Epidemiology of gonorrhoea and syphilis in South Australia (1966-77)

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SUMMARY Data from the annual general report of the Venereal Disease Control Centre (VDCC) in a state with a population of approximately 1 250 000 people (in 1977), of whom about 1 100 000 live within 25 miles of the centre of Adelaide, the capital city, are presented.

Introduction

South Australia is the driest state in the driest continent in the world. Sparsely populated, the surface area is 380 000 square miles compared with that of the United Kingdom, which is 95 000 square miles. The aboriginal population living in the eight missions and other aboriginal centres are thought to number about 3000 (about 0.24% of the total), and they figure prominently in the epidemiology of syphilis because of the presence of endemic syphilis in these centres.

Incidence of syphilis

In 1966 legislation was passed requiring medical practitioners and laboratories dealing with syphilis or gonorrhoea to notify numbers of cases to the Central Board of Health. The incidence of reported syphilis has risen from 1.4/100 000 in 1966 to 40/100 000 in 1976 (Table 1); this figure dropped to 28/100 000 in 1977. The rise in 1976 was almost entirely due to increased efficiency in collecting blood specimens from aboriginals in that year.

The overall incidence for Australia has dropped behind the South Australian figures since the early 1970s, not because South Australia has more cases of syphilis but because the figures are more accurate.

Incidence of gonorrhoea

Since 1966 the incidence of gonorrhoea has risen from 23/100 000 to 174/100 000 in 1974 and is now around 150/100 000; the steep rise in incidence

since 1966 seems to have levelled out over the last four years (Table 2). There are, no doubt, two reasons for this increase: an actual increase in the number of cases and an increase in efficiency in collecting statistics. The overall incidence of 85/100 000 in Australia in 1976 and 1977 shows

Table 1 *Notification of cases of syphilis from 1966 to 1977. (Populations in 1977 of Australia and South Australia were 14½ million and 1½ million respectively)*

Year	South Australia	Rate per 100 000	Australia	Rate per 100 000
1966	15	1.4	1080	9.3
1967	21	1.9	845	8.0
1968	58	5.2	860	7.1
1969	38	3.3	1072	8.6
1970	74	6.4	952	7.9
1971	122	10.4	1047	8.3
1972	205	17.0	1215	9.3
1973	178	15.0	1433	10.9
1974	257	21.5	1864	13.9
1975	309	25.0	2362	18.0
1976	501	40.0	3110	23.0
1977	360	28.1	3023	21.5

Table 2 *Notification of cases of gonorrhoea from 1966 to 1977*

Year	South Australia	Rate per 100 000	Australia	Rate per 100 000
1966	355	23	8553	74
1967	599	51	9412	80
1968	509	43	9763	79
1969	703	61	9648	79
1970	650	55	9558	76
1971	817	70	10274	81
1972	989	83	11017	85
1973	1492	126	11357	85
1974	2091	174	12524	95
1975	2121	172	12511	93
1976	1885	151	11526	85
1977	1921	150	12024	85

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that our national figures do not reflect the prevalence of gonorrhoea in the country as a whole (Table 2).

It is not possible to estimate how many cases of urethral discharge are treated empirically, and these figures do not, therefore, enter the statistics; but there are, however, many cases in South Australia and, obviously, more in Australia as a whole.

Epidemiological data of notified cases

AGE GROUPS

For cases of gonorrhoea the predominant age group is 15–19 years in women and 20–24 years in

men. These two groups were responsible for 68% of cases of gonorrhoea in 1977 (Table 3).

The age range for syphilis, on the other hand, is greater, but those figures include both active and inactive notified cases; most of the active syphilis occurs in the younger age groups (Table 3).

MARITAL STATE

In 1977, 1577 (80%) out of 1921 cases of gonorrhoea occurred in single people. The figures for syphilis were more evenly divided but include both active and inactive cases (Table 4).

