

The Vaccine and Cervical Cancer Screen (VACCS) project: Linking cervical cancer screening to HPV vaccination in the South-West District of Tshwane, Gauteng, South Africa

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Background. Cervical cancer is preventable, but still highly prevalent in South Africa (SA). Screening strategies in the country have been ineffective, and new ways to prevent the disease are needed.

Objectives. To investigate the feasibility of linking cervical cancer screening in adult women to human papillomavirus (HPV) vaccination in schoolgirls.

Methods. Ten primary schools in the South-West District of Tshwane, Gauteng Province, SA, took part in the study. Cervical cancer and HPV vaccine information was provided to schoolgirls and their parents. Consented schoolgirls were vaccinated and their female parents were invited to participate in self-screening.

Results. Among 1 654 girls invited for vaccination, the consented and invited uptake rates were 99.4% and 64.0%, respectively. Vaccine completion rates were higher in schools where the vaccination programme was completed in the same calendar year than in those where it was administered over two calendar years. Of 569 adult females invited, 253 (44.5%) returned screen tests; 169 (66.8%) tested negative and 75 (29.6%) positive for any high-risk HPV (hrHPV). There were no differences in level of education, employment status or access to healthcare between women with positive and those with negative screen results.

Conclusions. Implementation of HPV vaccination in a primary school-based programme was successful, with high vaccine uptake and completion rates. Self-screening reached the ideal target group, and it is possible to link cervical cancer screening to the cervical cancer vaccine by giving women the opportunity of self-sampling for hrHPV testing. This is a novel and feasible approach that would require some adaptive strategies.

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Secondary population-based cervical cancer screening has not been implemented successfully in resource-poor settings or developing countries anywhere in the world.^[1] Reasons for this failure include the difficulties of conventional cytology screening and the

fact that many prerequisites need to be in place and functioning well for population-based screening to be implemented; if any one of the components fails to deliver, the whole screening programme fails.^[2]

Cervical cancer screening in South Africa (SA) is mainly opportunistic, and although the National Department of Health has a cervical cancer screening policy, it has not been implemented at any level. Opportunistic screening tends to over-screen some sub-populations, while many others do not take part. In addition, the main target groups are often not well represented, including age and sociodemographic groups.^[3,4] In SA, the communication of results and follow-up of screen-positive women are known to be very problematic. Consequently, the incidence of cervical cancer remains high and the majority of women who are diagnosed present with advanced-stage disease.

To improve screening efforts in SA, new approaches to screening need to investigate improvements in uptake, inclusion of the correct target population, and successful communication of results.

Primary prevention of cervical cancer is now possible with the availability of human papillomavirus (HPV) vaccines targeting HPV types 16 and 18, which cause the majority of cervical cancers

worldwide, as well as in Africa.^[5] The target population for primary prevention is initially girls between the ages of 9 and 11 years attending primary school. The Vaccine and Cervical Cancer Screen (VACCS) project was a cervical cancer vaccine implementation study, which also provided the opportunity to investigate the outcome of cervical cancer screening when linked to the vaccination of schoolgirls. Potential advantages of this approach are the linking of two relevant, but different, health interventions aimed at cervical cancer prevention and the possibility of exploiting the educational and logistic opportunities inherent to school-based programmes. In addition, this project utilised new molecular screening technology that offered the opportunity to use self-sampling in a home setting.

Methods

This was a national study conducted in Gauteng and Western Cape provinces, SA, with the approval of the national and provincial departments of Basic Education and Health. The study methodology differed slightly between the two provinces, and in this report the method and results of the Gauteng arm of the study are described.

In Gauteng, ten primary schools were identified in Atteridgeville and the South-West District of Tshwane. After obtaining consent from the governing body and principal of each school, information events were held at the schools during 2011 and 2012. All the girls in grades 4 - 7 and their female parents or guardians were invited to attend these events.

During the information event, attending female parents and guardians were interviewed and completed questionnaires (Appendix 1, available in the online version of this article), after which they attended a session at which information on cervical cancer, the vaccine for primary prevention and screening for the disease was provided by a medical doctor in the form of a 15-minute PowerPoint presentation as well as through the distribution of information leaflets in English or Tswana. During the vaccination programme, telephonic interviews were conducted, repeating the questions that tested knowledge and screening behaviour (Appendix 1, available in the online version of this article).

Female parents and guardians attending the information events were invited to take part in self-administered HPV screening and to take a screen kit for themselves as well as for a friend or family member. The screen kit consisted of a tampon with user instructions; women were to insert the tampon vaginally and remove it after one hour. The used tampon was placed in a container with buffer and, together with personal information, returned to the school in a sealed envelope. DNA was extracted from the tampon specimens and tested using Roche linear array for HPV DNA testing as described previously.^[6]

Parents and guardians of girls aged 9 years and older in grades 4 - 7 were invited to provide consent, and all girls were requested to provide consent for HPV vaccination. The vaccine was administered per protocol by a team of registered nurses during school hours. Both bivalent and quadrivalent vaccines donated by the manufacturing companies were available to be administered.

The ages and previous screening histories of women who accepted the invitation to screen were determined to assess whether an appropriate target population for secondary prevention was reached. HPV test results were interpreted as positive if DNA of any of the 15 high-risk viral types (16, 18, 31, 33, 35, 39, 45, 51, 52, 56, 58, 59, 68, 73, 82) were demonstrated, and as invalid if no DNA amplification occurred as tested by the internal control. Women testing positive for the two most oncogenic HPV types (16 and 18) were reported separately.

Definitions

The invited cohort (IC) was defined as all female learners enrolled in the selected schools in grades 4 - 7. The consented cohort (CC) was defined as participants with written consent and assent from the learner. Girls with consent whose parents or guardians did not attend vaccine events were included in the CC. The vaccinated cohort (VC) was defined as all girls who received one vaccine dose. Vaccine uptake rates were calculated in a number of ways in order to allow comparison with other published HPV vaccine reports. The consented uptake rate (CUR) was calculated as VC/CC, with the invited uptake rate (IUR) calculated as VC/IC.

Vaccine completion was calculated using the vaccinated cohort as denominator. The vaccine completion rate (VCR) was calculated using all girls who received all three vaccine doses. Girls who received only two vaccine doses within a short period of time were then separated from those who received the two vaccines at least 6 months apart, and the latter group was considered sufficiently vaccinated based on recent data suggesting protective antibody levels against vaccine HPV

Table 1. Uptake, vaccination and completion rates in schools vaccinated over one and two calendar years

Description	IC	CC	VC	Single dose	Doses 1 and 2	Doses 2 and 3	Doses 1 and 3	All 3 doses	Doses 1 and 3, +/- dose 2
Description	All girls in grades 4 - 7	All girls with consent and assent	Received at least one dose	Received only 1 vaccine dosage	Received 2 doses, 6 weeks apart	Received 2 doses, <6 months apart	Received 2 dosages, 6 months apart	Received all 3 doses	Received at least 2 doses, min. 6 months apart
Three vaccine doses administered within one calendar year: eight schools									
B1	61	54	54	0	1	0	0	53	53
B2	87	79	79	2	3	0	1	74	75
B3	183	118	119	1	1	3	6	108	114
B4	223	127	127	0	3	4	3	117	120
B6	123	59	59	1	1	3	7	47	54
B7	166	70	70	1	5	1	2	61	63
B8	181	136	136	0	1	4	0	131	131
B9	155	99	95	3	0	3	40	48	88
Subtotal	1 179	742	739	8	15	18	59	639	698
Vaccination rates		IUR 62.9%	CUR 99.6%	IVR 5.5%				VCR 86.5%	SVR 94.5%
Three vaccine doses administered over two calendar or school years: two schools									
B5	225	159	159	1	43	1	11	103	114
B10	250	158	155	0	22	4	1	128	129
Subtotal	475	317	314	1	65	5	12	231	243
Vaccination rates		IUR 66.7%	CUR 99.1%	IVR 22.6%				VCR 73.5%	SVR 77.4%
Total Gauteng cohort: ten schools									
Total	1 654	1 059	1 053	9	80	23	71	870	941
Vaccination rates		IUR 64.0%	CUR 99.4%	IVR 10.6%				VCR 82.6%	SVR 89.4%

types in similar recipients.^[7,8] The insufficiently vaccinated rate (IVR) was calculated using the number of girls who received only one dose, or two doses <6 months apart.

