevalence rates are generally lower with the notable exception of South America where traditional methods account for 10% and sterilization for another 35% and, therefore, many women may rely on unsafe abortion to space births before terminating childbearing. The TFRs range widely from 6.2 in the Middle Africa Subregion to 2.5 in the Caribbean Subregion.

Sedgh et al. show that women all over the world are highly likely to have an induced abortion when faced with an unplanned pregnancy – irrespective of legal conditions.[10] However, where abortion laws are the least restrictive there is no or very little evidence of unsafe abortion, while legal restrictions increase the percentage of unlawful and unsafe procedures.

3. Barriers to accessing safe abortion services

Access to abortion can be restricted by the law, but also by other barriers. These barriers may make women turn to unsafe abortion, or make them hesitant to seek care when urgently needed due to complications of an unsafe abortion.

One compelling issue of access is the low availability of hospital services in developing countries, particularly in rural areas. Comparing with hospital services for delivery, we find that only 55% of women in developing countries deliver in hospitals.[14] The situation is even worse in rural areas; on average only 35% of women in Africa and Asia (when excluding the Eastern Asia Subregion where unsafe abortions are negligible) and 60% of women in Latin America have access to facilities in rural areas. In the rural Eastern and Western Africa and South-Central Asia Subregions hospital care for deliveries is below 30%. In urban areas conditions are noticeably better, i.e. 78% in urban areas of Africa, 68% in Asia, and 92% in Latin America, nevertheless still much lower than the 95%–100% in developed countries.[14]

Social and cultural beliefs against abortion are other barriers to accessing services. Whether legal or illegal, abortion is frequently censured by religious teachings and ideologies, hidden due to fear of reprisals or because of social condemnation and restrictive laws, whether de facto or de jure.

Another problem is related to capacity building. Unsafe abortions take place in addition to officially provided services in many countries where services do not yet match up to the liberty and conditions of the law. Countries that are in transition from more to less restrictive abortion laws need to build the infrastructure and skills, while in most countries where abortion laws have long been permitted for a number of grounds, abortion services have been integrated into the health infrastructure. One exception to this is India where the law was liberalized already in 1971, however, many women are unaware of the legal provisions, services are not easily accessible and it is officially acknowledged that an estimated "two thirds of all abortions take place outside the authorized health services by unauthorized, often unskilled providers."[15] Other countries that changed the law to permit abortion on more grounds in the past 10–15 years are still struggling to provide much-needed quality services, including change in attitude by service providers. Some seem to be overcoming the hurdle, while countries with more recent changes will continue experiencing large numbers of unsafe abortions in parallel with those provided officially and safely. Availability and quality of official abortion services, fees involved in the procurement of a safe abortion, the attitude of health staff and approach to clients, and social and cultural attitudes towards abortion in society are but a few barriers of many to obtaining and accessing abortion services. Some often recurring issues are:

- despite the right under the law, many countries have not made provision, or insufficient provisions, for abortion services – this is often due to social and cultural beliefs related to abortion;
- lack of awareness of what the law permits among professionals in the public, legal and health sectors;
- unwillingness among policy-makers and health professionals to implement abortion laws and acknowledge that women have a legal right to abortion under certain circumstances;
- women are not being informed of their right under the law and may be unaware of the conditions under which they are entitled to access abortion services;
- social and cultural beliefs regarding abortion and fear of ill-treatment and legal reprisals may prevent women from seeking care;
- official abortion services are too costly, requiring a fee that many can ill afford;

- abortion service facilities are not well distributed throughout the country;
- abortion services may be insufficient to meet the demand;
- abortion services may be of poor quality;
- the attitudes of medical staff may be discouraging and women may be exposed to abuse or ill-treatment;
- conscientious objectors, where permitted by law, may refuse to provide services, even when urgently needed.

Some of these points are illustrated by reports from around the world as follows.

In an article reviewing the use of facilities in South Africa in 2000, Jewkes[16] summarized that "54% had not used legal services because they did not know about the law, while 15% knew of their legal rights, but did not know a legal facility. Others did know where to access legal services but feared rude staff or breaches of confidentiality. Others had been unable to get a legal abortion early enough to comply with the law." Another study from South Africa[17] documents: "Reasons why women delayed seeking an abortion were complex and were linked to changes in personal circumstances often leading to indecision, delays in detecting a pregnancy and health-service related barriers that hindered access to abortion services."

A report from Turkey describes the situation in rural areas: "Despite the liberal nature of the abortion law, the number of legal abortions up to 10 weeks performed in the country has been sharply restricted by the requirement that the procedure be carried out only by or under the supervision of gynaecologists. This factor is especially critical in rural Turkey, where medical specialists of any type are uncommon. Many rural health facilities that are without a trained specialist are excluded from providing services. Consequently, a rural Turkish woman seeking an abortion within the first 10 weeks of pregnancy may not be able to obtain one."[18]

It is difficult to overcome legal barriers to safe abortion in Zambia according to a local report: "Zambia has one of the most liberal abortion laws in sub-Saharan Africa. Several factors explain the limited access to legal abortion: the abortion must be performed in hospital and three physicians (including one specialist) must sign the consent form. The abortion fees are exorbitant. In 1988 for every legally performed abortion, 25 incomplete abortions were treated."[19]

From Uganda it is reported that "Fear of being questioned by providers constitutes one of the primary reasons identified by the respondents for why women delay seeking treatment for abortion complications." [20]

The *British Medical Journal*[21] recently carried the headline "Woman dies after doctors fail to intervene because of new abortion law in Nicaragua." The text explains the circumstances "…the fear of punishment seems to be discouraging doctors from treating some women. …A young woman died at a Managua hospital after doctors failed to intervene to stop vaginal bleeding. Some doctors told local media they did not treat the woman for fear of breaking the law."

The Mauritius Ministry of Health report[22] in 2007 states that "In Mauritius, abortion for social or personal reasons is illegal as stipulated in the law of 1838 except in cases where the mother's life is in danger. In order for the woman to procure the abortion, it has to be approved by the Supreme Court. The process is so long that there is no reported case where this has ever been accomplished. This law has never been reviewed, but there are reports that abortion is an issue in Mauritius."

In Bangladesh where menstrual regulation services are available at all levels, one report indicates: “Thus, it is not clear why so many women visited the traditional practitioners for abortion. Social stigma attached to induced abortion may be a reason for not seeking safe abortion services, since it may not remain confidential.”[23]

A first-hand account[24] describes a large hospital’s management of abortion complications in Southern Lima where there is one case of abortion complications for every four deliveries and one in three maternal deaths are due to septic abortion: “Induced abortion is illegal and clandestine in Peru. Safe backstreet abortions are available, but these are expensive and most of our patients are too poor to pay for such safe procedures. They risk serious complications from the cheap, unsafe procedures, but fears of being reported to the police prevent them from seeking prompt medical attention.”

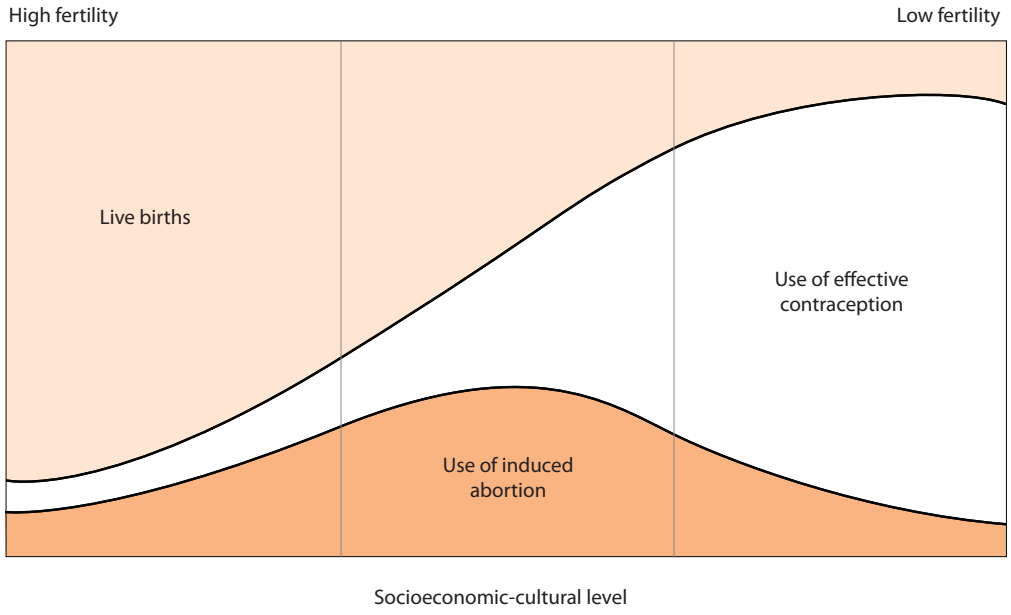
Providing timely, safe and quality postabortion care has been enshrined in many resolutions and agreements, such as ICPD; ICPD+5 and the Beijing Platform of Action, yet women often suffer neglect by the health system and health-care providers. In a recent study from Gabon[25], it was noted that the cultural stigma of abortion affected attitudes of health personnel, leading to their indifference for women seeking treatment for abortion-related complications. The estimated mean time between diagnosis and initiation of treatment for women with abortion-related complications was 23.7 hours, compared with 1.2 hours for women with postpartum haemorrhage or eclampsia. The authors conclude that women who died of abortion complications “were not given attention in as timely a manner as those needing care for other pregnancy-related complications. Given the relevance of the length of time between admission to hospital and the initiation of treatment as a principal determinant of life or death, it is hard not to conclude that postponement of treatment in the case of women who died from abortion-related complications was partially responsible for the fatal outcomes.”

4. Fertility transition, unplanned pregnancy, contraceptive prevalence and unmet need for family planning

It has been estimated that just over 40% of pregnancies worldwide are unplanned[8] – the result of non-use of contraception, ineffective contraceptive use or method failure. Unintended pregnancy and induced abortion can be prevented by expanding and improving family planning services and choices, reaching out to communities and underserved population groups, for example sexually active teenagers and unmarried women, migrants, and poor urban slum-dwellers. It is estimated that three out of four unsafe abortions could be eliminated if the need for family planning were fully met.[26]

An increase in contraceptive prevalence and in the use of effective contraceptive methods reduces the incidence of abortion.[27] This is empirically supported by data from developed countries.[28] Data from various countries show that when fertility starts to decline, both abortion and contraceptive use rise simultaneously as is illustrated in Figure 3. The authors explain that contraceptive use alone is unable to meet the growing demand for fertility regulation especially during the early stage of fertility transition. As early as 1962, these trends were observed in Santiago, Chile.[29] Looking into relationships between contraception, TFR and abortion, Streatfield[30] found that in Matlab, Bangladesh, a plateau or decline in abortions began when contraceptive prevalence (CPR) passed 30%; this was observed both in intervention and non-intervention areas of the project.

Figure 3. Transition trajectory from high to low fertility and the relative levels of induced abortion, effective contraception and live births.



Source: Adapted from Requeña M, 1970.[29]

During rapid transition from high to low fertility, as has been witnessed in several countries, contraceptive services are often unable to meet the growing demand for fertility regulation,[31] resulting in an increased number of unplanned pregnancies, some of which are terminated by induced abortion. Induced abortion therefore tends to increase at an early stage in the transition from high to low fertility until effective contraception reduces the need for abortion as illustrated in Figure 3. Increases and declines of unsafe abortion rates in countries and subregions reflect the relative point at which countries are in the transition to low fertility.

The fertility transition therefore tends to pass through a phase of high abortion prevalence before effective contraception is fully able to meet the demand for fertility regulation. Of course, no contraceptive method is 100% effective. Table 3 shows the risk that a contraceptive method may fail during the first year of *typical* use, by type of contraceptive method as estimated for 2007. It is estimated that each year 33 million unintended pregnancies may occur as a result of method failure or ineffective use (Table 3).[32] Thus, among over 700 million women using a contraceptive method, 33 million (or 5%) are likely to experience an accidental pregnancy. Accidental pregnancies are mostly among users of traditional methods; substituting traditional method use with modern contraception could therefore reduce contraceptive failures by over 40%. Also, where less-effective family planning methods are commonly used, unplanned pregnancies and, consequently, abortions are likely to occur.

Table 3. Contraceptive failure rates and estimated number of unintended pregnancies, 2007

Contraceptive method	Number of contraceptive users[a] 000s	Estimated failure rate (typical use)[b] %	Number of women with accidental pregnancies (typical use) 000s
Female sterilization	232 564	0.50	1163
Male sterilization	32 078	0.15	48
Injectables	42 389	0.30	127
IUD	162 680	0.80	1301
Pill	100 816	5.00	5041
Male condom	69 884	14.00	9784
Vaginal barrier	2291	20.00	458
Periodic abstinence	37 806	25.00	9452
Withdrawal	32 078	19.00	6095
Total	712 586	4.70	33 469

[a] Based on the estimated number of women aged 15–49 years, married or in union in 2007 and the percentage using specific contraceptive method.[75]

[b] Trussell (1998), estimates are based on US data.[74]

The United Nations Population Division (UNPD) estimates that in 2007, some 61.7% of women that are married or in cohabiting unions in developing countries use a contraceptive method (Table 4); however, 11.2% of married women had an identified unmet need for family planning: 22.2% in Africa, 9.2% in Asia and 10.5% in Latin America and the Caribbean (Table 4). In numbers this means that in developing regions some 375 million married/cohabiting women were not using any contraceptive method, and some 110 million had an unmet need for family planning: over 30 million women with unmet need in Africa, nearly 70 million in Asia and close to 10 million in Latin America. In addition 6%, or about 59 million women, depend on less-effective traditional methods. Other women may not have access to the contraceptive methods of their choice or those best suited to their current contraceptive needs, whether for spacing or terminal methods. In addition, the contraceptive needs of over 400 million unmarried women of reproductive age, including adolescents, are poorly addressed. Sexually active unmarried women, particularly adolescents, rarely have access to information and counselling on reproductive health, and frequently are excluded from contraceptive services.

