Community-based surveillance of maternal deaths in rural Ghana

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Objective To examine the feasibility and effectiveness of community-based maternal mortality surveillance in rural Ghana, where most information on maternal deaths usually comes from retrospective surveys and hospital records.

Methods In 2013, community-based surveillance volunteers used a modified reproductive age mortality survey (RAMOS 4+2) to interview family members of women of reproductive age (13–49 years) who died in Bosomtwe district in the previous five years. The survey comprised four yes–no questions and two supplementary questions. Verbal autopsies were done if there was a positive answer to at least one yes–no question. A mortality review committee established the cause of death.

Findings Survey results were available for 357 women of reproductive age who died in the district. A positive response to at least one yes–no question was recorded for respondents reporting on the deaths of 132 women. These women had either a maternal death or died within one year of termination of pregnancy. Review of 108 available verbal autopsies found that 64 women had a maternal or late maternal death and 36 died of causes unrelated to childbearing. The most common causes of death were haemorrhage (15) and abortion (14). The resulting maternal mortality ratio was 357 per 100 000 live births, compared with 128 per 100 000 live births derived from hospital records.

Conclusion The community-based mortality survey was effective for ascertaining maternal deaths and identified many deaths not included in hospital records. National surveys could provide the information needed to end preventable maternal mortality by 2030.

Abstracts in عربي, 中文, Français, Русский and Español at the end of each article.

Introduction

Ascertainment of cases of maternal death depends on a health information system that accurately identifies and records the causes of death. Most low-income countries do not have systems for certifying births and deaths and the estimates of maternal mortality used in decision-making are based on surveys, data on fertility rates and hospital records.[1] However, these data sources produce estimates with wide confidence intervals and their usefulness for guiding specific local interventions is limited. Demographic and Health Surveys and Multiple Indicator Cluster Surveys use the direct sisterhood method, which identifies pregnancy-related deaths rather than maternal deaths.[1] Moreover, the resulting estimates are retrospective and have wide confidence intervals. National census data are more accurate but censuses are carried out only every 10 years and highly trained enumerators are required to collect the wide range of information covered.[1] Reproductive-age mortality surveys (RAMOSs) have been used in several settings to improve the ascertainment of maternal deaths.[2,3] Typically, such surveys involve asking 39 questions that span the many possible causes of death in women of reproductive age, including the causes of maternal death (details available from the corresponding author). A confidential enquiry into maternal deaths undertaken in Accra, Ghana, in 2002 applied the reproductive-age mortality survey's methods at health facilities and morgues in Accra and found that maternal deaths had been under-reported by 44%.[4] However, the reproductive-age mortality survey has limited usefulness at the population or national level, where it is necessary to identify all deaths in women of reproductive age and to examine several sources of information. A large-scale, national reproductive-age mortality survey can be complicated, time-consuming and expensive

and the resulting maternal mortality ratios (MMRs) may not be accurate in settings where most women deliver at home.[1]

In 2010, community-based surveillance of maternal deaths was conducted in the Sene district of Ghana using a modified reproductive-age mortality survey.[5] Researchers selected the 10 questions from the survey that were most likely to identify a maternal death and that could be used by community health volunteers in interviews of the family members of women of reproductive age who had died. A maternal mortality review committee investigated all cases in which a respondent gave a positive answer to at least one of the 10 questions. Using the committee's determination of maternal death as the gold standard, four questions emerged as the best predictors of a maternal death: (i) Was she pregnant when she died? (ii) Was she pregnant recently? (iii) Did she have a child younger than one year when she died? and (iv) Did she die from a miscarriage or abortion?[5] These four simple yes–no questions were found to have a high predictive value for identifying a maternal death. Moreover, the number of maternal deaths ascertained almost doubled in the year community-based surveillance took place. A similar study in Eritrea reported comparable results.[3]

The hypothesis of the current study was that MMRs derived from community-based surveillance of maternal deaths using the four yes–no questions in a modified reproductive-age mortality survey would be higher than those determined using current techniques. In addition, we aimed to demonstrate that a simple four-question survey conducted by community health workers is feasible in rural communities and is an effective way of increasing knowledge about the current burden and causes of maternal death in these communities.

