Conceptual bases and methodology for the 
evaluation of women’s and providers’ perception 
of the quality of antenatal care in the WHO 
Antenatal Care Randomised Controlled Trial

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Summary. In this paper, we describe the conceptual bases and 
methodology used to assess women’s and providers’ perception of the 
quality of antenatal care, as part of a large randomised trial in four 
developing countries. Information has been obtained by applying both 
qualitative and quantitative methodologies. The focus group discussions 
and in-depth interviews have contributed useful insights into the cultural 
milieu in which care is provided, users’ and providers’ expectations, and 
their concept of quality. Based on these findings, we developed two 
standardised questionnaires, one being administered to a representative 
sample of pregnant women (n = 1600) and the other for all care providers. 
In this paper we present some of the findings of the focus group 
discussions and in-depth interviews with women in one country as an 
example of the kind of information we have obtained. Women expressed 
their point of view concerning a reduced number of visits, type of

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98

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provider, information that they get during clinical encounters and interpersonal relations with health professionals. The qualitative information, together with the data we obtain from the surveys, will highlight the aspects that will have to be considered if the new model of care is to be introduced on a routine basis.

**Introduction**

For many years quality of care was considered a luxury not available to developing countries that were mainly striving to expand the coverage of services. It was assumed that any form of care, when introduced, would be in some way good, useful and accepted. However, evidence was not provided, nor was this the case.¹ Now, the perspective has changed, and quality is seen as a key element in the provision of health care for ethical reasons and as a factor closely related to effectiveness, compliance and continuity of care.²

Quality of care has been traditionally a difficult concept to carry through. Reflecting the emphasis on the application of advanced technology and specialised training, it has been defined largely in terms of clinical aspects, neglecting the social interaction and the patient’s subjective opinions.³ Although the point of view of the user was recognised two decades ago,⁴ unfortunately it has not been submitted to case evaluation. More recently, in the field of family planning, Bruce’s framework has highlighted the importance of stressing not only the technical domain but also the interpersonal.¹

Measuring the quality of care conceptualised in such a broad way represents a new challenge. Indeed, the technical quality of a health service or programme can be assessed by its effectiveness or, in other words, by evaluating the outcomes achieved as a result of the care provided. The measurement of the subjective dimension of the quality of care (interpersonal relations between user and provider, fulfilment of users’ information needs, as well as satisfaction of expectations) has only seldom been attempted in countries such as the United Kingdom.⁵ In the field of antenatal care, some recent advances have been made to approach this dimension.⁶ However, this initial work has not been extended to developing regions, where both services and social/cultural contexts are substantially different.

Health-care workers’ perspective about their own clinical work is another important neglected aspect, in spite of the fact that it can strongly influence daily performance and acceptance of institutional protocols and norms. Indeed, physicians’ attitude appears to be the most important factor influencing, for example, the rate of Caesarean section.⁷

In this paper, we describe briefly the conceptual bases and methodology used to assess women’s and providers’ perception as part of a large randomised trial.
that aims to test an innovative antenatal care programme in four developing
countries (Argentina, Cuba, Saudi Arabia and Thailand). In particular, we attempt
to identify in both arms of the study the level of satisfaction that women and
providers manifest as a subjective measure of quality of care. We also aim to
explain the influence of a wide range of subjective and objective aspects related to
satisfaction or dissatisfaction. The study addresses specifically the perception of quality
based on how users and providers discern it in the context of the wide spectrum of
ethnic backgrounds, organisation of health services, medical cultures and social
differentiation throughout the different countries. The results obtained will contribute
to the understanding of the challenges that the adoption of the new antenatal
protocol may face, in case it proves to be as effective as the standard model.

Conceptual bases

Bruce\(^1\) has developed a comprehensive conceptual framework to assess the quality of
contraceptive services, which has now been extended to other reproductive health
services.\(^8\) Bruce’s model was designed to alert the family planning researchers and
providers, whose overriding concern had been demographic, to the importance of
quality of service delivery. Although improvement in the quality of care is
desirable in and of itself, the author maintains that it also has an impact on
contraceptive use. The argument is that the better the quality, the more sustained
the use. Indeed, it has been shown, albeit with limited empirical information, that
the level of care provided is an important determinant of contraceptive use and
continuation.\(^2\) This concept is well known by physicians in private practice.

