

# ANTENATAL CARE PROVIDERS' PRACTICES AND OPINIONS ON THE SERVICES OF ANTENATAL SYPHILIS SCREENING IN ULAANBAATAR, MONGOLIA

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**Abstract.** The objectives of this study were to review antenatal syphilis screening and to assess antenatal care providers' practices and opinions in Ulaanbaatar, Mongolia. A cross-sectional study on antenatal syphilis screening was conducted. The study settings were all 16 antenatal care clinics, and a random selection of 30 family units from six districts in Ulaanbaatar, Mongolia. Interviews were conducted with 150 antenatal care providers and 27 antenatal care heads/leaders. Antenatal syphilis screening in Ulaanbaatar was complex. Most pregnant women had antenatal care at family units or antenatal clinics, but syphilis blood testing could be performed only in some district general hospitals. Syphilis positive-screening cases were referred to the venereologists for confirmation of results, appropriate treatment, contact tracing, and follow-up. The providers agreed with the need for syphilis screening in pregnant women but identified as constraints the limited time for performing the screening due to late antenatal visit, women's lack of knowledge, poverty, and geographic barriers. The practice of providers varied, and the opinion on a one-stop service was positive. The main conclusions concerning the failure of universal antenatal syphilis screening were limited accessibility and feasibility of the service, and the ignorance of both women and providers on the importance of screening. It was agreed that decentralization of antenatal syphilis screening would improve the system.

## INTRODUCTION

Syphilis during pregnancy leads to significant consequences for both mother and fetus, such as miscarriage, preterm delivery, stillbirth, or congenital infection (Ray, 1995; Genc and Ledger, 2000). These complications could be prevented if syphilis is diagnosed early in pregnancy, and pregnant women receive adequate treatment followed by good

monitoring during antenatal care (ANC). Routine antenatal serological screening plays an essential role in decreasing the incidence of congenital syphilis (WHO, 1991; CDC, 2002; Lumbiganon *et al*, 2002).

Over the past decade, sexually transmitted infections (STIs) including syphilis have increased among adults in Mongolia (Purevdawa *et al*, 1997; Ministry of Health, Mongolia, 2000). The trend is probably related to the new social system, life style, and economy (Government of Mongolia and UNDP, 2000). Similar significant increases in STIs have been noted in many countries and other post-communist states (Renton *et al*, 1998;

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Borisenko *et al*, 1999; Chen *et al*, 2000). In Ulaanbaatar, in 1995, there were two new reported cases of congenital syphilis, but in 2000, the numbers rose to 43 (Ministry of Health, Mongolia, 2000). Increasing risk of congenital syphilis that is related to low coverage and late performance of antenatal syphilis screening (ASYS) has been reported (Munkhuu *et al*, 2006).

Although approximately 97% of pregnant women attend ANC services at least once and serological screening for syphilis is usually provided free of charge during ANC, the reported coverage of ASYS was only approximately 77% in a 2003 survey in Ulaanbaatar (Munkhuu *et al*, 2006). We hypothesized that the current national guidelines for ASYS in Ulaanbaatar, Mongolia were complex; therefore, one of the obstacles to universal coverage by ASYS. ANC providers and pregnant women themselves can influence the ASYS system. Several reports have identified what may be possible characteristics of pregnant women that could be associated with congenital syphilis, such as unmarried status, lower educational level, remote residence, having risky sexual behavior, and lack of ANC or starting ANC late, in both developed and developing countries (Desenclos *et al*, 1992; Rawstron *et al*, 1993; Mobley *et al*, 1998; Warner *et al*, 2001; Walker and Walker, 2002). These characteristics are similar to what we found in a previous study to be the possible factors for not being screened for antenatal syphilis (Munkhuu *et al*, 2006). However, the practices and opinions from ANC providers on ASYS were not represented. The objectives of this study, therefore, were to review ASYS in Ulaanbaatar, Mongolia, and to assess the ANC providers' practices and opinions.

