Antenatal voluntary counseling and testing for HIV in Barbados. Success and barriers to implementation

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Objective. To determine the success of voluntary counseling and testing (VCT) for HIV and to identify the barriers to implementation when VCT is offered as a package integrated with antenatal care.

Methods. In this descriptive study we investigated antenatal VCT and HIV testing in all post-parturient women at the Queen Elizabeth Hospital, Bridgetown, Barbados, who gave birth between April and September 2002. Data were collected retrospectively from the antenatal care record and by recall during one-on-one interview.

Results. Of 1 342 women surveyed, 954 (71.1%) received antenatal counseling and were offered an HIV test. Of the 954 women offered HIV test after counseling, 914 (95.8%) agreed to have the test. Among the women surveyed, 1 106 (82.4%) had a documented HIV test, 914 (85.7%) were tested after documented pretest counseling, and another 192 (14.3%) were tested without documented pretest counseling. Overall, 822 of the 1 342 women surveyed (61.2%) had a documented HIV test result in their antenatal case record at the time of delivery. Of the 1 106 women who had a documented HIV test, the test results were unavailable at the time of delivery in only 284 (21.2%). Among the reasons for unavailability of a documented HIV test result, the most common (45.0%) was that no test was done, followed by unclear documentation of the result.

Conclusions. Twenty-nine percent of surveyed women failed to receive antenatal VCT and this is a cause of concern, for both the high coverage and good quality counseling are key to the overall success and cost effectiveness of the VCT program. Fourteen percent of the women surveyed who did not receive VCT were tested for HIV, a situation that is undesirable because some women may be tested without understanding the full implication of this policy, and as a result the overall impact of VCT may be reduced.

Key words
AIDS serodiagnosis; counseling; pregnant women.

Voluntary counseling and testing (VCT) for HIV infection provides the opportunity for early access to prevention and care for mothers who are known to be infected, and can reduce the number of interventions to prevent mother-to-child transmission (MTCT) of HIV infection (1). The huge success of antiretroviral medication in reducing MTCT of HIV has made the need for VCT more compelling, and it is clear that VCT is critical for interventions aimed at reducing MTCT (2). In Barbados, an island country in the Caribbean...
with a population of 272,000, the rate of MTCT of HIV infection has decreased from 27.1% during 1991–95 to 5.5% during 1996–2000. This reduction has been credited in large part to the country’s excellent free antenatal care delivery coupled with voluntary counseling and testing for HIV to detect infected women, and the use of anti-retroviral medication to reduce MTCT (3). No comparable data are available from other Caribbean countries.

For VCT to be effective, prenatal care must be readily available and widely accepted. The process can be summarized in the following steps: The prenatal care provider offers pretest counseling and HIV testing; women accept the test; there is provision for follow-up and proper documentation so that the results are available at or before delivery; appropriate measures are taken to prevent perinatal HIV transmission with antiretroviral drugs. Because this is an elaborate process involving several players and considerable resources, VCT to prevent perinatal HIV transmission is an expensive intervention compared to health education and other potentially effective prevention strategies (4). Therefore, VCT needs to be highly successful for it to be cost-effective. This is an important policy issue, particularly in countries where health care resources are limited.

Within antenatal care settings, VCT has been well accepted (5). Since 1992, the Ministry of Health of the Government of Barbados has recommended counseling and voluntary HIV testing of all pregnant women in different antenatal care settings throughout the country. We have documented that a high percentage (between 80% and 90%) of all pregnant women have been tested for HIV in this country since 1996, when antiretroviral medication to prevent MTCT was made available.4 How does a high rate of HIV testing of pregnant women relate to the overall success of VCT, and to its success as a tool to facilitate implementation of measures to prevent MTCT? Voluntary counseling and testing services associated with maternal and child care services in developing countries are new, and there are no data on their effectiveness and acceptability, particularly in antenatal service settings. To date, only a few studies, all from developed countries, have been published (6, 7).