Statistical analysis

Questionnaire data were obtained from women who participated in the study and consisted of basic demographic data as well as data on access to and use of healthcare facilities. In addition, knowledge about cervical cancer and prevention of the disease was tested before and after the information event. Knowledge scores were calculated by awarding points for correct answers to a maximum score of 5 marks each for symptoms of, screening for and vaccination against cervical cancer. Changes in knowledge as tested by the same questions asked before and after the information event were measured and compared between groups. A *p*-value of <0.05 was regarded as statistically significant.

Women who participated in self-screening were compared with a matched control group of women who did not participate. Within the participants of self-screening, data from all women with positive screen results were compared with a matched subgroup of those who screened negative. Matching of both control groups was done using age and the school attended by the child. There were no significant differences with regard to level of education, employment status and access to healthcare between the three groups of women.

The study was approved by the Research Ethics Review Committee of the Faculty of Health Sciences, University of Pretoria (219/2009).

Results

Vaccination data

In the ten schools included in the project, the IC consisted of 1 654 girls, of whom 1 059 had given full consent (CC); 1 053 girls received the first vaccine dose (VC). The CUR was 99.4% and the IUR 64.0%. In the CC group, 498 parents or guardians provided informed parental consent during the information events held at the different schools, while 561 provided written informed consent on the basis of the information leaflet that learners took home. Five hundred and sixty-nine parents or guardians attended the information events and questionnaire interviews, while 1 085 received only leaflet information. Consent for vaccination was therefore provided by 561 of 1 085 parents (51.7%) who received only leaflet information, and by 498 of 569 (87.5%) who attended the information events (*p*<0.0001).

In eight of the ten schools, all three doses of the vaccination were completed in the

same calendar year. Vaccine completion rates were superior in these schools compared with the two schools in which vaccination was scheduled over two calendar years. Vaccine uptake and VCRs per school as well as the effect of scheduling over one and two calendar years are shown in Table 1. No serious adverse events related to vaccination were reported.

Screening results

The 569 female parents or guardians attending the information events at the different schools were invited to take self-screening kits home. A total of 795 screen tests were handed out, of which 253 (44.5%) were returned and tested for the presence of high-risk HPV (hrHPV) DNA. The mean age (standard deviation) of the screened population (Fig. 1) was 38.3 (10.2) years (95% confidence interval 37.0 - 39.6), and the median age was 38.5 years.

Of the 253 samples tested, 9 (3.6%) were reported as invalid, 169 (66.7%) tested negative for hrHPV and 75 (29.6%) were positive for any

hrHPV. The hrHPV results are shown in Fig. 2. Twenty-three samples (9.1%) were positive for HPV type 16 and/or 18, and 52 (20.5%) were positive for one or more of the remaining 13 high-risk types. Of the 75 positive specimens, 43 (57.3%) had a single type and 32 (42.7%) tested positive for more than one hrHPV.

Cervical cancer knowledge

Knowledge scores for cervical cancer symptoms, screening and vaccines for the total group before and after the educational intervention are shown in Fig. 3. Initial knowledge of all aspects was insufficient, but improved scores were obtained in the second questionnaire.

Considering the screened and unscreened groups, there was no difference in initial knowledge of cervical cancer and its symptoms, which was poor in both groups. Around 70% in both groups obtained 0 or 1 out of the potential 5 marks awarded. Among women who participated in self-screening, the level of cervical cancer knowledge improved significantly after the information event (*n*=132;

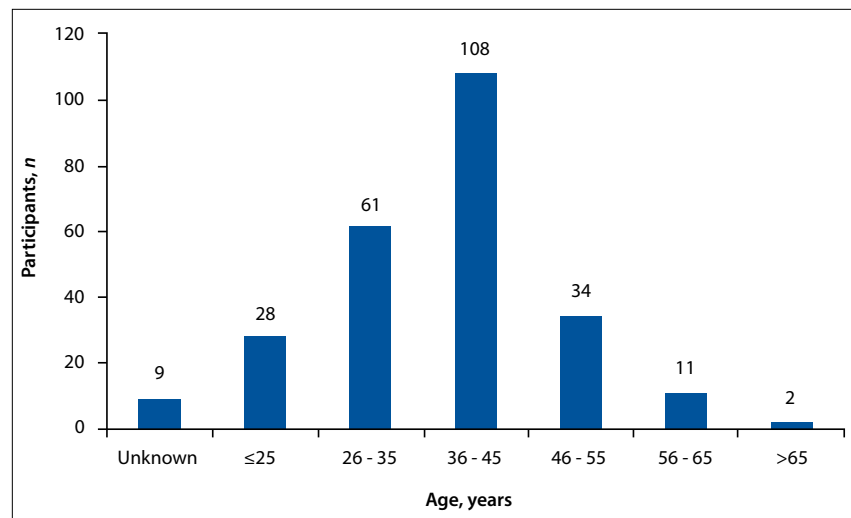


Fig. 1. Age distribution of screened women.

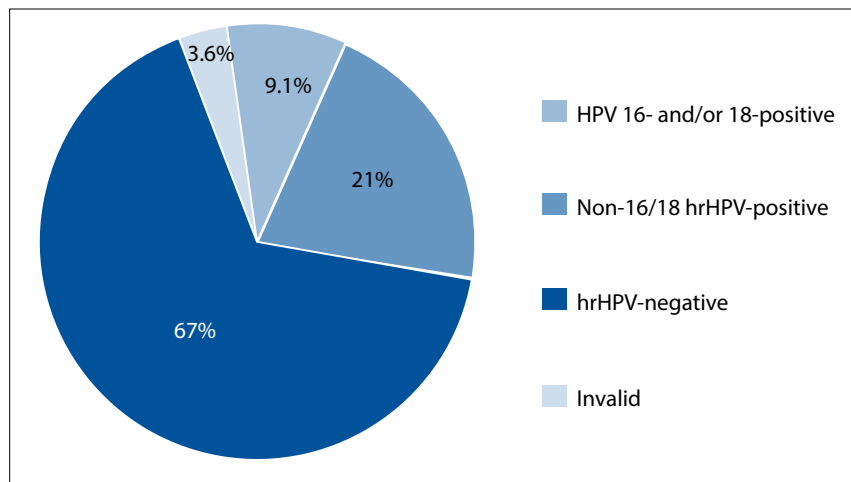


Fig. 2. Molecular results of self-collected cervical screening tests.