## MATERIALS AND METHODS

The study was conducted in Ulaanbaatar, the capital city of Mongolia, from May to Sep-

tember 2003 with the approval of the Ethics Committee Review of the Maternal and Child Health (MCH) center. The system of ANC and ASYS was thoroughly reviewed. Antenatal services are provided by one MCH center, 16 antenatal care clinics, and 100 family units, in a descending order of case difficulty. The study settings were all 16 ANC clinics, and 30 randomly selected family units from six districts in Ulaanbaatar, Mongolia. The sampling technique was simple random sampling, listing the names of all eligible family units of each district general hospital, and randomly selecting five family units from each of the six district general hospitals (30 family units). Then, all available ANC providers and family doctors in study settings were invited to participate in the study.

ANC providers' practices and opinions on ASYS were assessed using in-depth interviews and a semi-structured questionnaire. In the first part of the study, the 30 head/senior doctors from the ANC clinics and randomly selected family units were interviewed. During the interview, we addressed the ASYS program, and the main questions were *What are your thoughts on the ASYS?*, *What are ANC providers' practices of ASYS?*, and *What are the reasons for not screening pregnant women for syphilis?* In the second part of the study, all ANC providers, who were available during the study period in the all 16 ANC clinics, and 30 randomly selected family units were invited to complete a self-administered and closed-ended questionnaire. The questionnaire was prepared based on the most relevant categories obtained during the first part and consisted of 20 questions covering their syphilis concerns, and opinions on ASYS practice and the ASYS system.

The in-depth interviews were transcribed verbatim, and the contents analysed by code mapping. The results of interviews are described qualitatively in the text. The data from the structured questionnaires were recorded

using Epi-Info-6.0 and analyzed by computing percentages for ASYS practices and opinions.

RESULTS

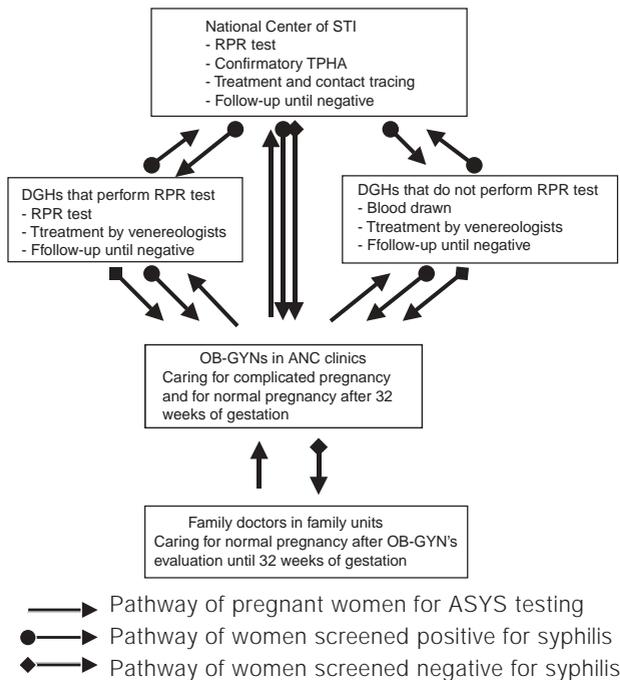
The system of ANC services and syphilis screening is shown in Fig 1. The family doctors send pregnant women who come for ANC to the obstetrician-gynecologists (OB-GYN). Then, the OB-GYNs send them to the laboratories of the district general hospitals (DGHs) or to the National Center for STI laboratory

for testing, depending on geographic convenience. In the DGHs that do not perform the rapid plasma reagin (RPR) test, only the women's blood will be drawn. Then, the blood samples will be transported to the laboratory of the National Center for STI to have an RPR test. Current regulations regarding ASYS in Ulaanbaatar stipulate that only a few specialized laboratories for STIs at the STI clinics and district general hospitals are allowed to perform the ASYS test. Also, only venereologists at the STI clinics and STI cabinets of district general hospitals are authorized to treat syphilis infected pregnant women and undertake contact tracing.

