



# Quality of maternal mortality statistics in Cuba, 2013\*

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## ABSTRACT

**Objective.** Evaluate the degree of integrity of the Cuban statistical registry of maternal deaths and the quality of classification of causes of death included in that registry.

**Methods.** We analyzed the information about all Cuban women of reproductive age who died in 2013 according to the continuous mortality registry of the Medical Records and Health Statistics Bureau of the Cuban Ministry of Public Health (MINSAP), regardless of the underlying cause of death stated. Four research groups (national, expert, provincial, and health units), each with defined functions, applied four forms to establish if the women had been pregnant in the year prior to death, to reassess whether the cases corresponded to a maternal death and, in that case, to review the classification.

**Results.** Deaths of 2 731 women of reproductive age notified in Cuba in 2013 were assessed. Of these, the cause of death of 2 711 (99.3%) was conclusive and, of these, 97 (3.6%) had had a pregnancy in the year prior to death. We found 50 maternal deaths (one more than in the continuous registry) for a 2% error and an adjustment factor of 1.02. Of the 97 deaths studied, only 4 cases were reclassified: 2 maternal deaths and 1 death related to pregnancy, childbirth and the puerperium, according to the continuous registry, which were reclassified as direct deaths; and 1 death considered non-maternal by the continuous registry that was reclassified as late maternal death, for a 95.9% concordance.

**Conclusions.** The information on maternal deaths included in the MINSAP's continuous mortality registry has a high level of integrity. The quality of the classification of maternal deaths in this registry is high; reclassification of causes of death is uncommon.

## Keywords

Maternal mortality; epidemiological surveillance; quality control; death certificates; Cuba.

\* Non-official English translation from the original Spanish manuscript. In case of discrepancy, the original version (Spanish) shall prevail.

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The death of a woman during pregnancy, childbirth or the postpartum period is considered a manifestation of failure in sexual and reproductive health care. Lack of awareness and high

rates of maternal death in many low-resource countries are a testament to neglect of this health priority (1–5).

The maternal mortality ratio is a reliable indicator of inequity, the socioeconomic

inequality of women, and their poor access to health services (1, 6–9). Although reducing this ratio has been one of the main objectives of international conferences (2, 10), its measurement is complex, making it difficult to compare data obtained by different sources, and methodological aspects related to its definition and the selection of variables that influence its behavior are still being debated (10–13).

One reason the true level of maternal mortality is unknown is underestimation from underreporting, which varies depending on the country: in countries designated as developed, underreporting of causes or deficiencies in classification occur when the reported cause of death does not reveal the true link between the pregnancy and the maternal death, while in developing countries a lack of efficient measurement systems also has an influence, hindering notification and limiting opportunities for international comparisons (11–15).

The World Health Organization (WHO), United Nations Children's Fund (UNICEF), United Nations Population Fund, and the World Bank, in alliance with academic sectors and through the Maternal Mortality Estimation Inter-agency Group (MMEIG), have developed statistical models to estimate the indicator using adjustment methods (16, 17). In 2013, MMEIG classified Cuba among countries with good information, but without documented investigations of deaths of women of reproductive age. Therefore, they corrected the original data by an adjustment factor of 1.5—the mean of results of studies done by other countries (17, 18)—which is still used at present. However, in the case of Cuba, this increases the value of this indicator beyond a reasonable amount.

Analyzing maternal deaths enables identifying causes of death, provides evidence of the quality of monitoring, and facilitates evaluation of compliance by health care programs for women. Registry integrity and adequate classification of causes of death are very important elements and their study should be adapted to concrete conditions in each country (19).

The characteristics of Cuba's National Health System—as a single system with free, universal coverage (20)—facilitate information capture at all levels of the system by trained personnel, and the flow of information through the health

statistics structure through a mixed registry that combines manual and automated processing.

Death certificates travel in parallel through the health sector, the National Statistics Bureau, and the Vital Statistics Registry, and compatibility of these data are periodically checked. All burials are in public cemeteries, and the death certificate, always prepared and signed by a physician, must be presented (21, 22).

Studies of the quality of mortality statistics are frequently carried out (23, 24). In the case of maternal mortality, the Cuban Ministry of Public Health (MINSAP) maintains a nationwide continuous registry, the quality of which is ensured by periodic checks and audits (25); this information is considered to be reliable. Parallel measurement systems and independent sources of deliberate comparison are also used actively and continuously to search for errors in the continuous registry process to attain greater integrity and veracity (26). However, as with all data sources, it has its limits for estimating true maternal mortality rates (7, 10, 11, 13).