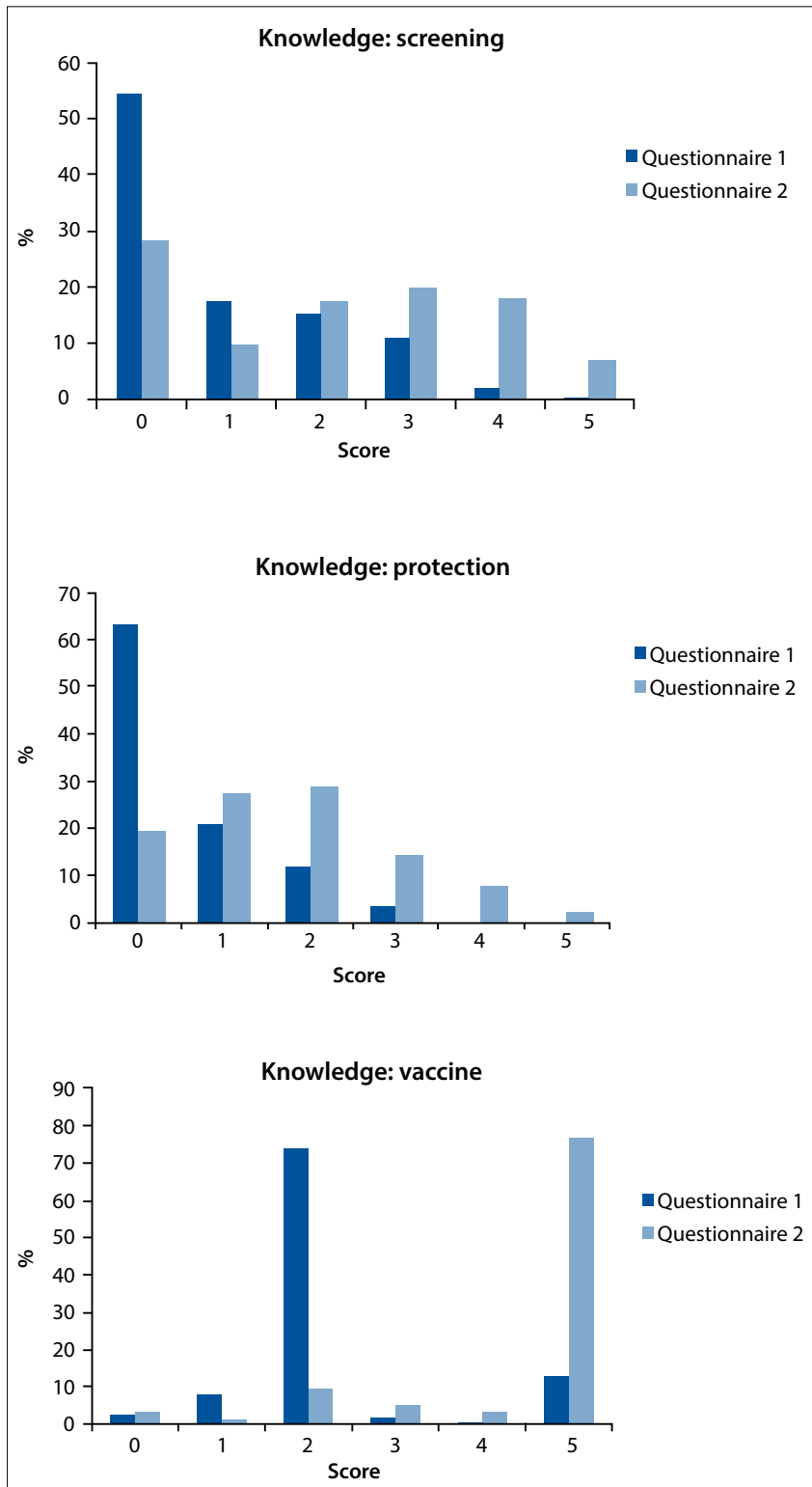


Fig. 3. Improvement in knowledge scores for cervical cancer symptoms, screening and vaccines.

$p < 0.001$) (Table 2), while among unscreened women the improvement was not statistically significant ($n=41$; $p=0.06$) (Table 2).

With regard to knowledge of cervical cancer prevention, knowledge of screening and vaccination improved significantly after the information event among screened

and unscreened groups (data not shown, $p < 0.001$).

Screening behaviour

Self-reported previous screening behaviour did not differ significantly between women who participated in self-screening compared with

those who did not ($p=0.169$); 51.2% of women who participated in self-screening reported no previous screening ever or did not know whether they had had screening in the past, compared with 48.8% of non-participants.

It is interesting that after participating in the project, 45 of 131 screened women (34.3%) reported that their last 'cervical cancer test' was more than 5 years ago. Despite this disparity, there was still a significant improvement in reported screening behaviour in this group between the two questionnaires ($p < 0.001$) (Table 3) compared with the control group, which did not show significant improvement ($p=0.036$) (Table 3).

Discussion

Vaccine uptake data differ worldwide and are influenced by numerous social, religious and economic factors. In addition, vaccine programme and communication strategies have a very large effect on uptake. Uptake of HPV vaccines is low in the USA and Germany^[9,10] and high in Australia,^[11] while uptake rates in Africa vary.^[12-14]

Vaccine uptake, calculated as the proportion of girls who received one vaccine dose from the total IC, was 64.0% for the total group in this study. The project protocol allowed for the provision of only sketchy information to prospective participants, because another aim of the study was to test baseline knowledge. Although it can be argued that interested and informed parents were more likely to attend, the relatively low vaccine uptake (51.7%) among parents who did not attend the information event compared with those who did attend (87.5%) could probably be attributed in part to this lack of information.

Moodley *et al.*^[15] reported overall HPV vaccine uptake in an implementation study in KwaZulu-Natal Province, SA, of 99.7%, 97.9% and 97.8% for the first, second and third vaccination doses, respectively. These data represent the uptake and completion rates of those who consented, but uptake as a proportion of girls available for vaccination was not provided. In the current study, similar success in vaccination of consented girls of 99.4%, 98.6% and 82.6% for one, two and all three doses, respectively, was achieved. In addition to uptake and completion rates, the proportion of the VC that received at least two vaccine doses at least 6 months apart was calculated. To our knowledge it is the first time that HPV vaccine data from an implementation or demonstration project have been presented in this way, and these results therefore cannot be compared.

In a school-based programme, it is acknowledged that VCRs are largely influenced by the number of follow-up visits to

Table 2. Improved knowledge on cervical cancer and its symptoms (upper triangles of table, above the grey tint) among screened and unscreened women

		Knowledge about cervical screening: scores after information event							
Screened women*		Score	0	1	2	3	4	5	Total
Knowledge about cervical screening: scores before information event	0	30	6	11	6	13	6	72	
	1	4	2	2	6	6	2	22	
	2	2	2	5	8	2	1	20	
	3	1	0	1	7	3	3	15	
	4	1	0	0	1	1	0	3	
	5	0	0	0	0	0	0	0	
	Total	38	10	19	28	25	12	132	
Unscreened women†		Score	0	1	2	3	4	5	Total
Knowledge about cervical screening: scores before information event	0	9	2	6	2	0	0	19	
	1	2	3	3	1	1	0	10	
	2	0	2	2	2	1	0	7	
	3	0	0	0	1	3	0	4	
	4	0	0	0	0	1	0	1	
	5	0	0	0	0	0	0	0	
Total	11	7	11	6	6	0	41		

Score 0 = no correct answer; scores 1 - 5: one mark for each correct answer.
 *p<0.001.
 †p=0.06.

Table 3. Improvement in self-reported screening behaviour (upper triangles of table, above the grey tint) among screened women but not among unscreened women

		Self-reported screening behaviour after intervention							
Screened women*		Score	0	1	2	3	4	5	Total
Self-reported screening behaviour before intervention	0	33	4	1	1	2	25	66	
	1	0	0	0	0	0	0	0	
	2	0	0	0	1	1	3	5	
	3	1	0	0	5	1	2	9	
	4	2	0	0	0	16	13	31	
	5	0	0	0	1	4	15	20	
	Total	36	4	1	8	24	58	131	
Unscreened women†		Score	0	1	2	3	4	5	Total
Self-reported screening behaviour before intervention	0	11	2	0	0	0	5	18	
	1	0	0	0	0	0	2	2	
	2	0	0	0	0	0	0	0	
	3	0	0	0	0	0	2	2	
	4	0	0	2	2	6	1	11	
	5	0	0	0	0	1	7	8	
Total	11	2	2	2	7	17	41		

Scores: 0 = never; 1 = don't know; 2 = >10 years ago; 3 = 6 - 10 years ago; 4 = 1 - 5 years ago; 5 = <1 year ago.
 *p<0.001.
 †p=0.036.

the school. In an attempt to simulate large-scale rollout of school-based vaccination, extra follow-up visits to schools where unforeseen

school activities and absenteeism prevented a large number of girls from attending scheduled vaccination were limited to one. In view

of this limited effort to improve vaccine completion, the attained VCR of 82.6% and a sufficiently vaccinated rate (SVR) of 89.4% are considered very satisfactory.