Table 4. Percentage of married or cohabiting women using a family planning method and percentage with unmet need for family planning in less-developed regions and subregions, 2007

	Women[a] using any family planning method (%)	Women[a] with unmet need for family planning (%)
Developing regions	61.7	11.2
Sub-Saharan Africa	21.1	24.2
Africa	28.0	22.2
Eastern Africa	26.2	27.7
Middle Africa	18.6	22.8
Northern Africa	50.3	14.1
Southern Africa	58.4	16.0
Western Africa	14.5	22.2
Asia	67.0	9.2
Eastern Asia	84.8	2.3
South-Central Asia	54.2	14.6
South-Eastern Asia	60.7	10.4
Western Asia	54.4	n.a.
Latin America and the Caribbean	71.7	10.5
Caribbean	62.3	20.1
Central America	68.4	13.2
South America	73.9	8.5

[a] Women in union aged 15–49 years.

n.a. – no estimate available.

Source: United Nations Population Division, 2009.[75]

When people are motivated to regulate their fertility, but effective contraception is largely inaccessible or not consistently or correctly used, a large number of unintended pregnancies occur. Unplanned pregnancies undoubtedly are linked directly to induced abortion.

Induced abortion plays an important albeit temporary function in the decline in global fertility, though the precise impact is difficult to estimate. While induced abortion is a huge health and socioeconomic issue when done in secrecy and unsafely, it contributes little to reducing the TFR as a woman can conceive in the next menstrual cycle following an abortion, exposing the woman to the risk of next pregnancy much sooner than if she had a birth, unless she abstains from sex or uses an effective contraceptive method.[33] A more efficient way to reduce fertility is demonstrated in a study of 12 developing countries[34] showing that in those countries the shift to modern method use could reduce induced abortion levels by some 30% on average; and a shift from using traditional to modern methods can, on average, reduce abortion by over 20%. This suggests that the best option for reducing numbers of abortions is expanded family planning counselling and services to encourage use of modern contraceptive methods to meet the desire for smaller families.[35] Postabortion contraceptive counselling offers an opportunity to introduce women to preventive measures and planned pregnancy.

Abortion prevalence is higher where the unmet need for family planning is high, contraceptive prevalence is low, and less-effective contraceptive methods prevail. Reports from Uganda and Pakistan describe the contraception-abortion paradox. “Increasingly, abortion, which remains illegal in Uganda, is becoming an important method of fertility regulation. Out of the 5.3 million sexually active female population of Uganda, only 23% (18% modern) are currently using contraception,

implying that 4.2 million are sexually active but are not using contraception. Lack of contraceptive use contributes to unwanted or mistimed pregnancies, which are in turn linked to unsafe abortion, and consequent maternal mortality and morbidity."[36] From Pakistan, Sathar reports on stagnating fertility levels "High unmet need for contraception and the proportion of births that are unplanned confirm that a large fraction of currently married women in Pakistan are at risk of an unwanted pregnancy and potentially of undergoing an abortion."[37]

The active use of contraceptive methods reduces the need for abortion and is beneficial to women and their families in many ways. UNFPA[38] estimated that at the 2004 level of contraceptive use, annually 187 million unintended pregnancies, 105 million induced abortions and 215 000 pregnancy-related deaths (including 79 000 from unsafe abortion) were prevented.

5. Health consequences of unsafe abortion and impact on health services

When induced abortion is performed by qualified persons using correct techniques and in sanitary conditions, it is a safe surgical procedure. In the United States, for example, the death rate from induced abortion is 0.6 per 100 000 procedures, making it as safe as an injection of penicillin.[39] Modern medical science has furthermore increasingly moved towards less invasive methods (with lower risk) for early abortion, such as vacuum aspiration and medical abortion methods, in case of contraceptive failure or unplanned pregnancy. In developing countries, however, the risk of death following unsafe abortion may be several hundred times higher.

The mortality and morbidity risks associated with unsafe induced abortion depend on the facilities and the skill of the abortion provider, the intervention method used, the general health of the woman and the stage of her pregnancy. Unsafe abortion may be induced by the woman herself, by a non-medical person under unhygienic conditions or by a health worker outside of prescribed facilities. Abortion attempts may involve: insertion of a solid object (root, twig or catheter) into the uterus; a dilatation and curettage procedure performed improperly by an unskilled provider; ingestion of harmful substances; and exertion of external force. In many settings, traditional practitioners vigorously pummel the woman's lower abdomen to disrupt the pregnancy which can cause the uterus to rupture, killing the woman.[40] There are some signs that increased illicit, and often incorrect, use of medical abortion over other methods nevertheless may lower both the number of severe complications and maternal deaths.[41–43]

The outcome of complications of unsafe abortion depends not only on the availability and quality of emergency abortion care, but also on a women's willingness to turn to medical services, and the readiness of medical staff to deal promptly with the complications. The cases of incomplete abortion, postabortion sepsis, haemorrhage and genital trauma that reach hospital, and the abortion deaths, are the visible consequences of unsafe abortion.[44,72] For every identified hospital case, there are many other women who have had an unsafe abortion, but who do not seek medical care,[45–52] either because they do not have sufficiently worrying complications or because they fear abuse, ill-treatment or legal reprisals.

One recent study estimates that every year in developing countries 5 million women are admitted to hospital as a result of unsafe abortion,[71] this would mean that therefore some 3 million of the estimated 8.5 million who need care for subsequent health complications following unsafe abortion do not receive it.[26] The treatment of abortion complications in hospital consumes a significant share of resources, including hospital beds, blood supply, medications, and often operating theatres, anaesthesia and medical specialists. Thus, the consequences of unsafe abortion place great demands on the scarce clinical, material and financial resources of hospitals in many developing countries, compromising other maternity and emergency services.[53–55] Major physiological, financial and emotional costs are also incurred by the women who undergo unsafe abortion.[72]

A study[56] found that the cost of management of abortion is lower in a legal setting that allowed elective abortion than in the restrictive legal setting. The cost also reduces when making services accessible at all service levels. The mean per-case cost of abortion care was US$ 45 in a scenario where abortion was restricted and complications were mainly treated at the tertiary level, however, this was reduced to US$ 25 when services were available at all service levels and mid-level providers treated approximately 60% of patients.

6. Estimating unsafe abortion incidence and mortality

Where induced abortion is restricted and largely inaccessible, or legal but inaccessible, little information is available on abortion practice. In such circumstances, it is difficult to quantify and classify abortion. Occurrence tends to be underreported in surveys, and unreported or underreported in hospital records. No records are available on women who had unsafe abortion complications but who did not seek postabortion care in public facilities. Only the "tip of the iceberg" is, therefore, visible in the number of deaths and the number of women who seek medical care following complications.

Women are often reluctant to admit to an induced abortion, especially when it is illegal, and underreporting occurs even where abortion is legal.[58–61] When abortions are outside the framework of the law, they may not be reported at all or may be reported as spontaneous abortion (miscarriage).[62,63] The language used to describe induced abortion reflects this ambivalence: terms include "induced miscarriage" (*fausse couche provoquée*),[64] "cleaning the belly",[65] "menstrual regulation", and "regulation of a delayed or suspended menstruation".[66] For example, in one study 16.6% of women admitted to an abortion; however, only 4.4% said they had interrupted a pregnancy, and 12.2% reported that they had "induced menstruation".[67] It is therefore not surprising that unsafe abortion is one of the most difficult indicators to measure.

WHO maintains a database on unsafe abortion and associated mortality, which now has almost 4000 pertinent documents, mainly related to developing countries, containing both quantitative and qualitative information. Information relevant to understanding and measuring unsafe abortion covers data from hospital records and surveys, research on abortion providers, unsafe abortion methods, abortion-seeking behaviour, postabortion care, and legal developments.Where induced abortion is highly restricted, its occurrence can be estimated only indirectly, using the available incomplete information on incidence and mortality.[68] For these estimates a large number of papers were systematically screened to select significant materials identified from bibliographic databases; web sites of relevant organizations were surveyed; and pointed country searches for the most up-to-date data, including ministry of health and other official sites, were carried out. Those were assessed together with the existing data to ascertain the current situation with regard to abortion laws, policies and practice in the different countries. Correcting for misreporting and underreporting, as described in Annex 1, unsafe abortion rates and ratios, and percentages of unsafe abortion-related deaths as a cause of maternal mortality were generated first by country, and then aggregated by subregion, region and globally.

Annex 1 gives a detailed description of the estimation of unsafe abortion incidence and related mortality, using the available data and information in the WHO database. Country-specific estimates were corroborated with information from other sources on TFR, use of modern and traditional contraceptive methods, and other proximate determinants of fertility, as available.

6.1 Selecting the denominator for rates and ratios: all countries versus countries with evidence of unsafe abortion

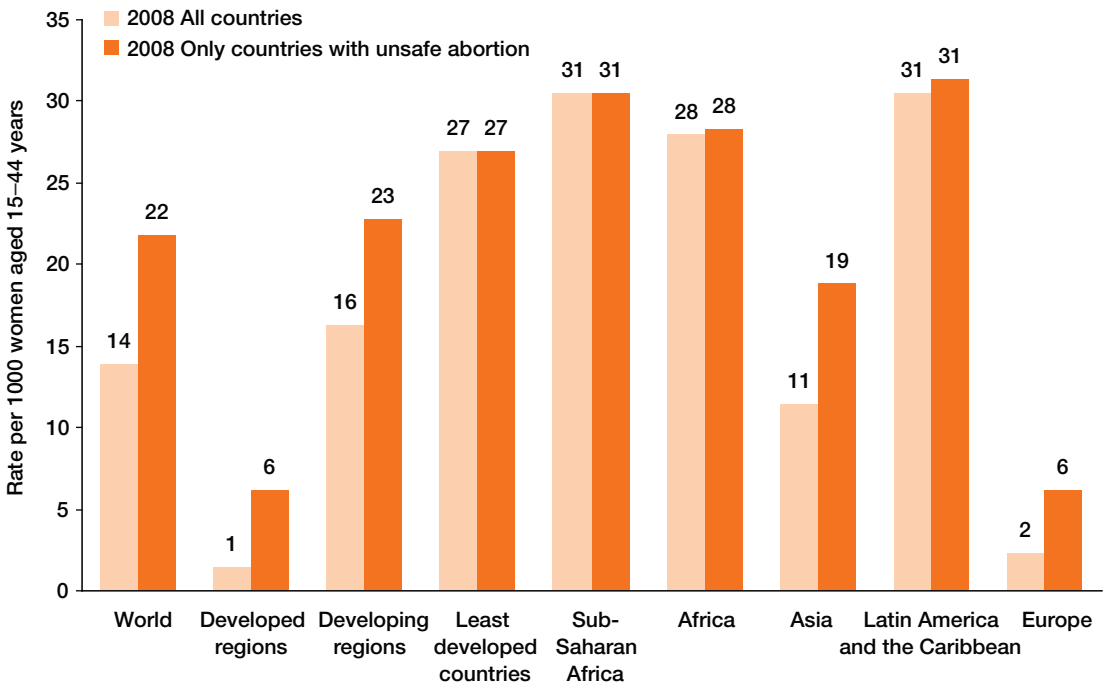
Absolute numbers of unsafe abortions cannot be compared meaningfully across different regions and subregions because of differing population size. Ratios (relative to live births) and rates (relative to women of reproductive age of 15–44 years) are therefore calculated for comparisons. (Definitions of unsafe abortion indicators and other relevant terms appear at the beginning of this report.)

In all previous estimations of unsafe abortion, rates and ratios were calculated by including all countries of a region whether there was evidence of unsafe abortion or not. For this report, as for

2003,[73] the rates and ratios were also calculated solely for the countries with evidence of unsafe abortion in each subregion, which is a more meaningful indicator. In summary, the incidence indicators for subregions, regions and globally, are calculated for two differing groups of countries: (1) for all countries of a subregion; and (2) for the countries of that subregion with evidence of unsafe abortion, thereby excluding from the denominator the populations of countries where there is no evidence of unsafe abortion. These countries do not contribute to the incidence of unsafe abortion and therefore appropriately are also excluded from the denominator for calculating rates or ratios.

The impact of the latter calculation on unsafe abortion ratios and rates is obvious when considering the effect of including or excluding populations of the Eastern Asia Subregion (where unsafe abortion is negligible) from world and regional numbers. This impact is likewise for some developing countries of other regions where abortion also is legal and relatively accessible, in particular Cuba, Singapore, Tunisia and Viet Nam. Rates and ratios that exclude these countries therefore provide a better reflection of the situation of unsafe abortion in each of the corresponding subregions and regions. By excluding countries where unsafe abortions do not occur, we have a smaller but more appropriate denominator. Therefore the rates and ratios for the subregional estimates are higher than those that include all countries in the denominator as illustrated globally and for major regions in Figure 4.

Figure 4. Annual unsafe abortion rates[a] per 1000 women aged 15–44 years for all countries in a region and only for countries with evidence of unsafe abortion, 2008.



[a] Displayed rates are rounded; columns show rates including decimal points.

Source: Table 5.

6.2 Estimating subregional, regional and global incidence of unsafe abortion and associated mortality

The global and regional estimates for unsafe abortion in 2008 presented below are based on data available as of 30 April 2010. The incidence of unsafe abortion and associated mortality were first estimated for countries with a population of 100 000 or more (Annex 2), as described in detail in Annex 1. Estimates were then calculated for the geographical regions, as defined by UNPD (Annex 2); population estimates for 2008 by UNPD were used to arrive at aggregated numbers, rates and ratios for unsafe abortion by region and globally. Estimates were also calculated for WHO Regions (Annex 3).