We studied all women in Barbados who delivered at the Queen Elizabeth Hospital between April and September 2002. Our aims were to determine the acceptance and success of VCT and to identify barriers to its implementation when VCT is offered as part of a package of integrated antenatal care.

METHODS

Antenatal care in Barbados is delivered through three major institutions. The state-run polyclinics provide primary care and are where most pregnant women receive antenatal care. Care is also provided by private obstetricians and general practitioners. The 600-bed Queen Elizabeth Hospital (QEH), the referral center in this country, provides tertiary care. More than 90% of the 3,384 deliveries in Barbados during 2002 took place at the QEH. Both polyclinics and private offices liaison closely with this center to guarantee continuity of care. Antenatal care records for each pregnant woman are maintained on a standard antenatal record form provided by the Ministry of Health, which is completed by the care provider at each antenatal visit. The antenatal record is sent to the QEH at each referral for consultation and delivery.

Study population

The study population comprised women who delivered babies at the QEH during the period between April and September 2002. All women who gave birth to a live baby during this period were surveyed and included in this study. Women who had stillbirths or abortions were excluded from the study. Informed consent was obtained from all the mothers who were interviewed.

Pretest counseling, HIV testing, and post-test counseling

On their first visit all pregnant women attending the antenatal clinic routinely receive counseling regarding voluntary HIV testing before being offered an HIV test. Further antenatal follow-up visits are scheduled at this time. During pretest counseling provided by a nurse or a doctor in the antenatal clinic, the purpose of HIV screening and the process itself are explained. The women also receive information on the availability and usefulness of perinatal antiretroviral prophylaxis for women who may test HIV-positive. The voluntary nature of the process is also stressed. At the polyclinics and at the QEH, pretest counseling and HIV testing, if the women consent, are handled by a specially trained health nurse. A blood sample for HIV screening is sent to the screening laboratory at the QEH, and the results are dispatched to the antenatal clinics within two weeks. The results of all HIV screening tests are sent to the nurse who provided VCT at the polyclinic or the QEH, or to the doctor at the private office. The test result is discussed with the women during posttest counseling at the second or a subsequent antenatal visit, and is entered in the women’s antenatal record in a coded manner so as to maintain confidentiality. Post-test counseling is provided by the same health nurse or doctor who provided pretest counseling.

Data collection

The sociodemographic factors that were recorded for this study included age, number of pregnancies, marital status, hospital identification number, and the date of delivery. Also recorded for all participants were details of antenatal care including the pres-

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ence or absence of such care, details of the antenatal care provider, and documentation of an HIV test and the results. All information was collected retrospectively from the antenatal care record, and the data were entered on a specially designed data collection form.

For post-parturient women who did not have a documented HIV result in their antenatal care record, additional data were collected through detailed scrutiny of their antenatal case record and recorded on a separate, specially designed data collection form. We noted whether the woman had received pretest counseling, whether she was tested for HIV, and whether she had received post-test counseling. Reasons why no documented HIV result was available and any documented reasons for not having had an HIV test were also recorded. Both data collection forms were designed for easy use with multiple-choice questions.

Post-parturient women who did not have documented HIV test results in their antenatal care record and who gave their consent were interviewed to collect information on their awareness of having received pretest counseling, an HIV test, and post-test counseling. They were also questioned about their knowledge of their HIV serostatus to ascertain whether there was any discrepancy between the information recorded in the antenatal care record and their knowledge of VCT offered during antenatal care visits. Interviews were conducted one-on-one by the first author (A.K.) with a simple and structured questionnaire consisting of five questions that required a "yes" or "no" answer.

Data analysis and statistical tests

All data were entered into a Microsoft Access database. Contingency tables and graphs were generated from the database using the Microsoft Excel program. Proportions and 95% confidence intervals (95% CI) were calculated using binomial distribution, and the results were corrected for continuity (8). Epi Info 6 software [Centers for Disease Control and Prevention, Atlanta, Georgia, United States of America] was used for the statistical analysis. The chi-squared test was applied to the difference between antenatal care settings in the proportion of mothers for whom no documented HIV result was available. All P values are two-tailed and corrected for continuity. Relative risks with a 95% CI were calculated to determine the strength of association between different factors associated with refusal of HIV testing.

