Unsafe abortions and unwanted pregnancies contribute to maternal mortality in Zimbabwe

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Objective. To determine the contribution of unsafe abortion and unwanted pregnancy to maternal mortality in a rural and urban population. In addition, to investigate the background characteristics, risk factors and preventable factors associated with abortion deaths.

Design. Incident case-referent study of maternal mortality using a community networking system to report maternal deaths during 1989 and 1990. Questionnaire administered at village, primary and referral health care levels; all clinical case notes were studied.

Setting. A rural province, Masvingo, and an urban centre, Harare, in Zimbabwe.

Subjects and controls. The subjects were all maternal deaths. Controls were women who delivered before or after at the same site without mortality. There were 3 controls per subject, with 1 matched for age.

Outcome measures. 1. Abortion deaths as a percentage of all maternal deaths, and the abortion-specific maternal mortality rate (MMR). 2. Background characteristics, risk factors. 3. Preventable factors associated with abortion deaths.

Results. 1. Rural Masvingo — 16 (15%) of 105 maternal deaths due to unsafe abortion. Abortion-specific MMR and overall MMR were 25 and 168 per 100 000 live births respectively. Urban Harare — 14 (23%) of 61 maternal deaths due to unsafe abortion. Abortion-specific MMR and overall MMR were 18 and 85 per 100 000 live births respectively. Four deaths in Masvingo were suicides as a result of unwanted pregnancy. 2. No significant difference between subjects and referents in respect of age, parity, religion and education. Significant risk factors for abortion death included being single (Masvingo: OR 6.4; 95% CI

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2.3 - 17.7 and Harare: OR 12.6; 95% CI 3.8 - 42.5), being economically self-supporting (Masvingo: OR 5.7; 95% CI 1.6 - 19.9 and Harare: OR 27.0; 95% CI 8.0 - 90.8), and having had a previous abortion (Masvingo: OR 29.7; 95% CI 10.2 to 86.4 and Harare: OR 89.6; 95% CI 5.0 - 1951). 3. All abortion deaths were primarily due to sepsis. In Masvingo 12 (75%) and Harare 12 (86%) abortions were certainly illegal. Delay in seeking medical help for abortion complications occurred in 9 (56%) and 8 (57%) subjects in Masvingo and Harare respectively. Health service factors, including delays in appropriate management and inadequate medical and surgical treatment, contributed to the death of 6 Masvingo subjects (38%) and 8 Harare subjects (77%).

Conclusion. Unsafe abortions were a major cause of maternal mortality in both rural and urban settings, the majority having been illegally induced. Women at risk tended to be single and self-supporting. Unwanted pregnancy is a major problem in rural and urban settings.

Earlier presentation by women with abortion complications and earlier more intensive management by health service facilities could have prevented many deaths. The authors suggest that the availability of safe legal termination of pregnancy in the formal health sector would help to reduce abortion mortality.

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Maternal deaths remain disproportionately high in developing countries with deaths from preventable causes posing a major threat to the goal of 'Health for All by the year 2000'. On the other hand, accurate statistics on levels of maternal mortality and its causes are rare in sub-Saharan Africa because of logistical problems in the identification, notification and investigation of maternal deaths.[1] The restrictive laws concerning abortion or pregnancy termination, and the resultant secrecy surrounding them, mean that the incidence of induced abortions and their associated morbidity and mortality are even more problematic to quantify and describe.[2,3]

During 1989 and 1990 a community-based incident case-referent study was conducted in a rural and an urban area of Zimbabwe to improve estimation of the maternal mortality rate (MMR) as well as to investigate the causes, risk factors and preventable factors associated with maternal deaths in these two localities.[4] The aim of this paper is to highlight the contribution of induced abortion and unwanted pregnancy to overall maternal mortality. The background characteristics, risk factors and preventable factors associated with abortion-related maternal deaths are described.

Methodology

The methodology for data collection described refers to the protocol used for the main maternal mortality study. All cases of abortion-related death were drawn from this study and used for this report.

Study design

An incident case-referent study design was used to document maternal deaths among women resident in the Zimbabwean rural province of Masvingo and the urban greater Harare unit area. For each maternal death 3 referents were recruited from among women who had delivered at the same place and were resident in Masvingo or Harare respectively. This means that the referent was recruited from the same level of care, be it home, clinic or hospital. Women referred from Masvingo to Harare hospital because of complications of pregnancy and who died there were included in the Masvingo cases. Those referred to the greater Harare unit from other provinces, but not resident in Harare, were excluded. Of the 3 referent subjects, 2 were selected from preceding deliveries and the third one from a delivery that followed. One of the referents was also age-matched to within 5 years.