Unequal opportunity to access qualified abortion care for a safe abortion or care after experiencing complications due to an unsafe abortion between rural and urban areas, has been approximated by reported deliveries in hospitals from the Demographic and Health Surveys (DHS).

For estimation of incidence, both the rate and ratio were calculated by country for the year of the data and projected forward to calculate the numbers of unsafe abortion for 2008 and aggregated to subregional estimates weighted by numbers of women or births, as appropriate, and further aggregated to regional and global estimates. These estimations give the likely range of the incidence of unsafe abortion and the mean is the best estimate of unsafe abortion incidence from currently available data.

The number of deaths due to unsafe abortion was estimated by country by applying the estimated percentage of maternal deaths due to unsafe abortion-related complications to the estimated total number of maternal deaths for 2008;[6] these were aggregated to give subregional, regional and global numbers of abortion-related deaths and the corresponding weighted percentage of maternal deaths.

The incidence of and deaths due to unsafe abortion by country are calculated solely for the purpose of aggregation at regional and global levels, and are not published. Aggregated estimates are quite robust; nevertheless, estimates of the incidence of unsafe abortion and the resulting mortality necessarily have some degree of uncertainty. They should be considered only as best estimates given the information currently available.

6.3 Comparison with 2003 and earlier estimates

To ascertain trends, a comparison of estimates from updates for previous years is needed. However, each update is a discrete event, as is the case with many other indicators that depend on data availability and information that help interpret data. All updates note the geographic areas where data have been scarce and/or unreliable. With more data becoming available, each round of estimation has improved and become more reliable. Therefore, one needs to be cautious in making comparisons over time.

A recent re-evaluation of the methodology to estimate maternal deaths from 1990 to 2008[6] has produced lower estimates than previously published estimates.[2–5] Current estimates of mortality due to unsafe abortion are therefore also lower than before.[73,77,79,80] Maternal deaths and deaths due to unsafe abortion reported in this publication are based on the most recent maternal mortality estimates covering the period from 1990 to 2008.[6]

7. Regional and global incidence of unsafe abortion

7.1 Unsafe abortion globally and by major regions

Table 5 summarizes the 2008 estimates,[b] covering the numbers of unsafe abortion and the range of the estimated numbers (columns 1–3) globally; by region and by subregion.[c] Columns 4 and 5 show rates and ratios that are calculated for *all* countries of each region,[d] consistent with the procedure followed in all earlier estimates, and summarized by subregions in maps in Figures 5 and 6. As described in the previous chapter, for the estimates in 2003 and 2008, rates and ratios have also been calculated pertaining only to *countries with evidence* of unsafe abortion shown in columns 6 and 7. Differences between the two calculations are notable. In the analysis of the 2008 estimates, we will refer to the rates that pertain to all countries in columns 4 and 5 because this facilitates comparison with other indicators, for example on contraceptive prevalence and total fertility rate; however where relevant we will draw attention to the more meaningful rates and ratios by region or subregion that are calculated only for countries with evidence of unsafe abortion.

Worldwide, unsafe abortions are estimated to be between 21 million and 22 million in 2008, almost 2 million more than the number estimated for 2003. There were approximately 210 million pregnancies in 2008;[8] therefore around one in 10 pregnancies ends in an unsafe abortion worldwide. Nevertheless, the global rate at 14 per 1000 women aged 15–44 years (column 4) remains unchanged since 2003; the increase in numbers of unsafe abortion (column 1) therefore is mainly an effect of the increasing numbers of women of reproductive age in the world.

In 2008, there were 2 million more unsafe abortions in *developing countries* than in 2003; the incidence rate is 16 per 1000 women of reproductive age and the ratio 17 per 100 live births. When only countries with evidence of unsafe abortion are included in the estimation the rate and ratio is as high as 23 per 1000 women and 21 per 100 live births. The effect of increasing numbers of unsafe abortions is particularly notable in two overlapping groupings that can ill afford the demand on health resources: *least developed countries* and sub-Saharan Africa, which show high unsafe abortion rates of 27 and 31 per 1000 women of reproductive age, while the relatively low ratios of 18 and 17 per 100 live births[e] are due to the high fertility in these major groupings.

7.2 Unsafe abortion estimates for regions and subregions in 2008

Unsafe abortion rates around and above 30 per 1000 women aged 15–44 years are seen both in Africa and in Latin America; however, the range of estimates for Africa is wide: Eastern and Middle Africa have the highest incidence rate of any subregion at 36 per 1000 women aged 15–44, while the Southern Africa Subregion has the lowest, at 9 per 1000.

Even though numbers have risen slightly to 6.2 million, the unsafe abortion rate for the Africa Region has decreased due to Africa's dichotomous situation that includes medium to high contraceptive prevalence rate (CPR) and partial availability of safe abortion services in the Northern and Southern Africa Subregions that contribute to counter the high numbers of the other African Subregions to an average 28 per 1000 women aged 15–44 for the Africa Region. For sub-Saharan Africa the unsafe

[b] Refer to Section 6.2 for the method of aggregation of country estimates and calculation of high and low unsafe abortion estimates.
[c] Countries of each subregion are shown in Annex 2.
[d] Refer to Section 6.1 on alternate denominators for rate and ratio calculations.
[e] As practically all countries in these two groupings have evidence of unsafe abortion, rates and ratios are the same in the two ways of presenting the evidence

Table 5. Global and regional estimates of annual number, rates, and ratios of unsafe abortion, 2008. Estimates are calculated for all countries and contrasted with calculations including only countries with evidence of unsafe abortion

	Unsafe abortion numbers			Rate and ratio calculations including all countries of each region whether with or without evidence of unsafe abortion		*Rate and ratio calculations including only countries of each region with evidence of unsafe abortion*	
	Number (rounded)	Number – low estimate (rounded)	Number – high estimate (rounded)	Unsafe abortion rate (per 1000 women aged 15–44 years)	Unsafe abortion ratio (per 100 live births)	*Unsafe abortion rate (per 1000 women aged 15–44 years)*	*Unsafe abortion ratio (per 100 live births)*
World	21 600 000	20 790 000	22 300 000	14	16	*22*	*21*
Developed regions[a]	360 000	360 000	350 000	1	3	*6*	*13*
Developing regions	21 200 000	20 430 000	22 000 000	16	17	*23*	*21*
Least developed countries	4 990 000	4 880 000	5 090 000	27	18	*27*	*18*
Sub-Saharan Africa	5 510 000	5 390 000	5 630 000	31	17	*31*	*17*
Africa	6 190 000	6 050 000	6 320 000	28	17	*28*	*18*
Eastern Africa	2 430 000	2 380 000	2 480 000	36	20	*36*	*20*
Middle Africa	930 000	890 000	960 000	36	18	*36*	*18*
Northern Africa	900 000	890 000	910 000	18	18	*19*	*19*
Southern Africa	120 000	120 000	130 000	9	10	*9*	*10*
Western Africa	1 810 000	1 770 000	1 840 000	28	16	*28*	*16*
Asia[a]	10 780 000	10 230 000	11 330 000	11	14	*19*	*19*
Eastern Asia[a]	[b]	[b]	[b]	[b]	[b]	[b]	[b]
South-Central Asia	6 820 000	6 480 000	7 160 000	17	17	*17*	*17*
South-Eastern Asia	3 130 000	2 970 000	3 300 000	22	28	*26*	*33*
Western Asia	830 000	790 000	870 000	16	16	*16*	*16*
Europe	360 000	360 000	350 000	2	5	*6*	*13*
Eastern Europe	360 000	360 000	350 000	5	12	*6*	*13*
Northern Europe	[b]	[b]	[b]	[b]	[b]	[b]	[b]
Southern Europe	[b]	[b]	[b]	[b]	[b]	[b]	[b]
Western Europe	[b]	[b]	[b]	[b]	[b]	[b]	[b]
Latin America and the Caribbean	4 230 000	4 130 000	4 330 000	31	39	*31*	*40*
Caribbean	170 000	170 000	180 000	18	22	*29*	*30*
Central America	1 070 000	1 040 000	1 090 000	29	34	*29*	*34*
South America	2 990 000	2 920 000	3 070 000	32	43	*32*	*43*
Northern America	[b]	[b]	[b]	[b]	[b]	[b]	[b]
Oceania[a]	18 000	17 000	19 000	8	7	*8*	*7*
Australia/ New Zealand	[b]	[b]	[b]	[b]	[b]	[b]	[b]

Figures may not exactly add up to totals because of rounding.

[a] Japan, Australia and New Zealand have been excluded from the regional estimates, but are included in the total for developed countries.

[b] No estimates are shown for regions where the incidence of unsafe abortion is negligible.

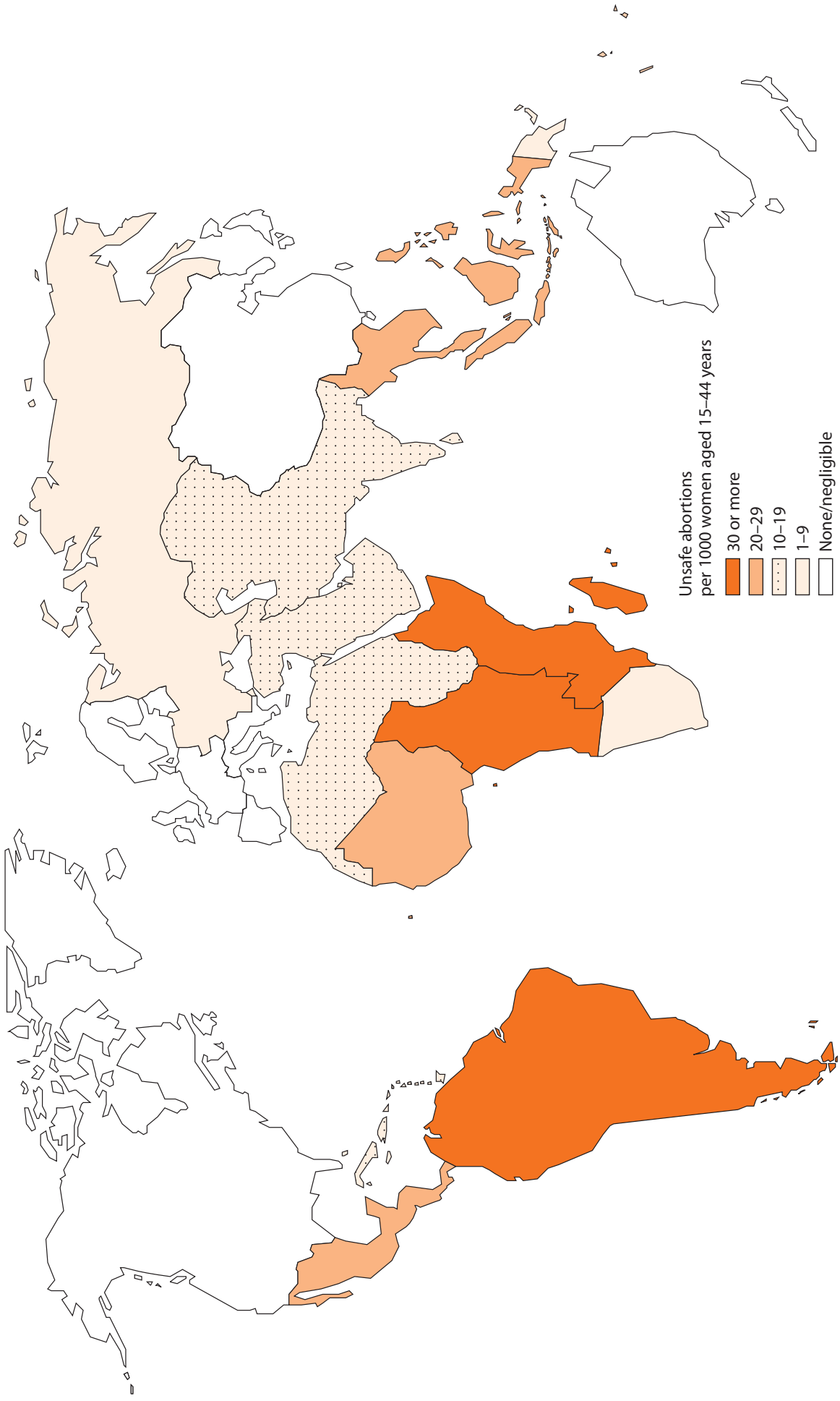


Figure 5. Estimated annual number of unsafe abortion per 1000 women aged 15–44 years, by subregions, 2008.