RESULTS

A total of 1 342 post-parturient women who gave live birth at the QEH during the months of April to September 2002 were surveyed. These births accounted for over 90% of all deliveries in Barbados during the study period. Demographic and social characteristics of women are shown in Table 1. Of the women surveyed, over one fifth (22.4%) were less than 20 years of age, and over one fourth (27.1%) were primigravida. Most (89.6%) of the women were single. Most (98.1%) women had received antenatal care with at least two antenatal visits to a doctor. Of the total sample, 58.1% had had an HIV test prior to the current pregnancy. Prior testing had been performed most frequently (56.5%) during a previous pregnancy. There were 13 women who tested HIV-positive during the study period, and of these, 5 had tested positive during one or more previous pregnancies.

In all, 954 women (71.1%) were pre-counseled and offered an HIV test (Figure 1). Of the women offered an HIV test after counseling, 914 (95.8%) agreed to be tested, and 26 (2.7%) declined. Fourteen (1.5%) of the women were minors (<14 years of age) and could not be offered HIV testing because they could not give consent, and neither parent was available to provide consent. There were 192 women who were tested without documented pretest counseling (Figure 1). A documented HIV result was available for 75.5% of the women who received pretest counseling and testing, and for 68.7% of the women who were tested without counseling. Thus, of the 1 342 post-parturient women surveyed, 1 106 (82.4%) had a documented HIV test and 822 (61.2%) had a documented HIV result at the time of delivery (Table 2). The proportion of women who did not have a documented HIV test result despite having had an HIV test during the current pregnancy was 21.2%. Among the 284 women without a documented HIV test result despite having had a documented HIV test during the current pregnancy and who were interviewed, pretest counseling was documented in the antenatal care record in 77.1%. However, only 69.0% responded affirmatively during the one-on-one interview when asked whether they had received pretest HIV counseling (Table 2). Post-test counseling was documented in the antenatal care record in 49.3%, whereas, 28.9% recalled having received post-test counseling during their interview (Table 2).

### Table 1. Social and demographic profile of the 1342 post-parturient women in Barbados surveyed during April through September 2002

<table>
<thead>
<tr>
<th>Age group (yr)</th>
<th>No. (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>14–19</td>
<td>300 (22.4)</td>
</tr>
<tr>
<td>20–25</td>
<td>460 (34.3)</td>
</tr>
<tr>
<td>26–31</td>
<td>314 (23.4)</td>
</tr>
<tr>
<td>32–37</td>
<td>192 (14.3)</td>
</tr>
<tr>
<td>38–43</td>
<td>74 (5.5)</td>
</tr>
<tr>
<td>44–49</td>
<td>2 (0.2)</td>
</tr>
<tr>
<td>Number of pregnancies</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>364 (27.1)</td>
</tr>
<tr>
<td>2</td>
<td>344 (25.6)</td>
</tr>
<tr>
<td>3</td>
<td>272 (20.3)</td>
</tr>
<tr>
<td>2–4</td>
<td>362 (27.0)</td>
</tr>
<tr>
<td>Marital status</td>
<td></td>
</tr>
<tr>
<td>Single</td>
<td>1 202 (89.6)</td>
</tr>
<tr>
<td>Married</td>
<td>132 (9.8)</td>
</tr>
<tr>
<td>Divorced</td>
<td>8 (0.6)</td>
</tr>
<tr>
<td>Antenatal care</td>
<td></td>
</tr>
<tr>
<td>At least 2 antenatal visits</td>
<td>1 316 (98.1)</td>
</tr>
<tr>
<td>Fewer than 2 visits</td>
<td>26 (1.9)</td>
</tr>
<tr>
<td>Prior HIV test</td>
<td></td>
</tr>
<tr>
<td>During previous pregnancy</td>
<td>758 (56.5)</td>
</tr>
<tr>
<td>Other reasons</td>
<td>21 (1.6)</td>
</tr>
<tr>
<td>None</td>
<td>563 (42.0)</td>
</tr>
</tbody>
</table>
The proportion of women who received antenatal care in different settings but did not have a documented HIV result in their record is shown in Table 2. In all, 41% of the women attending polyclinics did not have a documented HIV result at the time of delivery, whereas 33.6% of the women attending a private office and 31.6% of the women attending the QEH did not have a documented HIV test result. Women attending a private obstetrician’s or general practitioner’s office were significantly ($P = 0.01$) more likely to have documented results than women who had attended public polyclinics for their antenatal care.