In 2013, MMEIG urged Cuba to undertake studies of deaths of women of reproductive age to update knowledge, improve decision-making and improve the estimation process (17). The Reproductive Age Mortality Survey (RAMOS) (27) and the Deliberate Search and Re-classification of Maternal Deaths study (BIRMM is the acronym in Spanish) aid in investigating causes of death in deceased women of reproductive age and are administered both in countries with good vital statistics systems to identify classification errors and in countries without such registries.

The objective of this paper is to evaluate the degree of integrity of the Cuban statistical registry of maternal deaths and the quality of classification of causes of death included in that registry.

## MATERIALS AND METHODS

A descriptive, cross-sectional study was carried out using RAMOS methodology (27) based on data for all women of reproductive age (12–49 years) who died in Cuba in 2013 that were entered in the database of the continuous mortality registry of MINSAP's Medical Records and Health Statistics Bureau, regardless of reported underlying cause of death. In cases of deaths in this age group, the

death certificate is required to indicate whether the woman had a pregnancy in the year prior to death.

Integrity was calculated as the ratio of the number of maternal deaths identified by the study to the number reported in the registry; this ratio was used to compare the results with MMEIG reference values. The ideal value is 1:1. According to the group of experts' criteria, an error of up to 6% was accepted to consider a report complete.

Quality of the registry was calculated as the percentage of maternal deaths classified differently by this study than by the registry. Quality was considered adequate if the mismatch was lower than 6%.

## Research strategy

Four groups of researchers were formed for this study, made up of specialists in statistics (biostatisticians, graduates in information management and statisticians) and from primary care and hospital services related to maternal and child care (obstetricians and gynecologists, doctors, nurses and pathologists). Each group had specific functions:

- National group: led the study.
- Group of experts: Chosen by the national group based on their qualifications, current knowledge of the topic, lack of involvement in mortality data collection and coding, and ability to arbitrate certification and coding of causes of death, this group guided the process and reevaluated all suspected cases of maternal death, as well as deaths with inconclusive causes.
- Provincial group: Supervised distribution and digitization of information and evaluated its quality; also remitted forms to home provinces for women who died in another province.
- Health units (hospitals and community health areas): Filled out forms and remitted them to the provincial group.

Results were compared with content of the MINSAP continuous registry, using three variables:

1. Residence of the deceased: One of the 15 provinces or the Isla de la Juventud Special Municipality was assigned, based on the address given on the deceased's identification card.

2. Maternal death: If the death was classified as maternal or not. Each case was coded according to the International Statistical Classification of Diseases and Related Health Problems, 10th Revision (ICD-10) (28) as:
  - a. maternal death, which includes direct and indirect deaths
  - b. other deaths related to pregnancy, childbirth and the puerperium
  - c. late maternal deaths
  - d. not classified as maternal death.
3. Prior pregnancy: Result from Forms 1–4 indicating whether the deceased had a pregnancy in the year prior to death, one of the following:
  - a. Yes, if found that she had a pregnancy in the preceding year.
  - b. No, if found that she did not have a pregnancy in the preceding year.
  - c. Unknown, when existence of a pregnancy in the prior year could not be determined.

**Procedure**

In the database, all deceased women aged 12–49 years were identified. The national group reviewed the medical death certificates of all the deceased included in the study, and three members of the research teams from the different levels classified the deaths according to place of death as in-hospital or out-of-hospital, and applied the corresponding formulae (Figure 1). In all cases, the medical record, autopsy protocol, and death summary were required as additional documentation.

- Form 1: Responsibility of attending physicians. Used in cases of in-hospital

deaths. When it was possible to conclude whether or not there was a pregnancy in the preceding year, the forms were sent to the national group with the required additional documentation. If this could not be determined, Form 2 was used. The source of information was medical records.