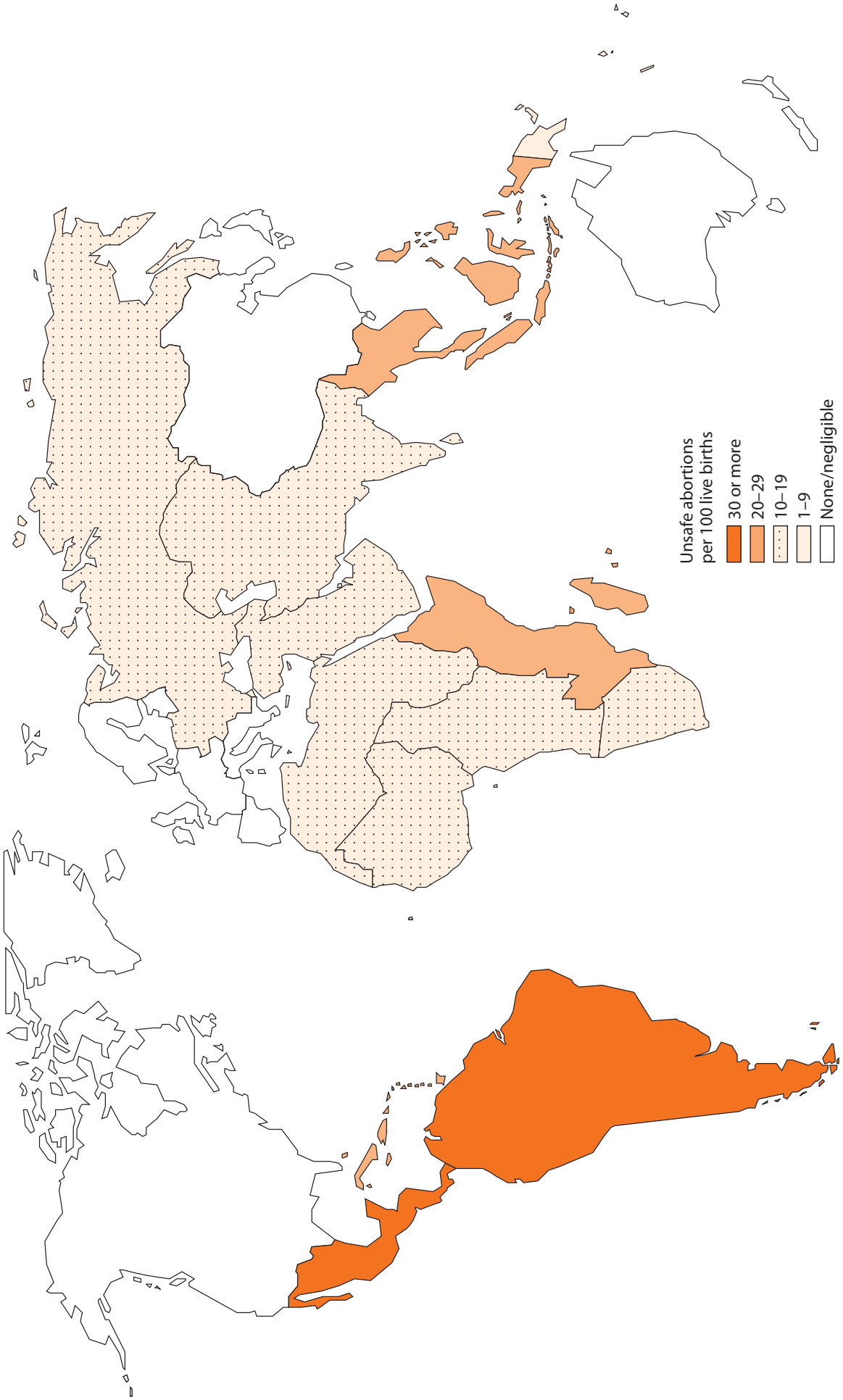


Figure 6. Estimated annual number of unsafe abortion per 100 live births, by subregion, 2008.

abortion rate is 31 per 1000 women aged 15–44, and for sub-Saharan Africa without the Southern Africa Subregion it is even higher at 32 (not shown). In the Middle Africa Subregion, unsafe abortion numbers and the rate are higher than in previous reports due to more and better data which allows for a more precise estimate than before; in the Eastern Africa Subregion the rate is lower, and in the Western Africa Subregion the rate unchanged even though the numbers (column 1) of unsafe abortions are higher than in 2003 because there are now more women of reproductive age. The TFRs remain well above five children per woman in the Eastern, Middle, and Western Africa Subregions, which is not surprising as overall contraceptive use only is 26%, 19% and 15%, respectively, showing much lower CPR than any other major subregion; all other Subregions of Africa, Asia and Latin America have CPR above 50%.[75] In the central belt across Africa, the unsafe abortion situation will remain unpredictable and fluctuating, until a balance is achieved between reproductive intentions and a CPR that is over 30%.[30]

The picture is quite different in the Southern and Northern Subregions of Africa. Abortion is legalized in South Africa and safe abortion services increasingly available, although unsafe abortions are not yet eliminated. In Tunisia (in Northern Africa Subregion) abortion has long been legal and safe with functioning abortion services, while unsafe abortions elsewhere in the Subregion are at 19 per 1000 women aged 15–44 years (column 6). Contraceptive prevalence in Southern and Northern Africa among married women is 58% and 50%, respectively, couples rely mainly on modern methods. It is therefore not surprising that these two Subregions have TFRs below three children per woman and have unsafe abortion rates quarter and one half of Eastern Africa's, respectively; nevertheless legal conditions will continue to lead to unsafe abortions in the Northern African Subregion until contraceptive use increases further to meet fertility intentions.

At 4.2 million unsafe abortions, numbers and rates for the Latin America Region have risen slightly due to the upward correction of numbers and rates for Central America resulting from the availability of new data. Conversely, the incidence of unsafe abortion for South America appears to have stabilized, and may have passed its peak. The Caribbean presents a dichotomous picture: when excluding Cuba and islands where abortion is legalized and services are available, the rate at 29 per 1000 women of reproductive age for the remainder of the Caribbean (column 6) is almost as high as for the South America Subregion. The use of modern contraceptives ranges from 58% to 65% in Subregions of the Latin America Region; however, close to half of this is accounted for by sterilization alone. The moderate 29%–35% reliance on modern reversible methods could mean that unsafe abortion is being used to space births, attaining a TFR of 2.2 children per woman in South America and 2.4 elsewhere in the Region.[9] When smaller families are already the norm, improved access to a wider range of birth-spacing methods allowing women and couples to select their method of preference could reduce the number of unintended pregnancies and hence the need for induced abortion.

When the demographically large Eastern Asia Subregion is excluded from the denominator, the unsafe abortion rate (column 6)[f] for the Asia Region is estimated at 19 per 1000 women aged 15–44 years. Thus, the unsafe abortion rate is significant when focused only on countries with evidence of unsafe abortion. The South-Central Asia Subregion has the highest *number* of unsafe abortions of any subregion, owing to the sheer size of its population; in 2008, more than 6.8 million unsafe abortions are estimated, or 17 unsafe abortions per 1000 women of reproductive age,[i] which poses a formidable challenge. India, the most populous country in the Region, basically legalized abortion in 1971, however, it is recognized that still some two thirds of abortions take place outside the

[f] Countries where unsafe abortion occurs in parallel with legal and safe abortion are included, although in some of these unsafe abortion numbers are small.

authorized health services,[15] in effect contributing a large number of unsafe abortions. These numbers are unlikely to decrease until women become informed of their right to legal and safe abortion and expanded services and postabortion care become available to millions of poor and less-educated women. In addition, the CPR of the Subregion is moderate at 54% and two thirds of the 46% of modern contraceptive method use relates to sterilization; the high incidence of unsafe abortions is probably the result of a desire to space births. Among Asia's Subregions, South-Eastern Asia has the highest rate at 26 per 1000 women aged 15–44 years (column 6), when Singapore and Viet Nam with no evidence of unsafe abortion are excluded from the rate; the rate is lower at 22 than when including all countries in the denominator. In South-Eastern Asia only 8% of couples rely on traditional methods while 53% use modern family planning methods, mostly reversible methods (47%). Until the CPR increases further and safe abortion services become available, the incidence of unsafe abortion is unlikely to reduce.

The TFR of Western Asia is 2.9 children per woman and the CPR is 54% of which more than 1 in 3 is traditional method use; a combination that signals a contraceptive shortfall. Because more data have become available a more reliable estimate can be made for 2008, as compared with 2003.[73] In 2008 the estimated rate for Western Asia is 16,[i] a level that is lower than that for the Northern African Subregion, which has similar TFR and CPR; though modern contraceptive use is higher in Northern Africa at 45%. This may suggest that the Western Asia incidence is still underestimated.

The low level of unsafe abortion that long has remained unchanged in some European Subregions appears to have further reduced; only in the Eastern European Subregion are unsafe abortions still identifiable, i.e. in Poland where the law has severely restricted access and barriers to safe abortion have increased.[69]

While it is acknowledged that there is a problem of unsafe abortion in Oceania, excluding Australia and New Zealand, data are exceptionally scant and, as a consequence, estimates are imprecise. However, it seems unlikely for the Region to have a TFR below 4 children per woman with a low contraceptive use of 27% (21% modern methods) and as few as 8 abortions per 1000 women; unsafe abortions could be much higher but currently the evidence is not available.

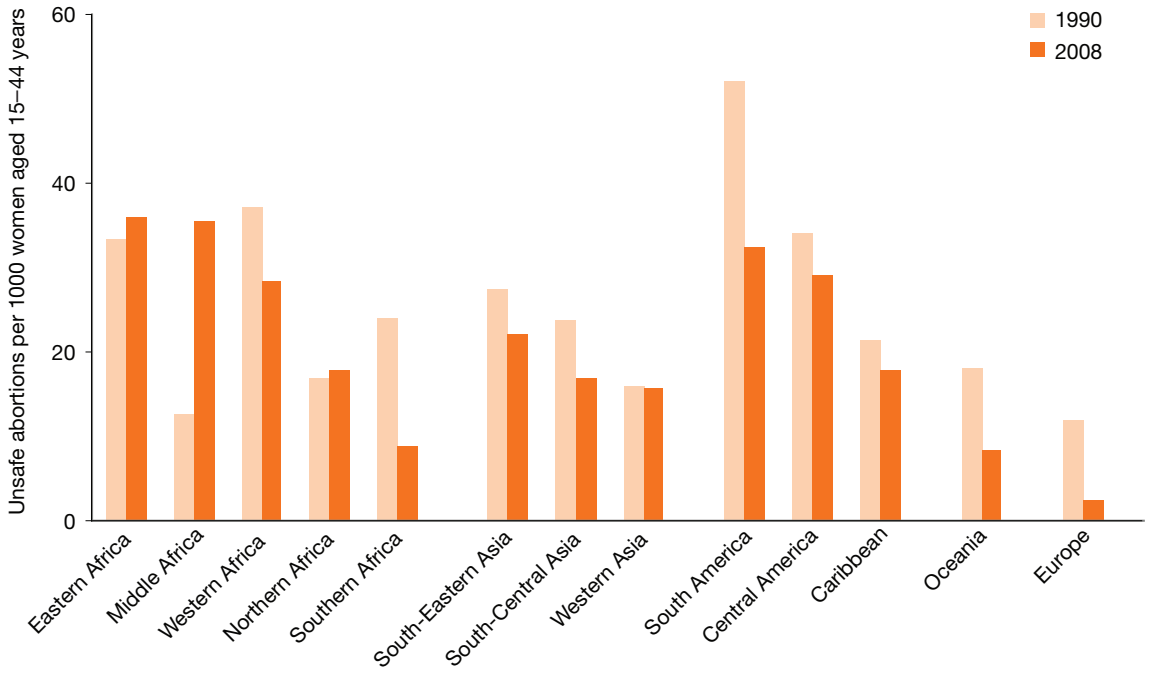
7.3 Trends in unsafe abortion

Each round of unsafe abortion estimation depends on the type and quality of data available for approximately 190 countries. Even though unsafe abortion estimations adhere to the same standardized approach, handling disparate data amounts to variation in the method; estimates are always the "best estimates". Because of such adaptations in the methods, the unsafe abortion estimations are not exactly comparable and caution must be exercised in reviewing estimates over time.

During almost 20 years of unsafe abortion estimation the TFRs have decreased and contraceptive prevalence has increased, but the number of women aged 15–44 years has grown substantially. The number of women increased more rapidly in the Africa Region. During the 1990s, numbers of births fell globally, only to increase in 2000. Globally and regionally literacy among women has been increasing and age at marriage has risen. Also, smaller families have become the norm, increasing a demand for family planning whether met, unmet or not even consciously perceived. It appears that this combination of direct and proximate determinants seemingly counterbalance, resulting, until now, in relatively constant overall unsafe abortion numbers.

Figure 7 shows the estimated abortion rates in 1990 and 2008, by subregion. The subregions are grouped by region and ranked in descending order according to current unsafe abortion rates. It clearly shows the fluctuations in the estimates, caused by data availability, limitations of estimation, and not the least, real changes due to interaction with other determinants of fertility. For some subregions, data were very scant in the past and the subregion estimates were based on just a few countries cautiously evaluated; the Middle Africa Subregion is a point in case, as is the Western Asia Subregion although not evident from the graph. Good data remain in short supply for the Caribbean Subregion and the Oceania Region.

Figure 7. Estimated annual number of unsafe abortions per 1000 women aged 15–44 years, 1990 and 2008, by subregion.



Source: Table 5 and WHO, 1993.[77]

The TFR decreased at an even and high pace for the Latin America and the Caribbean Region from 2.7 about 10 years ago, to 2.5 at 5 years ago and 2.2 in 2008.[9] South America at TFR just under 2.2 has the second lowest fertility among developing subregions after Eastern Asia where abortion is legal and available safely throughout. The TFR decline in the region has been particularly strong in the Central and South American Subregions; seemingly an already high CPR was accompanied by unsafe abortion. The high 1990 unsafe abortion rate for the South American Subregion is noteworthy and so is the reduction to 32 unsafe abortions per 1000 women. The largest reduction was in the first decade thereafter it stabilized, possibly due to a contraceptive mix with relatively low reliance on reversible methods and lack of access to safe abortion in case of unintended pregnancy. For the Central American and the Caribbean Subregions there is a clear downward trend; however the variations over the years both reflect scant availability of data and, in the case of Central America, recent ambiguity due to increased restrictions in abortion laws.