Among the reasons for not having a documented HIV result, the HIV test not having been done was the most common reason, accounting for 45.0% of the cases. This was followed by unclear documentation of the result in women tested for HIV in 34.2% of the cases, and results not yet available, lost, or not followed up by the care giver in 20.4% of the women (Table 3).

Of the 236 women who were not tested, 72.0% were not offered an HIV test, 11.0% were offered an HIV test but declined, and the same percentage of women either did not receive any
antenatal care or attended fewer than 2 antenatal visits.

Some of the characteristics of women who refused HIV testing are shown in Table 4. Only 0.6% of the primigravida women refused the test, whereas 2.5% of the multigravida women refused testing. The negative association between first pregnancy and refusal of HIV testing was found to be statistically significant with the chi-squared test ($P = 0.02$). Women who had had a prior HIV test were significantly ($P = 0.01$) less likely (1.2%) to refuse HIV testing during the current pregnancy when compared to women who had had no prior HIV testing (3.0%). Although single women were less likely to refuse an HIV test than were married women (3.3%), this association was not statistically significant. Women who attended a private office for antenatal care were more likely to have refused HIV testing (2.2%). However, this association was not statistically significant ($P = 0.67$).

### DISCUSSION

It has long been realized that poor implementation of VCT is a major limiting factor that influences the success of efforts to reduce MTCT in developing countries where antiretroviral drugs are available for preventing perinatal transmission (1, 2). Part of the reason for the limited success is the high cost of delivering VCT (4). Nevertheless, successful implementation of VCT and use of antiretrovirals to reduce MTCT are highly cost-effective (9).

This study shows that most women offered VCT accept HIV testing; over 95% of the pregnant women in Barbados who received VCT were tested for HIV (Figure 1). This figure compares favorably with reports from other developed and developing countries that have successful VCT programs in antenatal care settings (6, 10–12). Our data show that although 82.0% of the post-parturient women surveyed in this study were tested for HIV, only 61.0% had a documented HIV result, whereas 38.0% of them did not have a documented HIV result in their antenatal care record and gave birth without their attending obstetrician or pediatrician knowing their HIV serostatus (Table 2). This may clearly deprive women who might be HIV-infected of the measures that have been put in place in Barbados to reduce MTCT of HIV.

Further scrutiny of the data shows that a large proportion of women who did not have a documented HIV result had in fact had an HIV test during the current pregnancy, but the results were not documented in the antenatal care record. Documentation of the HIV test result is a sensitive issue from the patient’s right to confidentiality; especially since in Barbados pregnant women often keep their antenatal care notes with their personal effects. This may explain some of the problems associated with documentation of the results. Therefore, improvements in documentation of the result alone would make VCT much more successful, as shown in some of the highly successful VCT pilot projects in Thailand and sub-Saharan Africa (5, 13).