SOURCES OF INFECTION

Friends or fiancés or casual contacts account for

Table 3 *Notifications and incidence of gonorrhoea and syphilis by age and sex (1977)*

Age (years)	Gonorrhoea			Syphilis		
	Male	Female	Total	Male	Female	Total
0–9	2	1	3			
10–14	1	15	16		2	2
15–19	312	304	616	15	30	45
20–24	454	238	692	56	76	92
25–29	239	75	312	60	76	86
30–39	169	48	217	54	16	70
40–49	38	7	45	19	6	25
50 and over	15	5	20	27	13	40
Total (1977)	1228	693	1921	231	129	360
Total (1976)	1145	740	1885	299	202	510
Total (1975)	1296	825	2121	164	140	304

Table 4 *Marital state of notified cases of gonorrhoea and syphilis*

Marital state	Gonorrhoea									Syphilis								
	Male			Female			Total			Male			Female			Total		
	1975	1976	1977	1975	1976	1977	1975	1976	1977	1975	1976	1977	1975	1976	1977	1975	1976	1977
Single	1051	886	1045	657	546	532	1708	1432	1577	87	122	141	54	76	72	141	198	213
Married	158	165	122	92	93	85	250	258	207	33	120	79	47	103	53	80	223	132
Defacto	19	22	9	16	26	12	35	48	21		4		1	3		1	7	
Widowed	3	1	1	7	2		10	3	1					1	1		1	1
Divorced	16	8	3	10	18	19	26	26	22		1	1		1			2	1
Separated	42	58	45	42	53	45	84	111	90	3	2	2	1	2	2	4	4	4
Unknown	7	5	3	1	2		8	7	3	41	50	8	37	16	1	78	66	9
Total	1296	1145	1228	825	740	693	2121	1885	1921	164	299	231	140	202	129	304	501	360

Table 5 *Source of infection of notified cases of gonorrhoea and syphilis*

Contact	Gonorrhoea									Syphilis								
	Male			Female			Total			Male			Female			Total		
	1975	1976	1977	1975	1976	1977	1975	1976	1977	1975	1976	1977	1975	1976	1977	1975	1976	1977
Marital partner	32	41	17	70	54	40	102	95	57	3	3	1	9	5	5	12	8	6
Defacto partner	15	19	9	17	20	7	32	39	16	1	2		1	2		2	4	
Friend/fiancé	356	294	341	319	289	326	675	583	667	3	11	14	5	10	5	8	21	19
Casual contact	741	589	560	394	317	257	1135	906	817	45	42	30	19	16	7	64	58	37
Prostitute	24	39	38				24	39	38	1	4					1	4	
Homosexual	58	60	145				38	60	145	6	20	17				6	20	17
Mother	1	4	2		2		1	3	2		1						1	
Unknown		102	116		58	63		160	179	116	216	169	100	169	112	216	385	281
Total	1227	1145	1228	800	740	693	2027	1885	1921	175	299	231	134	202	129	309	501	360

77% of sources of infection for gonorrhoea and 21% for syphilis; unknown sources of the latter account for 78% of cases (Table 5). This high unknown factor is due to the difficulties of contact-tracing in the aboriginal population. A feature of both gonorrhoea and syphilis is the substantial number of homosexuals affected—8% overall for gonorrhoea (12% in males) and 5% overall for syphilis (8% in males).

USUAL RESIDENCE

Eighty-eight per cent of patients with gonorrhoea lived within 25 miles of the centre of Adelaide. Patients with syphilis were more or less evenly distributed, because of the aboriginal missions (Table 6).

COUNTRY OF ORIGIN

Table 7 shows only the numbers of cases from each country of origin. The percentages of the total population for the groups is not known. The aboriginal population accounted for 41% of cases of reported syphilis in 1977.

OCCUPATION

The highest number of notifications came from the less skilled and unemployed members of the community (Table 8); the actual percentages in the groups are not known. Among the cases of gonorrhoea 2.5% gave their occupation as prostitution.

