

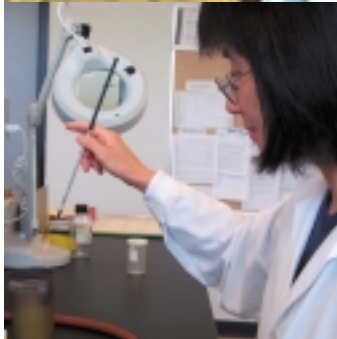


**BC Centre for Disease Control**

***BCCDC Laboratory Services  
Annual Report  
Appendix:  
Statistical Tables & Charts***



**1999**



## **Contents**

<i>Enhanced Water Laboratory</i> .....	<i>i</i>
<i>Enteric Bacteriology</i> .....	<i>ii</i>
<i>Environmental Bacteriology (Water)</i> .....	<i>vii</i>
<i>Environmental Bacteriology (Food)</i> .....	<i>x</i>
<i>General Bacteriology</i> .....	<i>xi</i>
<i>Mycobacteriology</i> .....	<i>xxiii</i>
<i>Vector-Borne Diseases</i> .....	<i>xxv</i>

*Statistical tables and charts for Mycology, Non-Viral Serology, Parasitology, and Virology may be found in the body of the Annual Report.*

*This document is also available at [www.bccdc.org/labpub.html](http://www.bccdc.org/labpub.html)*

**Table 1 – Enhanced Water Laboratory  
Incidence of Pathogens by Geographical Source of Specimens  
January 1, 1999 to December 31, 1999**

	Giardia lamblia		Entamoeba histolytica/dispar		Cryptosporidium		Total	% +ve
	Patients	Specimens	Patients	Specimens	Patients	Specimens		
Abbotsford	3	7					3	1.1
Agassiz	1	3					1	0.4
Bella Coola	4	5					4	1.5
Burnaby	6	10			4	10	10	3.8
Burns Lake	1	1					1	0.4
Canim Lake	1	1					1	0.4
Chetwynd	1	1					1	0.4
Chilliwack	1	1					1	0.4
Coquitlam	1	1					1	0.4
Cranbrook	1	1	1	1			2	0.8
Dawson Creek	3	3					3	1.1
Esquimalt	1	1					1	0.4
Fort Liard	1	1					1	0.4
Fort Nelson	2	2					2	0.8
Fort St. John	11	12					11	4.2
Gray Creek	1	1					1	0.4
Hazelton	1	1					1	0.4
Hudsons Hope	1	1					1	0.4
Kamloops			1	1			1	0.4
Kitimat	1	1					1	0.4
Ladysmith			2	2			2	0.8
Langley					1	1	1	0.4
Mackenzie	1	1					1	0.4
Maple Ridge	1	1					1	0.4
Nakusp	1	2					1	0.4
New Westminster	1	1			1	3	2	0.8
North Vancouver	10	14	7	10	2	2	19	7.3
Ocean Falls	1	1					1	0.4
Penticton			1	1			1	0.4
Port Alberni	1	2					1	0.4
Pouce Coupe	3	7					3	1.1
Powell River	1	1					1	0.4
Prince George	2	2					2	0.8
Richmond	1	1					1	0.4
Squamish	2	2			1	1	3	1.1
Surrey	7	8	4	5			11	4.2
Terrace	3	6					3	1.1
Valemount	1	3					1	0.4
Vancouver	98	160	28	43	12	24	138	52.7
Vanderhoof	1	1					1	0.4
Victoria	5	5					5	1.9
Waglisla	2	4					2	0.8
Whistler	1	1					1	0.4
White Rock	7	9			1	3	8	3.1
<b>Total All Cities</b>	<b>192</b>	<b>286</b>	<b>44</b>	<b>68</b>	<b>22</b>	<b>45</b>	<b>258</b>	

**Table 1 – Enteric Bacteriology  
Frequency of Isolation  
Stool Specimens  
January 1, 1999 December 31, 1999**

<b>Positive-Human Stools</b>	<b>Number Positive</b>	<b>% Positive</b>	<b>Number Patients</b>	<b>% Patients</b>
Yersinia	48	4.1	42	32.6
Salmonella	43	3.7	24	18.7
E. coli O157:H7	27	2.4	25	19.4
Campylobacter	25	2.2	21	7.0
Aeromonas	14	1.2	9	4.7
Shigella	10	0.9	6	4.7
E. coli (other serotypes)	2	0.2	2	1.6
<b>Total - Human Stools</b>	169	15.4	129	100.0

Total Human Stool Specimens = 1173

**Table 2 - Enteric Bacteriology  
Referred Isolates Identified  
January 1, 1999 to December 31, 1999**

<b>Positive - Human Referrals</b>	<b>Number Positive</b>	<b>% Positive</b>	<b>Number Patients</b>	<b>% Patients</b>
Salmonella	896	43.0	734	45.8
E. coli O157:H7	289	13.9	259	16.2
Campylobacter	219	10.6	214	13.4
Shigella	198	9.5	181	11.3
Yersinia	140	6.8	130	8.1
Aeromonas	75	3.6	71	4.5
Vibrio	14	0.7	12	0.8
Plesiomonas	4	0.2	3	0.2
Helicobacter	1	0.1	1	0.1
<b>Total Human Referrals</b>	1,836	89.3	1,605	100.0

Total Human Referral Specimens = 2085

**Table 3 – Enteric Bacteriology**  
**E. coli**  
 January 1, 1999 to December 31, 1999

Organism	Source of Positives		
	Human	Non-Human	Total
<i>E. coli</i> O4:H5	1		1
<i>E. coli</i> O6:H2	1		1
<i>E. coli</i> O19:H44	1		1
<i>E. coli</i> O20:Non-motile	1		1
<i>E. coli</i> O26:H11	4		4
<i>E. coli</i> O45:H21	1		1
<i>E. coli</i> O68:H Nontypeable	1		1
<i>E. coli</i> O103:H2	1		1
<i>E. coli</i> O110:H2	1		1
<i>E. coli</i> O 111:Non-motile	1		1
<i>E. coli</i> O 113:H21	2		2
<i>E. coli</i> O121:Non-motile	1		1
<i>E. coli</i> O145:Non-motile	1		1
<i>E. coli</i> O157:H7	326	24	350
<i>E. coli</i> O157:H39	1		1
<i>E. coli</i> O157:Non-motile	8		8
<i>E. coli</i> O181:H49	1		1
<i>E. coli</i> O rough:Non-motile	1		1
<b>Total</b>	<b>355</b>	<b>24</b>	<b>379</b>

**Table 4 – Enteric Bacteriology**  
**Verotoxin Results**  
 January 1, 1999 to December 31, 1999

Serotype	# of Isolates	# Verotoxin Positive
<i>E. coli</i> O4:H5 <sup>1</sup>	1	0
<i>E. coli</i> O6:H2	1	1
<i>E. coli</i> O19:H44	1	1
<i>E. coli</i> O20:Non-motile	1	0
<i>E. coli</i> O26:H11	4	4
<i>E. coli</i> O45:H21	1	1
<i>E. coli</i> O68:H Nontypeable	1	1
<i>E. coli</i> O103:H2	1	1
<i>E. coli</i> O110:H2	1	1
<i>E. coli</i> O 111:Non-motile	1	1
<i>E. coli</i> O 113:H21	2	2
<i>E. coli</i> O121:Non-motile	1	1
<i>E. coli</i> O145:Non-motile	1	1
<i>E. coli</i> O157:H7	326	326
<i>E. coli</i> O157:H39	1	0
<i>E. coli</i> O157:Non-motile	8	8
<i>E. coli</i> O181:H49	1	1
<i>E. coli</i> O rough:Non-motile	1	0
Verotoxin positive stool specimen for which no organism could be isolated		17
Verotoxin positive referred isolate which could not be serotyped	0	0
Verotoxin positive stool specimen from which an organism was isolated but could not be serotyped	0	0
<b>Total Positive Verotoxin</b>		<b>352</b>

**Table 5 – Enteric Bacteriology  
Shigella  
January 1, 1999 to December 31, 1999**

Organism	Source of Positives		
	Human	Non-Human	Total
<i>Shigella boydii</i> 1	1		1
<i>Shigella boydii</i> 2	7		7
<i>Shigella boydii</i> 4	6		6
<i>Shigella boydii</i> 8	2		2
<i>Shigella boydii</i> 13	1		1
<i>Shigella boydii</i> 18	1		1
<i>Shigella dysenteriae</i>	1		1
<i>Shigella dysenteriae</i> 2	1		1
<i>Shigella dysenteriae</i> 3	1		1
<i>Shigella dysenteriae</i> 4	1		1
<i>Shigella dysenteriae</i> 9	2		2
<i>Shigella dysenteiae</i> 13	1		1
<i>Shigella flexneri</i>	12		12
<i>Shigella flexneri</i> 1	5		5
<i>Shigella flexneri</i> 2	28	1	29
<i>Shigella flexneri</i> 3	11		11
<i>Shigella flexneri</i> 3a	1		1
<i>Shigella flexneri</i> 3b III:...6...	1		1
<i>Shigella flexneri</i> 4	2		2
<i>Shigella flexneri</i> 4a	2		2
<i>Shigella flexneri</i> 4c	1		1
<i>Shigella flexneri</i> 5	1		1
<i>Shigella flexneri</i> 6	8		8
<i>Shigella flexneri</i> Y	1		1
<i>Shigella sonnei</i>	101	1	102
<i>Shigella species</i>	9		9
<b>Total</b>	<b>208</b>	<b>2</b>	<b>210</b>