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Methods

The public health director of Bosomtwe district in Ghana decided to conduct a modified reproductive-age mortality survey in four subdistricts with the aim of increasing understanding of maternal mortality beyond that provided by currently available hospital-based MMRs. The baseline MMR in Bosomtwe district was 128 per 100 000 live births: 23 ascertained maternal deaths in hospital were recorded for the period 2008 to 2013, during which there were 17 913 live births. These figures were obtained from public records and were used in ratio calculations and comparisons in this study.

The district health leadership committee in Bosomtwe met to review the conceptual approach of the modified reproductive-age mortality survey and past experience with this approach in Sene district, Ghana. In May 2013, trainers from the Bosomtwe District Health Directorate and community health workers discussed the most effective way of asking the four yes–no survey questions: (i) Was she pregnant when she died? (ii) Did she have a child less than 1 year old when she died? (iii) Was she pregnant within the year before she died? and (iv) Did she have a miscarriage or abortion? District staff added two further questions to the survey: (v) Did she die at home or in a health-care facility? and (vi) What do you think was the cause of her death? The final survey including these six questions is here referred to as the RAMOS 4+2 (Box 1). Subsequently, community-based surveillance volunteers engaged to conduct the survey attended a one-day training meeting at Kuntenase Government Hospital, which introduced the survey, gave training on its implementation and provided an opportunity for asking questions about the survey material. In addition, community-based health volunteers and subdistrict nursing staff underwent training on the protocol, survey administration and data reporting organized by the Bosomtwe District Health Directorate.

Between May and August 2013, the community-based surveillance volunteers, supervised by community nurses, conducted interviews in the local language Twi, using the RAMOS 4+2 and clarified any questions that needed further explanation to obtain a definitive answer. Because they were familiar with

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Box 1. Modified reproductive-age mortality survey (RAMOS 4+2), Ghana, 2013

Question 1: Was she pregnant when she died?

Question 2: Did she have a child younger than one year when she died?

Question 3: Was she pregnant within the year before she died?

Question 4: Did she have a miscarriage or abortion?

Question 5: Did she die at home or in a health-care facility?

Question 5a: If she died in a health-care facility, which facility was it?

Question 5b: Did she die at her own home? If not her own home, where? Was it her own home or someone else's?

Question 6: What do you think was the cause of her death?

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the community, the volunteers were able to identify households in which a woman of reproductive age (13–49 years) had died in the previous five years. A small incentive was given to the volunteers to encourage them to identify the women's families and to tell them when the RAMOS 4+2 would take place. Permission was obtained from each family member before participation in the survey and no incentive was given to any interviewee. The interviews, which formed part of the regular data collection activities of community-based surveillance volunteers in the district, were conducted in private and responses were recorded on a single sheet of paper. Subsequently, the interview record sheets were given to the community health nurse supervisor who forwarded them to the district public health director on a regular basis. The study was approved by the Ghana Health Service Ethical Review Board and was reviewed by the University of Michigan Institutional Review Board and found to be exempt from regulation.

Verbal autopsy

Several weeks after administration of the RAMOS 4+2, community health nurses and midwives conducted verbal autopsies at households in which a positive answer had been given to at least one of the four yes–no RAMOS questions. Verbal autopsies were conducted using a standard form provided by the Ghanaian health service, which was based on the World Health Organization's (WHO's) recommendations.[6] The document recorded details of the deceased woman's demographic and sociocultural characteristics, obstetric history, hospital attendance and preparedness for pregnancy and provided space for a written narrative and a conclusion. Verbal autopsies were conducted with an immediate family member who was available on the day of the interview.