The Bruce framework defines quality of care based on the following six
elements: choice of methods, provider–client information exchange, technical
competence, interpersonal relations, mechanisms to encourage continuity and
appropriate constellation of services.

Within this framework, in our study we emphasise two elements that were
modified under the new model of antenatal care: information exchange and
interpersonal relations. Special attention has also been paid to a specific aspect of
pregnancy care schemes, i.e. the number of visits, which was substantially
changed under the new model.

Methods

Owing to the complexity of measuring and understanding the subjective
dimension of quality of care, we obtained information by applying both
qualitative (i.e. focus group discussions and in-depth interviews) and quantitative
methodologies (i.e. surveys to women and providers). For the focus group
discussions with women in the intervention and control centres, we used a
standardised and detailed list of issues as a guide (Table 1). These general topics
about health-care provision and prenatal programmes were addressed in order to
gain initial understanding of the way health care is perceived in each specific
cultural context. Special attention was given to the composition of the groups:
women of different ages, parity and conditions were included in every discussion.

After the completion of focus groups, in-depth interviews were carried out in
some of the participating countries, in order to explore further women’s
expectations and experiences. Both focus groups and interviews were conducted
by social scientists with expertise in the application of these methodologies.
Meetings took place in a non-clinical environment, and researchers made very
clear to participants that all the information provided would be kept confidential
and would in no way influence the care received at the health facility. The
development of a trustful rapport was crucial to avoid the effects of courtesy bias
and professional authority, especially predominant in developing countries. A
limited number of providers in both the intervention and the control clinics were
also interviewed individually and were asked the questions listed in Table 2.
Although arranging meetings of focus groups with health professionals would
have offered relevant information, logistic difficulties related to the service
organisation made this option unpracticable.

The categories obtained in the first stage were used as a basis for the development
of a standardised questionnaire that is being administered to a representative
sample of pregnant women. As this is a multicentre study, questionnaires in the
four countries are identical, in spite of the obvious differences we assessed in the
qualitative stage. The instrument for the women’s survey consists of 24 questions
that explore the following issues: patients’ preferences about the number of

<table>
<thead>
<tr>
<th>Table 1. Qualitative guide for focus group discussions with women</th>
</tr>
</thead>
<tbody>
<tr>
<td>How do you know when everything goes well for a woman in pregnancy?</td>
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<tr>
<td>What kind of care do women need during pregnancy?</td>
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<tr>
<td>What kind of problems (i.e. physical and emotional) are more common during pregnancy?</td>
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<tr>
<td>Why do these problems occur? What can be done to overcome them?</td>
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<tr>
<td>What do women need doctors for?</td>
</tr>
<tr>
<td>Who is better suited to provide antenatal care? (Doctors, nurses, midwives? Men or women?)</td>
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<tr>
<td>Where is it better to receive antenatal care? In the health centre or in the hospital?</td>
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<tr>
<td><strong>Advantages and disadvantages</strong></td>
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<tr>
<td>How many times is it necessary for a woman with a normal pregnancy to attend the clinic?</td>
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<tr>
<td>Are you happy with the number of visits this clinic provides?</td>
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<tr>
<td>What kind of information do you like to receive during your antenatal care visit?</td>
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<tr>
<td>Do you think that the information you get is enough?</td>
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<tr>
<td>Do you understand what doctors explain to you?</td>
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<tr>
<td>Do you like the way providers treat you in this clinic?</td>
</tr>
<tr>
<td>How would you like to be treated?</td>
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<tr>
<td>What do you like most/least about the care you receive in this centre?</td>
</tr>
<tr>
<td>How would you describe the ideal antenatal care and the ideal health centre?</td>
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</tbody>
</table>
antenatal care visits, and type and gender of the provider; time spent in the waiting room and with the health-care worker; and amount and appropriateness of the information received during the visits. Finally, some indirect questions explore women’s satisfaction with both models of antenatal care (Appendix 1).