Study areas selection

Zimbabwe is classified as a developing country and has three types of area: *(i)* urban and semi-urban areas (32% of households); *(ii)* communal farming areas (50% of households); and *(iii)* commercial farming areas (18% of households). Communal and commercial farming areas make up the rural component of Zimbabwe. The whole country is divided into eight administrative areas (provinces).

One of the provinces, Masvingo, was selected for the study of a rural population, given its distance from the large urban cities of Harare and Bulawayo and the expressed interest of health personnel in the province to have the problem investigated. Masvingo province is made up of seven districts and has a total population of about 1.3 million. Maternity services for the province are provided mainly by the government, with a large input from the missions. At primary care level there are district, rural and mission hospitals, the majority of which have a doctor and trained midwives but which vary considerably in availability of facilities and transport. At tertiary level there is a provincial hospital which should have a post for a provincial specialist obstetrician, but this was only filled for 1 year of the study. More complicated cases are referred to the central hospitals in Harare. From information gathered at child health and immunisation clinics, the provincial medical director for Masvingo estimated that about 40% of deliveries occur outside the above institutions, and that traditional birth attendants are an important component of community maternity care.

Harare, the capital, with an estimated population of 1.5 million, was chosen as the urban population to be studied. For the majority of the population maternity care is provided by municipal maternity clinics which refer high-risk cases to Harare Maternity Hospital. This hospital receives high-risk referrals not only from urban Harare but also from neighbouring and sometimes distant provinces. It is estimated that fewer than 5% of deliveries occur outside health institutions. Over the last decade the private medical sector has increased its role in maternity care, with antenatal care by private obstetricians and deliveries booked at private maternity hospitals.

Identification of maternal deaths

A maternal death was defined according to the WHO definition as the death of a woman pregnant or within 42 days of termination of pregnancy, irrespective of the duration and site of pregnancy, from any cause related to or aggravated by the pregnancy or its management but not from accidental or incidental causes. In Masvingo province, cases were maternal deaths of women residing in Masvingo. It therefore included a few women from Masvingo who died elsewhere (e.g. at Harare Central Hospital after referral). In Harare, cases were maternal deaths of women residing in Harare and therefore excluded high-risk referrals from other provinces.

In Masvingo maternal deaths were identified by means of a multiple-source reporting system for all female deaths aged 12 - 49 years. This was instituted after meetings throughout the province to sensitise the community and health workers to the problem of maternal death. A network of informants of female deaths was established at community level and in health service structures. Informants included community workers, school teachers, police officers and community leaders as well as health workers. A small monetary incentive was paid to informants. After some initial hesitation there was a general enthusiasm and willingness on the part of the community to participate in the study.

In Harare, where health statistics reporting is much better developed, deaths of women aged 12 - 49 years were identified through the records departments of health institutions, both public and private. Home deaths were identified via the Municipal Health Service structures, and by use of mortuary records.

The obstetrician in the research team (S.F.) assessed the case histories of these deaths from both study areas to identify which ones were maternal and thus eligible for the study.

Data collection

Once a death was identified, the research team based in the area (Masvingo or Harare) followed up all reports and traced events prior to and up to the deaths by visiting the homes of the deceased women and all health sites (community and formal) that they went to. Interviews were conducted with relatives, traditional birth attendants (TBAs), clinic staff and hospital staff where relevant. Table I shows the interviewees at the 'home' level for all maternal deaths and abortion deaths where interviews could be conducted (97 in Masvingo and 50 in Harare). For the majority of referents, the interviewee was the woman herself. All case notes were also photocopied and analysed. Confidentiality was assured for all the respondents and no names were computerised.

The information obtained was recorded in a detailed questionnaire, which included information on socio-economic, reproductive, medical and health service factors.