Important reductions in TFR over the past 10 years have taken place in the African Subregions: a reduction of 0.8 to 5.6 in Middle Africa; 0.7 to 5.2 in Western Africa; and 0.6 to 5.3 in Eastern Africa. These gains in smaller families have taken place even though contraceptive prevalence is well below

30% in these Subregions and there is almost negligible use of modern methods in Middle Africa (7%) and in Western Africa (9%); abortion has therefore played an important role. Eastern, Middle and Western Africa continue to figure among subregions with high abortion rates (the low rate in 1990 for Middle Africa, undoubtedly a result of lack of data, has been discussed earlier).

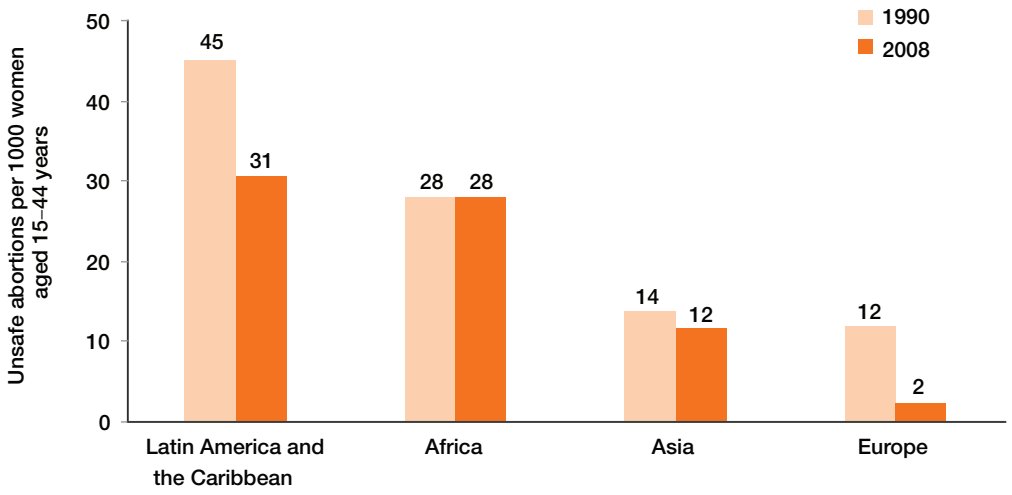
The Northern Africa and Southern African Subregions are distinct within the Africa Region. Northern Africa has had one of the highest percentage reductions anywhere of TFR, 18% to 2.9 over 10 years, and a 15% reduction to 2.6 in Southern Africa. Unsafe abortions have increasingly been reduced as safe abortion services have become available in South Africa, the main country of the Southern Africa Subregion; improvements were well under way already in 2003.

Over a 10-year period, huge reductions in the TFR of 20% and 17% have taken place in South-Central and Western Asia Subregions, lowering the TFRs to 2.8 and 2.9, respectively. These improvements have taken place even though there have been modest increases in contraceptive use, showing the reliance on abortion for fertility decline. South-Eastern Asia nevertheless has a lower TFR at 2.3, a 14% reduction over 10 years. Unsafe abortion rates for the South-Central and South-Eastern Asia Subregions are lower now, while rates for Western Asia may have been higher in the past since the data available earlier were insufficient and of uncertain quality.

In the various subregions of the world increases in the number of women 15–44 years (unsafe abortions are in relation to this number in the *rate*) and number of births (unsafe abortions are in relation to this number in the *ratio*) take place independently and at different pace. Figures 8 and 9 show the rates and the ratios for 1990 and 2008 for four regions; this permits a closer look at the relationships between rate and ratio.

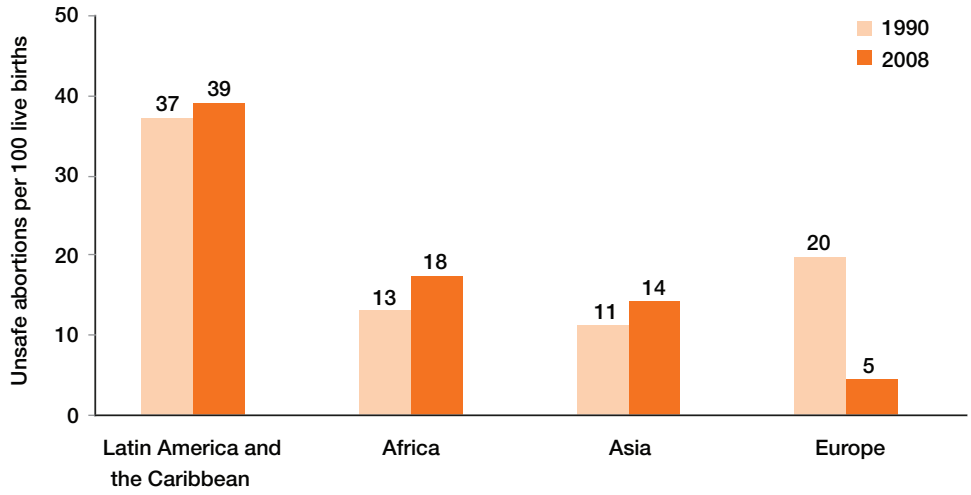
Figures 8 and 9 show some scenarios. While the rates are almost identical at the two points in time for the Africa Region, the ratio increases as there are relatively fewer births, or rather, the number of women aged 15–44 years has increased more rapidly than births as the previously high TFR has fallen. A similar point is seen in the Asia Region with an increase in ratio despite a lower rate in 2008 than in 1990. For the Latin America and the Caribbean Region the rate fell substantially while the ratio increased only modestly. Only Europe shows the opposite trend where both the rate and the ratio dropped.

Figure 8. Estimated number of unsafe abortions per 1000 women aged 15–44 years, 1990 and 2008, by major region.



Source: Table 5 and WHO, 1993.[77]

Figure 9. Estimated annual number of unsafe abortion per 100 births, 1990 and 2008, by major region.



Source: Table 5 and WHO, 1993.[77]

Where fertility is high, e.g. in the Africa Region, ratios are relatively lower than the rates. Even though 2008 rates were similar in the Latin American/Caribbean and the Africa Regions, ratios for the Africa Region are distinctly lower due to the higher fertility. The Asia Region generally falls between the two. Only for the Europe Region are the recent ratios lower than in 1990 due to a reduction in unsafe abortion numbers.

Reviewing 20 years of estimates for unsafe abortion incidence, rates and ratios show that unsafe abortion continues playing an important role in developing country regions. The numbers, rate and ratio show that women all over the world are likely to resort to an unsafe abortion when faced with an unwanted pregnancy and provisions for safe abortions are unavailable or inaccessible; and that in subregions with low fertility the ratio is relatively high.

8. Regional and global mortality due to unsafe abortion

The three main causes of maternal deaths globally are haemorrhage, sepsis due to childbirth, and unsafe abortion, that together account for approximately half of all maternal deaths.[78] Deaths due to unsafe abortion are mainly caused by severe infections or bleeding caused by the unsafe abortion procedure, or due to organ damage. Other women suffer long-term health consequences including infertility, while many more have short-term illness.[71]

Mortality due to unsafe abortion is estimated as a percentage of maternal deaths by country. This percentage is applied to the number of maternal deaths, by country, as recently estimated by the interagency group comprising WHO, World Bank, UNFPA and UNICEF.[6] Country numbers are then aggregated to subregional, regional and global levels. The resulting numbers of unsafe abortion deaths are therefore largely dependent on the estimation of the total number of maternal deaths; new maternal mortality estimates for the period 1990–2008[6] have replaced earlier estimates of maternal mortality.[2–5]

Overall maternal deaths have declined by one third since 1990 globally, however, even as improvements have been made, the relative importance of each cause of maternal death shows only minor change.[78,81] The risk associated with childbirth cannot be totally eliminated; only deaths due to unsafe abortion are entirely preventable.

8.1 Estimated global numbers of maternal deaths due to unsafe abortion and unsafe abortion mortality ratios

For 2008, 47 000 maternal deaths are estimated to have been due to unsafe abortion (Table 6); this number is lower than previous estimates primarily because of the re-evaluation of maternal mortality estimates (see Section 6.3). Unsafe abortion-related deaths have reduced from 69 000 in 1990 and 56 000 in 2003 as overall maternal deaths have declined from a high of 546 000 in 1990 to 358 000 in 2008. [6]

Globally, the proportion of maternal deaths due to unsafe abortion has remained close to 13% over time. Contrary to the global percentage of maternal deaths due to unsafe abortion, the averages by subregions and regions are distinct and, furthermore, the percentage varies extensively between countries within each subregion, reflecting country specific circumstances of unsafe abortion incidence and access to care. Even as such variation is absorbed in averages, the aggregated regional and global numbers are more robust.

The ratio of unsafe abortion maternal deaths per 100 000 live births shows the relative risk of maternal death due to unsafe abortion (Figure 10). The risk of death due to unsafe abortion is 30 per 100 000 live births globally and 40 per 100 000 for developing countries; an improvement from 50 and 60, respectively, in 1990. At 80 per 100 000 live births the risk associated with unsafe abortion for least developed countries is twice that of developing countries. The figure for sub-Saharan Africa is even higher at 90 per 100 000, which includes Eastern and Middle Africa at 100 per 100 000, while in Western Africa the ratio is 80 per 100 000 live births. Northern and Southern Africa show a more modest risk at 30 and 40 per 100 000 live births, similar to that of Asia which ranges between 10 and 30 per 100 000. Despite large numbers of unsafe abortions, the risk of death associated with unsafe abortion is low at an average of 10 per 100 000 live births in Latin America and the Caribbean. This is closer to the developed countries estimate and may be due to a high, and apparently increasing, reliance on medical abortions and a relatively well developed infrastructure for health.

Table 6. Global and regional estimates of mortality due to unsafe abortion, 2008

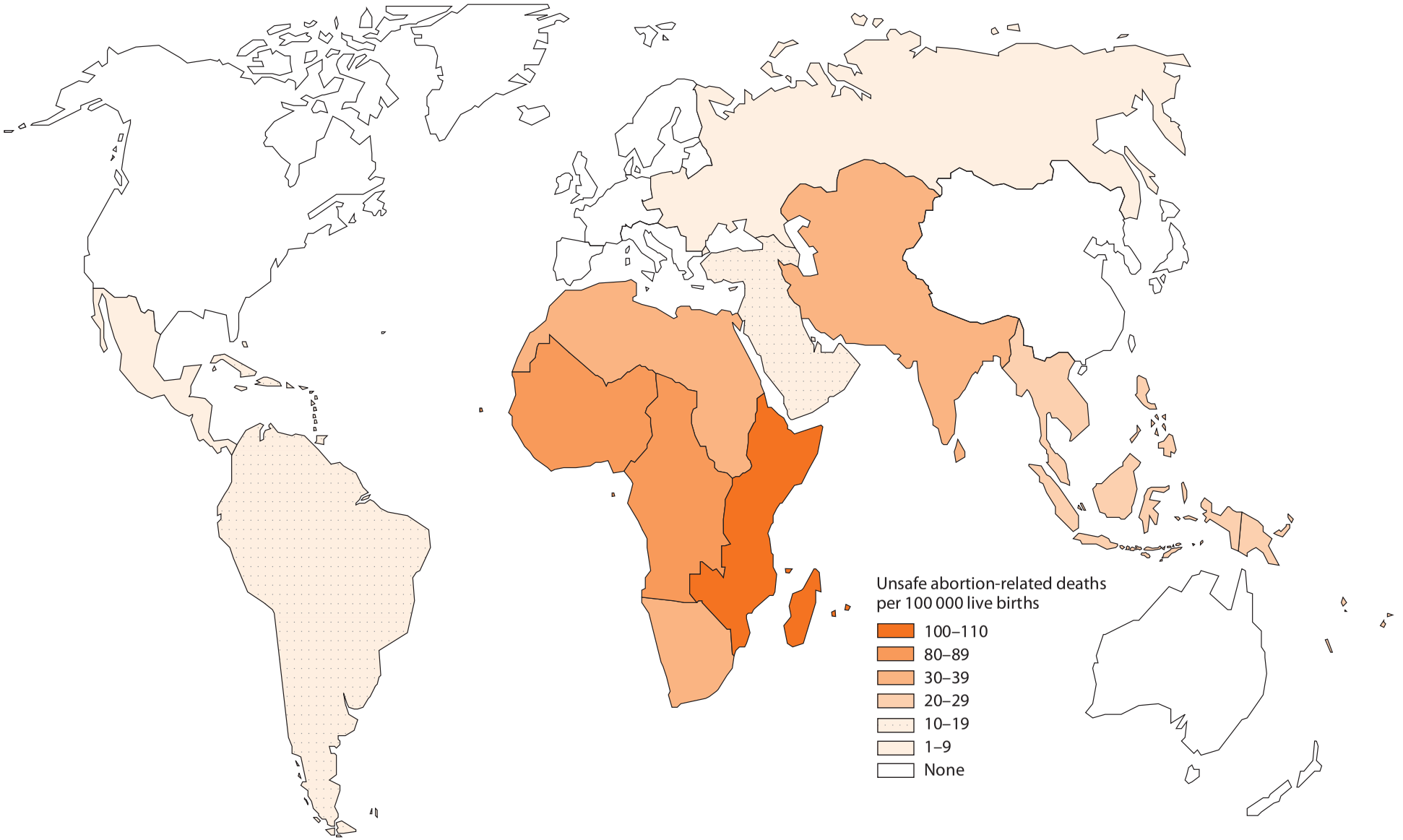
	Number maternal deaths due to unsafe abortion	Mortality calculations including all countries of each region whether with or without evidence of unsafe abortion		*Mortality calculations including only countries of each region with evidence of unsafe abortion*	
		Deaths due to unsafe abortion per 100 000 live births (rounded)	% of maternal deaths	*Deaths due to unsafe abortion per 100'000 live births (rounded)*	*% of maternal deaths*
World	47 000	30	13	*40*	*13*
Developed regions[a]	90	0.7	4	*3*	*11*
Developing regions	47 000	40	13	*50*	*13*
Least developed countries	23 000	80	14	*80*	*14*
Sub-Saharan Africa	28 500	90	14	*90*	*14*
Africa	29 000	80	14	*80*	*14*
Eastern Africa	13 000	100	18	*100*	*18*
Middle Africa	4400	80	12	*80*	*12*
Northern Africa	1500	30	12	*30*	*12*
Southern Africa	500	40	9	*40*	*9*
Western Africa	9700	80	12	*80*	*12*
Asia[a]	17 000	20	12	*30*	*13*
Eastern Asia[a]	[b]	[b]	[b]	[b]	[b]
South-Central Asia	14 000	30	13	*30*	*13*
South-Eastern Asia	2300	20	13	*20*	*13*
Western Asia	600	10	16	*10*	*16*
Europe	90	1	8	*3*	*11*
Eastern Europe	90	3	11	*3*	*11*
Northern Europe	[b]	[b]	[b]	[b]	[b]
Southern Europe	[b]	[b]	[b]	[b]	[b]
Western Europe	[b]	[b]	[b]	[b]	[b]
Latin America and the Caribbean	1100	10	12	*10*	*12*
Caribbean	100	20	11	*20*	*12*
Central America	200	8	9	*8*	*9*
South America	700	10	13	*10*	*13*
Northern America	[b]	[b]	[b]	[b]	[b]
Oceania[a]	100	30	12	*30*	*12*
Australia/New Zealand	[b]	[b]	[b]	[b]	[b]

Figures may not exactly add up to totals because of rounding.

