

Cultural adaptation of birthing services in rural Ayacucho, Peru

Sabine Gabrysch,^a Claudia Lema,^b Eduardo Bedriñana,^b Marco A Bautista,^c Rosa Malca,^b Oona MR Campbell^a & J Jaime Miranda^a

Problem Maternal mortality is particularly high among poor, indigenous women in rural Peru, and the use of facility care is low, partly due to cultural insensitivities of the health care system.

Approach A culturally appropriate delivery care model was developed in poor and isolated rural communities, and implemented between 1999 and 2001 in cooperation with the Quechua indigenous communities and health professionals. Data on birth location and attendance in one health centre have been collected up to 2007.

Local setting The international nongovernmental organization, Health Unlimited, and its Peruvian partner organization, Salud Sin Límites Perú, conducted the project in Santillana district in Ayacucho.

Relevant changes The model involves features such as a rope and bench for vertical delivery position, inclusion of family and traditional birth attendants in the delivery process and use of the Quechua language. The proportion of births delivered in the health facility increased from 6% in 1999 to 83% in 2007 with high satisfaction levels.

Lessons learned Implementing a model of skilled delivery attendance that integrates modern medical and traditional Andean elements is feasible and sustainable. Indigenous women with little formal education do use delivery services if their needs are met. This contradicts common victim-blaming attitudes that ascribe high levels of home births to "cultural preferences" or "ignorance".

Une traduction en français de ce résumé figure à la fin de l'article. Al final del artículo se facilita una traducción al español. الترجمة العربية لهذه الخلاصة في نهاية النص الكامل لهذه المقالة.

Introduction

Most obstetric complications occur around the delivery period and often cannot be predicted. Therefore, skilled attendance at delivery and access to emergency obstetric and neonatal care are crucial for decreasing maternal mortality¹ and neonatal mortality.² There are enormous disparities in skilled attendant use within low- and middle-income countries, disadvantaging poor people and those living in rural areas.³ Many of these disparities stem from differences in geographic and financial access to services but, in some settings, barriers created by cultural differences are important.

Cultural background influences beliefs, norms and values in relation to childbirth and health service use; furthermore, certain ethnic groups experience discrimination by health staff, causing them to avoid services.⁴ Several Latin American studies find that indigenous women are much less likely to have skilled attendants at delivery than other population groups.⁴⁻⁶

Setting

Ayacucho, in the south-central Andes, is one of Peru's regions with the highest maternal mortality ratios. In 2000, the maternal mortality ratio was around 50 per 100 000 live births in Lima but more than 300 in Ayacucho.⁷ Three-quarters of Ayacucho's population are indigenous and speak mostly the Quechua language. Poverty is extreme, educational levels are low and illiteracy is widespread, especially among women. The region was hit hard during the internal conflict between the Shining Path guerrilla group and the military in the 1980s.

In 1997, the international nongovernmental organization, Health Unlimited, started working in isolated communities in Ayacucho, initially by building links between local communities and the health system through training volunteer community health agents.⁸ In response to high maternal mortality, the plight of indigenous women with problems during labour and the lack of contact with the government health system, an intervention study that introduced culturally appropriate delivery services was initiated in Santillana (Huanta province) in 1999.

Santillana district had 6158 inhabitants in 1993 and 7305 inhabitants in 2005.⁹ Most people live in dispersed communities and work as subsistence farmers. Transport is mainly by foot, with public transport running once weekly from the district capital to some communities. The project involved the government health centre of the district capital with its catchment area of 17 villages.

The objective of the project was to increase delivery service use by building trust between health-care providers and communities and by making services responsive to the communities' needs. The accompanying study aimed to document the implementation process for future replication and to evaluate the project's impact.

Methods

The project of cultural adaptation of delivery services was conducted in four phases over 2 years starting in October 1999: (i) detailed formative research, (ii) design of a new culturally adapted delivery model, (iii) implementation of this

^a Department of Epidemiology and Population Health, London School of Hygiene and Tropical Medicine, London, England.

^b Salud Sin Límites Perú, Miraflores, Lima, Peru.

