International Journal of Gynecology and Obstetrics xxx (2014) xxx–xxx

Contents lists available at ScienceDirect

International Journal of Gynecology and Obstetrics

journal homepage: www.elsevier.com/locate/ijgo

www.figo.org

CLINICAL ARTICLE

Access to transport for women with hypovolemic shock differs according to weeks of pregnancy☆

Elizabeth Butrick [a,*], Amy Penn [a], Kaoru Itakura [b], Gricelia Mkumba [c,d], Kelly Winter [a], Rhoda Amafumba [d], Suellen Miller [a]

[a] Department of Obstetrics, Gynecology and Reproductive Sciences, University of California San Francisco, San Francisco, CA, USA
[b] School of Medicine, University of California San Francisco, San Francisco, CA, USA
[c] Department of Obstetrics and Gynecology, University of Zambia, Lusaka, Zambia
[d] Department of Obstetrics and Gynecology, University Teaching Hospital, Lusaka, Zambia

A R T I C L E I N F O

Article history:
Received 28 January 2014
Received in revised form 12 May 2014
Accepted 19 June 2014

Keywords:
Complications of abortion
Emergency transport
Hemorrhage
Maternal health
Millennium Development Goal 5 (MDG 5)
Reproductive health

A B S T R A C T

Objective: To examine whether women with hypovolemic shock secondary to obstetric hemorrhage are transported to referral hospitals differently depending on weeks of pregnancy in Zambia. *Methods:* In a retrospective study, transport type, wait time, and transit time were assessed for women with obstetric hemorrhage and hypovolemic shock transported from 26 primary health centers to three referral hospitals during 2007–2012. A mean arterial pressure of less than 60 mm Hg was used to indicate severe shock. Women were split into two categories on the basis of the number of weeks of pregnancy (<24 weeks vs ≥24 weeks). *Results:* Overall, 616 women were included. Mode of transport differed significantly by group ($P < 0.001$). 414 (93.0%) of 445 women at 24 weeks of pregnancy or more were transported by ambulance versus 114 (66.7%) of 171 women at less than 24 weeks. Among those in severe shock, 106 (93.0%) of 114 women at 24 weeks of pregnancy or more were transported in ambulances versus 26 (52.0%) of 50 women at less than 24 weeks ($P < 0.001$). *Conclusion:* Women at 24 weeks of pregnancy or more were given preference for ambulance transport even when signs of shock were equivalent. Policy-makers aiming to lower maternal mortality need to address transport issues regardless of the etiology of hemorrhage or week of pregnancy.

1. Introduction

Millennium Development Goal 5 (MDG 5) aims to reduce maternal mortality by 75% by 2015 [1], but few countries will reach that goal. Although maternal mortality is reducing, there were 273 500 maternal deaths in 2011 [2], 99% of which were in low-resource countries [3].

Hemorrhage is the largest single cause of mortality [4], and occurs mainly post partum secondary to uterine atony. Other etiologies include genital lacerations, placenta previa or abruption, and abortion complications. Together, hemorrhage and unsafe abortion account for over 37% of all maternal deaths in Africa [5]. In 2008, the East Africa region had the highest incidence of unsafe abortion, and the second highest number of maternal deaths due to unsafe abortion worldwide [6].

Factors associated with maternal mortality in low-income countries include delays in recognizing complications, deciding to seek care, reaching a referral facility, and receiving definitive care at a facility [7,8]. Efforts to reduce maternal mortality often focus on reducing these delays. Previous studies [9–11] have shown that African women affected by complications of abortion, whether induced or spontaneous, may delay seeking care. In addition to a lack of recognition of the severity of their bleeding, these women also encounter stigma that may mean they delay seeking medical attention. In many African national policies, abortion is illegal or marginally legal. Women may fear the judgment of health providers and even legal sanctions if they have or are suspected of having induced an abortion [6,9].

Several studies have documented stigmatization of postabortion women by the general population and healthcare providers. In a study of attitudes of Zambian nurse-midwives toward abortion [12], for example, 50% responded that they would “feel annoyed” at a patient presenting with symptoms of abortion. Moreover, 94% reported that they did not support abortion for adolescent girls with unwanted pregnancies [12].

A delay in obtaining emergency transport also contributes to maternal mortality. In low-income countries, most women deliver at home or at a primary health center, rather than in referral hospitals where

☆ Data presented at the FIGO World Congress of Gynecology and Obstetrics; October 8, 2012; Rome, Italy. Butrick E, Penn A, Itakura K, Mkumba G, Winter K, Miller S. Comparing transport type for women with hypovolemic shock in early vs. late pregnancy. Int J Gynecol Obstet 2012;119(suppl 3):S303.