After completion of the verbal autopsies, case reports were compiled

and presented to the maternal mortality review committee, which comprised health-care professionals who met regularly to examine the medical and technical aspects of care for women who have died and to identify patterns of adverse outcomes related to medical, nonmedical and systemic factors. For this study, the committee had 10 or 11 participants: an obstetrics and gynaecology specialist, a general physician, a pharmacist, midwives and senior and entry-level community health nurses. The committee discussed and analysed the survey results and verbal autopsy interviews for each woman. To determine whether each woman's death resulted from a complication of pregnancy or was associated with the pregnancy, we used the definitions from the *International statistical classification of diseases and related health problems, 10th revision*, for maternal death and late maternal deaths.[7] For pregnancy-related death we used the definition proposed by WHO (Box 2).[1] On occasion, additional follow-up was requested for cases on which no firm conclusion could be reached. For these cases, more information was obtained from the hospital or clinic where the death occurred and data were double-checked. In addition, at the community level, family members of the deceased were asked for further details to help identify the cause of death.

We categorized responses to question 6 of the RAMOS 4+2 (i.e. What do you think was the cause of her death?) as indicating either a clear maternal cause of death, a clear cause unrelated to childbearing or an unknown cause. We then calculated positive and negative predictive values and the sensitivity and specificity for a response that indicated a clear maternal cause. The positive predictive value was defined as the number of deaths judged to be a maternal death on the basis of the response to question 6 and confirmed as a maternal death by

Box 2. **Definitions of maternal death, community-based surveillance, Ghana, 2013**

Maternal death[a]
The death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the duration and the site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management but not from accidental or incidental causes.

Late maternal death[a]
The death of a woman from direct or indirect obstetric causes more than 42 days but less than one year after termination of pregnancy.

Pregnancy-related death[b]
The death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the cause of death.

[a] Definitions of maternal and late maternal death are from the *International statistical classification of diseases and related health problems*, 10th revision.[7]
[b] The definition of pregnancy-related death is from the World Health Organization.[1]

the review committee divided by all deaths judged to be maternal deaths on the basis of responses to question 6. The negative predictive value was the number of deaths that would not have been referred for verbal autopsy on the basis of responses to question 6 and that were confirmed as not being maternal deaths by the review committee divided by the total number of deaths that would not have been referred for verbal autopsy on the basis of responses to question 6. The sensitivity was the number of deaths that both responses to question 6 and the review committee indicated were maternal deaths, divided by the total number of deaths found to be maternal by the committee. The specificity was the number of deaths that both the response to question 6 and the review committee indicated were not maternal deaths divided by the total number of deaths the committee determined were unrelated to childbearing.

Results

Survey results were available for 357 women of reproductive age who died during the five years before the survey took place. A positive response to at least one of the four yes–no questions was recorded in 132 interviews. Consequently, these deaths included maternal deaths, late maternal deaths and pregnancy-associated deaths occurring within one year of termination of pregnancy. In 225 interviews, negative answers to all four yes–no questions were recorded. Thirteen families of women of reproductive age who died during the specified period could not be located or declined the interview.

Verbal autopsies were conducted with 118 families of the 132 cases for which there was a positive response to

the survey questions; 14 families were lost to follow up. In total, 10 verbal autopsies were found to have been performed erroneously because the positive survey result was subsequently found to be incorrect. Verbal autopsies for the remaining 108 cases were reviewed by the maternal mortality review committee, which determined that 64 women died from a condition related to pregnancy and 36 had a death unrelated to childbearing; the cause of death was not determined in eight cases. For the 64 women whose deaths were determined to be maternal or late maternal deaths, the average age at the time of death was 31.1 years (range: 18–43). Of these women, 13 died in the community, 49 died in a health-care facility and two died in transit to a health-care facility. The average gravidity among these women was 3.5 and their average parity was 2.9. Of the 64 survey respondents for these women, 26 were their mothers, 11 were their sisters and 10 were their grandmothers. The remaining 17 respondents were husbands, brothers or other close family members.