**Table 6 – Enteric Bacteriology  
Other Organisms  
January 1, 1999 – December 1, 1999**

Organism	Source of Positives		
	Human	Non-Human	Total
<i>Aeromonas caviae</i>	50	2	52
<i>Aeromonas hydrophila</i>	17	2	19
<i>Aeromonas hydrophila</i> group	2	1	3
<i>Aeromonas schubertii</i>	2		2
<i>Aeromonas trota</i>	1		1
<i>Aeromonas veronii</i>	16	1	17
<i>Aeromonas veronii</i> biovar <i>veronii</i>	1		1
<b>Total Aeromonas</b>	<b>89</b>	<b>6</b>	<b>95</b>
<i>Campylobacter coli</i>	4	4	8
<i>Campylobacter fetus</i>		2	2
<i>Campylobacter jejuni</i>	234	96	330
<i>Campylobacter lari</i>	3		3
<i>Campylobacter upsaliensis</i>	2		2
<i>Campylobacter species</i>	1		1
<b>Total Campylobacter</b>	<b>244</b>	<b>102</b>	<b>346</b>
<i>Plesiomonas shigelloides</i>	4	3	7
<i>Vibrio species</i>		10	10
<i>Vibrio alginolyticus</i>	1		1
<i>Vibrio cholerae</i> non O1	3	4	7
<i>Vibrio cholerae</i> serotype O1	2		2
<i>Vibrio fluvialis</i>	1		1
<i>Vibrio parahaemolyticus</i>	7	2	9
<b>Total Vibrio</b>	<b>14</b>	<b>16</b>	<b>30</b>
<i>Yersinia</i>	1		1
<i>Yersinia enterocolitica</i>	107	15	108
<i>Yersinia frederiksenii</i>	55		55
<i>Yersinia intermedia</i>	14		14
<i>Yersinia kristensenii</i>	4		4
<i>Yersinia pseudotuberculosis</i>	3		3
<i>Yersinia rohdei</i>	4		4
<b>Total Yersinia</b>	<b>188</b>	<b>1</b>	<b>189</b>

**Table 7 – Enteric Bacteriology**  
**Salmonella**  
**January 1, 1999 to December 31, 1999**

	Organism	Source of Positives		
		Human	Non-human	Total
1	<i>Salmonella</i> Adelaide	1		1
2	<i>Salmonella</i> Agona	13	2	15
3	<i>Salmonella</i> Alachua	1	1	2
4	<i>Salmonella</i> Amager	1		1
5	<i>Salmonella</i> Anatum	5		5
6	<i>Salmonella</i> Bardo		1	1
7	<i>Salmonella</i> Bareilly	7		7
8	<i>Salmonella</i> Birkenhead	4		4
9	<i>Salmonella</i> Blockley	1		1
10	<i>Salmonella</i> Bovismorbificans	10	1	11
11	<i>Salmonella</i> Braenderup	8	2	10
12	<i>Salmonella</i> Brandenburg	4		4
13	<i>Salmonella</i> Bredeney	10		10
14	<i>Salmonella</i> Broughton		1	1
15	<i>Salmonella</i> Cerro		15	15
16	<i>Salmonella</i> Chandans	1		1
17	<i>Salmonella</i> Chingola		1	1
18	<i>Salmonella</i> Cubana		1	1
19	<i>Salmonella</i> Daytona	7		7
20	<i>Salmonella</i> Derby	2	2	4
21	<i>Salmonella</i> Dublin	2		2
22	<i>Salmonella</i> Durban	6		6
23	<i>Salmonella</i> Eastbourne	1		1
24	<i>Salmonella</i> Enteritidis	122	12	134
25	<i>Salmonella</i> Give	1		1
26	<i>Salmonella</i> Glostrup		1	1
27	<i>Salmonella</i> Hadar	27	8	35
28	<i>Salmonella</i> Heidelberg	74	59	133
29	<i>Salmonella</i> Indiana	3		3
30	<i>Salmonella</i> Infantis	28	6	34
31	<i>Salmonella</i> Istanbul	1		1
32	<i>Salmonella</i> Itami	2		2
33	<i>Salmonella</i> Java	22		22
34	<i>Salmonella</i> Javiana	4	1	5

35	<i>Salmonella</i> Kentucky	4	7	11
36	<i>Salmonella</i> Kisarawe		1	1
37	<i>Salmonella</i> Litchfield	3		3
38	<i>Salmonella</i> London	2		2
39	<i>Salmonella</i> Manhattan	1		1
40	<i>Salmonella</i> Mbandaka	18	49	67
41	<i>Salmonella</i> Meleagridis	2		2
42	<i>Salmonella</i> Montevideo	12	1	13
43	<i>Salmonella</i> Muenchen	33		33
44	<i>Salmonella</i> Nessziona	7		7
45	<i>Salmonella</i> Newport	39		39
46	<i>Salmonella</i> Ohio	8	1	9
47	<i>Salmonella</i> Oranienburg	12		12
48	<i>Salmonella</i> Oslo	2		2
49	<i>Salmonella</i> Panama	11		11
50	<i>Salmonella</i> Paratyphi A	7		7
51	<i>Salmonella</i> Paratyphi B	1		1
52	<i>Salmonella</i> Pensacola	1		1
53	<i>Salmonella</i> Perth		1	1
54	<i>Salmonella</i> Poona	2		2
55	<i>Salmonella</i> Potsdam	2		2
56	<i>Salmonella</i> Reading	4		4
57	<i>Salmonella</i> Richmond	2		2
58	<i>Salmonella</i> Rissen	1		1
59	<i>Salmonella</i> Saintpaul	5		5
60	<i>Salmonella</i> Sandiego	3		3
61	<i>Salmonella</i> Schwarzengrund	3	2	5
62	<i>Salmonella</i> Senftenberg	3	5	8
63	<i>Salmonella</i> Seremban	1		1
64	<i>Salmonella</i> Stanley	8		8
65	<i>Salmonella</i> Teitelkebir	3		3
66	<i>Salmonella</i> Tennessee	4		4
67	<i>Salmonella</i> Thompson	10	11	21
68	<i>Salmonella</i> Tilene	1		1
69	<i>Salmonella</i> Typhi	23		23
70	<i>Salmonella</i> Typhimurium	247	78	325
71	<i>Salmonella</i> Uganda	2	2	4
72	<i>Salmonella</i> Urbana	1		1
73	<i>Salmonella</i> Virchow	6		6

**Table 7 – Enteric Bacteriology (cont'd.)  
Salmonella  
January 1, 1999 – December 31, 1999**

74	<i>Salmonella</i> Weltevreden	4		4
75	<i>Salmonella</i> Worthington	19		19
76	<i>Salmonella</i> SS I enterica 4,5,12:i:-	34	7	41
77	<i>Salmonella</i> SS I enterica [3,10:r:-]	2		2
78	<i>Salmonella</i> SS I enterica [serologically rough]	1	1	2
79	<i>Salmonella</i> SS I enterica [O Rough:g,m,t:-]	1		1
80	<i>Salmonella</i> SS I enterica [10:Rough:-]	2		2
81	<i>Salmonella</i> SS I enterica [15:i,v:-]	1		1
82	<i>Salmonella</i> SS I enterica,[- :l,w]	1		1
83	<i>Salmonella</i> SS I enterica,[non-motile]	1		1
84	<i>Salmonella</i> SS I enterica,[O rough:r:1,2]		1	1
85	<i>Salmonella</i> SS II salamae 48:d:z6	1		1
86	<i>Salmonella</i> SS IIIa arizonae 41:z4,z23:-		1	1
87	<i>Salmonella</i> SS IIIb diarizonae		1	1
88	<i>Salmonella</i> SS IIIb diarizonae 48:i:z	1		1
89	<i>Salmonella</i> SS IIIb diarizonae, 48:l,v:1,5,7	4		4
90	<i>Salmonella</i> SS IIIb diarizonae 50:k:z	1		1
91	<i>Salmonella</i> SS IIIb diarizonae 53:k:z	1		1
92	<i>Salmonella</i> SS IIIb diarizonae 60:r:e,n,x,z15		1	1
93	<i>Salmonella</i> SS IIIb diarizonae 60:r:z	1		1
94	<i>Salmonella</i> SS IIIb diarizonae 61:k:1,5,7		1	1
95	<i>Salmonella</i> SS IIIb diarizonae 61:l,v:1,5,7		1	1
	<b>Total</b>	937	286	1,206
	<b>Number of unique serotypes listed</b>			95

**Table 1 - Environmental Bacteriology (Water)**  
**Water Bacteriology Samples by Submitting Agency**  
**January 1, 1999 to December 31, 1999**

Month	Health Units	Federal	Other Submitters	Total # Samples
January	2,847	249	0	3,096
February	2,803	312	0	3,115
March	3,121	311	1	3,433
April	3,047	260	7	3,314
May	2,915	237	0	3,152
June	4,378	351	8	4,737
July	4,361	358	2	4,721
August	4,091	448	5	4,544
September	3,265	389	1	3,655
October	2,924	323	0	3,247
November	2,687	335	3	3,025
December	2,251	184	1	2,436
<b>Total</b>	<b>38,690</b>	<b>3,795</b>	<b>28</b>	<b>42,475</b>