Our findings show that more than one fourth (26.9%) of the pregnant women did not receive any HIV counseling, whereas more than one half (53.0%) of these women were tested...
for HIV infection. These findings reflect two facts: firstly, a significant number of women who receive antenatal care still miss the opportunity for HIV counseling and testing; and secondly, some women are tested for HIV without proper counseling and consent. The fact that women may be tested without adequate counseling is also obvious from our findings from interviews of the women who were tested but for whom no HIV result was available at delivery. This revealed the large discrepancy between the number of women who had received pretest counseling according to their antenatal care record and the number of women who recalled having had pretest counseling in their interview (Table 2). Similar observations have been published in other studies from developed countries (7, 14, 15). If testing is done routinely without appropriate counseling, the benefits and risks may not be presented in a balanced manner and women may feel too intimidated to "go against the system," or may fear exclusion from antenatal services if they do not agree to be tested. They may defer to the health care worker and the policy without understanding the implications of the test. In addition, a health care worker may present only the benefits of HIV testing, with emphasis on the benefits for the unborn infant. These factors may result in women feeling pressured to accept testing.

Most of the pregnant women in Barbados receive HIV testing; however, the results are known at the time of delivery for less than two thirds (61.2%) of these women. The reasons for missing information are usually unclear documentation or inadequate follow-up and recording by the antenatal care provider. Almost all women who were counseled agreed to have an HIV test. A significant proportion of women received HIV testing without adequate pretest counseling, and a significant proportion of these women did not receive adequate post-test counseling. There is scope for improving VCT in Barbados to make the program more successful, especially in preventing MTCT of HIV and thereby making voluntary counseling and testing cost-effective.

Acknowledgments. The authors wish to thank Margaret Ann St. John for her valuable suggestions on the preparation of this manuscript. We also thank the nursing staff of the postnatal ward at the Queen Elizabeth Hospital for their assistance with data collection and interviewing the postnatal mothers. Our special thanks to all the participants in the study and to those who agreed to be interviewed.

REFERENCES

Objetivo. Determinar los resultados del asesoramiento y de la prueba detectora de infección por VIH aceptados voluntariamente (APV) e identificar las barreras que impiden llevar el APV a la práctica cuando se ofrece como parte integral de la atención prenatal.

Métodos. En este estudio descriptivo investigamos los antecedentes de APV prenatal y de haber recibido la prueba detectora de infección por VIH en todas las mujeres que habían dado a luz en el Hospital Reina Isabel en Bridgetown, Barbados, entre abril y septiembre de 2002. Se recolectaron datos retrospectivamente a partir de las fichas de atención prenatal y por recordación durante entrevistas de cara a cara.

Resultados. De las 1 342 mujeres entrevistadas, a 954 (71,1%) se les había dado asesoramiento prenatal y se les había ofrecido la prueba detectora de infección por VIH. De las 954 mujeres encuestadas a quienes se les ofreció la prueba después del asesoramiento, 914 (95,8%) la aceptaron. De las mujeres encuestadas, 1 106 (82,4%) tenían documentada en su ficha una prueba detectora de infección por VIH, 914 (85,7%) recibieron la prueba después de un asesoramiento documentado, y otras 192 (14,3%) recibieron la prueba sin ninguna documentación de haber recibido un asesoramiento previo. En total, 822 (61,2%) de las 1 342 mujeres entrevistadas tenían documentado en su ficha el resultado de la prueba detectora de VIH en el momento de dar a luz. De las 1 106 mujeres con documentación de haber recibido la prueba, 284 (21,2%) no tenían anotado el resultado en el momento de dar a luz. La falta de un resultado documentado se debió principalmente a que la prueba nunca se realizó (45,0%), y en segundo lugar, a la falta de certeza en cuanto a la documentación.

Conclusiones. Veintinueve por ciento de las mujeres encuestadas no recibieron APV, lo cual es alarmante porque la alta cobertura y la buena calidad son imprescindibles para que el APV dé buenos resultados y rinda la debida eficacia en función de su costo. Catorce por ciento de las mujeres encuestadas que no quisieron recibir ningún asesoramiento recibieron la prueba detectora de infección por VIH. Esta situación no es aconsejable porque significa que a algunas mujeres se les aplica la prueba sin que entiendan a fondo las implicaciones de esta política. Esto, a su vez, podría reducir el impacto general del APV.