Data analysis

The overall aim of the maternal mortality study was to estimate the MMR and to estimate the causes of, risks for and preventable factors associated with maternal deaths. During the 2-year study period 97 maternal deaths were identified in Masvingo province and 50 in Harare, for which referents were selected. After the incident case-referent study had been closed, 12 further cases that had occurred during the study period were reported from Masvingo and 16 from Harare. (The majority of the 16 cases from Harare were not reported late, but the patients had been treated at private hospitals where we could not get immediate access to case files.) In total, 109 and 66 maternal deaths respectively were identified and taken into account when estimating the MMR. Many of the maternal deaths therefore not included in the case-referent study were abortion deaths (3 out of 12 in Masvingo and 5 out of 16 in Harare). They were all included in the descriptive analysis of abortion deaths, but those for whom the whole study protocol could not be completed and for whom no referents were selected could not be included in the comparative analysis of abortion deaths.

Table I. Interviewees at home level who provided information on abortion-related and all maternal deaths in Masvingo province and greater Harare unit

	Abortion deaths		All maternal deaths	
Interviewee	Masvingo	Harare	Masvingo	Harare
Husband	3	1	21	18
Mother	1	1	19	3
Father	0	0	5	0
Brother	2	0	2	0
Sister	1	5	5	6
Sister-in-law	1	1	6	0
Grandmother	0	0	1	0
Mother-in-law	0	0	14	5
Aunt	2	0	4	2
Other	5	2	20	11
No home interviews	1	4	8	16
Total	16	14	105	61

When analysing a case-referent study the cases are compared with matched referents; thus when a subgroup of cases is examined, theoretically only their matched referents should be used. However, as the subgroup of fully investigated abortion cases was so small (13 cases in Masvingo and 9 in Harare) we preferred to use the whole referent population, lest the confidence intervals for the odds ratio (OR) be too wide. Another argument for this is that in practice it would have been almost impossible to perform an incident case-referent study of abortion deaths with a sufficiently high power. For these reasons, the abortion deaths have been compared with the total referent population, i.e. all 3 referents for the 97 maternal deaths in Masvingo and 50 maternal deaths in Harare.

The MMRs were calculated from cumulative maternal deaths over 2 years with total live births serving as a denominator expressed per 100 000 births. Information on live births during the study period was gathered from all health facilities performing deliveries. The number of live births occurring at home was compiled from TBA and village health worker records, baby/immunisation clinics and birth registration data. The data were analysed using the statistical software Quest.[5] ORs and 95% confidence intervals (CI) were calculated according to Miettinen.[6,7] The data collected for each case were analysed by the obstetrician researcher who assigned a major cause of death with associated factors and identified the preventable factors operating at all levels.

Results

The study was conducted over a 2-year period in 1989 and 1990. In all, 109 and 66 maternal deaths were identified in Masvingo province and Harare, respectively. However, detailed analysis could only be undertaken on 105 and 61 cases, since the rest were reported late after the event. In Masvingo 16 (15%) out of the 105 maternal deaths investigated were due to abortal sepsis, making this the second major cause after haemorrhage. In Harare 14 (23%) out of the 61 maternal deaths were due to abortal sepsis and associated complications, making it the second major cause after eclampsia.

The overall MMR and abortion-specific MMR were 168 and 25 per 100 000 live births from Masvingo, respectively, and 85 and 18 per 100 000 live births for Harare, respectively.

Table II shows the places where the women died. In Harare all the deaths occurred at the central referral hospitals. In Masvingo, 9 of the deaths occurred at rural hospitals and 2 occurred before the patients reached any health facility. Table II also shows the age and parity distribution of the women who died as a consequence of abortion.

Table II. Place of death, age at death and parity for the abortion deaths in Masvingo province and greater Harare unit

Characteristic	Masvingo	Harare
Place of death		
Home	0	0
On way to clinic or hospital	2	0
Clinic	1	0
Rural hospital	9	–
Provincial hospital	2	–
Central hospitals in Harare	2	14
Age at death		
15 - 19	4	2
20 - 35	5	9
> 35	7	1
Unknown	0	2
Parity		
0	4	3
1 - 4	6	8
5 -	6	2
Unknown	0	1
Total	16	14

In all the abortion cases the major cause of death was sepsis associated with the abortion. Documented associated clinical factors are shown in Table III.

Table III. Clinical factors associated with abortal sepsis deaths in Masvingo province and greater Harare unit

Associated clinical condition	Masvingo	Harare
Haemorrhage	3	0
Renal failure	2	5
Disseminated intravascular coagulation	2	1
Suspected clinical AIDS	2	3
Perforated uterus	1	0
Diabetic keto-acidosis	1	0
Tuberculosis	0	1
Jaundice	0	2

The women who died after an abortion in both Masvingo and Harare were significantly more likely to have had a past history of previous abortion when compared with women of the referent population (Table IV). Given prevailing socio-economic factors, the majority of patients in both Masvingo and Harare were single and not in a stable marital relationship. This differed significantly from the referent population (Table IV). This table also demonstrates that patients in both areas were more likely themselves to be the head of the household or to live with a mother who was head of the household, than the referent population where a husband was more likely to be the head of the household. No significant differences were demonstrated between patients and the referent population in respect of education, employment or religion.