**Table 2 - Environmental Bacteriology (Water)**  
**Drinking Water Samples**  
**January 1, 1999 to December 31, 1999**

Location/Submitter	Total Coliform		Faecal Coliform	
	# Samples	+ve Samples	# Samples	+ve Samples
Canadian Food Insp. Agency	179	9	136	2
Cariboo	1,224	190	1,186	48
Central Vancouver Island	5,676	533	5,646	64
CFB (Comox)	158	4	158	1
Coast Garibaldi	2,299	411	2,285	100
East Kootenay	965	112	964	23
Env. Hlth. Dept.(Whitehorse)	264	2	264	0
Fraser Valley	6,793	501	6,765	83
Hlth.Canada (Campbell River)	57	12	57	6
Hlth.Canada (Chilliwack)	312	52	305	16
Hlth.Canada (Kamloops)	296	59	296	5
Hlth.Canada (Kelowna)	193	28	193	12
Hlth.Canada (Merritt)	562	94	557	37
Hlth.Canada (Nanaimo)	154	53	150	12
Hlth.Canada (Salmon Arm)	164	51	164	16
Hlth.Canada (Vancouver)	1,159	97	938	11
Hlth.Canada (Williams lake)	2	0	2	0
Kootenay Boundary	21	2	21	0
North Okanagan	10	1	6	0
North Shore	1,095	69	1,091	28
North West	73	5	72	1
Northern Interior	2,719	231	2,703	50
Peace Liard	1,848	103	1,837	22
Richmond	169	1	166	1
Simon Fraser (Burnaby)	321	7	320	0
Simon Fraser (Coquitlam)	923	55	919	15
Simon Fraser (New Westminster)	52	0	52	0
South Fraser	515	46	470	7
Thompson	99	6	74	1
Upper Island Central Coast	2,498	416	2,480	127
Unknown Location	13	1	11	1
Vancouver	2,753	43	2,748	0
<b>Total All Localities</b>	<b>33,566</b>	<b>3,194</b>	<b>33,036</b>	<b>689</b>

**Table 3 – Environmental Bacteriology (Water)**  
**Seasonal Variation of Coliforms in Drinking Water**  
**January 1, 1999 to December 31, 1999**

Month	Coliform		Faecal Coliform	
	+ve Samples	%+ve Samples	+ve Samples	%+ve Samples
January	176	5.5	37	5.4
February	206	6.4	43	6.2
March	194	6.1	43	6.2
April	146	4.6	30	4.4
May	182	5.7	24	3.5
June	296	9.3	76	11.0
July	396	12.4	100	14.5
August	408	12.8	134	19.4
September	383	12.0	82	11.9
October	320	10.0	49	7.1
November	301	9.4	41	6.0
December	186	5.8	30	4.4
<b>Total</b>	<b>3,194</b>	<b>100.0</b>	<b>689</b>	<b>100.0</b>

**Table 4 – Environmental Bacteriology (Water)**  
**Swimming Pool/Whirl Pool/Hot Tub/Spa Samples**  
**January 1, 1999 to December 31, 1999**

Location/Submitter	Total Coliform		Heterotr Plate		P. aeruginosa	
	Samples	+ve	Samples	+ve	Samples	+ve
Cariboo	77	2	0	0	77	2
Central Vancouver Island	539	10	0	0	539	17
C F B (Comox)	44	1	0	0	44	1
Coast Garibaldi	1,150	13	0	0	1,150	51
East Kootenay	227	26	0	0	227	14
Env. Hlth. Dept. (Whitehorse)	47	1	0	0	47	1
Fraser Valley	360	7	0	0	360	5
Hlth. Canada (Chilliwack)	1	1	0	0	1	0
Hlth. Canada (Salmon Arm)	18	1	0	0	18	1
Hlth. Canada (Vancouver)	58	2	0	0	58	0
Kootenay Boundary	3	0	0	0	3	0
North Shore	368	8	361	58	368	1
Northern Interior	221	5	0	0	221	8
Peace Liard	450	5	0	0	450	9
Richmond	250	5	0	0	250	1
Simon Fraser (Burnaby)	186	0	183	9	186	1
Simon Fraser (Coquitlam)	162	0	0	0	162	1
Simon Fraser (New Westmin.)	35	0	16	5	35	1
South Fraser	558	12	0	0	558	6
Thompson	8	0	0	0	8	0
Upper Island Central Coast	105	4	0	0	105	5
Unknown Location	1	0	0	0	1	0
Vancouver	4	0	1	0	4	0
<b>Total All Localities</b>	<b>4,872</b>	<b>103</b>	<b>561</b>	<b>72</b>	<b>4,872</b>	<b>124</b>

**Table 5 – Environmental Bacteriology (Water)  
Bathing Beach Samples  
January 1, 1999 to December 31, 1999**

Location/Submitter	Faecal Coliform Test		
	No. Samples	+ve 200-400	+ve >400
Cariboo	60	1	0
Central Vancouver Island	586	15	15
Coast Garibaldi	529	15	13
East Kootenay	13	0	0
Fraser Valley	148	11	12
Hlth. Canada (Kelowna)	8	0	2
Hlth. Canada (Vancouver)	5	0	0
North Okanagan	8	0	0
Northern Interior	55	1	1
Peace Liard	104	0	1
Simon Fraser (Coquitlam)	434	10	21
South Fraser	488	20	21
Upper Island Central Coast	310	7	2
Vancouver	96	12	3
<b>Total All Localities</b>	<b>2,844</b>	<b>92</b>	<b>91</b>

**Table - Environmental Bacteriology (Food)  
Confirmed Food Poisonings and Gastroenteritis Outbreaks  
January 1, 1999 to December 31, 1999**

Etiology	Specimen/Food Vehicle	No. ill	Locality
<i>Bacillus cereus</i> , <i>Clostridium perfringens</i>	beef and vegetable	4	Vancouver
<i>Bacillus cereus</i> , <i>Clostridium perfringens</i>	octopus/squid with vegetables, rice, fish	1	Richmond
<i>Clostridium perfringens</i> , <i>Bacillus cereus</i>	octopus/squid with vegetables, pork, chicken	4	Richmond
<i>Norwalk-like virus</i>	stool	15	Maple Ridge
<i>Norwalk-like virus</i>	stool	16	Maple Ridge
<i>Norwalk-like virus</i>	stool	>5	Maple Ridge
<i>Norwalk-like virus</i> , <i>Rotavirus</i>	stool, vomitus	60	Salmon Arm
<i>Norwalk-like virus</i>	stool	>10	Vancouver
<i>Norwalk-like virus</i>	stool, vomitus	>13	Prince George
<i>Bacillus cereus</i>	barbequed chicken	2	Vancouver
<i>E. coli</i> O157:H7	stool, roast beef	7	Princeton
<i>Bacillus cereus</i>	barbequed chicken	2	Victoria
<i>E. coli</i> O157:H7	stool, roast beef, romaine lettuce	5	Mabel Lake
<i>Ciguatera poisoning</i>	salmon cod	5	Surrey
<i>Norwalk-like virus</i>	stool	>31	New Westminster
<i>Bacillus cereus</i> var. <i>mycoides</i>	barbecued chicken	2	Victoria
<i>E. coli</i> O157:H7	Hungarian and cervelat salami, stool	143	Several localities
Probably <i>Clostridium perfringens</i>	stool, cooked turkey, chicken soup	48	Prince George
<i>Clostridium botulinum</i> , Type E	blood, gastric contents, stool, fish eggs	1	Gold River

## Environmental Bacteriology Food Quality Check Program

A total of 651 food samples from 18 food categories were submitted by health units for examination in 1999. Samples were tested for four indicator bacteria and sanitary quality of food was assessed using the following guidelines:

Aerobic plate count C < 100,000/g  
 Total coliform count C < 1,000/g  
 Fecal coliform count C < 3/g  
*Staphylococcus aureus* count < 100/g.

For cooked ready-to-eat food, five food categories: sandwiches, Chinese foods, salads, other ethnic foods and poultry accounted for 54.5% of all samples. Of the 600 samples examined, 349 samples (58.2%) were within the guidelines for all four indicator bacteria whereas 251 samples (41.8%) had exceeded one or more guidelines. Fecal coliform bacteria were detected in 52 samples (8.7%) indicative of possible fecal contamination. Other details are summarized in Table 2.

For raw ready-to-eat food, two food categories: sushi and salads accounted for 74.5% of all samples. Of the 51 samples examined, 23 samples (45.1%) were within the guidelines for all four indicator bacteria whereas 28 samples (54.9%) had exceeded one or more guidelines. Fecal coliform bacteria were detected in 16 samples (31.4%). Other details are summarized in Table 3.

In addition to the testing of indicator bacteria, the Food Laboratory also examined 116 food samples for water activity and pH and 35 food samples for specific bacterial pathogens like *Yersinia enterocolitica*, *Bacillus cereus*, *Salmonella*, *Clostridium perfringens* and *E. coli* O157:H7.

**Table 2 - Environmental Bacteriology (Food)  
 Food Quality Check Samples Exceeding Guidelines, Cooked Ready-To-Eat Food  
 January 1, 1999 to December 31, 1999**

Food Category	Samples Tested	Samples Exceeding One or More Guidelines		Samples with Aerobic Plate Count $\geq$ 100,000/g		Samples with Total Coliform $\geq$ 1,000/g		Samples with Fecal Coliform $\geq$ 100/g		Samples with <i>Staphylococcus aureus</i> $\geq$ 100/g	
		Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage
Meat	42	14	33.3%	13	31.0%	5	11.9%	3	7.1%	0	0.0%
Marine Foods	30	10	33.3%	5	16.7%	4	13.3%	3	10.0%	1	3.3%
Poultry	54	21	39.0%	20	37.0%	12	22.2%	3	5.6%	2	3.7%
Eggs	1	1	100.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Dairy Foods	24	9	37.5	7	29.2%	3	12.5	1	4.2%	0	0.0%
Bakery Foods	20	3	15.0%	2	10.0%	1	5.0%	1	5.0%	0	0.0%
Vegetables	4	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Chinese Foods	70	19	27.1%	18	25.7%	9	12.9%	9	12.9%	1	1.4%
Other Ethnic Foods	59	21	35.6%	19	32.2%	9	15.3%	10	17.0%	0	0.0%
Salads	62	39	62.9%	34	54.8%	15	24.2%	8	12.9%	0	0.0%
Salad Dressing	15	1	6.7%	1	6.7%	0	0.0%	0	0.0%	0	0.0%
Sandwiches	82	61	74.4%	60	73.2%	16	19.5%	12	14.6%	2	2.4%
Sausages	53	36	67.9%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Tofu	5	3	60.0%	3	60.0%	3	60.0%	1	20.0%	0	0.0%
Soups	5	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Miscellaneous	74	13	17.6%	12	16.2%	2	2.7%	1	1.4%	0	0.0%
<b>Total</b>	<b>600</b>	<b>251</b>	<b>41.8%</b>	<b>231</b>	<b>38.5%</b>	<b>79</b>	<b>13.2%</b>	<b>52</b>	<b>8.7%</b>	<b>6</b>	<b>1.0%</b>