The most common causes of the 64 maternal and late maternal deaths, as determined by the maternal mortality review committee, were haemorrhage (15), abortion complications (14), ectopic pregnancy (3), infection (2) and hypertensive disease of pregnancy; eclampsia and preeclampsia (2). For 18 of the 64 deaths, the final diagnosis remained unknown because the details available were insufficient or confusing. The other 10 causes of death varied widely and included obstructed labour, renal failure, abscess, malaria and sickle cell disease – the degree to which the pregnancy contributed to morbidity for these conditions could not be determined using our questionnaire. The maternal mortality

for maternal and late maternal deaths obtained in our survey for the district was 357 per 100 000 live births.

For question 6 in the RAMOS 4+2 alone, which asked respondents what they thought the cause of death was, the positive predictive value was 91%, the negative predictive value was 50%, the sensitivity was 48% and the specificity was 92% for identifying women confirmed to have had a maternal death.

Discussion

Our findings indicate that community-based surveillance of deaths among women of reproductive age is feasible and can help identify cases of maternal death in rural communities. The large discrepancy between the MMR in Bosomtwe district derived from hospital records and the ratio based on our survey findings strongly confirms the view that many maternal deaths may go unreported. We identified 13 deaths that occurred at home and which were not included among the deaths recorded by hospitals. Moreover, the 23 hospital-ascertained deaths in Bosomtwe district between 2008 and 2013 was much less than the 49 maternal deaths identified in the survey as having taken place in a health-care facility, many of which were located outside Bosomtwe district.

The RAMOS 4+2 instrument was an effective and efficient means of improving maternal death surveillance in Bosomtwe district and could be applied in other rural areas with an active community-based method of data collection. District staff noted that the survey was easy to use and readily understandable by community-based surveillance volunteers, who had little difficulty in asking the survey questions and obtaining clear answers from interviewees. In addition, the brevity of the survey meant that it could easily be incorporated into the volunteers' current activities.

Although no single survey question identified all maternal deaths, a positive answer to any one of the four yes–no questions resulted in a verbal autopsy. We incorporated question 6 (i.e. What do you think was the cause of her death?) into the survey to examine the value of an open-ended question about the cause of death. Question 6 provided the opportunity for an expanded discussion beyond the four yes–no questions. It could help eliminate the need for a verbal autopsy in cases where the death

occurred during pregnancy but was clearly not related to the pregnancy because, for example, it was due to an accident or homicide. If family members could accurately identify maternal causes of death, the four yes–no questions may not be necessary. In our study group, however, family members identified only 48% of maternal deaths correctly. As verbal autopsies are already required as a follow-up to a positive response to one of the four yes–no survey questions, the value of including question 6 will vary according to local requirements and follow-up capability. During data analysis, it was noted that question 4 (i.e. Did she have a miscarriage or an abortion?) did not specify whether the miscarriage or abortion occurred during the most recent pregnancy or during a previous pregnancy. Although this did not affect our data analysis, future versions of this question should indicate whether the abortion or miscarriage took place during the most recent pregnancy.

The four yes–no survey questions had to be accurately translated into the local language. This required help from community health nurses and community-based surveillance volunteers to ensure that the local idiom precisely reflected each question's intent. Similar adaptations would be necessary to enable the RAMOS 4+2 to be used in other communities. In areas where community workers already collect surveillance data, the questionnaire could easily be incorporated into monthly activities in rural communities. Moreover, by coupling these surveys to verbal autopsies, it would be possible to identify cases of maternal death that are otherwise unknown to public health officials and to provide communities with information on the main factors contributing to maternal death. In addition, an accurate surveillance system would help public health professionals and government agencies become aware of common correctable factors contributing to maternal death and would enable them to improve medical care, medical outreach and public health interventions in the population affected. In the absence of a national, comprehensive, health information system that includes birth and death certification at the community level, incorporating the RAMOS 4+2 into routine, district, health-care reporting would enable national aggregates of maternal mortality to be calculated on an annual basis.