Vaccination in a single calendar year was more successful than vaccination scheduled over two years, as reflected by better VCRs (86.5% v. 73.5%) and SVRs (94.5% v. 77.4%). The difference can possibly be attributed to the December holiday break, children changing schools and promotion to secondary schools, which resulted in fewer girls receiving the important third dose. Although not surprising, this is to our knowledge the first confirmation of this effect reported from SA. The projected large loss of immune response and resulting herd immunity caused by an inefficiently vaccinated population is of huge importance for the planning of all vaccine roll-out programmes using school-based infrastructure.

Screening uptake, calculated as the proportion of women screened from those invited, was 44.5% in this study. Furthermore, in this study 253 women took up screening, of whom more than half reported no previous cervical cancer screening. Molecular screening results identified cervical cancer risk in 28.8% and a high risk for future disease in 9.1%. Using the school infrastructure as well as mobile phone technology, all women received screen results and this was confirmed for all screen-positive women.

All five of these parameters compare favourably to the limited data available for the existing cytology-based countrywide screening programme. According to the World Health Organization, cervical cytology coverage of eligible women in SA for the period 2000 - 2006 was estimated to be 17%.^[16] Screening will have the largest effect on cancer incidence if coverage is large, the correct high-risk target group is reached, and the biggest possible number of screen-positive women can get results and receive preventive therapy. HPV screening in low-resource settings is feasible, and self-sampling offers the added benefits of eliminating a clinic visit, speculum examination and the need for a healthcare provider to perform screening.

In addition to screening, education about cervical cancer symptoms and screening was successfully linked to the cervical cancer vaccine by the provision of information to parents or guardians of girls invited to be vaccinated. Knowledge about cervical cancer-related matters was lacking in this group of urban mothers, but improved following the provision of information. Neither demographics nor baseline knowledge predicted screening uptake in this study. Positive screening behaviour was associated with an improvement in knowledge about cervical cancer. As expected, most screening participants reported an improvement in screening behaviour after the tampon test, reflecting an understanding of the intention of the test. The finding that some women who took part in self-screening were not aware of the fact that they were screened could be attributed to a lack of knowledge or the structure of the questionnaire.

Conclusion

Implementation of HPV vaccination in a primary school-based programme was hugely successful. No serious adverse events were reported, and uptake rates of 64.0% of the IC and 99.4% of the CC were achieved. Vaccine completion was optimal when all vaccine doses were offered within a single calendar year.

Self-screening tests reached the ideal target group, and results were successfully reported to all participants. Linking cervical cancer screening to the cervical cancer vaccine was possible by providing women the opportunity to self-sample. This is a novel approach that would require some adaptive strategies, but was feasible and practical in the setting of this trial.

Knowledge about cervical cancer, its symptoms and prevention is generally poor, and school-based vaccine programmes offer a unique opportunity to provide appropriate information. This report of the Gauteng part of the VACCS project confirmed a measurable improvement in knowledge following health education. In addition, it was demonstrated that improved knowledge correlated with the uptake of screening.

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References

- Gakidou E, Nordhagen S, Obermeyer Z. Coverage of cervical cancer screening in 57 countries: Low average levels and large inequalities. *PLoS Med* 2008;5(6):e132. [<http://dx.doi.org/10.1371/journal.pmed.0050132>]
- Richter KL. Understanding and incorporating human papillomavirus testing in cervical cancer screening: A South African perspective. *South African Journal of Gynaecological Oncology* 2011;3(1):9-14.
- Seidel D, Becker N, Rohrmann S, Nimptsch K, Linseisen J. Socio-demographic characteristics of participation in the opportunistic German cervical cancer screening programme: Results from the EPIC-Heidelberg cohort. *J Cancer Res Clin Oncol* 2009;135(4):533-541. [<http://dx.doi.org/10.1007/s00432-008-0485-0>]
- Freitas RA, Carvasan GA, Morais SS, Zeferino LC. Excessive Pap smears due to opportunistic cervical cancer screening. *Eur J Gynaecol Oncol* 2008;29(5):479-482.
- Denny L, Adewole I, Anorlu R, et al. Human papillomavirus prevalence and type distribution in invasive cervical cancer in sub-Saharan Africa. *Int J Cancer* 2014;134(6):1389-1398. [<http://dx.doi.org/10.1002/ijc.28425>]
- Richter K, Becker P, Horton A, Dreyer G. Age-specific prevalence of cervical human papillomavirus infection and cytological abnormalities in women in Gauteng Province. *S Afr Med J* 2013;103(5):313-317. [<http://dx.doi.org/10.7196/SAMJ.6514>]
- Dobson SR, McNeil S, Dionne M, et al. Immunogenicity of 2 doses of HPV vaccine in younger adolescents vs 3 doses in young women: A randomized clinical trial. *JAMA* 2013;309(17):1793-1802. [<http://dx.doi.org/10.1001/jama.2013.1625>]
- Lazcano-Ponce E, Stanley M, Munoz N, et al. Overcoming barriers to HPV vaccination: Non-inferiority of antibody response to human papillomavirus 16/18 vaccine in adolescents vaccinated with a two-dose vs. a three-dose schedule at 21 months. *Vaccine* 2014;32(6):725-732. [<http://dx.doi.org/10.1016/j.vaccine.2013.11.059>]
- Delere Y, Bohmer MM, Walter D, Wichmann O. HPV vaccination coverage among women aged 18-20 years in Germany three years after recommendation of HPV vaccination for adolescent girls: Results from a cross-sectional survey. *Hum Vaccin Immunother* 2013;9(8):1706-1711. [<http://dx.doi.org/10.4161/hv.24904>]
- Dorell C, Yankey D, Jeyarajah J, et al. Delay and refusal of human papillomavirus vaccine for girls, national immunization survey-teen, 2010. *Clin Pediatr* 2014;53(3):261-269. [<http://dx.doi.org/10.1177/0009922813520070>]
- Brotherton JM, Murray SL, Hall MA, et al. Human papillomavirus vaccine coverage among female Australian adolescents: Success of the school-based approach. *Med J Aust* 2013;199(9):614-617. [<http://dx.doi.org/10.5694/mja13.10272>]
- Binagwaho A, Wagner CM, Gatera M, Karema C, Nutt CT, Ngabo F. Achieving high coverage in Rwanda's national human papillomavirus vaccination programme. *Bull World Health Organ* 2012;90(8):623-628. [<http://dx.doi.org/10.2471/BLT.11.097253>]
- Jumaan AO, Ghanem S, Taher J, Braikat M, Al Awaidy S, Dbaibo GS. Prospects and challenges in the introduction of human papillomavirus vaccines in the extended Middle East and North Africa region. *Vaccine* 2013;31(Suppl 6):G58-G64. [<http://dx.doi.org/10.1016/j.vaccine.2012.06.097>]
- Watson-Jones D, Baisley K, Ponsiano R, et al. Human papillomavirus vaccination in Tanzanian schoolgirls: Cluster-randomized trial comparing 2 vaccine-delivery strategies. *J Infect Dis* 2012;206(5):678-686. [<http://dx.doi.org/10.1093/infdis/jis407>]
- Moodley I, Tathiah N, Mubaiwa V, Denny L. High uptake of Gardasil vaccine among 9 - 12-year-old schoolgirls participating in an HPV vaccination demonstration project in KwaZulu-Natal, South Africa. *S Afr Med J* 2013;103(5):318-321. [<http://dx.doi.org/10.7196/SAMJ.6414>]
- World Health Organization. World Health Statistics 2008. World Health Organization, 2008. http://www.who.int/whosis/whostat/EN_WHS08_Full.pdf (accessed 12 February 2014).