^c Centro de Salud "San José de Secce", Red de Salud de Huanta, Ayacucho, Peru.

Correspondence to Claudia Lema (e-mail: claudialema@saludsinlimitesperu.org.pe).

(Submitted: 14 August 2008 – Revised version received: 19 December 2008 – Accepted: 22 December 2008 – Published online: 1 July 2009)

model, and (iv) evaluation of implementation and impact. A fifth, post-project phase of monitoring and data collection is still ongoing, giving over 7 years of follow-up to date (Box 1).

Results

Design of the intervention

The intervention to make delivery services culturally appropriate involved features such as a rope and bench for vertical delivery position, inclusion of family and traditional birth attendants in the delivery process and use of the Quechua language. Table 1 summarizes selected findings from the first, formative research phase and how each of these translated into the new delivery model. All proposed solutions were implemented, except for the improvements in referral systems and retention of health professionals.

Satisfaction levels

After the new culturally adapted vertical delivery model was implemented in the health centre of San José de Secce in 2000, it was chosen by most women delivering there. By 2000, two-thirds of deliveries were done in the culturally adapted way, and this rose to more than 86% in 2001 and 94% in 2004.

The evaluation survey after completion of the project in October 2001 showed that 49% of local women knew of the culturally adapted service, as did 72% of influential people (traditional birth attendants, community leaders and community health agents). All 16 women interviewed who had used the service reported that they felt comfortable in the delivery room, gave birth in their own clothes, had their husband present and received the placenta. Fourteen (approximately 90%) of the women were satisfied with the service and felt well-attended, would use it again and recommend it to others; 13 (approximately 80%) said Quechua was spoken; and 11 (approximately 70%) listed the rope and bench for vertical delivery as the best feature of the service. All seven health professionals interviewed were satisfied with the model, considered it successful in meeting population needs and increasing facility deliveries and wanted to continue using it.

Impact on delivery service use

Of 52 births in the area at baseline in 1999, only 3 (6%) were delivered in the

Box 1. Project phases

Phase 1

Detailed formative research was carried out over the first 6 months to understand local perceptions and practices concerning sexual and reproductive health and attitudes towards traditional and modern services using quantitative and qualitative methods.

A random sample of 73 men and 89 women of reproductive age from San José de Secce and 4 surrounding communities were questioned, and in-depth interviews were conducted with 24 individuals representing the communities, 8 traditional birth attendants and 3 health professionals.

Phase 2

Design of a birthing service was done in the second 6 months. This was facilitated by 3 meetings bringing together pregnant women from the communities, traditional birth attendants, community health agents and health professionals from the government health centre and included visits to the new delivery room to discuss how to equip it. The principle was to bring all actors together, moderate disputes, help define respective roles and jointly design a delivery model that incorporated culturally valued elements and medical safety.

Phase 3

Implementation began in 2000 and continued until September 2001. Implementation activities were carried out in a participatory way involving all actors. Capacity building workshops were held for health professionals and traditional birth attendants, with each group teaching the other. Health professionals taught about institutional procedures, danger signs and newborn care, while traditional birth attendants facilitated a session on traditional birth and medications. Health Unlimited prepared documents and presentations on evidence-based practice for the health authorities and decision-makers.

The population was informed about the new model service during workshops on family planning, antenatal care, delivery risks and other reproductive health topics, and posters and radio programmes about the changes were produced in the Quechua language.

Phase 4

The project evaluation took place in October 2001 using questionnaires targeted at a purposeful sample of 162 men and women of reproductive age in the project area, 16 women who had delivered in a project facility, 7 health professionals and 32 other actors involved such as traditional birth attendants, community health agents and community leaders. It included evaluation of implementation, knowledge of the new model, satisfaction levels and its impact on delivery service uptake and sustainability.

Some minor adaptations were made after the evaluation. For example, the synthetic rope was replaced by a woollen one.