[a] Japan, Australia and New Zealand have been excluded from the regional estimates, but are included in the total for developed countries.

[b] No estimates are shown for regions where the incidence of unsafe abortion is negligible.

Figure 10. Estimated annual number of maternal deaths due to unsafe abortion per 100 000 live births, by subregions, 2008.



This map is based on unrounded ratios.

8.2 Case fatality of unsafe abortion

Table 7 shows the global and regional risk of death due to complications of unsafe abortion. The case fatality largely reflects the risk due to abortion methods and access to care should an emergency develop.

The global case–fatality rate (220 per 100 000) associated with unsafe abortion is some 350 times higher than the rate associated with legal induced abortions in the USA (0.6 per 100 000 procedures);[39] in sub-Saharan Africa, the rate is more than 800 times higher. Even in developed countries, the case–fatality rate for unsafe abortion is 40 times higher than that for legal induced abortion.

Table 7. Estimated number of unsafe abortion deaths per 100 000 unsafe abortions, 2008

	Estimated number of deaths per 100 000 unsafe abortions (rounded)
WORLD	220
Developed regions[a]	30
Developing regions	220
Least developed countries	470
Sub-Saharan Africa	520
AFRICA	460
Eastern Africa	520
Middle Africa	470
Northern Africa	170
Southern Africa	370
Western Africa	540
ASIA[a]	160
Eastern Asia[a]	[b]
South-Central Asia	200
South-Eastern Asia	70
Western Asia	70
EUROPE	30
Eastern Europe	30
LATIN AMERICA AND THE CARIBBEAN	30
Caribbean	80
Central America	20
South America	20
OCEANIA[a]	400

[a] Japan, Australia and New Zealand have been excluded from the regional estimates, but are included in the total for developed countries.

[b] No estimates are shown for regions where the incidence of unsafe abortion is negligible.

9. Conclusions

Unsafe abortion and deaths due to complications of unsafe abortion continue to afflict the lives of many women, mostly in developing countries. Unsafe abortion is the cause of serious complications and disability for millions of women each year and is a prominent cause of maternal death. Despite efforts to achieve Millennium Development Goal 5 Target 5A – reduce by three quarters the maternal mortality ratio between 1990 and 2015 – the percentage of maternal deaths due to unsafe abortion remains unchanged at 13%. Numbers of unsafe abortions have risen with the increase in the number of women of reproductive age. This trend may continue unless women's access to safe abortion and contraception – and support to empower women (including their freedom to decide whether and when to have a child) – are put in place and further strengthened.

Unsafe abortions, though entirely preventable, continue to occur in almost all developing countries and in Eastern Europe. The evidence suggests that a reliance on abortion can be greatly reduced when:

- women can plan pregnancies through effective contraception;
- counselling and services meet the unmet need for family planning, and appropriate method mix of contraception is offered to all women, including both married and unmarried women; and
- safe abortion services are available and accessible.

In the meantime ill-effects of unsafe abortion should be prevented by:

- making safe abortions services available and accessible where abortion is not against the law;
- ensuring that permitted reasons for abortion are supported by the national legislative process and health systems;
- granting access to services for the management of complications arising from unsafe abortion; and
- providing postabortion counselling and offering contraceptive services, which will also help to avoid repeat abortion.

Abortion services need to be expanded to the full extent of the law, and appropriate measures and changes to health systems implemented. Governments and intergovernmental and nongovernmental organizations will need to deal with unsafe abortion as a major public health concern, a call which was made by the World Health Assembly in 1967 that has grown in urgency and significance.

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Annexes

Annex 1. Estimating the annual incidence of unsafe abortion and associated mortality

This annex describes the data and methods used for estimating the incidence of unsafe abortion and associated mortality in 2008.

1. Data on unsafe abortion

In all countries, access to induced abortion is largely dependent on the legal framework. Where induced abortion is restricted and largely inaccessible, or permitted by law but difficult to obtain, little information is available on abortion. In such circumstances, its occurrence tends to be officially unreported and unsafe abortion therefore has to be estimated from what information is available on incidence and mortality from hospital data and from surveys. Whether legally restricted or not, induced abortion is generally considered shameful and frequently censured by religious teaching or ideologies.

The language used to describe induced abortion reflects the ambivalence surrounding the event: terms include “induced miscarriage” (fausse couche provoquée),[1] “menstrual regulation”, “cleaning the belly”,[2] and “regulation of a delayed or suspended menstruation”.[3] It is therefore not surprising that unsafe abortion is one of the most difficult indicators to measure.

2. Data collection for 2008 estimates

WHO maintains a database on unsafe abortion and associated mortality, which now has nearly 4000 documents, mainly related to developing countries, containing both quantitative and qualitative information. The database includes information on the circumstances in which unsafe abortion takes place and information on hospital records and surveys, legal developments, abortion providers, unsafe abortion methods, abortion-seeking behaviour and on postabortion care. Information is collected from searches of library databases and the Internet, conference papers, data reported to WHO headquarters and regional offices, and information reported by national authorities, and nongovernmental organizations. Published and unpublished reports and papers are screened for the scientific rigour of the study, and the relevant information and data are included in the database. The abortion is registered using the authors’ terminology, i.e. as simply “abortion” or specifically as “induced”, “spontaneous” or “unsafe” abortion.

Thousands of papers were systematically screened to identify significant material, web sites of relevant organizations were accessed, and pointed country searches for the most up-to-date data were carried out. The current review rendered over 400 references and 600 new data figures. In particular Internet searches provided valuable new data but also proved to be time consuming as the appropriate data are submerged on ministries of health web sites; however, this option offers an unprecedented opportunity to access recent data. This is particularly the case for the Latin America and the Caribbean Region, and the Western Asia Subregion, although some countries have restricted the access to data compared with the 2003 estimation; many more have made it available. A close collaboration with Macro International provided both data and an opportunity to compare Demographic and Health Surveys (DHS) data with estimates from other sources to develop appropriate augmenting factors compensating for underreporting in cross-sectional surveys. New information and data were assessed together with the existing data to ascertain the current situation with regard to abortion laws, policies and abortion incidence and practices by country.

In the following sections, we outline the rationale, assumptions and methods of estimation of unsafe abortion incidence and mortality. Estimates were assessed for consistency by comparison with available information from other sources on TFR, prevalence of modern and traditional contraceptive methods. Estimates were generated first by country, and then aggregated by region and globally. The same general approach was applied for the updates of 1993,[4] 1997,[5] 2000,[6] and 2003.[7]

The estimates given in this document are intended to reflect induced abortions that carry greater risks than those carried out officially for reasons accepted in the laws of a country.

3. Estimating the incidence of unsafe abortion

The annual country-specific unsafe abortion incidence is estimated mainly from hospital and survey data, adjusted to correct for misreporting and underreporting. The adjustments depend largely on reports on the methods commonly used to perform abortion, the providers of unsafe abortions, and the existing abortion law and its application.[8–16]

To deal with the problem of induced abortion being misreported as spontaneous, the combined incidence of spontaneous and induced abortion is used for estimation, correcting for the likely incidence of spontaneous abortion as described in detail below. Where induced abortions take place both within and outside the legal context of a country, officially sanctioned abortions are excluded from the estimate.

In a few instances, subnational data are extrapolated to the national level with adjustments, for example by taking account of the fact that the abortion rate is generally lower in rural than in urban areas.[17–19] Whenever possible, national estimates were calculated from different sets of data to validate the estimates, considering that national or subnational data as well as hospital or survey data give similar results.

The resulting unsafe abortion incidence is finally assessed in light of the information that induced abortion will increase or decrease only as other determinants of fertility change,[20] mainly TFR,[21] and use of effective contraceptives,[22] and the unmet need for family planning as reported in a variety of DHS carried out by countries themselves, or in collaboration with Macro International or Centers for Disease Control and Prevention (CDC). A change in law (de jure) or practice (de facto) to make abortion available on more liberal grounds or on request will lead to a shift from clandestine to officially sanctioned abortions as the infrastructure and abortion services become available.

3.1 Sources of data, methods and assumptions for estimating unsafe abortion incidence

3.1.1. Hospital data

Hospital abortion admission data overrepresent the occurrence of spontaneous abortions. In most instances it is not clinically possible to separate spontaneous from induced abortions and therefore one must rely on a biological model to account for the percentage of spontaneous abortions from the hospital data on all abortions. The number of women not receiving care relative to hospitalized women will have to be estimated through special studies.[23,24] Of course, only some of the women having an unsafe abortion will need to, and decide to, seek hospital care; such a decision is not only influenced by the severity of the symptoms (bleeding, pain, infection) but also by the availability and access to medical services, and the (perceived) legal conditions of induced abortion. Hesitation to seek care increases the health risks to women and may lead to permanent disability or death.

National unsafe abortion incidence was estimated from hospital data by simulating the now well-known hospitalization complications method (HCM).[23,24] The abortion–birth ratio in hospitals is adjusted for spontaneous abortions that occur at 13–22 weeks of gestation that may require hospital treatment. Women who have a miscarriage before 13 weeks gestation rarely need hospital care. Using modified life-table data Singh and Wulf [25] estimated that the number of pregnancies ending in spontaneous abortion within 13–22 weeks of gestation corresponds to 3.41% of all live births. It is further assumed that the percentage of women with spontaneous abortion who are hospitalized is approximately equal to the percentage of women who deliver in a hospital in a given country. The hospital unsafe abortion ratio so derived – the "tip of the iceberg" – is further adjusted based on the evidence that most unsafe induced abortions do not lead to complications requiring hospitalization; therefore a multiplier of between 2 and 7[25–29] is applied to the hospital unsafe abortion ratio to arrive at an estimate of the national unsafe abortion ratio.[a] The multiplier is implemented from the above-mentioned studies in various locations on the basis of similarity to a country with a known multiplier. Generally, the magnitude of the multiplier implies that the lower the risk to women's health that is associated with unsafe abortions in a country, the higher the multiplier will be. The calculated abortion ratio is finally converted into an abortion rate, based on UNPD estimates of the numbers of women aged 15–44 years, and of births, for that year. [21]

In some instances, data for hospital abortion admissions were available from public and/or private hospitals, but not the corresponding number of births.[30–32] Using recent data on the percentage of births taking place in private and/or public hospitals the corresponding number of births was estimated from UN estimates of the number of births in the country in the actual year.[21] The ensuing abortion ratio was then corrected for spontaneous abortions and for unsafe abortions not requiring hospital care to arrive at a national unsafe abortion incidence, applying the methodology described above.

The percentage of deliveries that take place in hospitals[33] is important not only for calculation of estimates but also for understanding the access to services and hospital seeking behaviour of women who had an unsafe abortion and experienced complications. This is further discussed in Chapter 3 of the main text.

3.1.2. Survey data

Women are often reluctant to report having had an induced abortion, especially when its availability is restricted by law. However, surveys show that substantial underreporting occurs even where abortion is both accessible and available within the legal framework.[34–37] It is not clear whether the non-reporting in these circumstances is due to perceived social stigma. It appears though that early pregnancy terminations and events occurring some time back in the past are less frequently reported perhaps due to memory lapse.[38] When abortions are clandestine, women tend to underreport induced abortions in surveys despite assurance of confidentiality, or may only admit to a spontaneous abortion (miscarriage).[39,40] Data from surveys therefore have to be adjusted for underreporting and spontaneous abortion has to be accounted for when included.

[a] For example, using national hospital data, the ratio is estimated as:

$F\,[A - (H \cdot 3.41)]$

where:

- F is an adjustment factor generally between 3 and 7, to allow for the fact that not all unsafe induced abortions require hospitalization;
- A is the abortion ratio (%) (the number of induced and spontaneous abortions per 100 live births) found in national level hospital data;
- H is the proportion of hospital deliveries in the country and also the assumed proportion women with a spontaneous abortion of 13–22 weeks gestation seeking hospital care;
- 3.41 is the percentage of spontaneous abortions of 13–22 weeks gestation per 100 live births.

To avoid the dilemma and difficulty in distinguishing spontaneous as compared with induced abortion, it was considered more reliable to start with the combined numbers, finally deducting spontaneous abortion, estimated at 10% of survey data on births,[38] from the combined national incidence to account for numbers of spontaneous abortion.