The women have to return 1-7 days later to the DGH for the result and then have to go back with their results to the OB-GYNs, who then have to send all positive results to the venereologists (from National Center of STI or DGH) for result confirmation, appropriate treatment, contact tracing, and follow-up. During and after the treatment of syphilis, OB-GYN doctors will continue the ANC instead of the family doctors, who take care of pregnant women with non-reactive results until 32 weeks of gestation.

Part I: In-depth interview from head/senior doctors

Twenty-seven head/senior doctors agreed to participate in an in-depth interview. The remaining three doctors refused to give an interview because they claimed that their working experience was not sufficient for them to be interviewed. The mean age and mean years of ANC service of all doctors interviewed were 37.3 years (range 29-57 years) and 12.6 years (range 3-32 years), respectively. Among 27 interviewed doctors, 16 were OB-GYNs, and 24 had the experience of working in remote areas. The details of the in-depth interviews on the practice of ASYS, including the timing of ASYS and the management of positive cases and sexual partners, the coverage



STD: sexually transmitted disease; RPR: rapid plasma reagin; TPHA: treponemal pallidum microhemagglutination assay; DGHs: district general hospitals; OB-GYNs: obstetrician-gynecologists; ANC: antenatal care; ASYS: antenatal syphilis screening

Fig 1—Diagram of the system of ANC and ASYS in Ulaanbaatar.

Table 1  
Characteristics of ANC providers.

Characteristics of ANC providers	Total (n=150) N
Working place	
District general hospital 1	20
District general hospital 2	28
District general hospital 3	22
District general hospital 4	32
District general hospital 5	22
District general hospital 6	26
Age	
≤30 years	31
31-39 years	64
≥40 years	55
Service experience	
≤5 year	56
6-10 years	38
≥11 years	56
Position	
Family doctor	98
Obstetrician and gynecologist	52

ANC: antenatal care

and reasons of an unscreened status, and the system of ASYS are described below.

#### The practice of ASYS

Although all doctors said that they had an experience of ASYS, the practice ranged from routine (92.6%) to selective for only high-risk pregnant women (7.4%). The reasons stated by the doctors who did ASYS routinely varied, such as *"I did ASYS because it has been shown to reduce not only the complication among pregnant mothers but also the incidence of congenital syphilis"*, or *"I would like to avoid any adverse consequences and criticism, so I do ASYS routinely to protect myself"*. Two doctors perceived that ASYS was of benefit only in pregnant women at higher risk of infections.

#### Timing of ASYS

Most doctors preferred to do the first ASYS at the first ANC visit and before 14 weeks of gestation, but they recognized a dif-

Table 2  
Practice and opinions of ANC providers on ASYS.

Items	Neutral <sup>a</sup> N (%)	Agree <sup>a</sup> N (%)	Disagree <sup>a</sup> N (%)
ASS practices			
You do ASS in all pregnant women.	15 (10.0)	31 (21.7)	101 (69.3)
You do ASS at first ANC visit.	37 (12.1)	22 (14.9)	108 (73.0)
ASS opinions			
Management for reactive cases is good.	25 (16.8)	101 (67.8)	23(15.4)
Management for partners of reactive cases is good.	28 (18.6)	46 (30.7)	76(50.7)
Current system for screening and treatment is practical.	45 (30.0)	34(22.0)	71(48.0)
The quality of ASYS is good.	44 (29.3)	44 (29.3)	75 (50.0)
ASYS has limited accessibility due to poor coordination of service.	31 (20.7)	92 (61.3)	27 (18.0)
Having ASYS in a different place from ANC has increased the risk of losing patients.	34 (22.7)	96 (64.0)	20 (13.3)
Now it is time to change the centralized ASYS.	17 (11.5)	113 (76.4)	18 (12.2)
Complete cycle of drawing blood, testing, treatment and counseling in same place would be good.	10 (6.7)	131 (87.3)	9 (6.0)

<sup>a</sup>Totals vary slightly because of missing data

ASS: antenatal syphilis screening; ANC: antenatal care

difficulty if the pregnant women did not come early for ANC and they needed to wait for the test results. For the second ASYS recommended in the third trimester of gestation (according to the national guidelines), 11 doctors confirmed that they did the test. The main reasons for not doing the second ASYS were late ANC visit, and lower risk factors of women.