* Corresponding author at: University of California San Francisco, 50 Beale St., Suite 1200, San Francisco, CA 94105, USA. Tel.: +1 415 597 4962; fax: +1 415 597 9300.
E-mail address: ebutrick@globalhealth.ucsf.edu (E. Butrick).

http://dx.doi.org/10.1016/j.ijgo.2014.05.008
0020-7292/

complications can be addressed. Women with abortion complications may also access care at a primary health center, where they are assessed and, if necessary, referred to higher-level facilities for blood transfusions, surgery, or other definitive care. Although postpartum hemorrhage is generally thought to be the dominant reason for referral, a recent study in Burundi [13] found that abortion complications were the most common reason for transfer.

Women who are referred may travel via an emergency transport system (ambulance), or they may have to seek and pay for their own transport. Transport is frequently cited as a barrier to receiving facility-based care [14], and there is evidence that it also affects maternal mortality. A systematic review of qualitative studies on maternal emergency transport [15] noted that many women reported difficulty finding transport, a lack of transport options, and long waits and travel times for all maternal complications. In Zambia, a lack of functioning, staffed ambulances was noted as a factor contributing to maternal deaths [16]. Additionally, a systematic review of studies examining why women die when they reach the hospital [17] found that 12 of the 16 studies recorded inadequate emergency transport as a factor contributing to maternal mortality.

Emergency transport systems and community mobilization to identify local resources for transport of women who need emergent care are critical components to reduce delays. However, they may not be reaching all women equally. As noted above, women with abortion complications face stigma and poor provider attitudes when seeking care; these women possibly also face discrimination when accessing emergency transport. During training sessions for a large multicenter trial of an obstetric hemorrhage intervention [18], healthcare workers from outpatient departments attended by women with abortion complications reported that they had difficulties accessing ambulances for their patients. As a result, the aim of the present study was to compare transport methods, waiting times for transport, and transit times among women with obstetric hemorrhage at less than 24 weeks of pregnancy and those at 24 weeks or more in Zambia.

2. Materials and methods

The present retrospective study was a secondary analysis of data from a randomized cluster trial of the non-pneumatic anti-shock garment for obstetric hemorrhage in Zambia and Zimbabwe. The parent study enrolled women in hypovolemic shock due to any obstetric cause at primary health centers before transfer to referral hospitals between October 1, 2007, and May 31, 2012. Informed consent was obtained from all women in the parent study when the data were collected; de-identified data from the parent study were used in the present analysis. The study was approved by the institutional review board of the University of California San Francisco (UCSF), San Francisco, CA, USA.

For the present analysis, data on transport type (ambulance, taxi, or private vehicle), wait time, and transit time were extracted from the parent study for women with obstetric hemorrhage and hypovolemic shock who were transported from 26 peri-urban primary health centers to three referral hospitals in three districts (Kitwe, Lusaka, and Ndola) in Zambia.

Primary health centers in Zambia have several departments including maternity and outpatient departments. Maternity departments are open 7 days per week, 24 hours per day, and nurse-midwives conduct deliveries. Outpatient departments are staffed by clinical officers (in Zambia, these are general medical providers with a 2- or 3-year diploma) and nurses, and cover a wide range of adult cases during regular daytime operating hours. Women who are not far advanced in their pregnancy are more likely to be seen in the outpatient department.

All study sites had a central dispatch system and access to ambulances (operated by the district) for transporting women to the referral facility. The decision to request an ambulance is made by the healthcare provider, who uses a radio or phone to reach the central ambulance dispatch. Central dispatchers prioritize between patients from all primary health centers and send ambulances out to the centers. Women who are transported in an ambulance are typically accompanied by a nurse or nurse-midwife in the ambulance, and are monitored and receive intravenous fluids while in transit. Nurses do not typically accompany women transported by taxi or private vehicle because of a lack of return transport and concerns about safety and liability.

All women included in the study had hypovolemic shock secondary to obstetric hemorrhage. Shock was defined if at least two of the following three criteria were met on study entry at the primary health center: pulse of at least 100 beats per minute, systolic blood pressure of 100 mm Hg or less, or estimated blood loss of at least 500 mL. The blood loss criterion was used to assist in excluding other forms of shock as the parent study's focus was to use an intervention only for hypovolemic shock. Blood pressure at study entry was used to compute mean arterial pressure (MAP), which was used as an indicator of severity of shock; a MAP value of less than 60 mm Hg indicated severe shock.

