

SYPHILIS IN THE MILITARY COMMUNITY

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INTRODUCTION

THOUGH syphilis, as a public health problem, in the military community* is of minor importance based on reported cases of syphilis, its proper understanding including management is important to the efficient control of syphilis. This study describes current practices in the Armed Forces and the problems associated with it.

METHODS AND MATERIALS

The primary source of data is the notifiable diseases forms raised when an individual is treated as a case of syphilis as required by law. Data for a 5-year period, 1974 to 1978 are used for this study. A special return on antenatal screening for syphilis for the same period was obtained from military medical establishments though not all units submitted them and even these were not complete for all the years. This was also used for this study.

RESULTS

288 cases of primary and latent syphilis were reported in military personnel during the 5-year period with an annual average of 57.6 cases, ranging from 23 to 83 (Table I). Primary syphilis (here defined as cases reported with a penile ulcer and treated as syphilis) - 56 cases in all - constitute only 20% on average per year with a maximum of 37% for 1976. The incidence of primary syphilis is 9.39/100000 for 1974 and rises gradually to 12.48/100000 in 1975 to 25.07/100000 in 1976 and falling to 22.17/100000 in

1977 and 15.23/100000 in 1978. The 232 asymptomatic cases - serologically positive with no past history of manifestations of syphilis recorded and no symptoms of syphilis at the time of diagnosis - are latent syphilis (Rudolph and Duncan, 1975). These were detected as a result of wives found positive at antenatal screening and husbands' subsequently screened (4 cases), blood donor's found positive (7), patient's request (2), syphilis screening at the Senior Officers' Medical Examination (none reported), gonorrhoea cases screened for syphilis (11) and on special screening (208). The 232 cases of latent syphilis is the prevalence for the period and as the denominator is unknown, the prevalence rate cannot be calculated here.

84% of the primary syphilis cases are below 30 years compared to 37.5% for the latent cases. 53% of the latent cases are in their thirties. Only 6.3% of the cases were below 20 years or 40 and older.

33 of the 288 cases notified had no serological tests reported. All were primary syphilis cases and treatment was carried out on clinical criteria. Dark-field microscopy was not done for these cases, except two which were negative. For two cases, Kahn's test was positive. For the rest of the cases, Venereal Disease Research Laboratory (VDRL) screening test was done, the results of which are shown in Table II. The non-reactive cases are primary cases diagnosed on clinical grounds and treated without serological evidence of infection as 1-4 weeks pass before serology is positive (Center for Disease Control (CDC), 1968). 50% of the 253 cases for which VDRL was done were reported as reactive without recording the exact dilution found positive. Only 15.87% of the cases with dilutions recorded (126) had a dilution greater than 8. Cases confirmed by treponemal tests were only 24 - 4 with Fluorescent Treponemal Antibody-Absorption (FTA-ABS), two with *Treponema pallidum* Haemagglu-

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* Military community here refers to military personnel and their wives and children.

**TABLE I. REPORTED CASES OF SYPHILIS AMONG
SERVICE PERSONNEL BY AGE AND TYPE OF
SYPHILIS, 1974-1978**

	1974		1975		1976		1977		1978		TOTAL	
AGE GROUP	P	L	P	L	P	L	P	L	P	L	P	L
< 20	0	0	0	0	0	1	0	2	1	0	1	3
20 — 24	4	8	4	4	8	11	4	7	5	3	25	33
25 — 29	1	5	3	18	5	9	7	10	5	10	21	51
30 — 34	1	4	1	34	2	15	3	16	0	15	7	84
35 — 39	0	0	0	19	1	3	0	5	0	13	1	40
< 40	0	0	0	0	0	2	1	0	0	11	1	13
NOT GIVEN	0	0	0	0	0	6	0	1	0	0	0	7
TOTAL	6	17	8	75	16	47	15	41	11	52	56	232
YEARLY TOTAL	23		83		63		56		63		288	

Legend: P refers to Primary Syphilis and L latent syphilis

tination Assay (TPHA) and 18 with Reiter Protein Complement Fixation Test (RPCFT).