In our surveys, we asked if the women had died while pregnant or within one year of delivery and we attempted to identify recent pregnancies by asking if the deceased woman had a child younger than one year when she died. We assumed that a one-year time frame would be easier for respondents to understand than a 6-week time frame, which is the traditional postpartum period used in the definition of maternal mortality, and that, although this approach would result in false-positives, it would ensure that all maternal deaths would be included. Deaths due to obstetrical causes can occur after the arbitrary six-week period and including them in surveys can identify more deaths associated with pregnancy. The one-year time frame has been used in other settings to identify deaths among a large group of women of reproductive age, some of whom suffered maternal deaths.[8] In many states in the United States of America, death certificates of women of reproductive age are matched with the birth certificates of children younger than one year when each woman died to increase the ascertainment of maternal deaths.[9]

On average, only 56% of births in rural areas of developing countries are attended by a skilled attendant.[10] In the absence of a robust vital registration system of births and deaths, many maternal deaths will go unreported and the underlying reasons will never be known. The simple RAMOS 4+2 could be implemented nationally before these important yet complex data collection systems become operational and could serve as a reasonable, real-time alternative. Moreover, the WHO consensus statement on preventable maternal mortality calls for an end to preventable maternal mortality by 2030.[11] Community-based maternal death surveillance systems could provide the information needed to determine whether this goal has been achieved and could help monitor the progress of national policy initiatives to reduce maternal mortality. ■

Competing interests: None declared.

ملخص

المراقبة المجتمعية لوفيات الأمهات في المناطق الريفية بغانا

الغرض دراسة مدى جدوى وفعالية المراقبة المجتمعية لوفيات الأمهات في المناطق الريفية بغانا، حيث تأتي معظم المعلومات المتعلقة بوفيات الأمهات عادةً من مسوح أجريت بأثر رجعي ومن سجلات المستشفى.

الطريقة في عام 2013، استخدم المتطوعون القائمون على المراقبة المجتمعية مسوحًا معدلة لمعدل الوفاة في سن الإنجاب (RAMOS 4+2) لمقابلة أفراد أسرة النساء في سن الإنجاب (من 13 إلى 49 عامًا) اللاتي توفين في مقاطعة "بوسومتوي" في الأعوام الخمسة الماضية. وكان المسح يتألف من أربعة أسئلة تكون إجابتها بنعم أو لا وسؤالين تكميليين. وكان يتم إجراء عمليات التشريح السردي إذا كانت هناك إجابة إيجابية واحدة بنعم أو لا على الأقل لأحد الأسئلة. وقامت لجنة مراجعة الوفيات بإثبات سبب الوفاة.

النتائج كانت نتائج المسح متوفرة لـ 357 سيدة في سن الإنجاب واللاتي توفين في المقاطعة. وتم تسجيل إجابة إيجابية بنعم أو لا لأحد الأسئلة على الأقل من المشاركين الذين يبلغون عن وفاة 132 سيدة. ولقد توفيت هؤلاء السيدات إما نتيجة لوفيات الأمومة أو في غضون عام واحد من إنهاء الحمل. إن المراجعة الخاصة بحالات التشريح السردي المتوفرة لـ 108 سيدة وجدت أن 64 سيدة تعرضن لحالة وفيات أمهات أو وفيات أمهات متأخرة و36 سيدة توفين لأسباب لا علاقة لها بالإنجاب. وكانت الأسباب الأكثر شيوعًا للوفاة هي النزف (15) والإجهاض (14). كان معدل وفيات الأمهات الناتج 357 في كل 100000 من المواليد على قيد الحياة، بالمقارنة مع 128 في كل 100000 من المواليد على قيد الحياة الصادر من سجلات المستشفى.