For the present study, women were split into two categories on the basis of the number of weeks of pregnancy (Fig. 1). For each woman, the assignment of category was validated by cross-checking the etiology and treatment location within the primary health center. Women with missing information on weeks of pregnancy were categorized as less than 24 weeks if the etiology was abortion complications and treatment location was the outpatient department.

Data extracted from the parent study included the time that shock was identified and the patient was enrolled in the study at the primary health center, the time that the transport was called, the time that the transport left the primary health center for the referral hospital, and the time that the transport arrived at the referral hospital. These data were used to create the time variables "wait time" and "transit time." Wait time was defined as number of minutes between the time that the transport was called and the time that the transport left the primary health center. Transit time was defined as the number of minutes between the time that the transport left the primary health center and the time that the patient reached the referral hospital.

Data in the parent study were collected on paper forms and entered into OpenClinica (Akaza Research, Waltham, MA, USA), an online data management system. Variables related to the present study aim were extracted from the main dataset. Outliers and discrepancies were checked against hard copies of the data collection forms to verify accuracy when necessary.

The present analysis was conducted via Stata version 11 (StataCorp, College Station, TX, USA). Data were compared by χ^2 and rank-sum tests. $P < 0.05$ was considered statistically significant.

3. Results

During the study period, 616 women with obstetric hemorrhage and hypovolemic shock were transported from 26 primary health centers to

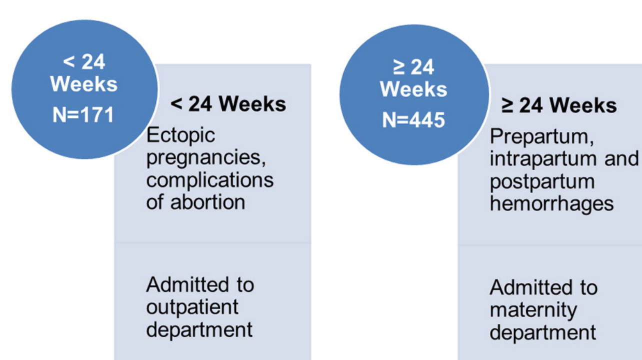

Fig. 1. Weeks of pregnancy, etiology and treatment location of women in the two categories.

Please cite this article as: Butrick E, et al, Access to transport for women with hypovolemic shock differs according to weeks of pregnancy, Int J Gynecol Obstet (2014), http://dx.doi.org/10.1016/j.ijgo.2014.05.008

Table 1
Characteristics of women with obstetric hemorrhage and hypovolemic shock.[a]

Characteristic	Gestational age	
	<24 weeks (n = 171)	≥24 weeks (n = 445)
Age, y	27.9 ± 6.0	26.89 ± 6.1
Median gravida	3	3
MAP <60 mm Hg	50 (29.2)	114 (25.6)
Weeks of pregnancy	13.3 ± 4.8	36.4 ± 2.3
District		
Lusaka	120 (70.2)	185 (41.6)
Kitwe	23 (13.5)	154 (34.6)
Ndola	28 (16.4)	106 (23.8)

Abbreviation: MAP, mean arterial pressure.
[a] Values are given as mean ± SD or number (percentage) unless stated otherwise.

three referral hospitals. 171 women were at less than 24 weeks of pregnancy at time of study entry, and 445 at 24 weeks or more. Table 1 summarizes the characteristics of the women in each group. The groups were similar in terms of gravidity, age, and proportion of women who entered the study in severe shock (Table 1). There were some differences among the sites in the representation of the two groups: the number of women at less than 24 weeks was highest in Lusaka (Table 1).

Mode of transport differed significantly between groups ($P < 0.001$). Overall, the proportion of women at less than 24 weeks who were transported by ambulance was much lower than that of women at 24 weeks or more (Table 2). The proportions remained the same regardless of which department the women attended (data not shown). Much higher proportions of women at less than 24 weeks of pregnancy were transported by taxi or private vehicle (Table 2). In addition, 2 (1.2%) women at less than 24 weeks used transport other than an ambulance, taxi, or private vehicle compared with no women at 24 weeks or more (Table 2).