All antenatal care providers working in the intervention and control clinics of the four countries are requested to complete a self-administered questionnaire. This instrument (currently under revision of the WHO technical committee) includes questions about the same issues as the patients’ survey: number and spacing of antenatal visits, time spent with the woman, information provided, perception of the quality of antenatal care and recognition of women’s satisfaction. Quantitative data will permit us to compare results from the four countries. This will substantially increase the external validity of the findings.9

Sample size for the qualitative component

Following a basic premise of qualitative research, we avoided establishing an a priori defined sample size for the focus group discussions. Instead, researchers established the final number of encounters based on the ‘theoretical saturation’ point.a10 Thus, the number of focus groups and participants differ among countries (Table 3). With no exception, half of the groups include women of the experimental units and half women of the control centres. Women are invited to respond to an in-depth interview when the researcher realises that a focus group participant is willing to keep on talking about antenatal care, or when she seems to feel uncomfortable participating in a collective discussion.

aAccording to Glaser, ‘saturation’ means that ‘no additional data are being found whereby the sociologist can develop properties of the category. As s/he sees similar instances over and over again, the researcher becomes empirically confident that a category is saturated.’10

Table 2. Qualitative guide for providers

| How would you describe a normal pregnancy? |
| What are the most common problems among pregnant women attending this clinic? |
| What are the conditions your unit should meet for you to be able to provide high-quality antenatal care? |
| What are the positive and negative aspects of antenatal care as currently provided? |
| What role do you think nurses and midwives should play in the provision of antenatal care? |
| What role do you think doctors should play in the provision of antenatal care? |
| What do you think about the number of antenatal care visits women get in this unit? |
| What type and amount of information do pregnant women need to get during antenatal care? |
| What do you think about interpersonal relationships between women and providers during antenatal care? |
| What aspects of current practice in this unit should change in order to offer a better quality of care? |
Sample size for the quantitative component

The sample size was estimated to be sufficient to detect a difference of 5–10% in dissatisfaction between the two arms, with a two-sided test at a significance level of 5% and with an 80% power. In the sample size estimation, a design effect of 1.7 due to the cluster randomisation was taken into account. After these calculations, we ended up with a total sample of 1600 women (800 per arm of the study, 400 per country). The survey used clinics as strata, and women were sampled proportionally to each clinic’s number of visits per year. For the providers’ survey, all physicians in both the intervention and the control centres answer a questionnaire.

Logistics of the qualitative component

We recommended that all country researchers should carry out both focus groups and interviews in areas away from the clinic premises, in order to reduce the likelihood of bias, and to encourage women to be as outspoken as possible. Women with a gestational age of 32 weeks or more were invited to participate in the study. In general, researchers found appropriate places (e.g. the hospital library, a woman’s house) to conduct the focus group discussion or interview. Some of the encounters took place in rooms within the unit but far away from the waiting rooms or clinical areas. Women’s participation has been, in general, lively and enthusiastic.

Logistics of the quantitative component

The interviewers start the women’s survey on a day selected at random and continue during working days until the estimated sample size has been completed. Patients are invited to participate when they reach a gestational age of 32 weeks, and when they attend the health-care facility for their second or
subsequent antenatal visit. The administration of the women’s questionnaire takes place in a non-clinical environment and lasts for approximately 15 minutes. The questionnaire for health providers is self-administered. Completing it takes approximately 10 minutes.