In cases of abortion deaths, it was difficult to get reliable information from interviewees about the 'wantedness' of the pregnancy, previous or current family planning usage or whether the abortion had been induced. Many of the women had not revealed the pregnancy to anyone and had acted in isolation (Table V). Also, relatives were often not keen to divulge such information, given the possible criminal consequences. Previous or recent contraceptive use by the deceased women was not usually known by the interviewees, and was not well documented in case notes.

Because of limited information in respect of the above, the analysis of reported attitude to pregnancy and associated behaviour has been performed assuming that in uncertain cases the woman both was and was not known to have wanted the pregnancy, kept it secret and used active means for abortion. As is shown in Table V, both approaches give the same trend. Pregnancy was not reported as unwanted significantly more often in the case of the abortion deaths, but pregnancy was significantly more often concealed and abortifacients likely to have been used.

When an overall assessment was made of the information in Table V, together with indicators from the medical case histories suggesting induced abortion (e.g. septic shock, foreign material in the vagina, trauma to the genital tract), it was estimated that 10 out of the 16 abortion deaths in Masvingo and 12 out of the 14 in Harare were certainly induced and 3 in Masvingo probably induced. In 1 patient in Masvingo who was a diabetic woman with a previous history of recurrent abortion, and in 2 patients in Harare with clinical AIDS, the pregnancies were definitely wanted and the abortions likely to have been spontaneous.

The descriptive analysis of each death identified many operational factors which contributed to the deaths of these women from abortal sepsis, and which were potentially preventable (Table VI).

The majority of the women with abortion deaths in Masvingo and Harare presented at a health facility with advanced sepsis. This delay was mostly due to a delay in the decision to seek care, and in one case in rural Masvingo was due to a transport problem; this woman eventually had to be taken to the nearest clinic in a scotch cart over 14 km of rough rocky ground, the journey taking 7 hours. Five women in Masvingo concealed information on recent pregnancy on arrival at a health facility, thus delaying the correct diagnosis.

With regard to health facilities, in Masvingo, delay in referral by clinic to hospital was often due to lack of available transport, and in some cases no preliminary

Table IV. Socio-economic and obstetric characteristics in the group of abortion deaths (ADs) and in the referent population (RP) for Masvingo province and greater Harare unit

Characteristic		Masvingo				Harare			
		AD	RP	OR	95% CI	AD	RP	OR	95% CI
Age at death	⩽ 34	10	238	1		8	120	1	
	⩾ 35	3	51	1.4	0.37 - 5.3	1	27	0.30	0.07 - 4.5
	⩾ 20	9	247	1		8	138	1	
	⩽ 19	4	42	2.6	0.8 - 8.5	1	9	0.35	0.22 - 16.6
Marital status	Married; only wife	1	50	1		0	8	1	
	Not married	12	238	2.5	0.34 - 18.6	9	137	1.2	0.06 - 21.8
	Married/cohabiting	7	245	1		3	120	1	
	Not married	6	33	6.4	2.3 - 17.7	6	19	12.6	3.8 - 42.5
Head of household	Husband	2	47	1		0	12	1	
	Not husband	11	244	1.1	0.23 - 5.0	9	135	1.8	0.10 - 31.9
	Other	10	264	1		5	135	1	
	Self	3	14	5.7	1.6 - 19.9	4	4	27.0	8.0 - 90.8
Parity	⩽ 4	9	221	1		7	137	1	
	⩾ 5	4	67	1.5	0.44 - 4.9	2	10	3.9	0.8 - 19.2
	⩾ 1	9	199	1		7	97	1	
	0	4	89	0.99	0.30 - 3.3	2	50	0.55	0.11 - 2.7
No. of previous abortions	0	2	232	1		0	115	1	
	⩾ 1	11	43	29.7	10.2 - 86.4	9	24	89.6	5.0 - 1 591
Total		13	291			9	150		

Table V. Attitude characteristics in the group of abortion deaths (ADs) and in the referent population (RP) for Masvingo province and greater Harare unit