The mode of transport also differed significantly among women in severe shock ($P < 0.001$) (Table 2). More women at 24 weeks of pregnancy or more were transported by ambulance (Table 2). These differences were also observed when the data were examined by site, and were statistically significant for all sites (Table 3).

Overall, there were no differences in wait times between the two groups: women at less than 24 weeks of pregnancy had a median wait time of 33 minutes (interquartile range [IQR], 15–73), whereas those at 24 weeks or more had a wait of 36 minutes (IQR, 22–60; $P = 0.69$). Among women at 24 weeks of pregnancy or more, there was no difference in the wait time if they were transported by ambulance or by an alternative ($P = 0.803$), although they waited longer for alternative transport than did women at less than 24 weeks ($P = 0.004$) (Table 4). Among women at less than 24 weeks, however, the median wait time for an ambulance was longer than for alternative transportation ($P = 0.001$) (Table 4). Once the ambulance departed

Table 2
Transport type by weeks of pregnancy.[a]

Transport	<24 weeks (n = 171)	≥24 weeks (n = 445)	P value[b]
All women			<0.001
Ambulance	114 (66.7)	414 (93.0)	
Taxi	39 (22.8)	14 (3.1)	
Private vehicle	16 (9.4)	17 (3.8)	
Other	2 (1.2)	0	
Women with MAP <60 mm Hg[c]			<0.001
Ambulance	26 (52.0)	106 (93.0)	
Alternative	24 (48.0)	8 (7.0)	

Abbreviation: MAP, mean arterial pressure.
[a] Values are given as number (percentage) unless stated otherwise.
[b] χ^2 test.
[c] <24 weeks: n = 50; ≥24 weeks: n = 114.

Table 3
Proportion of women transported by ambulance, stratified by site.[a]

District	<24 weeks	≥24 weeks	P value[b]
Lusaka	83/120 (69.2)	170/185 (91.9)	<0.001
Kitwe	17/23 (73.9)	141/154 (91.6)	0.011
Ndola	14/28 (50.0)	103/106 (97.2)	<0.001

[a] Values are given as number of women transported by ambulance/total number of women from each district (percentage) unless stated otherwise.
[b] χ^2 test.

from the clinic, transit time was very similar between the two groups: women at less than 24 weeks had a median transit time of 40 minutes (IQR 30-76), whereas those at 24 weeks or more had a median transit time of 45 minutes (IQR 30-70; $P = 0.973$). For women at less than 24 weeks, transport by ambulance was significantly faster than transport by an alternative ($P = 0.03$) (Table 4).

4. Discussion

In the present study, the two groups had similar demographic characteristics and proportions of women in severe shock, but there were differences in transport type, indicating that something other than the patient's physical condition may determine ambulance use. In fact, when only women in severe shock were considered, the differences in transport type were greater: women at less than 24 weeks of pregnancy were even less likely to be transported by ambulance.

Given the social stigma that women face around abortion [12,19], one possible reason for these differences is bias against women affected by abortion complications. A study in Gabon [20] documented that cultural attitudes toward women seeking care for abortion complications affected providers' attitudes and led to a longer duration between diagnosis and treatment. Other possible reasons include a lack of recognition of the danger signs by nurses, clinical officers, or ambulance dispatchers because of a lack of experience or inadequate training. In addition, the ambulance system in Lusaka was initially introduced specifically as a maternity ambulance by a non-governmental organization; this history may have led ambulance dispatchers to consider ambulances primarily for maternity cases. Alternatively, health workers in the outpatient department where abortion cases are seen may have less experience using ambulances and may be less likely to request them.

Considering the differences in wait times, women at less than 24 weeks of pregnancy actually waited shorter times if they took transport other than an ambulance to the hospital than if they waited for an ambulance. This may be because providers are quicker to suggest the use of a taxi or other transport to women at less than 24 weeks of pregnancy, whereas they may suggest this to women at 24 weeks or more only if the wait time for an ambulance seems to be longer than average.

Because transit time was longer when transport other than ambulances were used, women at less than 24 weeks of pregnancy did not arrive at the hospital more quickly with alternative transport: wait time plus transit time was equal among those who took ambulances or other transport for these women.

Table 4
Wait times and transit times.[a]

Times	<24 weeks (n = 135)	≥24 weeks (n = 400)	P value[b]
Ambulance			
Wait time, min	40 (20–80)	35 (22–60)	0.1585
Transit time, min	40 (30–76)	45 (30–70)	0.9725
Alternative			
Wait time, min	20 (5–60)	36 (20–54)	0.004
Transit time, min	60 (40–90)	60 (40–90)	0.8070

[a] Values are given as median (interquartile range) unless stated otherwise.
[b] Rank-sum test.

