SURVEILLANCE OF SEXUALLY TRANSMISSIBLE DISEASE IN QUEENSLAND, 1988 TO 1993

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Introduction

This paper describes the basic epidemiological features of sexually transmissible diseases (STD) in Queensland during the years 1988 to 1993, as revealed by the notifications system of Queensland Health. It identifies trends in the number of notified cases of sexually transmissible disease in Queensland during the reference period. It also identifies areas and age groups which may benefit from future health program interventions. In addition, within the limits of the notification system, these data provide information on the impact of previous health promotion and health service strategies directed towards improving the sexual health of the population.

This information is derived from notifications of STDs reported to the Communicable Diseases Branch and the AIDS Medical Unit of Queensland Health. The information requested on notification forms included basic demographic information about the patient, details of ethnic origin, the source of infection and details of the notifying doctor and laboratory. A system of laboratory based notification has been in place in Queensland since 1988. The only exception is that initial episodes of genital herpes infection have been notified by the attending doctor rather than laboratory sources since 1991 (John Sheridan, personal communication).

The Communicable Diseases Branch of Queensland Health distributes a weekly report to Local Authorities on the number of reported cases of notifiable diseases by Local Authority Area (LAA). However, for reasons of confidentiality, only the Queensland totals for sexually transmissible diseases are included in these reports. Within this present form of information distribution there is little opportunity to calculate, understand or address the issues of sexually transmissible disease at a local level.

There are certain unquantifiable biases which affect these notification data. These relate to the patients' symptoms and knowledge of disease, as well as their opportunities to access and utilise health care services. Notifications are also dependent upon a medical practitioner's decision to test for the disease. In addition, there is inadequate information on the frequency of testing of individuals, multiple notification of cases, the collection site, the clinical stage of the disease and whether the test was requested for screening or clinical purposes. In many cases, observed increases in notification rates may have arisen from the recent shift to laboratory based notification procedures. The system is also dependent upon laboratories' compliance in notifying positive test results.

The completeness and accuracy of the information provided on request or notification forms is vital to the validity of the notification data. However, the usefulness of notification information is limited when request forms are not fully completed. Details on variables such as ethnic origin are frequently incomplete and are not useful in analysis for this reason. Information is also limited by factors such as patients' use of pseudonyms and the reluctance of some notifiers to include identifying information for sexually transmissible diseases.

There are other limitations to the interpretation of STD notifications due to the nature of the available diagnostic tests. Reagin tests for syphilis are subject to biological false positive results, while treponemal tests may remain positive for years after successful treatment. In such instances, follow up testing of treated cases may result in a second notification of a case of syphilis.

During this period in Queensland, hepatitis B notifications were recorded on the basis of positive results for hepatitis B surface antigen, and hepatitis C on the basis of positive tests for hepatitis C antibody. It is not possible to use these results to distinguish between acute, chronic and previous infections of these diseases. Therefore, accurate calculation of incidence was not possible and the notifications could only be interpreted in terms of prevalence and the frequency of testing.

Thus, it is possible to place too great a reliance on the actual numbers involved in this paper so caution should be exercised in interpreting the data. In fact, given such an imperfect system, the numbers in this paper probably reflect the 'tip of the iceberg' of sexually transmissible disease in Queensland. With this *caveat* in mind, statistical analysis has been confined to age adjusting rates within the populations. There has been no attempt to prove that one particular area is significantly different from another, although in some cases the differences may be self evident.

Information contained in this paper includes trends in notification rates of each disease for the Queensland population during the period 1988 to 1993, presented in graphical form; and the 1993 age adjusted notification rates for the Queensland Health regions (based on the postcode of residence of the patient), presented in maps. Age group specific rates for males and females for 1993 are presented in graphical form for the Queensland population.

Chancroid

This disease is the result of an infection by the organism *Haemophilus ducreyi* and is relatively rare in Australia[1]. During the period 1988 to 1993 there were two notifications of chancroid in Queensland. This compares with

Figure 1. Unadjusted rate of notification of chlamydia per 100,000 population, Queensland, 1988 to 1993, by year and sex

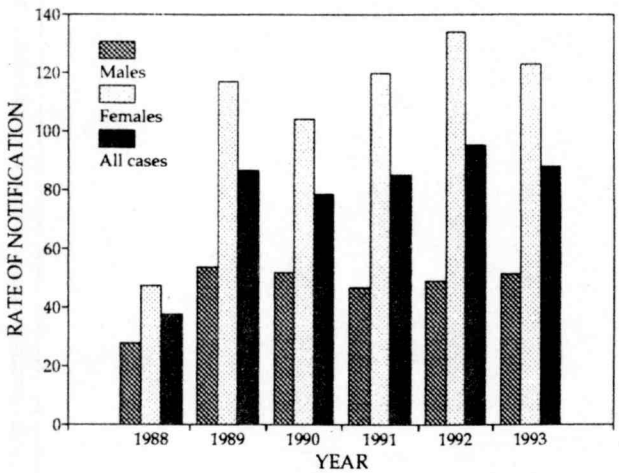
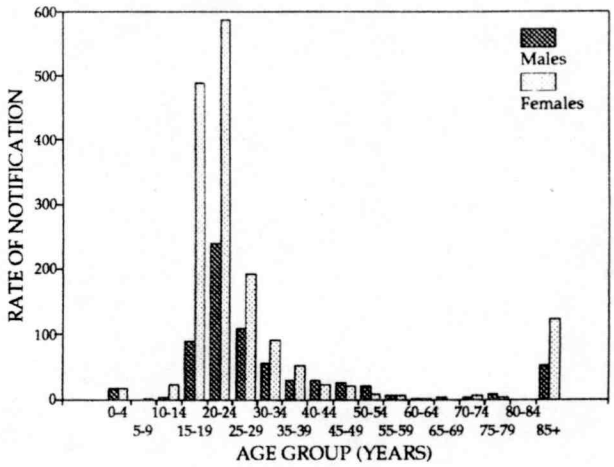


Figure 3. Rate of notification of chlamydia per 100,000 population, Queensland, 1993, by age group and sex



five notified infections in 1992 in Australia[2] and one in 1993[3].