Notification of cases of syphilis by stage of disease

In Table 9 notifications of cases of syphilis have been subdivided into stages of the disease in aboriginal missions (in brackets) and in the general population. These are difficult figures to extract but they do show trends. For the aboriginals it is not possible to give figures for primary and secondary syphilis because of the lack of clinical details.

Diagnosis is made by consultation between the serologist and the venereologist at the central laboratory, at the Institute of Medical and Veterinary Science, on the results of the serological tests. The nursing sisters, who live on the missions, are then given instructions by the venereologist on the treatment required. In the general population the prevalence of primary or early active syphilis is greater in men than in women and this agrees with experience in most countries.

Aboriginals living on reserves (0.24% of the total population) were responsible for 149 (41%) of 360 cases of syphilis notified in 1977.

Sources of notified cases

The VDCC notified 1142 (60%) of 1921 cases of gonorrhoea and 186 (52%) of 360 cases of syphilis, including cases from the out-back and aboriginals (Table 10). Until recently South Australia had the

Table 6 Usual residence of notified cases of gonorrhoea and syphilis

Residence	Gonorrhoea									Syphilis								
	Male			Female			Total			Male			Female			Total		
	1975	1976	1977	1975	1976	1977	1975	1976	1977	1975	1976	1977	1975	1976	1977	1975	1976	1977
Metropolitan	1122	968	1072	783	693	632	1905	1661	1704	80	132	142	55	70	52	135	204	194
Country	154	162	144	39	43	58	193	205	202	78	161	87	85	131	76	163	292	163
Interstate	9	12	10	3	4	3	12	16	13	1	1	1		1	1	1	2	2
Overseas	11	3	2				11	3	2	5	3	1				5	3	1
Total	1296	1145	1228	825	740	693	2121	1885	1921	164	299	281	140	202	129	304	501	360

Table 7 Country of origin of notified cases of gonorrhoea and syphilis

Country of origin	Gonorrhoea									Syphilis								
	Male			Female			Total			Male			Female			Total		
	1975	1976	1977	1975	1976	1977	1975	1976	1977	1975	1976	1977	1975	1976	1977	1975	1976	1977
Australia	888	761	915	683	622	605	1571	1383	1520	73	121	109	49	58	46	122	179	155
Aboriginals	108	106	54	35	36	20	143	142	74	64	148	72	77	132	77	141	280	149
United Kingdom	94	77	87	57	38	32	151	115	119	3	4	5		1	1	3	5	6
Mediterranean																		
Europe	115	123	96	26	21	19	141	144	115	12	6	13	6	3	2	18	9	15
Other Europe	65	57	55	15	22	15	80	79	70	10	11	5	5	8	2	15	19	7
Asia	23	10	15	5	1	2	28	11	17	2	6	27			1	2	6	28
America																		
Other	3	11	6	4			7	11	6		3		3			3	3	
Total	1296	1145	1228	825	740	693	2121	1885	1921	164	299	231	140	202	129	304	501	360

enviable position whereby syphilis serum antibody tests, other than reagin screening tests, were done in one laboratory, at the Institute of Medical and Veterinary Science, which resulted in a very accurate notification system together with standard methods and efficient control in serological tests. Accurate and consistent reporting of serological test results and accurate record-keeping of the serological history of syphilitic patients were possible. Now that syphilis serological tests are carried out in various other laboratories this position has altered, the main reasons being the difficulties in keeping

the syphilis registry up to date and the differing laboratory standards.

TYPES OF CONTACTS

In addition to friends or fiancés or casual contacts, a high number of sexual contacts are homosexual, 244 (15%) of 1606 cases with gonorrhoea and 29 (31%) of 94 cases of syphilis (Table 11).