**Table 3 – Environmental Bacteriology (Food)**  
**Food Quality Check Samples Exceeding Guidelines, Raw Ready-To-Eat Food**  
**January 1, 1999 to December 31, 1999**

Food Category	Samples Tested	Samples Exceeding One or More Guidelines		Samples with Aerobic Plate Count $\geq 100,000/g$		Samples with Total Coliform $\geq 1,000/g$		Samples with Fecal Coliform $\geq 100/g$		Samples with <i>Staphylococcus aureus</i> $\geq 100/g$	
Vegetables	8	1	12.5%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Sprouts	5	5	100.0%	5	100.0%	5	100.0%	3	60.0%	0	0.0%
Salads	13	8	61.5%	8	61.5%	7	53.9%	4	30.8%	0	0.0%
Sushi	25	14	56.0%	12	48.0%	6	24.0%	8	32.0%	2	8.0%
<b>Total</b>	<b>51</b>	<b>28</b>	<b>54.9%</b>	<b>25</b>	<b>49.0%</b>	<b>18</b>	<b>35.3%</b>	<b>16</b>	<b>31.4%</b>	<b>2</b>	<b>3.9%</b>

**Table 1 - General Bacteriology**  
**Upper Respiratory Specimens**  
**January 1, 1999 to December 31, 1999**

	Specimens			Patients		
	Total	+ve	%+ve	Total	+ve	%+ve
Beta-hemolytic streptococci						
Cultures (Primary)						
Group A		68	11.0		65	11.1
Group C		32	5.2		32	5.5
Group G		26	4.2		25	4.3
<b>Total</b>	<b>618</b>	<b>126</b>	<b>20.4</b>	<b>584</b>	<b>122</b>	<b>20.9</b>
Bordetella pertussis						
Cultures (Primary)	5,161	270	5.2	3,034	209	6.9
Cultures (Referred)	4	4	100.0	4	4	100.0
<b>Total</b>	<b>5,165</b>	<b>274</b>	<b>5.3</b>	<b>3,038</b>	<b>213</b>	<b>7.0</b>
Polymerase chain reaction test (PCR)	5,216	503	9.6	3,076	346	11.2
Corynebacterium diphtheriae						
Cultures (Primary)						
Toxigenic			0.0			0.0
Non-toxigenic			0.0			0.0
Not tested		6	14.0		5	16.1
<b>Total</b>	<b>43</b>	<b>6</b>	<b>14.0</b>	<b>31</b>	<b>5</b>	<b>16.1</b>
Cultures (Referred)						
Toxigenic			0.0			0.0
Non-toxigenic			0.0			0.0
Not tested		8	88.8		8	88.8
<b>Total</b>	<b>9</b>	<b>8</b>	<b>88.8</b>	<b>8</b>	<b>8</b>	<b>100.0</b>

**Table 2 - General Bacteriology  
Bordetella Pertussis Tests  
1995-96 to 1999**

Year	Number of Patients					
	Cultures		DFA Tests		Total*	
	# Tested	#(%) Positive	# Tested	# (%) Positive	# Tested	#(%) Positive
1995-96	1,638	186 (11.4)	1,602	88 (5.5)	1,638	197 (12.0)
1996-97	3,254	339 (10.4)	3,044	128 (4.2)	3,254	358 (11.0)
1997-98	1,954	168 (8.6)	1,834	70 (3.8)	1,954	185 (9.5)
Year	Cultures		PCR Tests**		Total*	
	# Tested	#(%) Positive	# Tested	#(%) Positive	# Tested	#(%) Positive
	1998	1,777	149 (8.4)	1,406	198 (14.1)	1,777
1999	3,034	209 (6.9)	3,076	346 (11.2)	3,076	356 (11.6)

\*Total = Total number of patients tested or positive by either culture or DFA/PCR

\*\* PCR Tests - PCR test introduced April 1, 1998 (DFA test discontinued at that time)

**Table 4 - General Bacteriology  
Neisseria Meningitidis Serogroups  
Blood and Cerebrospinal Fluid Isolates  
1990-91 to 1999**

Year	Serogroup (number of isolates)							Total
	A	B	C	W135	Y	Z	NG*	
1990-91	1	7	9 (3)**		2	1	1	21
1991-92		14	15 (5)**		7	1		37
1992-93		9	12 (10)**		3	1		25
1993-94		16	32 (28)**	1	2		1	52
1994-95		14	25 (23)**	1	5	1		46
1995-96		9	19 (18)**		4			32
1996-97		18	16 (16)**	1	3			38
1997-98		8	10 (10)**	2	3			23
1998		7	5 (5)**	2	1			15
1999		13	10(8)**		2			25

\* NG = non-groupable

\*\* ( ) = number of electrophoretic type (ET) 15 isolates

**Table 3 - General Bacteriology**  
**Specimens for Sexually Transmissible Diseases**  
**January 1, 1999 to December 31, 1999**

	Specimens			Patients								
	Total	+ve	%+ve	Male			Female			All		
				Total	+ve	%+ve	Total	+ve	%+ve	Total	+ve	%+ve
Neisseria gonorrhoeae												
Cultures (Primary)												
STDC Clinic	6,827	205	3.0	3,216	162	5.0	1,701	30	1.8	4,921	192	3.9
Other	12,023	103	0.8	1,509	77	5.1	10,257	25	0.2	11,793	103	0.9
<b>Total</b>	<b>18,850</b>	<b>308</b>	<b>1.6</b>	<b>4,725</b>	<b>239</b>	<b>5.1</b>	<b>11,958</b>	<b>55</b>	<b>0.5</b>	<b>16,714</b>	<b>295</b>	<b>1.8</b>
Cultures (Referred)												
All Clients	188	167	94.1	100	93	93.0	70	66	94.3	174	163	93.7
Slides												
STDC Clinic	2,066	174	8.4	1,835	132	7.2	0	0	0.0	1,835	132	7.2
Other	556	19	3.4	490	17	3.5	0	0	0.0	490	17	3.5
<b>Total</b>	<b>2,622</b>	<b>193</b>	<b>7.2</b>	<b>2,325</b>	<b>149</b>	<b>6.4</b>	<b>0</b>	<b>0</b>	<b>0.0</b>	<b>2,325</b>	<b>149</b>	<b>6.4</b>
Chlamydia trachomatis												
PCR												
STDC Clinic	5,470	290	5.3	3,676	191	5.2	1,774	99	5.6	5,455	290	5.3
Other	19,750	934	4.7	3,631	338	9.3	15,953	581	3.6	19,654	924	4.7
<b>Total</b>	<b>25,220</b>	<b>1,224</b>	<b>4.9</b>	<b>7,307</b>	<b>529</b>	<b>7.2</b>	<b>17,727</b>	<b>680</b>	<b>3.8</b>	<b>25,109</b>	<b>1,214</b>	<b>4.8</b>
Trichomonas vaginalis												
Slides												
STDC Clinic	3,791	53	1.4	1,827	1	0.1	1,756	52	3.0	3,586	53	1.5
Other	7,496	71	0.9	17	0	0.0	7,440	70	0.9	7,478	71	0.9
<b>Total</b>	<b>11,287</b>	<b>124</b>	<b>1.1</b>	<b>1,844</b>	<b>1</b>	<b>0.1</b>	<b>9,196</b>	<b>122</b>	<b>1.3</b>	<b>11,064</b>	<b>124</b>	<b>1.1</b>
Bacterial vaginosis												
Slides												
STDC Clinic	1,721	552	32.1	0	0	0.0	1,719	551	32.1	1,719	551	32.1
Other	8,408	2,386	28.4	0	0	0.0	8,396	2,384	28.4	8,396	2,384	28.4
<b>Total</b>	<b>10,129</b>	<b>2,938</b>	<b>29.0</b>	<b>0</b>	<b>0</b>	<b>0.0</b>	<b>10,115</b>	<b>2,935</b>	<b>29.0</b>	<b>10,115</b>	<b>2,935</b>	<b>29.0</b>
Yeast												
Cultures												
	1,799	361	20.1	78	8	10.3	1,697	351	20.7	1,779	360	20.2
Slides												
STDC Clinic	2,501	232	9.3	570	5	0.9	1,746	227	13.0	2,318	232	10.0
Other	8,563	1,100	12.8	22	4	18.2	8,489	1,089	12.8	8,534	1,094	12.8
<b>Total</b>	<b>11,064</b>	<b>1,332</b>	<b>12.0</b>	<b>592</b>	<b>9</b>	<b>1.5</b>	<b>10,235</b>	<b>1,316</b>	<b>12.9</b>	<b>10,852</b>	<b>1,326</b>	<b>12.2</b>