Phase 5

The longer term follow-up and assessment of sustainability used routine facility statistics from the health centre in San José de Secce. This routine monitoring system was set up during the first phase of the project and is still in place, collecting information on number of deliveries in the catchment area, place and attendant of delivery and type of delivery (culturally adapted or not). Maternal mortality is also being monitored but numbers are too small for drawing inferences (no cases in the project area since 2004).

health centre, 19 (37%) were attended by a health professional at home while the remaining 30 home births (58%) were attended by traditional birth attendants or family (Fig. 1).

While numbers are small, the changes after implementing the culturally appropriate service were striking: the percentage of deliveries in a health facility increased to 83% (2007) and the percentage of deliveries under skilled attendance to 95% (2007), with most of the change taking place in the first 2 years after implementation and a further shift from attended home deliveries towards facility deliveries thereafter (Fig. 1).

Other project achievements were that traditional birth attendants informed health centre personnel of pregnancies and births, sought their help and even started to refer women and newborns to the health centre, something that did not occur before the project and which reflected an improvement in the relationships between traditional birth attendants, community health agents and health centre personnel.

Sustainability of the model

The culturally adapted delivery model is still used by nearly all women delivering at the project health centre. The community health agents continue to

Table 1. **Some barriers identified and solutions proposed for new delivery model**

Barriers identified	Solutions proposed
Providers speak Spanish which is not understood by many.	Health professionals attend in the Quechua language.
Rotation of health personnel does not allow time to build trust.	Better conditions for health professionals to improve retention.
Health professionals treat women in unfriendly, brusque and sometimes discriminatory ways.	Health professionals are friendly and respectful of local culture.
Family has no opportunity to stay.	Room for accompanying family members provided with beds, chairs and cooker.
Long travel time to facility means the women need to come early before labour starts, but have no place to stay.	Waiting room provided for women and families awaiting delivery, later upgraded to waiting home in line with national policy.
Husband, family and traditional birth attendant excluded from delivery room. Women want them to actively participate in labour.	Husband and/or traditional birth attendant can accompany and help physically with pushing.
Unfamiliar hospital food, no option to cook traditional food and drinks.	Kitchen and utensils provided where family can prepare food and drinks.
Use of natural oils and creams or traditional herbs as treatment for labour difficulties not permitted.	Various traditional medicines provided (oils, eggs, herbs, etc.) for use and women are welcome to use.
Use of hospital gown required.	Women can wear their own clothes.
Cold, loud, bright and sterile delivery room.	Quiet, dark, shielded room with windows and curtains to protect from view.
Unknown people may enter the room.	No others allowed without permission of the woman.
Shame because genitals are exposed during vaginal examinations and hygiene procedures.	Hygiene procedures done by woman herself or family after explanations.
Fear of unknown procedures.	Health professionals explain all procedures and ask permission before any exams.
Horizontal position on gynaecological bed enforced instead of preferred vertical position with a rope for pushing during contractions.	Vertical crouching position allowed and facilitated by providing rope and bench. Normal bed also provided instead of gynaecological bed.
Umbilical cord should be cut by family member according to tradition.	Sterile cutting of umbilical cord by health professional was non-negotiable.
Tablets for uterine contraction are used instead of traditional "rollete", a belt placed tightly on the women's abdomen after delivery.	"Rollete" used if desired after the baby's delivery in addition to tablets to help uterine contraction.
Placenta thrown away while it should be shielded and buried in a warm place according to tradition.	Placenta carefully handled and handed to family for burial.
Weak referral possibilities in case of complications that cannot be dealt with at health centre level.	Free ambulance referral if needed for complications. However, not implemented due to difficulties in covering petrol costs.
Women discharged 72 hours after delivery.	Women decide length of their stay postpartum, can rest as long as needed.

work in the area and health officials in Santillana district have publicly thanked them for their crucial role. Data collection has continued after the end of the project.

In 2004, the health centre in San José de Secce was evaluated as the best health facility in Huanta province. The project is known to the Ministry of Health and has been labelled a "successful experience" for maternal health care. It was presented as an example to health facilities in the region and visitors have come to learn from its success.