الاستنتاج كان المسح المجتمعي للوفيات فعالاً لتحديد وفيات الأمومة وقام بتحديد العديد من حالات الوفاة التي لا تتضمنها سجلات المستشفى. يمكن للمسوح الوطنية توفير المعلومات اللازمة لوضع حد لمشكلة وفيات الأمومة بحلول عام 2030.

摘要

在加纳农村地区以社区为基础开展孕产妇死亡监查

目的 旨在检测加纳农村地区以社区为基础开展的孕产妇死亡率监查的可行性和有效性，该监查的大多数孕产妇死亡信息通常来自回顾式调查和医院记录。

方法 2013 年，以社区为基础的监查志愿者使用经过改进的育龄女性死亡率调查 (RAMOS 4+2) 访问五年前死于博苏姆推地区的育龄（13 至 49 岁）女性家庭成员。该调查由四个一般疑问句和两个追加问题组成。如果至少有一个一般疑问句是肯定答案，则开展口头探查。由死亡审查委员会确定死亡原因。

结果 调查结果来自死于该地区的 357 名育龄女性。其中至少有一个一般疑问句的肯定答案（132 名女性死者）被记录于受访者报告中。这些女性或死于孕产期，或死于产后一年内。在相关的 108 次口头探查中发现，64 名女性死于孕产期或孕产后期；36 名女性死于与分娩无关的其他原因。最常见的死亡原因是大出血 (15) 和流产 (14)。所得出的孕产期死亡率为每 100000 个活胎占 357 例，而医院得出的结果为每 100000 个活胎占 128 例。

结论 以社区为基础的孕产妇调查在查明孕产妇死亡和确定很多未被医院记录在册的死亡方面非常有效，全国性调查可提供 2030 年前消除可预防孕产妇死亡所需信息。

Résumé

Système de surveillance communautaire de la mortalité maternelle en milieu rural au Ghana

Objectif Étudier la faisabilité et l'efficacité d'un système de surveillance communautaire de la mortalité maternelle en milieu rural au Ghana, où la plupart des données sur les morts maternelles proviennent souvent d'enquêtes rétrospectives et des registres hospitaliers.

Méthodes En 2013, des volontaires au sein des communautés rurales du district de Bosomtwe ont employé une version modifiée de l'enquête sur la mortalité des femmes en âge de procréer (RAMOS 4+2) pour interviewer les membres des familles de femmes en âge de procréer (13–49 ans) décédées dans le district au cours des cinq dernières années. Cette enquête comprenait quatre questions fermées de type Oui/Non et deux questions complémentaires. En cas de réponse positive à au moins une des questions fermées, des autopsies verbales ont été réalisées. Les causes des décès ont été déterminées par un comité d'examen de la mortalité.

Résultats Cette enquête a permis d'obtenir des résultats pour 357 femmes en âge de procréer décédées dans le district. Une réponse positive à au moins une des questions fermées a été renseignée pour le décès de 132 femmes. Ces femmes sont décédées à la suite de complications pendant leur grossesse, lors de l'accouchement ou dans l'année suivant le terme de la grossesse. L'examen des 108 autopsies verbales disponibles a révélé que 64 cas correspondaient à des cas de mort maternelle ou de mort maternelle tardive et 36 cas à des décès non liées à la grossesse. Les causes de décès les plus fréquentes ont été les hémorragies (15) et les avortements (14). Le taux de mortalité maternelle correspondant a été établi à 357 pour 100 000 naissances vivantes, contre 128 pour 100 000 naissances vivantes selon les registres hospitaliers.

Conclusion Cette enquête sur la mortalité directement menée au sein des communautés a été efficace pour évaluer la mortalité maternelle et identifier de nombreux décès non enregistrés dans les dossiers hospitaliers. Des enquêtes de ce type réalisées à l'échelle nationale pourraient fournir les informations requises pour mettre un terme aux décès maternels évitables d'ici à 2030.