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Appendix 1

Study No. _____

Vaccination and Cervical Cancer Screening Project

COMPLETE THIS TOP SECTION BEFORE STARTING THE INTERVIEW

Participant Study number: [] [] [] [] []

Interviewer number: [] []

Code for school attended by daughter: []

Code for Site: []

Date of Interview: dd [] [] mm [] [] yy [] []

Introductory remarks

Hello, my name is Thank you for agreeing to this interview. I am going to ask you a few questions about your understanding of cervical cancer. It will take about 15 minutes. Your name and contact details that I write down here will be kept separate from the questionnaire so anything you tell me will be anonymous and be kept confidential. Thank you.

Participant name _____

Participant ID [] [] [] [] [] [] [] [] [] [] [] [] [] [] []

Participant Contact Numbers [] [] [] - [] [] [] [] [] [] [] []

[] [] [] - [] [] [] [] [] [] [] []

Daughter's Name _____

Daughter's ID/Birth date [] [] [] [] [] [] [] [] [] [] [] [] [] [] []

Instructions to the interviewer

- Circle the appropriate number/s or fill in the appropriate response.
• Follow skip patterns carefully. DO NOT read words in BOLD or CAPS OR ITALICS
• Use probes where necessary
• Circle the NOT MENTIONED options after completion of the interview, before signing completion of form

NB: FILL IN STUDY NUMBERS ON NEXT PAGES AND DETACH THIS FRONT PAGE FROM THE QUESTIONNAIRE AND STORE SEPARATELY

RESEARCH

Study No. _____

SECTION-1: Socio-Demographic Characteristics

READ: "To start I am going to ask you some questions about yourself"

No.	Questions and filters	Coding categories	Code	Instructions
101	How old are you?	Age in years Missing	[][] -66	
102	What is the highest level of education you have completed? CIRCLE ONLY ONE	No formal schooling Grade 1/Sub A to Grade 7/Std 5 Grade 8/Std 6 to Grade 11/Std 9 Grade 12/Std 10 Diploma course Technikon degree University degree Other course: Specify _____ Missing	1 2 3 4 5 6 7 -66	
103	What is your source of income, if any? READ RESPONSES ONE BY ONE CIRCLE MORE THAN ONE IF NEEDED	Are you paid a salary Are you self employed Do you receive a grant Do you receive financial support from other members of the family Other Other: Specify _____ No Income Missing	<u>Yes</u> <u>No</u> 1 0 1 0 1 0 1 0 1 0 9 -66	

SECTION-2: Use of Health Care Facilities

READ: Now I would like to ask you some questions about your use of health care facilities.

No.	Questions and filters	Coding categories	Code	Instructions
201	When did you last visit any health care centre? CIRCLE ONLY ONE	In the last month In the last 6 months In the last year In the last 5 years Unsure More than 5 years ago Missing	1 2 3 4 88 5 -66	} Skip to 203 Skip to 202
202	Why have you not visited a health care centre for more than 5 years DO NOT READ RESPONSES CIRCLE Ⓞ IF MENTIONED Probes: Anything else?	No health problem Don't have the money Too far away No transport to get there Don't have enough time to go there Don't believe they can help my me with my health problem Have to wait too long at the clinic The service at the clinic is poor The clinic is not open when I can go there Other Other: Specify _____ Missing	<u>M</u> <u>NM</u> 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 -66	} Skip to 301

RESEARCH

Study No. _____

No.	Questions and filters	Coding categories	Code	Instructions												
203	<p>Which service do you most often visit when you go for health care?</p> <p>READ ALL RESPONSES THEN CIRCLE ONLY ONE</p>	<p>Government clinics Government hospitals Private doctors/hospitals Traditional healers Other</p> <p>Other: Specify _____</p> <p>Missing</p>	<p>1 2 3 4 5</p> <p>-66</p>													
204	<p>a) What is the name of the health care centre you most often visit?</p> <p>b) Is it easy to get to this facility?</p> <p>c) How do you usually travel to this facility?</p> <p>CIRCLE ONLY ONE</p>	<p>NAME _____</p> <p>Missing</p> <p>Walk Taxi Public transport Car</p> <p>Missing</p>	<table style="width: 100%; border: none;"> <tr> <td style="text-align: center;"><u>Yes</u></td> <td style="text-align: center;"><u>No</u></td> </tr> <tr> <td style="text-align: center;">1</td> <td style="text-align: center;">0</td> </tr> </table> <p>-66</p> <p>1 2 3 4</p> <p>-66</p>	<u>Yes</u>	<u>No</u>	1	0									
<u>Yes</u>	<u>No</u>															
1	0															
205	<p>What was the reason for your most recent visit to any health care centre?</p> <p>READ RESPONSES ONE BY ONE CIRCLE MORE THAN ONE IF NEEDED</p>	<p>For treatment of a disease For medicines for yourself For family planning for yourself For a Pap Smear or gynaecological examination for yourself To accompany someone else Other</p> <p>Other: Specify _____</p> <p>Missing</p>	<table style="width: 100%; border: none;"> <tr> <td style="text-align: center;"><u>Yes</u></td> <td style="text-align: center;"><u>No</u></td> </tr> <tr> <td style="text-align: center;">1</td> <td style="text-align: center;">0</td> </tr> <tr> <td style="text-align: center;">1</td> <td style="text-align: center;">0</td> </tr> <tr> <td style="text-align: center;">1</td> <td style="text-align: center;">0</td> </tr> <tr> <td style="text-align: center;">1</td> <td style="text-align: center;">0</td> </tr> <tr> <td style="text-align: center;">1</td> <td style="text-align: center;">0</td> </tr> </table> <p>-66</p>	<u>Yes</u>	<u>No</u>	1	0	1	0	1	0	1	0	1	0	
<u>Yes</u>	<u>No</u>															
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RESEARCH

Study No. _____

SECTION-3: Knowledge of Pap Smears and cancer of the cervix
 READ: "Now I would like to talk to you about cervical cancer and how to prevent it."