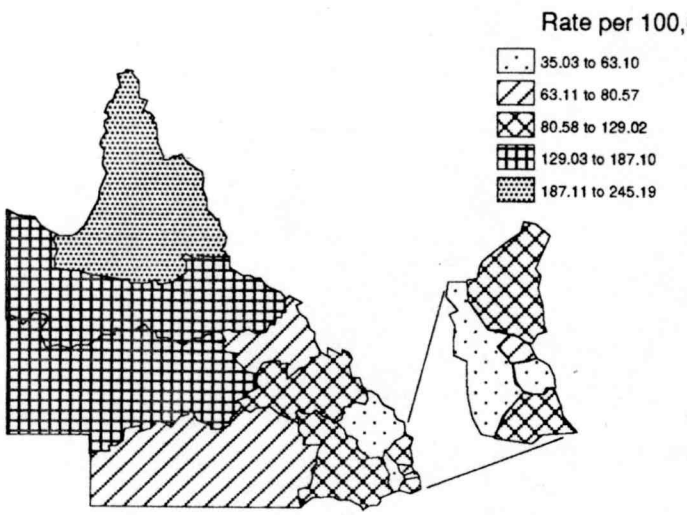
Chlamydia

Infection with *Chlamydia trachomatis* is one of the most commonly reported sexually transmissible diseases in both Australia[2] and the United States[4] and may result in serious complications including pelvic inflammatory disease, infertility, ectopic pregnancy and neonatal infections. The rate of notification of chlamydial infection to the National Notifiable Diseases Surveillance System (NNDSS) in 1993 was 55.8 per 100,000 population[3]. The notification rate for chlamydial infection in Queensland in 1993 was 87.6 cases per 100,000. The higher notification rate for chlamydial infection in Queensland partially reflects differing notification practices and case definitions of the Australian States and Territories[2].

The Queensland data show increasing notification rates for chlamydial infection in the period 1988 to 1993 (Figure 1). The total number of notifications increased from 1090 to 2546 over the six year period under study. More women were notified with the condition; the male:female rate ratio was 0.44/1.00 for the six year period. Given the often asymptomatic nature of chlamydial infection in women, these figures may reflect diagnoses in asymptomatic women being screened for the disease[1].

Notification rates for chlamydial infection for the Queensland Health Regions in 1993 are presented in Figure 2. Notification rates increased in all regions from 1988 to 1993, but were consistently highest in the Peninsula and Torres Strait Region during this period.

Figure 2. Age adjusted rate of notification of chlamydia per 100,000 population, Queensland, 1993, by health region



Age group and sex specific rates for chlamydia notifications in 1993 for the Queensland population are presented in Figure 3. There were high rates of notification of chlamydial infection throughout the 15 to 29 years age groups. The highest age group specific rate in the Queensland population occurred in females in the 20 to 24 years age group (587 cases per 100,000 population) in 1993. This compares with a peak Australian rate in 20-24 year old females of 366.1 per 100,000 population[3].

Queensland rates of chlamydial infection notification increased during the period 1988 to 1992, decreasing slightly in 1993. It is not possible to determine from these data whether this represented an

Figure 4. Unadjusted rate of notification of donovanosis per 100,000 population, Queensland, 1988 to 1993, by year and sex

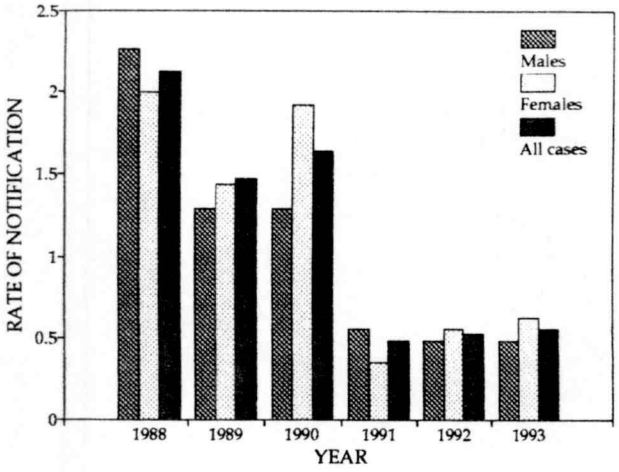
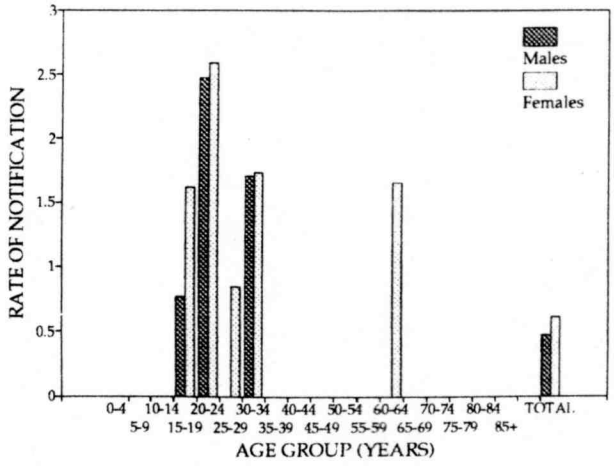


Figure 6. Rate of notification of donovanosis per 100,000 population, Queensland, 1993, by age group and sex



actual increase in incidence of the disease, or improved screening and notification procedures. Both factors may be responsible for the increase in notification rates. There is certainly no evidence of a large decline in chlamydial notifications in Queensland during this period. This disease thus remains an important issue for sexual health and public health practitioners.

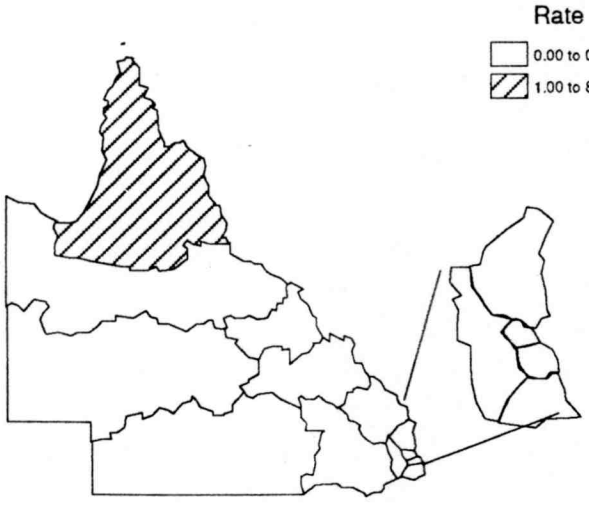
Donovanosis

Donovanosis (granuloma inguinale) is a progressive, destructive disease caused by *Calymmatobacterium granulomatis*. It is uncommon in Australia overall but is endemic among the indigenous population of the northern part of the country. Clinically, it presents as painless ulcers on the genitalia which may become infected and lead to scarring[1]. In 1993 the NNDSS notification rate for this infection was 0.7 per 100,000 population[3]. In comparison, the notification rate for this condition in Queensland in 1993 was 0.55 per 100,000 population.

The Queensland data reveal an overall decline in the notification rates for donovanosis in the period 1988 to 1993 (Figure 4). The annual number of notifications fell from 62 to 16 cases during that time. The notifications were approximately equally distributed between the sexes with a male:female rate ratio of 0.93/1.00 for the six year period.

Donovanosis was notified in several of the Queensland Health Regions in the period 1988 to 1993. As in 1993 (Figure 5), most of the notifications were from Peninsula and Torres Strait Region.