Data analysis

Qualitative information was tape-recorded and transferred to computer files, to be later systematised using Ethnograph, a computer programme that has been specifically designed for the analysis of qualitative information. Generic and specific codes will be defined by researchers in each country to identify a wide variety of topics that women and providers mention as the reasons for their satisfaction or dissatisfaction. In each country a ‘model of rationality’ containing the most important traits of the cultural interpretation of illness, experiences with health-care provision, the experience of antenatal care and other relevant features will be developed. The assessment of satisfaction with antenatal care will be the bottom line of our interpretation.10

Quantitative information will be entered, verified and validated at each centre, and the team responsible for this component of the study will carry out the analysis. We will use cluster summary variables such as means and proportions for each treatment and differences between them. Statistical tests will be applied accordingly. For continuous variables, a paired \( t \)-test will be used, and for comparisons of proportions, options such as weighted \( t \)-test with 95% confidence intervals will be explored.

Initial results of the pilot stage of the qualitative component

As the data collection phase of this study is ongoing, final results are still not available. In this paper, we present some of the findings, illustrated verbatim, of the focus groups and in-depth interviews with women in one of the countries as an example of the kind of information we are obtaining.

What did women think of the number of antenatal check-ups? According to their view, a woman with a normal pregnancy should attend the clinic every 2 weeks. Although they know that in the new model only women in good health participate, the reduction in the number of check-ups generates some distrust. However, pregnant women do not think that the reduction in the number of check-ups under the new antenatal care model necessarily entails a risk for them or their babies.

‘I can feel myself satisfied (with the new plan) because I do not have any kind of risk, but I tell you that this is not the best way to treat a pregnant woman, you have to follow her closely to explain to her the risks that one can have. I have been pregnant twice and I feel that I am not really aware of all of them.’
Interestingly enough, some patients pointed out that this way of thinking about the number of visits was very much influenced by mothers, mothers-in-law and other older women, because all of them agree that more visits means safer care.

Regarding the information they receive from providers, the general opinion is that not all professionals are equally suited for this task. In this country, where care is offered by specialists and family practitioners, women consider that the former are much better prepared to respond to the questions than the latter. Indeed, this perception made some women declare their readiness to travel longer distances or wait longer in order to receive antenatal care from a specialist.

‘I don’t have a bad opinion about family doctors but when one has a problem, you need a skilled person next to you, such as a gynaecologist.’

Regarding communication with doctors, pregnant women in our study pointed out that the technical language used by providers very often makes their messages difficult to understand. As a consequence, women need to ask questions in order to get the information they are looking for.

‘The doctor said, your haemoglobin is going down and your albumin is going up, and I said what’s that?’

Also, women stressed that doctors prefer to talk about physiological aspects of pregnancy than about psychosocial concerns, in spite of the fact that this kind of information is very much needed during pregnancy. In relation to the way providers treat them, the majority of the women said they were satisfied. However, during the in-depth interviews, some of them pointed out that doctors usually ‘scold’ them when they do not follow instructions. However, most of them considered this as a manifestation of concern on the part of the doctors. Only in a few cases did women say that they had to put up with this attitude because they needed the medical care.

‘They scold us when we do something that is not right, as if they were our mothers. One feels like a little baby. They are carrying out their duties. At least one can see their motives.’

Discussion

This study faces major challenges:

- learning about a topic of which there is very limited knowledge in developing countries (i.e. the providers’ and patients’ perception of quality of care)
- working in contexts with extremely different social/cultural contexts (i.e. language, women’s condition and gender gaps, type of medical services, women’s capacity to participate actively in the care of their pregnancy, among others)
- using standardised instruments, in spite of the diversity of contexts.
The design we chose to deal with these challenges (a two-phase study: first, a qualitative exploration and, second, a survey) will allow us to answer the research questions while complying with the requirements of the large trial. In effect, the perception of quality first responds to expectations shaped by cultural values in every society. Even within societies, aspects such as gender and social class origin may generate important differences in expectations, and in the way people express them. The use of qualitative techniques (i.e. focus group discussions and in-depth interviews) contribute useful insights about the cultural milieu in which care is provided, while producing a detailed description of users’ and providers’ expectations, and their concepts of quality. The qualitative stage is in this case particularly relevant, because the cultural, social and psychological traits vary throughout the populations enrolled in the trial (Latin, Muslim and Oriental). In addition, qualitative techniques, when applied to intervention studies, can provide an insight into the processes underlying the programme’s effects.