CONTACT-TRACING

In 1977, of 2570 contacts of gonorrhoea 842 (32%) were not sought, mainly because of insufficient

Table 8 Occupation of notified cases of gonorrhoea and syphilis

Occupation	Gonorrhoea						Syphilis					
	Male		Female		Total		Male		Female		Total	
	1976	1977	1976	1977	1976	1977	1976	1977	1976	1977	1976	1977
Rural		41		3		44		11				11
Artist/entertainer		37		6		43		1				1
Professional	14	16	4		18	16		2				2
Technical		15		3		18						
Managerial	50	45	3	5	53	50	7	3			7	3
Skilled	168	176	13	14	181	190	6	9			6	9
Apprentice	13	31		2	13	33	1				1	
Semi-skilled	140	84	23	21	163	105	3	6	2		5	6
Unskilled	242	211	13	18	255	229	1	45	1	7	2	52
Clerical	121	143	188	134	309	277	21	18	11	6	32	24
Sales	78	98	49	67	127	165	7	17	4	1	11	18
Maritime												
Student { Primary												
Secondary	55	55	80	82	135	137	4	5	2	2	6	7
Tertiary												
Nursing	7	11	47	38	54	49	1		1		2	
Armed forces	8	14		1	8	15		5	1		1	5
Home duties			120	115	120	115			52	39	52	39
Prostitution			48	47	48	47			2	4	2	4
Retired	4	2	19	21	23	23		27	14	14	14	41
Unemployed/unknown	121	108	81	72	202	180	245	76	111	56	356	132
Teaching	6	20	7	7	13	27	3	3			3	3
Transport	68	72	4	6	72	78		3				3
Service worker	50	49	41	31	91	80			1		1	
Total	1145	1228	740	693	1885	1921	299	231	202	129	501	360

Table 9 Number of cases of syphilis by stage of disease (figures for aborigines in brackets)

Syphilis	Male			Female			Total		
	1975	1976	1977	1975	1976	1977	1975	1976	1977
Primary	45 (?)	56 (?)	20 (?)	13 (?)	18 (?)	3 (?)	58 (?)	74 (?)	23 (?)
Secondary	8 (?)	6 (?)	3 (?)	4 (?)	4 (?)	1 (?)	12 (?)	10 (?)	
Early active (other)	61 (53)	111 (94)	90 (37)	70 (45)	98 (77)	61 (41)	131 (98)	209 (171)	151 (78)
Total early	114 (53)	173 (94)	113 (39)	87 (45)	120 (77)	65 (41)	201 (98)	293 (171)	178 (80)
Late	2 (60)	27 (121)	2 (72)	4 (53)	14 (96)	2 (77)	6 (103)	41 (217)	
Old inactive	19 (4)	80 (19)	92 (22)	15 (6)	57 (16)	53 (30)	34 (10)	137 (35)	145 (52)
Not known	29 (3)	19 (8)	24 (11)	34 (2)	11 (3)	9 (5)	63 (5)	30 (11)	33 (16)
Total late	50 (7)	126 (27)	118 (33)	53 (8)	82 (19)	64 (36)	103 (15)	208 (46)	182 (69)
All syphilis	164 (60)	299 (121)	231 (72)	140 (53)	202 (96)	129 (77)	304 (103)	50 (217)	360 (149)

information. Of 1728 contacts sought, 1431 (82%) were found; of 1431 found, 929 (65%) were infected (Table 12). In 1977, of 120 contacts of syphilis 54 (45%) were not sought; of 66 contacts sought, 59 (90%) were found; and, of 59 contacts found, 26 (44%) were infected.

The ratio of male-to-female cases of gonorrhoea was 2:1 compared with 1.5:1 in 1976. This ratio indicates the efficiency of contact-tracing methods, the ratio falling as efficiency increases.

NOTIFICATION BY PRIVATE DOCTORS

Tables 13a and 13b show a static position as regards notifications of cases of gonorrhoea and syphilis by private practitioners, which may not change much under present conditions. Two areas of effort which may improve notifications are: (1) increased efforts to show undergraduates and graduates the reasons for, and importance of, early notification; and (2) an easier method of notification, namely, a simple notification form attached to an addressed, pre-paid envelope marked private and confidential to be used by all private practitioners and laboratories.