Figure 5. Age adjusted rate of notification of donovanosis per 100,000 population, Queensland, 1993, by health region



Age group specific rates for donovanosis notifications in Queensland in 1993 are depicted in Figure 6. These infections were notified mainly among the 15 to 34 years age groups. The highest age specific rates occurred in 20 to 24 year old females in 1993 (2.47 per 100,000). However, the small numbers involved make this difficult to interpret.

These data show that there was a decline in notifications of donovanosis infection in Queensland during the period 1988 to 1993. However, it is important to consider the influence of the biases inherent in notification data before hastening to the conclusion that these data represent an actual decline in cases of donovanosis. It is not possible to quantify these biases, hence this paper is unable to interpret these data as representative of a real decline in case numbers of donovanosis. This

Figure 7. **Unadjusted rate of notification of genital herpes per 100,000 population, Queensland, 1988 to 1993, by year and sex**

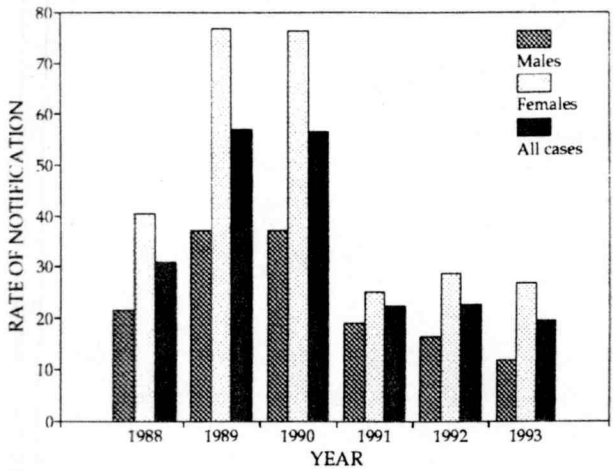
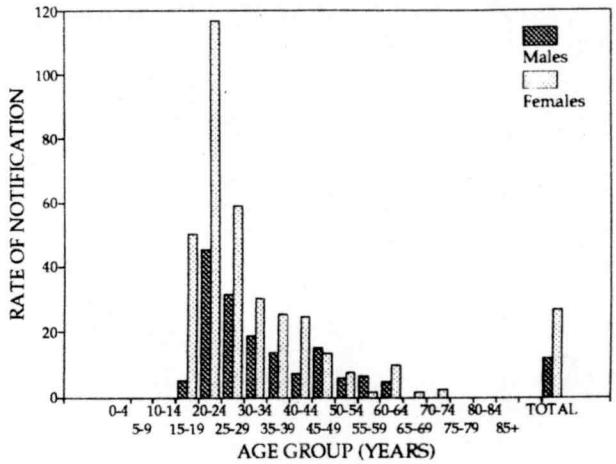


Figure 9. **Rate of notification of genital herpes per 100,000 population, Queensland, 1993, by age group and sex**



disease remains an important sexual health problem, particularly in the Peninsula and Torres Strait Health Region.

Genital herpes

Genital herpes is a common sexually transmissible disease caused by herpes simplex virus (HSV) types 1 and 2. Infection is characterised by painful vesicular lesions on the genitalia. Recurrence of these lesions is a common and disabling feature of the disease. Neonatal transmission of HSV is associated with high morbidity and mortality[1]. Asymptomatic infection may occur, hence notification rates for this disease will underestimate the true rates in the community. Genital herpes notifications are not compiled nationally for Australia, so there are no national notification rates for comparison.

The Queensland data showed a decline in the notification rates for genital herpes during the period 1988 to 1993 (Figure 7). Notifications fell during this time from 901 to 564 cases. This may be explained by the change in policy regarding the reporting of initial infections, which have been notifiable only from medical practitioners, rather than laboratories, since 1991. More females than males were notified with genital herpes during the six year period; the male:female rate ratio was 0.53/1.00.

Regional notification rates of genital herpes in 1993 are depicted in Figure 8. Low rates of notification were reported in the Peninsula and Torres Strait Region, which contrasts with that region's rates for other STDs. High rates of notification of genital herpes in the Brisbane North region may be explained by the presence of a large sexual health clinic in the region.

Figure 8. **Age adjusted rate of notification of genital herpes per 100,000 population, Queensland, 1993, by health region**

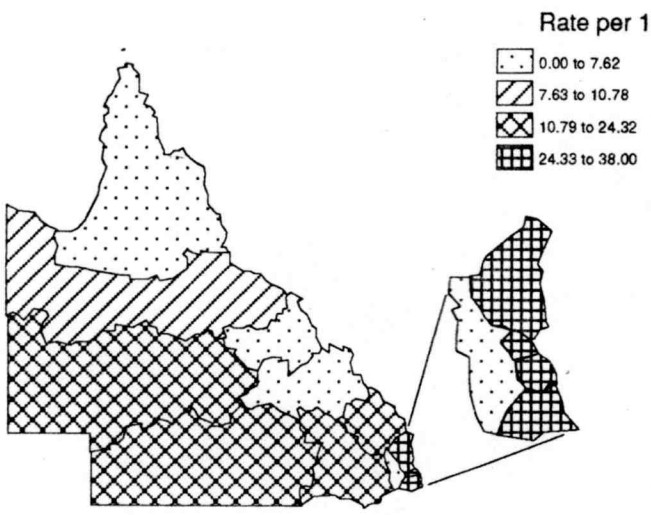


Figure 9 depicts the age group and sex specific rates for genital herpes notifications in 1993. The majority of cases were notified from the 15 to 29 years age groups. In 1993 the highest age specific rate in the Queensland population occurred in females aged 20 to 24 (116.7 cases per 100,000 population; an increase from 92.5 cases per 100,000 population in 1992).

Genital herpes is an important STD in Queensland. Although notification rates fell during the period 1988 to 1993, this may be explained by changes in notification policy. It is not possible to identify a reduction in the incidence of this condition from these data.