92% (247 of 268 which recorded this information) of the cases gave a history of exposure to a probably source of syphilis. The places of exposure are both within and outside the country. Sibu takes the pride of place but all major towns and cities in both Peninsular Malaysia and Sabah/Sarawak harbour sources of infection. For the majority of the cases where this information is recorded, bar-girls and prostitutes were recorded as the sources of infection.

As regards notified dependents, 11 were wives and 2 children. All were latent cases detected at antenatal examinations (9) or during screening as contact after husband was found positive (2). Two children of syphilitic mothers were also found positive. 56 cases (0.90%) were found reactive with VDRL test among 5675 pregnant mothers screened for syphilis based on the special return. 11 of these underwent confirmatory tests with FTA-ABS and 9 were positive. All 56 were, however, treated as syphilis. Only 2 of these were notified to health authorities.

Details of treatment are shown in Table III. They vary greatly for both the primary and latent cases. The drug of choice was intramuscular (I.M.) penicillin for 85% of the cases. Only 8 cases received oral broad-spectrum antibiotics (tetracycline hydrochloride (6) and erythromycin (2)), seven of whom were stated to be allergic to penicillin.

Discussion

STD is said to be higher in military populations than civilian populations due to their frequent prolonged separation from families. However, in the US military, the STD case rate is "probably not substantially different from that for civilians" (VD Fact Sheet, 1976). In this study, the number of cases is rather small presumably only a small proportion of cases report to military medical establishments and reporting from these establishments is also incomplete as attested by the fact that only two out of the 55 cases were reported and 15 cases detected in a survey in 1974 in Kuching were not notified (Koh, 1974). Feed back from civilian blood banks is also not available after blood donations by military personnel. Many are known

**Table II. REPORTED CASES OF SYPHILIS AMONG SERVICE
PERSONNEL BY VDRL TITRES AND TYPE OF SYPHILIS,
1974-1978**

VDRL TITRES	1974		1975		1976		1977		1978		TOTAL	
	P	L	P	L	P	L	P	L	P	L	P	L
0	0	1	0	0	0	3	0	0	0	6	0	10
1	0	4	0	0	0	1	0	1	0	5	0	11
2	0	2	0	0	0	18	0	8	0	17	0	45
4	0	0	0	0	0	2	1	11	0	7	1	20
8	0	0	0	0	0	1	0	1	0	7	0	9
16	0	0	0	1	1	1	2	7	0	7	3	16
32	0	0	0	0	0	2	0	2	0	0	0	4
REACTIVE	4	11	0	73	4	19	0	10	1	3	9	117
NON-REACTIVE	1	0	2	0	2	0	2	0	1	0	8	0
NOT RECORDED	0		6	0	9	0	10	0	9	0	34	0
TOTAL	5	18	8	74	16	47	15	40	11	52	55	231
YEARLY TOTAL	23		82		63		55		63		286	

LEGEND: P REFERS TO PRIMARY SYPHILIS AND L LATENT SYPHILIS.

to seek treatment from general practitioners, while some treat themselves buying directly from drug stores as antibiotics are readily available to the lay public without prescription (New Straits Times, 1979).

It is noted that all VDRL reactive including o dilutions are treated as syphilis without a confirmatory test. VDRL test is only a screening test and a treponemal test for confirmation is necessary (Jaffe, 1975). Jegatheson *et al.* (1975) have shown that 1.05% of VDRL reactive serum of blood donors are biological false positives (BFP) and in decreasing order of dilutions 32% BFP for o dilutions, 16% for 1 dilution, 7.4% for 2 dilutions, 6.4% for 4 dilutions, 7.1% for 8 dilutions, 20% for 16 dilutions and 0% for dilutions above 16. Conditions such as malaria, measles, collagen diseases, leprosy, viral pneumonia, and other conditions quite prevalent in our environment cause BFP (Rudolph and Duncan, 1975) Confirmatory tests are more so indicated where no epidemiological evidence to support a diagnosis of syphilis is available. In this study of the asymptomatic VDRL reactive cases, 13 cases among the 114 cases may be BFP if the same percentage of BFP as above is applied though a

small number may be BFP as this is an exposed population.

