

**Laboratory Surveillance of  
Chlamydia and Gonorrhoea in Auckland,  
Waikato and Bay of Plenty Regions**

**April – June 2003**

Prepared as part of a Ministry of Health  
Contract for scientific services

by

Kay O'Rourke

August 2003

## **Acknowledgements**

The authors would like to thank the staff at the participating laboratories that provided data. These laboratories were:

- Auckland Healthcare Laboratory, Auckland
- Middlemore Hospital Laboratory, Auckland
- Diagnostic Medical Laboratory, Auckland
- Diagnostic Rotorua Laboratory, Rotorua
- Medlab Bay of Plenty, Tauranga
- Medlab Hamilton, Hamilton
- Pathlab Medical Laboratory, Hamilton
- Rotorua Hospital Laboratory, Rotorua
- Waikato Hospital Laboratory, Hamilton
- Whakatane Hospital Laboratory, Whakatane

We would also like to thank Dave Scarrow for his work in coordinating the electronic data collection for a large section of laboratory data and Donna Warren, ESR, for data entry.

# Contents

<b>Summary.....</b>	<b>i</b>
<b>Introduction.....</b>	<b>1</b>
<b>Methods.....</b>	<b>1</b>
<b>Results .....</b>	<b>2</b>
Chlamydia incidence rates for the Waikato region (Table 1 and Figure 1) .....	2
Chlamydia incidence rates for the BOP Region (Table 2 and Figure 2).....	3
Chlamydia incidence rates for the Auckland Region (Table 3 and Figure 3) .....	4
Chlamydia trend data: Auckland, Waikato and BOP Regions (Figure 4).....	5
Gonorrhoea incidence rates for the Waikato Region (Table 4 and Figure 5) .....	6
Gonorrhoea incidence rates for the BOP Region (Table 5 and Figure 6).....	7
Gonorrhoea incidence rates for the Auckland Region (Table 6 and Figure 7) .....	8
Gonorrhoea trend data: Auckland, Waikato and BOP Regions (Figure 8) .....	9
<b>Commentary .....</b>	<b>10</b>
Chlamydia .....	10
Gonorrhoea .....	10

## Summary

This report presents data on chlamydia and gonorrhoea from all laboratories in Waikato, Bay of Plenty (BOP) and Auckland for the three-month period April to June 2003 (this period will be referred to as “the current period”). It provides annualised<sup>1</sup> incidence data from January 2000 to June 2003.

### **Chlamydia**

- A total of 3010 cases of chlamydia were diagnosed for the current period. The highest incidence of laboratory diagnosed chlamydia for the current period occurred in Waikato (854 per 100 000), followed by BOP (779 per 100 000) and Auckland (620 per 100 000).
- The incidence of chlamydia was higher in females than males in Waikato (1174 and 523 per 100 000 respectively), BOP (1142 and 390 per 100 000 respectively) and Auckland (861 and 361 per 100 000 respectively). The highest rates of chlamydia in all three regions were in females aged 15-24 years.
- In the Waikato, case numbers for the current period were 17.1% higher than the previous three-month period and 84.1% higher than the July to September period in 1998. In the BOP case numbers were 0.1% lower than for the previous three-month period and 149.5% higher than the July to September period in 1998. In Auckland, case numbers for the current period were 1.4% lower than the previous three-month period and 38% higher than the January to March 2001 period.

### **Gonorrhoea**

- A total of 334 cases of gonorrhoea were diagnosed for the current period. The highest incidence of gonorrhoea was in Auckland (80 per 100 000), followed by BOP (71 per 100 000) and Waikato (64 per 100 000).
- The incidence of gonorrhoea was similar in females and males in the BOP (71 and 72 per 100 000 respectively). In Auckland the incidence was higher in males than females (105 and 58 per 100 000, respectively). In the Waikato the incidence of gonorrhoea was higher in males than females (71 and 56 per 100 000 respectively). The highest rate of gonorrhoea in Auckland was found in females aged 15-19 years (335 per 100 000). The highest rate of gonorrhoea in the BOP was found in females aged 15-19 years (764 per 100 000). The highest rate of gonorrhoea in Waikato was found in males aged 20-24 years (517 per 100 000).
- Auckland gonorrhoea case numbers were 4% higher than case numbers for the previous three-month period and 211% higher than January to March 1997 when data were first collated. In Waikato, case numbers for the current period were 44% higher than the previous three-month period and 444% higher than the July to September period in 1998. In the BOP, case numbers for the current period were 6% lower than the previous three months and 8% lower than July to September 1998.