Surveys on abortion have shown that women underreport their abortion experience in face-to-face interviews and in self-completed forms. Studies in the USA show that fewer than one half of induced abortions performed in the preceding 5 years were reported in interviews,[35,38,41,42] while just over 50%, reported induced abortion in a self-report procedure (audiocomputer assisted).[41] Although sensitive interviewing[43] may render somewhat better results, an augmenting factor of 2 is applied when estimating unsafe abortion from abortion surveys, that is, assuming that only 1 in 2 women will report an abortion.

Data from cross-sectional surveys, e.g. DHS, show a more substantial underreporting and will have a correction factor of 2 or higher based on relationship of DHS data with AGI or other recognized national abortion-specific surveys (see Tables A1.1 and A1.2) to which 10% spontaneous abortions were added to allow the comparison. The higher the augmenting factor the fewer women reporting an abortion (induced or spontaneous) in the DHS surveys.

The factors so identified were then combined into subregional factors as shown in Table A1.2. Peru was not included in the combined Latin America and the Carribbean factor, as it was considered that the Peru DHS presented a special case with unexpected sensitivities as shown by low incidence in

Table A1.1 Comparison of the combined induced and spontaneous abortion data of Demographic and Health Surveys (DHS) with national abortion estimates originating with "Gold standard" surveys

	"Gold standard" surveys[d] Year of survey	DHS of induced and spontaneous abortion Period of survey	Comparison year	Augmenting factor
Ethiopia	2008	2001–2005	2008	6.4
Kenya	2002	1999–2003	2002	6.7
Uganda	2003	2002–2006	2003	5.2
Egypt[a]	1996	1991–1995	1995	2.1
Burkina Faso	2008	1999–2003	2005	6.0
Ghana[b]	2000–2006	2003–2007	2003	1.3
Nigeria	1996	1999–2003	1999	4.1
Bangladesh	1995	1993–1997	1995	3.4
India[c]	2002	2002–2006	2002	3.7
Indonesia[c]	2000–2001	1998–2002	2001	5.3
Pakistan[b]	2002	2001–2007	2002	2.2
Philippines	1994	1994–1998	1994	3.4
Philippines	2000	1999–2003	2000	3.9
Guatemala	2003	1995–1999	1999	6.0
Nicaragua	2003	1997–2001	2001	3.2
Colombia	2009	2001–2005	2005	4.1
Peru	1998	1996–2000	1998	7.7

[a] corrected for MR;

[b] abortion module;

[c] provider survey;

[d] spontaneous abortion added as relevant.

Table A1.2. Subregional factors applied to cross-sectional survey data

Region or subregion (UNPD)	Factor	Countries for calculating the factor
Eastern Africa	6.1	Ethiopia, Kenya, Uganda
Western Africa	3.8	Burkina Faso, Ghana, Nigeria
Sub-Saharan Africa	5	Burkina Faso, Ethiopia, Ghana, Kenya, Nigeria, Uganda
Asia	4	Bangladesh, India, Indonesia, Pakistan, Philippines (2000)
Western Asia and Northern Africa	2.2	Egypt, Pakistan
South and Central America	4.5	Colombia, Guatemala, Nicaragua

the survey and the cause of the high factor of 7. The subregional factors were applied to survey data as appropriate. Country-specific factors were, however, used where relevant rather than relying on regional averages.

Surveys of abortion commonly show results per 1000 women aged 15–44 or 15–49 years, reporting either the lifetime experience of abortion (ever) or for a shorter period of 1–5 years. Rates are converted into annual rates of abortion,[b] corrected for underreporting and finally adjusted for spontaneous abortions (10% of live births),[c] if included in the rate.

The randomized response technique (RRT) is a survey technique that allows soliciting information on recent or lifetime incidence of induced abortion with high degree of privacy and confidentiality to the interviewed women.[44] Just replying "yes" or "no" to selected questions (either on abortion or a neutral statement with known probability) permits the calculation of the number women in a large sample who report having an abortion. The method however requires a large sample, only one or two questions can be asked, and it has been shown to work more reliably with literate women. Results applying this technique will not require any corrections to the reported induced abortion incidence.

3.1.3 Other data

For seven countries a national estimate of the abortion incidence or number of unsafe abortions were reported by a known source, however, without supporting evidence. Those estimates were used to calculate the abortion incidence rather than assigning their region's average; the countries correspond to 2% of births and 1% of unsafe abortions and are included in the first line of Table A1.3.

Twenty, mostly smaller countries, corresponding to 2 % of births, for which no information was available, were assumed to have the same rate as other countries in the Region, or as other countries with similar abortion laws, fertility and contraceptive use (see Tables A1.3 and A1.4)

[b] Rates for 2–5 years are assumed to distribute equally over the period, therefore dividing by the number of years. Rates of women who had ever aborted are converted into yearly rates using the formula:

$$W_{rep.age} \cdot Av_{ab}/Av_{rep.yr}$$

where:

$W_{rep.age}$ is the percentage of women of reproductive age reporting ever having had an abortion;

Av_{ab} is the reported average number of abortions per woman, assumed to be 1.2 if not reported;

$Av_{rep.yr}$ is the average number of reproductive years, which here is assumed to be 15 for women in the age range 15–44 years, if not otherwise indicated.

[c] The survey-based abortion rate is corrected for underreporting and the estimated spontaneous abortion deducted

$$A \cdot C - S$$

where:

A is the abortion rate found in the survey;

C is the correction factor for underreporting;

S is the correction for spontaneous abortion (10% of live births).

3.2 Availability of incidence data by administrative level and by year

Table A1.3 shows the availability of abortion incidence data on national or subnational level. The corresponding distributions of the estimated number of unsafe abortions are shown with live births and women aged 15–44 years. Table A1.3 identifies the time period of data used to calculate the unsafe abortion incidence.

Table A1.3 shows that more than 90% of unsafe abortions are estimated from national level data. This is a further improvement over previous updates; 79% of the 2003 round of estimation was based on national data. Therefore, the estimates are becoming increasingly reliable as fewer assumptions have to be made. Abortion incidence is unlikely to be overreported; however, we have no means to assess the completeness of national data having to rely on the data providers, often the ministry of health. The percentage of countries with no data has decreased and, consequently so has the need to estimate using data from other countries or using the regional average. We observe that one in four births in the world takes place in 60 countries, in which 36% of women of reproductive age reside, where induced abortions have few restrictions and there is no evidence of unsafe abortions; in 2003 it was 24% of births and 38% of women aged 15–44.

In addition, more recent data provide more reliable projected estimates. Thirty-eight per cent of unsafe abortions are calculated from data originating since 2005, and 92% of data is less than eight years old (Table A1.4). Therefore, in light of the increased representation of national data, the overall reliability has improved further. There were no data prior to 1995. In summary, recent national incidence data were available to calculate estimates for most countries, using the methods described earlier.

3.3 National rate and ratio calculations

For the 2008 incidence estimates both national rates and ratios were calculated for the year of data and projected forward to 2008 to calculate the number of abortions; in the past, only the rate was estimated. The rate reflects the incidence per 1000 women in the reproductive age of 15-44 years while the ratio depicts the incidence of unsafe abortion relative to 100 live births. When the number of women aged 15–44 years increases and birth rates decline, the unsafe rate will be higher, producing higher number of abortions and vice versa compared with the ratio. Globally, the numbers of women have increased more than births so the aggregated numbers using the rate will give slightly higher number of unsafe abortions than the ratio. However, the closeness of the two estimates reflect the consistency between the estimates and a good quality of the data, that is, the data are recent and

Table A1.3. National or subnational data availability to estimate unsafe abortion incidence by percentage distribution of abortions, births, and women, 2008

Availability of data (number of countries)	% of all women aged 15–44 years	% of all births	% of all unsafe abortions
National survey, hospital data or national estimate (102)	60	71	93
Subnational survey or hospital data (11)	3	3	5
No data available, so estimated from other country or regional average used (23)	1	2	2
No evidence of unsafe abortion (60)	36	24	0
Total (%)	100	100	100
Total number in thousands (196)	1 553 217	136 428	21 600

Table A1.4. Time period and availability of data to estimate unsafe abortion incidence by percentage distribution of abortions, births, and women, 2008

Time period and availability of data (number of countries)	% of all women aged 15–44 years	% of all births	% of all unsafe abortions
Data available for 2005 or later (52)	22	28	38
Data available for 2000–2004 (38)	36	42	56
Data available for 1995–1999 (19)	4	4	4
Data available for before 1995 (4)	0.2	0.3	0.4
No data available, so estimated from other country or regional average used (23)	1	2	2
No evidence of unsafe abortion (60)	36	24	0
Total (%)	100	100	100
Total number (thousands) (196)	1 553 217	136 428	21 600

require a minimum number of adjustments and assumptions. This way the two methods of estimation come to epitomise the upper and lower limits of the incidence and the average of the two is the optimal estimate of unsafe abortion incidence from currently available data.

4. Estimating unsafe abortion mortality

Unsafe abortion is one of the five major direct causes of maternal death (the other four being haemorrhage, puerperal sepsis, obstructed labour and eclampsia) with the remainder composed of a wide range of indirect causes. The overall maternal mortality in a country therefore provides the "envelope" within which unsafe abortion mortality can be estimated. Framing unsafe abortion mortality within maternal mortality takes account of the prevailing misreporting and underreporting of maternal deaths, assuming that abortion deaths are equally undercounted. However, it can be argued that underreporting of unsafe abortion deaths can be higher than for any other cause given the social and legal consequences. For example, an unsafe abortion-related death may not have been recognized as a maternal death as the woman may not have volunteered the information on having had attempted an abortion because of the social and cultural beliefs attached to induced abortion.

Unsafe abortion-related mortality for each country is calculated as a percentage of the estimated number of maternal deaths in 2008[45] due to unsafe abortion by country, which is then aggregated to regional and global numbers, percentages and ratios.

4.1 Sources of data, methods and assumptions for estimating unsafe abortion mortality

Distribution of causes of maternal deaths is officially reported to WHO by some countries, mainly developed countries and countries from Latin America. Not all countries have a satisfactory death-reporting and cause of death attribution. When reliable national data are not available from national health statistics, unsafe abortion mortality must be estimated from hospital or subnational data.

Only a few studies are available that permit comparing the proportion of abortion related maternal deaths in rural vs. urban areas and under hospital vs. non-hospital conditions. In urban areas with reasonably good access to hospital care, practically all or a majority of maternal deaths take place in hospitals.[46,47] In rural areas the situation is not as clear-cut; in one study one quarter of maternal deaths took place outside health institutions, not uncommonly while attempting to

reach health services.[46] While the percentage of maternal deaths due to unsafe abortion in urban hospitals provides a reasonable approximation of the proportion of all pregnancy-related deaths in urban areas, the percentage in rural areas is lower as other causes of death take a higher toll in an elevated maternal mortality context. It is estimated that in most countries of sub-Saharan Africa the corresponding proportion in rural areas is 70% of the urban value. This tallies as the abortion rate also is lower in rural than in urban areas. A national study from Honduras in 1989–1990, where only 45% of deliveries were in health facilities, indicates that two thirds of maternal deaths took place outside hospitals, while almost one half of deaths attributed to abortion did, indicating that the proportion abortion to maternal deaths was higher in hospitals than outside hospitals.[48] As in Africa a study from India shows a higher proportion of maternal deaths due to unsafe abortion in urban than in rural areas and could be twice the rural value.[49] A recent study from Bangladesh shows that only 1 in 4 maternal deaths takes place in hospitals and the proportion abortion to all maternal deaths is only 70% of the non-hospital value.[50] This could be representative of countries where hospital deliveries are low, as in Bangladesh, where only 8% of deliveries took place in health facilities at the turn of the century.[51]

Estimates of the percentage of maternal deaths due to unsafe abortion originate from three sources: national statistics, community studies and hospitals. Where available, information from community studies is used. However, for many countries, data are hospital-based; the accuracy of reporting of maternal deaths due to unsafe abortion will therefore depend on the tendency of women to seek hospital care when faced with complications. It is assumed that subnational data can be generalized to the national level; the percentage of non-hospital abortion deaths were estimated from hospital data, and the percentage of abortion deaths in rural areas were estimated from urban values, or vice versa. To arrive at a national estimate hospital and non-hospital or urban and rural estimates were weighted according to hospitalization rates of deliveries or the percentage urban population, as appropriate.

It is further assumed that abortion-related mortality occurs mainly or exclusively as a result of unsafe abortion, since spontaneous abortion only rarely cause a death. However, although deaths are rare, for countries where unsafe abortions take place next to a large number of official abortions, mortality data were first adjusted to account for estimated mortality due to legal procedures.

For countries for which no data on abortion deaths were available, it was assumed that the proportion of maternal deaths related to abortion was similar to that for the geographical region or to that of another country with comparable abortion laws, cultural setting and indicators, such as fertility rate, maternity care and percentage urban population.

4.1.1 National reports

National reported statistics on abortion deaths have been used without adjustment for countries which have completeness and coverage above 90% according to WHO definition; those with 80% reporting were applied a 10% upward adjustment. For countries with lower reporting standards a 20% upward adjustment was applied.

4.1.2 Community studies and reproductive age mortality studies

Community studies, reproductive age mortality studies (RAMOS) and confidential enquiries have been assumed to provide the best estimates when done at the national level or covering both rural and urban areas, and have been used without any adjustments.

A few subnational studies were available. Relying on the studies described above, it was typically assumed that mortality in rural areas is 0.7 of that found in urban areas or similar for institutional versus non-institutional data.[d]

4.1.3 Hospital data

Where national hospital data were available, they were applied without adjustment. If data were available from a number of hospitals, they were weighted by maternal deaths to arrive at a national estimate.