Characteristic		Masvingo				Harare			
		AD	RP	OR	95% CI	AD	RP	OR	95% CI
Attitude to pregnancy?	Wanted	5	164	1		3	79	1	
	Unwanted/don't know	8	114	2.3	0.75 - 7.0	6	60	2.6	0.66 - 10.5
	Wanted/don't know	9	187	1		4	87	1	
	Unwanted	4	91	0.91	0.27 - 3.1	5	52	2.1	0.55 - 8.0
Early pregnancy revealed?	Yes	6	249	1		4	123	1	
	No/don't know	7	29	10.0	3.8 - 26.5	5	16	9.6	2.9 - 32.3
	Yes/don't know	8	265	1		5	132	1	
	No	5	13	12.7	4.6 - 35.0	4	7	15.1	4.5 - 51.2
Abortifacient use?	Not used	6	253	1		2	121	1	
	Used/don't know	7	22	13.4	5.2 - 34.7	7	18	23.5	6.8 - 80.9
	Not used/don't know	12	273	1		6	138	1	
	Used	1	2	11.4	1.6 - 82.0	3	1	69.0	16.6 - 286
Total		13	291			9	150		

treatment measures were initiated by the rural clinic while the patient was awaiting referral. At rural hospital level, there was sometimes failure and/or delay to refer women with severe sepsis who were not responding to antibiotics to a more specialised level of care. Treatment at this level was often suboptimal, with omission of necessary evacuation of the uterus, inadequate antibiotic therapy and delay in consideration of laparotomy. Lack of appropriately skilled personnel and non-availability of drugs and blood were reasons volunteered by rural hospital staff for the suboptimal care. The provincial hospital in the rural area demonstrated similar problems of suboptimal care. Although a specialist gynaecologist was meant to be located at this hospital, the post was vacant for 1½ years of the study period.

In the central hospitals in Harare, a few patients from Masvingo and all the Harare patients died. The few patients referred to Harare from Masvingo usually arrived 'in extremis', whereas, for the Harare patients, preventable factors could be identified in their care. There was often a failure to identify and appreciate the severity of the sepsis, with consequent delays in intensive resuscitation, antibiotic therapy and appropriate surgery. This problem may have been partly due to the extreme overload of the acute gynaecology unit that dealt with incomplete abortions. Among the average 15 incomplete abortions, 1 ectopic pregnancy and 7 patients with pelvic inflammatory disease admitted over a 24-hour period, the patient with septic shock may sometimes be overlooked.

Mortality from septic abortion was not the only fatal consequence of unwanted pregnancy. According to interviewees, 4 women in Masvingo committed suicide as a result of unwanted pregnancy. One burnt herself by lighting paraffin-soaked cloths wrapped around her, and 3 took 'poison'. All these women were less than 25 years old; 1 was married, 1 was recently divorced and 2 were single. Detailed psychological information about these women was

Table VI. Classification of preventable factors contributing towards abortion deaths in Masvingo province (MP) and greater Harare unit (GHU)

Type of preventable factor	No. of cases in which the preventable factor occurred* MP (*N* = 16)	GHU (*N* = 14)
Patient factor		
Delay in presentation due to delay in decision to seek care	9	8
Delay in presentation due to transport problem	1	0
Default on advised treatment	0	1
Concealed information	5	0
Health service factors†		
Clinic		
Delayed referral (problem of judgement)	0	1
Delay in referral (problem of transport)	4	0
Suboptimal care before referral	3	0
Rural hospital		
Failure to refer or delay in referral (problem of judgement)	5	N/A
Delayed referral (problem of transport)	1	N/A
Suboptimal care	5	N/A
Provincial hospital		
Suboptimal treatment	5	N/A
Central hospitals in Harare		
Failure to appreciate severity of condition	0	6
Delays in appropriate treatment	0	4
Suboptimal treatment	0	8

* There were often several preventable factors in one case.
† Not every one accessed every level of the health care system.

difficult to obtain from relatives. However, in 2 cases the suicides were apparently the result of being deserted by their partners for other women, while they were pregnant. One 18-year-old patient was away from her family working in town when she became pregnant by her employer, who took no responsibility. She was so ashamed, and afraid of how her family would react to her unwanted pregnancy, that she committed suicide.