**Table 5 - General Bacteriology**  
**Gram Negative Bacteria Identified**  
**January 1, 1999 to December 1999**

Achromobacter	piechaudii	4	Legionella	micdadei	3
	xylooxidans ss xylooxidans	4		pneumophila	2
Acinetobacter	asaccharolytic species	12	Methylobacterium	species	1
	baumanii	3	Moraxella	atlantae	1
	calcoaceticus	1		catarrhalis	8
	haemolyticus	1		nonliquefaciens	10
	junii	4		osloensis	23
	lwoffii	9	Morganella	morganii	2
	saccharolytic species	4	Neisseria	cinerea	1
Actinobacillus	actinomycetemco mitans	1		elongata	2
Aeromonas	hydrophila	1		meningitidis	
	veronii	1		serogroup B	15
Agrobacterium	radiobacter	1		C	12
	yellow group	1		Y	2
Alcaligenes	faecalis	1		nonserogroupable	5
Bordetella	bronchiseptica	1		mucosa	1
	hinzii	1		subflava	2
Brevundimonas	diminuta	2		weaverii	4
	vesicularis	4	Ochrobactrum	anthropi	6
Burkholderia	cepacia	13	Oligella	urethralis	5
	gladioli	3	Pasteurella	canis	1
Campylobacter	species	1		dagmatis	4
Capnocytophaga	canimorsus	3		multocida ss multocida	3
	ochracea	1		multocida ss septica	3
	species	1		stomatis	3
Cardiobacterium	hominis	1	Proteus	mirabilis	2
CDC Group	DF3	1		vulgaris	1
	EF-4a	5	Providencia	rettgeri	1
	EO-2	2	Pseudomonas	aeruginosa	33
	O-1	1		dentrificans	1
	WO-1	1		fluorescens	6
Chryseobacteriumin	dologenes/gleum	2		luteola	1
	species	1		orzihabitans	2
Citrobacter	freundii	1		pseudoalcaligenes	1
	sedlakii	1		putida	5
Comamonas	acidovorans	2		stutzeri	4
Eikenella	corrodens	8		like Group 2	2
Enterobacter	aerogenes	1		species CDC Group 1	1
	agglomerans	6	Ralstonia	eutropha	1
	cloacae	3		paucula	4
	sakazakii	1		pickettii	2
Escherichia	coli	37	Roseomonas	species	5
Ewingella	americana	1	Serratia	marcescens	3
Flavobacterium	odoratum	3	Sphingobacterium	multivorum	2
Haemophilus	aphrophilus	4		spiritivorum	1
	influenzae	34	Sphingomonas	parapaucimobilis	1
	parahaemolyticus	1		paucimobilis	1
	parainfluenzae	5	Stenotrophomonas	maltophilia	17
	paraphrophilus	1	Weeksella	virosa	1
Klebsiella	oxytoca	3	Yersinia	zoohelcum	2
	pneumoniae	4		redericksonii	1
			<b>Total</b>		<b>428</b>

**Table 6 - General Bacteriology**  
**Gram Positive Bacteria Identified**  
**January 1, 1999 to December 31, 1999**

Abiotrophia	species	4	Lactobacillus	acidophilus	1
Actinomyces	naeslundii	3		brevis	1
	neuuii subspecies anitratus	2		casei ss casei	1
	neuui ss neuui	6		casei ss rhamnosus	3
	israelii	1		fermentans	1
	odontolyticus	2		plantarum	2
Aerococcus	urinae	7		salivarius ss salivarius	1
	viridans	2		salivarius ss salicinus	4
Arcanobacterium	haemolyticum	5		species	5
Bacillus	acetylicum	1	Micrococcus	luteus	1
	brevis	1		species	1
	cereus	15	Oerskovia	species	1
	circulans	10	Propionibacterium	avidum	4
	coagulans	1		granulosum	2
	firmus	1	Rhodococcus	species	1
	lentus	1	Rothia	dentocariosa	2
	licheniformis	4	Staphylococcus	aureus	122
	megaterium	1		auricularis	1
	polymyxa	1		epidermidis	46
	pumilus	4		haemolyticus	6
	species	9		hominis	6
	sphaericus	1		intermedius	2
	subtilis	4		lugdunensis	7
Corynebacterium	accolens	1		saprophyticus	3
	amycolatum	11		simulans	1
	afermentans ss fermentans	2		warneri	8
	afermentans ss lipophilum	3	Stomatococcus	species	11
	argentoratense	1		mucilaginosus	1
	aquaticum	1	Streptococcus	Group A (pyogenes)	80
	glucurolyticum	1		anginosus	14
	group A-3	1		anginosus Group C	2
	group A-5	1		anginosus Group F	1
	group G	1		anginosus (no group)	7
	group G-2	1		anginosus - species group	2
	group I-2	1		bovis	2
	jeikeium	7		bovis variant	5
	minutissimum	6		constellatus	4
	mucifaciens	1		equisimilis	2
	propinquum	1		intermedius	26
	pseudodiphtheriticum	20		mitis	23
	striatum	3		mitis species/group	4
	ureolyticum	1		mutans	6
	species	2		oralis	12
Dermabacter	hominis	3		parasanguis	2
Enterococcus	avium	1		pneumoniae	77
	casseliflavus	1		salivarius	11
	faecalis	23		salivarius species/group	1
	faecalis var.	1		sanguis	3
	faecium	9		sanguis I	5
	faecium (VRE)	6		sanguis II	17
Gardnerella	vaginalis	1		sanguis species/group	7
Gemella	haemolysans	2		viridans	5
	morbilorum	3	Turicella	otitidis	2
			<b>Total</b>		<b>767</b>

**Table 7 - General Bacteriology  
Anaerobes Identified  
January 1, 1999 to December 31, 1999**

Actinomyces	israelii	7	Fusobacterium	mortiferum	1
	meyeri	4		necrophorum	2
	pyogenes	1		nucleatum	1
	odontolyticus	2		species	2
	turicensis	2	Gemella	morbillorum	3
Bacteroides	capillosus	3	Lactobacillus	fermentum	1
	fragilis	8		jesenii	1
	ovatus	1		plantarum	4
	pneumosintes	1		rogosae	1
	ureolyticus	1		salivarius ss salivarius	1
Clostridium	barati	1	Peptostreptococcus	anaerobius	5
	beijerinckii	1		asaccharolyticus	4
	butyricum	1		magnus	8
	perfringens	12		micros	1
	ramosum	3		prevotii	1
	septicum	1		tetradium	1
	sporogenes	1	Porphyromonas	species	2
	tertium	12	Prevotella	disiens	1
Eubacterium	aerofaciens	1		melaninogenica	1
	lentum	2		oralis	2
	limosum	1	Propionibacterium	acnes	10
				avidum	5
				granulosum	1
				species	1
			Staphylococcus	saccharolyticus	1
			Streptococcus	constellatus	1
			<b>Total</b>		<b>128</b>

**Table 8 - General Bacteriology  
Neisseria Meningitidis Antimicrobial Susceptibility  
January 1, 1999 to December 31, 1999**

MIC (ug/ml)	Number of isolates with MIC's of:			
	Penicillin	Ceftriaxone	Ciprofloxacin	Rifampin
≤ 0.002		22	10	1
0.003		1	4	3
0.004			8	1
0.005				
0.006			1	2
0.007				
0.008				2
0.012				4
0.016				3
0.023	2			4
0.032	3			3
0.047	9			
0.064	5			
0.094	2			
0.125	1			
0.190	1			
0.250				
<b>Total</b>	<b>23</b>	<b>23</b>	<b>23</b>	<b>23</b>

**Table 9 - General Bacteriology**  
**Neisseria Gonorrhoeae Antimicrobial Susceptibility**  
**January 1, 1999 to December 31, 1999**

	MIC µg/ml	Primary		Referred		Total	
<b>Penicillin</b>							
Susceptible	≤ .06	39	(12.7)	44	(26.5)	83	(17.6)
Moderately susceptible	0.12 - 1.0	247	(80.7)	106	(63.9)	353	(74.8)
Resistant (CMRNG)	≥ 2.0	18	(5.9)	5	(3.0)	23	(4.9)
High level resistance	2.0 ≥ 8.0	2	(0.7)	11	(6.6)	13	(2.8)
	<b>Total</b>	306		166		472	
<b>Tetracycline</b>							
Susceptible	≤ .25	30	(9.8)	41	(24.7)	71	(15.0)
Moderately susceptible	0.5 - 1.0	116	(37.9)	65	(39.2)	181	(38.3)
Resistant	2.0 - 8.0	158	(51.6)	50	(30.1)	208	(44.1)
High level resistance	≥ 16	2	(0.7)	10	(6.0)	12	(2.5)
	<b>Total</b>	306		166		472	
<b>Ceftriaxone, Cefixime</b>							
Susceptible	≤ 25	306	(100.0)	166	(100.0)	472	(100.0)
<b>Ciprofloxacin</b>							
Susceptible	≤ .06	287	(93.8)	149	(84.8)	436	(92.4)
Moderately susceptible	0.125 - 0.5	3	(1.0)	6	(3.6)	9	(1.9)
Resistant	1.0	0		0		0	
	2.0	1		1		2	
	4.0	0		3		3	
	8.0	5		2		7	
	16.0	9		4		13	
	32.0	1		1		2	
	<b>Subtotal</b>	16	(5.2)	11	(6.6)	27	(5.7)
	<b>Total</b>	306		166		472	

**Susceptible:** patient has <5% likelihood of failing therapy

**Moderately susceptible(Intermediate):** indicates predictable treatment failure rates of 5 - 15% if patient is treated with the tested antibiotic in the standard dosage (in most cases of moderate susceptibility, a higher dose or prolonged therapy results in >95% cure rates)