Figure 10. Unadjusted rate of notification of gonorrhoea per 100,000 population, Queensland, 1988 to 1993, by year and sex

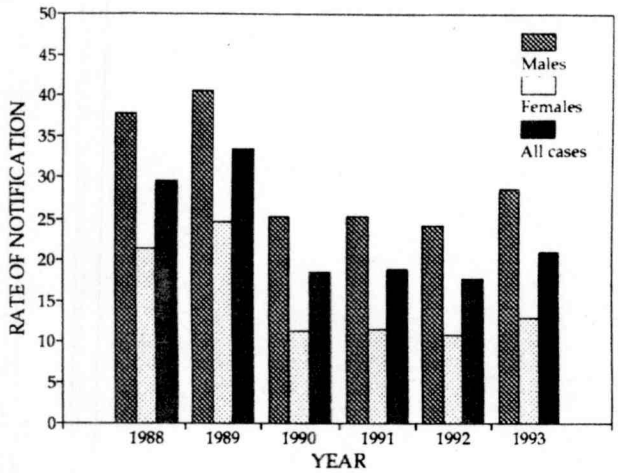
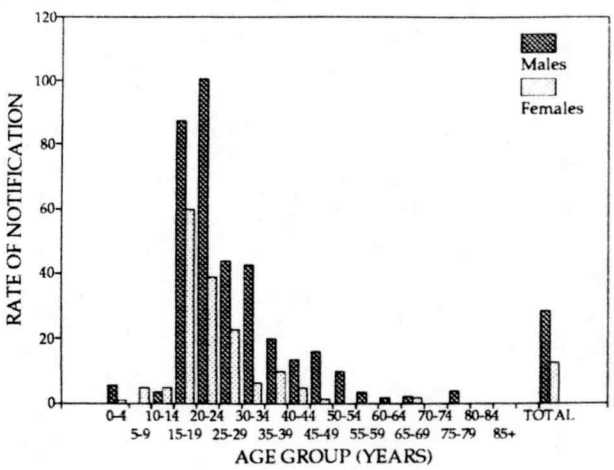


Figure 12. Rate of notification of gonorrhoea per 100,000 population, Queensland, 1993, by age group and sex



Gonorrhoea

Gonorrhoea is a common sexually transmissible disease which mainly affects the mucosal and glandular structures of the genital tract. Infection may involve the oropharynx, rectum and conjunctiva and the disease may spread systemically to joints and skin[1].

In 1993 the Australian adjusted notification rate for gonorrhoea was 15.9 cases per 100,000 population[3]. The Queensland data showed an overall decline in gonorrhoea notifications from 864 in 1988 to 606 in 1993 (Figure 10). However, the 1993 Queensland notification rate of 20.9 cases per 100,000 population, was an increase from the 1992 figure of 17.6 cases per 100,000. Gonorrhoea was notified more often in males than females during the six year period, with a male:female rate ratio of 1.98/1.00.

Notification rates of gonorrhoea infection for the Queensland Health Regions in 1993 are depicted in Figure 11. The Peninsula and Torres Strait Region consistently reported the highest rates of gonorrhoea during this period. The Northern Region also demonstrated consistently high rates. Although notification rates fell in some regions, a number of other regions (South West, Darling Downs, South Coast, Wide Bay and Brisbane South) had minor increases in notification rates.

Queensland age group and sex specific notification rates for 1993 are described in Figure 12. The highest age specific notification rate occurred in 20 to 24 year old males (100.4 cases per 100,000 population; an increase from the 1992 figure of 89.7 cases per 100,000 population).

A decline in gonorrhoea notification rates was noted in Queensland during the years 1988 to 1992. However, the decline was reversed in 1993 with a rise in notification rates for this disease. Gonorrhoea remains an important sexually transmissible disease in Queensland.

Figure 11. Age adjusted rate of notification of gonorrhoea per 100,000 population, Queensland, 1993, by health region

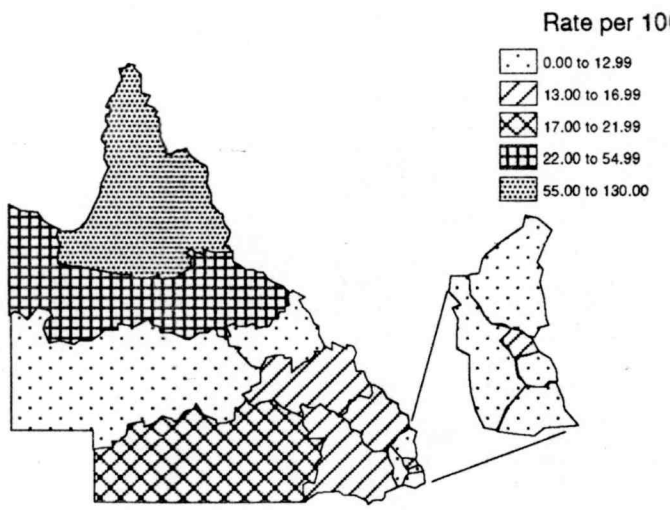


Figure 13. Unadjusted rate of notification of hepatitis B per 100,000 population, Queensland, 1988 to 1993, by year and sex

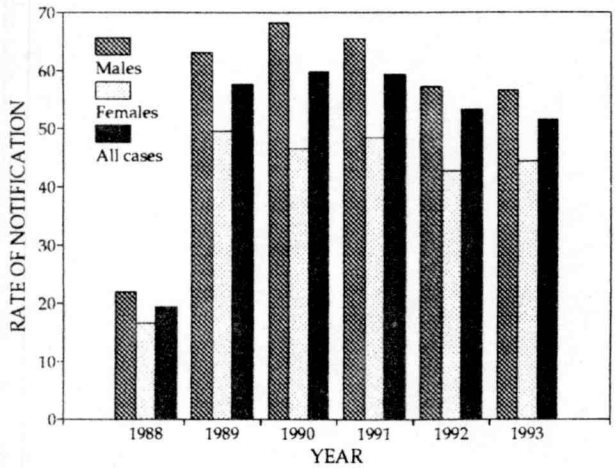
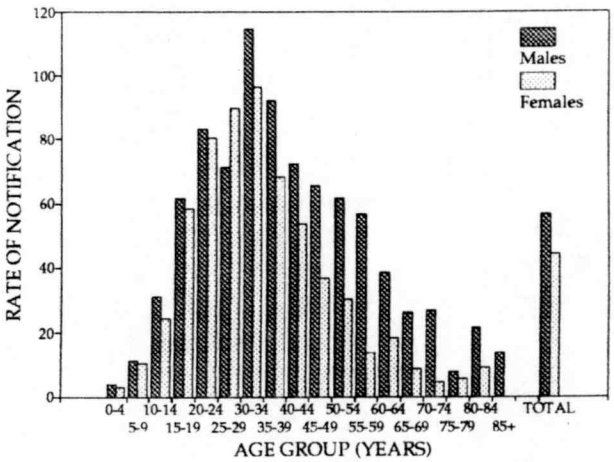


Figure 15. Rate of notification of hepatitis B per 100,000 population, Queensland, 1993, by age group and sex