Of the 55 primary cases, only for two cases dark-field microscopy was done, which were negative. It appears medical officers are reluctant to refer to hospitals for this examination or for the treponemal confirmatory tests. History of exposures is insufficient by itself to label a case as syphilis as only 10% of exposures result in infection (Benenson, 1975). The combined skills of the clinician and the laboratory are required in the appropriate management of syphilis cases. As some of these cases may be truly negative, subjecting them to unnecessary treatment and anxiety for the patient is unwarranted.

Table III shows the numerous schedules for treatment of syphilis. Though a standard one is set out in an Armed Forces medical instruction (AFMI, 1975), this is not being followed. 6 were inadequately treated, 63 overtreated and 10 treated with incorrect drugs of choice, if the AFMI and the CDC recommended schedules of treatment are used as standard. Many used wrong schedules of treatment as well. Drug combinations used for the four cases, which had

**Table III. TREATMENT SCHEDULES FOR CASES OF PRIMARY AND
LATENT SYPHILIS OF MILITARY PERSONNEL, 1974—1978**

	PRIMARY	LATENT	TOTAL
[1] TREATMENT GIVEN [NO DETAILS PROVIDED]	12	27	39
[2] I.M. PROCAINE PENICILLIN			
0.6 MEGA UNITS DAILY X 7/10/14 DAYS	0/7/1	13/64/2	13/71/3
1.2 MEGA UNITS DAILY X 7/10/21 DAYS	6/4/0	6/14/2	12/18/2
2.4 MEGA UNITS DAILY X 7/10 DAYS	2/2	13/21	15/23
4.8 MEGA UNITS STAT	3	1	4
[3] I.M. BENZATHINE PENICILLIN			
2.4/4.8 MEGA UNITS STAT	2/0	39/1	41/1
2.4 MEGA UNITS ONCE A WEEK X 2/3 WEEKS	0/0	3/4	3/4
2.4 MEGA UNITS DAILY X 10 DAYS	1	0	1
(4) I.M. PROCAINE PENICILLIN IN 2% ALUMINIUM MONOSTERATE			
0.6 MEGA UNITS DAILY X 10 DAYS	1	12	13
1.2 MEGA UNITS DAILY X 10 DAYS	1	3	4
(5) I.M. CEPHALORIDINE 500 MG I.M. X 7 DAYS	1	0	1
(6) ORAL TETRACYCLINE 500 MG Q.I.D. X 5/10 DAYS	0/1	1/4	1/5
(7) ORAL ERYTHROMYCIN 500/750 MG Q.I.D. X 21 DAYS	0/0	1/1	1/1
(8) ORAL PENBRITIN			
500 MG STAT, 250 MG Q.I.D. X 5 DAYS	0	2	2
500 MG STAT, 500 MG Q.I.D. X 10 DAYS	2	2	4
(9) DRUG COMBINATIONS			
I.M. PROCAINE PENICILLIN 0.6 MEGA UNITS DAILY + ORAL ERYTHROMYCIN 500 MG Q.I.D. X 14 DAYS	1	0	1
I.M. STREPTOMYCIN 1 GM DAILY X 7 + ORAL SULPHATRIAD 1 GM Q.I.D. X 7 DAYS	1	0	1
I.M. BENZATHINE PENICILLIN 2.4 MEGA UNITS STAT, I.M. STREPTOMYCIN 1 GM DAILY X 10	1	0	1
I.M. PROCAINE PENICILLIN UNITS 0.6 MEGA X 10 + INJ STREPTOMYCIN 1 GM DAILY X 10	0	1	1

no additional infections, are not rational either. Inadequate instruction in medical schools on STD may be responsible for this slipshod treatment practices as has been voiced at a WHO travelling seminar (WHO, 1971).

The notifications lack adequate details to determine the type of syphilis, the source of infection (who, when, where) for health authorities to act and details of contact screening of family members. Contact tracing is not practised in the armed forces due to lack of trained personnel, except the immediate family members, which is necessary for a control programme.