Discussion

Global strategy documents for reducing maternal mortality cite the need for skilled attendants and even facility births.¹ Yet in many settings such care, while potentially life-saving, can be

unfriendly, degrading or even abusive to women. It can also expose them to unnecessary medical intervention and harmful medical practices that are not evidence-based. The literature shows the difficulties in changing provider behaviour.¹⁰

This study clearly demonstrates the feasibility of creating and implementing a model of skilled delivery attendance that integrates modern medical and traditional Andean elements. The key factor for the project's success was its participatory approach which ensured that the delivery services really met the needs of the local population. This led to a dramatic increase in their use which has been sustained well beyond the initial project life. Lessons learned are summarized in Box 2.

While adequate funds are necessary to implement such a new model

and ensure quality care and referral capacity, much can be achieved on a relatively small budget. The total budget of this project was US\$ 68 125 with the implementation costs per health facility of around US\$ 2500.

Limitations

That total births in the project area more than doubled over the observation period suggests underreporting during the first few years. However, since most of this underreporting is likely to be among home births, this implies that the true increase in facility births is probably even greater than observed. The small number of births and the lack of clear data on maternal or neonatal mortality are limitations of the study. We are aware that delivery service use can only save lives if both personal and

medical quality of care is assured and if emergency services are functioning.

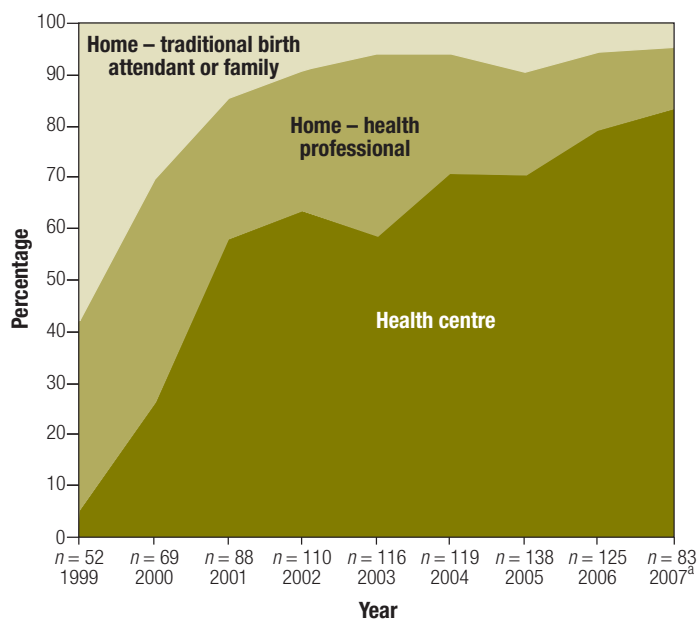
Outlook

After finishing this project, Health Unlimited built similar delivery rooms in four other facilities in Ayacucho and also started an analogous project with two indigenous communities in the Peruvian Amazon rainforest. Unfortunately, the process of replication by governmental bodies is slow. Despite new training modules for health providers on “interculturality” and a Ministry of Health protocol from 2005 making vertical delivery position an option for all women nationwide,¹¹ most health facilities still do not meet the cultural and basic human needs of indigenous women.

Rather, attempts to coerce the population into behaving in ways that health professionals desire are still common, as for example with the illegal practice of imposing *de facto* fines for providing birth certificates for children born at home,¹² a practice used by some health professionals under pressure to meet targets. Instead of ascribing the high levels of home births to “cultural preferences” or “ignorance,” the health system should first strive to offer high quality and financially, geographically and culturally accessible services respecting the needs and human rights of the people they serve. The experience of San José de Secce, along with other similar projects in Peru show what can be achieved and how.^{13,14}

It is interesting to note that the only proposed solutions in this project that were not implemented, namely improvements in referral systems and retention of health professionals, are those linked to wider health systems issues not controlled by local health professionals. As clearly expressed by Sundari¹⁵, “the existing state of affairs in the health-care system that contributes to high maternal mortality is not the consequence of mere inept planning or poor organizational and managerial capacity. It is a reflection of the priorities set by an elitist system in which the poor and powerless do not count”. To change this requires strategic decisions to redress the systemic inequities in the Peruvian health care system and society as a whole. It also requires the active involvement of the marginalized sections of society and a respectful attitude to women and traditional cultures. ■

Fig. 1. Change in place of birth and delivery assistance as a percentage of births per year between 1999 and 2007, Ayacucho, Peru.