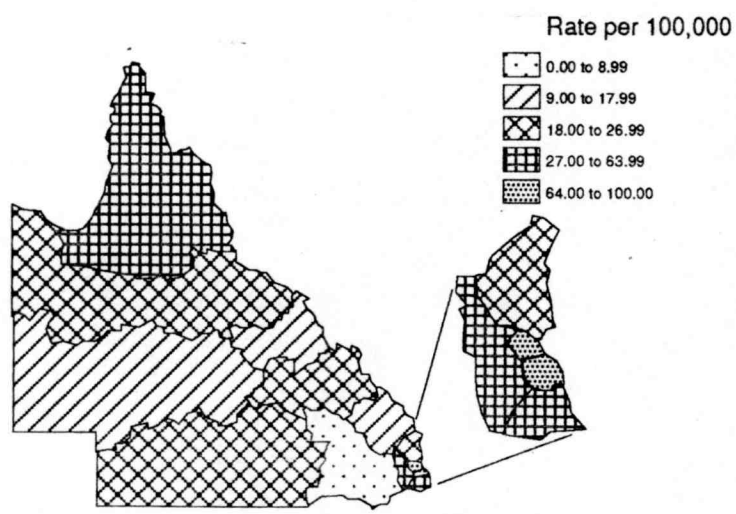
Hepatitis B

Hepatitis B virus infection is transmissible through sexual intercourse and exposure to blood or body fluids, for example by sharing needles for injecting drug use. Transmission from mother to infant in the perinatal period and by close personal contact also occurs. The sequelae of hepatitis B infection can be serious and include chronic hepatitis, cirrhosis and hepatocellular carcinoma. In Australia about 5% of the Caucasian population has markers of previous hepatitis B infection and up to 0.3% are chronic carriers of the disease. The rates are higher in the Aboriginal, Torres Strait Islander and South-East Asian-born populations with up to 90% having had hepatitis B infection and up to 30% being carriers of the disease[1].

Queensland Health's notification system recorded those patients identified as having positive serology for hepatitis B surface antigen. There were no records maintained on results of tests for acute hepatitis B. Consequently, it was not possible to distinguish incident cases from other cases and the majority of these notifications probably reflect prevalence of and testing patterns for the disease. Hence, fluctuations in notification rates may reflect altered rates of testing for the disease, rather than changes in incidence.

The 1993 NNDSS notification rate for hepatitis B infection (unspecified as to whether the case was an incident, chronic or past infection) was 38.8 cases per 100,000 population[3]. In comparison, the 1993 Queensland notification rate was 51.6 cases per 100,000 population. The Queensland data show a slight decline in notification rates for hepatitis B infection in recent years after an initial sharp rise (Figure 13). The total number of notifications of hepatitis B rose from 561 in 1988 to 1733 in 1990 and fell to 1499 cases in 1993. There were higher rates of males notified with the disease with a male:female rate ratio of 1.35/1.00 for the six year period.

Figure 14. Age adjusted rate of notification of hepatitis B per 100,000 population, Queensland, 1993, by health region

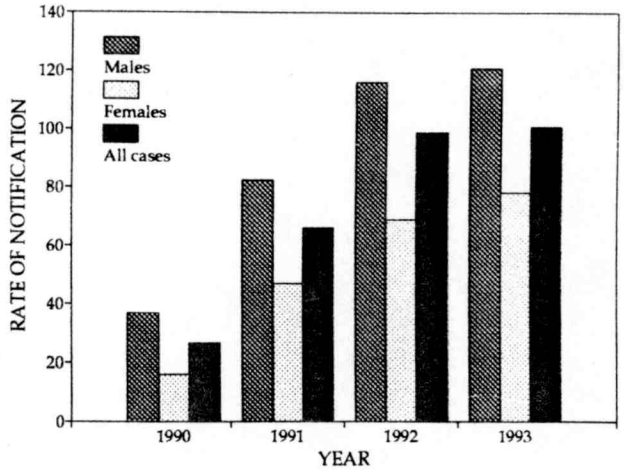


Notification rates of hepatitis B for the Queensland Health Regions in 1993 are mapped in Figure 14. From 1988 to 1993, Brisbane North, Brisbane South, and the Peninsula and Torres Strait Regions had consistently high notification rates for this disease.

Figure 15 describes the age group and sex specific rates for hepatitis B notifications in the Queensland population for 1993. The highest rate was among 30 to 34 year old males (114.7 cases per 100,000 population).

Notification rates for hepatitis B rose substantially and then declined marginally in the Queensland population in recent years. It is difficult to place any interpretation upon

Figure 16. Unadjusted rate of notification of hepatitis C per 100,000 population, Queensland, 1988 to 1993, by year and sex



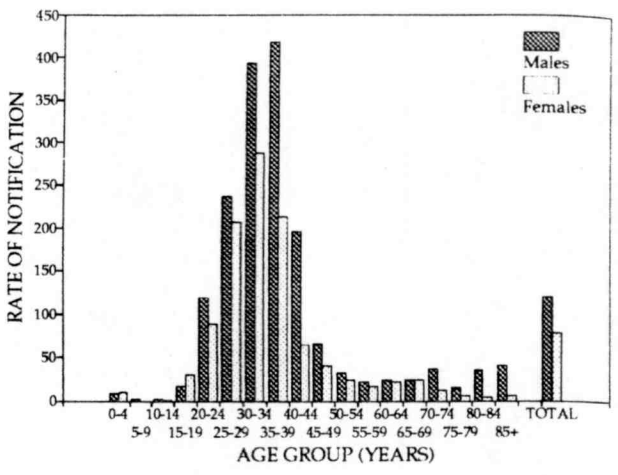
these data as they are more likely to reflect the prevalence of the disease and testing patterns than they are to reflect incidence.

Hepatitis C

The hepatitis C virus is readily transmissible through blood and blood products. Those at risk of hepatitis C infection include injecting drug users and persons who received blood products prior to the introduction of screening of blood donations for the virus. The risk of transmission through sexual intercourse is thought to be low in most situations, but can be higher if the person carrying HCV is also infected with HIV or is in the early stages of HCV infection or has very active HCV liver disease[5].

Queensland notification data for hepatitis C are available from 1990. Hepatitis C infection was notified on positive test results for hepatitis C antibody, thus incident cases have not been able to be distinguished from prevalent cases. Hence, it is most likely that the majority of these notifications reflect prevalence of and testing patterns for the disease. Consequently, increases in notification rates probably reflect increased testing for the disease[2].