While recognising the potential of these methodologies, we are also aware of their constraints, such as the limited capacity to extrapolate the findings and the lack of statistical representativeness of the samples. These are acknowledged contributions of the quantitative techniques. Therefore, the combination of both approaches is considered the best option to reach a comprehensive understanding of the complex processes involved in this study.

The preliminary findings described in this paper make clear that the issues of the number of antenatal visits, information obtained from the provider, type of provider, personal treatment and language used by the doctor are crucial. Consequently, we included all these topics in the questionnaire, to be asked to a representative sample of women. This information obtained from the qualitative and quantitative sources will highlight the aspects that will have to be taken into account when the new model is introduced on a routine basis. Among them, we can stress the following needs: to reassure women about the safety of a smaller number of visits, to guarantee that all providers are prepared to provide information in an appropriate format, and to reinforce among health professionals the importance of offering sympathetic treatment to pregnant women.

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The WHO antenatal care RCT: assessing quality of care

Appendix 1

<table>
<thead>
<tr>
<th>WORLD HEALTH ORGANIZATION</th>
<th>ANTENATAL CARE TRIAL ASSESSMENT OF PERCEIVED QUALITY OF CARE STUDY 96387 - WOMEN’S QUESTIONNAIRE</th>
<th>QWC PAGE 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>IDENTIFICATION</td>
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</tr>
<tr>
<td>a) Form code</td>
<td>Q C W</td>
<td></td>
</tr>
<tr>
<td>b) Study number</td>
<td>9 6 3 8 7</td>
<td></td>
</tr>
<tr>
<td>c) Study site</td>
<td></td>
<td></td>
</tr>
<tr>
<td>d) Clinic code</td>
<td></td>
<td></td>
</tr>
<tr>
<td>e) Subject number</td>
<td></td>
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</tbody>
</table>

We would like to spend about 15-20 minutes asking you about the care you are receiving during your pregnancy. Your views will help us to improve ante-natal care for yourself and other women. The information you provide will be kept in strictest confidence.

1. Date of interview
   - [ ] [ ] [ ]

2. Weeks of pregnancy
   - [ ] [ ]

3. Number of antenatal visits including this one
   - [ ] [ ]

Now I am going to ask some questions about the ante-natal visits that you have had during this pregnancy.

4. Are you happy about the number of antenatal checkups you have had, or would you have preferred?
   - [ ] [ ] [ ]
   (read out the options)
   1 = more check-ups
   2 = fewer check-ups
   3 = number of check-ups was right

5. Have the number of antenatal check-ups been:
   (read out the options)
   1 = more than you expected
   2 = less than you expected
   3 = about the same as you expected

6. Has the time between checkups been:
   (read out the options)
   1 = too short
   2 = too long
   3 = about right

7. How long do you usually have to wait at the unit (clinic/hospital) before being seen by doctor/nurse/midwife who provides you antenatal care?
   - [ ] [ ] (hours) [ ] [ ] (minutes)

8. Are you happy with the time you normally have to wait?
   - [ ] [ ]
   1 = No
   2 = Yes

9. How much time do you usually spend with the doctor/nurse/midwife who provides you antenatal care?
   - [ ] [ ] [ ]
   (hours) [ ] [ ] (minutes)

10. Do you have enough time with the doctor/nurse during your checkups, or would you prefer?
    (read out the options)
    1 = a lot more time?
    2 = a little more time?
    3 = time is about right

11. If you had a choice, would you prefer to be seen by:
    (read out the options)
    1 = a male provider
    2 = a female provider
    3 = no preference

12. If you had a choice, would you prefer to be attended by:
    (read out the options)
    1 = a doctor
    2 = a nurse
    3 = a midwife
    4 = a combination
    5 = no preference

Now I am going to ask you more about the care you have had. First some questions about the information you received from the doctors and nurses who provided you with antenatal care.