- Form 2: Responsibility of the basic community health group. Used in cases of non-hospital deaths and when existence of a pregnancy in the year prior to death was not established on Form 1. When a categorical response in this regard was achieved, the forms were sent to the national group with the additional documentation; otherwise, Form 3 was used. The sources of information were members of the family medicine team that provided care for the woman in her health area or home, and existing documents of services provided in Family Doctor and Nurse Program offices, primarily the individual medical record and family medical record.
- Form 3 (verbal autopsy): Responsibility of the basic community health team. Used in cases in which existence of a pregnancy in the year prior to death was not established on Form 2. Form 3 was administered to someone who shared the deceased’s home, preferably—and in this order—the woman’s spouse or partner, parents, siblings, or children aged ≥18 years. If none of these people were available, a neighbor close to the family who might know about aspects of interest concerning the woman in the year prior to her death would be interviewed. In any of these cases, this

form was sent to the national group with the additional documentation.

- Form 4: Responsibility of the group of experts. The group of experts filled out 117 forms and, based on them, determined the quality of the classification of 97 maternal deaths among women who had a pregnancy in the year prior to their deaths according to the different forms, and 20 cases in which this element could not be established.

The forms—validated by the national research group and the group of experts with data from a sample of deaths from Havana province—contained closed-ended (a single, mutually exclusive response) and open-ended questions.

The national group redid and recoded the causes of death listed on each death certificate. Finally, they were classified and compared with the results of MINSAP’s continuous registry information system.

All data obtained were entered into databases created in Microsoft Excel 2007 in the corresponding provincial Medical Records and Health Statistics departments and sent together with the printed form and additional information to MINSAP’s Medical Records and Health Statistics Bureau.

Information was processed using SPSS version 11.5 statistical software and was summarized in aggregate values, and percentage and ratio indicators, broken down by province.

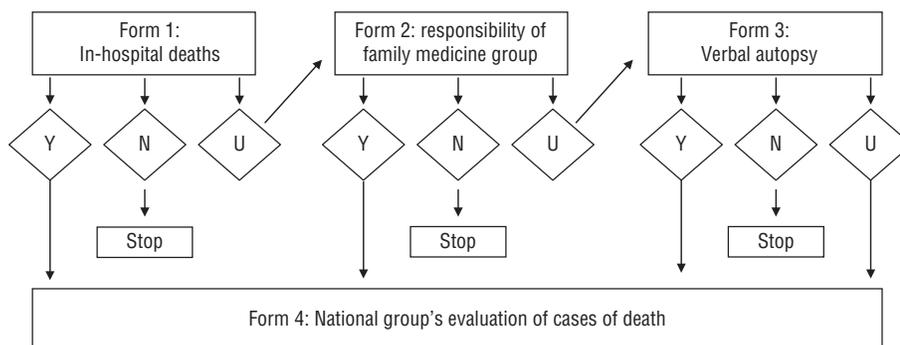
To ensure compliance with ethical requirements of the study, the following was explained to all researchers involved: reason for the study, methodology, functions, expected results, confidentiality, ethical treatment of information, need to ensure anonymity of the deceased in the results, as well as the commitment and acceptance to participate as a researcher and to remain as such during the entire study. Consent to respond to required questions was requested before interviewing relatives, household members and neighbors. The study protocol was approved by MINSAP authorities according to its ethics committee’s requirements.

**RESULTS**

**Forms used**

Of the 2 731 deaths reviewed, 1 389 (50.9%) women died in the hospital, and,

**FIGURE 1. Flowchart for use of forms**



**Notes:** Expected result of Forms 1, 2, and 3 is existence of a pregnancy in the year prior to death. Y: Yes. N: No. U: Unknown.

**Source:** Created by the Authors.

of this group, it was determined for 1 127 (81.1%) whether or not they had been pregnant in the year prior to death, which was verified for 63 (5.6%) of the women. Form 2 was filled out for the 262 (18.9%) cases in which it was not possible to establish whether there was a pregnancy in the prior year.

Form 2 was filled out for 1 604 cases: 1 342 cases of out-of-hospital death and the 262 cases of in-hospital death in which prior pregnancy could not be verified with Form 1. Of this total, whether or not the woman had been

pregnant in the year prior to her death was definitively established in 1 365 (85.1%) cases; 33 (2.4%) of them did have a pregnancy in the prior year.

Following the methodology, Form 3 was filled out for the 239 (14.9%) cases in which pregnancy in the year prior to death could not be confirmed. This element was verified in 219 (91.6%) cases, of which 1 case (0.5%) did have a pregnancy in the prior year (Figure 2).

Finally, Form 4 was filled out for 117 cases: 97 deaths in which Forms 1, 2 and

3 confirmed the deceased women had had a pregnancy in the year prior to death, and 20 deaths in which the verbal autopsy did not provide a definitive answer to this question.

### Integrity of the continuous maternal death registry

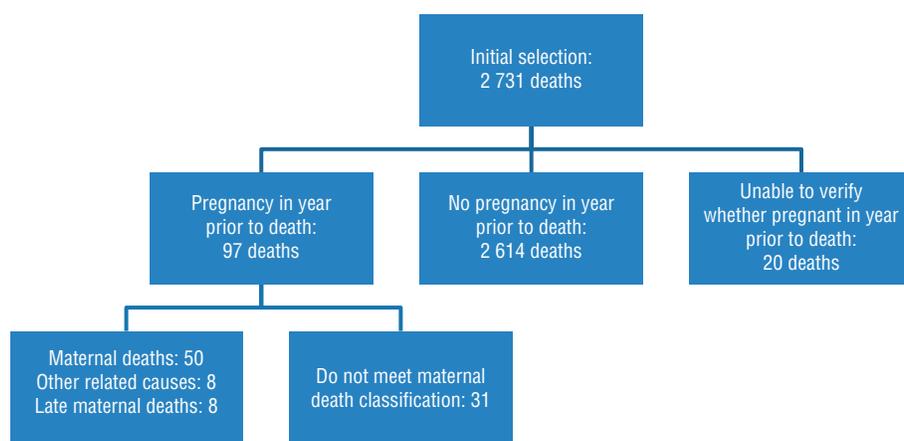
Of the 2 731 (100%) women of reproductive age who died in Cuba in 2013, confirmation of whether or not they had a pregnancy in the year prior to death was obtained for 2,711 (99.3%), and 117 (4.2%) did, in fact, have a pregnancy in the prior year (Figure 2).

As a result of using Form 4 with these 117 cases, it was determined that 50 corresponded to maternal deaths; of those, 30 were direct and 20 indirect. In addition, 8 were classified as other deaths related to pregnancy and 8 as late maternal deaths (Figure 2).

The national group determined that 31 of the 97 deaths of women who had had a pregnancy in the year prior to death were not maternal deaths, and another 20 remained classified as non-maternal causes of death, since no evidence was found to judge otherwise following use of the three forms and the rest of the study's research procedures.

The study found only one maternal death (classified as direct) more than those

**FIGURE 2. Deliberate search and reclassification of maternal deaths. Cuba, 2013**



Source: Created by authors from study results.

**TABLE 1. Maternal deaths by type, province and reporting method. Cuba, 2013**

Province	Direct MDs		Indirect MDs		Other MDs		Late MDs		Total	
	CR	This study	CR	This study	CR	This study	CR	This study	CR	This study
Pinar del Río	0	0	0	0	0	0	0	0	0	0
Artemisa	1	1	0	0	0	0	0	0	1	1
Havana	3	4	4	3	1	1	1	1	9	9
Mayabeque	2	2	1	1	0	0	0	0	3	3
Matanzas	2	2	0	0	0	0	0	0	2	2
Villa Clara	1	1	1	1	0	0	1	1	3	3
Cienfuegos	0	0	0	0	0	0	0	0	0	0
Sancti Spiritus	2	2	1	1	0	0	0	0	3	3
Ciego de Ávila	2	2	1	1	0	0	1	1	4	4
Camagüey	2	3	4	3	0	0	1	1	7	7
Las Tunas	2	2	0	0	0	0	0	0	2	2
Holguín	1	1	1	1	1	1	1	1	4	4
Granma	3	3	4	4	0	0	0	0	7	7
Santiago de Cuba	2	3	5	5	6	5	2	2	15	15
Guantánamo	4	4	0	0	1	1	0	1	5	6
Isla de la Juventud Special Municipality	0	0	0	0	0	0	0	0	0	0
Total	27	30	22	20	9	8	7	8	65	66
Ratio of this study to CR: 1.02										

Note: MDs: maternal deaths; CR: continuous registry.

Source: Created by authors from study results.

reported by the MINSAP continuous registry (2% error); therefore, integrity of the Cuban maternal death registry can be considered confirmed, according to the previously agreed upon category in the research variables. The adjustment factor for Cuba in 2013, resulting from this study, was 1.02 (Table 1).

### Quality of the continuous maternal death registry

The 27 cases classified as direct maternal deaths in the MINSAP continuous registry in 2013 and the 7 cases classified as late maternal deaths were confirmed (Table 2).

The present study identified the following:

- Two indirect maternal deaths and one death classified as “other” (related to pregnancy, childbirth and the puerperium), according to the MINSAP continuous registry, which were reclassified as direct maternal deaths in this study.
- One additional late maternal death, which was not considered a maternal death in the registry.

The variations occurred in Havana and Camagüey, where one indirect maternal death was reclassified as a direct maternal death in each of these provinces; in Santiago de Cuba, where one death classified as “other” was changed to direct maternal death; and in Guantánamo, where the new late maternal death was recorded (Table 1).

As a consequence, concordance in classification of maternal deaths between the MINSAP continuous registry and this study was 95.9%; therefore, quality of the continuous maternal death registry can be considered good.

This was confirmed upon analyzing the causes of direct maternal death according to the underlying cause of death reported by the MINSAP continuous registry and by this study. The order of causes did not change, and the number of deaths varied by only one unit in three of the six categories listed: complications related to the puerperium, complications of labor and delivery, and abortive outcome (excluding ectopic pregnancy) (Table 3).

Table 4 lists indirect maternal mortality by underlying cause of death reported by the continuous registry and by this

**TABLE 2. Concordance of classification of deaths studied according to Ministry of Public Health continuous registry and results of the present study. Cuba, 2013.**

Classification of deaths according to continuous registry	Classification of deaths according to this study <sup>a</sup>					Total
	Direct maternal	Indirect maternal	Other maternal <sup>b</sup>	Late maternal	Not maternal	
Direct maternal	27	0	0	0	0	27
Indirect maternal	2	20	0	0	0	22
Other maternal <sup>b</sup>	1	0	8	0	0	9
Late maternal	0	0	0	7	0	7
Not maternal	0	0	0	1	31	32
Total	30	20	8	8	31	97

<sup>a</sup> Coded according to the International Statistical Classification of Diseases and Related Health Problems, 10th Revision (ICD-10) (28).

<sup>b</sup> Related to pregnancy, childbirth and the puerperium.

**Source:** Created by the authors based on study results.

**TABLE 3. Direct maternal deaths, by reporting method and causes of death. Cuba, 2013**

Causes of death (code) <sup>a</sup>	MINSAP Continuous Registry		This study	
	No.	%	No.	%
Complications related to the puerperium (O85-O92)	8	29.7	9	30.0
Ectopic pregnancy (O00)	5	18.5	5	16.7
Hypertensive disorders (O11-O16)	4	14.8	4	13.3
Complications of labor and delivery (O60-O75)	3	11.1	4	13.3
Abortive outcome, excluding ectopic pregnancy (O01-O08)	2	7.4	3	10.0
Other	5	18.5	5	16.7
Total	27	100.0	30	100.0

<sup>a</sup> Coded according to the International Statistical Classification of Diseases and Related Health Problems, 10th revision (ICD-10) (28).

**Source:** Created by the authors based on study results.

**TABLE 4. Indirect maternal deaths by type of methodology and top five causes of death. Cuba, 2013**

Causes of death (code) <sup>a</sup>	MINSAP Continuous Registry		This study	
	No.	%	No.	%
Diseases of the circulatory system (O99.4)	6	27.3	5	25.0
Diseases of the respiratory system (O99.5)	5	22.8	6	30.0
Pre-existing hypertension complicating pregnancy, childbirth, and the puerperium (O10)	4	18.2	3	15.0
Other specified diseases and conditions complicating pregnancy, childbirth, and the puerperium (O99.8)	3	13.7	4	20.0
Infectious and parasitic diseases (O98)	1	4.5	0	0
Mental disorders and diseases of the nervous system complicating pregnancy, childbirth, and the puerperium (O99.3)	1	4.5	1	5.0
Diseases of the digestive system complicating pregnancy, childbirth, and the puerperium (O99.6)	1	4.5	0	0
Other diseases of the blood and blood-forming organs (O99.1)	1	4.5	1	5.0
Total	22	100.0	20	100.0

<sup>a</sup> Coded according to the International Statistical Classification of Diseases and Related Health Problems, 10th revision (ICD-10) (28).

**Source:** Created by the authors based on study results.

study. Some causes switched places in this indicator, and the number of deaths varied by only one unit in six of the eight listed categories.

## DISCUSSION

The results of this study demonstrate the high degree of integrity of Cuban maternal mortality statistics, adding only one death to the continuous registry data. In 2012, the Mexican Ministry of Health presented a study of maternal death, which, by comparing data with other formal and informal sources, found that every year, 10% to 30% of maternal deaths are added that were not initially classified as such (29).

It is known that differences can exist between MMEIG maternal mortality estimates and those that countries report. In the case of Cuba, the MMEIG estimate for 2013 was 80.0 maternal deaths per 100 000 live births (13), including late maternal deaths, in contrast to the official figure of 38.9 published by Cuba (30), which does not include late maternal deaths, in line with ICD-10 rules (11).

By including the two deaths identified in the study—one as a direct maternal cause and the other as a late maternal cause—the maternal mortality ratio in Cuba rises to 46.1 per 100 000 live births, which still reflects a 1.7 times overestimate by the MMEIG rate.

Other countries in the Region, such as Brazil, calculate correction factors biannually, with variations ranging from 1.6 to 1.8 in the period 1991–2005 (31). In Argentina, it was determined that underreported maternal deaths in 2008 in health facilities in the city of Buenos Aires accounted for twice as many maternal deaths as those reported (32).

Other studies indicate maternal mortality underreporting is due to poor quality registries and, in some cases, is done to hide abortion-related deaths in countries where abortion is criminalized (12). In Cuba, pregnancy interruption is legal and voluntary, and is performed safely in hospitals (24).

In this study, in 20 (0.7%) of the 2 731 deaths of women of reproductive age, whether the women had a pregnancy in the year prior to death could not be verified by any of the sources established in the methodology. Studies in

Mexico in 2011 and 2012 obtained results of 4.7% (120 of 2 523) and 2.9% (113 of 4 645), respectively (28, 33).

If the causes used in the Mexican study, following modified RAMOS methodology (29), were applied to the 20 cases in which prior pregnancy could not be verified, only four (0.2%) deaths would have remained: two from hypertensive diseases, one from acute myocardial infarction, and one from heart failure.

Regarding quality of classification, a variation of three direct deaths and one late death was verified—which is frequent in this type of study—for 95.9% concordance.

Other studies have shown that coding can vary when changing from one classification to another (34). In the present study, changes were found in codes, which can cause changes in the indicator value. A change in code for underlying cause of death must also be kept in mind, even when classification does not change, since such cases were found in both direct and indirect maternal deaths. In the authors' opinion, incorrect preparation of medical death certificates could be influencing this, which could lead to an incorrect final analysis of the disease that caused the death.

Other studies have found diverse difficulties leading to underreporting of mortality, including deficient capture and reporting of information on the statistical death report and in medical records, low coverage of statistical systems, and not valuing information quality as a dimension of quality of care, among others (31).

In Cuba, information quality is safeguarded from different perspectives: for statistical purposes, information about maternal deaths is regulated in regulatory policy documents requiring obligatory compliance; comprehensive and specialized oversight and consultation visits are carried out, along with in-person and online meetings and presentations between subordinate units and higher-level administrative levels and international agencies; workshops, discussion lists, and national and international training courses are organized; the Supplementary Statistical Information System is reviewed and updated every five years; and feedback processes are carried out, such as reconciliation between the

National Statistics and Information Bureau structure, responsible for governmental information, and MINSAP's health statistics structure (26).

From the epidemiological and health care point of view, care for pregnant and postpartum women is established as a basic component of the National Health Surveillance System. In addition, maternal mortality committees have been institutionalized throughout the country, which, among other functions, ensure that medical personnel receive guidance starting when they are undergraduates. Regulatory compliance and correct preparation of medical death certificates are also monitored (35).

In analyzing these results, several limitations of the study must be considered, such as memory bias, which may have occurred when using Form 3 (verbal autopsy) with relatives and household members in 239 cases; however, this figure represents only 8.8% of cases studied, and therefore its effect is inconsequential. The information gathered on the other forms came from official documents used in the health care services described above.

## CONCLUSIONS AND RECOMMENDATIONS

Information about maternal deaths obtained from the continuous mortality registry of MINSAP's Medical Records and Health Statistics Bureau has a high level of integrity. The quality of classification of maternal deaths in this registry is high, as verified by the very few changes in classification of causes of death.

Based on the results of this nationwide study, it is recommended that the maternal mortality ratio issued by Cuba, based on data from its information system, be published instead of using a maternal mortality ratio affected by application of an adjustment factor derived from other studies or methodological assumptions.

