

Congenital syphilis as a notifiable disease

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Abstract A review of the notification of congenital syphilis at Johannesburg Hospital from 1 May 1991 to 30 April 1992 was conducted to evaluate the effect of the recently introduced notification programme. A total of 209 Wassermann reaction (WR)-positive mothers were delivered during this time; 12 pregnancies (5,7%) resulted in stillbirths and 8 (3,8%) in incomplete abortions, and there were 2 (0,96%) early neonatal deaths. Only 45 (21,5%) of this group of WR-positive mothers had received antenatal care, and of these 9 (20%) had had adequately documented treatment. There were thus 200 potentially notifiable cases of congenital syphilis according to the Centers for Disease Control classification, of which 24 (12,0%) were actually notified. The goals of the notification programme, namely to increase awareness of congenital syphilis among health care providers and to evaluate the extent of the problem accurately, are clearly not being met.

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Congenital syphilis is a significant health problem in South Africa and is one of the most important causes of perinatal death.¹ Reasons for failure to control this illness include little or no antenatal care, in particular inadequate antenatal screening and treatment of syphilis by health care providers.^{1,2} To increase awareness of this totally preventable condition and obtain accurate data on the extent and impact of the problem so that resources can be allocated appropriately, congenital syphilis has recently been made a notifiable disease (*Government Gazette* No. 13029, February 1991).²

We conducted a retrospective evaluation of the congenital syphilis notification process at Johannesburg Hospital to determine the awareness of health personnel and the effectiveness of the programme in terms of follow-up of cases, tracing of contacts and education of health care providers.

Subjects and methods

All mothers with positive serological reactions for syphilis (Wassermann reaction (WR)) who delivered at Johannesburg Hospital between 1 May 1991 and 30 April 1992 were eligible for study. These subjects were identified from the laboratory's computer database. Patient records were reviewed to evaluate antenatal care, adequacy of syphilis treatment, pregnancy outcome and associated HIV and hepatitis B infection. The records of all infants born to these mothers were also reviewed to establish which were symptomatic. The names of infants notified as having congenital syphilis were obtained from the hospital notification book and the local health authority, and follow-up of cases was evaluated. Follow-

up was considered adequate if both mother and baby were treated, the mother's consort was traced and treated, and the infant was assessed for stigmata of congenital syphilis. In cases of inadequate maternal therapy during pregnancy, a record of contact with the health care provider was sought.

For the purposes of notification, the Centers for Disease Control (CDC) classification of congenital syphilis was used.³ This includes stillbirths associated with syphilis and the infants of mothers who are inadequately treated or untreated for syphilis, irrespective of the findings in the infant.

All infants received routine care at birth including general examination. Asymptomatic infants were not evaluated further but were given a single dose of intramuscular benzathine penicillin 50 000 U/kg. Symptomatic infants underwent serological tests, lumbar puncture and radiographic examination and were given aqueous penicillin for 10 - 14 days.

Results

A total of 209 WR-positive mothers delivered at Johannesburg Hospital during the study period (4,7% of total deliveries). Eight (3,8%) of the pregnancies ended in incomplete abortion (ICA), 12 (5,7%) in stillbirth and 2 (0,96%) in immediate neonatal death. The corresponding rates for the total obstetric population at Johannesburg Hospital during the same period were 1,85% for stillbirths and 1,97% for incomplete abortions. It is not clear whether the ICAs were spontaneous or the result of interference with the pregnancy.

Forty-five mothers (21,5%) had received antenatal care (Table I), 133 (63,6%), including the 8 who had ICAs, were unbooked, and the booking status of the remaining 31 was not recorded. Nineteen per cent of all mothers delivering during the same period were unbooked. Only 9 of the mothers who received antenatal care had documentation of treatment for syphilis. It is unclear whether the remaining 36 were treated; it may be that the admitting staff failed adequately to record treatment which had been received. In terms of notification, however, these infants were considered to have asymptomatic congenital syphilis.³

TABLE I.
Source of health care in booked mothers with positive serological tests for syphilis

Place	No.	Documented treatment
Johannesburg Hospital	19	7
Other hospital	10	0
Clinic	7	1
Private doctor	9	1

There were therefore 200 potentially notifiable cases of congenital syphilis according to the CDC classification.³ The hospital notification book showed 24 (12,0%) to have been notified, but the local health authority only had record of 17. Three of these could not be traced, 1 infant had died due to complications of prematurity, and the remaining 13 were asymptomatic at the time of follow-up. Apparently all these mothers and infants had been treated. The information regarding follow-up and treatment of consorts is incomplete. There is no record of any stillbirth notified as being due to congenital

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syphilis during the study period. The 7 missing notifications were probably of infants residing in other municipal areas and would have been referred to the appropriate health authority, although there is no record of this. The total number of cases of syphilis notified in South Africa during the period of study is shown in Table II.

TABLE II.
All cases of congenital syphilis notified during the study period by geographical region*

	No.	%
Eastern Cape	34	13,1
Western Cape	88	33,9
Northern Cape	6	2,3
Natal	11	4,2
OFS	6	2,3
Southern Transvaal	64	24,7
Gazankulu	1	0,3
KwaZulu	12	4,6
Lebowa	8	3,0
KaNgwane	1	0,3
Transkei	3	1,1
Venda	25	9,6
Total	259	100

* Source: Directorate of Epidemiology, Department of National Health and Population Development. No notifications were received from areas not mentioned.