**Resistant:** associated with clinical treatment failures of >15%

**Table 10 - General Bacteriology**  
**Susceptibility of Neisseria Gonorrhoeae to Penicillin**  
**1992-93 to 1999**

Year	Number (%) of isolates				Total isolates
	Susc.	Mod. Susc.	Resistant		
			CMRNG	PPNG	
92-93	162 (35.2)	253 (55.0)	7 (1.5)	38 (8.3)	460
93-94	82 (28.4)	180 (62.3)	15 (5.2)	12 (4.2)	289
94-95	52 (14.4)	276 (76.7)	15 (4.2)	17 (4.7)	360
95-96	30 (8.5)	307 (87.0)	3 (0.8)	13 (3.7)	353
96-97	45 (14.0)	230 (71.4)	22 (6.8)	25 (7.8)	322
97-98	20 (8.7)	169 (73.8)	27 (11.8)	13 (5.7)	229
1998	44 (17.2)	158 (61.7)	27 (10.5)	27 (10.5)	256
1999	83 (17.6)	353 (74.8)	23 (4.9)	13 (2.8)	472

**Susceptible:** MIC  $\leq$  .06 Moderately susceptible (Intermediate): MIC 0.12 - 1.0 Resistant: MIC  $\geq$  2.0  
**CMRNG:** Chromosomally-mediated resistance  
**PPNG:** Penicillinase-producing (plasmid-mediated)

**Table 11 – General Bacteriology**  
**Susceptibility of Neisseria Gonorrhoeae to Tetracycline**  
**1992-93 to 1999**

Year	Number (%) of isolates				Total isolates
	Susc.	Mod. Susc.	Resistant		
			CMRNG	TRNG	
92-93	254 (55.2)	156 (33.9)	38 (8.3)	12 (2.6)	460
93-94	123 (42.6)	118 (41.2)	38 (12.1)	10 (3.5)	289
94-95	142 (39.4)	145 (40.3)	46 (12.8)	27 (7.5)	360
95-96	96 (27.2)	193 (54.7)	41 (11.6)	23 (6.5)	353
96-97	70 (21.7)	143 (44.4)	91 (28.3)	18 (5.6)	322
97-98	38 (18.0)	93 (40.6)	86 (37.6)	12 (5.2)	229
1998	63 (24.6)	62 (24.2)	121 (47.3)	10 (3.9)	256
1999	71 (17.6)	181 (38.3)	208 (44.1)	12 (2.5)	472

**Susceptible:** MIC  $\leq$  .25 Moderately susceptible (Intermediate): MIC 0.5 - 1.0 Resistant: MIC  $\geq$  2.0  
**CMRNG:** Chromosomally-mediated resistance  
**PPNG:** Penicillinase-producing (plasmid-mediated)

**Table 12 - General Bacteriology**  
**Susceptibility of Neisseria Gonorrhoeae to Ciprofloxacin**  
**1990-91 to 1999**

Year	Number(%) of isolates			Total isolates
	Susceptible	Mod. Susc.	Resistant	
90-91	231 (100.0)			231
91-92	547 (99.8)	1 (0.2)		548
92-93	449 (97.6)	10 (2.2)	1 (0.2)	460
93-94	278 (96.2)	11 (3.8)		289
94-95	342 (95.0)	15 (4.2)	3 (0.8)	360
95-96	325 (92.1)	22 (6.2)	6 (1.7)	353
96-97	303 (94.1)	11 (3.4)	8 (2.5)	322
97-98	216 (94.3)	5 (2.2)	8 (3.5)	229
1998	231 (90.2)	5 (2.0)	20 (7.8)	256
1999	436 (92.4)	9 (1.9)	27 (5.7)	472

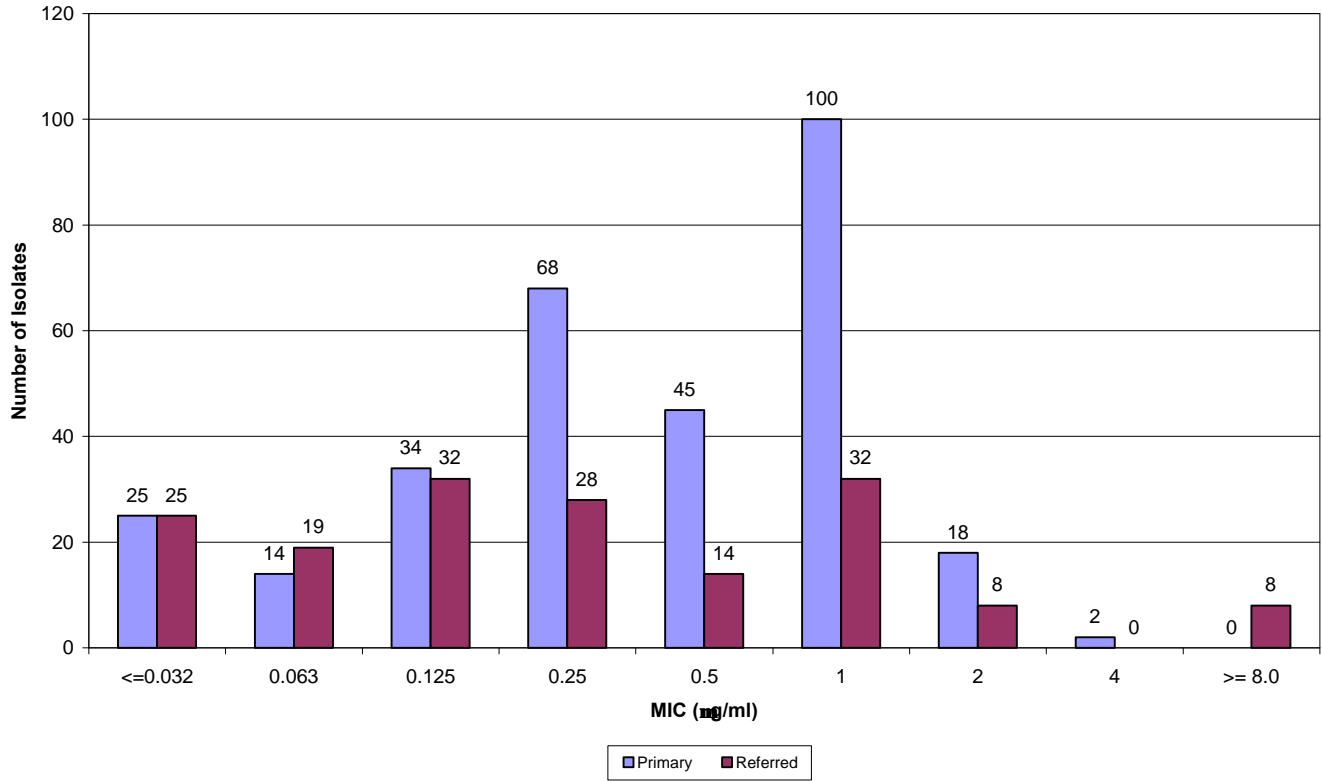
**Susceptible:** MIC  $\leq$  .06  
**Moderately susceptible (Intermediate):** MIC 0.125 - 0.5  
**Resistant:** MIC  $\geq$  1.0

**Table 13 - General Bacteriology**  
**Staphylococcus Aureus Coagulase Gene Types by Health Region**  
**January 1, 1999 to December 31, 1999**

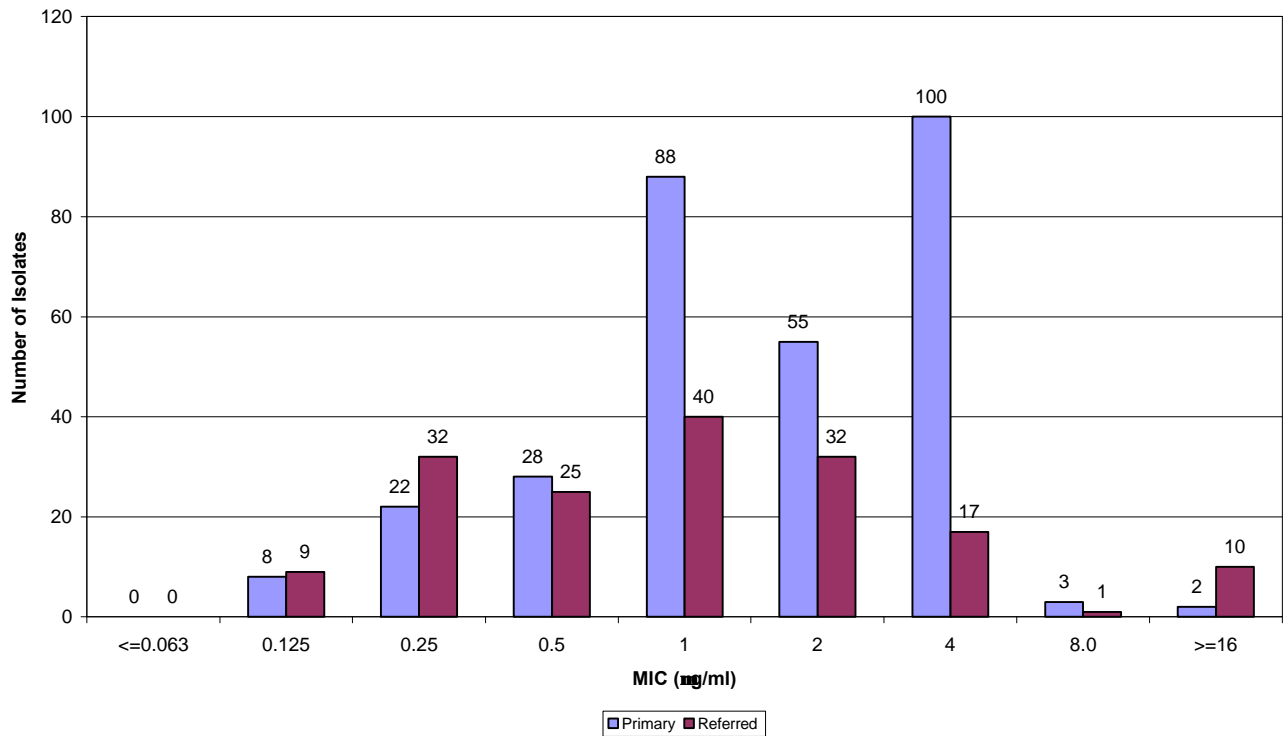
Health Region	Coagulase Gene Types ( Number of Patients)										Total
	NT	19	21	22	24	25	37	40	41	Other*	
East Kootenay		1					1				2
Kootenay Boundary		2			2	4					8
North Okanagan						3					3
Okanagan Similkameen			2		1	9	4	1		1	18
Thompson	1	2		3		11	6			1	24
Fraser Valley	1	3	5	1		9	4				23
South Fraser Valley	5	15	14	2	1	54	9	1	3		104
Simon Fraser	2	28	29	4	1	90	7		4	2	167
Coast Garibaldi		1	2			8					11
Central Van Island	1	2	3	1		7	8				22
Upper Island/ Central Coast							1				1
Cariboo		1				2			2		5
North West		2	3			7		18			30
Peace Liard											
Northern Interior			1			1					2
Vancouver/ Richmond	3	162	122	18	8	388	21	3	3	5	733
North Shore		13	7			51				2	73
Capital Regional	2	11	5	1	6	28	21		2	3	79
<b>Total</b>	15	243	193	30	19	672	82	23	14	14	1,305