No.	Questions and filters	Coding categories	Code	Instructions																															
301	a) Can you explain what you understand about cervical cancer – that is cancer of the mouth of the womb? IF CLIENT SAYS SHE KNOWS NOTHING ABOUT CERVCAL CANCER, SKIP TO SECTION 4	OPEN RESPONSE _____ _____ _____ _____ _____																																	
302	What changes in your body would make you think that you had cervical cancer? DO NOT READ RESPONSES CIRCLE ① FOR ALL RESPONSES MENTIONED Probe: Anything else?	<table style="width: 100%; border: none;"> <tr> <td style="text-align: right;">Pain</td> <td style="text-align: right;">1</td> <td style="text-align: right;">0</td> </tr> <tr> <td style="text-align: right;">Discharge from vagina</td> <td style="text-align: right;">1</td> <td style="text-align: right;">0</td> </tr> <tr> <td style="text-align: right;">Odour from vagina</td> <td style="text-align: right;">1</td> <td style="text-align: right;">0</td> </tr> <tr> <td style="text-align: right;">Ulcers/sores on private parts</td> <td style="text-align: right;">1</td> <td style="text-align: right;">0</td> </tr> <tr> <td style="text-align: right;">Unusual bleeding</td> <td style="text-align: right;">1</td> <td style="text-align: right;">0</td> </tr> <tr> <td style="text-align: right;">There are no signs</td> <td style="text-align: right;">1</td> <td style="text-align: right;">0</td> </tr> <tr> <td style="text-align: right;">Don't know</td> <td style="text-align: right;">1</td> <td style="text-align: right;">0</td> </tr> <tr> <td style="text-align: right;">Other</td> <td style="text-align: right;">1</td> <td style="text-align: right;">0</td> </tr> </table> Other: Specify _____ Missing	Pain	1	0	Discharge from vagina	1	0	Odour from vagina	1	0	Ulcers/sores on private parts	1	0	Unusual bleeding	1	0	There are no signs	1	0	Don't know	1	0	Other	1	0	<table style="width: 100%; border: none;"> <tr> <td style="text-align: center;"><u>M</u></td> <td style="text-align: center;"><u>NM</u></td> </tr> <tr> <td style="text-align: center;">-66</td> <td></td> </tr> </table>	<u>M</u>	<u>NM</u>	-66					
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<u>M</u>	<u>NM</u>																																		
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303	Do you know how a woman can protect herself against developing cervical cancer?	<table style="width: 100%; border: none;"> <tr> <td style="text-align: right;">Yes</td> <td style="text-align: right;">1</td> </tr> <tr> <td style="text-align: right;">No</td> <td style="text-align: right;">0</td> </tr> <tr> <td style="text-align: right;">Unsure</td> <td style="text-align: right;">88</td> </tr> <tr> <td style="text-align: right;">Missing</td> <td style="text-align: right;">-66</td> </tr> </table>	Yes	1	No	0	Unsure	88	Missing	-66	<table style="width: 100%; border: none;"> <tr> <td style="text-align: center;">-66</td> </tr> </table>	-66	Skip to 304 Skip to 305 Skip to 304																						
Yes	1																																		
No	0																																		
Unsure	88																																		
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304	How can a woman protect herself against developing cervical cancer? DO NOT READ RESPONSES CIRCLE ① FOR ALL RESPONSES MENTIONED Probe: Anything else?	<table style="width: 100%; border: none;"> <tr> <td style="text-align: right;">Regular pap smear</td> <td style="text-align: right;">1</td> <td style="text-align: right;">0</td> </tr> <tr> <td style="text-align: right;">Regular examination of womb</td> <td style="text-align: right;">1</td> <td style="text-align: right;">0</td> </tr> <tr> <td style="text-align: right;">Seeing a special doctor</td> <td style="text-align: right;">1</td> <td style="text-align: right;">0</td> </tr> <tr> <td style="text-align: right;">Regular visit to General Practitioner</td> <td style="text-align: right;">1</td> <td style="text-align: right;">0</td> </tr> <tr> <td style="text-align: right;">Not having sex</td> <td style="text-align: right;">1</td> <td style="text-align: right;">0</td> </tr> <tr> <td style="text-align: right;">Using condoms</td> <td style="text-align: right;">1</td> <td style="text-align: right;">0</td> </tr> <tr> <td style="text-align: right;">Vaccine/injection</td> <td style="text-align: right;">1</td> <td style="text-align: right;">0</td> </tr> <tr> <td style="text-align: right;">Other screening tests</td> <td style="text-align: right;">1</td> <td style="text-align: right;">0</td> </tr> <tr> <td style="text-align: right;">Other</td> <td></td> <td></td> </tr> </table> Other: Specify _____ Missing	Regular pap smear	1	0	Regular examination of womb	1	0	Seeing a special doctor	1	0	Regular visit to General Practitioner	1	0	Not having sex	1	0	Using condoms	1	0	Vaccine/injection	1	0	Other screening tests	1	0	Other			<table style="width: 100%; border: none;"> <tr> <td style="text-align: center;"><u>M</u></td> <td style="text-align: center;"><u>NM</u></td> </tr> <tr> <td style="text-align: center;">-66</td> <td></td> </tr> </table>	<u>M</u>	<u>NM</u>	-66		
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Other screening tests	1	0																																	
Other																																			
<u>M</u>	<u>NM</u>																																		
-66																																			
305	Do you think cervical cancer can be cured with treatment?	<table style="width: 100%; border: none;"> <tr> <td style="text-align: right;">Yes</td> <td style="text-align: right;">1</td> </tr> <tr> <td style="text-align: right;">No</td> <td style="text-align: right;">0</td> </tr> <tr> <td style="text-align: right;">Unsure</td> <td style="text-align: right;">88</td> </tr> <tr> <td style="text-align: right;">Missing</td> <td style="text-align: right;">-66</td> </tr> </table>	Yes	1	No	0	Unsure	88	Missing	-66	<table style="width: 100%; border: none;"> <tr> <td style="text-align: center;">-66</td> </tr> </table>	-66																							
Yes	1																																		
No	0																																		
Unsure	88																																		
Missing	-66																																		
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RESEARCH

Study No. _____

SECTION-4: Cervix cancer screening History

READ: "Now I would like to ask you about any cervix cancer screening tests you may have had"

No.	Questions and filters	Coding categories	Code	Instructions																																	
401	Have you ever had a test for cervical cancer?	Yes No Unsure Missing	1 0 88 -66	Skip to 402 Skip to 403 Skip to 501																																	
402	If YES What test did you have? DO NOT READ RESPONSES CIRCLE ① FOR ALL RESPONSES MENTIONED Probe: Anything else?	Pap smear Vaginal Examination Tampon test Other Other: specify _____ Missing	<table style="border: none;"> <tr> <td style="border: none;"><u>M</u></td> <td style="border: none;"><u>NM</u></td> <td style="border: none;"></td> </tr> <tr> <td style="border: none;">1</td> <td style="border: none;">0</td> <td style="border: none;"></td> </tr> <tr> <td style="border: none;">1</td> <td style="border: none;">0</td> <td style="border: none;"></td> </tr> <tr> <td style="border: none;">1</td> <td style="border: none;">0</td> <td style="border: none;"></td> </tr> <tr> <td style="border: none;">1</td> <td style="border: none;">0</td> <td style="border: none;"></td> </tr> <tr> <td style="border: none;">-66</td> <td style="border: none;"></td> <td style="border: none;"></td> </tr> </table>	<u>M</u>	<u>NM</u>		1	0		1	0		1	0		1	0		-66			} Skip to 404															
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-66																																					
403	If NO Why have you never had a test for cervical cancer? DO NOT READ RESPONSES CIRCLE ① FOR ALL RESPONSES MENTIONED Probe: Anything else?	Scared Embarrassed My partner wouldn't like it I don't have the money I don't like having these kinds of tests I have never heard about this before Didn't know where to go Didn't think it would help me Did not have a reason to go for one Other Other specify _____ _____ Missing	<table style="border: none;"> <tr> <td style="border: none;"><u>M</u></td> <td style="border: none;"><u>NM</u></td> <td style="border: none;"></td> </tr> <tr> <td style="border: none;">1</td> <td style="border: none;">0</td> <td style="border: none;"></td> </tr> <tr> <td style="border: none;">1</td> <td style="border: none;">0</td> <td style="border: none;"></td> </tr> <tr> <td style="border: none;">1</td> <td style="border: none;">0</td> <td style="border: none;"></td> </tr> <tr> <td style="border: none;">1</td> <td style="border: none;">0</td> <td style="border: none;"></td> </tr> <tr> <td style="border: none;">1</td> <td style="border: none;">0</td> <td style="border: none;"></td> </tr> <tr> <td style="border: none;">1</td> <td style="border: none;">0</td> <td style="border: none;"></td> </tr> <tr> <td style="border: none;">1</td> <td style="border: none;">0</td> <td style="border: none;"></td> </tr> <tr> <td style="border: none;">1</td> <td style="border: none;">0</td> <td style="border: none;"></td> </tr> <tr> <td style="border: none;">1</td> <td style="border: none;">0</td> <td style="border: none;"></td> </tr> <tr> <td style="border: none;">-66</td> <td style="border: none;"></td> <td style="border: none;"></td> </tr> </table>	<u>M</u>	<u>NM</u>		1	0		1	0		1	0		1	0		1	0		1	0		1	0		1	0		1	0		-66			} Skip to 501
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404	How many years ago was your last test for cervical cancer? CIRCLE ONLY ONE	Less than 1 year ago 1-5 years 6-10 years > 10 years ago Don't know Missing	1 2 3 4 88 -66																																		
405	What was the result of your last test? CIRCLE ONLY ONE	Normal Abnormal Don't know Missing	1 0 88 -66	Skip to 501 Skip to 406 Skip to 501																																	
406	Did you have any treatment for this? CIRCLE ONLY ONE	Yes No Unsure Missing	1 0 88 -66																																		