Where only urban data were available, extending the above reasoning, it was assumed that the abortion-related maternal mortality in urban areas was the same as in urban hospitals, while in rural areas it was 0.7 of that seen in the urban hospitals.[e]

4.1.4 Countries with no data

Thirty-six countries, accounting for 14% of all maternal deaths, for which no information was available, were assumed to have the same percentage of abortion-related maternal mortality as other countries in the region or as other countries with similar abortion laws, TFR, unsafe abortion incidence, and percentage hospital deliveries.

4.2 Availability of mortality data

Table A1.5 shows the availability of data for estimating unsafe abortion deaths. Mortality data were available for 100 countries with evidence of unsafe abortion, for 83% of maternal deaths and of

Table A1.5. Availability of data for estimating mortality due to unsafe abortion, 2008

Availability of data (number of countries)	% of maternal deaths	% of deaths due to unsafe abortion	% of all births	% of all women aged 15–44 years
Data available (100)	83	84	71	61
No data available: estimate based on regional average (36)	14	16	6	4
No evidence of unsafe abortion deaths (60)	3	0	23	36
Total (%)	100	100	100	100

[d] For example, estimating the national proportion from an urban value:

$(M_u \cdot U) + (0.7 \cdot M_u \cdot R)$

where

M_u is the proportion abortion to maternal in urban areas;
0.7 is the assumed proportion of rural to urban abortion mortality;
U is the percentage of the population living in urban areas;
R is the percentage of the population living in rural areas.

[e] The calculation applied in the case of urban hospital data was then:

$(H_u \cdot U) + (0.7 \cdot H_u \cdot R)$

where

H_u is the proportion abortion to maternal;
0.7 is the assumed proportion of rural mortality to urban hospital mortality;
U is the percentage of the population living in urban areas;
R is the percentage of the population living in rural areas.

unsafe abortion deaths, 71% of global births, and 61% of women aged 15–44 years. A further 36 countries (including a few small countries for which no maternal mortality is assessed), accounting for 6% of births and 4% of women, had no data on unsafe abortion mortality, and were assigned the regional average unsafe abortion-related percentage of maternal deaths. These countries accounted for another 14% of maternal deaths and 16% of deaths due to unsafe abortion. Among the countries for which information was available, several allow abortion on broad grounds; nevertheless, unsafe abortions still occur outside the legal framework, because of the high cost of legal abortion and social reasons. For those countries, we estimated the number of deaths due to legal abortion, and subtracted this from the total reported number of abortion deaths. Globally, only 3% of all maternal deaths occur in countries where there is no evidence of unsafe abortion deaths; this corresponds to 23% of births and 36% of women aged 15–44 years. Countries with both legal and unsafe abortions contribute only small numbers of deaths from unsafe abortion, except India, where large numbers of unsafe abortions reportedly take place.

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Annex 2. Countries and territories[a] grouped according to the United Nations Population Division classification of regions

A2.1 Country listing by level of development

Developed regions[b]

Northern America, Europe, Japan, Australia and New Zealand.

Developing regions[b]

Africa, Americas, excluding Canada and United States of America. Asia excluding Japan, and Oceania excluding Australia and New Zealand.

Least developed countries

Africa

Angola, Benin, Burkina Faso, Burundi, Cape Verde, Central African Republic, Chad, Comoros, Democratic Republic of the Congo, Djibouti, Equatorial Guinea, Eritrea, Ethiopia, Gambia, Guinea, Guinea-Bissau, Lesotho, Liberia, Madagascar, Malawi, Mali, Mauritania, Mozambique, Niger, Rwanda, Sao Tome and Principe, Senegal, Sierra Leone, Somalia, Sudan, Togo, Uganda, United Republic of Tanzania, Zambia.

Asia

Afghanistan, Bangladesh, Bhutan, Cambodia, Lao People's Democratic Republic, Maldives, Myanmar, Nepal, Timor-Leste, Yemen.

Caribbean

Haiti.

Oceania

Samoa, Solomon Islands, Vanuatu.

[a] With more than 100 000 inhabitants.
[b] There is no established convention for the designation of "developed" and "developing" countries or areas in the United Nations system. In this report, the regions have been classified as listed above.

A2.2 Country listing by geographical region

Africa

Eastern Africa

Burundi, Comoros, Djibouti, Eritrea, Ethiopia, Kenya, Madagascar, Malawi, Mauritius, Mayotte, Mozambique, Réunion, Rwanda, Somalia, Uganda, United Republic of Tanzania, Zambia, Zimbabwe.

Middle Africa

Angola, Cameroon, Central African Republic, Chad, Congo, Democratic Republic of the Congo, Equatorial Guinea, Gabon, Sao Tome and Principe.

Northern Africa

Algeria, Egypt, Libyan Arab Jamahiriya, Morocco, Sudan, Tunisia, Western Sahara.

Southern Africa

Botswana, Lesotho, Namibia, South Africa, Swaziland.

Western Africa

Benin, Burkina Faso, Cape Verde, Côte d'Ivoire, Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Mauritania, Niger, Nigeria, Senegal, Sierra Leone, Togo.

Asia

Eastern Asia

China, China, Hong Kong Special Administrative Region, China, Macao Special Administrative Region, Democratic People's Republic of Korea, Japan, Mongolia, Republic of Korea.

South-central Asia

Afghanistan, Bangladesh, Bhutan, India, Iran (Islamic Republic of), Kazakhstan, Kyrgyzstan, Maldives, Nepal, Pakistan, Sri Lanka, Tajikistan, Turkmenistan, Uzbekistan.

South-Eastern Asia

Brunei Darussalam, Cambodia, Indonesia, Lao People's Democratic Republic, Malaysia, Myanmar, Philippines, Singapore, Thailand, Timor-Leste, Viet Nam.

Western Asia

Armenia, Azerbaijan, Bahrain, Cyprus, Georgia, Iraq, Israel, Jordan, Kuwait, Lebanon, Occupied Palestinian Territory, Oman, Qatar, Saudi Arabia, Syrian Arab Republic, Turkey, United Arab Emirates, Yemen.

Europe

Eastern Europe

Belarus, Bulgaria, Czech Republic, Hungary, Poland, Republic of Moldova, Romania, Russian Federation, Slovakia, Ukraine.

Northern Europe

Channel Islands, Denmark, Estonia, Finland, Iceland, Ireland, Latvia, Lithuania, Norway, Sweden, United Kingdom.

Southern Europe

Albania, Bosnia and Herzegovina, Croatia, Greece, Italy, Malta, Montenegro, Portugal, Serbia, Slovenia, Spain, TFYR Macedonia.

Western Europe

Austria, Belgium, France, Germany, Luxembourg, Netherlands, Switzerland.

Latin America and the Caribbean

Caribbean

Aruba, Bahamas, Barbados, Cuba, Dominica, Dominican Republic, Grenada, Guadeloupe, Haiti, Jamaica, Martinique, Netherlands Antilles, Puerto Rico, Saint Lucia, Saint Vincent and the Grenadines, Trinidad and Tobago, United States Virgin Islands.

Central America

Belize, Costa Rica, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Panama.

South America

Argentina, Bolivia (Plurinational State of), Brazil, Chile, Colombia, Ecuador, French Guiana, Guyana, Paraguay, Peru, Suriname, Uruguay, Venezuela (Bolivarian Republic of).

Northern America

Canada, United States of America.

Oceania

Australia and New Zealand

Australia, New Zealand.

Melanesia

Fiji, New Caledonia, Papua New Guinea, Solomon Islands, Vanuatu.

Micronesia

Guam, Micronesia (Federated States of).

Polynesia

French Polynesia, Samoa, Tonga.

Annex 3 Estimates of the incidence of unsafe abortion and associated mortality, by WHO Regions, 2008

Table A3.1 Estimates of the incidence of unsafe abortion by WHO Regions and by income level, 2008

	Number of unsafe abortions (rounded)[a]	Unsafe abortion rate per 1000 women 15–44	Unsafe abortion ratio per 100 live births
All Member States	21 500 000	14	16
Low income	12 270 000	21	17
Lower middle income	6 770 000	11	16
Upper middle income	2 380 000	17	25
High income	110 000	1	1
African Region	5 370 000	30	18
Low income	4 970 000	33	18
Lower middle income	250 000	18	16
Upper middle income	150 000	11	12
South-East Asia Region	7 420 000	18	19
Low income	5 260 000	16	16
Lower middle income	2 150 000	28	39
Region of the Americas	4 230 000	20	27
Low income	60 000	16	15
Lower middle income	2 430 000	29	37
Upper middle income	1 730 000	35	45
High income	500	[b]	[b]
European Region	500 000	3	5
Low income	45 000	4	5
Lower middle income	150 000	5	8
Upper middle income	300 000	5	8
High income	[b]	[b]	[b]
Eastern Mediterranean Region	3 240 000	24	20
Low income	1 800 000	29	20
Lower middle income	1 260 000	20	21
Upper middle income	75 000	23	27
High income	110 000	15	15
Western Pacific Region	790 000	2	3
Low income	130 000	4	6
Lower middle income	530 000	2	3
Upper middle income	130 000	20	23
High income	1000	[b]	[b]

[a] Figures may not add up to totals because of rounding.

[b] No estimates are shown for regions where the incidence of unsafe abortion is negligible.

Table A3.2 Estimates of mortality due to unsafe abortion by WHO Regions and by income level, 2008

	Number maternal deaths due to unsafe abortion (rounded)[a]	Mortality due to unsafe abortion per 100 000 live births (rounded)	Unsafe abortion as a % of MMR
All Member States	47 000	30	13
Low income	43 000	60	14
Lower middle income	2700	6	8
Upper middle income	900	10	10
High income	100	1	8
African Region	26 500	90	14
Low income	25 600	90	14
Lower middle income	400	30	7
Upper middle income	400	40	9
South-East Asia Region	11 700	30	31
Low income	10 400	30	32
Lower middle income	1200	20	22
Region of the Americas	1100	7	10
Low income	100	30	11
Lower middle income	600	10	11
Upper middle income	400	10	12
High income	[b]	[b]	[b]
European Region	150	1	6
Low income	10	2	3
Lower middle income	50	3	9
Upper middle income	90	3	8
High income	[b]	[b]	[b]
Eastern Mediterranean Region	6900	40	14
Low income	6700	70	14
Lower middle income	200	4	5
Upper middle income	30	10	22
High income	10	2	8
Western Pacific Region	680	3	3
Low income	320	10	14
Lower middle income	220	1	1
Upper middle income	20	4	4
High income	130	7	7

[a] Figures may not add up to totals because of rounding.

[b] No estimates are shown for regions where the incidence of unsafe abortion is negligible.

Annex 4 WHO Regions and Member States

African Region

Algeria, Angola, Benin, Botswana, Burkina Faso, Burundi, Cameroon, Cape Verde, Central African Republic, Chad, Comoros, Congo, Côte d'Ivoire, Democratic Republic of the Congo, Equatorial Guinea, Eritrea, Ethiopia, Gabon, Gambia, Ghana, Guinea, Guinea-Bissau, Kenya, Lesotho, Liberia, Madagascar, Malawi, Mali, Mauritania, Mauritius, Mozambique, Namibia, Niger, Nigeria, Rwanda, Sao Tomé and Principe, Senegal, Seychelles, Sierra Leone, South Africa, Swaziland, Togo, Uganda, United Republic of Tanzania, Zambia, Zimbabwe.

Region of the Americas

Antigua and Barbuda, Argentina, Bahamas, Barbados, Belize, Bolivia (Plurinational State of), Brazil, Canada, Chile, Colombia, Costa Rica, Cuba, Dominica, Dominican Republic, Ecuador, El Salvador, Grenada, Guatemala, Guyana, Haiti, Honduras, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Peru, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, Suriname, Trinidad and Tobago, United States of America, Uruguay, Venezuela (Bolivarian Republic of).

South-East Asia Region

Bangladesh, Bhutan, Democratic People's Republic of Korea, Democratic Republic of Timor-Leste, India, Indonesia, Maldives, Myanmar, Nepal, Sri Lanka, Thailand.

European Region

Albania, Andorra, Armenia, Austria, Azerbaijan, Belarus, Belgium, Bosnia and Herzegovina, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Georgia, Germany, Greece, Hungary, Iceland, Ireland, Israel, Italy, Kazakhstan, Kyrgyzstan, Latvia, Lithuania, Luxembourg, Malta, Monaco, Netherlands, Norway, Poland, Portugal, Republic of Moldova, Republic of Montenegro, Republic of Serbia, Romania, Russian Federation, San Marino, Slovakia, Slovenia, Spain, Sweden, Switzerland, Tajikistan, The Former Yugoslavian Republic of Macedonia, Turkey, Turkmenistan, Ukraine, United Kingdom of Great Britain and Northern Ireland, Uzbekistan.

Eastern Mediterranean Region

Afghanistan, Bahrain, Djibouti, Egypt, Iran (Islamic Republic of), Iraq, Jordan, Kuwait, Lebanon, Libyan Arab Jamahiriya, Morocco, Oman, Pakistan, Qatar, Saudi Arabia, Somalia, Sudan, Syrian Arab Republic, Tunisia, United Arab Emirates, Yemen.

Western Pacific Region

Australia, Brunei Darussalam, Cambodia, China, Cook Islands, Fiji, Japan, Kiribati, Lao People's Democratic Republic, Malaysia, Marshall Islands, Micronesia (Federated States of), Mongolia, Nauru, New Zealand, Niue, Palau, Papua New Guinea, Philippines, Republic of Korea, Samoa, Singapore, Solomon Islands, Tonga, Tuvalu, Vanuatu, Viet Nam.