\*Other = Types 18,20,23,33,34,35,42,64  
 NT= Non-typable

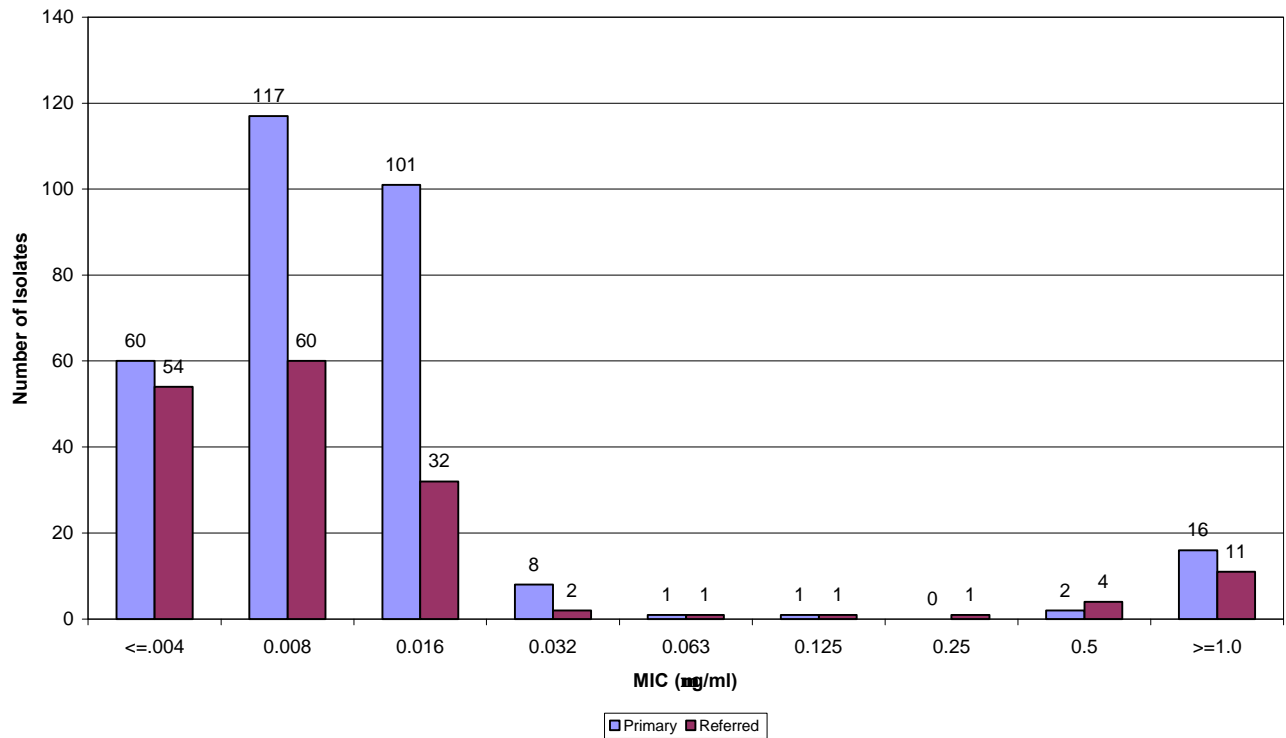
**General Bacteriology**  
**Figure 1 - Neisseria Gonorrhoeae Pencillin MIC's**  
 January 1, 1999 to December 31, 1999



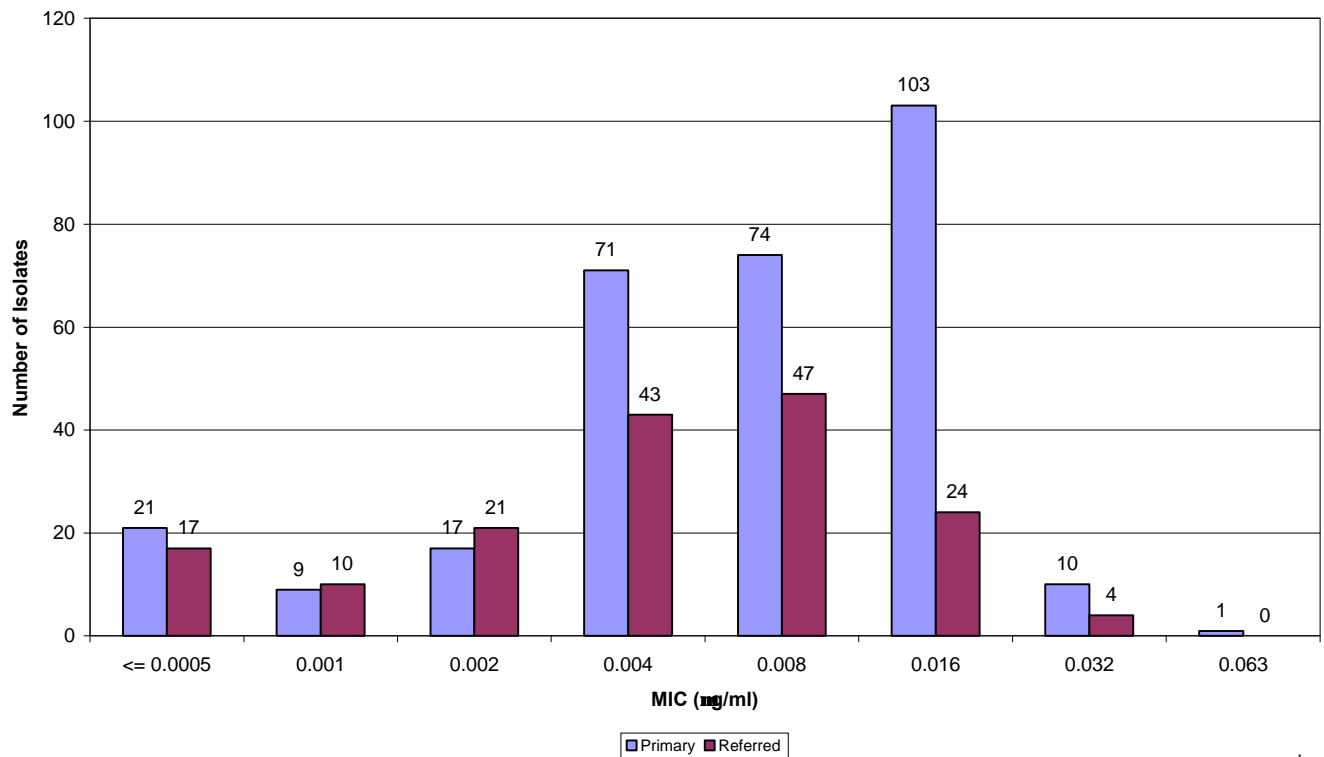
**General Bacteriology**  
**Figure 2 - Neisseria Gonorrhoeae Tetracycline MICs**  
 January 1, 1999 to December 31, 1999