RESEARCH

Study No. _____

SECTION-5: Vaccination Knowledge and attitudes

READ: "Now I would like to ask you about your opinions about vaccination and cervical cancer"

No.	Questions and filters	Coding categories	Code	Skip To														
501	Have you ever heard of a vaccine or injection to prevent cervical cancer?	Yes No Unsure Missing	1 0 88 -66	Skip to 502 Skip to 503 Skip to 503														
502	IF YES: Who is the vaccine or injection for? DO NOT READ RESPONSES CIRCLE ① FOR ALL RESPONSES MENTIONED Probe: Anybody specific?	Women/girls only Men and women/girls Women/girls under a certain age Women/girls who have not had sexual intercourse yet Don't know enough about it Other Other: Specify _____ _____ Missing	<table style="width: 100%; border: none;"> <tr> <td style="text-align: right; border: none;"><u>M</u></td> <td style="text-align: right; border: none;"><u>NM</u></td> </tr> <tr> <td style="border: none;">1</td> <td style="border: none;">0</td> </tr> <tr> <td style="border: none;">1</td> <td style="border: none;">0</td> </tr> <tr> <td style="border: none;">1</td> <td style="border: none;">0</td> </tr> <tr> <td style="border: none;">1</td> <td style="border: none;">0</td> </tr> <tr> <td style="border: none;">1</td> <td style="border: none;">0</td> </tr> <tr> <td style="border: none;">1</td> <td style="border: none;">0</td> </tr> </table> -66	<u>M</u>	<u>NM</u>	1	0	1	0	1	0	1	0	1	0	1	0	
<u>M</u>	<u>NM</u>																	
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503	Do you think a vaccine to prevent cervical cancer would be good to have?	Yes No Unsure Missing	1 0 88 -66	Skip to 505 Skip to 504 Skip to 504														
504	IF NO or unsure: Why do you think it would not/ might not be good to have a vaccination to prevent cervical cancer? End interview. Thank the client for her help and ask: "Do you have any questions?"	OPEN RESPONSE																
505	SAY: There is such a vaccine: ASK: Would you advise primary school girls to have it? End interview. Thank the client for her help and ask: "Do you have any questions?"	Yes No Unsure Missing	1 0 88 -66															

Signature of Interviewer (post-interview) _____

(Your signature verifies that you have reviewed the responses given by the interviewee, corrected any problems, and that ALL questions have a response marked.)

INTERVIEWER: Is this survey complete?

1 = Complete

2 = Incomplete

If not complete please give reasons:

RESEARCH

Study No. _____

VACCS Project – Second Interview

SECTION-6: Knowledge of Pap Smears and cancer of the cervix

READ: "Now I would like to talk to you about cervical cancer and how to prevent it."

No.	Questions and filters	Coding categories	Code	Instructions																																				
601	<p>a) Can you explain what you understand about cervical cancer – that is cancer of the mouth of the womb?</p> <p>IF CLIENT SAYS SHE KNOWS NOTHING ABOUT CERVCAL CANCER, SKIP TO SECTION 4</p>	<p>OPEN RESPONSE</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p>																																						
602	<p>What changes in your body would make you think that you had cervical cancer?</p> <p>DO NOT READ RESPONSES CIRCLE ① FOR ALL RESPONSES MENTIONED Probe: Anything else?</p>	<table style="width: 100%; border: none;"> <tr> <td style="width: 80%;"></td> <td style="text-align: right;">Pain</td> <td style="text-align: center;"><u>M</u></td> <td style="text-align: center;"><u>NM</u></td> </tr> <tr> <td></td> <td style="text-align: right;">Discharge from vagina</td> <td style="text-align: center;">1</td> <td style="text-align: center;">0</td> </tr> <tr> <td></td> <td style="text-align: right;">Odour from vagina</td> <td style="text-align: center;">1</td> <td style="text-align: center;">0</td> </tr> <tr> <td></td> <td style="text-align: right;">Ulcers/sores on private parts</td> <td style="text-align: center;">1</td> <td style="text-align: center;">0</td> </tr> <tr> <td></td> <td style="text-align: right;">Unusual bleeding</td> <td style="text-align: center;">1</td> <td style="text-align: center;">0</td> </tr> <tr> <td></td> <td style="text-align: right;">There are no signs</td> <td style="text-align: center;">1</td> <td style="text-align: center;">0</td> </tr> <tr> <td></td> <td style="text-align: right;">Don't know</td> <td style="text-align: center;">1</td> <td style="text-align: center;">0</td> </tr> <tr> <td></td> <td style="text-align: right;">Other</td> <td style="text-align: center;">1</td> <td style="text-align: center;">0</td> </tr> </table> <p>Other: Specify _____</p> <p style="text-align: right;">Missing -66</p>		Pain	<u>M</u>	<u>NM</u>		Discharge from vagina	1	0		Odour from vagina	1	0		Ulcers/sores on private parts	1	0		Unusual bleeding	1	0		There are no signs	1	0		Don't know	1	0		Other	1	0						
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603	<p>Do you know how a woman can protect herself against developing cervical cancer?</p>	<table style="width: 100%; border: none;"> <tr> <td style="width: 80%;"></td> <td style="text-align: right;">Yes</td> <td style="text-align: center;">1</td> </tr> <tr> <td></td> <td style="text-align: right;">No</td> <td style="text-align: center;">0</td> </tr> <tr> <td></td> <td style="text-align: right;">Unsure</td> <td style="text-align: center;">88</td> </tr> <tr> <td></td> <td style="text-align: right;">Missing</td> <td style="text-align: center;">-66</td> </tr> </table>		Yes	1		No	0		Unsure	88		Missing	-66		<p>Skip to 304 Skip to 305 Skip to 304</p>																								
	Yes	1																																						
	No	0																																						
	Unsure	88																																						
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604	<p>How can a woman protect herself against developing cervical cancer?</p> <p>DO NOT READ RESPONSES CIRCLE ① FOR ALL RESPONSES MENTIONED Probe: Anything else?</p>	<table style="width: 100%; border: none;"> <tr> <td style="width: 80%;"></td> <td style="text-align: right;">Regular pap smear</td> <td style="text-align: center;"><u>M</u></td> <td style="text-align: center;"><u>NM</u></td> </tr> <tr> <td></td> <td style="text-align: right;">Regular examination of womb</td> <td style="text-align: center;">1</td> <td style="text-align: center;">0</td> </tr> <tr> <td></td> <td style="text-align: right;">Seeing a special doctor</td> <td style="text-align: center;">1</td> <td style="text-align: center;">0</td> </tr> <tr> <td></td> <td style="text-align: right;">Regular visit to General Practitioner</td> <td style="text-align: center;">1</td> <td style="text-align: center;">0</td> </tr> <tr> <td></td> <td style="text-align: right;">Not having sex</td> <td style="text-align: center;">1</td> <td style="text-align: center;">0</td> </tr> <tr> <td></td> <td style="text-align: right;">Using condoms</td> <td style="text-align: center;">1</td> <td style="text-align: center;">0</td> </tr> <tr> <td></td> <td style="text-align: right;">Vaccine/injection</td> <td style="text-align: center;">1</td> <td style="text-align: center;">0</td> </tr> <tr> <td></td> <td style="text-align: right;">Other screening tests</td> <td style="text-align: center;">1</td> <td style="text-align: center;">0</td> </tr> <tr> <td></td> <td style="text-align: right;">Other</td> <td></td> <td></td> </tr> </table> <p>Other: Specify _____</p> <p style="text-align: right;">Missing -66</p>		Regular pap smear	<u>M</u>	<u>NM</u>		Regular examination of womb	1	0		Seeing a special doctor	1	0		Regular visit to General Practitioner	1	0		Not having sex	1	0		Using condoms	1	0		Vaccine/injection	1	0		Other screening tests	1	0		Other				
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	Other screening tests	1	0																																					
	Other																																							
605	<p>Do you think cervical cancer can be cured with treatment?</p>	<table style="width: 100%; border: none;"> <tr> <td style="width: 80%;"></td> <td style="text-align: right;">Yes</td> <td style="text-align: center;">1</td> </tr> <tr> <td></td> <td style="text-align: right;">No</td> <td style="text-align: center;">0</td> </tr> <tr> <td></td> <td style="text-align: right;">Unsure</td> <td style="text-align: center;">88</td> </tr> <tr> <td></td> <td style="text-align: right;">Missing</td> <td style="text-align: center;">-66</td> </tr> </table>		Yes	1		No	0		Unsure	88		Missing	-66																										
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RESEARCH