Antenatal screening for syphilis, ideally suited for screening (Holland and Wainwright, 1979), though recommended routinely for all antenatal cases irrespective of pregnancy number (Donald, 1979) is not done in all centres. In some medical establishments it is done for primigravida's and those with bad obstetrical history. The rationale for this is not known. In this study, only 0.9% of antenatal mothers were VDRL positive whereas Jegatheson *et al.* (1975) found 3.3% positive in their population. The reason for this is not clear. Incomplete reporting is one possibility though other factors such as laboratory differences in testing, as our cases are screened throughout Malaysia, cannot be ruled out. As regards the economics of VDRL screening, taking the figure of 9 cases of syphilis for every 1000 tested, it costs \$778/= per case tested, taking current market values of \$7/= per VDRL test. This amount appears relatively cheap to prevent a loss of a life or an affected baby though the known incidence in the Forces is small. Statistics on congenital syphilis for the country is not available.

Follow-up of treated cases are inadequate. No special register is maintained for follow-up of cases and it is left to the individual who is most likely not to turn up as he may feel well. Follow-up is essential especially for those treated with other than penicillin (CDC, 1976).

No special group can be singled out for screening. Though data on these forms is not available, it is known that personnel on unaccompanied tour of duties run the greatest risk of infection. In one special mass screening programme, 51 cases were detected. The numbers

screened are not known. This was a unit returning to home base after a period of unaccompanied tour. It may therefore be reasonable to screen personnel (unaccompanied) on return to home base.

The components of a good STD control programme are an efficient clinical service backed by adequate laboratory facilities, contact tracing and counselling by well-trained personnel, good follow-up system, health and sex education, antenatal and mass screening of high risk groups. (Benenson, 1975). Such a programme is possible within the AF set-up though currently lacking. Laboratory facilities are not available in our medical centres and sick quarters but this should not be a handicap as our aircraft service can deliver the samples to any major laboratory for analysis. Voluntary examinations (2 found positive in this study) and premarital examinations should be encouraged. Continuing medical education to revise and update knowledge on syphilis is a must and can be done. Health education on low key currently can be boosted up. Other measures can be initiated to build up the programme and make it effective.

SUMMARY

288 notifications of syphilis in military personnel for 1974 to 1978 are analysed. 56 cases are primary and 232 are latent syphilis in service personnel and 13 in women and children. Antenatal screening detected 56 cases (0.9%) of syphilis. Only 24 cases among soldiers had confirmatory tests done. Treatment varied and some were inadequately treated, others overtreated and many with incorrect schedules. Intramuscular penicillin was the treatment of choice in 85% of cases. Follow-up of cases was inadequate. In all, it indicated a poor control programme for STD. A good programme is possible within the armed forces set-up and a number of measures are suggested.

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REFERENCES

- Rudolph, A.H. and Duncan, W.C. (1975) Syphilis diagnosis and treatment, **Clin. Obstet. Gynaecol.**, 18, 163-182.
- Center for Disease Control (1968) **Syphilis - a synopsis**, Washington, D.C., U.S. Government Printing Office, p. 22.
- Center for Disease Control (1976) **VD Fact Sheet 1976**, Washington, D.C., U.S. Government Printing Office, p. 22.
- Koh, A.S. (1974) A report on a survey on syphilis carried out on an infantry regiment in Kuching, **Malaysian Medical and Dental Corps Journal**, 4, 26-34.
- The New Straits Times, 4 December, 1979.
- Jaffe, H.W. (1975) The laboratory diagnosis of syphilis. New concepts, **Ann. Intern. Med.**, 83, 846-850.
- Jegatheson, M., Fan, Y.H. and Ong, K.J. (1975) Seroreactivity to syphilis in Malaysian blood donors and expectant mothers, **Southeast Asian J. Trop. Med. Public Health**, 6, 413-418.
- Benenson, S.A. (1975) **Control of Communicable Diseases in Man**, 12th Ed., Washington, D.C. The American Public Health Association, p. 316.
- Armed Forces Medical Instruction (1975) **Sexually Transmitted Diseases**. Malaysian Armed Forces (Cyclostyled).
- World Health Organization (1971) **Report of the International Travelling Seminar on Venereal Disease in the United States**. WHO/VDT/73. 386.
- Holland, W.W. and Waimwright, A.H. (1979) Epidemiology and health policy, **Epidemiologic Reviews**, 1, 211-232.
- Center for Disease Control (1976) **Recommended treatment schedules for syphilis 1976**, Washington D.C., U.S. Government Printing Office.
- Donald, I. (1979) **Practical Obstetric Problems**, 5th Ed., London, Lloyd-Luke Ltd., p.17.