Please cite this article as: Butrick E, et al, Access to transport for women with hypovolemic shock differs according to weeks of pregnancy, Int J Gynecol Obstet (2014), http://dx.doi.org/10.1016/j.ijgo.2014.05.008

It is important to note that even women in mild shock would be best served by transportation in an ambulance with a provider present. Women in shock can receive intravenous fluids during transport, and handover at the hospital is improved when women are accompanied by providers. Women who receive ambulance transport are likely to arrive at the referral hospital more quickly, and to be attended to more quickly once they arrive. Although care in the ambulance in low-resource settings may not provide extra benefits, the rapidity of response to someone arriving in an ambulance may be improved. This is especially important in low-resource settings where primary health centers do not have the capacity to provide definitive care.

In the present study, there was a high correlation between weeks of pregnancy and whether patients were attended in the outpatient or the maternity department (data not shown). However, among all women at less than 24 weeks of pregnancy, the same proportion was transported by ambulance from both the outpatient and the maternity departments (data not shown); thus, the place of treatment did not seem to be a major determinant of ambulance use.

The present analysis has a few limitations. The parent study was not designed to examine the issues of transport type or time. Thus, the time data were not validated by cross-checking or synchronizing clocks at primary health centers and hospitals. As a result, there may be some variability in the precision of time measurements, which is likely to be random. In addition, although the method of transport used by a patient to reach the hospital was known, there were no data on the decision-making process, which weakens our ability to determine the cause of the differences observed. Furthermore, owing to the design of the parent study, only women with hypovolemic shock were included. The current findings may also apply to women with septic shock, who would be equally in need of emergency transport; however, the limits of the data do not allow us to comment on septic shock. Last, in each of the three study sites, women at less than 24 weeks of pregnancy comprised a smaller group than those at 24 weeks or more; this might make the results less generalizable.

However, the present study found consistent results across the three sites, which validates provider-raised concerns about the lack of accessibility to ambulance transport for women with abortion complications who require referral to higher-level facilities. Little research has been done on transport patterns among women with abortion complications. A strength of the present study was the relatively large number of cases across three districts with similar emergency transport systems.

Overall, the ability of primary health centers in Zambia to have functioning ambulance systems that transport over 90% of women at 24 weeks or more who are in need of referral to a higher-level facility is a laudable accomplishment, given the challenges of transport in low-resource settings. However, the present findings reveal an inequity in the type of transport that women affected by severe hypovolemic shock at less than 24 weeks receive compared with those at 24 weeks or more. Attempts to reduce maternal mortality and meet MDG 5 need to include emergency care and transport for all women with hypovolemic shock secondary to hemorrhage. Women with abortion complications should receive the same level of care as women with late pregnancy complications. Additional preventive efforts such as family planning and postabortion care services at primary health centers might also improve women's outcomes. The present findings shed light on another aspect of maternal mortality reduction that should be examined—namely, systematic barriers to care for women at risk of death from abortion complications. The results suggest target areas for action to reduce inequities in care. Attention to this inequity in access to transport will be an important step in attaining MDG 5 and eliminating preventable maternal mortality.

Acknowledgments

The analysis was supported by the UCSF Global Health Sciences Master's program and the UCSF Dean's Summer Research Program. The parent study was supported by Grant Number R01HD053129 from the National Institutes of Child Health and Human Development and the Bill & Melinda Gates Foundation, Grant #48541. Technical and financial support was provided by the United Nations Development Programme/United Nations Population Fund/UNICEF/WHO/World Bank Special Programme of Research, Development and Research Training in Human Reproduction. The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Child Health and Human Development or the National Institutes of Health, the Bill & Melinda Gates Foundation, or WHO. The funders had no role in study design, data collection and analysis, decision to publish, or preparation of the manuscript. The corresponding author had full access to all of the data in the study and had final responsibility for the decision to submit for publication.

Conflict of interest

The authors have no conflicts of interest.