Study No. _____

SECTION-7: Cervix cancer screening History

READ: "Now I would like to ask you about any cervix cancer screening tests you may have had"

No.	Questions and filters	Coding categories	Code	Instructions																								
701	Have you ever had a test for cervical cancer?	Yes No Unsure Missing	1 0 88 -66	Skip to 402 Skip to 403 Skip to 501																								
702	If YES What test did you have? DO NOT READ RESPONSES CIRCLE ① FOR ALL RESPONSES MENTIONED Probe: Anything else?	Pap smear Vaginal Examination Tampon test Other Other: specify _____ Missing	<table style="border: none;"> <tr> <td style="text-align: center;"><u>M</u></td> <td style="text-align: center;"><u>NM</u></td> </tr> <tr> <td style="text-align: center;">1</td> <td style="text-align: center;">0</td> </tr> <tr> <td style="text-align: center;">1</td> <td style="text-align: center;">0</td> </tr> <tr> <td style="text-align: center;">1</td> <td style="text-align: center;">0</td> </tr> <tr> <td style="text-align: center;">1</td> <td style="text-align: center;">0</td> </tr> <tr> <td style="text-align: center;">-66</td> <td></td> </tr> </table>	<u>M</u>	<u>NM</u>	1	0	1	0	1	0	1	0	-66		} Skip to 404												
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-66																												
703	If NO Why have you never had a test for cervical cancer? DO NOT READ RESPONSES CIRCLE ① FOR ALL RESPONSES MENTIONED Probe: Anything else?	Scared Embarrassed My partner wouldn't like it I don't have the money I don't like having these kinds of tests I have never heard about this before Didn't know where to go Didn't think it would help me Did not have a reason to go for one Other Other specify _____ _____ Missing	<table style="border: none;"> <tr> <td style="text-align: center;"><u>M</u></td> <td style="text-align: center;"><u>NM</u></td> </tr> <tr> <td style="text-align: center;">1</td> <td style="text-align: center;">0</td> </tr> <tr> <td style="text-align: center;">1</td> <td style="text-align: center;">0</td> </tr> <tr> <td style="text-align: center;">1</td> <td style="text-align: center;">0</td> </tr> <tr> <td style="text-align: center;">1</td> <td style="text-align: center;">0</td> </tr> <tr> <td style="text-align: center;">1</td> <td style="text-align: center;">0</td> </tr> <tr> <td style="text-align: center;">1</td> <td style="text-align: center;">0</td> </tr> <tr> <td style="text-align: center;">1</td> <td style="text-align: center;">0</td> </tr> <tr> <td style="text-align: center;">1</td> <td style="text-align: center;">0</td> </tr> <tr> <td style="text-align: center;">1</td> <td style="text-align: center;">0</td> </tr> <tr> <td style="text-align: center;">1</td> <td style="text-align: center;">0</td> </tr> <tr> <td style="text-align: center;">-66</td> <td></td> </tr> </table>	<u>M</u>	<u>NM</u>	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	-66		} Skip to 501
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704	How many years ago was your last test for cervical cancer? CIRCLE ONLY ONE	Less than 1 year ago 1-5 years 6-10 years > 10 years ago Don't know Missing	1 2 3 4 88 -66																									
705	What was the result of your last test? CIRCLE ONLY ONE	Normal Abnormal Don't know Missing	1 0 88 -66	Skip to 501 Skip to 406 Skip to 501																								
706	Did you have any treatment for this? CIRCLE ONLY ONE	Yes No Unsure Missing	1 0 88 -66																									

RESEARCH

Study No. _____

SECTION-8: Vaccination Knowledge and attitudes

READ: "Now I would like to ask you about your opinions about vaccination and cervical cancer"

No.	Questions and filters	Coding categories	Code	Skip To														
801	Have you ever heard of a vaccine or injection to prevent cervical cancer?	Yes No Unsure Missing	1 0 88 -66	Skip to 502 Skip to 503 Skip to 503														
802	IF YES: Who is the vaccine or injection for? DO NOT READ RESPONSES CIRCLE ① FOR ALL RESPONSES MENTIONED Probe: Anybody specific?	Women/girls only Men and women/girls Women/girls under a certain age Women/girls who have not had sexual intercourse yet Don't know enough about it Other Other: Specify _____ _____ Missing	<table style="border: none;"> <tr> <td style="border: none; padding-right: 10px;"><u>M</u></td> <td style="border: none; padding-right: 10px;"><u>NM</u></td> </tr> <tr> <td style="border: none;">1</td> <td style="border: none;">0</td> </tr> <tr> <td style="border: none;">1</td> <td style="border: none;">0</td> </tr> <tr> <td style="border: none;">1</td> <td style="border: none;">0</td> </tr> <tr> <td style="border: none;">1</td> <td style="border: none;">0</td> </tr> <tr> <td style="border: none;">1</td> <td style="border: none;">0</td> </tr> <tr> <td style="border: none;">1</td> <td style="border: none;">0</td> </tr> </table> -66	<u>M</u>	<u>NM</u>	1	0	1	0	1	0	1	0	1	0	1	0	
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803	Do you think a vaccine to prevent cervical cancer would be good to have?	Yes No Unsure Missing	1 0 88 -66	Skip to 505 Skip to 504 Skip to 504														
804	IF NO or unsure: Why do you think it would not/ might not be good to have a vaccination to prevent cervical cancer? End interview. Thank the client for her help and ask: "Do you have any questions?"	OPEN RESPONSE _____ _____ _____																
805	SAY: There is such a vaccine: ASK: Would you advise primary school girls to have it? End interview. Thank the client for her help and ask: "Do you have any questions?"	Yes No Unsure Missing	1 0 88 -66															

Signature of Interviewer (post-interview) _____

(Your signature verifies that you have reviewed the responses given by the interviewee, corrected any problems, and that ALL questions have a response marked.)

INTERVIEWER: Is this survey complete?

- 1 = Complete
- 2 = Incomplete

If not complete please give reasons:
