Public Health Action

International Union Against Tuberculosis and Lung Disease
Health solutions for the poor

VOL 7 NO 1 PUBLISHED 21 MARCH 2017

Do incentivised community workers in informal settlements influence maternal and infant health in urban India?

H. Verma,[1] K. D. Sagili,[2] R. Zachariah,[3] A. Aggarwal,[4] A. Dongre,[5] H. Gupte[6]

http://dx.doi.org/10.5588/pha.16.0056

Setting: The introduction of accredited social health activists (ASHAs, community workers) in the community is encouraged by the Government of India as being of universal benefit for maternal and infant health.

Objectives: In two informal settlements in Chandigarh, India, one with ASHAs and the other without, we assessed 1) whether ASHAs influenced certain selected maternal and infant health indicators, and 2) perceptions among women who did not contact the ASHAs.

Design: This was a mixed-methods study conducted from April 2013 to March 2016 using quantitative (retrospective programme data) and qualitative (free-listing) components.

Results: The increase in institutional deliveries from 2013 to 2015 was marginal, and was similar in both areas (86–99% in the settlement with ASHAs and 88–97% in the settlement without). Bacille Calmette-Guérin and pentavalent vaccination coverage were close to 100% in both areas during the 3 years of the study. Antenatal registration in the first trimester increased from 49% to 52% in the settlement with ASHAs and from 53% to 71% in the settlement without. Between 18% and 35% of women did not complete at least three antenatal visits. 'Not knowing ASHAs' and 'not feeling a need for ASHAs' were the main reasons for not using their services.

Conclusion: While success has been achieved for institutional deliveries and immunisation coverage even without the ASHAs, their presence plays an important role in improving antenatal indicators.

The year 2016 ushered in the era of the Sustainable Development Goals (SDGs), with one target being a reduction in maternal and under-fives mortality.[1] Although global progress has been steady, several countries, including India, are lagging behind target.[2] India contributes 21% of childhood and 18% of maternal deaths globally.[3]

The Government of India encourages specific strategies to improve maternal and child health, of which one is the nationwide introduction of accredited social health activists (ASHAs). First introduced in rural India in 2005 and extended to urban settings in 2013, ASHAs are female community-based volunteers residing in target communities and mandated to conduct various health-related activities for which they receive performance-based monetary incentives.[4,5]

Although two studies from rural India showed an added benefit of ASHAs in terms of maternal and child health (MCH) services,[6,7] these studies were not focused on urban areas or informal settlements. Access to health services, health-seeking behaviour and the utilisation of existing services may be different in informal urban settlements. Understanding the role of community health workers in maternal and infant health services in such settings would be of relevance to India and other large cities around the world where informal settlements are becoming a norm.

We aimed to assess the possible influence of ASHAs on the utilisation of maternal and infant health services in informal settlements in Chandigarh, an urban area of North India. In two of these settlements, specific objectives were to report on trends in 1) antenatal care registrations in the first trimester and completion of at least three antenatal visits, 2) institutional and home deliveries, 3) immunisation coverage in infants (bacille Calmette-Guérin [BCG] and three doses of DPT [diphtheria, pertussis and tetanus] or pentavalent vaccine [diphtheria, pertussis, tetanus, hepatitis B and *Haemophilus influenzae* type B]), and 4) maternal, infant and neonatal deaths. We also explored perceptions of women who did not access ASHAs.

METHODS

Study design

This was a mixed-methods study.

Study setting

Chandigarh was one of the first planned cities in India, and is known internationally for its urban architecture and design. The geographic area of the city is relatively small, and health facilities are accessible at a radius of 1–2 km from all households. Antenatal care and immunisation services are offered free-of-charge at all health facilities.

Maternal and child health indicators and services in Chandigarh

The health system in Chandigarh is a three-tiered structure. Deliveries are offered only at the secondary and tertiary levels. Auxiliary nurse midwives (ANMs) are involved in MCH, and are present at all levels of the health facilities. They are responsible for antenatal and immunisation services at health facility level and for community outreach activities. Another complementary cadre is the Anganwadi workers (AWWs), who work at community-based child centres and promote child care activities, including immunisation. The national antenatal care package and immunisation schedule is shown in Table 1.

AFFILIATIONS
1 National Health Mission, Department of Health, Chandigarh, India
2 International Union Against Tuberculosis and Lung Disease, South-East Asia Office, New Delhi, India
3 Médecins Sans Frontières, Brussels Operational Centre, Luxembourg City, Luxembourg
4 Postgraduate Institute of Medical Education and Research, Chandigarh, India
5 Sri Manakula Vinayagar Medical College and Hospital, Pondicherry, India
6 Narotam Sekhsaria Foundation, Mumbai, India

CORRESPONDENCE
Himbala Verma
National Health Mission
Department of Health
Chandigarh 160 022, India
e-mail: drhimbalaverma@yahoo.co.in

KEY WORDS
SORT IT; operational research; SDGs; auxiliary nurse midwives

Received 25 July 2016
Accepted 2 February 2017

PHA 2017; 7(1): 61–66

TABLE 1 Package of antenatal care and infant immunisation offered in Chandigarh, India

Type of care	Package
Antenatal care	Pregnancy test (urine)
	Registration
	At least three antenatal check-ups
	Tetanus toxoid prophylaxis
	Hb testing
	Iron and folic acid supplementation
	Counselling for preparedness for institutional delivery
	Institutional delivery
Immunisation (infants)	BCG, hepatitis B, OPV at birth
	Pentavalent and OPV I at 6 weeks
	Pentavalent and OPV II at 10 weeks
	Pentavalent and OPV III at 14 weeks
	Measles at 9 months

Hb = haemoglobin; BCG = Bacillus Calmette-Guerin; OPV = oral polio vaccination.

Accredited social health activists and their role in maternal and child health services

As a pilot initiative to enhance access to and utilisation of MCH services, Chandigarh introduced 50 ASHAs in April 2015. Ten of these ASHAs were assigned to work in the informal settlement, Maulijagran. The ASHAs link up with the ANMs, the AWWs and the health facilities in their catchment areas. The selection criteria for the ASHAs include being female, being married, secondary education and residence in the community. The ASHAs are trained according to the standardised national guidelines by accredited trainers. Each ASHA is mandated to offer a package of activities to a catchment population of 2500–5000, and receives performance-linked incentives, as shown in Table 2.

Study sites and population

Two informal settlements in Chandigarh, Maulijagran (with 10 ASHAs) and Ramdarbar (with no ASHAs), were studied. Each has a population of approximately 50000. The study population included pregnant women and infants. Women in the third trimester of pregnancy and mothers of infants aged >6 months who did not access ASHAs were included to understand women's reasons for not using the ASHA services.

Study period

Quantitative MCH data were collected from April 2013 to March 2016. Collection of qualitative data (free listing) was undertaken in May 2016.

TABLE 2 Package of activities for urban ASHAs and performance-linked incentives, Chandigarh, India

Activities	Incentives
Antenatal care	INR 300/pregnant woman for ensuring complete antenatal care:
	INR 75/pregnant woman for registration in the first trimester
	INR 225 for three ANC visits, TT vaccine, 100 IFA tablets, Hb testing
	INR 300/pregnant woman for ensuring institutional delivery
Immunisation	INR 50 for mobilising children to the immunisation camp
	INR 100/infant aged <1 year for ensuring complete immunisation
	INR 50/child aged ⩽2 years age for ensuring full immunisation
Routine activities (INR 850/month)	Mobilising and attending urban health and nutrition days
	Attending monthly meeting at headquarters
	Line listing of households and updating every 6 months
	Maintaining records per desired norms
	Preparation of list of children due to be immunised
	Preparation of due list of ANC beneficiaries
	Preparation of list of eligible couples (wife in age group 15-45 years)
Tuberculosis control	INR 1000 on completion of DOTS-based treatment by TB patients
Leprosy eradication	INR 250 for facilitating diagnosis and INR 400 for ensuring adherence to complete treatment in PB cases of leprosy
	INR 250 for facilitating diagnosis and INR 600 for ensuring adherence to complete treatment in MB cases of leprosy

ASHAs = accredited social health activists; INR = Indian rupees; ANC = antenatal care; TT = tetanus toxoid; IFA = iron and folic acid; Hb = haemoglobin; TB = tuberculosis; PB = paucibacillary; MB = multibacillary.

ACKNOWLEDGEMENTS

The authors are grateful to the Department of Health, Chandigarh, India, for permission to conduct the study. This research was conducted through the Structured Operational Research and Training Initiative (SORT IT), a global partnership led by the Special Programme for Research and Training in Tropical Diseases at the World Health Organization (WHO/TDR). The model is based on a course developed jointly by the International Union Against Tuberculosis and Lung Disease (The Union, Paris, France) and Médecins Sans Frontières (MSF, Geneva, Switzerland). The specific SORT IT programme that resulted in this publication was jointly developed and implemented by: The Union South-East Asia Office, New Delhi, India; the Centre for Operational Research, The Union, Paris, France; the Operational Research Unit (LUXOR), MSF Brussels Operational Centre, Luxembourg; the Department of Preventive and Social Medicine, Jawaharlal Institute of Postgraduate Medical Education and Research, Puducherry, India; the Department of Community Medicine, Sri Manakula Vinayagar Medical College and Hospital, Puducherry, India; the Department of Preventive and Social Medicine, Medical College Baroda, Vadodara, India; and the National Institute for Research in Tuberculosis, Chennai, India.

The training programme and open access publication costs were funded by the Department for International Development (London, UK), The Union, MSF and La Fondation Veuve Emile Metz-Tesch (Luxembourg). The funders had no role in the study design, data collection and analysis, decision to publish, or preparation of the manuscript.

Conflicts of interest: none declared.

TABLE 3 Trend in maternal and infant health indicators in two informal settlements, one (Maulijagran) with ASHAs and one (Ramdarbar) without ASHAs, Chandigarh, India, 2013–2015

	Informal settlement with ASHAs			Informal settlement without ASHAs		
	2013 *n* (%)	2014 *n* (%)	2015 *n* (%)	2013 *n* (%)	2014 *n* (%)	2015 *n* (%)
Antenatal care						
Registered in antenatal care	1432	1394	1341	988	1005	1015
Registered in the first trimester	625 (44)	680 (49)	699 (52)	520 (53)	576 (57)	724 (71)
Completed three antenatal visits	1034 (72)	1081 (78)	1061 (79)	639 (65)	814 (81)	834 (82)
Deliveries						
Total	1109	935	883	445	713	715
Institutional*	949 (86)	885 (95)	872 (99)	393 (88)	672 (94)	694 (97)
Home	160 (14)	50 (5)	11 (1)	52 (12)	41 (6)	21 (3)
Immunisation						
Infant target population	1097	919	878	442	701	707
Total receiving BCG†	1060 (97)	1035 (112)	947 (107)	413 (93)	709 (101)	721 (102)
Total receiving DPT or pentavalent‡§	1048 (96)	967 (105)	962 (109)	644 (145)	638 (91)	668 (94)

* $P < 0.001$, χ^2 for trend, in the informal settlements with and without ASHAs.
† Proportions are derived using the formula: total vaccines administered/target population. Levels over 100% may indicate drainage from outside the catchment area.
‡ From March 2015, the DPT vaccine was replaced with the pentavalent vaccine.
§ Pentavalent vaccine contains five antigens: diphtheria, pertussis, tetanus, hepatitis B and *Haemophilus influenzae* type B.
ASHA = accredited social health activists; BCG = bacille Calmette-Guerin; DPT = diptheria pertussis tetanus.

Data variables, sources of data and data collection

Information on target population, antenatal care, institutional deliveries, immunisation and deaths was extracted from the ANM population records and the Health Management Information System (HMIS) database. To understand the perceptions of the ASHAs in Maulijagran, the ANM registers were used to prepare a line list of all pregnant women in their third trimester and all infants registered for immunisation. A purposive sample of 13 antenatal women and 10 mothers of infants aged >6 months who did not use the ASHA services was selected from the different geographic areas. These women were visited at their homes and asked to list their reasons (free-listing) for not using the ASHA services for antenatal care and immunisation. The free-listing technique was chosen as a means of rapid assessment with minimum inconvenience to pregnant women and new mothers. The procedure was conducted by the principal investigator (HV) in the local language, and notes were taken. The recruitment of participants was continued until saturation was achieved. For participants who were unable to write, the process was facilitated by the investigator.

Data analysis

The quantitative data were extracted to Excel spreadsheets (Microsoft Corp, Redmond, WA, USA) and summarised as proportions. Maternal death ratios were standardised at rates per 100 000 live births, while infant and neonatal mortality ratios were standardised at rates per 1000 live births.

The reasons listed by pregnant women and the mothers of infants for not utilising the ASHA services were manually coded by the principal investigator (HV) and verified by the co-investigators. This was reported in line with the consolidated criteria for reporting qualitative research (COREQ) guidelines,[8] and expressed in frequencies.

Ethics

Permission for the study was obtained from the local health authorities. Ethics approval was received from the Institutional Ethics Committee of Sri Manakula Vinayagar Medical College and Hospital, Puducherry, India, and the Ethics Advisory Group of the International Union Against Tuberculosis and Lung Disease, Paris, France. Informed written consent was obtained from the participants of the free-listing exercise.

RESULTS

Table 3 shows the trend in uptake of antenatal care, institutional deliveries and infant immunisation in the two informal settlements, with and without the involvement of the ASHAs, between 2013 and 2015. A progressive increase in all the three parameters was observed in both settlements, irrespective of the introduction of ASHAs in one of the settlements in 2015.

In both settlements, about half of all pregnant women were not registered for antenatal care within the first trimester of their pregnancy and 20% of the women did not complete at least three antenatal visits.

For institutional deliveries, the baseline and subsequent rates were high, reaching 99% in 2015 in the settlement with ASHAs and 97% in the settlement without. The decline in the proportion of women delivering at home progressed from 14% in 2013 to 1% in 2015.

Immunisation coverage had reached over 100% for BCG vaccination in both settlements by 2015, irrespective of the presence of the ASHAs. For DPT (or the pentavalent vaccine), coverage was similarly high, reaching over 100% in the settlement with the ASHAs and 94% where there were no ASHAs.

Table 4 shows maternal, infant and neonatal deaths occurring annually during the period from 2013 to 2015. Although no specific trend was observed, there were deaths in all sub-groups and in both the settlements.

Table 5 summarises the reasons listed by pregnant women for not using ASHA services to access antenatal care. The most frequent reasons enlisted were 'not knowing ASHAs' and/or 'not feeling the need for ASHAs'. In terms of immunisation, all participating mothers with infants did not feel the need for ASHAs, as they had other means of accessing the services offered by them (Table 6).

TABLE 4 Trend in reported deaths of mothers, infants and neonates in two informal settlements, one (Maulijagran) with ASHAs and one (Ramdarbar) without ASHAs, Chandigarh, India, 2013–2015

	Informal settlement with ASHAs			Informal settlement without ASHAs		
	2013 *n*	2014 *n*	2015 *n*	2013 *n*	2014 *n*	2015 *n*
Live births	1095	922	858	440	702	704
Maternal						
Deaths	2	3	3	1	0	0
Mortality/100 000 live births	182	325	349	227	0	0
Infants						
Deaths	12	16	5	3	12	8
Mortality/1 000 live births	11	17	6	7	17	11
Neonates						
Deaths	8	6	2	1	8	5
Mortality/1 000 live births	7	7	2	2	11	7

ASHAs = accredited social health activists.

TABLE 5 Reasons listed by pregnant women for not utilising ASHA services for antenatal care in Maulijagran informal settlement, Chandigarh, India, 2013–2015

Reasons listed for not utilising ASHA services	Participants (*N = 13*) *n*
Do not know ASHA worker 'She never approached us' 'No one told us about her'	8
Do not feel a need for services of ASHA worker 'The ANMs/AWWs tell us everything about the health services' 'We are living here for the past many years and know everything about the city' 'One lives nearby' 'Family is very caring and supportive' 'We go on our own as a hospital is nearby to our home' 'Family support' 'Know everything from past experience'	7
Family support is enough	5
Fear 'Do not have faith in anyone unknown' 'Do not feel like going with someone unknown'	2
Got awareness of the health services from somewhere else (neighbours)	1

ASHAs = accredited social health activists; ANM = auxillary nursing midwife; AWW = Anganwadi worker.

TABLE 6 Reasons listed by mothers with infants aged >6 months for not utilising ASHA services for immunisation in Maulijagran informal settlement, Chandigarh, India, 2013–2015

Reason listed by mothers with infants for not approaching ASHAs	Participants (*N* = 10) *n*
Do not require services of ASHA worker Family support Know everything from past experience Capable of doing everything on their own	10
Obtained awareness elsewhere (health facilities)	4
Do not know ASHA worker	3
No faith in ASHA worker and vaccinations Negative experience—child had fits after injections	1

ASHA = accredited social health activists.

DISCUSSION

In the two informal settlements, one with and one without the introduction of community workers (ASHAs), the utilisation of maternal and infant health services was almost similar. Both settlements showed a progressive improvement in the uptake of antenatal care, institutional deliveries and immunisation levels, and this occurred prior to the introduction of the ASHAs. A correspondingly high increase was seen in registrations in the first trimester in 2015 compared with 2014 in the informal settlement with no ASHAs compared to the settlement with ASHAs. The slow progress in the settlement with the ASHAs could be attributed to the vulnerability of the area; however, a lack of socio-economic data prevents us from confirming this theory. During the 2-year period, the rate of institutional deliveries was high, ranging between 86% and 99%, and immunisation rates hovered around 100%.

The strengths of this study are that we included data from the settlements over a 2-year period and data on target populations were available. Furthermore, reporting was in line with the STrengthening the Reporting of OBservational studies in Epidemiology (STROBE) and the COREQ guidelines.[8,9]

The main limitations were that we included only two settlements, and the findings may not be widely representative. Furthermore, data on the socio-economic characteristics of the two informal settlements, which might have influenced MCH uptake, were not available. The study also lacks the viewpoints of pregnant women and mothers already benefiting from the services of the ASHAs.

This study has a number of operational implications. First, in terms of antenatal care, about half of all pregnant women in both settlements had not registered for antenatal care in the first trimester and a considerable proportion (20%) did not complete the required three antenatal visits—this falls under the national average (30%).[10] Possible reasons may include presentation late in the pregnancy and migration back to their home communities for delivery. While the actual reasons merit investigation, in the meantime it would seem logical to enhance or focus the role of the ASHAs in linking pregnant women to antenatal care. The qualitative perspective also highlighted a lack of awareness among pregnant women about the existence of the ASHAs; this needs to be addressed by focused awareness-raising activities.

Second, the fact that almost all deliveries were institutional is encouraging and may reflect the geographic proximity and easy

access to health facilities in Chandigarh. The specific role played by the ANMs and the AWWs may also have contributed to this finding. The high immunisation levels, close to 100%, may be explained by the adjunctive effect of the AWWs. If the ASHAs take over these activities in the future, this would free the AWWs for other competing activities such as nutritional counselling and the management of malnourished babies. This merits further study.

Third, we observed a number of maternal, infant and neonatal deaths during the 2 years in both settlements. Although they were standardised into rates per 100 000 and per 1000, the limited denominator sizes made comparisons inappropriate. This notwithstanding, any reported death is of serious concern and merits investigation into the possible causes to introduce preventive interventions.

Finally, it may be argued that the high rates of institutional deliveries and immunisation observed even before the introduction of the ASHAs may compromise the opportunity for the ASHAs to earn performance-linked incentives for related activities. This may lead to demotivation and progressive attrition. In 2015 alone, 11 ASHAs were lost, having moved on to other work situations.[11] Formal inclusion of this cadre within the health system might improve empowerment and motivation.

In conclusion, ASHAs in informal settlements of Chandigarh might need to focus on aspects of antenatal care and immunisation coverage. The important lesson learnt for countries that introduce community health workers for improving health care is that previous contextual assessments and careful and tailored selection of their activities might be key to their success.[12,13] A 'one size fits all' approach might not be appropriate.

References

1 United Nations. Sustainable development goals. New York, NY, USA: UN, 2016. http://www.un.org/sustainabledevelopment/ Accessed February 2017.
2 You D, Hug L, Ejdemyr S, et al. Global, regional, and national levels and trends in under-5 mortality between 1990 and 2015, with scenario-based projections to 2030: a systematic analysis by the UN Inter-agency Group for Child Mortality Estimation. Lancet 2015; 6736: 1–12.
3 Ministry of Health and Family Welfare, Government of India. Maternal mortality ratio estimates (2011–2013). New Delhi, India: Ministry of Health and Family Welfare, 2015.
4 Ministry of Health and Family Welfare. National rural health mission. Framework for implementation. New Delhi, India: Ministry of Health and Family Welfare, 2011.
5 Gopalan S S, Mohanty S, Das A. Assessing community health workers' performance motivation: a mixed-methods approach on India's Accredited Social Health Activists (ASHA) programme. BMJ Open 2012; 2: e001557.
6 Fathima F N, Raju M, Varadharajan K S, Krishnamurthy A, Ananthkumar S R, Mony P K. Assessment of 'accredited social health activists'—a national community health volunteer scheme in Karnataka State, India. J Health Popul Nutr 2015; 33: 137–145.
7 Shrivastava S R, Shrivastava P S. Evaluation of trained Accredited Social Health Activist (ASHA) workers regarding their knowledge, attitude and practices about child health. Rural Remote Health 2012; 12: 1–7.
8 Tong A, Sainsbury P, Craig J. Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups. Int J Qual Health Care 2007; 19: 349–357.
9 Von Elm E, Altman D G, Egger M, Pocock S J, Gøtzsche P C, Vandenbroucke J P. The strengthening the reporting of observational studies in epidemiology (STROBE) statement: guidelines for reporting observational studies. Int J Surg 2014; 12: 1495–1499.
10 Ministry of Health and Family Welfare. India coverage evaluation survey 2009–2010. New Delhi, India: Ministry of Health and Family Welfare, 2010. https://nrhm-mis.nic.in/SitePages/Pub_CoverageEvaluation.aspx# Accessed February 2017
11 National Health Mission, Department of Health, Chandigarh. Health Management Information System Report 2015. Chandigarh, Delhi, India: National Health Mission, 2015.
12 Okuga M, Kemigisa M, Namutamba S, Namazzi G, Waiswa P. Engaging community health workers in maternal and newborn care in eastern Uganda. Glob Health Action 2015; 8: 23968.
13 Schneider H, Okello D, Lehmann U. The global pendulum swing towards community health workers in low- and middle-income countries: a scoping review of trends, geographical distribution and programmatic orientations, 2005 to 2014. Hum Resour Health 2016; 1: 1–12.

Contexte : L'introduction des travailleurs communautaires, les « accredited social health activists » (ASHA), dans la communauté est encouragée par le gouvernement indien comme étant bénéfique à la fois à la santé de la mère et de l'enfant.

Objectifs : Dans deux zones d'habitat informel à Chandigarh, Inde, une avec les ASHA et une autre sans les ASHA, nous avons évalué 1) si les ASHA influençaient des indicateurs sélectionnés de santé maternelle et infantile ; et 2) les perceptions des femmes qui n'ont pas contacté les ASHA.

Schéma : Une étude à plusieurs méthodes (2013–2015) utilisant des éléments quantitatifs (données rétrospectives du programme) et qualitatives (listes libres).

Résultats : L'augmentation des accouchements en institution (comparaison de 2015 par rapport à 2013) a été marginale et similaire dans les deux zones (de 86% à 99% en zone avec les ASHA et de 88% à 97% pour la zone sans les ASHA). La vaccination par le BCG et le vaccin pentavalent a été proche de 100% dans les deux zones pendant les 3 années. L'inscription anténatale au premier trimestre a augmentée de 49% à 52% dans la zone avec les ASHA et de 53% à 71% dans la zone sans les ASHA. Entre 18% et 35% des femmes n'ont pas assisté à un minimum de trois visites anténatales. « Ne pas connaître les ASHA » et « ne pas ressentir le besoin des ASHA » ont été les principales motivations des femmes pour ne pas recourir à leurs services.

Conclusion : Un succès a été obtenu en ce qui concerne les accouchements en institution et la couverture vaccinale même sans les ASHA. Mais ils pourraient avoir un rôle plus important afin d'améliorer les indicateurs anténataux.

Marco de referencia: El gobierno de la India ha impulsado la introducción en la comunidad de las agentes sociales de salud acreditadas (trabajadoras comunitarias ASHA, del inglés 'Accredited Social Health Activists'), pues ofrecen ventajas globales en favor de la salud maternoinfantil.
Objetivos: Al estudiar dos asentamientos precarios de Chandigarh en la India, uno donde operan las voluntarias ASHA y otro donde no intervienen, 1) evaluar si su presencia modificaba determinados indicadores de la salud maternoinfantil y 2) examinar las percepciones de las mujeres que no acudían a los servicios de las voluntarias ASHA.
Métodos: Un estudio con métodos mixtos (del 2013 al 2015) que comportaba componentes cuantitativos (datos programáticos retrospectivos) y cualitativos (listados libres).
Resultados: El aumento en los partos institucionales (2015 contra 2013) fue mínimo y equivalente en ambas zonas (del 86% al 99% en la zona donde operan las voluntarias ASHA y del 88% al 97% en la zona donde no intervienen). La vacunación con el BCG y la vacuna pentavalente fue cercana al 100% en ambas zonas durante los 3 años. El registro prenatal durante el primer trimestre aumentó del 49% al 52% en la zona donde operan las voluntarias ASHA y del 53% al 71% en la zona donde no intervienen. Del 18% al 35% de las mujeres no completó un mínimo de tres consultas prenatales. Las principales razones para no solicitar los servicios de las ASHA fueron: 'no conocer las ASHA' y 'no percibir la necesidad de las ASHA'.
Conclusión: Se han alcanzado logros en materia de partos institucionales y cobertura de vacunación, incluso sin la actividad de las ASHA. Sin embargo, estas voluntarias podrían cumplir una función más importante en la progresión de los indicadores prenatales.

Public Health Action (PHA) The voice for operational research.
Published by The Union (www.theunion.org), PHA provides a platform to fulfil its mission, 'Health solutions for the poor'. PHA publishes high-quality scientific research that provides new knowledge to improve the accessibility, equity, quality and efficiency of health systems and services.

e-ISSN 2220-8372
Editor-in-Chief: Dermot Maher, MD, Switzerland
Contact: pha@theunion.org
PHA website: http://www.theunion.org/what-we-do/journals/pha
Article submission: http://mc.manuscriptcentral.com/pha