<sup>1</sup>Annualised: An incidence rate correction has been applied to quarterly rates (x4) or six monthly rates (x2) to reflect probable annual incidence rates. This is calculated for comparison purposes and is possible, as STI's are not affected by seasonality.

## Introduction

Historically, surveillance of sexually transmitted infections (STIs) in New Zealand has been based on data collected by sexual health clinics. In July 1998, STI surveillance was expanded to include laboratory surveillance of chlamydia and gonorrhoea in the Waikato and BOP, and in 2001, in Auckland. All laboratories in the Waikato, BOP and Auckland provide data on positive chlamydia and gonorrhoea test results for patients seen by all health providers, including general practitioners, sexual health clinics, and family planning clinics. The provision of complete laboratory data for these regions allows the incidence of chlamydia and gonorrhoea in the general population to be calculated.

This report presents data provided by the Waikato, BOP and Auckland laboratories for the period April to June 2003, and trend data from January 2000.

## Methods

All ten laboratories in the Auckland, Waikato, and BOP report to ESR anonymous data on laboratory-confirmed cases of chlamydia and gonorrhoea, by age and sex.

For chlamydia, five laboratories provided age and sex for all test-positive patients and five laboratories provided age and sex for all test-positive specimens. For the purposes of analysis, it was assumed that each test-positive specimen was equivalent to one test-positive patient. For gonorrhoea, all ten laboratories provided age and sex for all test-positive patients.

Analyses of laboratory data were performed in SAS version 8. Annualised population-based disease rates were calculated in Microsoft Excel by dividing the number of test-positive patients or specimens by 2001 census data from the Auckland, Waikato, and BOP regions. For Auckland, census data from South Auckland, Central Auckland and North West Auckland health districts were used. For Waikato, census data from the Waikato health district was used. For the BOP, census data from Tauranga, Eastern BOP, Rotorua and Taupo health districts were used.

## Results

### ***Chlamydia Incidence Rates for the Waikato Region: April to June 2003 (Table 1 and Figure 1)***

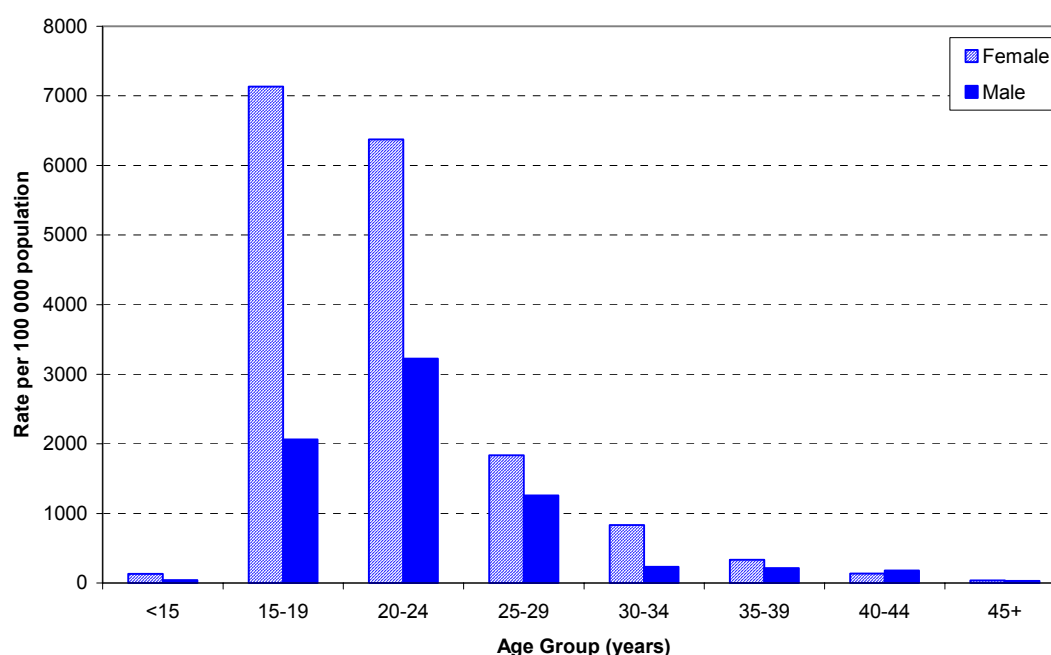
From April to June 2003, laboratories in Waikato tested 6109 specimens for chlamydia, of which 662 (10.8%) specimens or 659 cases (patients) were positive. The male to female case ratio was 1:2.3. The mean age of chlamydia cases was 21.7 years (median age 20.0 years, range 0 to 50 years). Male cases were significantly older than female cases (mean age 22.5 years and 21.4 years);  $p < 0.05$ )

Seventy six percent of all chlamydia cases occurred in people aged 15-24 years. Sixteen cases of chlamydia were reported in people aged less than 15 years. Of these, nine were aged 14 years, and one was aged less than 12 months. Overall, the highest rates of chlamydia were found among females aged 15-24 years.

**Table 1. Number of cases and rates of chlamydia in Waikato by age group and sex:  
April to June 2003**

Agegroup	Number of Cases				Rate per 100 000		
	Female	Male	Unknown	Total	Female	Male	Total
<15	12	4	0	16	132	42	86
15-19	202	62	0	264	7133	2063	4522
20-24	158	81	0	239	6374	3224	4788
>24	89	51	0	140	358	224	294
Unknown	0	0	0	0	-	-	-
<b>All ages</b>	<b>461</b>	<b>198</b>	<b>0</b>	<b>659</b>	<b>1174</b>	<b>523</b>	<b>854</b>

**Figure 1. Rates of chlamydia in Waikato by age group and sex:  
April to June 2003**



# ***Chlamydia incidence rates for the Bay of Plenty Region:***

## ***April to June (Table 2 and Figure 2)***

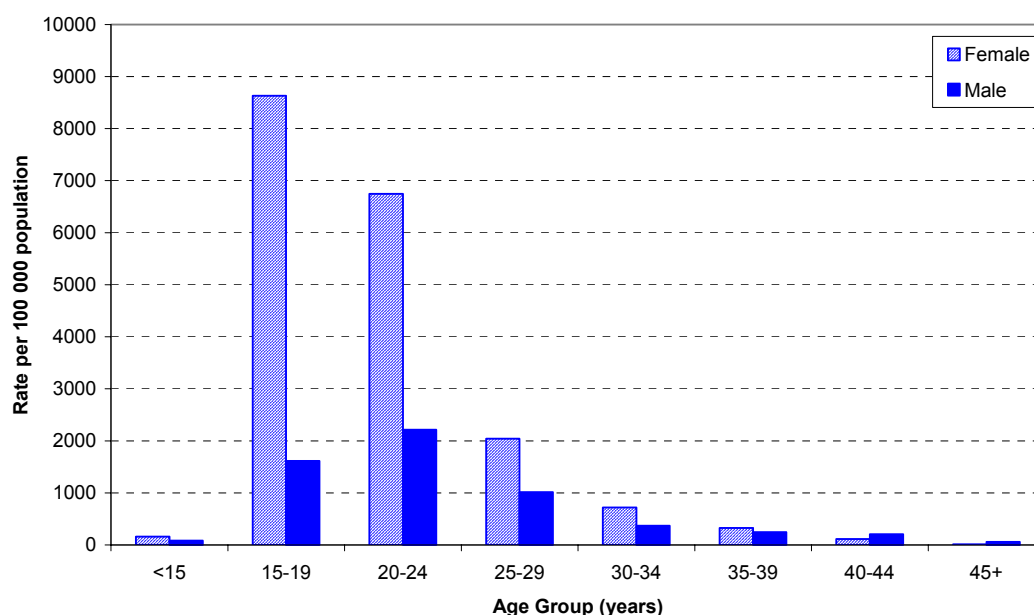
From April to June 2003, laboratories in the BOP tested 4753 specimens for chlamydia, of which 536 (11.3%) specimens or 539 cases (patients) were positive. The male to female case ratio was 1:3.1. The mean age of chlamydia cases was 21.7 years (median age 20 years, range 0 to 69 years). Male cases were significantly older than female cases (mean age 24.2 vs. 20.1 years;  $p < 0.0001$ ).

Seventy three percent of all chlamydia cases occurred in people aged 15-24 years. Twenty cases of chlamydia were reported in people aged less than 15 years. Of these, sixteen were aged 13 to 14 years, and four were aged less than 12 months. Overall, the highest rates of chlamydia were found among females aged 15-24 years.

**Table 2. Number of cases and rates of chlamydia in the BOP by age group and sex:  
April to June 2003**

Agegroup	Number of Cases				Rate per 100 000		
	Female	Male	Unknown	Total	Female	Male	Total
<15	13	7	0	20	159	82	119
15-19	192	38	1	231	8631	1615	5047
20-24	119	38	1	158	6746	2213	4538
>24	75	45	0	120	326	217	274
Unknown	3	2	0	5	-	-	-
<b>All ages</b>	<b>402</b>	<b>130</b>	<b>2</b>	<b>534</b>	<b>1142</b>	<b>390</b>	<b>779</b>

**Figure 2. Rates of chlamydia in the BOP by age group and sex:  
April to June 2003**



***Chlamydia incidence rates for the Auckland Region:  
April to June 2003 (Table 3 and Figure 3)***

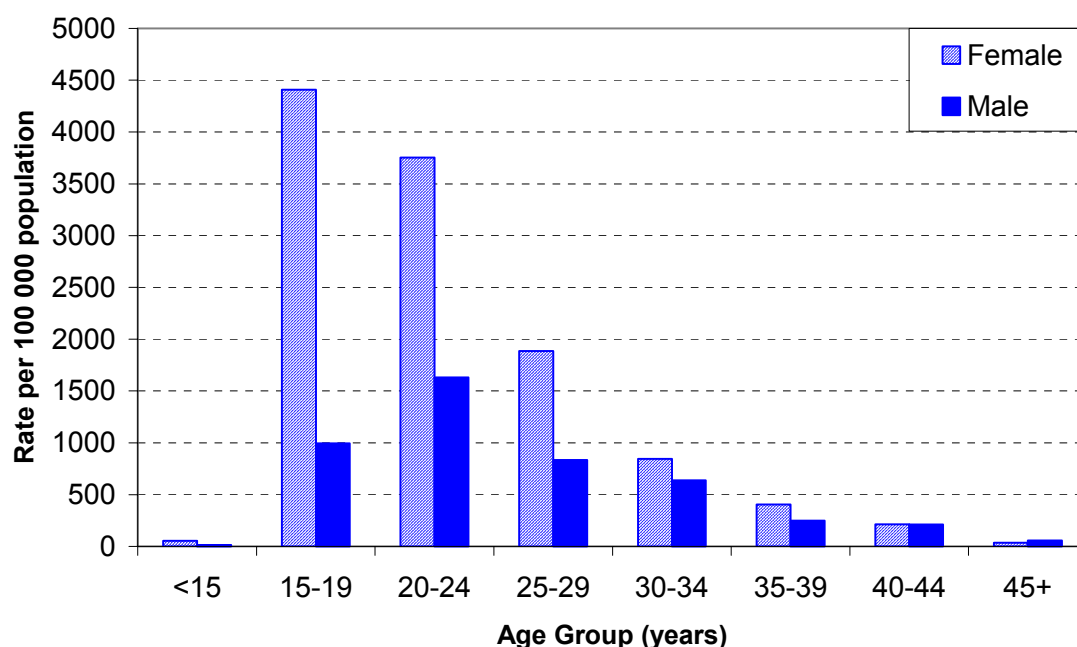
From April to June 2003, laboratories in Auckland tested 29241 specimens for chlamydia, of which 1834 (6.27 %) specimens or 1819 cases (patients) were positive. The male to female case ratio was 1:2.5. The mean age of chlamydia cases was 23.9 years (median age 22 years, range 0 to 69 years). Male cases were significantly older than female cases (mean age 26.2 vs. 23 years;  $p < 0.0001$ ).

Sixty two percent of all chlamydia cases occurred in people aged 15-24 years. Twenty-three cases of chlamydia were reported in people aged less than 15 years. Of these, 17 were aged between 10 to 14 years and 6 were aged less than 12 months. Overall, the highest rates of chlamydia were found among females aged 15-19 years.

**Table 3. Number of cases and rates of chlamydia in Auckland by age group and sex:  
April to June 2003**

Agegroup	Number				Rate		
	Female	Male	Unknown	Total	Female	Male	Total
<15	18	5	0	23	55	14	34
15-19	461	106	1	568	4409	994	2689
20-24	395	166	2	563	3753	1633	2721
>24	415	235	2	652	429	269	354
Unknown	9	2	0	11	-	-	-
<b>All ages</b>	<b>1,298</b>	<b>514</b>	<b>5</b>	<b>1,817</b>	<b>861</b>	<b>361</b>	<b>620</b>

**Figure 3. Rates of chlamydia in Auckland by age group and sex:  
April to June 2003**





## ***Chlamydia trend data: Auckland, Waikato and Bay of Plenty Regions***

### ***April to June 2003 (Figure 4)***

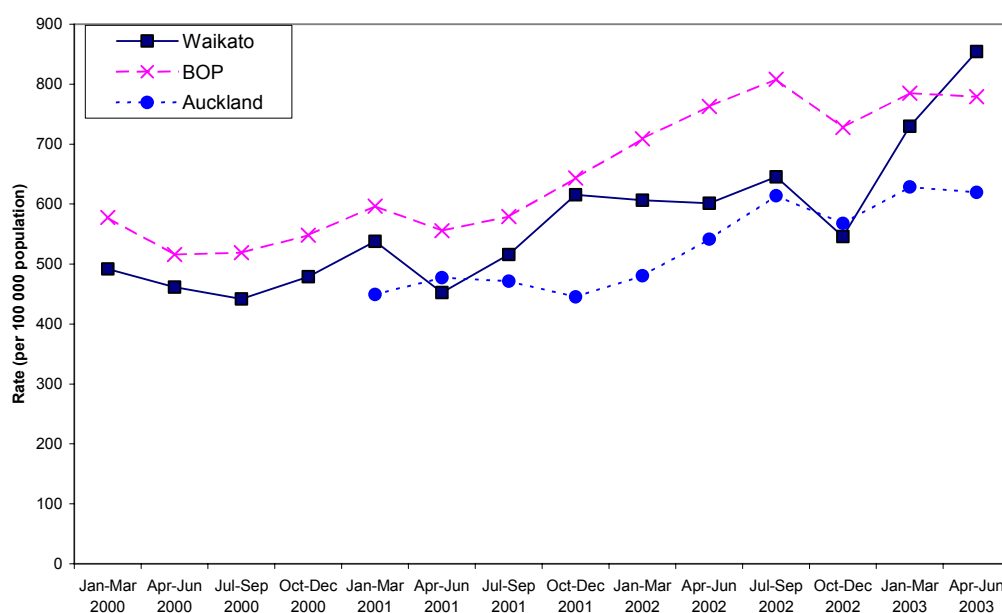
Test numbers in Waikato for the April to June 2003 period were 3% higher than for the previous three-month period and 53% higher than test numbers for the July to September 1998 period, during which data were first collated. In the BOP, test numbers for the current three-month period were 4% lower than the previous three months, and 10% higher than the July to September 1998 period. In Auckland, test numbers for the current three-month period were 1% lower than the previous three months, and 11% higher than the January to March 2001 period, during which data were first collated.

In Waikato, chlamydia case numbers for the current period were higher than case numbers for the previous three-month period (17.1%), and higher than the July to September 1998 period (84.1%). In the BOP, case numbers for the current period were 0.1% lower than the previous three-month period and 149.5% higher than the July to September 1998 period. In Auckland, case numbers for the current period were 1.4% lower than the previous three months and 38% higher than the January to March 2001 period.

Rates of chlamydia for the current period were highest in the Waikato region (854 per 100 000). The rate of chlamydia in the Waikato was not significantly higher than rates in BOP (779 per 100 000); however, it was significantly higher than the Auckland region (620 per 100 000) ( $p<0.0001$ ). The rate of chlamydia in BOP was significantly higher than the rate in the Auckland Region ( $p<0.0001$ ).

For the current period 11 cases of chlamydia were reported in infants.

**Figure 4. Rates of chlamydia reported by region:  
January 2000 to June 2003**



**Gonorrhoea incidence rates for the Waikato Region:  
April to June 2003 (Table 4 and Figure 5)**

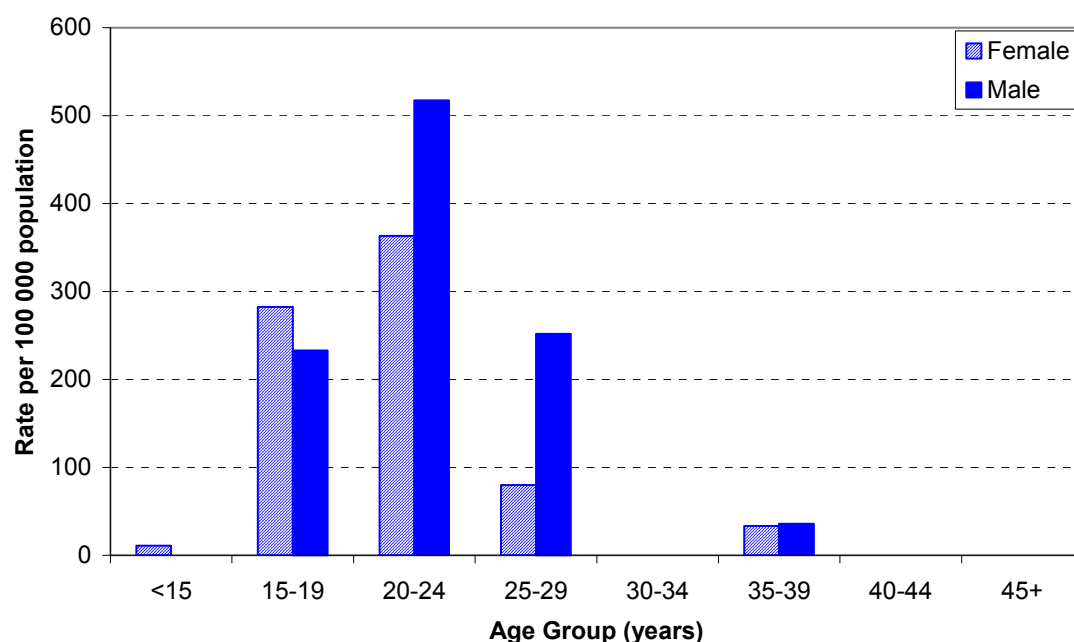
Laboratories in the Waikato region reported 49 patients with positive gonorrhoea test results. The male to female case ratio was approximately 1.2:1. The mean age of gonorrhoea cases was 21.5 years (median 21 years, range 14 to 36 years). There was no significant difference between the age of males and females (mean age 22.4 vs. 20.3 years).

Seventy six percent of all reported gonorrhoea cases occurred in people aged 15-24 years. Overall rates of gonorrhoea were higher in males than females. The highest age-specific rates of gonorrhoea were found in males and females aged 20-24 years (fig. 5).

**Table 4. Number of cases and rates of gonorrhoea in the Waikato region by age group and sex:  
April to June 2003**

Agegroup	Number of Cases				Rate per 100 000		
	Female	Male	Unknown	Total	Female	Male	Total
<15	1	0	0	1	11	0	5
15-19	8	7	0	15	282	233	257
20-24	9	13	0	22	363	517	441
>24	3	7	0	10		31	21
Unknown	1	0	0	1			
<b>All ages</b>	<b>22</b>	<b>27</b>	<b>0</b>	<b>49</b>	<b>56</b>	<b>71</b>	<b>64</b>

**Figure 5. Rates of gonorrhoea in the Waikato region by age group and sex:  
April to June 2003**



**Gonorrhoea incidence rates for the Bay of Plenty Region:  
April to June 2003 (Table 5 and Figure 6)**

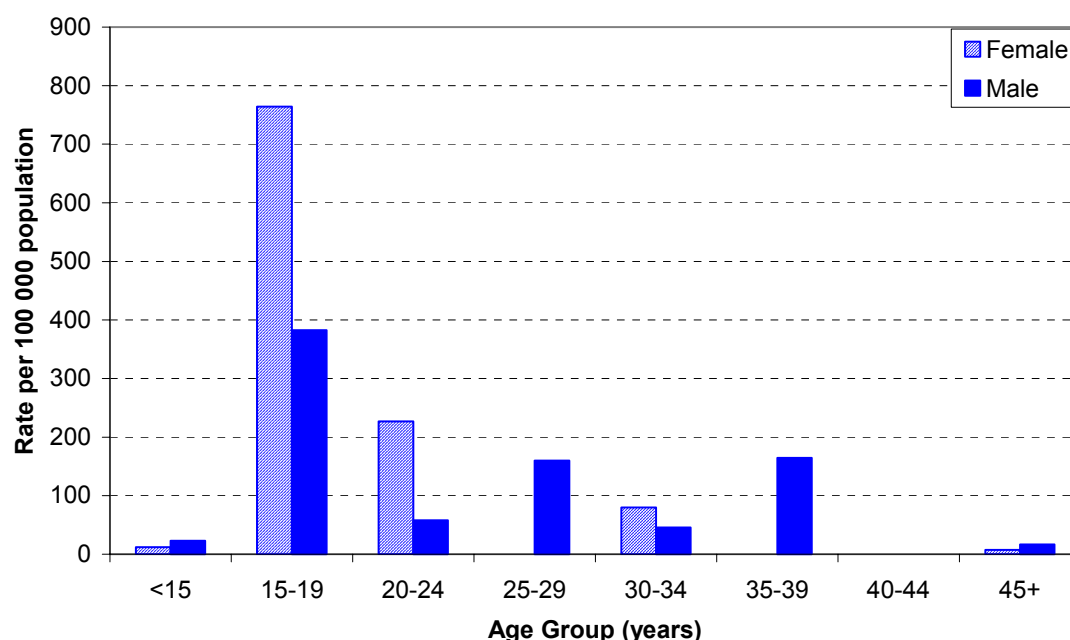
Laboratories in the BOP reported 49 patients with positive gonorrhoea test results. The male to female case ratio was 1:1. The mean age of gonorrhoea cases was 23.5 years (median 19 years, range 5 to 66 years). There was no significant difference between the age of males and females (mean age 26.4 vs. 20.5 years).

Sixty three percent of all reported gonorrhoea cases occurred in people aged 15-24 years. Overall rates of gonorrhoea were similar in females and males and the highest age-specific rates of gonorrhoea were found among females aged 15-24 years (fig.6).

**Table 5. Number of cases and rates of gonorrhoea in the BOP by age group and sex:  
April to June 2003**

Agegroup	Number of Cases				Rate per 100 000		
	Female	Male	Unknown	Total	Female	Male	Total
<15	1	2	0	3	12	23	18
15-19	17	9	0	26	764	383	568
20-24	4	1	0	5	227	58	144
>24	3	10	0	13	13	48	30
Unknown	0	2	0	2	-	-	-
<b>All ages</b>	<b>25</b>	<b>24</b>	<b>0</b>	<b>49</b>	<b>71</b>	<b>72</b>	<b>71</b>

**Figure 6. Rates of gonorrhoea in the BOP by age group and sex:  
April to June 2003**



**Gonorrhoea incidence rates for the Auckland Region:  
April to June 2003 (Table 6 and Figure 7)**

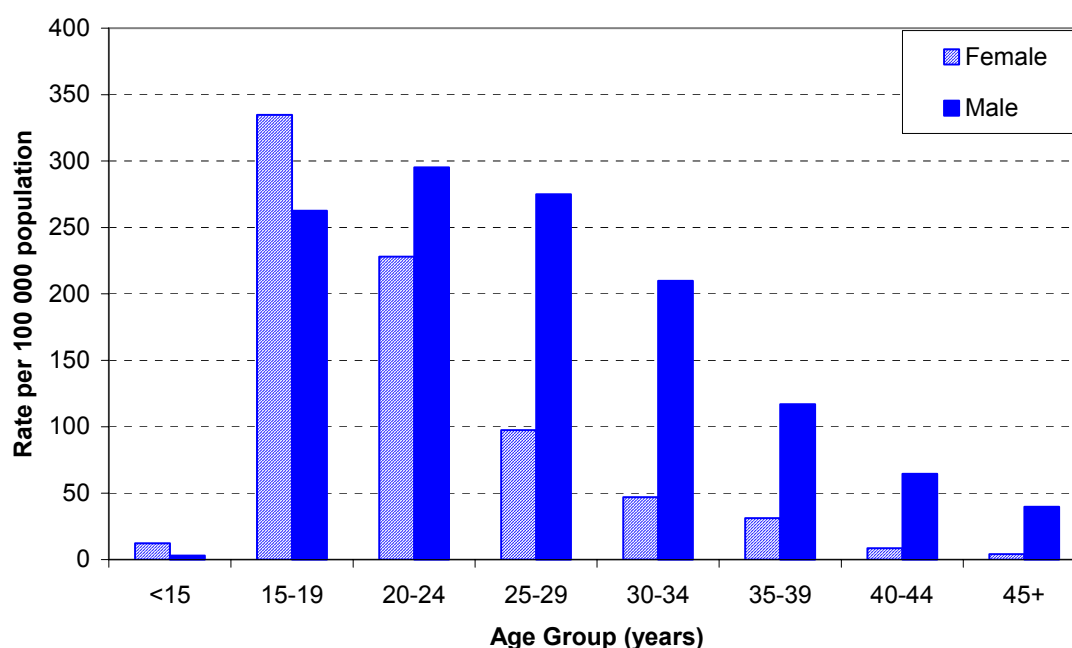
Laboratories reported 236 patients with positive gonorrhoea test results. The male to female case ratio was approximately 1.7:1. The mean age of gonorrhoea cases was 26.6 years (median 24 years, range 0 to 66 years). Male cases were significantly older than female cases (mean age 29.2 vs. 22.4 years;  $p < 0.0001$ ).

Fifty percent of all reported gonorrhoea cases occurred in people aged 15-24 years. Five cases were reported in people aged less than 15 years. Four of these were aged 8-14 years old and one was less than 1 year old. Overall rates of gonorrhoea were higher in males than females, and the highest age-specific rate of gonorrhoea was found in females aged 15-19 years (fig. 7).

**Table 6. Number of cases and rates of gonorrhoea in Auckland by age group and sex:  
April to June 2003**

Agegroup	Number of Cases				Rate per 100 000		
	Female	Male	Unknown	Total	Female	Male	Total
<15	4	1	0	5	12	3	7
15-19	35	28	0	63	335	263	298
20-24	24	30	0	54	228	295	261
>24	24	90	0	114	25	103	62
Unknown	0	0	0	0			
<b>All ages</b>	<b>87</b>	<b>149</b>	<b>0</b>	<b>236</b>	<b>58</b>	<b>105</b>	<b>80</b>

**Figure 7. Rates of gonorrhoea in Auckland by age group and sex:  
April to June 2003**

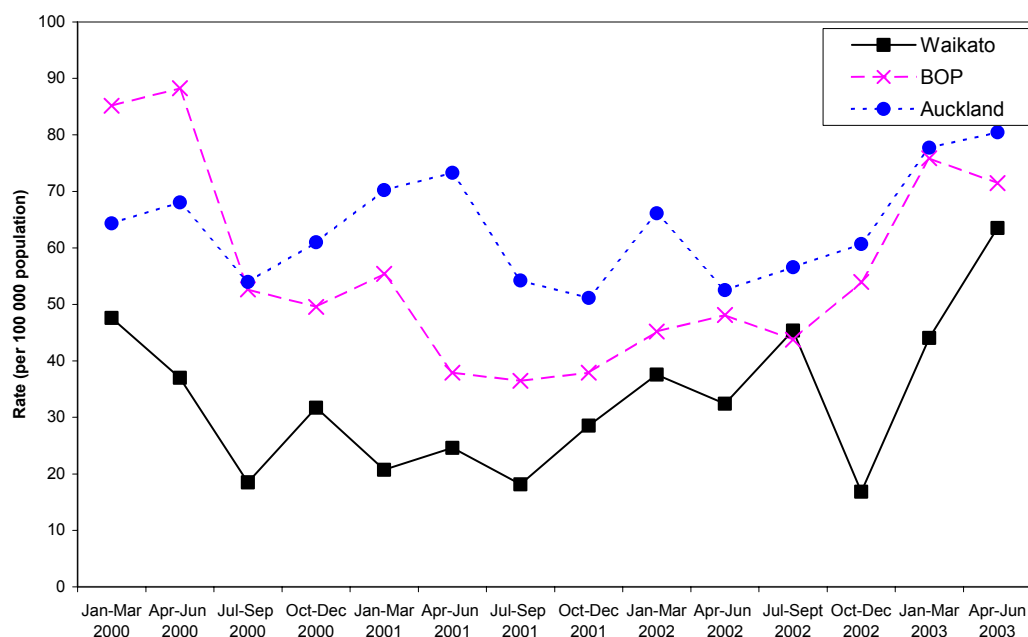


**Gonorrhoea trend data: Auckland, Waikato and Bay of Plenty Regions**  
**April to June 2003 (Figure 8)**

In Waikato, case numbers for the current period were higher (44%) than the previous three-month period and 444% higher than the July to September 1998 period, when testing began. In the BOP, case numbers for the current period were lower (6%) than the previous three months and 8% lower than October to December 1998. In Auckland, gonorrhoea case numbers for the current period were 4% higher than case numbers for the previous three-month period and 211% higher than January to March 1997, the period when data were first collated.

The rate of gonorrhoea for the current period was highest in Auckland (80 per 100 000). The rate of gonorrhoea in Auckland was not significantly higher than rates in BOP (71 per 100 000) and the Waikato region (60 per 100 000). There was no significant difference between the rate of gonorrhoea in the BOP and Waikato regions.

**Figure 8. Rates of gonorrhoea reported by region:**  
**January 2000 to June 2003**



## Commentary

### ***Chlamydia***

During the current quarter, the incidence of chlamydia decreased in Auckland and BOP, with a 17% increase in the Waikato region. The rate of chlamydia was highest in the Waikato region (854 cases per 100 000), followed by BOP (779 per 100 000) and Auckland (620 cases per 100 000).

Sex specific rates of chlamydia have remained high for females compared with males. The highest rates for all three regions were in females aged 15-24 years. The highest rate was found in women in the BOP aged 15-19 years (8631 per 100 000).

### ***Gonorrhoea***

The incidence of gonorrhoea decreased in BOP, however, there was a 2.6% and 45.5% increase in Auckland and the Waikato region, respectively. Auckland had the highest rate (80 per 100 000), followed by the BOP (71 per 100 000) and Waikato (64 per 100 000).

The majority of gonorrhoea cases during the current period were reported in people aged 15-24 years, of which Waikato reported the highest proportion of cases in the age group (76%), followed by the BOP (63%) and Auckland (50%).