Discussion

This paper demonstrates the significant contribution that abortion sepsis mortality makes to overall maternal mortality both in the rural and the urban areas of Zimbabwe, and suggests that the great majority of the abortions that resulted in death were unsafe, illegally induced procedures. Unsafe abortion has been shown to be one of the most important causes of maternal mortality in many developing countries.[8-12]

Strategies to reduce this unnecessary mortality must focus on primary prevention, notably the prevention of unwanted pregnancy. Unwanted pregnancy was the reason for both the abortion and suicide deaths described in this study, but was also a common feature among the referent population, illustrating a large unmet need for contraception. More appropriately targeted family planning programmes are necessary. The finding of a high number of abortion deaths in the 35 - 39-year age group in Masvingo women suggests that this group needs to be the focus of better contraceptive coverage. Family planning programmes often tend to be directed at married women, but our study findings that being single is a major risk factor for abortion death suggest that such programmes need to be made more accessible to this group of women as well. Also, the significant number of women who died after an abortion and who had had a previous abortion illustrates the need to provide an effective post-abortion counselling service so that those with unwanted pregnancies can be given adequate contraception at the time of their first abortion.

Given the limitations of the information provided by interviewees about the deceased women in this study, it was not possible to determine the precise reasons why the pregnancies were unwanted. However, the study finding that a single woman who was also head of the household, i.e. the sole breadwinner, was at risk for abortion death, points to possible economic reasons, particularly for the older women. It should also be noted that 50% of women who died after abortion had had at least 3 children before. Some of the case histories of younger women reveal that unintended pregnancies in the absence of a stable relationship and anticipated disapproval from family, school, society, etc. were probable reasons for abortion and suicide. This points to the need for accessible 'drop-in' counselling services for pregnancy advice where women feel they can openly, without disapproval, discuss their attitudes to the current unintended pregnancy, so that they can obtain some social support in a situation in which they feel so isolated. It should be noted that attempts to induce abortion were reported in a number of pregnancies that continued. Such attempts will mean an increased risk of pregnancy complications and perinatal morbidity.

In addition to primary prevention strategies, secondary prevention measures are necessary to focus on: (*i*) improving the safety of abortion; and (*ii*) treating abortion complications earlier and more effectively.

1. In the event of absent contraception, resulting in unwanted pregnancy, women resort to illegal and unsafe abortion. Given the identified risks of illegal termination, laws could be amended to allow termination in the formal health care system. The safety of abortions can only be improved in a context where early termination of pregnancy is legally permitted and can thus be performed by skilled personnel in a clinical setting. This would entail a review of the restrictive abortion laws operating in Zimbabwe, which at present only permit legal abortion where there is a major risk to the woman's life, risk of major fetal abnormality, or in cases of proven rape or incest. Equally important would be the need to provide easy access for the majority of women to a safe abortion service. Anecdotal observations suggest that in many countries with restrictive abortion laws, the more affluent educated women are able to circumvent the restrictions, whereas the majority of women from lower socio-economic backgrounds have to resort to life-threatening unsafe procedures.[13] Providing easy access to safe early abortions for the majority of the female population has been shown to reduce abortion-related mortality in other countries.[14,15] Clandestine abortion not only increases the risk of complications, but also means that complications are not adequately treated when they occur.

2. In our study, fear of the criminal consequences and

social disapproval associated with restrictive laws were probably the reasons why many women delayed presenting with abortion complications and concealed necessary information from health workers. The woman's condition on arrival at the health facility was therefore often too advanced for successful treatment.

In addition to these delays, health service management was often substandard in the treatment of abortion complications. In general the aphorism 'too little, too late' applied in the treatment of these abortion cases at all levels, with problems of poor medical judgement, lack of supervision by senior staff and work overload. However, in the rural areas, these problems were compounded by scarcity of trained personnel, lack of essential drugs and equipment, lack of phones and lack of readily available transport to refer patients. There is a need to develop practical guidelines and provide the necessary supplies and equipment for health workers at clinics, rural hospitals and central hospitals. Such guidelines should detail management at each level of care and when referral must occur. In-service education of health workers must stress the potential severity of postabortal sepsis and the need to act quickly and appropriately in such cases. Such guidelines for improved management of abortion complications, together with development of effective postabortion contraception counselling, form the basis of a recent World Health Organisation technical report on unsafe abortion.[16]

In conclusion, our study, in describing the tragedy of abortion-related maternal deaths in Zimbabwe, challenges politicians, legislators and women's advocates as well as health services to reduce these unnecessary deaths.

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