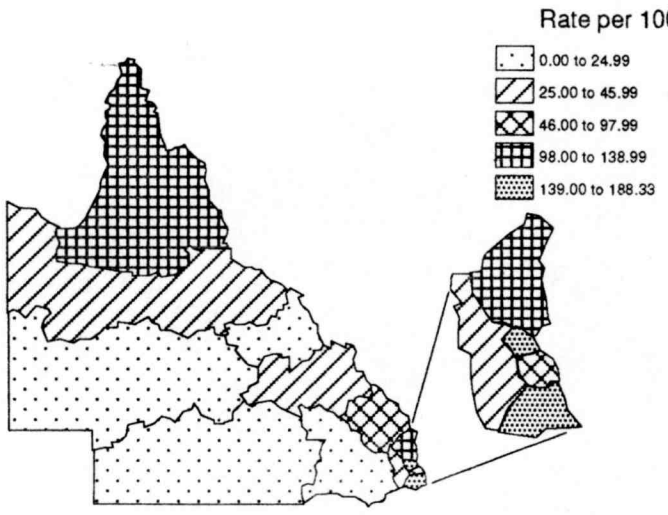
Figure 18. Rate of notification of hepatitis C per 100,000 population, Queensland, 1993, by age group and sex



Hepatitis C (unspecified) had the highest notification rate of any disease notified to the NNDSS in 1993[3], of 73.9 cases per 100,000 population. The Queensland rate in 1993 was 100.7 cases per 100,000 population. The male:female rate ratio for the period 1990 to 1993 was 1.7/1.00. The number of notified cases increased from 765 in 1990 to 2928 in 1993 (Figure 16).

Notification rates increased in most Queensland Health Regions in the period 1990 to 1993, probably reflecting increased testing for the disease. The 1993 regional rates indicate a higher prevalence of infection and/or testing in the Brisbane North, South Coast and the Peninsula and Torres Strait Regions (Figure 17).

Figure 17. Age adjusted rate of notification of hepatitis C per 100,000 population, Queensland, 1993, by health region



Queensland age group and sex specific notification rates for hepatitis C infections in 1993 are depicted in Figure 18. The age group specific rates began to increase in the 15 to 19 years age group. These rates increased substantially in the 20 to 24 years age group and peaked in the 30 to 39 years age groups. A similar pattern was noted for age group specific Australian notification rates[3]. In 1993, the Queensland rates for the 30 to 34 years age group were almost twice the Australian rates of 232.8 per 100,000 males and 138.3 per 100,000 females[3].

Hepatitis C is an increasingly recognised public health problem in Queensland. However, notification

Figure 19. Unadjusted rate of notification of HIV infection per 100,000 population, Queensland, 1988 to 1993, by year and sex

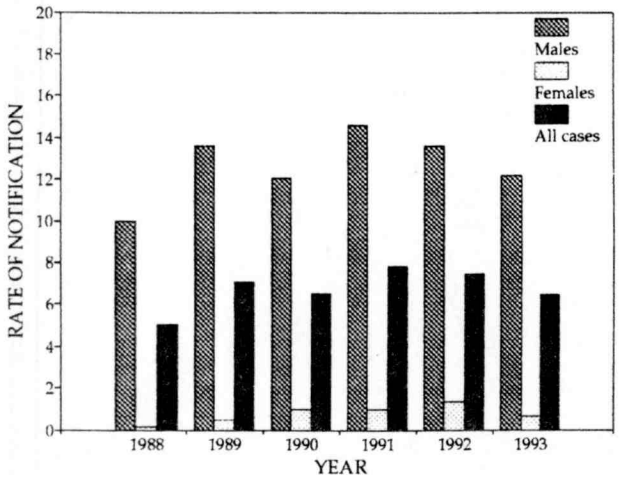
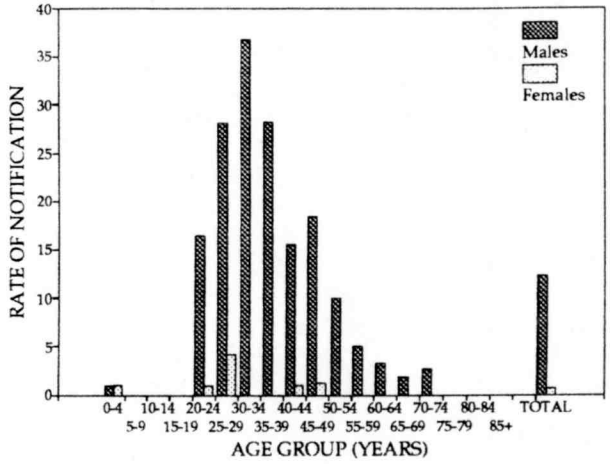


Figure 21. Rate of notification of HIV infection per 100,000 population, Queensland, 1993, by age group and sex



data for this condition are difficult to interpret and at best may give some indication of the prevalence of the disease in communities. However, the tendency for these data to reflect the frequency of testing for the disease cannot be over-emphasised.

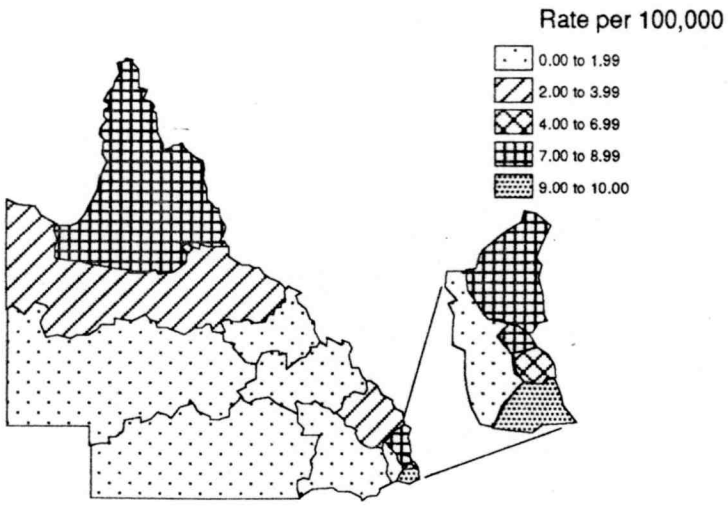
Human immunodeficiency virus

Human immunodeficiency virus (HIV) notification data are maintained by the AIDS Medical Unit of Queensland Health. Information published in this paper is based on the first notification of the condition in Queensland; the data may include patients previously notified in other States. This paper does not quantify the impact of interstate migration on these notification rates.

The notification data show an increase in the number of new HIV diagnoses reported annually in Queensland during the last six years (Figure 19). The total number of notifications rose from 147 in 1988 to 227 in 1991 and declined to 187 in 1993. The condition was predominantly notified among males with a male:female rate ratio of 16.5/1.00 for the six year period. However, a small increase in notifications of HIV infection occurred in females in Queensland during this time period.

Notification rates for the Queensland Health Regions in 1993 are presented in Figure 20. The highest notification rates were reported from Peninsula and Torres Strait, South Coast and Brisbane North Regions. Notification rates increased in most regions during the period 1988 to 1993. The highest regional notification rate for the total period 1988 to 1993 was 12.8 per 100,000 population in the Peninsula and Torres Strait Region.

Figure 20. Age adjusted rate of notification of HIV infection per 100,000 population, Queensland, 1993, by health region



There is some evidence that a proportion of this increase in HIV notifications is the result of migration of HIV positive patients from interstate and that notifications of infections acquired in Queensland are decreasing[3]. However, the rise in new notifications probably does represent an increase in the number of persons living with HIV infection in the Queensland community. As such, it represents an important future cost in terms of health services in this State and an important issue for further preventative education. Although the notifications of HIV infection have fallen recently, the notification rates in Queensland have increased since 1988 and with it the potential for transmission in the Queensland community.