#### **Management for reactive cases and sexual partners**

Most doctors themselves did not treat reactive syphilis cases. However, some OB-GYNs working in remote areas had a limitation in referring reactive cases to STI clinics so that they needed to treat the patients themselves. In most cases, partner notification and their treatment received low recognition because this issue is sensitive to domestic and family relationships.

#### **Coverage of ASYS and reasons for unscreened status**

Almost all of the doctors agreed that the ASYS coverage around the center of Ulaanbaatar was higher than in remote areas. Although there were differing ideas about the reasons for the unscreened status, most doctors agreed on the reasons of poverty, lack of knowledge of the importance of ASYS, having late ANC, living remote from the service, and shortage of the relevant test chemicals.

**Poverty.** The majority of doctors claimed that a growing proportion of syphilis cases were being reported among poor, unemployed, and marginalized people, who were not screened because they did not have the money for transportation and treatment.

**Lack of knowledge and late ANC.** All doctors claimed that pregnant women were not concerned about ASYS, attended ANC late, and did not realize the need for ANC or ASYS. They said *"Some women refuse to have the test due to their misperceptions. They think that they are free of infection, so no need for them"*, or

*"Because of lack of knowledge about syphilis, almost all of them do not know how infection is acquired. Even if they know, they do not want to be detected because they are afraid that doctors will not let them give birth"*.

**Living far from service and a shortage of the syphilis tests.** Most pregnant women from remote areas have been unscreened because it is not easy to go to the laboratory for having ASYS and getting the results. Family doctors said, "I think that the increase in unscreened status is strongly related to residence outside the area of Ulaanbaatar". A shortage of syphilis tests and supplies also occurred sometimes because the syphilis testing laboratories were limited, and there were many pregnant women waiting for testing.

#### **The system of ASYS**

Most doctors thought that ASYS was limited in availability and accessibility due to poor coordination of service. Although every ANC clinic has a laboratory for urine, blood, and biochemical tests, they were not authorized to perform the serological syphilis test. Therefore, they needed to send women to an STI laboratory for syphilis testing. Consequently, most pregnant women must travel a long distance and often wait several hours for testing because of the large number of patients and delays in being screened. A senior doctor said *"Of course, our ASYS system was inherited from the previous period when this infection was a rare event, and there were few poor people and no prostitutes. Nowadays, the situation has changed; therefore, the previous system is not efficient to catch all of the cases, treat them and do contact tracing"*. Almost all the doctors agreed with doing screening tests in the ANC clinics, and they thought that it was important to improve, not only the coverage of ASYS, but also the quality of ANC. A typical statement was *"I'd like to see ASYS testing established so that no occurrence of women with late ANC and delivering before treatment still existed"*. On the other hand, one

doctor had a strong belief that specialists, not all doctors, should treat pregnant women with positive results. She said, "*Specialists in STI medicine are best able to diagnose the disease in mothers and they will notify partners. Interpreting the results of tests for syphilis in pregnant women may not be easy without advice from specialists*".

#### Part II: Semi-structured questionnaires from ANC providers

All 52 OB-GYN doctors, in all 16 ANC clinics, and all 98 family doctors who were available during the study period in the selected family units, were invited and provided with a self-administered questionnaire. No providers refused to complete the questionnaire. The proportion of study providers by district general hospitals and main characteristics are shown in Table 1.

Table 2 displays the opinions on the ASYS practice and the current ASYS system. The majority of the 150 providers thought that they did not perform ASYS on time (73.0%) and not in all pregnant women (69.3%). Although 67.8% of providers replied that positive cases received good management, only half answered that contact tracing and treatment were sufficient. The majority of providers opined negatively or neutrally about the current ASYS system and the quality of ASYS in Ulaanbaatar. Most of them (76.4%) commented that the centralized ASYS system should be changed. Complete cycles of drawing blood, performing the test, treatment, and counseling within the same premises would be better (87.3%).