Резюме

Отслеживание случаев материнской смертности на уровне общин в сельской местности Ганы

Цель Проанализировать осуществимость и эффективность отслеживания случаев материнской смертности на уровне общин в сельской местности Ганы, где основная информация по материнской смертности поступает из ретроспективных исследований и больничной документации.

Методы В 2013 году добровольцы, проводящие отслеживание на уровне общин, в ходе модифицированного исследования причин смертности женщин репродуктивного возраста (RAMOS 4+2) опросили в районе Босумтви членов семей, в которых женщины репродуктивного возраста (13–49 лет) умерли в течение предыдущих 5 лет. Опрос состоял из четырех вопросов, требующих ответов «да-нет», и двух дополнительных вопросов. Если хотя бы на один из вопросов, требующих ответов «да-нет», был получен утвердительный ответ, проводилась вербальная аутопсия. Причину смерти определял комитет по анализу смертности.

Результаты Результаты исследования были получены для 357 женщин репродуктивного возраста, умерших в этом районе. Утвердительный ответ по меньшей мере на один вопрос, требующий ответа «да-нет», был получен от респондентов, сообщивших о смерти 132 женщин. Смерть этих женщин либо относилась к случаям материнской смертности, либо наступила в течение года после прерывания беременности. Анализ 108 доступных вербальных аутопсий показал, что в 64 случаях имела место материнская смертность или поздняя материнская смертность, а 36 смертей наступили по причине, не связанной с деторождением. Наиболее распространенными причинами смертности были кровотечение (15) и аборт (14). Полученный в результате данного анализа коэффициент смертности составил 357 на 100 000 живорожденных. Для сравнения: на основании исследования больничной документации был получен результат 128 на 100 000 живорожденных.

Вывод Исследование смертности на уровне общин было эффективным в плане определения материнской смертности и позволило выявить множество случаев смертности, не зафиксированных в больничной документации. Исследования на национальном уровне позволили бы получить информацию, необходимую для искоренения предотвратимой материнской смертности к 2030 году.

Resumen

Seguimiento de ámbito comunitario de la mortalidad materna en la Ghana rural

Objetivo Examinar la viabilidad y efectividad del seguimiento de ámbito comunitario de la mortalidad materna en la Ghana rural, donde la mayor parte de la información acerca de la mortalidad materna suele provenir de encuestas retrospectivas y registros hospitalarios.

Métodos En 2013, los voluntarios del seguimiento de ámbito comunitario utilizaron una encuesta sobre mortalidad en edad reproductiva (RAMOS 4+2) para entrevistar a miembros de familias de mujeres en edad reproductiva (13-49 años) que fallecieron en el distrito de Bosomtwe durante los cinco años anteriores. La encuesta estaba formada por preguntas de sí y no y dos preguntas adicionales. Se realizaron autopsias verbales en caso de que se respondiera de forma afirmativa al menos a una pregunta de sí y no. Un comité de revisión de mortalidad estableció la causa de la muerte.

Resultados Se disponía de los resultados de la encuesta para 357 mujeres en edad reproductiva que fallecieron en el distrito. Se registró una respuesta afirmativa a al menos una pregunta de sí y no para los encuestados que informaron sobre el fallecimiento de 132 mujeres. Estas mujeres sufrieron de mortalidad materna o fallecieron durante el año posterior al fin de su embarazo. Una revisión de 108 autopsias verbales constató que 64 mujeres sufrieron de muerte materna o muerte materna tardía y que 36 fallecieron por causas no relacionadas con la procreación. Las causas más comunes de fallecimiento fueron la hemorragia (15) y el aborto (14). El índice de mortalidad materna resultante fue de 357 por 100 000 nacidos vivos, frente a 128 por 100 000 nacimientos vivos según los registros hospitalarios.

Conclusión La encuesta sobre mortalidad de ámbito comunitario resultó eficaz al determinar las muertes maternas e identificar muchas otras no incluidas en los registros hospitalarios. Las encuestas nacionales podrían proporcionar la información necesaria para acabar con la mortalidad materna evitable en 2030.

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