Age group and sex specific notification rates for HIV infection in the Queensland population for 1993 are depicted in Figure 21. The highest age specific notification rate was in the 30 to 34 year old male population (36.8 per 100,000). The trend over the last five years has been towards an increase in notification rates in most age groups, with the greatest increases occurring in the 25 to 34 years age group. There has been a smaller, recent rise in the 20 to 24 year age group. This may reflect a change in the age groups affected or it may reflect a shift in the age at first notification.

HIV infection is the most serious of the sexually transmissible diseases currently affecting our society. At present, the only option available to combat this disease is to emphasise the importance of prevention. The notification data for HIV infection in Queensland over the last five years suggest that new infections are continuing to occur.

Lymphogranuloma venereum

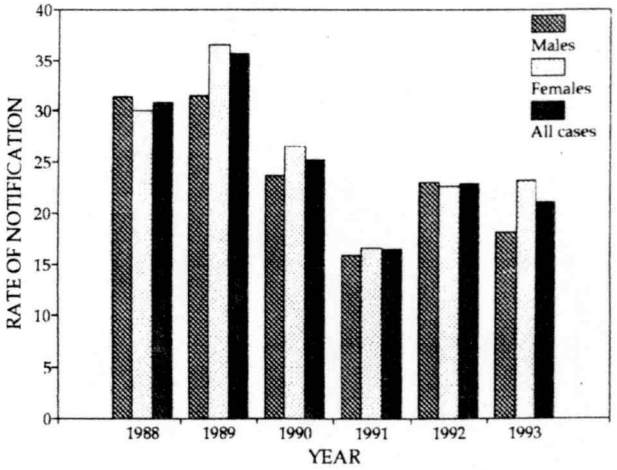
This is a condition caused by serotypes L1, L2, L3 of *Chlamydia trachomatis*, usually encountered in the tropics[1]. It begins as a small painless vesicle and can result in inguinal lymphadenopathy and rectal strictures. There were no cases of this infection notified to Queensland Health in the period 1988 to 1993. The National Health and Medical Research Council notes that the condition may be under-reported and misdiagnosed because of the minor, transient initial symptoms and a low index of suspicion for the disease among practitioners[1].

Syphilis

Syphilis is a sexually transmissible disease caused by the spirochaete *Treponema pallidum*. It has three clinical stages, but is mainly identified in Australia from the primary lesion (chancre) or through syphilis serological testing conducted for screening or clinical purposes[1]. Reference has been made to the serological problems in notifications of syphilis and the bias towards multiple notifications. However, Queensland Health's case definition of a titre greater than 1/8 tends to select cases with recently acquired infection (J Patten, personal communication). The Queensland data do not give an indication of the clinical stage of the disease, which is an important limitation to consider in interpretion.

The 1993 NNDSS notification rate for syphilis was 13.1 cases per 100,000 population[3]. This compares with the 1993 Queensland rate of 21.1 cases per 100,000 population. The Queensland data showed a decline until 1991, followed by a recent rise in notification rates between 1991 to 1993 (Figure 22). The total number of notifications fell from 1034 in 1989 to 480 in 1991, rising again to 614 in 1993. Slightly more women than men were notified with the disease; the male:female rate ratio for the period 1988 to 1993 was 0.93/1.00.

Figure 22. Unadjusted rate of notification of syphilis per 100,000 population, Queensland, 1988 to 1993, by year and sex



Syphilis notification rates for the Queensland Health Regions for 1993 are presented in Figure 23. The Peninsula and Torres Strait Region consistently had the highest notification rates for syphilis during this period. Although notification rates fell by 44% in the Peninsula and Torres Strait Region over the six years from 1988 to 1993, the rate in this region remained more than eight times the national rate in 1993. Notification rates increased in Northern, Wide Bay, Darling Downs, Sunshine Coast, South Coast, West Moreton and Brisbane South Regions during the six years. Therefore,

Figure 23. Age adjusted rate of notification of syphilis per 100,000 population, Queensland, 1993, by health region

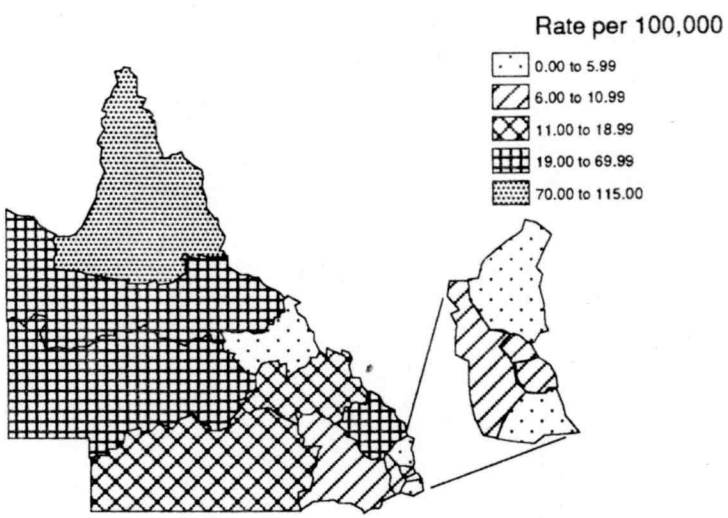
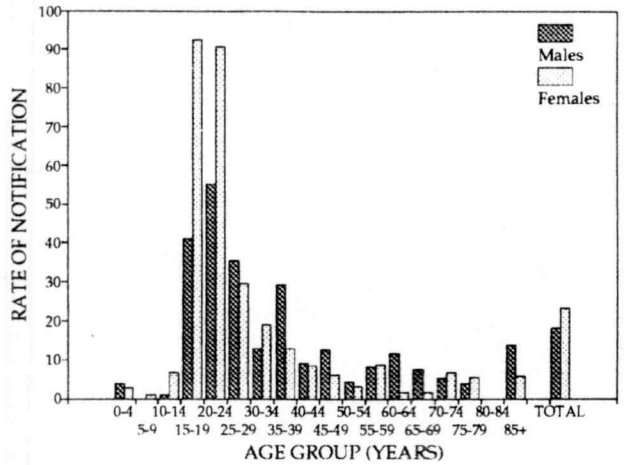


Figure 24. Rate of notification of syphilis per 100,000 population, Queensland, 1993, by age group and sex



when examining the overall Queensland figures, it is important to realise that the large reduction in notification rate in the Peninsula and Torres Strait Region obscures the increased rates in many other regions.

Queensland age group and sex specific notification rates for syphilis in 1993 are depicted in Figure 24. The highest rate in 1993 was in 15 to 19 year old females (92.4 cases per 100,000 population).