13. Was the information you received about looking after yourself:
    (read out the options)
    1 = not enough
    2 = as much as you wanted
    3 = too much
    4 = no information received
    5 = don’t remember

14. Was the information you received about tests (e.g. blood, urine) during this pregnancy:
    (read out the options)
    1 = not enough
    2 = as much as you wanted
    3 = too much
    4 = no information received
    5 = don’t remember

15. Was the information you received about any treatments you might need during this pregnancy:
    (read out the options)
    1 = not enough
    2 = as much as you wanted
    3 = too much
    4 = no information received
    5 = don’t remember
Appendix 1 cont.

<table>
<thead>
<tr>
<th>WORLD HEALTH ORGANIZATION</th>
<th>ANTENATAL CARE TRIAL ASSESSMENT OF PERCEIVED QUALITY OF CARE STUDY 96387 - WOMEN'S QUESTIONNAIRE</th>
<th>QCW PAGE 2</th>
</tr>
</thead>
</table>

16. Was the information you received about labour (read out the options)
- 1 = not enough
- 2 = as much as you wanted
- 3 = too much
- 4 = not information received
- 5 = don't remember

17. Was the information you received about breastfeeding (read out the options)
- 1 = not enough
- 2 = as much as you wanted
- 3 = too much
- 4 = not information received
- 5 = don't remember

18. Was the information you received about family planning (read out the options)
- 1 = not enough
- 2 = as much as you wanted
- 3 = too much
- 4 = not information received
- 5 = don't remember

19. Were you told how to recognise and proceed about some serious problems that can happen in pregnancy (read out the options)

<table>
<thead>
<tr>
<th>Told how to recognise</th>
<th>Told how to proceed</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 = no</td>
<td>2 = yes</td>
</tr>
<tr>
<td>a) rupture of membranes</td>
<td></td>
</tr>
<tr>
<td>b) haemorrhage</td>
<td></td>
</tr>
<tr>
<td>c) prematurity contractions</td>
<td></td>
</tr>
<tr>
<td>d) dizziness and fainting</td>
<td></td>
</tr>
<tr>
<td>e) fever</td>
<td></td>
</tr>
<tr>
<td>f) other, specify:</td>
<td></td>
</tr>
</tbody>
</table>

20. During your pregnancy, were you worried about any of the following conditions (read out the conditions).

<table>
<thead>
<tr>
<th>If &quot;yes&quot; to any of (a)-(g), ask the following question in every case:</th>
</tr>
</thead>
<tbody>
<tr>
<td>21. Did the information given by the doctor or nurse reassure you?</td>
</tr>
<tr>
<td>1 = no</td>
</tr>
<tr>
<td>2 = yes</td>
</tr>
<tr>
<td>1 = No</td>
</tr>
<tr>
<td>2 = yes</td>
</tr>
<tr>
<td>3 = did not receive information</td>
</tr>
</tbody>
</table>

a) the position of your baby
b) the size of your baby
c) whether you baby might be premature
d) the possibility of having a baby with a disability or abnormality
e) your own health
f) your weight
g) other possible complications of pregnancy, specify

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Appendix 1 cont.

<table>
<thead>
<tr>
<th>WORLD HEALTH ORGANIZATION</th>
<th>ANTENATAL CARE TRIAL</th>
<th>QCW PAGE 3</th>
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<tbody>
<tr>
<td>ASSESSMENT OF PERCEIVED QUALITY OF CARE STUDY 96387 - WOMEN'S QUESTIONNAIRE</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Finally, three questions to sum up.

22. (a) If you get pregnant again will you come back to this unit (clinic/hospital)?
   1 = No          2 = yes   3 = don't know  
   (always ask)    (b) Why? ____________________________

23. Would you recommend this unit (Clinic/Hospital) to a relative or friend for their antenatal checkups?
   1 = no          2 = yes   3 = don't know

24. In general, how satisfied are you with the antenatal care you have received so far in this unit (clinic/hospital)?
   (read out the options)
   a) very satisfied
   b) satisfied
   c) not satisfied

PLEASE THANK THE WOMAN

Interviewer's name ____________________________
Singapore ____________________________
Date ____________________________

COMMENTS