^a Data only available until October 2007.

Box 2. Lessons learned for culturally adapted delivery care

1. Facilitated dialogues between health professionals and the communities are crucial in building mutual respect. Community health agents are an important link.
2. Health professionals need to have a sense of urgency, recognize that the existing services are not meeting the population's needs and be willing to allow the full participation of all actors in deciding what type of services should be offered.
3. Simple changes such as respecting certain preferences or language or allowing the company of relatives can have a massive impact both on service satisfaction and use.

Acknowledgements

We thank all the women, traditional birth attendants, volunteer community health agents and all health professionals from the Microrred de Salud de Santillana, Hospital Provincial de Huanta and Dirección Regional de Salud de Ayacucho who contributed and took part in different stages of the project, including its design, implementation, monitoring and sustainability phases. Special thanks to all Health Unlimited and Salud Sin Límites Perú's staff for their support during fieldwork as well as follow-up phases. Thanks also to Ana María Buller for her useful comments as independent evaluator and to Adriana Zumarán, previously Health Unlimited's Technical Coordinator, for her valuable contributions after the project intervention.

Claudia Lema, Eduardo Bedriñana and Rosa Malca are also affiliated with the Peruvian Programme, Health Unlimited, Ayacucho, Peru. J Jaime

Miranda is also affiliated with Salud Sin Límites Perú, Miraflores, Lima, Peru.

Funding: The project “Provision of culturally adapted sexual and reproductive health services in communities affected by the violence in Ayacucho” was conducted by Health Unlimited with financial support from the European Commission via Population Concern as part of their Initiatives in Reproductive Health for the Andean Region (ISSRA). Follow-up data collection, reported in this article, was done jointly by Health Unlimited and its Peruvian partner organization, Salud Sin Límites Perú. J Jaime Miranda is supported by a Wellcome Trust Research Training Fellowship (GR074833MA). The sponsors had no role in study design, data collection, data interpretation or writing of the paper.

Competing interests: None declared.

Résumé

Adaptation culturelle des services d'accouchement dans l'Ayacucho rural, au Pérou

Problématique Parmi les femmes indigènes pauvres du Pérou rural, la mortalité maternelle est particulièrement élevée et le recours aux soins en établissement est faible, en partie du fait du manque d'adaptation sur le plan culturel du système de soins de santé.

Démarche Un modèle de soins culturellement adapté a été mis au point dans des communautés rurales pauvres et isolées et mis en application entre 1999 et 2001, en coopération avec les communautés indigènes Quechua et des professionnels de santé. Des données sur le lieu de naissance et sur la fréquentation d'un centre de santé ont été recueillies jusqu'en 2007.

Contexte local L'organisation non-gouvernementale internationale Santé sans frontières et son partenaire au Pérou, l'organisation Salud Sin Límites Perú, ont mené le projet dans le district de Santillana, dans l'Ayacucho.

Modifications pertinentes Le modèle couvrait des aspects tels

que l'utilisation d'une corde et d'un banc pour l'accouchement en position verticale, la participation de la famille ou d'accoucheuses traditionnelles à l'accouchement et l'utilisation de la langue Quecha. La proportion des naissances intervenues dans un établissement de soins est passée de 6 % en 1999 à 83 % en 2007, avec des niveaux de satisfaction élevés.

Enseignements tirés La mise en œuvre d'un modèle d'accouchement assisté par du personnel qualifié intégrant des éléments médicaux modernes et des éléments andins traditionnels est faisable durablement. Les femmes indigènes n'ayant reçu qu'une éducation formelle très limitée font appel à ces services si leurs besoins sont satisfaits. Cette observation contredit les attitudes faisant porter la responsabilité aux victimes qui attribuent les taux élevés de naissance à domicile à « des préférences culturelles » ou à « l'ignorance ».

Resumen

Adaptación cultural de los servicios de maternidad en el Ayacucho rural, Perú

Problema La mortalidad materna es particularmente alta entre las mujeres pobres indígenas de las zonas rurales del Perú. El uso que estas hacen de los servicios asistenciales es bajo, en parte porque el sistema de atención de salud adolece de insensibilidad a los factores culturales.

Enfoque Se desarrolló un modelo de atención obstétrica culturalmente idóneo para comunidades rurales pobres y aisladas. Dicho modelo se puso en práctica entre 1999 y 2001 en cooperación con profesionales sanitarios y comunidades indígenas quechuas, y posteriormente se reunieron datos sobre el lugar del parto y la atención recibida hasta 2007.

Contexto local La organización no gubernamental internacional Health Unlimited y su organización asociada peruana, Salud Sin Límites Perú, dirigieron el proyecto en el distrito de Santillana de Ayacucho.

Cambios destacables El modelo incluye componentes tales como el uso de una cuerda y un banco para el parto vertical, la participación de familiares y de parteras tradicionales en el alumbramiento y el uso del quechua. La proporción de nacimientos atendidos en centros de salud aumentó del 6% en 1999 al 83% en 2007, con niveles altos de satisfacción.

Enseñanzas extraídas La aplicación de un modelo de atención al parto por personal cualificado que integra elementos médicos modernos y elementos andinos tradicionales es una opción viable y sostenible. Si se atienden sus necesidades, las mujeres indígenas con bajo nivel de instrucción usan efectivamente los servicios de maternidad. Ello contradice una actitud extendida de culpabilización de las víctimas que atribuye el alto nivel de partos domiciliarios a las « preferencias culturales » o la « ignorancia ».

ملخص

التكيف الثقافي لخدمات الولادة في ريف أياكوشو، البيرو

وطاولة للولادة بالوضعية العمودية، وإدراج العائلة والقابلات التقليديات في عملية الولادة، واستخدام اللغة الكواشوية. وقد زادت نسب الولادات في المرافق الصحية من 6% عام 1999 لتصل إلى 83% عام 2007 مع مستويات رضا مرتفعة.

الدروس المستفادة: إن من الممكن تنفيذ نموذج لحضور أرباب المهن الطبية ممن يتمتعون بالمهارة للولادات، وهو ما يحدث التكامل بين العناصر الطبية الحديثة والعناصر الطبية التقليدية في بلاد الأنديز كما أن من الممكن استدامة ذلك. وإن النساء من السكان الأصليين اللاتي يفتقدن التعليم الرسمي سيستخدمن بالتأكيد مرافق الولادة إذا ما تمت تلبية احتياجاتهن. وهذا يتناقض مع المواقف الشائعة التي تنحي باللامه على "الجهل" أو "التفضيل الثقافي" كسبب للمعدلات المرتفعة من الولادات في المنزل وما تؤدي إليه من ضحايا.

المشكلة: ترتفع معدلات الوفيات بين الأمهات بشكل خاص بين النساء الفقيرات من السكان الأصليين في أرياف البيرو، كما تنخفض معدلات الاستفادة من مرافق الرعاية، ويعود ذلك جزئياً إلى عدم مراعاة نظام الرعاية الصحية للحساسية الثقافية.

الأسلوب: أعد الباحثون نموذجاً للرعاية التوليدية ملائماً للثقافة في المجتمعات الريفية الفقيرة والمعزولة، وتم تنفيذه في المدة بين عامي 1999 و2001 بالتعاون مع مجتمعات كوشوا للسكان الأصليين وأرباب المهن الصحية. وقد تمكن الباحثون من جمع المعطيات حول مواقع الولادة والمراجعة لها في إحدى المراكز الصحية حتى عام 2007.

الموقع المحلي: قامت بتنفيذ المشروع في منطقة سانتيلانا في أياكوشو منظمة دولية غير حكومية هي منظمة الصحة بلا حدود بالاشتراك مع منظمة بيروفية شريكة هي منظمة الصحة بلا حدود في البيرو.

التغيرات ذات الصلة: اشتمل النموذج على بعض الملامح مثل توفير حبل

References

- Campbell OM, Graham WJ. Strategies for reducing maternal mortality: getting on with what works. *Lancet* 2006;368:1284-99. PMID:17027735 doi:10.1016/S0140-6736(06)69381-1
- Lawn JE, Cousens S, Zupan J. 4 million neonatal deaths: When? Where? Why? *Lancet* 2005;365:891-900. PMID:15752534 doi:10.1016/S0140-6736(05)71048-5
- Houweling TA, Ronsmans C, Campbell OM, Kunst AE. Huge poor-rich inequalities in maternity care: an international comparative study of maternity and child care in developing countries. *Bull World Health Organ* 2007;85:745-54. PMID:18038055
- Glei DA, Goldman N, Rodriguez G. Utilization of care during pregnancy in rural Guatemala: does obstetrical need matter? *Soc Sci Med* 2003;57:2447-63. PMID:14572850 doi:10.1016/S0277-9536(03)00140-0
- De Broe S. Diversity in the use of pregnancy-related care among ethnic groups in Guatemala. *J Fam Plann Reprod Health Care* 2005;31:199-205. PMID:16105283 doi:10.1783/1471189054483889
- Pebley AR, Goldman N, Rodriguez G. Prenatal and delivery care and childhood immunization in Guatemala: do family and community matter? *Demography* 1996;33:231-47. PMID:8827167 doi:10.2307/2061874
- Watanabe VT. *Tendencias, Niveles y Estructura de la Mortalidad Materna en el Perú, 1992 - 2000*. Lima: Instituto Nacional de Estadística e Informática; 2002. Available from: http://www.unfpa.org.pe/infosd/mortalidad_materna/mor_mat_04.htm [accessed on 18 June 2009].
- Brown A, Malca R, Zumarán A, Miranda JJ. On the front line of primary health care: the profile of community health workers in rural Quechua communities in Peru. *Hum Resour Health* 2006;4:11. PMID:16707010 doi:10.1186/1478-4491-4-11
- Censo Nacional de Poblacion 2005*. Lima: Instituto Nacional de Estadística e Informática (INEI);2005.
- Chaillet N, Dube E, Dugas M, Audibert F, Tourigny C, Fraser WD, et al. Evidence-based strategies for implementing guidelines in obstetrics: a systematic review. *Obstet Gynecol* 2006;108:1234-45. PMID:17077251
- Dirección General de Salud de las Personas. Norma técnica para la atención del parto vertical con adecuación intercultural. NT N°33-MINSA/DGSP-V.01. Estrategia sanitaria nacional de salud sexual y reproductiva*. Lima: Ministerio de Salud Perú; 2005. Available from: <http://www.unfpa.org.pe/publicaciones/publicacionesperu/> [accessed on 18 June 2009].
- Deadly delays: maternal mortality in Peru: a rights-based approach to safe motherhood*. Cambridge, MA: Physicians for Human Rights; 2007; Available from: <http://physiciansforhumanrights.org/library/report-2007-11-28.html> [accessed on 18 June 2009].
- Fraser B. Peru makes progress on maternal health. *Lancet* 2008;371:1233-4. PMID:18411436 doi:10.1016/S0140-6736(08)60541-3
- Brockner A, Sánchez G, Arévalo M, Espinoza G. *Promoción de la Medicina y Prácticas Indígenas en la Atención Primaria de Salud: El Caso de los Quechua del Perú. Iniciativa de Salud de los Pueblos Indígenas de las Américas*. Washington, DC: Pan American Health Organization; 2001. Available from: http://www.paho.org/Spanish/AD/THS/OS/indi18_esp.pdf [accessed on 18 June 2009].
- Sundari TK. The untold story: how the health care systems in developing countries contribute to maternal mortality. *Int J Health Serv* 1992;22:513-28. PMID:1644513 doi:10.2190/91YH-A52T-AFBB-1LEA