**Conflicts of interest.** None declared.

**Disclaimer.** Authors hold sole responsibility for the views expressed in the manuscript, which may not necessarily reflect the opinion or policy of the RPSP/PAJPH or the Pan American Health Organization (PAHO).

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## RESUMEN

### Calidad de las estadísticas de mortalidad materna en Cuba, 2013

**Objetivos.** Evaluar el grado de integridad del registro estadístico cubano de muertes maternas y la calidad de la clasificación de las causas de muerte recogidas en ese registro.

**Métodos.** Se analizó la información de todas las cubanas fallecidas en edad fértil en el año 2013 según el registro continuo de mortalidad de la Dirección de Registros Médicos y Estadísticas de Salud del Ministerio de Salud Pública de Cuba (MINSAP), independiente- mente de la causa básica de muerte consignada. Cuatro grupos de investigación (nacional, de expertos, provincial y de unidades de salud), con funciones definidas, aplicaron cuatro formularios para determinar si hubo embarazo en el año previo a la defunción, reevaluar si los casos correspondían a una muerte materna y, en ese caso, revisar la clasificación.

**Resultados.** Se investigaron las 2 731 mujeres fallecidas en edad reproductiva notificadas en Cuba en el 2013; de ellas las causas de muerte de 2 711 (99,3%) resultaron concluyentes y, de estas, 97 (3,6%) habían tenido un embarazo en el año previo a la defunción. Se encontraron 50 muertes maternas (una más que en el registro continuo) para 2% de error y un factor de ajuste de 1,02. De las 97 muertes estudiadas, solo se reclasificaron 4 casos: 2 muertes maternas y 1 muerte relacionada con el embarazo, el parto y el puerperio, según el registro continuo, que se reclasificaron como muertes directas, y 1 muerte considerada no materna por el registro continuo que se reclasificó como muerte materna tardía, para una concordancia de 95,9%.

**Conclusiones.** La información sobre las muertes maternas recogida en el registro continuo de mortalidad del MINSAP tiene un alto nivel de integridad. La calidad de la clasificación de las muertes maternas en ese registro es elevada, al existir muy pocos cambios en la reclasificación de las causas de muerte.

#### Palabras clave

Mortalidad materna; vigilancia epidemiológica; control de calidad; certificado de defunción; Cuba.

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## Qualidade das estatísticas de mortalidade materna em Cuba, 2013

### RESUMO

**Objetivos.** Avaliar o grau de integridade do registro estatístico cubano de óbitos maternos e a qualidade da classificação das causas de óbito incluídas nesse registro.

**Métodos.** Analisamos a informação de todas as mulheres cubanas que morreram em idade fértil em 2013 de acordo com o histórico de mortalidade contínua da Diretoria de Registros Médicos e Estatísticas de Saúde do Ministério da Saúde Pública de Cuba (MINSAP), independentemente da causa básica da morte consignada. Quatro grupos de pesquisa (nacional, especialistas, provincial e unidades de saúde), com funções definidas, aplicaram quatro formas para determinar se houve gravidez no ano anterior à morte, reavaliam se os casos corresponderam a uma morte materna e, em nesse caso, rever a classificação.

**Resultados.** Foram investigadas as 2 731 mulheres falecidas de idade reprodutiva notificadas em Cuba em 2013, das quais as causas de morte de 2 711 (99,3%) foram conclusivas e, destas, 97 (3,6%) tiveram gravidez no ano anterior à morte. Encontramos 50 mortes maternas (uma mais do que no registro contínuo) por erro de 2% e um fator de ajuste de 1,02. Das 97 mortes estudadas, apenas 4 casos foram reclassificados: 2 mortes maternas e 1 morte relacionada à gravidez, parto e puerpério, de acordo com o registro contínuo, que foram reclassificadas como mortes diretas, e 1 morte considerada não materna pelo registro contínuo que foi reclassificada como morte materna tardia, para uma concordância de 95,9%.

**Conclusões.** A informação sobre mortes maternas incluída no registro de mortalidade contínua do MINSAP tem alto nível de integridade. A qualidade da classificação das mortes maternas neste registro é alta; a reclassificação das causas de morte é pouco frequente.

### Palavras-chave

Mortalidade materna; vigilância epidemiológica; controle de qualidade; atestado de óbito; Cuba.

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