ATTENDANCES AT THE VENEREAL DISEASE CONTROL CENTRE

An increase from 12 674 to 14 204 (12% increase) patients occurred from 1976 to 1977 (Table 14); this is an increase in the daily average from 50 to 56 cases (12% increase), and means that from 30 to 90 patients were seen each day. With the present staffing levels medical officers have difficulty in maintaining adequate standards.

GONORRHOEA

Of 1738 notifications from the metropolitan area 1102 (63%) were seen at the VDCC (Table 15).

NON-SPECIFIC URETHRITIS

Non-specific urethritis is not readily distinguishable from gonorrhoea and other causes of urethritis in men without laboratory investigation, and although not a notifiable disease it is included in statistics from the UK and other countries. The total number of cases of non-specific urethritis seen at the VDCC in 1976 and 1977 are compared with that of male cases of gonorrhoea in Table 15.

Table 10 Sources of notifications for gonorrhoea and syphilis

	Gonorrhoea									Syphilis								
	Male			Female			Total			Male			Female			Total		
	1975	1976	1977	1975	1976	1977	1975	1976	1977	1975	1976	1977	1975	1976	1977	1975	1976	1977
Private doctors	475	414	407	214	228	197	689	642	604	38	93	87	37	59	45	75	152	132
RAH and VDCC clinics	691	694	709	520	434	433	1211	1038	1142	32	44	76	21	18	11	53	62	87
RAH other	2	6	4	18	22	14	20	28	18	6	11	3	7	7	7	13	18	10
QEH	20	16	17	36	18	28	56	34	45	7	5	4	4	9	8	11	14	12
QVH				9	8	6	9	8	6				2	1	2	2	1	2
Port Adelaide clinic	93	90	80	11	24	10	104	114	90	10	6	6		2		10	8	6
Armed forces	1		1				1		1									
Prisons	1		1	1														
Outback RFDS, AIM etc.	1	2					1	2		58	129	47	59	103	52	117	232	99
Other	12	13	9	16	6	5	28	19	14	13	11	8	10	3	4	23	14	12
Total	1296	1145	1228	825	740	693	2121	1885	1921	164	202	129	140	202	129	304	501	360

Table 11 Types of contacts noted (other than aboriginals in reserves)

Contacts	Gonorrhoea									Syphilis								
	Male			Female			Total			Male			Female			Total		
	1975	1976	1977	1975	1976	1977	1975	1976	1977	1975	1976	1977	1975	1976	1977	1975	1976	1977
Casual	850	676	662	620	549	397	1470	1216	1059	52	45	38	23	32	12	75	77	50
Marital partners	107	114	77	85	75	60	192	189	137	9	6	3	9	6	5	18	12	8
Defacto partners	24	27	10	23	31	12	47	58	22	1	4	1	1	3		2	7	1
Friend/fiancé	630	501	571	486	506	531	1116	1007	1102	10	26	23	6	19	9	16	45	32
Homosexual	97	109	244				97	109	244	11	62	29				11	62	29
Prostitute	26	41	40				26	41	40	1	4					1	4	
Mother	1	1	2		2		1	3	2		1						1	
Total	1735	1469	1606	214	1154	1000	2949	2623	2606	84	148	94	39	60	26	123	208	120

Table 12 *Contact-tracing*

<i>No. of contacts</i>	<i>Gonorrhoea</i>								<i>Syphilis</i>							
	<i>Contacts of male cases</i>				<i>Contacts of Female cases</i>				<i>Contacts of male cases</i>				<i>Contacts of Female cases</i>			
	<i>Female</i>		<i>Male</i>		<i>Male</i>		<i>Total</i>		<i>Female</i>		<i>Male</i>		<i>Male</i>		<i>Total</i>	
	1976	1977	1976	1977	1976	1977	1976	1977	1976	1977	1976	1977	1976	1977	1976	1977
Noted	1360	1362	109	244	1154	1000	2623	2570	86	65	62	29	60	26	208	120
Not sought	458	449	45	70	504	323	1007	842	27	33	32	10	14	11	73	54
Sought not found	207	202	15	53	83	78	305	333	18	5	8		8	2	34	7
Found	695	711	49	121	567	599	1311	1431	41	27	22	19	38	13	101	59
Diagnosed as infected	404	416	28	87	423	426	855	929	22	11	5	9	26	6	53	26
Treated epidemiologically	270	141	20	19	107	104	397	264	13	6	5	4	5	2	23	12