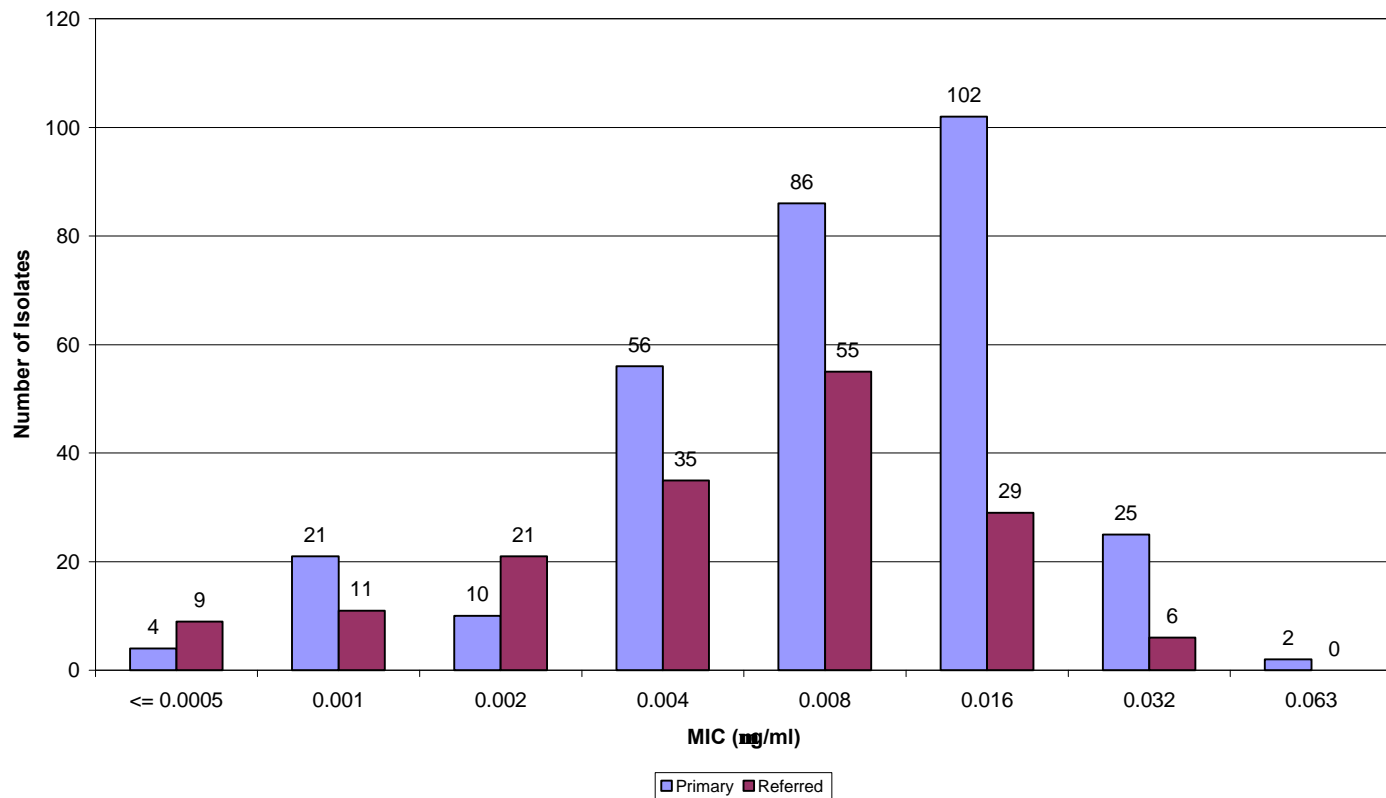
**General Bacteriology**  
**Figure 3 - Neisseria Gonorrhoeae Ciprofloxacin MICs**  
 January 1, 1999 to December 31, 1999



**General Bacteriology**  
**Figure 4 - Neisseria Gonorrhoeae Ceftriaxone MICs**  
 January 1, 1999 to December 31, 1999



General Baceteriology  
Figure 5 - Neisseria Gonorrhoeae Cefixime MICs  
January 1, 1999 to December 31, 1999



**Table 1 - Mycobacteriology**  
**Frequency of Isolation by Species From 24,700 Clinical Specimens and 318 Referred Isolates**  
**January 1 to December 31, 1999**

<b>Group</b>	<b># Positive</b>	<b># Patients</b>	<b>% Positive</b>	<b>% Patients</b>
<b>Tuberculosis Complex (TBC - Total = 692)</b>				
tuberculosis	684	315	52.0	43.4
bovis	5	2	0.4	0.3
bovis (BCG)	3	3	0.2	0.4
<b>Nontuberculous mycobacteria (NTM - Total = 624)</b>				
<b>Photochromogen (PC - Total = 17)</b>				
kansasii	13	9	1.0	1.2
marinum	2	2	0.2	0.3
simiae	2	2	0.2	0.3
<b>Non-Photochromogen (NP - Total = 462)</b>				
avium-intracellulare	443	273	33.7	37.6
celutam	1	1	0.1	0.1
gastri	1	1	0.1	0.1
interjectum	1	1	0.1	0.1
lentiflavum	3	3	0.2	0.4
malmoense	3	2	0.1	0.3
nonchromogenicum	2	2	0.2	0.3
triviale	1	1	0.1	0.1
terrae complex	1	1	0.1	0.1
non-photochromogen (Group III)	6	3	0.5	0.4
<b>Skotochromogen (SK - Total = 76)</b>				
gordonae	60	53	4.6	7.3
scrofulaceum	8	6	0.6	0.8
szulgai	1	1	0.1	0.1
xenopi	7	3	0.5	0.4
<b>Rapid Grower (RG - Total = 69)</b>				
fortuitum	9	9	0.7	1.2
fortuitum complex	1	1	0.1	0.1
chelonae	53	26	4.0	3.6
rapid Grower (Group IV)	6	6	0.5	0.8
<b>Total All Groups</b>	<b>1316</b>	<b>726</b>	<b>100.0</b>	<b>100.0</b>

**Series C** - Sputum specimens\* 17,985  
**Series E** - Cultures for ID 318  
**Series T** - Other specimens\* 6,715  
**Total Specimens** from all sources = 25,018

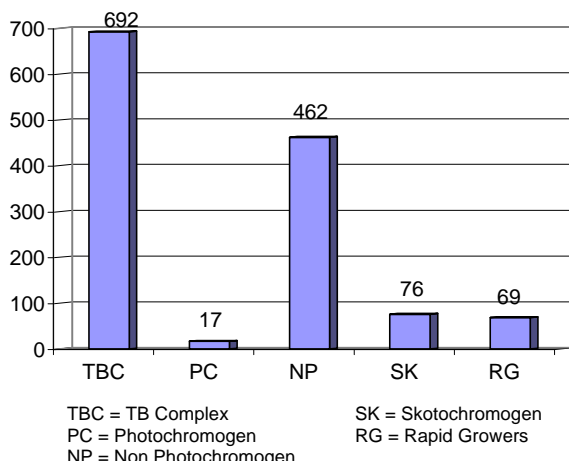
**Table 2 - Mycobacteriology**  
**Mycobacteria by Patient Age in British Columbia**  
**January 1, 1999 to December 31, 1999**

Health Region	< 1	1 to 15	16 to 25	26 to 65	> 65	Unknown	Total	% +ve
Capital	0	2	0	15	17	0	34	2.9
Cariboo CHSS	0	0	0	6	5	0	11	0.6
Coast Garibaldi CHSS	0	0	2	2	3	0	7	0.4
Central Vancouver Island	0	0	0	5	8	0	13	0.4
East Kootenay CHSS	0	0	0	0	1	0	1	0.2
Fraser Valley	0	0	2	4	4	15	25	1.1
Kootenay Boundary CHSS	0	0	0	0	2	0	2	0.2
Northern Interior	0	2	1	4	2	0	9	0.3
North Okanagan	0	0	0	2	1	0	3	0.3
Non British Columbia	0	0	0	1	0	2	3	0.5
North Shore	0	0	2	5	6	0	13	1.1
North West	0	0	1	2	1	0	4	0.2
Okanagan Similkamen	0	1	3	9	21	0	34	0.9
Peace Liard CHSS	0	0	0	2	1	0	3	0.3
Simon Fraser	0	0	3	48	26	0	77	1.9
South Fraser	1	0	5	26	20	0	52	2.9
Thompson	1	0	0	2	1	0	4	0.4
Upper Island/Central Coast CHSS	0	0	0	4	2	0	6	0.3
Vancouver Richmond Health Board	1	6	16	170	108	3	304	25.2
<b>Total</b>	<b>3</b>	<b>11</b>	<b>35</b>	<b>307</b>	<b>229</b>	<b>20</b>	<b>605</b>	

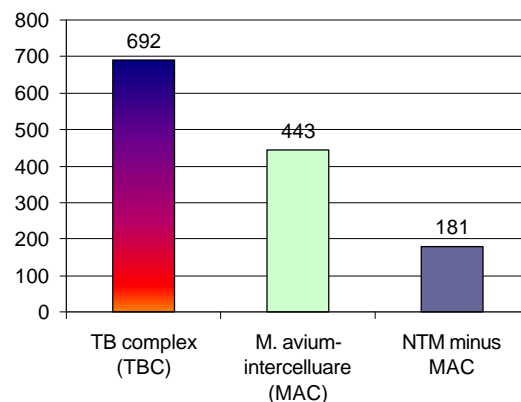
**Total Isolates:** 1375  
**Total Patients:** 605  
**Total Male:** 325  
**Total Female:** 260  
**Total Unspecified:** 20

\*Several patients yielded more than one isolate.

**Figure 1 – Mycobacteriology**  
**Groups from Clinical Specimens & Referred Isolates**  
**January 1, 1999 to December 31, 1999**



**Figure 2 – Mycobacteriology**  
**Isolation Numbers for TB, MAC and NTM (minus MAC)**  
**January 1, 1999 to December 31, 1999**



**Table 1 – Vector-Borne Diseases  
Specimens Tested  
January 1,1999 to December 31, 1999**

<b>Name of test</b>	<b>Sample</b>	<b># Tests</b>	<b># Positive/ Reactive</b>
<b>Culture</b> <i>Borrelia burgdorferi</i>	BC Ticks Out side BC Ticks BC Rodents Outside BC Rodents	1,067 526 129 159	2 20 0 0
<b>Serology</b> <i>B. hermsii</i> <i>B. burgdorferi</i>	BC Human sera BC Dog sera Outside BC Dog sera	15 4 7	1 2 6
<b>IFA</b> <i>B. burgdorferi</i> <i>Ehrlichia</i> spp. <i>Rickettsia rickettsii</i> <i>R. Typhi</i> <i>Coxiella burnetii</i> <i>Babesia</i> spp.	Culture Human sera Human sera Human sera Human sera Human sera	22 27 21 4 7 5	22 1 2 0 0 0
<b>Giemsa stain</b> <i>B. burgdorferi</i>	Human blood	4	0
<b>Western Blot</b> <i>B. burgdorferi</i> HGE*	BC Dog sera Outside BC Dog sera BC Human sera	3 6 6	3 5 1
<b>PCR</b> <i>B. burgdorferi</i>	BC Patients BC Ticks BC Mice Ontario Ticks	8 29 0 144	0 3 0 22

\*Human Granulocytic Ehrlichiosis.