During the period of study, 23 infants of WR-positive mothers were admitted to the intensive care unit or high-care ward for various problems including prematurity and its complications, birth asphyxia and low birth weight. Three had overt evidence of congenital syphilis. All 3 had been born to unbooked mothers. A further infant was admitted at the age of 1 month with overt congenital syphilis. His neonatal records are missing so it is unclear whether he was treated at birth. The remaining infants were asymptomatic. Of the 24 cases notified, 8 were from the high-care area and 16 from the well-baby wards. Only 1 of the 4 cases of overt congenital syphilis was notified!

Hepatitis B antigenaemia was documented in 4 (1,9%) and HIV in 12 (5,7%) of the 209 WR-positive mothers, compared with 54 (1,4%) and 74 (1,9%) of 3 788 mothers tested during the same period (S. Johnson, National Institute of Virology — personal communication).

Discussion

This review clearly shows that health personnel remain unaware of the recommendations for the management of congenital syphilis. There is ignorance of the CDC definition of congenital syphilis;³ in particular, asymptomatic congenital syphilis and syphilitic stillbirths are not regarded as notifiable by most health care providers and in this study only 12% of eligible cases were notified. Two hundred and fifty-nine cases of congenital syphilis were notified in South Africa during the study period (Table II). This is obviously a gross underrepresentation of the problem. The prevalence of symptomatic congenital syphilis is 0,7% at both Baragwanath and Kalafong Hospitals.⁴ At Baragwanath Hospital alone about 125 infants annually are born with overt congenital syphilis. Even if only overt congenital syphilis is considered, the disease is obviously undernotified. If the goals of the notification programme, most notably the assessment of the extent of the problem, are to be achieved, awareness of health care providers must be improved greatly. The association between congenital syphilis and increased perinatal mortality¹ is confirmed in this study, where the overall pregnancy loss was more

than double that of the total obstetric population.

A further problem is that more than 60% of mothers with syphilis do not receive antenatal care. This is not a new observation. Unbooked mothers at Baragwanath Hospital are 5 times more likely to have positive serological tests for syphilis than booked mothers,⁵ and unbooked mothers at King Edward VIII Hospital have a prevalence of positive tests for syphilis of 30,7%.⁶ Any measures to control congenital syphilis must therefore include active promotion of antenatal care.

Only 20% of mothers who had received antenatal care were documented to have been treated. This may reflect actual failure of health care providers to treat these patients or failure on the part of admitting staff to establish clearly whether adequate treatment was given. At the same time HIV and hepatitis B status of patients is usually clearly recorded. It could be concluded that health personnel are more concerned with the latter conditions because of a perceived personal health risk, while syphilis, which is far more common, is afforded less attention. The incidence of HIV infection in WR-positive mothers in this study was 3 times greater than that of the total obstetric population at the time, whereas that of hepatitis B infection was similar. This association between HIV and syphilis has been noted previously.⁷

It is alarming to note that 1 baby was readmitted at 1 month of age with overt congenital syphilis. Whether this was due to lack of treatment or treatment failure is not clear, but it is a problem either way. In general, owing to the prevalence of asymptomatic congenital syphilis and the apparent lack of long-term problems in these infants, our policy is to give a single dose of benzathine penicillin. Asymptomatic babies are not investigated and are not followed up. Whether this approach is adequate has not been evaluated formally, the concern being that asymptomatic neurosyphilis may be missed and inadequately treated.¹ A recent study, however, reported a single dose of benzathine penicillin to be as effective as 10 days of procaine penicillin in the treatment of asymptomatic congenital syphilis.⁸

Using the CDC definition of congenital syphilis and including asymptomatic cases for notification has been a subject of debate in South Africa because of the resultant large numbers to be traced and followed up. Asymptomatic infants of WR-positive mothers do not appear to have long-term problems and several South African institutions do not follow them up. However, until the adequacy of the latter approach is properly documented it would seem prudent to notify these cases. On the other hand, if follow-up services are inadequate and the aim is to reduce follow-up numbers, it may be appropriate to reconsider the CDC definition and limit the diagnosis of congenital syphilis in South Africa to cases with overt disease. In so doing it must then be recognised that by limiting the numbers of congenital syphilis to be notified, the extent of the problem will be minimised and health care providers will continue to ignore it. In addition, the opportunity to treat an infected woman of childbearing age and her consort adequately and hence reduce the possibility of congenital syphilis occurring in subsequent pregnancies will be lost. One simple method of reducing the number of infants currently classified as having asymptomatic congenital syphilis and of preventing overtreatment and unnecessary notification is to *identify clearly those mothers who have been adequately treated*. This was sadly lacking in the present study; in only 20% of mothers who had received antenatal care was treatment properly documented. By definition, the infants of the remaining 80% are regarded as having asymptomatic congenital syphilis and are notifiable.

In conclusion, despite congenital syphilis being a notifiable disease and despite repeated pleas to control the epidemic,^{1,2} health personnel remain unaware of its

importance. If this condition is to be controlled and the purposes of notification met, heightened awareness and education of both the public and the health care providers is essential. The results of this study have been made known to the relevant members of the health care team. Particular attention must be paid to the fact that notification is likely to be the responsibility of medical officers, interns and midwives. These are high-turnover staff categories and it is therefore necessary for senior members of staff to oversee and monitor the process constantly.

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