References

[1] United Nations General Assembly. Road map towards the implementation of the United Nations Millennium Declaration: Report of the Secretary-General. http://www.un.org/millenniumgoals/sgreport2001. Published September 6, 2001. Accessed April 18, 2014.
[2] Lozano R, Wang H, Foreman KJ, Rajaratnam JK, Naghavi M, Marcus JR, et al. Progress towards Millennium Development Goals 4 and 5 on maternal and child mortality: an updated systematic analysis. Lancet 2011;378(9797):1139–65.
[3] World Health Organization. Maternal Mortality. Fact sheet No 348. http://www.who.int/mediacentre/factsheets/fs348/en/. Published 2012. Updated May 2014. Accessed April 18, 2014.
[4] World Health Organization. The World Health Report 2005: Make every mother and child count. http://www.who.int/whr/2005/whr2005_en.pdf?ua=1. Published 2005. Accessed April 18, 2014.
[5] Khan KS, Wojdyla D, Say L, Gülmezoglu AM, Van Look PF. WHO analysis of causes of maternal death: a systematic review. Lancet 2006;367(9516):1066–74.
[6] World Health Organization. Unsafe abortion: Global and regional estimates of the incidence of unsafe abortion and associated mortality in 2008. 6th ed. http://apps.who.int/iris/bitstream/10665/44529/1/9789241501118_eng.pdf?ua=1. Published 2011. Accessed April 18, 2014.
[7] McCarthy J, Maine D. A framework for analyzing the determinants of maternal mortality. Stud Fam Plann 1992;23(1):23–33.
[8] Ransom EI, Yinger NV. Making Motherhood Safer: Overcoming Obstacles on the Pathway of Care. http://www.prb.org/pdf/makMotherhdSafer_Eng.pdf. Published February 2002. Accessed April 18, 2014.
[9] Fawcus S, Mbizvo M, Lindmark G, Nyström L. A community-based investigation of avoidable factors for maternal mortality in Zimbabwe. Stud Fam Plann 1996;27(6):319–27.
[10] Weeks A, Lavender T, Nazziwa E, Mirembe F. Personal accounts of "near-miss" maternal mortalities in Kampala, Uganda. BJOG 2005;112(9):1302–7.
[11] Hynes M, Sakani O, Spiegel P, Cornier N. A study of refugee maternal mortality in 10 countries, 2008–2010. Int Perspect Sex Reprod Health 2012;38(4):205–13.
[12] Warenius LU, Faxelid EA, Chishimba PN, Musandu JO, Ong'any AA, Nissen EB. Nurse-midwives' attitudes towards adolescent sexual and reproductive health needs in Kenya and Zambia. Reprod Health Matters 2006;14(27):119–28.
[13] Tayler-Smith K, Zachariah R, Manzi M, Van den Boogaard W, Nyandwi G, Reid T, et al. An ambulance referral network improves access to emergency obstetric and neonatal care in a district of rural Burundi with high maternal mortality. Trop Med Int Health 2013;18(8):993–1001.
[14] Gabrysch S, Campbell OM. Still too far to walk: literature review of the determinants of delivery service use. BMC Pregnancy Childbirth 2009;9:34.
[15] Wilson A, Hillman S, Rosato M, Skelton J, Costello A, Hussein J, et al. A systematic review and thematic synthesis of qualitative studies on maternal emergency transport in low- and middle-income countries. Int J Gynecol Obstet 2013;122(3):192–201.
[16] Hadley MB, Tuba M. Local problems; local solutions: an innovative approach to investigating and addressing causes of maternal deaths in Zambia's Copperbelt. Reprod Health 2011;8:17.
[17] Knight HE, Self A, Kennedy SH. Why are women dying when they reach hospital on time? A systematic review of the 'third delay'. PLoS One 2013;8(5):e63846.
[18] Miller S, Bergel EF, El Ayadi AM, Gibbons L, Butrick EA, Magwali T, et al. Non-pneumatic anti-shock garment (NASG), a first-aid device to decrease maternal mortality from obstetric hemorrhage: a cluster randomized trial. PLoS One 2013;8(10):e76477.
[19] Webb D. Attitudes to 'Kaponya Mafumo': the terminators of pregnancy in urban Zambia. Health Policy Plan 2000;15(2):186–93.
[20] Mayi-Tsonga S, Oksana L, Ndombi I, Diallo T, de Sousa MH, Faúndes A. Delay in the provision of adequate care to women who died from abortion-related complications in the principal maternity hospital of Gabon. Reprod Health Matters 2009;17(34):65–70.

Please cite this article as: Butrick E, et al, Access to transport for women with hypovolemic shock differs according to weeks of pregnancy, Int J Gynecol Obstet (2014), http://dx.doi.org/10.1016/j.ijgo.2014.05.008