Table 13a *Number of private doctors notifying cases of gonorrhoea or syphilis or both (numbers given in brackets refer to doctors notifying cases for the first time)*

<i>Year</i>	<i>Area of practice</i>			<i>No. of Doctors previously involved*</i>	<i>PMS Doctors†</i>
	<i>Metropolitan</i>	<i>Country</i>	<i>Total</i>		
1966	10	7	17		560
1967	51	28	79	NA	580
1968	121	38	159	NA	594
1969	140	39	179	131	615
1970	134	38	172	191	623
1971	185 (52)	57 (31)	215 (83)	215	638
1972	164 (79)	69 (35)	233 (114)	311	658
1973	225 (141)	60 (17)	285 (158)	245	690
1974	293 (96)	72 (22)	365 (118)	221	700
1975	270 (85)	73 (29)	343 (114)	241	700
1976	284 (90)	69 (21)	353 (111)	230	700
1977	279 (84)	71 (19)	350 (103)	235	

*Doctors who have notified cases previously but not in the particular year

†Doctors on Pensioner Medical Service Register at June 30 1977

NA not applicable

Table 13b *Number of cases of gonorrhoea and syphilis notified by general practitioners*

<i>Year</i>	<i>Gonorrhoea</i>		<i>Syphilis</i>	
	<i>Males</i>	<i>Females</i>	<i>Males</i>	<i>Females</i>
1975	475	214	38	37
1976	414	228	93	59
1977	407	197	87	45

Table 14 *Number of cases seen at the Venereal Diseases Control Centre in 1977 (figures for 1976 are given in brackets)*

	<i>Jan.</i>	<i>Feb.</i>	<i>Mar.</i>	<i>Apr.</i>	<i>May</i>	<i>Jun.</i>	<i>Jul.</i>	<i>Aug.</i>	<i>Sep.</i>	<i>Oct.</i>	<i>Nov.</i>	<i>Dec.</i>	<i>Total</i>
Male patients													
Total	678	858	748	610	718	656	598	601	869	769	838	662	8605 (7507)
Average/day	35	43	33	34	34	31	28	26	40	38	38	33	34.4 (29.8)
New patients/episodes	378	426	366	311	365	327	289	354	451	380	418	349	4414 (3884)
Average/day	20	21	16	17	17	16	14	15	21	19	19	18	17.7 (15.5)
Female patients													
Total	405	503	512	426	495	495	408	518	522	463	523	329	5599 (5167)
Average/day	21	25	22	24	24	24	19	23	24	23	24	17	22.5 (20.4)
New patients/episodes	187	225	186	163	192	163	168	206	234	204	202	137	2267 (2168)
Average/day	10	11	8	9	9	8	8	9	11	10	9	7	9.0 (8.5)
Total no. of patients													
Total	1083	1361	1260	1036	1213	1151	1006	1119	1391	1232	1361	991	14 204 (12 674)
Average/day	56	64	55	58	58	55	47	49	64	61	62	50	56.5 (50.2)
New patients/episodes	565	651	552	474	557	490	457	560	685	584	620	486	6681 (6052)
Average/day	30	32	24	26	26	24	22	24	32	29	28	25	26.8 (23.2)

Table 15 Number of notified cases of gonorrhoea and non-specific urethritis from different sources

	<i>Country</i>		<i>VDCC</i>		<i>Metropolitan</i>		<i>Total (1977)</i>
	1976	1977	1976	1977	1976	1977	
Gonorrhoea							
Male cases		133	589	681		1095	1228
Female cases		50		421		643	693
Total		183		1102		1738	1921
Non-specific urethritis			1206	1375			