Queensland syphilis notifications decreased during the years 1988 to 1993. There are considerable difficulties in interpreting syphilis notification data and there is no encouraging evidence from these data of an overall sustained improvement in syphilis incidence. Syphilis remains an important public health problem in Queensland.

Conclusion

This paper presents the available surveillance notification data for sexually transmissible diseases in Queensland during the years 1988 to 1993. Despite their limitations, notification data are the only readily available source of information for the assessment and planning of public health interventions in the area of communicable diseases. As such they are a useful aid to assessing present programs and planning future strategies. Although the knowledge of STDs in Queensland remains incomplete, owing to the lack of information on pelvic inflammatory disease, human papilloma virus and trichomoniasis, this paper raises many issues of concern for public health professionals.

The sexual health of the Queensland population has shown few encouraging signs of improvement during the last six years, with most STDs showing signs of recent or sustained increases in notification rates, possibly not all attributable to increased, efficient surveillance and laboratory notification mechanisms. Sexual health education and preventive campaigns have been motivated by the threat of HIV and AIDS and have focussed upon the risk behaviours which are associated with the acquisition of the human immunodeficiency virus. The pattern of increases in HIV notification rates over the six year period and recent increases in gonorrhoea and syphilis notification rates emphasise the need to focus and continually reinforce the preventive education aspect of sexual health.

Analysis of notification data for the separate Health Regions in Queensland demonstrated that notifications of sexually transmissible diseases were not evenly distributed throughout the State. During the period of this study the Peninsula and Torres Strait Health Region consistently had the highest notification rates for chlamydia, donovanosis, gonorrhoea and syphilis, usually several times higher than the comparable Queensland and Australian rates. In 1992 the Peninsula and Torres Strait Health region also had the highest notification rate for HIV infection in Queensland. There is considerable evidence from these data that sexually transmissible diseases constitute an important public health problem in this Region.

In order to reduce the spread of sexually transmissible diseases and the potential effect of HIV infection on the Queensland community, specific age groups and populations should be targeted by enhanced community based forms of sexual health education. Such campaigns should aim to increase the public profile and awareness of all sexually transmissible diseases as well as to improve screening of at risk groups.

The quality of the notification data and the reliability of the information derived from them may be improved in a number of ways:

1. requesting and reporting authorities should be encouraged to provide more complete patient details and the information on the clinical stage of the disease,
2. information should also be included on whether the test was performed for acute clinical illness or for screening purposes. This will allow more reliable comments to be made on incidence than is presently possible,
3. ease of comparison of notification rates between Queensland and other areas in Australia would be facilitated by the use of nationally agreed case definitions, and
4. sexual health clinics should improve their capacity for data collection and analysis of information relating to the sexual orientation and risk behaviours of their clients. This would enhance the local targeting and optimum use of scarce resources.

Surveillance data for sexually transmissible diseases should be routinely and regularly reviewed as part of a continuing assessment of public health interventions in this area.

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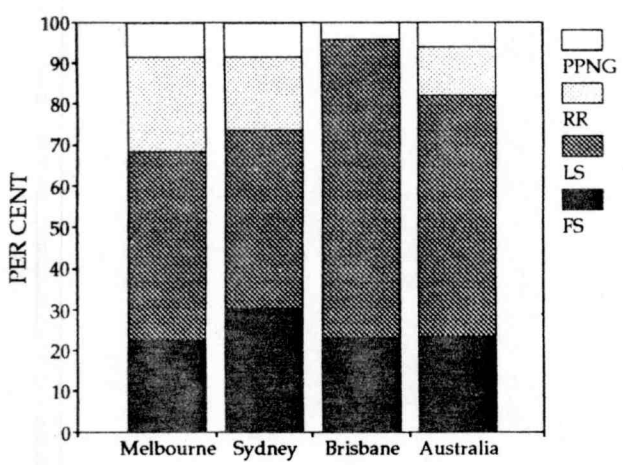
GONOCOCCAL SURVEILLANCE, AUSTRALIA, 1 JULY TO 30 SEPTEMBER 1994

Derived from the Australian Gonococcal Surveillance Programme - AGSP. Coordinator, JW Tapsall, The Prince of Wales Hospital, Sydney

The sensitivities of 459 isolates of *Neisseria gonorrhoeae* were examined in participating laboratories in the third quarter of 1994. All strains were examined for their sensitivity to penicillin and 409 for susceptibility to ceftriaxone, spectinomycin and ciprofloxacin and for high level resistance to tetracycline (TRNG).

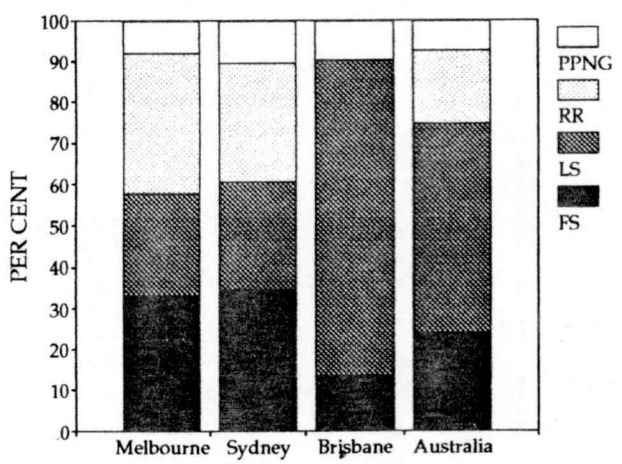
Figure 1 shows the proportion of isolates resistant to penicillin in Sydney, Melbourne and Brisbane and combined data for all Australian isolates. Data for the corresponding period in 1993 is shown in Figure 2. The number of penicillinase producing gonococci (PPNG) isolated in this period - 28 - was the same as in the

Figure 1. Proportional penicillin sensitivity of isolates of *Neisseria gonorrhoeae* by region and for Australia, 1 July to 30 September 1994



FS Fully sensitive to penicillin, MIC ≤ 0.03mg/L.
LS Less sensitive to penicillin, MIC 0.06 - 0.05mg/L.
RR Relatively resistant to penicillin, MIC ≥ 1mg/L.
PPNG Penicillinase producing *Neisseria gonorrhoeae*.

Figure 2. Proportional penicillin sensitivity of isolates of *Neisseria gonorrheae* by region and for Australia, 1 July to 30 September 1993[1]



FS Fully sensitive to penicillin, MIC ≤ 0.03mg/L.
LS Less sensitive to penicillin, MIC 0.06 - 0.05mg/L.
RR Relatively resistant to penicillin, MIC ≥ 1mg/L.
PPNG Penicillinase producing *Neisseria gonorrhoeae*.
1. NB: data from Sydney in 1993 have been revised from those previously published.