## DISCUSSION

This study described the current system of ANC and ASYS in Ulaanbaatar, Mongolia, the actual practice as reported by providers and providers' opinions about the system and the non-universal screening of pregnant women. The shortcomings of ASYS, accord-

ing to the providers' points-of-view, were limited access to ASYS, and ignorance on the part of both pregnant women and ANC providers. The current ASYS system is impractical for the recent syphilis situation in Ulaanbaatar, and improvement of the ASYS system into a "one-stop" service is needed.

The ANC infrastructure is necessary for the prevention of maternal syphilis at delivery and congenital syphilis (WHO, 1991; CDC, 2002). The complexity of the ASYS service system and occasionally undersupplied syphilis test materials may result in the deficiency of congenital syphilis prevention and control. Studies carried out in African countries have similarly described a failure of antenatal syphilis screening strategies where women's blood was drawn at a community clinic and transported to a central laboratory (Fitzgerald, 1998; Beksinska, 2002). In Mongolia, an average of 97% of pregnant women obtain ANC service at least once during their pregnancy period, thus pregnant women have a chance to receive the ASYS at the first day of ANC (Ministry of Health, Mongolia, 2000). A one-stop service, including the performance of the ASYS test and treatment of reactive cases in the same place is the critical issue to minimize the problem of long travel to ASYS service, limited laboratories, as well as late detection and treatment. Two African studies have shown that on-site testing improved the quality of ANC and ASYS (Hira, 1990; Temmerman *et al*, 2000).

The techniques for syphilis screening test and case management for positive serology are not very specialized or complicated (Larsen, 1995; CDC, 2002). The RPR screening test is a simple test that can be performed without a microscope by any trained and motivated general practitioner or midwife. In addition, since the method of treatment of syphilis has a routine standard (WHO, 2001), the question might be raised of why only venereologists should be authorized to do it.

Both pregnant women and ANC providers are crucial to the improvement of ASYS coverage, and congenital syphilis prevention and control. Pregnant women having late ANC, lacking of knowledge about the infection and ASYS, reporting previous STI, and living far from an ASYS service unit were at increased risk of not being screened for syphilis (Munkhuu *et al*, 2006). This study reported the ANC providers' views. The providers perceived that pregnant women's knowledge about ANC and ASYS is insufficient, similar to the situation in some other countries (Southwick *et al*, 2001; Beksinska, 2002). There is a great need to prepare a special educational program for pregnant women that is aimed at promoting their general awareness about the matters and duties related to pregnancy and STI prevention. However, sexually active people need to be the main targets for promoting educational awareness of STI including congenital syphilis to achieve the greatest effectiveness in the prevention and control program. Not only health promotion, but also social, moral, and community tasks, should be handled appropriately, consistently, and on a nationwide scale (CDC, 2002).

The doctors providing ANC services to pregnant women have quite a range of imperatives. A number of problems, such as partner notification and the service system, affected the quality of ASYS service, as in other developing countries (Southwick *et al*, 2001; Beksinska, 2002). In our study, although most of the ANC providers who took part agreed that they usually tried to do the serological test for syphilis at least once in pregnant women, there were some who doubted or even openly denied doing so. This discord revealed that a refresher course for ANC providers to encourage their recognition of the need for ASYS and to improve their counseling skills is needed.

The results obtained from the questionnaire should be representative of the providers because approximately 90% of OB-GYNs

in all ANC clinics and family doctors in selected family units completed the questionnaires. Although 27 head/senior doctors were randomly selected for an in-depth interview, representing 25% of all ANC clinics and family units, the results from the quantitative data of the questionnaire consistently correlated with those from the qualitative in-depth interviews.

The antenatal care providers highlighted the problems of the current ASYS system and low coverage of ASYS in pregnant women. Although a one-stop service was positively discussed, there is a need to demonstrate that a one-stop service for ASYS is practical, beneficial, and cost-effective for all pregnant women, and that it can reduce the magnitude of congenital syphilis in Ulaanbaatar to convince all ANC providers and policy makers. Further study focusing on a comparison between one-stop ASYS and conventional ASYS would be essential.

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